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November 1, 2021

VIA ELECTRONIC MAIL ONLY (dpu.efiling@mass.gov)

Mark D. Marini, Secretary
Commonwealth of Massachusetts
Department of Public Utilities
One South Station
Boston, MA 02110

Re: *Cape Light Compact JPE*, D.P.U. 21-126
2022-2024 Three-Year Energy Efficiency Plan

Dear Secretary Marini:

Pursuant to G.L. c. 25, §§19 and 21, the Cape Light Compact JPE (the “Compact” or “Program Administrator”) respectfully submits this filing, requesting approval from the Department of Public Utilities (the “Department”) of its proposed energy efficiency investment plan, budget and allocation of program operating costs for its energy efficiency programs during the period January 1, 2022 through December 31, 2024 (“Three-Year Plan”). The Compact proposes to adopt, as its Three-Year Plan, the 2022-2024 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan, which the Massachusetts energy efficiency Program Administrators (“Program Administrators” or “PAs”) developed in collaboration with the Massachusetts Energy Efficiency Advisory Council (“Council”), the Council’s consultants (“Consultants”), and other interested stakeholders. In support of this request, please find the following:

A. Pre-Hearing Statement

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P.O. Box 205, Woodstock, Vermont 05091
Telephone: 802.457.9050
Facsimile: 802.419.8283
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MOUNTAIN STATES OFFICE:
Telephone: 617.584.8338
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B. Petition for Approval of Energy Efficiency Investment Plan during the Period January 1, 2022 through December 31, 2024, which is supported by the following exhibits:

<u>Exhibit Compact-1</u>	2022-2024 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan
<u>Exhibit Compact-2</u>	Pre-Filed Testimony of Margaret T. Downey ¹
<u>Exhibit Compact-3</u>	Guide to the Filing Requirements of G.L. c. 25, §§19 and 21 and the Department in the 2022-2024 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan
<u>Exhibit Compact-4</u>	Program Administrator-specific Energy Efficiency Data Tables
<u>Exhibit Compact-5</u>	BCR Screening Model (electronic)
<u>Exhibit Compact-6</u>	Bill Impact Analysis
<u>Exhibit Compact-7</u>	Affidavits of Margaret T. Downey, Margaret Song, Briana Kane and Erin Malone
<u>Exhibit Compact-8</u>	Relevant Compact Governing Board Meeting Minutes and Materials
<u>Exhibit Compact-9</u>	Description of the Cape & Vineyard Electrification Offering
<u>Exhibit Compact-10</u>	Relevant Council Meeting Minutes, Resolutions and Materials
<u>Exhibit Compact-11</u>	Form of Memorandum of Agreement with NSTAR Electric Company d/b/a Eversource Energy

C. Appearances of Counsel

Throughout the collaborative process established under G.L. c. 25, §21, the Program Administrator worked diligently with the Council, the Consultants, interested stakeholders, and the other Massachusetts Program Administrators. Additionally, following the July 15, 2021 issuance of the Greenhouse Gas Emissions Reduction Goal for Mass Save letter by the Secretary

¹ This exhibit contains additional information and required reporting (or references to documentation submitted to satisfy the required reporting) regarding the Compact's enhancements to the Three-Year Plan.

of Energy, the Program Administrators made extensive changes to the Three-Year Plan in order to meet the aggregate greenhouse gas (“GHG”) reductions goals. On October 25, 2021, the Program Administrators, the Department of Energy Resources, and the Attorney General’s Office reached an agreement on the 2022-2024 goals, budgets, performance incentives, and other elements reflected in the Three-Year Plan. On October 27, 2021, the Council passed a resolution regarding the Three-Year Plan. The Compact appreciates the intense efforts devoted to this process by many stakeholders and its fellow Program Administrators. These collective efforts contributed to the development of an integrated statewide electric and gas plan that strengthens the Commonwealth’s strong investment in innovative energy efficiency and demand reduction efforts and puts significant increased emphasis on GHG emissions, while providing close to \$13 billion in projected benefits to customers and the Commonwealth. The statewide 2022-2024 Three-Year Plan builds on Massachusetts’ historic success of delivering nation-leading energy efficiency programs, while also transforming to focus on reducing the GHG emissions in accordance with the Commonwealth’s climate and energy goals.

In accordance with 220 C.M.R. §7.02, the Program Administrator respectfully submits its proposed operating budgets for the audit costs associated with residential conservation services (“RCS”) and a comparison between planned and actual RCS spending for the previous three-year term in the Three-Year Plan to meet the requirements of subsection (b) of section 7 of chapter 465 of the Acts of 1980.

The Compact’s proposed total budget for the 2022-2024 Plan Term is \$231,749,455. The Compact’s proposed annual budgets are \$75,392,662 million in 2022, \$76,067,442 in 2023, and \$80,289,351 million in 2024. The budgets can be found in the data tables at Exhibit Compact-4 to the Petition.

As shown in the bill impact analysis attached to the Petition as Exhibit Compact-6, if the Program Administrator’s Three-Year Plan is approved as proposed, the proposed budgets will have the following effects:

- A typical residential customer (R-1 Residential Rate) using 516 kWh per month could experience a monthly bill increase of \$9.78 or 7.33 percent in 2022; a monthly bill increase of \$0.14 or 0.10 percent in 2023; and a monthly bill increase of \$3.14 or 2.19 percent in 2024;
- A typical residential low-income customer (R-2 Residential Assistance) using 488 kWh per month could experience a monthly bill increase of \$0.82 or 1.12 percent in 2022; a monthly bill increase of \$0.06 or 0.08 percent in 2023; and a monthly bill decrease of -\$0.25 or -0.34 percent in 2024; and

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- Bill impacts for commercial and industrial customers will vary.

A check in the amount of \$100 for the filing fee will be sent to your attention under separate cover via first class mail. Should you have any questions with respect to today's filing, please do not hesitate to contact me.

Very truly yours,

A handwritten signature in blue ink that reads "Audrey Eidelman Kiernan". The signature is written in a cursive style with a large initial 'A'.

Audrey Eidelman Kiernan, Esq.

Enclosures

cc: Jeffrey Leupold, Hearing Officer (via email only)
Jessica Ellis, Hearing Officer (via email only)
Stephanie Mealey, Hearing Officer (via email only)
Sarah Smegal, Hearing Officer (via email only)
Energy Efficiency Advisory Council Members (via email only)
Service Lists in D.P.U. 18-110 through D.P.U. 18-119 (via email only)
Margaret T. Downey, Administrator, Cape Light Compact JPE (via email only)

**Cape Light Compact JPE
D.P.U. 21-126**

**Three-Year Energy Efficiency Plan
January 1, 2022 - December 31, 2024**

November 1, 2021

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<u>Exhibit Compact-2</u>	Pre-Filed Testimony of Margaret T. Downey
<u>Exhibit Compact-3</u>	Guide to the Filing Requirements of G.L. c. 25, §§ 19 and 21 and the Department in the 2022-2024 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan
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C. Appearances of Counsel

**THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES**

Cape Light Compact JPE

)
) D.P.U. 21-126
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**PRE-HEARING STATEMENT ON BEHALF OF
THE CAPE LIGHT COMPACT JPE**

The Towns of Aquinnah, Barnstable, Bourne, Brewster, Chatham, Chilmark, Dennis, Edgartown, Eastham, Falmouth, Harwich, Mashpee, Oak Bluffs, Orleans, Provincetown, Sandwich, Tisbury, Truro, Wellfleet, West Tisbury, and Yarmouth, and Dukes County, acting together as the Cape Light Compact JPE (“Compact”) respectfully request approval from the Department of Public Utilities (“Department”), pursuant to G.L. c. 25, §§19 and 21, of the Compact’s proposed energy efficiency investment plan, budget and allocation of program operating costs for the Compact’s energy efficiency programs during the period January 1, 2022 through December 31, 2024 (“Three-Year Plan”) (Exhibit Compact-1). The Compact proposes to adopt as its Three-Year Plan the 2021-2024 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan, which was developed through a collaborative process, and unanimously adopted by the other gas and electric distribution companies and municipal aggregators with certified energy plans (together “Program Administrators” or “PAs”). On October 27, 2021, the Energy Efficiency Advisory Council (“Council”) passed a resolution supporting the Three-Year Plan. In accordance with section 3.7.2(b) of the Department’s *Energy Efficiency Guidelines*, D.P.U. 20-150-A (2021) (“*Guidelines*”), the Compact hereby submits its pre-hearing statement setting forth the relevant information for the Compact’s Three-Year Plan.

As its pre-hearing statement, the Compact states the following:

1. One or more of the following Compact personnel may be called upon to testify on behalf of the Compact's Three-Year Plan:
 - a. Margaret T. Downey, Compact Administrator, with respect to the administration of the Compact and the accompanying Petition and supporting Exhibit Compact-1 through Exhibit Compact-11;
 - b. Margaret Song, Commercial & Industrial (C&I) Program Manager, with respect to the Compact's C&I programs and the accompanying Petition and supporting Exhibit Compact-1, Exhibit Compact-8 and Exhibit Compact-10; and
 - c. Briana Kane, Residential Program Manager, with respect to the Compact's Residential and Income Eligible programs and the accompanying Petition and supporting Exhibit Compact-1, Exhibit Compact-8, Exhibit Compact-9 and Exhibit Compact-10.

Annexed as Attachment 1 are the resumes of Margaret T. Downey, Margaret Song and Briana Kane.

2. In addition, the Compact has retained Synapse Energy Economics, Inc. ("Synapse") to develop the quantitative components of its Three-Year Plan. It is anticipated that the Compact will present the following Synapse personnel as an expert witness:

- a. Erin Malone, Senior Associate, responsible for the Compact's quantitative analysis included in the Three-Year Plan Data Tables and the coordination between the PAs of consistent program assumptions for all applicable calculations.

Annexed as Attachment 2 is the resume of Erin Malone.

The Compact has provided affidavits for each of these potential witnesses as part of this filing to provide the background and expertise of each named individual.

3. Accompanying this pre-hearing statement, the Compact has provided the following exhibits:

<u>Exhibit Compact-1</u>	2022-2024 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan
<u>Exhibit Compact-2</u>	Pre-Filed Testimony of Margaret T. Downey
<u>Exhibit Compact-3</u>	Guide to the Filing Requirements of the Green Communities Act and the Department in the 2022-2024 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan
<u>Exhibit Compact-4</u>	Compact-specific Energy Efficiency Data Tables
<u>Exhibit Compact-5</u>	BCR Screening Model (electronic)
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4. On November 1, 2021, the Compact submitted its Three-Year Plan for Department review and approval pursuant to An Act Relative to Green Communities, Acts of 2008, c. 169, codified at G.L. c. 25 §§19, 21-22, amended by An Act Relative to Competitively Priced Electricity in the Commonwealth, Acts of 2012, c. 209, An Act to Advance Clean Energy, Acts of 2018, c. 227, and by An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy, Acts of 2021, c. 8 (“Three-Year Plan Filing”). The Compact developed its Three-Year Plan, in consultation with the Council, the Council’s consultants, and interested parties and in collaboration with the other Program Administrators, resulting in state-of-the-art programs, innovative new approaches, updated priorities, and ambitious goals for energy efficiency within the Compact’s service territory. Both the statewide and PA-specific tables filed herewith were developed in accordance with statute, Department precedent, and the Guidelines, and as a result of many months of discussions and collaboration.

5. The Three-Year Plan Filing is consistent with the templates established by the Department and the Department’s Additional Filing Requirements Memorandum (October 5, 2021), and includes both the Three-Year Plan, which is an integrated, statewide plan, and PA-specific data. As detailed in the Three-Year Plan, the annual budgets for these programs expand energy efficiency efforts during 2022 to 2024 and are consistent with the mandate of G.L. c. 25 §§19, 21-22 to implement all available cost-effective energy efficiency. *2019-2021 Three-Year Plans Order*, D.P.U. 18-110 through 18-119 (2019); *2016-2018 Three-Year Plans Order*, D.P.U. 15-160 through 15-169 (2016); *2013-2015 Three-Year Plans Order*, D.P.U. 12-100 through D.P.U. 12-111 (2013). These budgets will support the aggressive savings goals and new, innovative programs proposed in the Three-Year Plan through cost-effective and sustained efforts that take into account customer bill impacts.

The Three-Year Plan Filing is also consistent with the greenhouse gas (“GHG”) emissions reduction goals as set forth in An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy, Acts of 2021, c. 8 (“Climate Act”). It attains the aggregate GHG emissions reduction target as set by the Secretary for Energy and Environmental Affairs and includes the social cost of carbon in its benefits calculation, except in the cases of conversions from fossil fuel heating and cooling to fossil fuel heating and cooling. Additionally, as demonstrated throughout the Three-Year Plan, the Compact will focus on electrification, equity, and workforce development as priorities.

The Three-Year Plan Filing is consistent with the goals of G.L. c. 25 §§19, 21-22, and the Department’s previous review and approval of energy efficiency investment plan programs for the prior three-year terms. It is also consistent with the Department’s Orders in *Energy Efficiency Guidelines*, D.P.U. 08-50-A (2009), D.P.U. 08-50-B, D.P.U. 08-50-D, Order on Bill Impacts (2012), and *Energy Efficiency Guidelines*, D.P.U. 20-150-A, Order Approving Revised Energy Efficiency Guidelines (2021). Under the Three-Year Plan, the Compact will deliver energy efficiency and demand reduction program offerings in a cost-effective manner that attains its GHG emissions reduction goal and captures all available efficiency and demand savings opportunities for its customers in a manner that minimizes administrative costs and utilizes competitive procurement processes to the fullest extent practicable.

6. The Compact is not aware of any issues requiring stipulation.

7. As of this date, the Compact has not filed any motions seeking confidentiality with respect to the Compact’s Three-Year Plan.


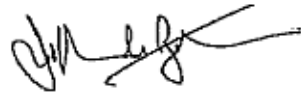
8. As of this date, no experts have been designated so the Compact has no objections to offer on expert qualifications at this time. However, the Compact reserves the right to object should

such a witness be offered at a later time, in accordance with the procedural schedule in this proceeding.

Respectfully submitted,

CAPE LIGHT COMPACT JPE

By its attorneys,



Jeffrey M. Bernstein, Esq.
Audrey Eidelman Kiernan, Esq.
BCK Law, P.C.
1337 Massachusetts Avenue, Box 314
Arlington, Massachusetts 02476
Telephone: (617) 244-9500
Fax: (802) 419-8283

Dated: November 1, 2021

MARGARET TARA DOWNEY
Post Office Box 1234
Barnstable, MA 02630
(508) 362-5845

Education:

1996-2002 Harvard University, Graduate Certificate of Special Studies in Administration and Management, Cambridge, MA.

1987-1991 Masters of Public Administration, University of Washington, Seattle, WA.

1981-1985 Bachelors of Arts, Environmental Studies, Johnson State College, Johnson, VT.

Additional Professional Training:

1993 Cascade Management Series, Cascade Center for Public Service, University of Washington, Seattle, WA.

Work Experience:

2014-Present Cape Light Compact Administrator

1996-2014 Assistant County Administrator/Cape Light Compact Administrator, Barnstable County, Cape Cod, MA.

- Responsible for the development and implementation of regional services
- Responsible for the management and oversight of the Cape Light Compact's 21-town municipal aggregation project including both Energy Efficiency and Power Supply Programs. Responsibilities include budget preparation, chief procurement officer functions, power supply contract negotiations, and oversight of technical and legal consultants
- Assists the County Administrator in coordinating the functions of the County under the direction and guidance of the Board of Commissioners
- Manage the Office of County Commissioners including the supervision and discipline of employees, preparation of the department's budget and annual reports
- Monitor and oversee budgets and compliance requirements for the County's Dredge, Resource Development, Children's Cove and Human Services Departments; including supervisory responsibilities for these departments
- Serves as the Human Resources Director for the County. Advises department heads on methods to be used when administering personnel procedures including: hiring, disciplining and terminating. Maintains the County's Personnel Policies
- Responsible for implementing and monitoring the Barnstable County Employee Performance Appraisal System
- Represent the County Commissioners in collective bargaining negotiations and interactions with Union representatives
- Represents the County Commissioners at meetings with the County's legislative body, Assembly of Delegates
- Implement and oversee special projects as directed by the County Commissioners and the Barnstable County Assembly of Delegates
- Represent the County Commissioners at the Town, State, and Federal level on regional projects
- Acts in the absence of the County Administrator

1994-1996

Resource Development Manager, Barnstable County, Cape Cod, MA.

- Responsible for the fiscal oversight of the County's \$1.8 million grant programs.
- Administer the County's Federal funded JTPA Summer Youth Employment Program on behalf of the 15 Towns in the County.
- Write and research grant and other funding proposals for County and Town Departments.
- Prepare and disseminate information, via a Newsletter, on funding opportunities to County and Town departments.

1993-1994

Environmental/Community Services Department Manager, City of Issaquah, Issaquah, WA

- Disseminate and track work assigned to the members of the Department.
- Responsible for implementation of the Department's annual goals.
- Develop and manage the Department annual budget.
- Public Affairs Spokeswoman for the City
- Responsible for ensuring that City Council actions are in compliance with the Washington State Environmental Policy Act (SEPA).
Participate with the Executive Team in the development of the City's Strategic Plan.

1989-1993

Research Analyst, City of Issaquah, Issaquah, WA

- Participate in and conduct intergovernmental meetings and forums with other public agencies on behalf of the City regarding technical environmental matters, community affairs, and social and human services issues.
- Coordinate and administer all phases of environmental review for private development projects, City projects, and regional projects.
- Manage ongoing production of Environmental Impact Statements and Technical Reports including consultant selection, contract negotiation, consultant performance, and final review of all documents.
- Plan, write, and coordinate the City's Quarterly Community Newsletter.
- Manage and monitor the City's Community Development Block Grant Program.
- Research and prepare various grant applications on behalf of the City.
- Develop, revise, and research City Ordinances.
- Provide staff reports to Mayor and City Administrator on all legislative matters that may potentially impact the City.

Volunteer Experience:

- Former Member of the Governing Board of the Cape Cod Chapter of the American Red Cross, 1997-2000.
- Former Member of the Board of Directors, March of Dimes Cape & Islands Chapter, 1995-1998.
- 1995 Graduate of Cape Cod Community Leadership Institute Program.

Experience Program Manager, Cape Light Compact

2003-present South Yarmouth, MA

- Responsibility for implementation of commercial & industrial energy efficiency programs for Cape Cod and Martha's Vineyard residents from 2016 to present
- Responsibility for implementation of residential and low-income energy efficiency programs from 2003 - 2015
- Speaker on energy efficiency topics including Department of Energy (DOE), the Consortium for Energy Efficiency, American Council for an Energy-Efficiency Economy, and local organizations
- Former board member, New England HERS Alliance; member, DOE Commercially Available LED Product Evaluation and Reporting (CALIPER) program advisory committee.

Member, AmeriCorps Cape Cod

2002-2003 Throughout Barnstable County, MA

- Voluntary, 11 month program for environmental service, concentrating on land and water conservation as well as disaster services. Individual placements include: Education/Outreach Intern at Monomoy National Wildlife Refuge in Chatham, MA; Energy Education Intern for the Cape Light Compact; and Mentor for the Green Grant Youth Council, guiding high school students in environment philanthropy, leadership, and service learning.

Account Executive, TimePiece Public Relations

2000-2002 Dallas, Texas

- Initially served as summer intern, later hired as account executive from summer of 2001 to early spring of 2002.
- Write and release press releases, act as a liaison between media and the clients, and facilitate client meetings and interviews

Education

Suffolk University, Boston, MA (2020 - current)

- Master of Public Administration

Northeastern University, College of Professional Studies, Boston, MA (2008 to 2016), cum laude

- Bachelors of Science in Mechanical Engineering Technology
- Inducted into Sigma Alpha Lambda Honor Society in 2012

Harvard University, Cambridge, MA (2003 to 2007)

- Courses completed for Masters of Liberal Arts in History and Women's Studies

Hendrix College, Conway, AR (Fall 1998 to Spring 2002)

- B.A., Major in English, Minor in Spanish
- Sigma Tau Delta Society (International English Honor Society)
- Raney Hall Award Recipient

Specialized Skills Proficient in: Microsoft Office Suite and Adobe Creative Suite

- Working knowledge of spoken and written Spanish, native speaker in Korean.

References References are available on request.

Briana C. Kane
Cape Light Compact JPE
261 Whites Path, Unit 4
South Yarmouth, MA 02664

EDUCATION:

Suffolk University, Boston, MA
Master of Public Administration (2020 – current)

Certificate in Local Government Leadership and Management
Suffolk University/Moakley Center for Public Management, 2016

University of Massachusetts, Amherst, MA
Bachelor of Science, Resource Economics, 2000

TRAINING:

Introduction to Wholesale Electricity Markets

EXPERIENCE:**01/19 – current Cape Light Compact JPE****Residential Program Manager**

- Oversee the implementation of the Compact's Residential Energy Efficiency Programs for Cape Cod and Martha's Vineyard
- Assist in design of the statewide Residential Energy Efficiency Programs as well as development of corresponding budget and savings goals

01/17 – 01/18 Barnstable County and Cape Light Compact JPE**Cape Light Compact – Planning & Evaluation Manager**

- Evaluate program design, savings, etc. through impact, process, and market studies consistent with regulatory requirements.
- Assist with regulatory filings on Annual Reports, Three Year Energy Efficiency Plans, as well as various other reports with ISO-NE, and the U.S. Energy Information Administration.
- Work with staff to develop policies and procedures to advance reporting accuracy.

01/16 – 12/16 Barnstable County**Cape Light Compact – Senior Analyst**

- Assisted in developing and implementing the Compact's Small Business Commercial program, managing program contracts, budget, marketing, and implementation efforts.
- Provided technical assistance and review of commercial and industrial proposals
- Collaborated in the statewide implementation of the Commercial Upstream Lighting program.

01/12 – 12/15 Barnstable County**Cape Light Compact – Senior Residential Energy Efficiency Program Coordinator**

- Assists in the design, development, implementation, tracking, evaluating and reporting of the Cape Light Compact's residential and low-income energy efficiency programs, including coordinating energy efficiency service programs and overseeing the work of program vendors.
- Identify and develop cost-effective energy efficiency initiatives including budget, promotion, schedule, and delivery mechanisms.
- Build and maintain effective business relationships with internal staff, workgroup members, senior management, ratepayers and other stakeholders.

09/08 - 12/11 Barnstable County**Cape Light Compact – Residential Energy Efficiency Program Coordinator**

- Responsible for the day-to-day operations of the Residential Conservation Services and Low Income energy efficiency programs.

01/04 - 09/08 Barnstable County**Finance Department - Finance Assistant:**

- Process weekly Accounts Payable invoices.

Briana C. Kane

Cape Light Compact JPE
261 Whites Path, Unit 4
South Yarmouth, MA 02664

- Worked within a team consisting of six county employees on the successful conversion from Fundsense to MUNIS financial software.
- Continual training of county employees on the MUNIS financial software.
- Created a record retention database for financial records.
- Working towards tighter controls on bringing A/P up to date with Positive Pay and A/P Direct Deposit files.

02/02 - 01/04 Town of Barnstable

Treasurer's Office - Principal Division Assistant:

- Responsible for recording all cash flow for town departments, tax collection, state and federal payments and grants, approximately 125 million dollars a year.
- Reconcile primary bank accounts against various departmental cashbooks.
- Multi-task daily office duties while completing several projects involving land of low value, foreclosures and donations to the town.
- Creating Excel spreadsheets for various projects for the Finance Department.
- Daily use of computer programs including: Access, Excel, Word and MUNIS.

08/00 - 02/02 Town of Barnstable

Marine and Environmental Affairs - Natural Resource Officer:

- Responsible for patrolling and monitoring conservation lands and waterways.
- Worked closely with the Shellfish Biologist's on various shellfish propagation programs.

Erin Malone, Senior Associate

Synapse Energy Economics | 485 Massachusetts Avenue, Suite 3 | Cambridge, MA 02139 | 617-453-7021
emalone@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc., Cambridge, MA. *Senior Associate*, May 2016 – Present, *Associate*, June 2013 – April 2016, *Research Associate*, January 2012 – June 2013.

- Assists in energy efficiency program design and implementation, including: budget development; cost-benefit analyses and best practices; avoided cost analyses; regulatory policies; and program cost recovery.
- Conducts research and performs analysis on energy topics, including: ratepayer-funded energy efficiency programs; cost-effectiveness of distributed energy resources including solar, storage, and demand response; and the role of efficiency in addressing climate change.
- Creator of several proprietary Excel-based models designed to forecast the impacts of energy efficiency, including its impact on customers' rates and bills, expected savings and benefits, and budget forecasting and reporting.

Massachusetts Department of Public Utilities, Boston, MA. *Economist in Electric Power Division*, July 2008 – December 2011.

- Specialized in the review of electric utilities' energy efficiency activities.
- Established efficiency policy by recommending decisions to the Commission on issues related to cost-effectiveness, cost-recovery, and utility performance incentives. Managed timely approval of Massachusetts utilities' 2008-2012 efficiency plans and 2006-2010 efficiency reports by analyzing program implementation and reviewing evaluation studies.
- Created a model that analyzes all impacts of efficiency on consumers' rates and bills. Led stakeholder working groups, and approved over 70 electricity broker and competitive supplier applications for license.

EDUCATION

Boston College, Chestnut Hill, MA
Bachelor of Arts in Economics, 2008. *Cum Laude*.

LEED Green Associate Accreditation, March 2012

PUBLICATIONS

Malone, E., T. Woolf, S. Letendre. 2019. *New Hampshire Cost-Effectiveness Review: Application of the National Standard Practice Manual to New Hampshire*. Synapse Energy Economics for the New Hampshire Evaluation, Measurement, and Verification Working Group.

Malone, E., T. Woolf, D. Goldberg. 2019. "Assessing Resource Cost Effectiveness." *A.E.S.P. Magazine*, 2019 Edition, 8-10.

Knight, P., E. Camp, C. Odom, E. Malone, M. Whited, J. Hall. 2019. *Exploring Equity in Residential Solar: A preliminary examination of who is installing solar in the Commonwealth of Massachusetts*. Synapse Energy Economics.

Malone, E., D. Goldberg, J. Frost. 2018. *Database of State Efficiency Screening Practices (DSESP): A Resource of the NESP*. Synapse Energy Economics for E4TheFuture.

Knight, P., D. Goldberg, E. Malone, A. S. Hopkins, D. Hurley. 2018. *Getting SMART: Making sense of the Solar Massachusetts Renewable Target (SMART) program*. Prepared for Cape Light Compact.

Malone, E., T. Woolf, D. Goldberg. 2018. *Updating the Energy Efficiency Cost-Effectiveness Framework in Minnesota: Application of the National Standard Practice Manual to Minnesota*. Conservation Applied Research and Development (CARD) Report. Synapse Energy Economics for Minnesota Department of Commerce, Division of Energy Resources.

Cook, R., J. Koo, N. Veilleux, K. Takahashi, E. Malone, T. Comings, A. Allison, F. Barclay, L. Beer. 2017. *Rhode Island Renewable Thermal Market Development Strategy*. Meister Consultants Group and Synapse Energy Economics for Rhode Island Office of Energy Resources.

Whited, M., E. Malone, T. Vitolo. 2016. *Rate Impacts on Customers of Maryland's Electric Cooperatives: Impacts on SMECO and Choptank Customers*. Synapse Energy Economics for Maryland Public Service Commission.

Malone, E., W. Ong, M. Chang. 2015. *State Net-to-Gross Ratios: Research Results and Analysis for Average State Net-to-Gross Ratios Used in Energy Efficiency Savings Estimates*. Synapse Energy Economics for the United States Environmental Protection Agency.

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Resume updated July 2021

**THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES**

CAPE LIGHT COMPACT JPE

)
) D.P.U. 21-126

**PETITION FOR APPROVAL OF ENERGY EFFICIENCY INVESTMENT PLAN
FOR THE PERIOD JANUARY 1, 2022 THROUGH DECEMBER 31, 2024**

1. The Towns of Aquinnah, Barnstable, Bourne, Brewster, Chatham, Chilmark, Dennis, Edgartown, Eastham, Falmouth, Harwich, Mashpee, Oak Bluffs, Orleans, Provincetown, Sandwich, Tisbury, Truro, Wellfleet, West Tisbury, and Yarmouth, and Dukes County, acting together as the Cape Light Compact JPE (“Compact” or “PA”) respectfully request approval from the Department of Public Utilities (the “Department”), pursuant to G.L. c. 25, §§19 and 21, of the Compact’s proposed energy efficiency investment plan, budget and allocation of program operating costs for the Compact’s energy efficiency programs for the period January 1, 2022 through December 31, 2024 (“Three-Year Plan”) (Exhibit Compact-1). The Compact proposes to adopt, as its Three-Year Plan, the 2022-2024 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan, which all of the gas and electric distribution companies and municipal aggregators with certified energy plans (together “Program Administrators” or “PAs”) developed in collaboration with the Massachusetts Energy Efficiency Advisory Council (“Council”), its consultants (“Consultants”), and other interested stakeholders. The Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan is an integrated plan for the electric and gas Program Administrators and represents the jointly prepared energy efficiency investment plan for electric PAs and the jointly prepared natural gas

investment plan for gas PAs in accordance with G.L. c. 25, §21. Following months of detailed and comprehensive discussions, the Program Administrators agreed to one joint statewide plan.

In support of this Petition, the Compact states the following:

2. Petitioner, the Compact, is a municipal aggregator pursuant to G.L. c. 164, §134 and maintains a business office at 261 Whites Path, Suite 4, South Yarmouth, MA, 02664.

3. The Compact consists of the towns of Aquinnah, Barnstable, Bourne, Brewster, Chatham, Chilmark, Dennis, Edgartown, Eastham, Falmouth, Harwich, Mashpee, Oak Bluffs, Orleans, Provincetown, Sandwich, Tisbury, Truro, West Tisbury, Wellfleet and Yarmouth, and Dukes County organized and operating collectively as the Cape Light Compact JPE, a joint powers entity organized pursuant to G.L. c. 40, §4A1/2.

4. The design, implementation, and cost recovery of the Compact's energy efficiency programs are subject to the jurisdiction of the Department under the provisions of G.L. c. 164 and G.L. c. 25, §§19, 21.

5. Consistent with G.L. c. 25, §21, and section 3.7.3 of the Department's *Energy Efficiency Guidelines*, D.P.U. 20-150-A, Appendix A (2021) ("Guidelines"), the Compact seeks approval of its Three-Year Plan for effect during the three-year period commencing January 1, 2022 and ending December 31, 2024 ("Plan Term"). The Three-Year Plan satisfies the mandate of the Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy, Acts of 2021, c. 8 ("Climate Act") in that it is constructed to meet or exceed the aggregate greenhouse gas ("GHG") emissions reductions goal set by the Secretary of the Executive Office of Energy and Environmental Affairs ("EEA"). The Plan will also allow the Compact to satisfy the mandate of the Green Communities Act to capture all available cost-effective energy

efficiency and demand reduction opportunities during the 2022-2024 Plan Term.¹ In setting aggressive GHG emissions reductions and energy efficiency goals, the Three-Year Plan takes into account many competing considerations, including, without limitation, equitable delivery, evolving markets, cost efficiency, integrated program delivery, rising baselines and market saturation, and bill impacts, as well as environmental and economic benefits.

6. The Compact currently operates comprehensive energy efficiency programs targeting the residential, income eligible, and commercial & industrial customer sectors. These programs are operated pursuant to the 2019-2021 Three-Year Energy Efficiency Plan approved by the Department on January 29, 2019. *2019-2021 Three-Year Energy Efficiency Plans Order*, D.P.U. 18-110 through D.P.U. 18-119 (2019) (“2019-2021 Order”). The Three-Year Plan builds on the successes of the PAs’ past three energy efficiency plans. The Three-Year Plan proposes a comprehensive energy efficiency, electrification, and demand reduction package to ensure that Massachusetts is on track to hit its climate goals of attaining a 50 percent reduction in GHG emissions by 2030 and net zero by 2050.

7. This filing is consistent with the goals of the Climate Act and the aggregate GHG emissions reduction target set forth by the EEA Secretary as required under G.L. c. 21N, §3B. The Three-Year Plan’s benefits include calculations of the social cost of carbon (except in the cases of conversions from fossil fuel heating and cooling to fossil fuel heating and cooling). The Three-Year Plan also prioritizes equity and targets customer groups who have historically been

¹ As a municipal aggregator, the Compact maintains that approval by the Department of its Three-Year Plan does not require the same finding that its plan ensures the capture of all energy efficiency as is the case for utility program administrators. G.L. c. 25, §21(d)(2) (omitting municipal aggregators from this express directive). Nevertheless, the Compact submits that its Three-Year Plan captures all available cost-effective energy efficiency opportunities in its service territory.

underrepresented in Three-Year Plan participation, such as moderate-income customers and customers residing in Environmental Justice Communities, and workforce development.

8. This filing is also consistent with the goals of the Green Communities Act, and the Department's previous review and approval of energy efficiency investment plan programs for the prior three-year terms. It is also consistent with the Department's Orders in *Energy Efficiency Guidelines*, D.P.U. 08-50-A (2009), D.P.U. 08-50-B, D.P.U. 08-50-D, Order on Bill Impacts (2012), and *Order Approving Revised Energy Efficiency Guidelines*, D.P.U. 20-150-A, (2021). The filing also has fully incorporated the required elements set forth in the Department's Additional Filing Requirements Memorandum (October 5, 2021). In accordance with the Department's requirements, today's filing includes PA-specific data to supplement the statewide Three-Year Plan.

9. As detailed in the Three-Year Plan, the proposed budgets and savings goals are consistent with the GHG emissions reductions goals of the Climate Act and energy efficiency goals of the Green Communities Act, and support the aggressive savings goals and the significant environmental and economic benefits anticipated in this Three-Year Plan. The annual cumulative amount of GHG emissions reductions in 2030 stemming from this Three-Year Plan statewide is over 845,000 metric tons of CO_{2e}, made up of approximately 475,000 metric tons of CO_{2e} delivered by the electric Program Administrators and approximately 371,000 metric tons of CO_{2e} delivered by the gas Program Administrators, with 30,000 metric tons to be delivered by the gas Program Administrators from gas to electric fuel switching projects. For the 2022-2024 Plan, DOER and the AGO agree that up to 30,000 metric tons of CO_{2e} emissions from gas to electric projects delivered by the gas Program Administrators may count towards the GHG reduction goal originally set forth in the Secretary of EEA's letter of July 15, 2021 for electric

Program Administrators, with the requirement that the 30,000 metric tons of CO_{2e} must be derived from projects involving gas to electric fuel switching, with all savings from such projects being eligible for inclusion. The Compact's total amount of GHG emissions reductions in 2030 stemming from the Three-Year Plan is 34,982 metric tons of CO_{2e}, and the three-year total budget proposed by the Compact is \$231,749,455, as detailed in the Three-Year Plan and the PA-specific tables set forth in Exhibit Compact-4 of today's filing. Additionally, the Compact proposes aggressive savings goals that contribute to a sustainable energy efficiency effort. The total three-year lifetime energy savings goals proposed by the Compact reflect the savings from the variety of measures under the programs. The goals are 617,897 net lifetime MWh, excluding fuel conversions and active demand reduction efforts and 9,842,096 net lifetime MMBtus (using a conversion factor that takes into account, when converting electric savings, the embedded energy with heat values from a mix of fuels that generate the electricity), as detailed in the Three-Year Plan and the PA-specific tables set forth in Exhibit Compact-4 of today's filing. The total three-year active demand goals proposed by the Compact are 8.8 MW. The Plan does not assume any additional outside funding², but given the very high GHG goals and related costs and bill impacts, the PAs are actively working to identify outside funding opportunities and seeking assistance from government agencies with locating and allocating funding to the Program Administrators for these efforts. The Compact proposes to calculate bill impacts based on the Department's traditional bill impact methodology, consistent with the Department's Guidelines §3.2.1.6. *See* Exhibit Compact-6 and Exhibit Compact-1, Appendix A, Section A.1.10.

² The Compact proposes to leverage outside federal and state funding to offset the ratepayer impact of a Compact enhancement to the Plan, the Cape & Vineyard Electrification Offering, as further described in Exhibit Compact-9.

10. Where appropriate, and as detailed in the Compact's pre-filed testimony (Exhibit Compact-2) as well as in the Three-Year Plan (Exhibit Compact-1), the Compact has proposed programs that are based on current market conditions and that are responsive to the Council and the Legislature's mandate to develop three-year plans that are "constructed to meet or exceed the goal set by the [EEA] secretary" and will "provide for the acquisition of all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply." G.L. c. 25, §§21(b)(1), (d)(4).

11. When appropriate and consistent with the Guidelines and Department precedent, the Compact proposes to retain the flexibility during the Plan Term to make modifications without Department approval. Specifically, when appropriate, the Company may adjust spending, add or subtract program measures, and make ongoing revisions and enhancements after the adoption of the Three-Year Plan in order to reflect in-the-field conditions, technological advances, financing opportunities, and new opportunities. The Compact will seek Department and/or Council approval for modifications requiring approval as set forth in Guidelines §3.8.

12. Detailed budgets and, where applicable, cost-effectiveness analysis for the Company's proposed programs are included in the PA-specific tables and are described in the Company's pre-filed testimony and in the Three-Year Plan accompanying this Petition. *See* Exhibit Compact-1; Exhibit Compact-2; Exhibit Compact-4; Exhibit Compact-5. The budgets include costs for the Residential Conservation Services ("RCS") program. The Compact has projected the expected benefits and costs associated with the Three-Year Plan consistent with the requirements of the Guidelines and D.P.U. 08-50-A, in which the Department affirmed that "the Total Resource Cost test is the appropriate test for evaluation of the cost-effectiveness of rate-payer funded energy efficiency programs." The Compact identified and quantified costs and

benefits needed to calculate the cost-effectiveness of programs consistent with the Total Resource Cost test, including developing avoided supply costs through participation in the regional Avoided Energy Supply Cost Study discussed in more detail in the Three-Year Plan, Appendix A, Section A.1.6. As detailed in the Three-Year Plan, Appendix A, Section A.1.6, the Compact also included the social value of GHG emissions reductions in the Compact's cost-effective analysis and benefit targets, except in the cases of conversions from fossil fuel heating and cooling to fossil fuel heating and cooling. The cost-effective calculations in Exhibits Compact-4 and Compact-5 are provided both with and without the social cost of carbon benefits for reference purposes. *See* D.P.U. 20-150-A, at 7 n.6.

13. During the Plan Term, the Compact proposes to recover its energy efficiency-related costs, including the recovery of performance incentives. The energy efficiency surcharge ("EES") is a fully reconciling funding mechanism that the Department approves for funding the Three-Year Plans. G.L. c. 25, §21(d)(2). The Compact proposes to collect the EES through its Energy Efficiency Reconciliation Factor in accordance with established Department practice in a separate proceeding. Guidelines §§2(12), 3.2.1.4.

14. The Compact understands the importance of the evaluation, measurement and verification ("EM&V") of its programs, and thus proposes a framework whereby both the Department and the Council, through its Consultants, provide oversight of the Compact's EM&V programs. The Compact proposes to continue to work collaboratively with the Council in a transparent process, as detailed in the Three-Year Plan, to ensure that the Compact may report savings to the Department with full confidence.

15. The Compact administers its energy efficiency programs as both a municipal aggregator and an energy efficiency program administrator, under the authority granted by G.L.

c. 164, §134(b). Pursuant to this authority, within the discretion of the Compact's member municipalities (*i.e.*, each individually approved municipal aggregator acting and organized collectively as the Compact), the Compact may administer energy efficiency programs that differ from those administered by the other utility program administrators. D.T.E. 00-47-C. The Department routinely approves the Compact-specific program enhancements, including, but not limited to, enhanced incentives. *See e.g.*, *Cape Light Compact JPE*, D.P.U. 18-116 (2019); *Cape Light Compact*, D.P.U. 12-107 (2013); *Cape Light Compact*, D.T.E. 00-47-C (2001).

16. For the Plan, the Compact has proposed its Cape and Vineyard Electrification Offering ("CVEO"), which is a comprehensive strategic electrification and energy optimization offering that combines home weatherization with the following technologies: (1) cold climate air source heat pump; (2) battery storage; and (3) solar photovoltaics. CVEO is targeted to income eligible and moderate-income customers (250 total) in non-gas heated homes. For ease of reference in Plan adjudication and in accordance with 220 C.M.R. §§1.10(2), the Compact requests the Department incorporate by reference the full record in *Cape Light Compact JPE*, D.P.U. 20-40 (the Compact's proposal for CVEO during 2020-2021), which remains pending before the Department. In addition, the Compact has proposed enhanced incentives for income eligible and moderate-income multi-family new construction projects as well as for targeted commercial and industrial customers (municipal customers, small non-profits, small businesses and micro businesses). See Exhibit Compact-1, Appendix G.1, Exhibit Compact-2 (Pre-filed Testimony of Margaret T. Downey) and supporting Exhibit Compact-8 through Exhibit Compact-11. These exhibits also contain the reporting the Department requires on the Compact's enhancements. *2019-2021 Three-Year Plans Order*, D.P.U. 18-110 through D.P.U. 12-119 at 132-33 (2019).

17. Due to the timing of the Department's review of the three-year energy efficiency investment plans under G.L. c. 25, §21, the Compact's proposed energy efficiency programs will expire on December 31, 2024, approximately 30 days prior to the Department's approval of the next three-year plan for the term 2025-2027. In order to ensure program continuity, the Compact proposes, consistent with the Department's finding in the *2019-2021 Three-Year Plans Order*, D.P.U. 18-110 through D.P.U. 12-119 at 177-78 (2019), to continue all energy efficiency programs and budgets for plan year 2024 until the Department concludes its investigation of the subsequent three-year plan. Such approval will alleviate the administrative burden of the preparation and review of a motion for interim continuation of the existing energy efficiency programs.

18. In view of the Compact's history of successfully delivering energy efficiency services, and consistent with the collaborative energy efficiency process envisioned in the Green Communities Act and Climate Act, the Compact would be pleased to participate in settlement discussions or technical sessions at any time found to be convenient by the Department and other interested parties.

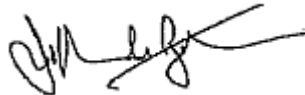
WHEREFORE, the Petitioner hereby respectfully requests that the Department:

- a) Promptly issue its order of notice and publication with respect to the Compact's Petition and the applicable public hearing on such date or dates as may be necessary or appropriate;
- b) Approve the Compact's proposed energy efficiency investment plan (including the Compact-specific enhancements), budget, and allocation of program operating costs for its energy efficiency programs for the period January 1, 2022 through December 31, 2024;
- c) Find that the Compact's Plan is constructed to meet or exceed the GHG emissions reduction targets set by the EEA Secretary;
- d) Approve the Compact's recovery of the costs of such energy efficiency programs through its currently reviewed and approved energy efficiency surcharge; and
- e) Provide such other and further relief as may be necessary or appropriate.

Respectfully submitted by,

Cape Light Compact JPE

By its attorneys,



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Dated: November 1, 2021

EXHIBIT COMPACT-1

2022-2024 Massachusetts Joint Statewide Electric and Gas
Three-Year Energy Efficiency Plan

Electronic file provided by Rich May, P.C.

**THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES**

Cape Light Compact JPE

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D.P.U. 21-126

PRE-FILED TESTIMONY OF

MARGARET T. DOWNEY

ON BEHALF OF

THE CAPE LIGHT COMPACT JPE

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CAPE LIGHT COMPACT JPE

D.P.U. 21-126

PRE-FILED TESTIMONY OF

MARGARET T. DOWNEY

1 **I. INTRODUCTION AND PURPOSE OF TESTIMONY**

2 **Q. Ms. Downey, please state your name, business address, and employer.**

3 A. My name is Margaret T. Downey. My business address is c/o Cape Light Compact JPE
4 (the “Compact” or “CLC”), 261 Whites Path, Unit 4, South Yarmouth, MA 02664. I am
5 employed by the Compact and serve as the Compact Administrator. I have served in this
6 position since the Compact’s inception in 1997.

7 **Q. Have you previously testified before this or any other Commission?**

8 A. Yes, I have previously testified before the Department of Public Utilities (“Department”)
9 on behalf of the Cape Light Compact JPE in its 2010-2012, 2013-2015, 2016-2018, and
10 2019-2021 Energy Efficiency Plan proceedings. These proceedings were docketed,
11 respectively, *Cape Light Compact*, D.P.U. 09-119 (2009); *Cape Light Compact*, D.P.U.
12 12-107 (2013); *Cape Light Compact* 15-166 (2016); *Cape Light Compact JPE*, D.P.U.
13 18-116 (2019). I have also testified before the Department in *Colonial Gas Company*
14 *d/b/a National Grid*, D.P.U. 16-169 and other dockets related to the Compact’s municipal
15 aggregation plan.

1 **Q: Provide a brief job description for your position as Administrator for the Compact.**

2 A: I manage the Compact’s activities as an electric energy efficiency program administrator
3 (“Program Administrator” or “PA”) and as a municipal aggregator for all electric
4 ratepayers on Cape Cod (“Cape”) and Martha’s Vineyard (“Vineyard”). Specifically,
5 with respect to the Compact’s energy efficiency activities, I oversee the administration of
6 the Compact’s annual energy efficiency program budgets that are part of the Compact’s
7 three-year statewide plan approved by the Department. Among other things, I am
8 responsible for local and state regulatory reporting and approvals, and I oversee the
9 Compact’s participation in and compliance with the ISO New England Forward Capacity
10 Market (“FCM”). I represent the Compact as a non-voting member of the Energy
11 Efficiency Advisory Council (“Council”), and regularly make presentations and report to
12 customers, the Compact’s Governing Board, Compact staff, regulatory agencies, and
13 community advocates.

14 **Q. What is the purpose of this pre-filed testimony?**

15 A. The purpose of this testimony is to support the Program Administrator’s 2022-2024
16 Three-Year Plan, set forth in Exhibit Compact-1 (the “Three-Year Plan” or “Plan”),
17 highlight core aspects of the Three-Year Plan, and provide an overview of how the
18 Program Administrator has satisfied the filing requirements of G.L. c. 25, §§19 and 21,
19 an Act Relative to Green Communities, Chapter 169 of the Acts of 2008 (“Green
20 Communities Act” or “GCA”), as amended by an Act Relative to Competitively Priced
21 Electricity in the Commonwealth, St. 2012, c. 209, (“Energy Act of 2012”), An Act to

1 Advance Clean Energy, Chapter 227 of the Acts of 2018, An Act Creating a Next-
2 Generation Roadmap for Massachusetts Climate Policy, Chapter 8 of the Acts of 2021
3 (“Climate Act”), the Department Orders in D.P.U. 08-50, the Department’s Energy
4 Efficiency Guidelines, as most recently updated in D.P.U. 20-150-A, (2021) (the
5 “Guidelines”), the Department’s Order approving the 2019-2021 Three-Year Energy
6 Efficiency Plans, D.P.U. 18-110 through D.P.U. 18-119 (“2019-2021 Order”), and the
7 October 5, 2021 Hearing Officer Memorandum with additional filing requirements
8 (“Filing Requirements Memo”). In addition, in a section solely with respect to the
9 Compact, I describe the role of the Compact’s Governing Board in the development of
10 the Compact’s Plan, the Compact’s specific enhancements to the Plan and a few other
11 Compact-specific matters.

12 **Q. Could you describe the purpose of filing joint testimony?**

13 A. The Three-Year Plan is a comprehensive statewide document that covers many complex
14 and interlocking areas including energy efficiency, greenhouse gas (“GHG”) emissions,
15 demand reduction strategies, equity, and building electrification. In each of the previous
16 terms since inception in 2010, the Three-Year Plan has been successfully developed,
17 implemented, and evaluated using a collaborative process among all the gas and electric
18 distribution companies and municipal aggregators with certified energy plans (together
19 “Program Administrators” or “PAs”). Each of the Program Administrators employ
20 individuals who have expertise in specific, and often unique, aspects of energy efficiency.
21 Because the Program Administrators developed this Three-Year Plan collaboratively,

1 each PA benefitted from the knowledge and experience of this shared pool of expertise.

2 A panel of witnesses consisting of representatives from each of the Program

3 Administrators is thus best qualified to testify during Department evidentiary hearings, if

4 necessary, to those areas of the Three-Year Plan for which the individual has relevant

5 experience, background and/or expertise. In this way, the presentation of a panel of

6 witnesses maximizes administrative efficiency and minimizes administrative costs as

7 compared to each individual PA testifying to each individual topic. The Program

8 Administrator also anticipates that, in addition to this joint pre-filed testimony, there will

9 be common PA witnesses designated at a later time who will testify orally in support of

10 certain parts of the Three-Year Plan, consistent with how the Department conducted

11 evidentiary hearings for the Program Administrator and other PAs during the hearings for

12 the 2010-2012, 2013-2015, 2016-2018, and 2019-2021 three-year energy efficiency

13 plans.

14 **Q. How is your testimony organized?**

15 A. Section II of my testimony provides the joint statewide testimony in support of the Three-

16 Year Plan. Section III provides specific information about the Compact and the proposed

17 Compact specific components to the Three-Year Plan.

18 **Q. Please describe the Program Administrator's Three-Year Plan and how it was**
19 **developed.**

20 A. The Program Administrator proposes to adopt, as its Three-Year Plan, the 2022-2024

21 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan,

1 which the Massachusetts Program Administrators finalized after extensive collaboration
2 with the Council, the Council's consultants ("Consultants"), and other interested
3 stakeholders. Planning for the development of the Three-Year Plan began in summer
4 2020 and continued with increasing rigor throughout 2021. During this time, the PAs
5 have been engaged in detailed and comprehensive discussions with the Council, its
6 Consultants, and stakeholders. As part of the development of the Three-Year Plan, the
7 PAs participated in 23 Council and Executive Committee meetings in 2020, ten Council-
8 sponsored public listening and comment sessions, and six workshops, at which the PAs
9 presented on a variety of topics as requested by the Council and the Consultants. In
10 addition, the PAs convened numerous working groups and held one-on-one meetings
11 with stakeholders to address best practices and discuss issues related to the development
12 of the Three-Year Plan. The vast majority of these meetings were held virtually during
13 the COVID-19 pandemic and state of emergency.

14 The PAs developed and filed with the Council a draft version of the Three-Year Plan on
15 April 30, 2021. On July 15, 2021, the Secretary for the Executive Office of Energy and
16 Environmental Affairs ("EEA") set GHG emissions reduction goals for the Plan as
17 required in the newly enacted Climate Act. This new goal necessitated a material shift in
18 the Plan that led to the PAs submitting significantly revised Plan numbers to the Council
19 on September 15, 2021, and a revised draft Plan narrative on October 6, 2021. Since
20 then, the PAs have remained actively engaged in a diligent, collaborative review process
21 with the Council and the Consultants in an effort to reach consensus on as many issues as

1 possible and obtain the full support of the Council. On October 25, 2021, the PAs, the
2 Department of Energy Resources (“DOER”), and the Office of the Attorney General
3 (“Attorney General” or “AGO”) reached an agreement on 2022-2024 goals, budgets,
4 performance incentive pool, and other key terms (*see* Exhibit Compact-1, Appendix M).
5 The Council voted unanimously to approve a final resolution supporting the Three-Year
6 Plan at its October 27, 2021 meeting (*see* Exhibit Compact-1, Appendix N).

7 **Q. Is the Program Administrator seeking Department approval of the Three-Year**
8 **Plan?**

9 A. Yes. On this date, the Program Administrator is submitting the Three-Year Plan for
10 Department review and approval pursuant to G.L. c. 25, §§19, 21. The Three-Year Plan
11 satisfies the GCA’s mandate that the Program Administrators acquire all available cost-
12 effective energy efficiency and demand reduction opportunities while achieving the GHG
13 emissions reduction goal set by the EEA Secretary. The Plan will maximize net
14 economic benefits and environmental benefits through a sustained and integrated
15 statewide energy efficiency effort. In setting aggressive goals, the Three-Year Plan
16 addresses many competing considerations, including, without limitation, savings for
17 customers, system benefits, equity, electrification, bill impacts, cost efficiency, integrated
18 program delivery, contractor and market infrastructure, and environmental and economic
19 benefits.

1 **Q. Is the Three-Year Plan filing consistent with the filing requirements established by**
2 **the D.P.U. 08-50 Working Group, the Guidelines, and the Filing Requirements**
3 **Memo?**

4 A. Yes. The Three-Year Plan Filing is consistent with the Department's requirements as
5 established in D.P.U. 08-50 Working Group, the Guidelines, and the Filing Requirements
6 Memo. The Plan includes information about proposed and integrated electric and gas
7 efforts as well as information about PA-specific efforts proposed for implementation in
8 2022-2024.

9 **Q. Have the Program Administrators considered the Department's letter of October**
10 **19, 2021 in developing the Plan?**¹

11 A. Yes. A core element of the Three-Year Plan is helping customers save energy and giving
12 customers the tools to help lower their bills. Throughout this testimony and the Plan, the
13 Program Administrators set forth multiple pathways to help customers save energy,
14 whether through more efficient heating and cooling equipment, weatherization, or
15 programmable thermostats. Customer education of energy efficiency measures goes
16 hand-in-hand with this goal and, as discussed in more detail below and in the Plan, the
17 Program Administrators are emphasizing their education strategies. Helping
18 Massachusetts customers save and manage their energy costs is a fundamental
19 underpinning of the PAs' efforts. Given energy cost concerns, the PAs have retained the
20 flexibility to offer lighting measures to residential renters and moderate income

¹ Note that this letter was sent to the gas and electric distribution company Program Administrators and was not sent to the Compact.

1 customers. Lighting measures are also made available in income eligible programs. The
2 PAs also emphasize their strong partnership with the Low-Income Energy Affordability
3 Network (“LEAN”) in serving our customers who are most in need of assistance. LEAN
4 provides state of the art services at no cost to income eligible customers, giving them
5 essential tools to help reduce their energy burden. Support of these efforts—at increased
6 funding levels—is a key element of the 2022-2024 Plan.

7 **Q. Does the Program Administrator currently operate comprehensive energy efficiency**
8 **programs?**

9 A. Yes. The Program Administrator currently operates comprehensive energy efficiency
10 programs targeting the residential, income eligible, and commercial and industrial
11 (“C&I”) customer sectors. These programs are operated pursuant to the 2019-2021
12 Three-Year Plan approved by the Department. *2019-2021 Three-Year Plans Order*,
13 D.P.U. 18-110 through D.P.U. 18-119 (2019). The 2022-2024 Three-Year Plan builds on
14 the successes of the PAs’ prior energy efficiency investment plans, which have resulted
15 in Massachusetts’ nation-leading energy efficiency plans. Over the past decade, the
16 Program Administrators have implemented nation-leading energy efficiency programs
17 designed to lower energy consumption and empower customers to efficiently manage
18 their energy use. The 2022-2024 Three-Year Plan builds upon this legacy and continues
19 to deliver innovative, affordable programs that help customers lower their energy use and
20 energy bills. The Program Administrators will continue their efforts to increase
21 education regarding energy efficiency, particularly for income eligible customers,
22 focusing on behaviors and measures to assist customers in reducing their near-term

1 energy bills and promote long-term energy and demand savings. Importantly, the 2022-
2 2024 Plan will also reduce an unprecedented amount of GHG emissions, helping the
3 Commonwealth meet its long-term climate commitments.

4 **Q. Is the Program Administrator seeking approval of any unique PA-specific pilot**
5 **programs or initiatives in this filing?**

6 A. Yes. The Compact is seeking approval of certain enhancements to the Plan set forth in
7 Exhibit Compact-1, Appendix G.1, and more fully described in Section III, *infra*, and
8 supported by Exhibit Compact-8 through Exhibit Compact-11.

9 **Q. Please discuss the format of the Three-Year Plan.**

10 A. The Three-Year Plan is organized consistent with the structure of previous plans and
11 Department requirements, with updates to reflect the Climate Act and the Department's
12 revised Guidelines. A brief overview of key elements of the Three-Year Plan follows:

- 13 • Section 1 provides an executive summary highlighting key benefits of the Three
14 Year Plan including priorities for 2022-2024, contributions towards the
15 Commonwealth's goals, cross-sector activities, and high-level metrics.
- 16 • Sections 2.1 through 2.3 provide the Program Administrators' vision for the
17 Residential and Income Eligible Sectors for 2022-2024, including key learnings
18 from the 2019-2021 Plan and the strategic interventions for 2022-2024.
- 19 • Sections 2.4 through 2.7 provide the goals, spending, GHG emissions reductions,
20 and benefits from the Residential and Income Eligible Sectors for 2022-2024, as
21 well as overviews of the Sectors.

- 1 • Sections 2.8 and 2.9 provide the challenges and strategic interventions in the
2 Residential and Income Eligible Sectors for 2022-2024.
- 3 • Sections 2.10 through 2.13 provide Residential and Income Eligible Sector
4 program descriptions as well as Residential financing and education descriptions.
- 5 • Sections 3.1 through 3.3 provide the Program Administrators’ vision of the C&I
6 Sector for 2022-2024, including key learnings and a comparison to the 2019-2021
7 Plan.
- 8 • Sections 3.4 and 3.5 provide the goals, budgets, GHG emissions reductions, and
9 benefits from the C&I Sector for 2022-2024, as well as an overview of the Sector.
- 10 • Sections 3.6 and 3.7 provide the C&I Sector offerings and challenges.
- 11 • Sections 3.8 and 3.9 provide the strategic interventions and program descriptions
12 for the C&I Sector for 2022-2024.
- 13 • Section 4 provides the Evaluation, Measurement and Verification (“EM&V”)
14 framework, the work of the Evaluation Management Committee, descriptions of
15 research areas, proposed evaluation budgets, types of evaluation functions,
16 evaluation planning, and the Strategic Evaluation Plan. The Strategic Evaluation
17 Plan is provided at Exhibit Compact-1, Appendix H.
- 18 • Section 5 provides the Marketing Plan overview for 2022-2024.
- 19 • Section 6 provides an overview of the Hard-to-Measure Initiatives for 2022-2024.

1 **Q. Does the Three-Year Plan also contain Appendices and background information?**

2 A. Yes. The Three-Year Plan contains detailed appendices and background information. A
3 brief overview of the Appendices follows:

- 4 • Appendix A, Section A.1.1 of the Plan provides an overview the management
5 structure for program delivery by outlining the various committees,
6 subcommittees and working groups used by the PAs for program delivery.
- 7 • Appendix A, Section A.1.2 provides an overview of the core savings metrics.
- 8 • Appendix A, Section A.1.3 details the statewide savings, benefits, and budgets.
- 9 • Appendix A, Section A.1.4 provides a description of how the Program
10 Administrators collaboratively develop and review common assumptions to
11 provide the best available data in the most consistent manner. The section also
12 discusses the technical reference manual (“TRM”).
- 13 • Appendix A, Section A.1.5 provides a detailed discussion of the development of
14 goals process and discusses the assumptions made by the Program
15 Administrators, unique service area drivers, and examples of cost drivers.
- 16 • Appendix A, Section A.1.6 describes the benefits and cost-effectiveness,
17 including energy and demand savings, environmental benefits, net benefits and
18 cost-effectiveness, and additional benefits.
- 19 • Appendix A, Section A.1.7 describes the budget cost categories, including
20 definitions, salary and overhead allocation methods, vendor-related costs,
21 sponsorship & subscription costs, and evaluation and market research costs. It

1 also describes the Program Administrators' compliance with G.L. c. 25, §21
2 requirements to minimize administrative costs and utilize competitive
3 procurement to the maximum extent practicable, as well as compliance with the
4 statutory allocations for income eligible programs and performance incentives.²

- 5 • Appendix A, Section A.1.8 describes of the performance incentive mechanism.
- 6 • Appendix A, Section A.1.9 provides an overview of statewide data and data
7 availability including report types, data sources, customer profile and baseline
8 studies, and data privacy.
- 9 • Appendix A, Section A.1.10 describes the cost recovery, funding sources, and
10 information on the bill impacts to customers for the Three-Year Plan budget. Bill
11 impacts are included at Exhibit Compact-6.
- 12 • Appendix B provides a glossary of terms and abbreviations.
- 13 • Appendix C provides the statewide energy efficiency data tables. PA-specific
14 data tables are included as Exhibit Compact-4.
- 15 • Appendix D provides the EEA Secretary letter on the GHG emissions reduction
16 goal for Mass Save®.
- 17 • Appendix E provides the equity metrics.
- 18 • Appendix F provides the potential studies.
- 19 • Appendix G provides PA-specific programming descriptions.

² The Compact is a public entity and does not collect performance incentives.

- 1 • Appendix H provides the Strategic Evaluation Plan.
- 2 • Appendix I provides evaluation study summaries.
- 3 • Appendix J provides evaluation studies completed in advance of the Plan.
- 4 • Appendix K provides the sponsorship and subscriptions policy.
- 5 • Appendix L provides the Council's Resolution of July 28, 2021.
- 6 • Appendix M provides the Agreement on Certain Terms between the Attorney
7 General, DOER, and Program Administrators.
- 8 • Appendix N provides the Council's Resolution of October 27, 2021.
- 9 • Appendix O provides the TRM.
- 10 • Appendix P provides participant definitions.
- 11 • Appendix Q provides the Avoided Energy Supply Components in New England:
12 2021 Report and Supplements.
- 13 • Appendix R provides the vendor cost categories.
- 14 • Appendix S provides performance incentive models.

15 **Q. Has the Program Administrator prepared a chart cross-referencing key filing**
16 **requirements of the D.P.U. 08-50 Working Group and G.L. c. 25, §21 with sections**
17 **of the Three-Year Plan?**

18 A. Yes. The Three-Year Plan Filing includes a chart that outlines these key filing
19 requirements and the location by section in the Three-Year Plan in Exhibit Compact-3.

1 **Q. Has the Program Administrator addressed each of the additional pre-filed**
2 **testimony items set forth in the Filing Requirements Memo regarding additional**
3 **filing requirements for the 2022--2024 Three-Year Plan?**

4 A. Yes. Responses to Filing Requirements Memo, Item Nos. 1-10 are contained herein.
5 Item No. 12 has been incorporated in the cover letter provided in this filing.

6 **II. THE PROGRAM ADMINISTRATOR'S ENERGY EFFICIENCY PLAN**

7 **A. Overview of Programs**

8 **Q. Describe the Program Administrator's understanding of the strategic goals of the**
9 **energy efficiency and demand reduction programs under the GCA, Climate Act,**
10 **and Department directives in D.P.U. 08-50.**

11 A. General Laws chapter 25 specifies the types of programs that statewide energy efficiency
12 plans may include and requires that programs be screened in aggregate for cost-
13 effectiveness at the sector level. G.L. c. 25, §§21(b)(2)(iv) and (b)(3). As the
14 Department has recognized, however, the following energy efficiency programs and
15 activities allowed by statute may not have immediate energy savings or those savings
16 may be difficult to quantify: (1) programs for research, development and
17 commercialization of efficiency products; (2) programs to support new appliance and
18 product efficiency standards; (3) programs to integrate efficiency products with building
19 energy codes or high performance sustainable buildings that exceed code; and (4)
20 programs for public education regarding energy efficiency (collectively, "hard-to-
21 measure energy efficiency programs"). D.P.U. 08-50-A at 24-25, *citing* G.L. c. 25,
22 §21(b)(2); *see also Guidelines* §2(15). The Department has directed the Program
23 Administrators to include the costs and benefits of hard-to-measure energy efficiency

1 programs within the cost-effectiveness evaluation of the most relevant customer sector
2 and has required that any such hard-to-measure energy efficiency program be fully
3 described in the energy efficiency plan. *See Guidelines §3.4.3.2; see also D.P.U. 08-50*
4 at 19-20.

5 Consistent with these directives, the Three-Year Plan includes a detailed description of
6 each program design, which together with the rest of the Plan, as discussed more fully
7 below, will provide for the acquisition of all available cost-effective energy efficiency
8 and demand reduction resources and is constructed to meet or exceed the GHG emissions
9 reduction goal set by the EEA Secretary. In developing these program descriptions, the
10 PAs sought to ensure consistent messaging among the Program Administrators, meet
11 aggressive GHG emissions reductions targets, incorporate new offerings including
12 workforce development initiatives, allow for a review of new technologies being
13 developed and offered to increase the efficiency of energy use for Residential, Income
14 eligible, and C&I customers, provide details regarding the thoughtfully-designed
15 community-based efforts within a Program Administrator's service area, provide
16 information regarding workforce development goals associated with the programs, and
17 offer insights into the long-term goals of the particular programs.

18 **Q. How has the Program Administrator expanded upon existing energy efficiency and**
19 **demand reduction offerings to include reductions in GHG emissions in line with the**
20 **Commonwealth's climate goals?**

21 A. To develop the programs set out in the Three-Year Plan, the Program Administrators
22 reviewed in the field experience, evaluation results, national market trends, and best

1 practices, and collaborated extensively through formal and informal channels, including
2 PA management committees and working groups. In addition, the Program
3 Administrators worked collaboratively with the Council, the Consultants, and other
4 stakeholders to design a broad portfolio of programs that significantly expands upon
5 existing offerings and also introduces bold new initiatives and program designs,
6 particularly to increase equitable program delivery. The Three-Year Plan sets forth
7 general program descriptions as well as detailed strategies for coordinated program
8 implementation in the residential, income eligible, and C&I sectors. The 2022-2024
9 Three Year Plan has been developed in recognition of an evolving energy marketplace
10 and the new Climate Act. The Program Administrators' nation-leading and collaborative
11 efforts have accelerated market transformation, and contributed to lower demand, lower
12 energy prices, and a more efficient energy system. The Program Administrators will
13 leverage past success in market transformation, such as transforming the residential
14 lighting market to LEDs. This will include a three-pillar strategy involving: customer
15 awareness and acceptance; contractor enablement and adoption; and
16 manufacturer/distributor engagement. This three-pillar strategy is discussed later in this
17 testimony.

18 Sustaining very high claimable savings goals becomes increasingly difficult in each
19 subsequent year as markets become saturated and rising baselines continue to reduce
20 claimable savings opportunities. The new GHG emissions reduction goal will require the
21 Program Administrators to focus on long-term measures with substantial GHG emissions

1 reductions and restrict certain traditional energy efficiency measures that do not reduce
2 GHG emissions. Programs will also expand into previously underdeveloped offerings,
3 such as small equipment electrification and potentially ancillary measures that reduce
4 GHG emissions but do not save energy.

5 Unlike mandatory compliance with statutes or building codes, customers' participation in
6 energy efficiency programs relies on the PAs developing attractive offers that anticipate
7 and meet customers' needs and goals. Because customer participation in energy
8 efficiency programs is voluntary, the core objective of the programs is to drive customer
9 participation and influence behavior. In the 2022-2024 Three-Year Plan, the Program
10 Administrators will deploy engagement strategies designed to find ways to mine savings
11 and emissions reductions from more difficult, costly, and challenging projects and market
12 segments.

13 Customers throughout the Commonwealth are remarkably diverse – they have different
14 economic considerations, priorities, and levels of income; they have different views on
15 public policies and approaches; they face different barriers; they live in cities, suburbs,
16 and rural communities; they may own a primary residence, a second home, or rent. The
17 Program Administrators value all customers and have designed a comprehensive
18 portfolio of programs that use multiple market channels and strategies to offer a wide
19 array of services and options in order to serve customers equitably and include all
20 customer segments in the transition to net zero emissions. Fundamentally, the Program

1 Administrators seek to influence customers to adopt technologies and behaviors that are
2 appropriate for their individual situation and reduce overall energy use and GHG
3 emissions.

4 From years of experience, the Program Administrators know that different strategies will
5 appeal to different types of customers. Energy decisions are complex, and customers
6 weigh factors differently. Some customers favor tried and true systems and technologies,
7 while others are early adopters of cutting-edge technologies. Some customers favor
8 online or technology-based experiences, and others prefer personal relationships. Some
9 customers prioritize environmental benefits, some prioritize economic considerations,
10 and some prioritize convenience and comfort. Some customers may prefer all-electric
11 energy options, especially as renewable energy generation sources increase, while others
12 may only be concerned with costs. Based on the Program Administrators' recognition
13 that customers are diverse and have varied desires, the 2022-2024 programs provide
14 multiple pathways and channels to engage customers, and to help customers manage their
15 energy costs. From high-touch in-home assessments to retail programs where customers
16 may not even realize they are participating, the Program Administrators seek to meet
17 customers where they are. As examples of this effort, the Program Administrators have
18 developed community partnership strategies, created online and virtual assessments, and
19 market the programs through many outreach channels in order to reach a wide array of
20 customers at multiple entry points.

1 **B. Savings Goals**

2 **Q. What is your understanding of the requirements under the statute for savings?**

3 A. It is our understanding that the GCA requires that the Three-Year Plan “shall provide for
4 the acquisition of all available energy efficiency and demand reduction resources that are
5 cost effective or less expensive than supply.” G.L. c. 25, §21(b)(1). The GCA further
6 requires that the PAs work with the Council to prepare a statewide energy efficiency
7 investment plan that is designed to achieve the GCA’s mandate to capture all available
8 cost-effective energy efficiency. G.L. c. 25, §21(b)(1). This mandate is subject to
9 creating sustainable delivery over a reasonable period of time and with consideration of
10 short-term customer bill impacts.

11 In 2021, the GCA’s mandate to capture all cost-effective energy efficiency was added to
12 by the Climate Act. The Three-Year Plan is now required to meet or exceed the GHG
13 emissions reduction goals, as set by the EEA Secretary. G.L. c. 25, §21(d)(4). The EEA
14 Secretary set this goal in her July 15, 2021 letter (“GHG Goal Letter”).

15 **Q. Has the Program Administrator worked with stakeholders and the Council to
16 determine its savings and GHG emissions reductions goals?**

17 A. The GHG emissions reduction goal to be achieved by the Program Administrators was
18 established via the EEA Secretary’s GHG Goal Letter. In designing the energy efficiency
19 programs and related savings goals required to meet those GHG emissions reduction
20 goals, the Program Administrators collaborated with vendors, contractors, stakeholders,
21 and customers. As discussed earlier, the Program Administrators have also provided

1 multiple drafts of the Three-Year Plan to the Council, presented at Council meetings, and
2 taken into consideration feedback from individual Councilors, as well as Council
3 Resolutions, Council workshops, and other Council actions. The Program Administrators
4 have worked extensively with the Consultants to share assumptions and develop
5 programs.

6 The Council's July and October Resolutions can be found in Appendix L and Appendix
7 N of the Plan, respectively. The Council voted unanimously to approve this Plan and
8 there are no major unresolved issues. In the Council's October Resolution, the Council
9 outlined several tactical requests and recommendations for the Plan. The Program
10 Administrators will consider the Council's recommendations in good faith. For
11 regulatory approval purposes, however, the Program Administrators submit the Plan filed
12 today, which incorporates the Term Sheet, for approval. The Program Administrators
13 stand committed to the strategies enumerated in this Plan, the Term Sheet agreement, and
14 the Commonwealth's climate goals.

15 In support of these program goals, DOER and the AGO have recognized that the
16 Commonwealth has a special role to play in achieving goals set forth for 2022-2024.
17 DOER and the AGO have committed to being strong advocates for state and municipal
18 building participation in the PAs' programs during 2022-2024 and for leadership by
19 example.

- 1 **Q. Describe the development and determination of the savings goals for the 2022-2024**
2 **Plan, including for each customer sector, and explain how technical potential studies**
3 **and other sources were used in this regard.**
- 4 A. The PAs engage in a highly collaborative and detailed planning process for setting
5 savings goals and budgets. This process includes reviewing many conditions that affect
6 savings goals and costs, such as regulatory requirements, the Commonwealth’s goals,
7 stakeholder input, program designs, including changes and related opportunities and
8 costs, equitable opportunities and barrier mitigation, market conditions, workforce
9 availability, bill impacts, training, education, and marketing needs to support the
10 programs, PA-specific potential studies, and the energy efficiency needs and objectives
11 of customers within each sector and service territory. PAs also consider evaluation
12 results including the findings from impact evaluations on claimable savings, and process
13 evaluations to inform programs and goals. Decisions that inform savings goals and
14 budgets are made both at the individual PA level and at the statewide level, including
15 work by the respective management committees, which facilitate ongoing stakeholder
16 input, continuous sharing of best practices, and consistency of offerings among the PAs.
17 Ultimately the results associated with development of a Program Administrator’s plan are
18 PA-specific and the planning process for savings varies for each program and initiative;
19 however, certain common processes apply to inform the development of savings goals
20 and to facilitate regulatory review.

1 a. *GHG Goals*

2 While there were many conditions that affected the savings goals in this Plan, as a
3 primary mandate, this 2022-2024 Plan was constructed to meet or exceed the GHG goal
4 set by the EEA Secretary in accordance with the Climate Act. The Climate Act does not
5 provide a precise method for determining the amount of GHG emissions that are reduced
6 from the Three-Year Plan. Indeed, it contemplates updates and revisions to the method
7 of calculating GHG emissions will be needed. The 2030 Interim Clean Energy and
8 Climate Plan (“CECP”) and 2050 Roadmap, however, provide a method for calculating
9 GHG emissions, which the Secretary of EEA adopts in prescribing the GHG Goal. The
10 EEA Secretary’s GHG Goal Letter calculates the amount of GHG emissions savings
11 based on the amount of energy savings tied to a given measure. Energy efficiency
12 measures within the Plan generally have some amount of energy savings. The GHG Goal
13 Letter multiplies the energy savings for each measure by an emissions factor based on the
14 type of energy being saved, such as electricity or natural gas. The emissions factors for
15 the fossil fuels remain constant, but for electricity, EEA’s electric emissions factors
16 assume significant electric grid decarbonization by 2030. This assumption reduces the
17 GHG emission reduction expectations for electric energy savings measures, and leads to
18 relatively higher GHG savings for measures that replace some other fuel with electric
19 consumption.

20 The GHG Goal Letter also considers the life of the measure when calculating GHG
21 emissions. The GHG Goal Letter provides that the GHG goal is designed “with a view

1 toward [the Plan’s] necessary contribution to meeting the limits and sub-limits that will
2 be adopted under the GWSA.” (Exhibit Compact-1, Appendix D at 2). The EEA
3 Secretary decided that “an emissions reduction measure must be sufficiently permanent
4 to contribute to meeting, at a minimum, the next two statewide goals adopted pursuant to
5 [the GWSA.]” (Exhibit Compact-1, Appendix D at 2). Thus, the EEA Secretary’s
6 expectation is that if a measure’s evaluated lifetime ends before 2030, then the GHG
7 emissions savings from that measure are not considered to contribute to the GHG
8 reduction goal. Based on this articulated expectation, and the Climate Act’s requirement
9 that the Plan must be constructed to meet or exceed the GHG goal, the Program
10 Administrators designed their measure mixes in a manner that prioritizes contributions to
11 the GHG goal.

12 b. *All Available Cost-Effective Energy Efficiency*

13 At the same time, the PAs’ Plan balances the GHG goal with the GCA’s continuing
14 requirement for the Plan to seek to mitigate capacity and energy costs for all customers
15 through all available energy efficiency and demand reduction resources that are cost-
16 effective or less expensive than supply. There is no simple, algebraic method to evaluate
17 whether the mandate of all available cost-effective energy efficiency has been met. The
18 Program Administrators’ process considers many factors, including the assessment of
19 savings opportunities in individual PA service areas (bottom-up), incorporation of recent
20 evaluation study findings, and a collaborative consideration of statewide policy

1 objectives that balances the GHG and energy savings goals and the total cost of capturing
2 energy efficiency (top-down).

3 The bottom-up process involves determining savings by measure, including projected
4 quantities and customer incentive amounts for every piece of energy efficient equipment,
5 and the type of technology or program service. The top-down process looks at the
6 portfolio as a whole evaluating the potential for achieving savings given the markets in
7 which the programs are operating, subject to overall cost. Evaluation results, including
8 impact, process, and market assessment studies, are considered in both bottom-up and
9 top-down planning and may drive other adjustments. The process to determine goals is
10 appropriately fluid, flexible, and iterative, incorporating information that the Program
11 Administrators learn throughout the planning process related to program design,
12 evaluation, market conditions, costs and other factors.

13 *c. Considerations*

14 In setting goals, the PAs took into account the requirement to reach the GHG goals, as
15 well as (1) the need to plan for a sustainable effort in the continued delivery of energy
16 efficiency; (2) consideration of new technologies and enhancements; (3) the results of
17 avoided costs, potential and evaluation studies; and (4) the need to design programs to
18 address identified barriers. The PAs also weighed heavily the Commonwealth's priority
19 of equitable service and realization of benefits for environmental justice communities. In
20 addition to all other items, the PAs took into account many interacting considerations,
21 including, but not limited to, economic and environmental benefits, bill impacts, cost-

1 efficiency, integrated program delivery, contractor and market infrastructure, efforts
2 focused on innovation, customer experience, changing market conditions and
3 transformation efforts, and the need to establish an integrated effort that can be sustained
4 over time. In assessing the level of energy efficiency savings that is possible and
5 sustainable for this Plan, the Program Administrators considered a number of factors.
6 These factors include: (1) quality of program implementation; (2) customer economic
7 conditions; (3) bill impacts; (4) market conditions/seasonality for various measures;
8 (5) avoided costs; (6) market barriers; (7) commitment to equity ; (8) the need to avoid
9 “stops/starts” that send negative messages to the contractor community; (9) the capacity
10 and reach of vendors and contractors; (10) the need to provide consistency over time to
11 be able to capture time-dependent opportunities such as renovations and new
12 construction; (11) the need to accommodate new technologies over time; and (12) input
13 and consideration of priorities articulated by EEA, DOER, the AGO, the Council,
14 stakeholders, and public commenters. Ensuring sustainability requires the Program
15 Administrators to examine all of these considerations when developing their energy
16 efficiency goals.

17 The planning process for the 2022-2024 term included a focus on customers’ experiences
18 with the suite of energy efficiency programs, and in particular how to improve the
19 experiences of moderate income residential customers, tenants and owners of residential
20 rental units, English-isolated customers, small businesses, as well as those customers
21 living in mixed-income multifamily buildings. Significant effort and expertise were

1 dedicated to updating the Residential and Income Eligible programs and initiatives to
2 better serve customers who qualify as low or moderate income. In addition, across all
3 sectors, the PAs updated the design of programs and initiatives in order to enhance
4 delivery of electrification measures. These updates, including a significant investment in
5 workforce training and development, as well as more comprehensive weatherization
6 efforts, will help maximize the achievement of energy efficiency savings and benefits
7 through electrification.

8 d. *Bottom-Up Planning*

9 As a foundation for each three-year planning process, the PAs examine historical data to
10 gain insight into participation trends, savings achieved, and the costs to achieve annual
11 and lifetime savings. The PAs also consider recent or pending changes in federal
12 efficiency standards, as well as other third-party research on consumer adoption of new
13 technologies. In parallel, each PA assesses what it individually can achieve over the next
14 three years, while collectively collaborating to decide what changes, if any, need to be
15 made to program offerings. For example, the PAs may decide to discontinue measures
16 that have become standard efficiency practice, or to add new measures and services in
17 response to improved technologies or identified consumer needs, subject to consideration
18 of cost-effectiveness. The value of energy benefits is determined through the 2021
19 Avoided Energy Supply Components (“AESC”) Study, which also guides the PAs as
20 they strive to achieve all cost-effective energy efficiency opportunity.

1 The statewide planning work is undertaken at the respective management committees and
2 working groups, ensuring input from stakeholders, continuous sharing of best practices,
3 and facilitating consistency of offerings among the PAs. Each PA uses this information to
4 develop an estimate of energy efficiency that can be achieved in each sector in its unique
5 service territory. The PAs consult with their vendors to support or augment their
6 estimates based on their own market intelligence. Manufacturers and contractors may
7 also be consulted for insight into workforce capacity and technology availability and
8 limitations.

9 e. *Top-Down Planning*

10 While bottom-up planning focuses on individual measures within each PA's service
11 territory, top-down planning considers what is reasonable and achievable for the energy
12 efficiency portfolio as a whole. This planning effort involves the examination of impacts
13 to the markets the programs are targeting, as well as cost implications to the PA, its
14 participating and non-participating customers. PAs use potential studies for top-down
15 planning, which helps them to better understand the potential opportunity to achieve
16 energy efficiency savings within their service territory. Potential studies typically provide
17 the PAs with insight into three types of energy efficiency potential:

- 18 • **Technical potential** is defined as the complete adoption of energy efficiency
19 measures that are technologically feasible without consideration of cost or likely
20 consumer acceptance.

- 1 • **Economic potential** is a subset of technical potential consisting only of that
2 technology that results in more estimated benefits than costs over the life of the
3 measure.
- 4 • **Achievable potential** is a further subset of economic potential and is limited to
5 that which is attainable given customer barriers, market barriers, or other
6 limitations.

7 The PAs use the results of potential studies to gain valuable insight into the achievable,
8 cost-effective energy efficiency potential for the residential/income eligible and C&I
9 sectors over a period of years. Each of the PAs has performed a territory-specific
10 potential study in advance of the 2022-2024 Plan filing in accordance with the
11 Department's directives. The PAs have diligently worked to coordinate studies to use a
12 consistent set of measures and measure characteristics, and to present findings using
13 common definitions for the various levels of achievable potential, common benefit-cost
14 inputs, and common savings assumptions for high-impact measures, such that study
15 results are comparable. In addition, with input from the EEAC, the PAs established a
16 common study deadline to submit final potential study results. The overall consistency
17 across the PAs' potential studies in terms of timing, formatting, and definitions enhances
18 their value to the Department and stakeholders.

19 The potential studies consider a wide range of factors to estimate potential savings over
20 time including, but not limited to, the size of the market, economic trends, modeled
21 market penetration and saturation of specific equipment, adoption rates for efficient

1 equipment, costs and benefits associated with efficiency upgrades, and market barriers. In
2 general, the potential studies relied on the TRM (2019 Report Version) (the most recent
3 TRM available at the time of the studies) and net-to-gross assumptions for the current
4 term. The potential studies are intended to provide a top-down estimate and are useful to
5 inform high-level planning but are not intended to provide detailed assessments of
6 potential at the measure level. Potential studies are also not intended to suggest specific
7 program changes, model alternative program designs, or consider GHG emissions
8 reductions. In conjunction with other data sources and experience implementing
9 programs, the PAs use the results of potential studies to approximate the remaining
10 achievable, cost-effective potential opportunity for energy savings over the next three-
11 year period. The potential studies provide one key source to inform overall goals, as well
12 as expected energy savings trends and areas of opportunity for investment.

13 Each of the potential studies, in addition to providing technical, economic, and
14 achievable scenarios as described above, looks at several different scenarios of
15 achievable potential in order to understand the sensitivity of achievable savings to inputs
16 such as increased incentive levels and higher levels of spending on marketing and
17 program awareness. The studies generally include statements of potential that range from
18 looking at the “business as usual” case using current incentive levels, up to a “max
19 achievable” scenario, which is the highest achievable level of potential, typically where
20 the PA pays 100 percent of incremental costs of energy efficiency improvements. The

1 PAs review these scenarios with an understanding of the need to minimize customer bill
2 impacts, and the need to maintain sustainable energy efficiency efforts over time.

3 The PAs also take into account any changes in market conditions, potential program
4 design enhancements, policy directives, and other information that may impact the
5 estimates of available energy savings provided by the potential studies. The PAs share
6 technical potential studies results with each other and are able to benefit from comparing
7 and contrasting the work of the different study experts to ensure they are consistently
8 informed on industry best practices and different ways of looking at complex issues. The
9 diversity of perspectives ultimately increases confidence in results. The PA-specific
10 potential study materials are available at Exhibit Compact-1, Appendix F.

11 *f. Evaluation Results*

12 As noted above, the PAs also utilize the results of independent third-party evaluations to
13 inform proposed goals. As part of the statewide EM&V framework, the PAs collectively
14 conduct many different types of evaluation studies, including impact evaluations,
15 baseline studies, NTG studies, market effects evaluation, NEI studies, cost and measure
16 life studies, market characterization, and process evaluations. For more information on
17 each type of study please see the Strategic Evaluation Plan at Exhibit Compact-1,
18 Appendix H.

19 *g. Cost Driver Considerations*

20 A final step in energy efficiency goal setting for the three-year term is to develop the
21 budgets required to deliver the energy efficiency programs to the marketplace. This

1 involves assessing the cost impact of the programs on participating and non-participating
2 customers in support of “right sizing” proposed budgets. In the 2022-2024 term, the PAs
3 face new challenges in pursuing all cost-effective energy efficiency, including: (1)
4 reduced savings from lighting as a result of the widespread adoption of energy-efficient
5 lighting technologies such as LED lighting, driven by past PA-led efforts, (2) the
6 achievement of aggressive GHG emissions reduction goals set pursuant to statute, and (3)
7 a continued emphasis on serving low and moderate income residents, especially those
8 residents living in environmental justice communities. The cost of marketing, delivering,
9 and evaluating ever more sophisticated programs is expected to increase in order to
10 capture more complex and deeper opportunities, such as controls, weatherization in the
11 C&I sector, electrification, and demand reduction. Increased efforts and incentives
12 designed to serve customers who have not historically participated in the PAs’ programs
13 at a proportional rate will also contribute to increased costs.

14 To address these challenges and deliver cost-effective energy efficiency programs to their
15 customers, the PAs have developed a thorough understanding of current and future cost
16 drivers for their proposed energy efficiency programs. Because each PA is affected to a
17 different degree by each cost driver, variations in savings goals and the cost to achieve
18 these goals are to be expected. Customer demographics, fuel mixes, economic conditions,
19 differences in the built environment, and even contractor wages vary widely across the
20 state and impact each PAs’ service territory differently. Each PA sets its goals based on
21 its own unique service territory.

1 Additional details on key cost and savings driver considerations include the following:

2 **Measure mix.** As claimable lighting savings decline, the electric PAs will increase
3 investment in other measures that tend to be more expensive per kWh. Therefore, as
4 lighting savings decrease in the portfolio, the average program cost per unit of electric
5 savings will increase. In addition, given the focus on GHG reductions and electrification,
6 the PAs will invest more in incentivizing adoption of heat pumps, which are relatively
7 expensive measures. Moreover, as the PAs strive to meet aggressive goals, they may raise
8 incentives to drive participation, which increases the cost not just for newly acquired
9 savings but also for savings that would have been obtained with lower incentive levels as
10 well. Increased incentives will also tend to drive greater adoption of measures with
11 higher unit savings costs.

12 **Increased baselines.** As federal and state building codes and appliance standards
13 become increasingly rigorous, the amount of claimable incremental savings from
14 program-qualifying energy efficiency measures decreases (unless the efficiency of the
15 program measures rise as well). This decrease in savings attributable to the programs
16 results in a higher cost per unit of savings. The Energy Independence and Security Act
17 (“EISA”) lighting standards continue to increase baseline efficiency levels and therefore
18 decrease program savings, as do federal water heater and other appliance standards. New
19 construction practices in the Commonwealth are increasingly energy efficient due to the
20 GCA requirement that Green Communities adopt stretch codes, aggressive outreach to

1 new construction market actors by the PAs and increasing federal standards for various
2 kinds of equipment and appliances. In addition to increasing efficiency required from
3 updated codes and standards, markets are adopting more efficient practices due to
4 innovation, enhanced technology, and evolution of industry standard practice. This
5 naturally occurring market adoption of efficient equipment and practices is accounted for
6 through evaluation studies, and savings attributable to PAs are adjusted accordingly.

7 While these trends result in real savings for customers in the state, they reduce the
8 incremental energy savings the PAs can capture and claim through their programs.

9 Consistent with the Term Sheet, the Plan specifies how certain baselines will be
10 determined in several scenarios when evaluating and calculating program savings. The
11 agreements in the Plan help bring more certainty to the program implementers as they
12 pursue savings opportunities with customers.

13 **Strategies to foster greater participation and deeper savings.** As the PAs seek to
14 increase participation in their programs across all customer groups, they will invest more
15 resources in reaching customer groups that have historically participated at lower levels.
16 This will require financial investments in partnerships, enhanced marketing, more
17 resources in additional languages, and more robust incentives, among other strategies. In
18 addition, the PAs are committed to significant workforce development, which will
19 require investment in recruitment, training, establishing career pathways, and supporting
20 the contractor network as they expand, diversify, and upskill the workforce. These
21 investments are essential to the long-term success of the programs, but do not produce

1 directly claimable savings, and therefore lead to increases in the cost to achieve in the
2 short term.

3 **Cost-effectiveness limitations.** The 2021 AESC Study projected lower wholesale
4 natural gas prices, as well as electricity prices, and summer demand prices than the
5 previous iteration (2018 AESC Study). As a result, energy savings are assigned less-per-
6 unit economic value than in prior terms, challenging the PAs to minimize costs and
7 maximize benefits to maintain cost-effective program delivery. The PAs are pursuing
8 new delivery options, as well as new technologies, to capture untapped energy efficiency
9 potential. These efforts are not without cost, however, which puts pressure on programs
10 in the short term.

11 **Unique service area drivers.** Despite consistent program offerings, variations among
12 PAs in savings goals and costs to achieve naturally result due to each PA's unique service
13 territory. Each PA's territory has a distinct mix of customers, markets, and vendors.
14 Contributing to these differences are varying customer demographics, different mixes of
15 building and business types, penetration of natural gas and delivered fuels, economic
16 conditions, depth of community engagement, and population density. Each PA has
17 unique commercial and residential demographics, which may result in differences in how
18 each PA approaches program delivery. For example, the service territory of one PA may
19 have a smaller percentage of commercial customers than the statewide average, and thus
20 may not be able to benefit from the higher savings opportunities that tend to correspond

1 with that customer segment. Similarly, a PA may have a higher proportion of lower-
2 income residents, requiring greater coordination with the community and higher costs to
3 serve. Unique characteristics of smaller territories are more apparent than in larger
4 territories, which represent a broader array of customers and communities that make
5 these unique characteristics less visible. Variances among the PAs' plans are therefore
6 appropriate, consistent with sound regulatory policy, the GCA, and previous Department
7 recognition of PA differences. In setting their goals, each PA has used its knowledge of
8 its unique service territory, as well as inputs and insights from independent energy
9 efficiency potential studies to design programs that best meet the needs of its customers.
10 All PAs are committed to achieving all available cost-effective energy efficiency in
11 accordance with the GCA.

12 **PA collaboration with stakeholders.** As part of the process of developing goals and
13 budgets, the PAs engaged in discussions with the Consultants on the assumptions that
14 were used for bottom-up planning. The PAs also considered the multiple (and sometimes
15 conflicting) priorities of the EEAC members and other stakeholders in planning for cost-
16 effective savings opportunities in the 2022-2024 Plan. For example, the PAs have
17 included a strong commitment to promoting equity in service as well as a robust
18 workforce development initiative in the 2022-2024 Plan, both of which offer important
19 opportunities that are supported by the PAs as well as the Commonwealth but come with
20 additional costs. Finally, the PAs worked with the DOER and the AGO to review all
21 aspects of the 2022-2024 Plan, including savings and cost assumptions.

1 h. *Summary*

2 In developing the proposed savings goals, the PAs undertook, individually and
3 collectively, a detailed review of the GHG goals set by the Secretary of EEA and energy
4 efficiency opportunities and costs, with a particular emphasis on meeting GHG
5 reductions, addressing customer barriers, and examining opportunities. This analysis
6 included a bottom-up approach to assess savings opportunities by measure and initiative,
7 a top-down look at GHG reduction goals, overall savings potential, and cost to achieve
8 savings, and careful consideration of evaluation study findings, potential studies, and
9 market changes. Development of the 2022-2024 Plan was influenced by collaborative
10 discussions with the Council and stakeholders to better understand key savings and cost
11 drivers across the Commonwealth, considering market development efforts, sustainability
12 of delivery efforts, and bill impacts.

13 **Q. Is the Program Administrator’s 2022-2024 Plan constructed to meet or exceed the**
14 **goal set by the EEA Secretary?**

15 A. Yes, it is. The annual cumulative amount of GHG emissions reductions in 2030
16 stemming from the Three-Year Plan statewide is over 845,000 metric tons of CO₂e,
17 made up of approximately 475,000 metric tons of CO₂e delivered by the electric Program
18 Administrators and approximately 371,000 metric tons of CO₂e delivered by the gas
19 Program Administrators, with 30,000 metric tons to be delivered by the gas Program
20 Administrators from gas to electric fuel switching projects. For the 2022-2024 Plan,
21 DOER and the AGO, as well as the full Council, agree that up to 30,000 metric tons of

1 CO2e emissions from gas to electric projects delivered by the gas Program
2 Administrators may count towards the GHG reduction goal originally set forth in the
3 GHG Goal Letter for electric Program Administrators, with the requirement that the
4 30,000 metric tons of CO2e must be derived from projects involving gas to electric fuel
5 switching, with all savings from such projects being eligible for inclusion.

6 **C. Market Transformation of Electrification Measures**

7 **Q. What measures are included in the Program Administrator’s 2022-2024 Plan that**
8 **qualify as strategic electrification and what is the cost-effectiveness for each**
9 **strategic electrification measure?**

10 A. Please see Attachment-A to this testimony for a list of all measures that the PAs consider
11 electrification and each measure’s benefit-cost ratio. Most measures displacing oil,
12 propane, or motor gasoline are cost-effective under the Total Resource Cost (“TRC”) test.
13 Many of the measures displacing natural gas for residential customers are not cost-
14 effective, due to the low price of natural gas compared to electricity, but some measures
15 now do screen as cost-effective.

16 In general, the energy values in Attachment-A for savings match exactly what is shown
17 in the filed benefit cost (“BC”) models. However, for heat pump measures that appear
18 within the Residential Retail Initiative, the savings in the BC models have been “split”
19 into two sets of measures. One set represents the savings of replacing a fossil fuel system
20 with a baseline-efficiency heat pump – these measures appear in Attachment-A. The
21 second set of heat pump measures in the BC models, labeled “Midstream,” contains the
22 kWh savings realized from upgrading from a baseline heat pump to the program-

1 efficiency heat pump. The measures in Attachment-A have been modified to reflect the
2 combined kWh impact (increase) from summing the appropriate measures together, in
3 order to correctly reflect the full impact of electrification for those measures.

4 In addition, the Cape Light Compact has proposed a strategic electrification offering, the
5 Cape and Vineyard Electrification Offering (“CVEO”), which is fully described in
6 Compact Exhibit- 9.

7 **Q. Can you describe in detail how the identified strategic electrification measures will**
8 **reduce GHG emissions, taking into account incremental emissions from electric**
9 **generation used to meet the increased electric load?**

10 In Attachment-A, the methodology for calculating the GHG reductions for each measure
11 are as follows:

- 12 1. Multiply the gross annual fossil fuel savings for each measure by the emissions
13 factor for that fuel as prescribed by the GHG Goal Letter;
- 14 2. Multiply the gross annual kWh increase by the kWh emissions factor prescribed
15 by the GHG Goal Letter for 2030; then
- 16 3. Sum the two values for the total amount of GHG saved in 2030.

17 All electrification measures are projected to save GHG in 2030 per the above
18 methodology.

19 **Q. Can you describe in detail how the identified strategic electrification measures will**
20 **lower costs to customers?**

21 The methodology for calculating the customer cost impacts for each measure is as
22 follows:

- 1 1. Calculate the initial cost that a customer will have to spend on the electrification
2 measure, after taking into account program incentives. This value utilizes the
3 evaluation-derived TRC for each measure, which is an average expected cost,
4 adjusted for any expenditures the customer would have incurred with the baseline
5 energy efficiency measure. For example, for a central ducted heat pump, if the
6 alternate investment would have been for the customer to replace their existing
7 furnace and central air-conditioner, those costs have been subtracted from the
8 TRC. For some retrofit measures where there would not have been an alternate
9 replacement in the near future, the TRC has not been adjusted.
- 10 2. Calculate the net ongoing operating costs differential expected after the
11 electrification measure is installed. This is calculated by:
 - 12 a. Multiplying the annual fossil fuel savings for each measure by the average
13 cost for that fuel. For oil and propane, the PAs have used the predicted values
14 for the Northeast for winter 21-22, as published by the Energy Information
15 Administration in their Short-Term Energy Outlook.
 - 16 b. Multiplying the annual evaluated kWh increase by National Grid's published
17 rates for winter 21-22. The PAs chose to use National Grid's rates because
18 they sought to make this analysis as forward-looking as possible, and
19 currently National Grid is the only PA that has published rates for this
20 winter.

1 c. Multiplying each annual cost value from (a) and (b) by the expected measure
2 life to obtain a lifetime net operating costs differential.

3 3. Summing the capital expenditure value from (1) with the lifetime operating cost
4 impact from (2)(c) to get the total expected lifetime cost impact. The Program
5 Administrators note that any exercise that involves utilizing current energy costs
6 in future years is inherently imprecise and this exercise in particular is unable to
7 take into account the specifics for any given customer, which would impact the
8 results. The simplified exercise in Attachment-A also does not take into account
9 inflation rates, nor does it attempt to calculate the Net Present Value of future cost
10 savings.

11 The majority of measures replacing oil, propane, or motor gasoline lower costs to
12 customers over their lifetimes (refer to column U on the “Electrification, Electric”
13 tab). The exceptions are the following measures, most of which are replacements for oil
14 heating systems:

- 15 • Central Heat Pump partially displacing Oil Heat
- 16 • Central Heat Pump fully displacing Oil Heat
- 17 • MSHP partially displacing Oil Heat
- 18 • MSHP fully displacing Oil Heat
- 19 • Air-to-Water Heat Pump displacing Oil Heat
- 20 • Closed Loop Ground Source Heat Pump (“GSHP”) replacing Oil Heat
- 21 • Moderate Income Qualified - Central Heat Pump fully displacing Oil Heat
- 22 • Moderate Income Qualified - MSHP fully displacing Oil Heat
- 23 • Moderate Income Qualified - Closed Loop GSHP replacing Oil Heat
- 24 • Custom - HVAC (Electrification)
- 25 • Custom - Electrification Other
- 26 • Ducted Heat Pump replacing Oil Heating

- 1 • Ductless Heat Pump replacing Oil Heating
- 2 • Ducted Heat Pump displacing Oil Heating
- 3 • Ductless Heat Pump displacing Oil Heating
- 4 • Induction Stove replacing Propane
- 5 • Electric Lawnmower

6
7 Even with these findings, the PAs along with the Council, strongly support heat pumps as
8 a measure for 2022, given the mandates of the Climate Act and the imperatives of
9 reaching the Secretary’s GHG emissions reduction goals. These issues are discussed in
10 more detail below.

11 Given the relative price of oil versus electricity in Massachusetts at present, heat pumps
12 are generally less cost-effective to operate than efficient oil systems below approximately
13 35 degrees outdoor air temperature. As a result, the annual operating cost savings for
14 those customers are somewhat limited or, in the case of certain full displacement
15 scenarios, can be negative. Given the substantial up-front cost incurred with heat pumps,
16 this can cause an overall lifetime cost, rather than savings, for certain customers.

17 The PAs stress, however, that predicting future energy prices is inherently imprecise, and
18 these results assume that the “current state” of energy pricing differences persists for the
19 foreseeable future. Any increases to oil prices, due to the inherent volatility of oil prices
20 or as a result of state or federal action to place a price on carbon, would change the
21 outcome of this analysis. A reduction in the initial capital cost would also have an impact
22 on these results, and the PAs will continue to work to identify additional sources of
23 funding that could be leveraged to assist customers with the purchase cost of heat pumps.

1 Further, the PAs will work with manufacturers, contractors, distributors, and customers to
2 optimize installation practices and reduce costs. Proper training, customer education, and
3 right sizing efforts can all help make heat pumps become more economical. The PAs
4 further note that the total resource costs used for the BC models, while derived from
5 evaluation, are inherently averaged, and do not represent the exact costs that any specific
6 customer will experience. Customers who are able to install a central heat pump partially
7 displacing oil heat, for example, at a lower price than the PAs have modeled, may be able
8 to save money over the lifetime of the installation.

9 Despite the challenge of high upfront costs, for many customers, upgrading to a heat
10 pump is in their long-term interest. Customers switching from unregulated fuels such as
11 oil to electricity have the benefit of much more predictable energy pricing, in addition to
12 other consumer protections such as bill assistance, payment plans, and income eligible
13 rates for qualifying customers.

14 In addition to the oil measures listed above, all of the natural gas electrification measures
15 are expected to cost customers money over their lifetimes (assuming that current gas and
16 electric rates are representative of future rates) (refer to column S on the “Electrification,
17 Gas” tab). However, the PAs believe that there are customers who will be interested in
18 electrifying despite that impact due to personal or corporate climate goals—each of these
19 measures is expected to meaningfully reduce GHG emissions in 2030. The 2022-2024
20 Plan is one part of the Commonwealth’s greater climate goal effort, and the PAs intend to

1 fully support that effort by making these goals a reality. The PAs will carefully
2 communicate to customers all expected cost impacts, including through the use of the
3 soon-to-be-launched heating system cost calculator on the MassSave.com website, to
4 help customers make a fully informed decision and play their part in reducing GHG
5 emissions.

6 For additional information regarding how CVEO will lower costs to customers, please
7 see Exhibit Compact-9.

8 **Q. Why is it important to focus on ramping up the electrification market?**

9 A. For the Commonwealth to meet its climate goals, customers will need to materially
10 reduce the level of heating with fossil fuels and materially increase heating with
11 electricity. The generation of that electricity, in turn, must materially reduce reliance on
12 fossil fuels and materially increase renewables. To accomplish this, the Program
13 Administrators recognize that it is critical to increase the pace with which heat pumps,
14 including air source, water source, and ground source, are installed in customers' homes
15 and businesses. At the same time, the Program Administrators understand that achieving
16 widespread adoption of electrification of space heating and water heating requires
17 sustained growth. Ensuring that customer comfort is not compromised by the installation
18 of heat pumps and that the cost to operate heat pump equipment is in line with customer
19 expectations are critical to the long-term success of this market transformation effort.
20 These challenges inform the Program Administrators' heat pump strategy over the next
21 term, which includes the three-pillar approach mentioned earlier: customer awareness and

1 acceptance; contractor enablement and adoption; and manufacturer/distributor
2 engagement.

3 **Q. Can you define market transformation and elaborate further on this three-pillar**
4 **strategy?**

5 A. Market Transformation is the strategic process of intervening in a market to create lasting
6 change that results in the accelerated adoption of energy efficient products, services, and
7 practices. The Program Administrators market transformation strategy for heating
8 electrification encourages accelerated adoption of heat pumps through engagement of all
9 market actors (manufacturers, distributors, contractors, and customers), enhanced
10 incentives, training, education, and marketing. A key component of an effective market
11 transformation program is that it affects the market as a whole, not just the program
12 participants. For example, a program that motivates retailers, distributors, or
13 manufacturers to offer a wider variety of efficient equipment increases efficient choices
14 for all buyers and can reduce prices of efficient equipment for all buyers across all
15 sectors.

16 Regarding customer awareness and acceptance, the Program Administrators recognize
17 the need to create demand among customers for heat pump technologies, and the PAs
18 have already enhanced their understanding of current customer perceptions through
19 awareness and perception evaluations and surveys. As the Program Administrators
20 garner a better appreciation for how customers perceive this technology, statewide
21 activities addressing current perceptions will be coordinated and implemented. Examples

1 of these activities include a statewide heat pump education campaign, which includes
2 statewide heat pump awareness marketing and dedicated heat pump webpages on
3 MassSave.com. These webpages are intended to be a one-stop-shop for customers to
4 learn about heat pump technologies, the importance of weatherization prior to heat pump
5 installation, available rebates, equipment installation and maintenance best practices, and
6 to connect customers with HVAC specialists that can provide support and referrals to
7 qualified installers. Moreover, these dedicated heat pump webpages will house the
8 heating comparison calculator, which customers can use to understand the costs and
9 benefits of switching from fossil fuel and electric resistance heating to heat pumps.

10 HVAC contractors are the face of the heating and cooling sub-initiative because they
11 have a direct line to customers and create the primary demand generation channel. With
12 the increased focus on heat pump technologies, the Program Administrators will establish
13 a participating heat pump installer network of HVAC contractors trained on program
14 offerings, heat pump technologies, and quality heat pump installations. This training will
15 include the importance of weatherization prior to heat pump installation, how to
16 effectively talk to customers about the benefits of heat pumps and ensuring proper sizing
17 and quality installation. The Program Administrators will also engage
18 vocational/technical high school and HVAC training programs to encourage and support
19 the inclusion of heat pumps and integrated controls in their training programs. Moreover,
20 the Program Administrators will design an HVAC heat pump curriculum on the online
21 training platform designed to help prepare students to enter the workforce. The Program

1 Administrators plan to take additional steps to ensure the contractor community is
2 enabled to effectively offer heat pumps to their customers, by helping to lower upfront
3 costs, address barriers to heat pump installation, and providing financing for heat pump
4 purchase and installation costs not covered by the program incentives.

5 Finally, by engaging manufacturer and distributors, the Program Administrators will
6 create effective allies in generating demand for existing training and certification
7 pathways and driving changes in heat pump equipment stocking practices. The Program
8 Administrators have and will continue to convene industry partner working groups to
9 continually promote the exchange of ideas and information. Other strategies the Program
10 Administrators are adopting include:

- 11 • Increase the share of new construction homes that are all-electric.
- 12 • Focus outreach on homes where electrification outcomes are most likely to be
13 positive, namely those where customer comfort will be maintained or improved,
14 and heating costs will be reduced.
- 15 • Use these outcomes to increase awareness, favorable customer sentiment, and
16 contractor confidence in heat pumps, creating momentum for heat pump
17 installations.
- 18 • Simultaneously, work to address the technical and financial challenges associated
19 with other heat pump applications, with a particular focus on enabling distribution
20 of the benefits of electrification.

- 1 • Incentivize customers to weatherize their home before installing heat pumps to
2 allow the right-sizing of equipment and promote comfort and efficient use.

3 Adhering to these strategies will lay a strong foundation in the earlier years and create the
4 conditions necessary for aggressive growth rates and longer-term success beyond the
5 current three-year term in order to achieve the Commonwealth's GHG emissions
6 reductions goal.

7 **Q. How will the Program Administrator include its market transformation efforts**
8 **towards the GHG emissions reductions goals?**

9 A. The Program Administrators are actively refining the overall market transformation
10 approach outlined above, and the success of this approach in accelerating adoption of
11 heat pumps will be evaluated over time. However, measuring market transformation
12 takes several steps, and quantifying the full market effects of a market transformation
13 initiative can take many years. In the meantime, to reflect fairly the benefits of
14 electrification efforts, the three-year plan includes an estimate of near-term market effects
15 to be expected in 2022-2024.

16 As set forth in the Term Sheet, and as outlined in the Plan, the Program Administrators
17 are using the evaluated spillover values as a proxy for near-term market effects.

18 Spillover is generally considered a subset of market transformation savings, and it only
19 accounts for effects of (1) participants in the program who install additional energy
20 efficient measures outside of the program as a result of participating in the program, and
21 (2) non-participants who install or influence the installation of energy efficient measures

1 as a result of being aware of the program. Spillover represents a conservative estimate of
2 near-term market effects because it does not include effects of planned market
3 transformation programs which are designed to change distributor stocking behavior to
4 stock and promote heat pumps, improve quality of installation, increase contractor
5 confidence and willingness to recommend heat pumps, or any of the other true market
6 transformation efforts that Program Administrators will engage in. Importantly,
7 however, this proxy value will be only used until the Program Administrators can
8 evaluate market effects during this term and use those evaluation findings to claim
9 savings starting in the next term (2025).

10 Accordingly, in the 2022-2024 term, the Program Administrators will include a 22
11 percent market effects factor for all market rate residential electrification measures in
12 both electric and gas programs. This includes: minisplit heat pumps, central heat pumps,
13 air to water heat pumps, and ground source heat pumps. The 22 percent market effects
14 factor is based on an evaluated spillover value from residential heat pump fuel
15 displacement that includes 12 percent participant spillover and 10 percent contractor
16 spillover,³ which is expected to be a conservative estimate of actual market effects once
17 market transformation efforts are underway.

³ Massachusetts Residential Programs Net-to-Gross Research of RCD and Select Products Measures, October 8, 2021 https://ma-eeac.org/wp-content/uploads/MA20R28-B-NTGRCDP_Final-Report_08Oct2021.pdf

1 In addition, the Program Administrators will include a 22 percent market effects factor
2 for C&I prescriptive electrification, specifically ducted and ductless heat pumps replacing
3 oil and propane heating and water heating equipment. This value is based on the full
4 evaluated residential spillover value because these measures will be limited to equipment
5 that is under 5.4 tons, which is the same as those offered to residential customers and will
6 be influenced by the same market transformation initiatives, including program influence
7 on both customer and contractor decision-making. Indeed, some of the customers
8 receiving this rebate may actually be residential customers who have a C&I meter.

9 For C&I custom electrification including VRF measures, and for C&I prescriptive
10 electrification installing heat pumps of 5.4 tons or more, the Program Administrators will
11 include a 10 percent market effects factor, which is based solely on the contractor portion
12 of the evaluated spillover value. The Program Administrators expect that the contractors
13 who work with large C&I customers under the custom program will be influenced by
14 market transformation efforts to a similar degree as contractors working in the residential
15 programs. The PAs will apply this same 10 percent value to the income eligible sector,
16 with the expectation that the contractors who serve income eligible customers will also be
17 influenced by market transformation efforts to a similar degree. Note that the participant
18 portion of the spillover value is not applied to C&I custom or large heat pumps, or to the
19 income eligible sector, because those customers may face a different decision-making
20 calculus about whether to install heat pumps than residential customers.

1 The market effect factors, however, will only be used on a limited basis. The market
2 effects factors will only be counted toward the achievement of the GHG goals if at least
3 50 percent of the statewide target for heat pump benefits is met. The Program
4 Administrators will claim the savings annually, with a true up at the end of the term
5 based upon aggregate performance over the combined three years of the 2022-2024 Plan
6 term. For example, if the Program Administrators do not meet the 50 percent threshold
7 in one year, but exceed it in other years, so that the 50 percent threshold is met for the
8 term, then no adjustment would be required in the Term Report, as the PAs would have
9 correctly included market effects in each of the Annual Reports. However, if the
10 Program Administrators meet the threshold in one year but not the other two, such that
11 they do not meet the 50 percent threshold for the term, then in the Term Report the
12 Program Administrators would remove any GHG savings associated with prior years,
13 resulting in a downward adjustment compared to the Annual Reports for those years.

14 **D. Promoting Equity and Overcoming Participation Barriers**

15 **Q. How is the Program Administrator incorporating equity into the 2022-2024 Plan?**

16 A. Equity, or the process of establishing more equal access to and participation in energy
17 efficiency, particularly among those customers who have historically participated at
18 lower rates, including renters/landlords, moderate income customers, English-isolated
19 families, and microbusinesses, is one of the key strategic priorities of the 2022-2024 Plan.
20 Across all sectors, the Program Administrators are working to increase participation
21 among these groups by researching and deploying the most effective engagement

1 strategies, including through increased collaboration with community partners, enhanced
2 incentives, improved language access, and targeted messaging.

3 The first step to reducing inequities in energy efficiency is understanding who is, and is
4 not, participating. During the 2019-2021 term, the Program Administrators
5 commissioned a series of studies that were completed in 2020, including the Residential
6 Non-Participant Customer Profile Study, the Residential Non-Participant Market
7 Characterization and Barriers Study, and the C&I Small Business Non-Participant
8 Customer Profile Study. As depicted in Figures 1-1, 1-2, and 1-3 below, these studies
9 showed that some groups of customers are less likely to be aware of or participate in the
10 Program Administrators' programs.

Results of 2020 Participant and Non-Participant Studies

Figure 1-1: Participation Data (Renters vs. Owners)

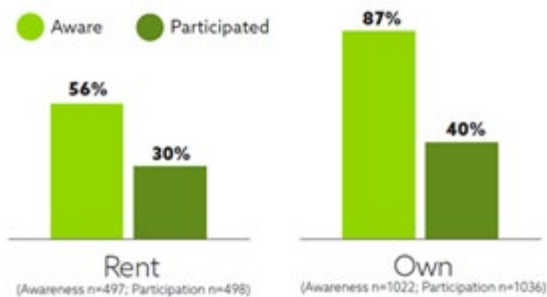


Figure 1-2: Participation Data (English vs. Language Other Than English)

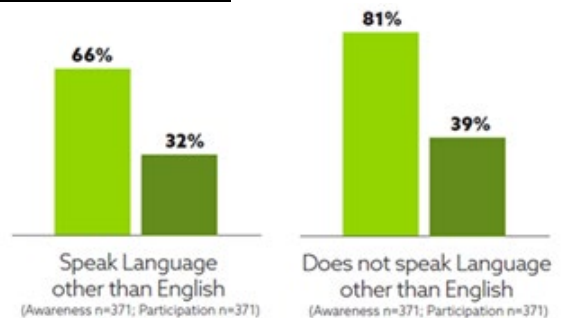
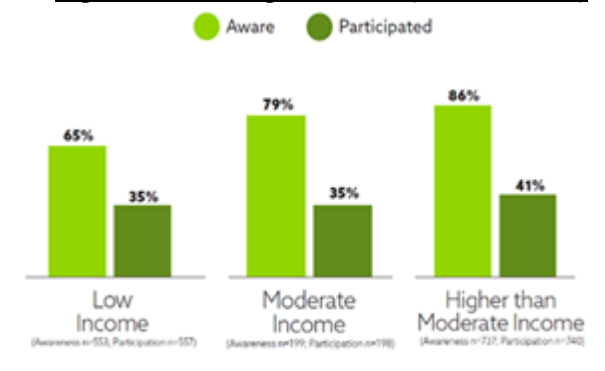


Figure 1-3: Participation Data (Income Levels)



1
2 For example, renters are less likely to participate than homeowners (Figure 1-1), while
3 moderate income customers are less likely to participate than those with higher than
4 moderate incomes (Figure 1-2). Additionally, customers who speak English “not at all”
5 or “not well” are less likely to participate in the Program Administrators’ programs than
6 those that speak English “well” or “very well” (Figure 1-3). The largest differences are
7 among renters versus owners (a 10 percent difference in participation), while for the other
8 groups, the differences are smaller but still statistically significant. Renters face
9 challenges to participating since they are not the decisionmakers for installing measures

1 such as weatherization and heating system upgrades. If renters pay the utility bills,
2 landlords may not see the value in funding upgrades that would reduce costs only for the
3 tenants.

4 During the 2019-2021 term, the Program Administrators worked collaboratively with
5 Councilors and other stakeholders to participate in the Council’s Equity Working Group
6 (“EWG”) to make recommendations regarding improving the equity of outcomes
7 achieved within the programs, expanding their understanding of the barriers customers
8 encounter when engaging in energy efficiency programs, and establishing a set of metrics
9 by which the Program Administrators will benchmark and measure success over time
10 toward achieving the intended equity-related outcomes from improved program design.
11 One of the key objectives of the EWG was to conduct a series of focus groups to solicit
12 feedback from public and private organizations, and businesses who engaged with
13 renters, landlords, and English-isolated families.

14 The *Non-Participant Market Characterization and Barriers Study* also identified several
15 consistent themes around barriers to customer participation, including lack of trust in
16 government and landlords, prioritizing more basic needs than energy efficiency, lack of
17 understanding/awareness of offers, and perceptions that offers are not relevant to them, or
18 are “too good to be true.” Customers who do not trust the legitimacy of the programs are
19 less likely to participate, and customers who do not understand the benefits of energy
20 efficiency may not see the relevance of these programs to their lives. The most common

1 reasons that non-participants give for not participating in Mass Save programs are: (1)
2 not being aware of the program offers (27 percent), (2) thinking that their house is
3 already energy efficient (23 percent), (3) not wanting to deal with the hassle of
4 participating (22 percent), or (4) not having the time (18 percent). Financial barriers were
5 less commonly cited, with 10 percent of non-participants saying they did not have
6 financing options and 7 percent saying they could not afford to implement the energy
7 efficiency project.

8 The Program Administrators conclude from this data that successful efforts must address
9 both financial and non-financial barriers. The Program Administrators actively identified
10 external stakeholders to support this important initiative and facilitated several listening
11 sessions to help foster inclusion. Dozens of stakeholders representing various customer
12 segments throughout the Commonwealth shared ideas on how the Massachusetts
13 Program Administrators can improve equitable participation in energy efficiency
14 programs. The Program Administrators also benefitted from valuable insight and
15 received feedback from participants to launch the second iteration of the Municipal &
16 Community Partnership Strategy. This initiative first scaled statewide by the Program
17 Administrators in 2019 to work with local partner communities to increase the reach of
18 energy efficiency savings, especially among renters, moderate income residents, English-
19 isolated families, and small businesses, with an emphasis on environmental justice
20 communities.

1 The recommendations resulting from the EWG focus groups and the Program
2 Administrators' experience in implementing the Municipal & Community Partnership
3 Strategy greatly informed and guided the approaches to achieving more equitable
4 delivery of programs during the 2022-2024 term. Several cross-sector implementation
5 groups have been convened to implement the Program Administrators' Workforce
6 Development Strategy (see Section 1.1.3 of the Plan) and Municipal & Community
7 Partnership Strategy (called the "Community First Partnership Program" for the 2022-
8 2024 term). Another key outcome of the EWG was the development of a comprehensive
9 set of equity targets across programs and sectors (*see* Exhibit Compact-1, Appendix E).
10 This set of ambitious targets will be reported on regularly to the Council to assess
11 progress and performance. Throughout the 2022-2024 term, and in accordance with the
12 reporting schedule laid out in the metrics document, the Program Administrators will
13 track and report on the full list of equity targets developed together with the EWG.
14 Additionally, the Program Administrators will provide narrative updates on these efforts
15 in quarterly reports to the Council.

16 The Program Administrators will continue to work in partnership with the EWG during
17 the 2022-2024 term to continue to enhance equity and inclusion in their planned efforts.
18 These efforts will serve to increase external stakeholder input in program development
19 and delivery. The Program Administrators' approach is to treat equity as a lens through
20 which to view everything that they do, rather than a discrete set of activities. Towards
21 this end, the Compact is proposing specific enhancements to the Three-Year Plan,

1 discussed in detail in Section III, *infra*, which further support equity and inclusion in the
2 Compact's energy efficiency programs.

3 **Q. Please describe how the Program Administrator intends to measure its success in**
4 **servicing equity through the 2022-2024 Plan.**

5 A. The PAs will measure success in increasing equity through achievement of the equity
6 targets included in the Plan and achievement of the benefits related to the equity
7 component of the performance incentive mechanism. PAs have also included in the Plan
8 targeted funding levels for each segment set forth in the equity targets and will report
9 spending associated with these customer groups. Additionally, PAs will be implementing
10 and evaluating the Community First Partnership Program, which includes a focus on
11 environmental justice communities and serving historically underserved customers.
12 Participating communities in this partnership program will work with the PAs to achieve
13 goals to increase participation among renters/landlords, English-isolated families,
14 moderate income customers, small businesses, or a combination of some of these
15 customer segments. The PAs and partners will be tracking customer participation as a
16 result of the Community First Partnership Program efforts.

17 The PAs will also measure success in promoting equity through new partnerships with
18 Community-Based Organizations. These collaborations will occur through several
19 arenas, including through the Community First Partnership Program, other municipal and
20 community partnerships to increase awareness and participation, and the new community
21 partnerships effort aimed at school-age education programs.

1 Finally, the PAs plan to undertake another set of non-participant studies in 2022-2024 in
2 order to compare progress since the previous studies.

3 **Q. Describe the progress the Program Administrator has made in the 2019-2021 Plan**
4 **term to address participation barriers and achievement of deeper participant**
5 **savings for renters in the residential and C&I customer sectors.**

6 A. In the residential sector, the Program Administrators considered two primary pathways to
7 better serving renters: providing opportunities for renters to easily realize savings in areas
8 where they have the ability to make changes themselves and increasing engagement with
9 landlords that can make decisions about building system improvements that their tenants
10 are unable to address. While engagement with renters may sometimes lead to
11 engagement with a landlord, identifying and addressing the divergent needs,
12 opportunities, and barriers of renters and landlords individually is critical to serving both.

13 During the 2019-2021 term, the Program Administrators made several significant
14 changes to reduce barriers to participation by renters. Alongside MassSave.com, the
15 residential Mass Save hotline is a primary entry point for customers into the residential
16 programs. After working with a consultant that specializes in designing intuitive and
17 easily-navigated phone experiences and user-testing a new approach, the PAs introduced
18 a totally redesigned residential hotline. This included ensuring that renters were routed to
19 the most appropriate entity. The PAs also made other process improvements, such as
20 enabling the occupants and landlords of multifamily buildings to speak directly to the
21 appropriate service provider, instead of having to speak to a separate intake person before
22 they got to the vendor who could assist them.

1 The online assessment, distinct from virtual home energy assessments, is designed to
2 allow customers to receive personalized recommendations on how to benefit from the
3 PAs' programs quickly, easily, and on the customer's own schedule. In 2021, the PAs
4 launched a new version of the online assessment. In addition to other improvements, this
5 new iteration was specifically designed to provide recommendations on available
6 incentives and services that are relevant and actionable for renters. Providing a tailored,
7 positive first experience helps build trust and momentum towards action.

8 During the 2019-2021 term, the Program Administrators also introduced customized
9 energy savings packages, which included items for self-installation that would have
10 otherwise been made available during an in-home assessment. The greatest value in
11 home energy assessments, virtual or in person, is the identification and promotion of
12 larger energy savings opportunities, such as envelope or HVAC improvements. In almost
13 all instances, renters lack the agency to pursue these improvements on their own. For this
14 reason, finding time for an energy assessment may not be a priority or even a possibility
15 for renters. Energy savings packages deliver no-cost savings measures directly to renters,
16 allowing them to start realizing savings almost immediately. At the same time,
17 information collected during the online assessment and phone intake help the Program
18 Administrators identify buildings where there likely is greater energy saving opportunity,
19 so that they can connect with the decision-maker, either directly or through the renter
20 initiating the interaction.

1 As noted above, however, making larger improvements to rental units requires
2 participation by the landlord. The Program Administrators have consistently and pro-
3 actively marketed to and sought feedback from landlords. Over the 2019-2021 term, the
4 Program Administrators participated in various landlord meetings, including one hosted
5 by the statewide group, MassLandlords. However, meaningful engagement during the
6 pandemic, when landlords were primarily focused on managing tenants struggling to pay
7 rent and other COVID-19-related issues, has been challenging.

8 Additionally, while not focused exclusively on renters, the Program Administrators'
9 Community Partnerships program enables outreach that addresses community-specific
10 priorities and is designed to be effective in that community. For some towns, this
11 included a focus on renters.

12 The Program Administrators also experimented with ways to make use of datasets
13 produced as a part of the Multifamily Buildings Census (RES 43). The Multifamily
14 Census sought to identify every individual multifamily building (five units or more) in
15 PA service territories and define key characteristics (age, number of units, past
16 participation history, consumption, etc.) for each. The study yielded highly valuable
17 information, while also highlighting key data gaps and challenges. For example, because
18 of out-of-state owners, the use of LLCs and other legal entities, and other complexities,
19 accurately identifying decision-makers for many multi-family buildings is a challenge.
20 Still, the Program Administrators found ways to effectively use the data. For example,

1 Eversource worked with vendors to append additional data layers to the Multi-Family
2 Census outputs in order to make the dataset even more valuable. National Grid used the
3 data to execute a targeted outreach campaign to smaller multi-family buildings. As noted
4 above, there were limitations and opportunities for improvement in the Multi-Family
5 Census. The Program Administrators and the Consultants are working with evaluation
6 vendors to update and improve the Multi-Family Census to enable further targeted
7 outreach.

8 At the beginning of the pandemic, the Program Administrators increased the incentive for
9 insulation measures to 100 percent, which the PAs plan to maintain for renters. While
10 this does not address other potential landlord barriers, no-cost improvements effectively
11 eliminate the landlord-tenant split incentive for eligible measures. The Program
12 Administrators viewed the previous 90 percent renter-occupied incentive as aggressive
13 but reducing participation friction by removing the final ten percent cost outweighs the
14 modest increase in incentive spending, especially for such a fundamental savings
15 measure. This 100 percent insulation incentive for renter-occupied units enables the
16 communication of a simpler and more enticing value proposition to landlords and
17 increases the likelihood that renters trying to recruit their landlords to participate may be
18 successful.

19 In the C&I customer sector, the Program Administrators have recently studied non-
20 participants in the *Commercial and Industrial Small Business Nonparticipant Customer*

1 *Profile Study* that was completed on April 15, 2020. While it does not focus on renters
2 specifically, the study suggests that microbusinesses and seasonal businesses may be
3 suitable focus areas for Program Administrator efforts, and it is feasible that these
4 customers have the least leverage with applicable landlords due to their size and any split
5 incentives.

6 Despite the depressing effect of the COVID-19 pandemic on businesses, the Program
7 Administrators dedicated considerable resources to the “Main Streets” efforts, where
8 vendors and staff were able to engage in-person with small businesses and provide a
9 complete array of energy savings recommendations in a proactive manner. To that effect,
10 *the Commercial and Industrial Small Business Nonparticipant Customer Profile Study*
11 looked at the analysis period of 2012-2017. As noted in the report, “[u]pstream lighting
12 initiatives have driven a substantial increase in the number of microbusiness participants
13 over the analysis period, but other initiatives, especially turnkey, provided deeper savings
14 for participants and for the population as a whole.” It was noted that “[f]or electric, total
15 savings for microbusinesses were 15 percent higher than for medium-sized businesses in
16 2018. Upstream linear and other LEDs provided the highest kWh savings of any end use,
17 making up 13 percent of total microbusiness kWh savings.”

1 **Q. Describe the progress the Program Administrators has made in the 2019-2021 Plan**
2 **term to address participation barriers and achievement of deeper participant**
3 **savings in hard-to-reach/underserved communities in the residential and low-**
4 **income customer sectors.**

5 A. During the 2019-2021 term, the PAs made significant changes to reduce barriers in hard-
6 to-reach/underserved communities in the residential and low-income sectors.

7 Moderate Income

8 Throughout the 2019-2021 term, the PAs sought to expand awareness and use of the
9 moderate income weatherization incentive. The PAs examined income verification
10 processes and went out to bid for an income verification vendor. Additionally, the PAs
11 offered a pre-weatherization incentive to moderate income customers of \$250 per barrier
12 and also marketed DOER barrier mitigation grants.

13 In 2020, National Grid and Eversource began offering no cost wireless thermostats to
14 qualified moderate income customers that are new homeowners through a partnership
15 with Fannie Mae. Fannie Mae identifies new homeowners within the qualified income
16 ranges, and those customers are provided information on how to make their new home
17 more efficient by accessing a no cost wireless thermostat via the online marketplace.

18 Low-Income and Market Rate Coordination

19 In an effort to develop and streamline service to customers who reside in buildings
20 occupied by more than zero and less than half low-income customers, the PAs and LEAN
21 developed a streamlined service, the mixed income protocol, that included reducing the
22 number of required visits and allowing one vendor to weatherize the entire building.

1 Adding to the introduction of mixed income protocol, the PAs, vendors, and LEAN
2 continued to meet to ensure coordination between market rate and income eligible
3 programs as planned changes for market rate customers were deployed. Because
4 customers can fluctuate between income eligible and moderate income status, and
5 because moderate income customers may be co-located in buildings occupied
6 predominantly by income eligible customers, this coordination is critical to serving both
7 income eligible and market rate customers.

8 Limited English Proficiency

9 During the 2019-2021 term, the PAs continued to address barriers to customers with
10 limited English proficiency (“LEP”). The PAs engaged Illume, a third-party vendor, to
11 benchmark and review the customer journey for LEP speakers. The PAs also included
12 LEP customers in the Residential Non-Participant Market Characterization Study, which
13 identified barriers to participation and considerations for addressing those barriers. The
14 PAs used the findings to improve service to LEP speakers. To address barriers, including
15 language, awareness, trust, and prioritization/time for LEP customers, the PAs translated
16 marketing materials into other languages and included Spanish, Portuguese, Mandarin,
17 and Russian language options on the enhanced statewide Interactive Voice Response
18 (“IVR”). Additionally, the PAs continue to engage multi-lingual staff and utilize
19 language support services to better enable services and programs to these customers. PAs
20 are reviewing language capabilities across the contractor network to better pair LEP
21 customers and contractors who may speak their preferred language in the future.

1 Moreover, the PAs worked with municipalities participating in the Municipal Partnership
2 effort to create translated versions of approved materials, as well as materials created
3 originally in Spanish and Portuguese, and to encourage collaboration with local
4 community based organizations (“CBO”) that represent and work with LEP customers to
5 build greater trust in these communities.

6 As stated above, the online assessment, distinct from virtual home energy assessments, is
7 designed to allow customers to receive personalized recommendations on how to benefit
8 from the PAs’ programs quickly, easily, and on the customer’s own schedule. In October
9 2021, the PAs launched an improved online assessment, which unlike the previous
10 iteration, is available in Spanish and will be available in Portuguese in the future.

11 Income Eligible

12 The PAs and LEAN worked together to create and implement a protocol to expand Wi-Fi
13 thermostat installations for income eligible customers and engaged in initial marketing
14 and outreach efforts to enroll qualifying income eligible customers in PAs’ demand
15 response offering. They also worked together to fully train all CAP agency staff on the
16 latest heat pump technologies and improved identification of heat pump opportunities for
17 income eligible customers. They also began offering oil and propane to heat pump fuel
18 switching options for these customers to help them achieve deeper energy savings. The
19 PAs also included vermiculite remediation as a weatherization barrier eligible for

1 mitigation funding and began offering this to income eligible customers who previously
2 were unable to weatherize their homes.

3 Municipal Partnerships

4 The EWG was established in 2020 with a goal of promoting more equitable delivery of
5 programs. The EWG specifically focuses on moderate income customers, LEP
6 customers, renters, and small businesses. During 2021, the PAs began to incorporate a
7 number of the EWG's recommendations into the Municipal Partnership effort. This
8 included increased guaranteed financial support and trainings for Municipal partners and
9 the CBOs they work with on how to utilize the extensive statewide database,
10 MassSaveData.com, and all available PA data. These trainings also included an
11 overview of granular municipal level mapping tools utilizing the Residential Non-
12 Participant Study data. The PAs used these mapping tools to help Municipal Partners
13 better target geographic areas of low participation and other priority customer
14 populations. The PAs solicited feedback from Municipal Partners to improve these maps,
15 incorporated that feedback, and are working to make these same mapping tools available
16 to every city and town in the Commonwealth, with plans to release these maps in early
17 2022.

18 Moreover, PAs engaged stakeholders in a process to inform the design of the 2022-2024
19 Mass Save Community First Partnership program by identifying and connecting with
20 local groups that work with underserved communities. These local groups provided their

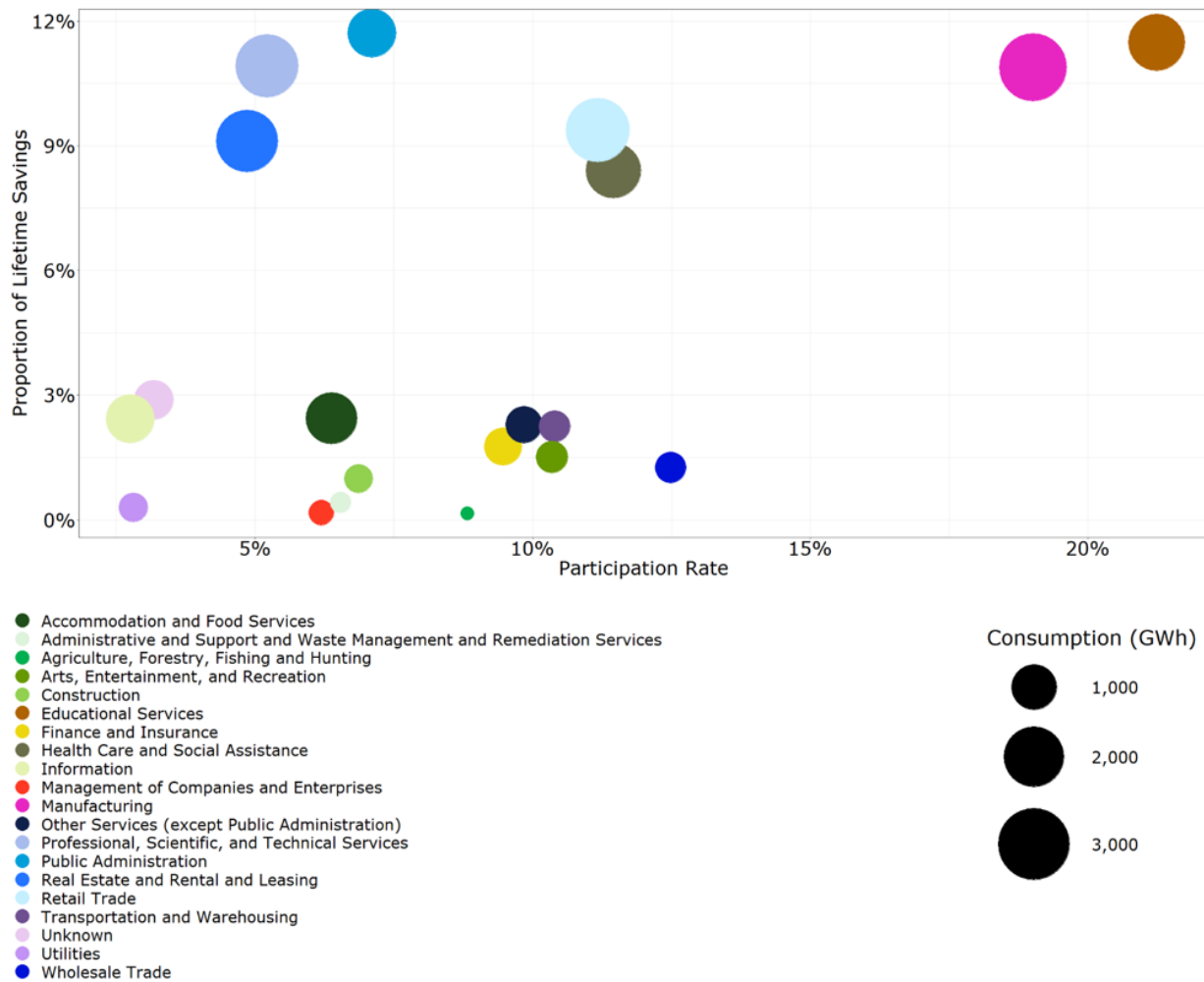
1 feedback on program design through two stakeholder webinars and via email. The PAs
2 were able to listen to community-identified needs and include leaders in goal-setting and
3 program planning for the future program. As a result of this stakeholder feedback
4 process and following up on recommendations from the EWG, the PAs incorporated a
5 number of design changes in Q2 of 2021. Changes that address hard-to-
6 reach/underserved customers included:

- 7 • Expanded approach to partnerships allowing entities other than municipalities,
8 such as 501(c)(3) non-profits to directly apply for the Community First
9 Partnership program.
- 10 • Increased amount of, and guaranteed financial support at, the beginning of the
11 program year to support CBO and municipal staff capacity both internally and
12 through their external partners.
- 13 • Incorporation of multiple pathways for participation.
- 14 • Creation of Energy Advocate role to be part of each Community Partner Team to
15 provide compensation to community leaders for their time, experience, and
16 knowledge as part of the Mass Save Community First Partnership program.
- 17 • Determination that all applicants must propose to focus their work in designated
18 environmental justice communities, and incorporation of quantitative data to
19 determine geographic areas that should be prioritized using 2020 Census data and

1 PA participation data made publicly available as part of the Residential Non-
2 Participant Study.

3 **Q. Describe the progress the Program Administrators have made in the 2019-2021 Plan**
4 **term to address participant barriers and achieve deeper participant savings in C&I**
5 **energy efficiency program channels (for example, municipal, healthcare, real estate,**
6 **education, non-profit, hospitality, and small and mid-sized C&I).**

7 A. The Program Administrators studied customer participation over several years through
8 the Customer Profile Study. This longer-term view of each customer segment has been
9 helpful to review past efforts. For example, in the 2018 Customer Profile, it noted that
10 “[t]he Healthcare segment has the highest participation rate and population savings
11 achieved in 2018 of any industry.” Further, the study found that “when looking at
12 locations over time in Figure 5-19, Educational Services is the highest participating
13 segment between 2013 and 2018”. Please see the figure below. It should also be noted
14 that non-profits are not specifically called out as an “industry segment’ in the figure.



2 Figure 5-19. Electric location participation and proportion of lifetime savings by industry
 3 segment, 2013 – 2018; 2018 C&I Customer Profile Study at 36 (2021).

4 The PAs seek to engage any and all customers through their internal staff and vendors.

5 Many of the previously identified barriers include costs and time. The PAs typically

6 provide multiple pathways to customers (i.e., direct customer engagement through

7 “downstream” pathways or instant rebates at the distributor through midstream channels)

8 to better serve their specific needs and interests.

1 Small Businesses

2 The PAs worked with internal staff and vendors to improve marketing materials and
3 launch a statewide marketing campaign through a common vendor to ensure that small
4 business education and outreach are implemented throughout the state in a consistent,
5 strategic manner. In addition, the PAs utilized the “Main Streets” approach throughout
6 the term to reach out to small customers in a “door-to-door” approach and offer
7 comprehensive services.

8 Mid-size C&I including Commercial Real Estate and Hospitality

9 Throughout the 2019-2021 term, the PAs coordinated efforts to better address mid-size
10 customers. National franchise customers are generally considered mid-size, and the PAs
11 coordinate approaches often including dedicating staff specifically to working with these
12 customers. In addition, the PAs continued to provide multiple pathways for participation
13 including the upstream delivery model as well as updated custom express tools to
14 streamline, simplify, and standardize analysis.

15 Municipalities and Schools

16 Each PA provides internal staff and/or specified vendors to support each municipality
17 with a customized approach that may involve coordination with other efforts like Green
18 Communities. The upstream pathway as well as the custom express tools are available to
19 the municipalities as well.

1 Healthcare

2 While all C&I customers have been affected by the pandemic, healthcare has been
3 particularly hard hit and continues to see challenges. The PAs have worked with these
4 customers to facilitate short- and long-term projects; however, investments of time and
5 capital have been diverted to other more immediate needs while actual access to
6 buildings has been severely curtailed due to health and safety concerns and limitations.
7 Nonetheless, the PAs continue to maintain very close relationships and regular
8 interactions with health care and hospital customers, typically through dedicated account
9 managers, to provide support for projects that are still being contemplated.

10 Non-Profit

11 As encouraged by the Department in the 2019-2021 Order, the PAs implemented
12 strategies to engage with non-profits. Non-profits are a broad sector, encompassing some
13 of the Commonwealth's largest entities (universities, hospitals) and small CBOs. All
14 market barrier mitigation efforts set forth above apply to non-profits. Of special interest,
15 regarding non-profits, the PAs worked with PowerOptions on several efforts. In 2019 the
16 PAs met with PowerOptions on numerous occasions to understand their marketing
17 outreach needs and work together to overcome identified challenges. The PAs created
18 marketing materials with the PowerOptions logo and utilizing their template. Sell sheets
19 were made available on PowerOptions' website for customers and potential customers to
20 download. Some PAs worked with PowerOptions to create marketing events specifically
21 for their audience. The event planning teams met to define the audience, content, unique

1 selling proposition, slide creation, invitation criteria, and more. The events are currently
2 being planned in accordance with PowerOptions' schedule.

3 The PAs continue to work on technical tools, continuous improvement, and other efforts
4 as further discussed in the Plan.

5 **Q. Describe the progress the Program Administrator has made in the 2019-2021 Plan**
6 **term to address tracking and reporting the number of renter participants by**
7 **dwelling unit.**

8 A. The PAs remain committed to serving and tracking renter participation. In 2019-2021,
9 the PAs introduced a number of data points for Residential Coordinated Delivery lead
10 vendors to track at the time of intake. In addition to basic contact information, the lead
11 vendors collect information on rental/ownership status and the customer is designated
12 into one of four categories:

- 13 • Owner – customer owns and lives at the property
- 14 • Renter – customer rents the unit
- 15 • Landlord Occupied – Tenant account in landlord's name and landlord lives in
16 building
- 17 • Landlord Unoccupied – Utility account in landlord's name and landlord does not
18 live in the building

19 In addition to the four categories, when possible, the lead vendors note the type of
20 dwelling unit the customer resides in, categorized into single-family homes, attached low
21 rise, or attached high rise.

1 The Program Administrators report by dwelling unit in different ways depending on the
2 participation pathway. Tailored energy savings packages were tracked by dwelling unit,
3 and Residential Coordinated Delivery and Income Eligible Coordinated Delivery renters
4 were reported as they were tracked by the vendors. For C&I, Residential End Use, the
5 Program Administrators reported the total number of units served through this pathway
6 because, while it is not typically possible to individually verify which units are occupied
7 by a renter in large multifamily buildings, it is likely that these buildings are
8 predominantly occupied by renters.

9 In 2022-2024, the Program Administrators are continuing to improve the tracking and
10 collection of renter data. At customer intake, the Residential Coordinated Delivery lead
11 vendor will seek to identify a customer's renter status and the type of dwelling unit the
12 customer resides in, which will be categorized as single-family homes, attached low rise,
13 or attached high rise. In Income Eligible Coordinated Delivery, Community Action
14 Agencies ("CAAs") will seek to identify a customer's renter status upon intake for all 1-4
15 unit dwellings. When the PAs serve an attached low rise or attached high rise building,
16 assessments are conducted on a sampling of units. All units are assumed to be rental
17 customers with the exception of condominium buildings. In Income Eligible Coordinated
18 Delivery all dwelling units in 5+ unit buildings are assumed to be rental customers.

1 **Q. Describe the progress the Program Administrators has made in the 2019-2021 Plan**
2 **term to address tracking and reporting Mass Save participant data by renter/owner**
3 **status, income-level, and primary language.**

4 A. In accordance with the Department's Order in 2019-2021, the Program Administrators
5 tracked and reported renter status by (1) program pathway, including: Innovation -
6 Tailored Energy Savings Packages, Residential Coordinated Delivery, Income Eligible
7 Coordinated Delivery, and C&I - Residential End Use; and (2) income level, including:
8 Non-Income-Verified (Standard Program Participation), Moderate Income Qualified
9 (Weatherization Offer), and Income Eligible. For primary language, Program
10 Administrators capture primary language in instances where the language translation line
11 is needed or requested by the customer. Additionally, PAs track the number of customers
12 selecting a non-English prompt on the statewide phone line, as well as the number of
13 page translations to the Mass Save website. Program Administrators reported language
14 data from number of Mass Save Hotline Selections and MassSave.com Page Views in
15 English, Mandarin, Portuguese, Russian, and Spanish.

16 In 2022-2024, the Program Administrators will be reporting renter participation
17 biannually in Residential Coordinated Delivery, and also specifically with respect to
18 attached low-rise buildings in Residential Coordinated Delivery and Income Eligible
19 Coordinated Delivery. As noted above, the Program Administrators are also working
20 with vendors to continue to improve the tracking and collection of renter status data.

1 With respect to language, Program Administrators will be offering home energy
2 assessments and weatherization in Spanish and Portuguese and will track the number of
3 customers who participate in these services.

4 Additionally, through the Program Administrators' online assessment, information is
5 collected on renter/owner status and language preference. Income ranges for income
6 qualifying programs are provided and customers can self-select their applicable category.

7 **Q. Identify each outside organization (e.g., municipalities, municipal energy advocates,**
8 **community organizations, etc.) the Program Administrator has engaged with to**
9 **enhance program delivery during the 2019-2021 Plan term and describe such**
10 **engagement.**

11 A. Please see Attachment-A for a list of each organization the Program Administrators
12 engaged with in 2019-2021 to enhance program delivery, along with information on the
13 nature of the engagement and how the engagement enhanced program delivery.

14 Throughout the 2019-2021 term, the Program Administrators launched the Municipal
15 Partnerships program. As part of this program, the Program Administrators partnered
16 with 12 municipalities. Four out of the seven municipalities that participated in 2020
17 opted to apply again and were accepted for participation in 2021, in addition to five new
18 municipalities.

1 **Q. How does the Program Administrator intend to engage outside organizations to**
2 **enhance program delivery during the 2022-2024 Plan term?**

3 A. The Program Administrators intend to engage a variety of outside organizations, building
4 on both longstanding partnerships as well as establishing many new partnerships, to
5 enhance program delivery during the 2022-2024 term.

6 ***Cross Cutting***

7 **Community First Partnership Program:** Building on the success of the Municipal and
8 Community Partnership Strategy during the 2019-2021 plan, the PAs are enhancing the
9 program and changing the name to the Mass Save Community First Partnership (“CFP”)
10 program to reflect those enhancements. PAs plan to partner with at least twenty teams
11 made up of a combination of at least thirty non-profit CBOs and municipal governments
12 from across the Commonwealth in two- or three-year partnerships. The CFP is designed
13 to leverage the local knowledge, trusted relationships, and experience of municipalities
14 and community-based organizations to increase awareness and measurable participation
15 in the PAs energy efficiency offerings among all customers, with an emphasis on the
16 following target groups: renters & landlords, English-isolated customers, moderate
17 income customers, and small businesses. This will be done through a combination of
18 strategic partnership engagement, community-based social marketing, and community-
19 based participatory research. All teams will be engaging in outreach primarily in
20 designated environmental justice communities. PAs will be providing financial
21 assistance, technical assistance, training in energy efficiency offerings and community
22 based social marketing, participation data, and marketing support to help community

1 partner teams reach their goals to increase residential weatherization, residential HVAC
2 upgrades, and small business participation in their communities.

3 **Clean Energy Pathways internship program:** Through the Clean Energy Pathways
4 internship program, the PAs will train new and diverse pool of candidates, targeting
5 multilingual 18- to 24-year-olds from backgrounds underrepresented in the energy
6 efficiency workforce for nine-month paid internships in partnership with place-based
7 community workforce development organizations in environmental justice communities
8 and with vendors in high-growth industries. Interns will receive training to prepare them
9 for their new roles, ongoing professional development, mentorship, and team building
10 opportunities. Interns who successfully complete their nine months will be offered full
11 time positions with contractors. In the first cohort launched in 2021, PAs partnered with
12 Asian American Civic Association in Boston, Greater Lawrence Technical School in
13 Lawrence, MassHire Springfield in Springfield, and MassHire Bristol in Fall River to
14 recruit and supervise interns. PAs are partnered with Green Jobs Academy and Asian
15 American Civic Association to deliver training to interns; PAs are also partnered with
16 eight HVAC and weatherization contractors as intern hosts. Each subsequent cohort will
17 utilize a similar structure including partnership with several place-based community
18 organizations for recruitment and supervision as well as training, and contractors as
19 intern hosts. These partnerships are key to creating successful outcomes for interns.

1 **Energy Efficiency Training Scholarship:** As part of planned workforce development
2 efforts, the PAs plan to launch a new scholarship program in 2022 with up to \$250,000 in
3 scholarships to be offered annually for energy efficiency training and certification
4 programs for new entrants into the energy efficiency workforce, with the intent to
5 diversify the workforce, remove barriers to entering the energy efficiency industry, and
6 support PAs' goals for 2022-2024. The scholarship program will entail partnering with
7 educational institutions, especially vocational and technical and other public high
8 schools, and community colleges, to identify scholarship recipients. It will also involve
9 potential partnership with training and certification programs to identify and strengthen
10 opportunities for scholarship candidates.

11 ***Residential & Income Eligible***

12 **Residential Education Innovative Partnership Program:** PAs will be launching a new
13 opportunity in 2022 within the Residential Education program that will involve
14 partnering with CBOs throughout the Commonwealth and providing them with financial
15 assistance to undertake efforts to educate children under 18 as well as adults on the
16 importance and relevance of energy efficiency. CBOs will have the flexibility to design
17 their own educational programming and will be expected to provide PAs with
18 information on the outcomes of their efforts, including the number of people reached.
19 Priority will be given to efforts undertaken in environmental justice communities and
20 efforts targeted at hard-to-reach customer groups. Awards will be competitively granted
21 annually.

1 **Heat Pump Training for New HVAC Trainees:** Within the Retail program, the PAs
2 plan to launch a training partnership for HVAC training programs, such as programs at
3 vocational and technical schools statewide, to provide no-cost access to heat pump
4 training and measure Quick certification to HVAC trainees through the PAs' Energy
5 Efficiency Learning Center. The PAs will work with HVAC training programs so that
6 students who successfully complete the training can be connected with potential job
7 opportunities with heat pump installation vendors. The PAs will design this training
8 effort with feedback from HVAC training programs to ensure that the effort will reach its
9 goal of ensuring that new HVAC training graduates are knowledgeable about heat pump
10 technologies and installation requirements and ready to help contractors meet market
11 demand for new heat pump systems.

12 **Residential New Construction Partnerships:** Building on the partnership the PAs
13 established with Passive House Massachusetts for 2019-2021 to deliver multifamily new
14 construction-focused Passive House training to building professionals, the PAs will
15 expand collaborative training efforts to focus on the low rise and single-family residential
16 market, as well as direct consumer education on the benefits of all-electric new
17 construction. PAs plan to also engage additional CBOs with knowledge of the new
18 building sector to undertake training and advocacy to raise awareness among building
19 professionals and other real estate professionals and home buyers about the All-Electric
20 Path to Zero offer in the Residential New Construction program.

1 **National Energy Education Development (“NEED”) Program:** Building on the
2 longstanding partnership with NEED, including through the 2019-2021 term, the PAs
3 will continue to partner with the program in 2022-2024, as well as partnering with K-12
4 public school districts across Massachusetts to offer no-cost training for teachers in
5 energy and energy efficiency classroom curriculum that meets state educational
6 standards. Schools that partner with PAs and NEED may allow their teachers to take
7 time to participate in this professional development opportunity, provide classroom space
8 for PAs to host training and school assemblies, and recommend teachers for participation.
9 The PAs will also be working with NEED to partner with schools on delivery of clean
10 energy and energy efficiency career exploration workshops for students, where schools
11 are providing virtual time out of the school day, physical assembly space where they
12 choose to do so, and student participation at these no-cost workshops.

13 **Arbella Insurance Group:** PAs will continue the partnership established with Arbella
14 Insurance Group into the 2022-2024 term. Through this partnership, Arbella Insurance
15 Group offers a five percent discount to new and existing home, condo, dwelling fire
16 policyholders if they complete a Mass Save® Home Energy Assessment. This
17 partnership enables promotion of Mass Save programs to Arbella Insurance Group
18 customers.

19 **The Levy Partnership and NYSERDA:** National Grid supported NYSERDA and the
20 Levy Partnership by providing technical assistance and cost share for an integrated

1 controls study called Maximizing the Effectiveness of Ductless Heat Pumps in Existing
2 Homes by Demonstrating Integrated Controls study, which is ongoing. This project
3 brings together key market actors to assess integrated controls strategies. The PAs will
4 use the findings to inform their heat pump program in Massachusetts.

5 ***Commercial & Industrial***

6 **Main Streets:** Main Streets campaigns are a valuable avenue for PAs to interact face-to-
7 face with small business customers and enroll them in the Small Business Turnkey
8 program. For 2022-2024, PAs will focus more Main Streets campaigns in environmental
9 justice communities and will partner with local business associations to increase interest
10 and participation in these efforts. Partnerships with local business associations can
11 involve marketing and outreach support, presence on the days of the Main Streets events,
12 and help promoting energy efficiency to small business organization membership.

13 **Diverse Business and Commercial Groups:** Complementing planned Main Streets-
14 related partnerships, the PAs will also engage additional business and commercial groups
15 that serve or represent minority and women owned businesses, including those focused
16 on business ownership by Black/African American, Hispanic/Latino, women, LGBTQI+,
17 and other constituencies. Partnership with business groups may involve soliciting
18 feedback to understand the best ways to make delivery and marketing of energy
19 efficiency offerings more relevant or accessible to their membership, marketing and
20 outreach support, help promoting energy efficiency to small business organization

1 membership, and provision of training or workshops by PAs to help small business
2 organization members understand and navigate energy efficiency offerings available to
3 them.

4 **Massachusetts Energy Efficiency Partnership (“MAEEP”):** Program Administrators
5 plan to continue in 2022-2024 the longstanding relationship with the University of
6 Massachusetts Amherst through the MAEEP to provide training for C&I trade allies.
7 Trainings through the MAEEP partnership typically include topics such as an
8 introduction to advanced technologies, tools for understanding the benefits of
9 implementing improvements, and opportunities to make use of resources available
10 through the PAs. MAEEP sources content experts from industry to perform the trainings.
11 Some subject matter experts in the past have included: Mitsubishi (Heat Pumps), ERS
12 (RCx), Resource Innovation Institute (Cannabis energy efficiency), and PA staff. In
13 addition to organizing the trainings, MAEEP works with PAs to help recruit training
14 participants, who typically include ESCOs, engineers, architects, and C&I customers.
15 PAs provide financial compensation to UMass Amherst for their partnership in
16 organizing the 10-12 trainings and recruiting nearly 1,000 participants annually.

17 **E. Evaluation, Measurement, and Verification**

18 **Q. Describe the Program Administrator’s understanding of GCA and Department**
19 **requirements regarding EM&V.**

20 A. Section 3.5.2 of the Guidelines requires each Program Administrator to prepare an
21 evaluation plan that describes how it intends to monitor and evaluate energy efficiency

1 programs, including a description of how the PA’s evaluation plan is consistent with any
2 statewide evaluation plan and how the Program Administrator would coordinate its
3 efforts with other Program Administrators. Section 3.5.3 of the *Guidelines* sets out
4 additional information to be included in evaluation plans. The Department explained that
5 the *Guidelines* are intended to create a statewide strategy that is collaboratively
6 developed by the Council and PAs. *2016-2018 Three-Year Plans Order* at 27-28; *2013-*
7 *2015 Three-Year Plans Order* at 38; *Electric Three-Year Plan Order* at 129; *Gas Three-*
8 *Year Plan Order*, at 120; *Guidelines* §3.5.2. The Department emphasized that consistent
9 and reliable EM&V studies will ensure that program investments continue to provide net
10 benefits to customers. *Electric Three-Year Plan Order* at 129-130; *Gas Three-Year Plan*
11 *Order*, at 120-121. Additionally, in the Department’s recent update to the *Guidelines*, it
12 directed the Program Administrators to apply all evaluation results prospectively only.
13 D.P.U. 20-150-A at 32-33.

14 **Q. How has the Program Administrator fulfilled the requirements set forth in the**
15 **statute and Department requirements regarding EM&V?**

16 A. The Three-Year Plan defines the substantive approaches, study areas, EM&V budgets,
17 and institutional roles to be in place over the three-year plan term sufficiently to satisfy
18 the Department’s precedent and *Guidelines*. The statewide EM&V framework proposed
19 in the Plan builds on the extensive EM&V achievements accomplished in 2019-2021 and
20 reflects both the core principles of the Council Resolution on Evaluation, Measurement,
21 and Verification approved on September 8, 2009 (“EM&V Resolution”) and key lessons
22 learned over the previous terms. While the PAs and the EM&V Consultant will continue

1 to work diligently to reach consensus on evaluation issues, an appeals process has been
2 established to resolve issues on which no consensus can be reached. This appeals process
3 will enable the PAs to fulfill their responsibility to report program savings to the
4 Department with full confidence. To date, the PAs have been able to resolve all areas of
5 difference with the EM&V Consultant without utilizing the appeals process.

6 In line with past practice, the 2022-2024 Three-Year Plan again proposes three research
7 areas: residential, C&I, and special and cross-sector studies. The evaluation budget for
8 the studies conducted through the statewide EM&V process is approximately \$47
9 million, and all evaluation results will be applied prospectively only. These research
10 areas are organized primarily by target markets to maximize effectiveness while
11 minimizing overlap among areas. Accordingly, the Department should find that the
12 Program Administrators' EM&V framework satisfies the *Guidelines* and Department
13 precedent.

14 **Q. Have there been any recent changes to the state or local laws that might affect**
15 **EM&V during the 2022-2024 Plan term?**

16 A. Yes, the cities of Boston and Cambridge have recently enacted ordinances that require
17 existing buildings to increase their energy efficiency. Boston's ordinance Building
18 Emissions Reduction and Disclosure ("BERDO") gives the City of Boston authority to
19 set carbon targets for large existing buildings based on the building use. Once in effect,
20 these ordinances will require building owners to comply with higher energy efficiency
21 standards, purchase renewable energy credits, or pay a fine. For 2022-2024, participation

1 in BERDO and similar municipal initiatives does not result in the participant being
2 deemed a free rider.

3 **Q. How do the PAs intend to handle these ordinance changes?**

4 A. In the Term Sheet, and incorporated into this Plan, the PAs and the Council have adapted
5 the following approach. As cities and towns have increasingly adopted more stringent
6 energy polices, a primary driver of adoption of these policies is access to energy
7 efficiency incentives and, more generally, PA program support of these municipalities
8 and customers in these jurisdictions. Municipalities depend on PA incentives to help
9 customers meet the higher efficiency levels they strive for. Stakeholders expect
10 customers subject to BERDO and other local energy initiatives would continue to have
11 access to Mass Save technical assistance, vendors, incentives, etc., as a path to complying
12 with these standards.

13 Given this context, all parties to the Term Sheet, and the Council, agree that the PAs will
14 be able to serve customers in areas with BERDO and that they will apply this concept to
15 other similar municipal ordinances. The PAs, DOER, and the AGO will work together to
16 determine how to apply this concept in practice.

17 **Q. Are there other evaluation matters regarding the 2022-2024 Plan that you would**
18 **like to highlight?**

19 A. Yes. The Term Sheet and the Plan specify fuel switching baselines for existing buildings
20 and new construction in the EM&V Policy Memorandum agreed to and attached to the
21 Term Sheet.

1 **F. Updates from 2019-2021 Plan**

2 **Q. Are there any measures that were included in the Program Administrator’s 2019-**
3 **2021 Plan that will not be offered in the 2022-2024 Plan that have not been replaced**
4 **with a similar, more efficient measure?**

5 A. Please see Attachment-A to this testimony for a list of measures that were in the 2019-
6 2021 Plan that will not be offered in 2022-2024. These measures generally fall into three
7 main categories:

8 1. Residential market rate lighting

- 9 • The 2022-2024 Electric Energy Efficiency Plan eliminates the residential lighting
10 upstream program as well as in-unit direct install lighting for market rate
11 customers.
- 12 • The 2022-2024 Electric Energy Efficiency Plan eliminates per-bulb incentives for
13 Residential New Construction low-rise because efficient lighting is now code.
- 14 • Under the Term Sheet, and incorporated into this Plan, the PAs have retained the
15 flexibility to offer lighting to renters and moderate income customers. This
16 flexibility is essential, especially given the Department’s stated priority of having
17 this Plan provide tools for customers to manage their energy costs. Lighting is
18 such a tool. The PAs note that DOER advocates the phase out of these lighting
19 measures.

20 2. Measures that are not cost-effective. This includes:

- 21 • Water Heater, Indirect, Gas (G19A2c028): this measure was determined to be
22 particularly non-cost-effective, and in evaluating the cost-effectiveness of the gas

1 Retail initiative, the PAs determined that this measure should no longer be
2 supported.

- 3 • Home Energy Reports (select PAs): for Unutil gas, Cape Light Compact,
4 Berkshire Gas, and Liberty, the Home Energy Reports (“HER”) core initiative has
5 been discontinued for the 2022-2024 Plan. The PAs had uniformly committed to
6 attempting to deliver the HER program during the 2019-2021 Plan. However, the
7 smaller PAs subsequently determined that the core initiative could not be
8 delivered cost-effectively, and in some cases appeared to be associated with
9 increased customer energy use. As a result, those PAs have stopped offering the
10 core initiative. The Department approved Liberty’s proposal to terminate its HER
11 initiative in D.P.U. 21-18.

12 3. Measures that do not provide value to the programs.

- 13 • Heating System, Boiler (Oil) (multiple measure IDs): a recent evaluation study
14 found that the baseline for oil boilers is 86 percent, which is the same AFUE as an
15 efficient boiler, and therefore there is no need for program intervention.
- 16 • Temperature Optimization (multiple measure IDs): measures were removed
17 because the vendor began offering the service to all thermostat owners as a
18 standard practice, and therefore there was no additional role for the PA programs.
- 19 • Winter Active Demand Response (multiple measures): the Electric PAs offered a
20 winter active demand program for two winters during the 2019-2021 term and
21 completed an evaluation. The results of that program and evaluation – when

1 applied to the results of the AESC Study – identified no ratepayer benefits
2 resulting from the program. As a result, the PAs have discontinued the measures
3 for the 2022-2024 Plan.

- 4 • Educational Kits (multiple measure IDs): the Cape Light Compact removed these
5 kits because they were almost entirely made up of lighting measures and lighting
6 measures will not be offered to market rate participants in the 2022-2024 Plan,
7 subject to the exceptions noted above. Moreover, these kits were often not cost-
8 effective because the average completion rate, 29 percent, was below the rate
9 required, 90 percent, for cost-effectiveness screening.

10 In addition to those three main categories of measures, the following measures had
11 actually been discontinued prior to 2019 because they became required by code and thus
12 could not provide cost-effective energy savings. These measures, however, were
13 inadvertently included in the PAs 2019-2021 BC Models but had no savings associated
14 with them.

- 15 • HVAC Upstream - DEMAND CONTROL VENTILATION (DCV)
16 (E19C2b056)
- 17 • HVAC Upstream - ECM Fan Motors (E19C2b055).

18 **Q. Are there any measures or delivery pathways that were included in the Program**
19 **Administrator’s 2019-2021 Plan but will not be offered for the entirety of the 2022-**
20 **2024 Plan?**

21 A. Central Air Conditioners (E19A2c001): The PAs removed rebates for central air
22 conditioners in the 2022-2024 Plan because they are only marginally cost-effective and

1 direct competitors to central heat pumps, which is a critical measure in the PAs' suite of
2 electrification measures. A customer looking to install a high-efficiency central air
3 conditioner can obtain the same benefits from a high-efficiency central heat pump for
4 very little additional cost. Longer term, the heat pump will also give the customer more
5 options for managing their heating costs. Therefore, a heat pump is a better, more
6 efficient choice. Since the program design for lost opportunity measures has been moved
7 midstream, the PAs will be able to directly influence stocking practices at the distributor
8 level and by only offering incentives for heat pumps, the PAs are working to make it such
9 that heat pumps are the de facto choice for new installations, ensuring that all customers
10 in Massachusetts are receiving the most efficient technology available. Please refer to the
11 answer to the question above for the remainder of the individual measures that are being
12 discontinued. The PAs do not currently have plans to discontinue additional measures
13 during the term.

14 The PAs do not plan to offer any residential measures via the upstream delivery pathway
15 in the 2022-2024 Plan. The elimination of this delivery pathway is the direct result of the
16 elimination of the Residential Lighting measures. Although advanced power strips were
17 also part of the upstream delivery mechanism in 2019-2021, the PAs made the decision to
18 only offer them through the online marketplace and other online promotions in 2022-
19 2024. The reason behind this decision is that the PAs do not think it is an efficient use of
20 funding to run an upstream program for advanced power strips only.

1 No C&I pathways that were offered in 2019-2021 have been eliminated for 2022-2024.
2 However, the C&I Upstream pathway has been renamed the Midstream pathway to more
3 accurately reflect the delivery channel.

4 **Q. Are there any measures in the Program Administrator’s 2022-2024 Plan where**
5 **planned savings per unit will be reduced by more than half as compared to planned**
6 **values in the 2019-2021 Plan?**

7 A. Please refer to Attachment-A to this testimony for a list of measures for which planned
8 lifetime savings per unit will be reduced by more than half in 2024 as compared to
9 planned values in 2021.

10 **G. Economic Development and Job Growth**

11 **Q. What is your understanding of economic development and job growth requirements**
12 **under the GCA and Climate Act?**

13 A. The Green Communities Act requires that a plan shall include “any estimated economic
14 benefits...including job retention, job growth or economic development.” G.L. c. 25,
15 §21(b)(2)(viii). In addition, with Council approval, a plan may prioritize projects based
16 upon economic development or job creation retention benefits. G.L. c. 25, §21(b)(2).
17 Additionally, the Climate Act included a provision obligating the Program
18 Administrators to annually transfer \$12 million to the Massachusetts Clean Energy
19 Center (“MassCEC”). G.L. c. 23J, §13(b). These funds are to be spent by MassCEC in
20 its clean energy equity workforce and market development program. G.L. c. 23J, §13(a).

1 **Q. How does the Three-Year Plan satisfy the requirements under the statute?**

2 A. An important element of the Three-Year Plan is the positive economic impact of energy
3 efficiency on the Commonwealth and its citizens, including job creation and retention
4 stemming from energy efficiency programs. One way that energy efficiency affects
5 consumers and businesses is by reducing energy costs, thereby allowing the money saved
6 to be spent elsewhere, thus stimulating other sectors of the economy. Additionally,
7 energy efficiency programs create a wide variety of jobs, many of them tied to local
8 communities. According to the 2020 Massachusetts Clean Energy Industry Report,
9 Energy Efficiency, Demand Management, and Clean Heating and Cooling remains the
10 largest clean energy sector, with 83,031 jobs in 2020.

11 In the Climate Act, the Legislature indicated a shift in responsibility for workforce
12 development in the clean energy sector by placing \$12 million with the MassCEC to
13 “provide workforce training, educational and professional development, job placement,
14 startup opportunities and grants promoting participation in the commonwealth’s energy
15 efficiency, clean energy, and clean heating and cooling industries” to certain targeted
16 individuals and customer segments. G.L. c. 23J, §13(a). The Program Administrators
17 are committed to job training for emerging clean energy industries, as well as sustainable
18 funding of energy efficiency programs in order to build and maintain a consistent
19 workforce. Over the next three years, the Program Administrators plan to work
20 collaboratively with the MassCEC to continue providing in-field experience and expertise
21 to advance energy efficiency throughout the Commonwealth and to ensure investments

1 made by MassCEC in workforce development are informed by the Program
2 Administrators' energy efficiency programs. This collaboration with the MassCEC will
3 help increase diversity and expand the workforce necessary to achieve the
4 Commonwealth's net zero GHG goals and provide economic opportunities to residents in
5 environmental justice communities and elsewhere throughout the Commonwealth.

6 The Program Administrators plan their programs and savings goals to be sustainable over
7 time. This encourages the investment in an energy efficiency workforce by businesses
8 who have confidence that the programs will not have large stops and starts. Stability in
9 funding, and in program structure and design, is essential to fostering a robust contractor
10 infrastructure necessary to achieve the Commonwealth's aggressive energy savings goals.

11 **Q. Are there any specific programs or initiatives that the Program Administrators**
12 **intend to launch in the 2022-2024 Plan term to foster workforce development?**

13 A. Yes. While the Program Administrators have historically invested in upskilling the
14 current energy efficiency workforce to meet the evolving needs of the industry and been
15 engaged with business and community partners in ongoing workforce development
16 efforts, the proposed plan leads to an immediate need to shift to a more proactive role in
17 workforce development. To that end, the Program Administrators are developing and
18 putting in place a statewide Workforce Development Strategy with several new efforts to
19 grow and diversify the Commonwealth's energy efficiency workforce and provide
20 opportunities for workers in the delivered fuels industry to transition into building
21 electrification.

1 Similar to the approach the Program Administrators are taking to achieve more equitable
2 delivery of programs, cross-sector collaboration will be key to the success of workforce
3 development efforts. The Program Administrators have established a Cross-Sector
4 Workforce Development Working Group, overseen by the Residential and C&I
5 Management Committees, to coordinate on implementation strategies. This ensures an
6 emphasis on sector-specific goals, as well as overall management. Additionally, the
7 Program Administrators will continue to engage other stakeholders and groups, including
8 the Contractor Best Practices Working Group, Income Eligible Best Practices Working
9 Group, key trade allies, and the EWG.

10 As stated above, the Clean Energy Pathways internship program will train candidates
11 from diverse backgrounds to prepare them for roles in the energy efficiency workforce.
12 The Program Administrators recognize that training a corps of diverse candidates may
13 require additional investments in resources to support access to training for those entering
14 the energy efficiency workforce. Thus, the Program Administrators will sponsor up to
15 \$250,000 annually in scholarships for energy efficiency training and certification
16 programs. These scholarships will prioritize supporting individuals from diverse
17 backgrounds and environmental justice communities with the goal to increase training
18 and certification completion rates by women and minority program participants. The
19 Program Administrators will coordinate with the MassCEC to ensure that the scholarship
20 design and implementation is complementary to any present and future efforts planned by
21 the organization.

1 The Program Administrators also plan to grow and diversify their pool of business
2 partners. The Program Administrators plan to achieve this by employing several
3 strategies, including developing and hosting educational contractor workshops,
4 establishing an online vendor network on the Mass Save website with easy-to-follow
5 information regarding how vendors can engage and contract with the Program
6 Administrators, and increasing outreach and encouragement of diverse business
7 enterprises (“DBEs”) to participate in Request for Proposals, Request for Information,
8 and Request for Quotes, as well as meeting the commitment to additional DBE metrics
9 developed by the Program Administrators and the EWG (see Exhibit Compact-1,
10 Appendix E: Equity Metrics).

11 **H. Active Demand Offerings**

12 **Q. Are the Program Administrators planning to offer an active demand reduction**
13 **program?**

14 A. Yes. The Program Administrators, building off the learnings from the 2019-2021 term,
15 have proposed statewide cost-effective electric active demand reduction (“ADR”)
16 offerings for the residential, income eligible and C&I sectors.

17 For the residential sector, the Program Administrators are proposing statewide active
18 demand reduction offerings that provide incentives to customers with eligible
19 communicating devices to respond to an event signal during system peak times. Central
20 air conditioning represents one of the largest controllable loads in residential homes and
21 use of air conditioning is highly coincident with ISO-NE system peaks, making it an ideal

1 end use for ADR. By adjusting the temperature settings on a connected thermostat
2 during peak periods, the PAs can deliver substantial reductions in demand.

3 Battery storage is also an ideal candidate for ADR, especially in residential applications.
4 Currently, there are no demand charges on residential distribution bills, meaning there is
5 little economic incentive for customers to charge and discharge their battery. This results
6 in valuable assets that may serve to only provide backup during a power outage. By
7 enrolling storage, the PAs can dispatch signals that cause batteries to discharge (send
8 power back to the grid) during peak periods. Electric vehicle (“EV”) charging is similar
9 to batteries in that the number of systems installed is currently limited, but in large
10 quantities, EV’s impact can be substantial, and their numbers are expected to grow
11 rapidly from their current level. While the majority of EV charging occurs outside of
12 peak periods, for those customers with EVs that are charging during event windows, the
13 PAs will offer an incentive for the customer to reduce their rate of charge.

14 For the C&I sector, the Program Administrators will continue to offer statewide active
15 demand reduction offerings for customers that are willing to respond to an event signal
16 during system peak times. This effort is coordinated through a preferred list of
17 competitively procured Curtailment Service Providers (“CSPs”), sometimes referred to as
18 aggregators, who enter into contracts with customers to scope, develop response
19 strategies, and agree on performance incentive splits. Please see the C&I Active Demand
20 Reduction - Core Initiative section of Plan for more details.

1 **Q. Are the Program Administrators planning to offer Active Demand Reduction**
2 **measures to income eligible customers?**

3 A. Yes. During energy assessments and as part of the suite of energy upgrades offered to
4 income eligible customers, including heat pump systems, customers who have Wi-Fi
5 connectivity in their homes will be offered the option of smart thermostats. Customers
6 who also have central cooling will also be presented with information about enrolling in
7 the Program Administrators' Active Demand Reduction offerings.

8 **Q. What are the Program Administrator's strategies for dispatching ADR resources?**

9 A. The Program Administrators' ADR offerings are specifically intended to target the
10 Independent System Operator of New England's ("ISO-NE") system peak hour. This is
11 the hour of the year during which the New England electrical system experiences its
12 highest overall demand and typically occurs in a July or August weekday afternoon . The
13 Program Administrators rely on system forecasts to predict which days are likely to be
14 peak days, which hours are projected to be peak hours, and provide customers and
15 curtailment system providers with day-ahead notifications prior to calling a dispatch
16 event. By calling dispatch events for only a few hours, on days that the electric system is
17 likely to peak, the PAs can reduce capacity costs and associated marginal costs.

18 In determining how often to call events, the Program Administrators must balance the
19 potential value of curtailment with the disruption that the event may cause for customers.
20 If the PAs call too many events that adversely impact comfort or operations, then the PAs
21 risk having customers opt out or unenroll from the program entirely. However, batteries,

1 thermal storage, and some other types of equipment can lend themselves to repeated
2 dispatch without substantially altering the comfort or operations of a customer's home or
3 facility. These technologies are typically used in daily dispatch offerings because they
4 can be called on many of the peak days during July and August with limited customer
5 fatigue.

6 **Q. Will fossil fuel generator participation be phased out of the PAs' Active Demand**
7 **Reduction Daily Dispatch and Targeted Dispatch Offerings in 2022-2024?**

8 A. Yes. Fossil fuel generators will not be eligible to participate in Active Demand
9 Reduction offerings, including Daily Dispatch or Targeted Dispatch, in 2022-2024.
10 However, the PAs may provide a transition period of up to one year for existing Targeted
11 Dispatch generator participants.

12 **Q. Are the Program Administrators planning on offering a winter electric demand**
13 **response program?**

14 A. Not at this time. The PAs incentivized winter demand reduction efforts during the 2019-
15 2021 term. During the winter of 2019-2020 the PAs called two events, and during the
16 winter of 2020-2021, the PAs varied in the number of events called. While performance
17 was significantly lower during the winter than what was observed during the summer, the
18 PAs found that some enrolled customers were able to curtail load during events and paid
19 out incentives accordingly.

20 The PAs contracted with a consulting firm to explore potential value streams from winter
21 curtailment as part of the 2019 AESC Supplemental Study, and the resulting

1 memorandum confirmed that ISO-NE does not consider winter demand in determining
2 the Installed Capacity Requirement. This value is used to establish the amount of
3 generation capacity that must be procured to meet system needs. In New England, the
4 winter peak is currently roughly 20 percent lower than the summer peak, therefore
5 curtailing winter load has no impact on the Installed Capacity Requirement and
6 curtailment in winter does not result in avoided capacity costs.

7 As a result of these findings and implementation experiences during the 2019-2021 term,
8 the PAs have determined that there are no material benefits from winter demand
9 reduction at this time and are therefore not planning to provide winter electric demand
10 reduction offerings during the 2022-2024 term. However, the PAs have demonstrated
11 both customer interest in and the ability to curtail load during the winter in response to
12 demand reduction events. The PAs will continue to monitor the dynamics of the New
13 England electric grid and ISO-NE's forecasting methodologies, and if there is a point in
14 the future at which there are avoided costs that the PAs can claim, they will reassess
15 winter demand reduction offerings.

16 **I. Program Budgets**

17 **Q. What is your understanding of the Program Administrator's program budget under**
18 **the statute, the Department's precedent, and the *Guidelines*?**

19 A. Pursuant to the *Guidelines* at §3.3, a Program Administrator's budget shall be comprised
20 of its energy efficiency program implementation costs and its performance incentive as
21 approved by the Department. *Guidelines* §3.3.1. In support of these budgets, each

1 Program Administrator shall present to the Department: (a) information regarding its
2 budget sources; and (b) supporting documentation for the budget sources. *Id.* §3.3.2.

3 Additionally, a Program Administrator's program implementation costs are defined as all
4 costs incurred by a Program Administrator to implement its Energy Efficiency Programs,
5 including, but not limited to: (a) program planning and administration; (b) marketing and
6 advertising; (c) program participant incentive; (d) sales, technical assistance and training;
7 and (e) evaluation and market research. *Id.* at §§3.3.3.

8 In reviewing and authorizing the Program Administrator energy efficiency programs, the
9 Department is directed to ensure that the programs are delivered in a cost-effective
10 manner that captures all available efficiency and demand reduction opportunities, that
11 minimizes administrative costs to the fullest extent possible and that utilizes competitive
12 procurement to the fullest extent possible. G.L. c. 25, §§19(a-c), 21(a), 21(b)(1),
13 21(b)(2); *2016-2018 Three-Year Plans Order*, at 31. To that end, the Department has
14 directed the Program Administrators to minimize administrative costs to the fullest extent
15 practicable and include a detailed description and supporting documentation of the steps
16 taken to minimize such administrative costs. *Guidelines* at §3.3.5. Further, where able, a
17 Program Administrator is required to use competitive procurement processes to the
18 fullest extent possible. *Id.* at 3.3.6. Finally, when determining cost-effectiveness, the
19 Program Administrator is to include calculations of the social value of GHG emissions
20 reductions in program benefits, except in the cases of conversions from fossil fuel heating
21 and cooling to fossil fuel heating and cooling. G.L. c. 25, §§19(a-c), 21(b)(1), 21(b)(2).

1 **Q. Please describe the budgets in the Three-Year Plan.**

2 A. As detailed in the Three-Year Plan, the annual budget for the expanded efforts and
3 savings goals during the years 2022-2024 represents an increase as compared to the
4 budget levels approved in 2019-2021. *See* D.P.U. 18-110 through D.P.U. 18-119. The
5 budget is consistent with the goals of the GCA and Climate Act and supports the
6 aggressive savings and GHG emissions reduction goals anticipated in this Three-Year
7 Plan. The three-year total budget, proposed by the Program Administrator is detailed in
8 the Three-Year Plan and the PA-specific tables set forth in Exhibit Compact-4. They
9 were closely reviewed by the Council and Consultants, DOER, and the Attorney General,
10 and unanimously approved in the Council's October Resolution (Exhibit Compact-1,
11 Appendix N).

12 The Program Administrators determined the costs and benefits of the Three-Year Plan
13 following an extensive review of plan objectives, cost drivers, as well as savings and
14 GHG emissions reduction goals and the cost to achieve those goals (including long-term
15 GHG emissions reductions), the costs of new and innovative strategies, methods of cost
16 reduction and cost efficiency, and historical data. Proposed budgets also take into
17 account new initiatives, such as market transformation of electric heating, deep energy
18 retrofits, pairing electrification with weatherization, and other efforts that have been
19 included in the Three-Year Plan in response to stakeholder input. With respect to
20 electrification budgets, the PAs anticipate that there will be additional, material costs,
21 such as electrical upgrades and building structure reinforcement, associated with the

1 electrification efforts contemplated in 2022-2024 beyond those included in the energy
2 efficiency programs. For these costs, we expect that additional and significant outside
3 funding will be required to achieve the Plan’s electrification goals. The Program
4 Administrators are actively collaborating with other stakeholders and relevant parties to
5 identify sources. In the Term Sheet, both DOER and AGO committed to work
6 collaboratively with the PAs in this effort. Securing additional outside funding will need
7 to be a collective effort.

8 Exhibit Compact-1, Appendix A and Appendix C, and Exhibit Compact-4 provide more
9 detail on budgets and benefits of the Three-Year Plan, including cost drivers.

10 **Q. Is the Program Administrator’s program budget consistent with the statute,**
11 **Department’s precedent, and *Guidelines*?**

12 A. Yes. The Program Administrator’s program budgets were developed in compliance with
13 the GCA, the Department’s precedent, and the Guidelines. It is the Program
14 Administrator’s understanding that in authorizing energy efficiency program budgets, the
15 Department is charged with ensuring that (1) the Program Administrators have
16 minimized administrative costs to the fullest extent practicable; (2) sufficient funding is
17 allocated to income eligible programs; and (3) competitive procurement processes are
18 used to the fullest extent practicable. G.L. c. 25, §§19(a–c). Additionally, the Guidelines
19 require that the Program Administrators provide a breakdown of their Program, Planning,
20 and Administration (“PP&A”) costs by internal costs, external legal services,

1 assessments, vendor services, and sponsorships and subscriptions. D.P.U. 20-150-A, at
2 11; *Guidelines* §3.3.3(a).

3 **Q. Does the Three-Year Plan address each of these requirements?**

4 A. Yes. The Three-Year Plan addresses the Program Administrators' efforts to minimize
5 administrative costs in Exhibit Compact-1 Appendix A, Section A.1.7. The Program
6 Administrator plans to expend 13.3 percent of its budget on income eligible programs in
7 accordance with G.L. c. 25, §19(c). Allocation of funds for income eligible programs
8 and education are addressed in Exhibit Compact-1, Appendix A, Section A.1.7 of the
9 Plan. Additionally, a description of the competitive procurement processes planned to be
10 utilized by the PAs is found in Exhibit Compact-1, Appendix A, Section A.1.7. Finally,
11 the breakdown of the Program Administrators PP&A costs is provided in the PA-specific
12 data tables, Exhibit Compact-4.

13 Overall, the Three-Year Plan sets forth detailed strategies for coordinated program
14 implementation in the residential, income eligible, and C&I sectors. The detailed
15 program description sections of the Three-Year Plan are the result of collaboration and
16 cooperation among the Program Administrators (both gas and electric), industry experts,
17 market participants, Council members, other interested parties, and the Consultants.
18 Consistent with Department's directives and the statute, the Program Administrators'
19 budgets were carefully prepared with sensitivity to the statutory requirement to consider
20 bill impacts, minimize administrative costs, and use competitive procurement process to
21 the fullest extent possible. *See* G.L. c. 25, §19(a-b), *Guidelines* at §§3.2.1.3, 3.2.1.6,

1 3.2.2.1, 3.2.2.2, 3.3.5, 3.3.6. The Program Administrator and its fellow PAs were
2 mindful of this multi-dimensional mandate in developing the statewide plans, and the
3 Program Administrator believes that the administrative costs and procurement practices
4 provided for in the Three-Year Plan are appropriate and consistent with the GCA.

5 **Q. Please describe how the agreement between the Program Administrators and the**
6 **Council regarding key performance indicators has minimized administrative costs**
7 **during the 2019-2021 Plan term.**

8 A. During the 2019-2021 Plan term, the Program Administrators began including in their
9 quarterly reports data on 14 key performance indicators (six quarterly, eight biannual).
10 The intent behind reporting on these key performance indicators was to satisfy the
11 Council's interests in specific elements of plan performance without having to engage in
12 costly *ad hoc* data requests. The Program Administrators were able to manage and plan
13 for the collection and analysis of the key performance indicator data and, accordingly,
14 better control the expense for reporting out on this information. Without established key
15 performance indicators, the Program Administrators would have been responding to
16 additional *ad hoc* data requests from Councilors and the Consultants seeking this
17 information. While it is unknown how many data requests would have otherwise been
18 raised, given the active nature of Councilor participation – and the diversity of interests
19 represented on the Council - it is believed that the Council would have asked for a
20 material amount of detailed program information. With this context, the Program
21 Administrators have been better able to manage the cost to produce relevant information
22 and believe that there were cost savings, albeit difficult to quantify.

1 **Q. Please describe the process agreed upon by the Program Administrators and the**
2 **Council for data requests from the Council during the 2022-2024 Plan term, and**
3 **how such process will minimize administrative costs.**

4 A. Consistent with the requirements set forth in the Order approving the updated Guidelines,
5 the Program Administrators and Council are engaged in establishing a formal process for
6 the Council to request data from the PAs. Fundamental to this process will be the need to
7 minimize costs while providing sufficient information to the Council to assist it fulfilling
8 its duties. The PAs have shared a proposed approach with DOER as Chair of the Council
9 and it is being reviewed. While this process has yet to be finalized, the Program
10 Administrators are committed to coming to agreement in formalizing this process and
11 will update the Department when the process is complete.

12 **Q. Can you please provide an overview of the reporting planned for 2022-2024?**

13 A. The PAs will continue to submit monthly data dashboards, quarterly reports, plan-year
14 reports and a three-year term report for 2022–2024. In addition, the PAs will continue to
15 report each of the six key performance indicators currently reported for the 2019-2021
16 term with mutually agreed adjustments. The PAs will expand current heat pump key
17 performance indicator reporting to track the measures (by measure and by fuel source)
18 included in this 2022-2024 Plan with mutually agreed adjustments. In addition, the PAs
19 will present the equity related key performance indicators as set forth in the Term Sheet.
20 There will be a new key performance indicator for income eligible matters as mutually
21 agreed, including with LEAN. The PAs will report twice a year to the Council on
22 benefits and costs by performance incentive component by PA.

1 **Q. Please describe what is included in the Residential Conservation Service budget.**

2 A. The Residential Conservation Service (“RCS”) is a program intended to help residential
3 customers conserve energy through home energy assessments. The home energy
4 assessments are seamlessly integrated into the Residential Coordinated Delivery core
5 initiative, as further described in Section 2.6.2 of the Plan. Accordingly, the RCS budget
6 includes the costs associated with conducting home energy assessments for market rate
7 single family and low-rise units, the home energy scorecard, and the RCS assessment fee
8 paid to the Department of Energy Resources. These costs are included within the 2022-
9 2024 Plan pursuant to the Department’s regulations. 220 C.M.R. §7.02.

10 The Department’s regulations also require a comparison between actual RCS spending
11 and the proposed RCS budget for the previous three-year term. Historical data is
12 provided in the master data in the statewide data tables, Exhibit Compact-4. However,
13 because actual spending for the prior term will not be complete until December 31, 2021,
14 a full comparison will be provided in the 2019-2021 Term Report.

15 **J. Cost-Effectiveness**

16 **Q. Describe your understanding of the statutory requirement that energy efficiency is**
17 **to be “cost-effective or less expensive than supply.”**

18 A. In 2000, in its Order in D.T.E. 98-100, the Department adopted the “Total Resource
19 Cost” or “TRC” test as the appropriate test for cost-effectiveness. In 2008, the GCA then
20 directed that the Plan “shall provide for the acquisition of all available energy efficiency
21 and demand reduction resources *that are cost effective or less expensive than supply.*”

1 G.L. c. 25, §21(d) (emphasis added). In D.P.U. 08-50, the Department affirmed that the
2 TRC test is consistent with the GCA's references to the cost-effectiveness of energy
3 efficiency and demand reduction resources. D.P.U. 08-50-A at 14; *Guidelines* §3.4.3; *see*
4 *also* D.P.U. 12-100 through D.P.U. 12-111, at 8. This is due to the TRC test's reliance
5 on the avoided cost of supply as one of the most significant benefits of any energy
6 efficiency program. D.P.U. 08-50-A at 14; D.P.U. 12-100 through D.P.U. 12-111, at 8,
7 n.11.

8 Recent changes to the GCA have altered how the Department evaluates cost-
9 effectiveness. In 2018, the Act to Advance Clean Energy provided that, for the purpose
10 of cost-effectiveness review, programs shall be aggregated by sector. Therefore, the
11 Program Administrator is also providing a cost-effectiveness screening on a sector level
12 as well as a program and core initiative level. More significantly, the Climate Act
13 requires the inclusion of the social value of greenhouse gas emissions reductions in
14 program benefits except in the cases of conversions from fossil fuel heating and cooling
15 to fossil fuel heating and cooling.

16 The Department's most recently approved Guidelines continue to utilize the TRC
17 methodology to determine the cost-effectiveness of energy efficiency programs.
18 D.P.U. 20-150-A at 7; *Guidelines* §3.4.3. The Department requires the Program
19 Administrators to perform cost-effectiveness screening on an Energy Efficiency
20 Program- specific basis, except for Hard-To-Measure Energy Efficiency Programs.

1 *Guidelines* §3.4.3.1.⁴ An Energy Efficiency Program shall be deemed cost-effective if
2 the cumulative present value of each sector’s benefits is equal to or greater than the
3 cumulative present value of each sector’s costs. *Id.*

4 Additionally, the Department clarified that while cost-effectiveness screening occurs at
5 the sector level, energy efficiency programs and core initiatives should be projected to be
6 cost-effective over the plan term. D.P.U. 20-150-A, 6; *Guidelines* §3.4.3.1. If a program
7 or core initiative is not projected to be cost-effective, the Program Administrator is not
8 barred from implementing the program but is required to provide further documentation
9 and explanation of how the program is a prudent use of customer funds and how the
10 Program Administrator intends to achieve cost-effective programs and core initiatives
11 going forward. D.P.U. 20-150-A, 6. The Department may also require invoices
12 supporting all expenditures under a non-cost-effective program or core initiative, as well
13 as a detailed explanation of the prudence of each measure and cost, including all PP&A
14 costs, under the program or core initiative. D.P.U. 20-150-A, 6 n.5.

⁴ The Program Administrators are required to allocate the benefits and costs of Hard-to-Measure Energy Efficiency Programs to the program’s customer sector. *Guidelines* §3.4.3.2. If such inclusion causes the sector’s BCR to fall below one, then that Hard-To-Measure Energy Efficiency Program shall be revised or removed. *Id.* An Energy Efficiency Plan shall include the following information regarding a Hard-to-Measure Energy Efficiency Program: (a) detailed descriptions of the purpose, scope and design of the Hard-To-Measure Energy Efficiency Core Initiative; (b) supporting documentation for why the core initiative is qualified to be included as part of the Hard-To-Measure Energy Efficiency Program; (c) any recommendations made by the Council regarding the Hard-To-Measure Energy Efficiency Core Initiative; and (d) how the core initiative will provide benefits to Massachusetts ratepayers. *Guidelines* §3.4.3.3.

1 **Q. Please describe your understanding of the Climate Act’s inclusion of the social cost**
2 **of carbon in cost-effectiveness calculations.**

3 A. The Massachusetts legislature amended G.L. c. 25 to include a requirement that the
4 Program Administrators must include the social value of GHG emissions reductions
5 when determining cost-effectiveness. G.L. c. 25, §19. The Climate Act specifies further
6 that the calculation of program benefits shall include calculations of the social value of
7 GHG emissions reductions except in the cases of conversions from fossil fuel heating and
8 cooling to fossil fuel heating and cooling. The Program Administrator’s understanding is
9 that the social value of carbon is applied to all measures except any new fossil fuel
10 process heating, space heating, or water heating equipment regardless of the customer’s
11 prior heating source.

12 **Q. How did the Program Administrator calculate the social cost of carbon (“SCC”)?**

13 A. The social cost of carbon was adopted from the Avoided Energy Supply Cost 2021
14 Supplemental Study: Update to Social Cost of Carbon Recommendation (*see* Exhibit
15 Compact-1, Appendix Q). In the original AESC 2021 Study, released in March 2021,
16 Synapse recommended a SCC of \$128 per short ton. However, as Synapse stated in the
17 AESC 2021 Study, it was likely that this value would change as new information became
18 available and that it should be continually reviewed and updated. Thus, in an effort to
19 use the most accurate value for the SCC, the Program Administrators contracted with
20 Synapse to update the recommended SCC to be used in the Three-Year Plan. Based on
21 the latest available information, Synapse recommended an SCC equal to \$393 per short

1 ton. This value was reviewed and supported in the Term Sheet and is reflected in the
2 Plan.

3 **Q. What is your understanding of the Department’s requirement for the Program**
4 **Administrators to categorize program costs?**

5 A. The Department requires the Program Administrators to categorize program costs as
6 program implementation costs, performance incentives, or program participant costs.
7 *Guidelines* at §3.4.5. Program implementation costs shall include all costs incurred by a
8 Program Administrator to implement its energy efficiency programs, including, but not
9 limited to: (a) PP&A; (b) marketing and advertising; (c) program participant incentives;
10 (d) sales, technical assistance and training (“STAT”); and (e) evaluation and market
11 research. *Id.* at §§3.3.3 and 3.4.5. Performance incentives shall include costs as
12 described in the *Guidelines* at §§3.3.4, and 3.6. Program participant costs shall include
13 all expenses incurred by a program participant as a result of its participation in an energy
14 efficiency program, including, but not limited to: (a) the net cost of energy efficient
15 equipment; (b) the cost to plan for and install energy efficient equipment; and (c) the cost
16 of energy efficiency services, such as energy audits or inspections for proper equipment
17 functioning. *Id.* §3.4.5.3. Benefits and costs that are projected to occur over the term of
18 each energy efficiency program shall be stated in present value terms.

19 **Q. How did the Program Administrator calculate the present value of the benefits and**
20 **costs?**

21 A. Energy Efficiency *Guidelines* §3.4.6 requires that “Benefits and costs that are projected
22 to occur over the term of each Energy Efficiency Program shall be stated in present value

1 terms, using a discount rate that is equal to a twelve-month average of the historic yields
2 from the ten-year United States Treasury note, using the previous calendar year to
3 determine the twelve-month average.” Using this formula, however, would result in a
4 negative discount rate due to the impact of the COVID-19 pandemic on daily treasury
5 real yield curve rates. Following the outbreak of COVID-19, interest rates plummeted to
6 near zero. This drastic decline produced a negative twelve-month average of the historic
7 real yields from the ten-year Treasury note for calendar year 2020. The Program
8 Administrators are unaware of such an unprecedented value and did not believe it to be
9 the Department’s intent to use a negative discount rate for purposes of calculating the
10 present value of benefits and cost. Accordingly, the Program Administrators calculated
11 the discount rate used in the 2022-2024 Plan consistent with the methodology outlined in
12 the Guidelines, but averaged interest rates over the previous three years (instead of the
13 previous one year) to account for the anomalous impact of the COVID-19 pandemic on
14 interest rates.

15 **Q. How does the Three-Year Plan comply with the statutory requirement that “all**
16 **available energy efficiency and demand reduction resources that are cost-effective**
17 **or less expensive than supply” be acquired?**

18 A. The initial passage of the GCA requiring the acquisition of all available energy efficiency
19 and demand reduction resources transformed energy efficiency efforts in Massachusetts.
20 The recently enacted Climate Act similarly transformed the Three-Year Plan by requiring
21 the PA programs to meet or exceed the GHG emissions reduction goal set by the EEA
22 Secretary. The Program Administrators are proposing to obtain all available cost-

1 effective energy efficiency and demand reduction resources through an aggressive and
2 sustainable level of savings for their energy efficiency activities while simultaneously
3 hitting the GHG emissions reduction goal. Following the establishment of the GHG
4 emissions reduction goal by the EEA Secretary, and the Council's resolution regarding
5 the PAs' April 2021 draft of the three-year plan, the Program Administrators re-assessed
6 their program offerings and savings goals. On October 25, 2021, following a diligent,
7 collaborative review process, the DOER, the Attorney General, and the PAs agreed to
8 overall savings goals and budgets, both on a statewide basis and for individual Program
9 Administrators. This agreement was memorialized in the 2022-2024 Energy Efficiency
10 Plan Term Sheet. *See* Exhibit Compact-1, Appendix M. The Council unanimously voted
11 in support of these savings goals and budgets in its resolution of October 27, 2021. *See*
12 Exhibit Compact-1, Appendix N. The savings, benefits, and budgets set forth in the
13 Three-Year Plan are consistent with these agreements. In formulating these goals, the
14 Program Administrators reviewed the types of projects, customers already served, those
15 markets that have potential to be served as informed by the PAs' market assessment and
16 potential studies, historical performance (taking into account unique projects that are
17 unlikely to be repeated), and EM&V results. These savings goals are designed to achieve
18 all available cost-effective energy efficiency while attaining the GHG emissions
19 reduction goal with due consideration of bill impacts. Exhibit Compact-1, Appendix A,
20 Sections A.1.5 and A.1.6 provide more detail on savings and benefits of the Three-Year

1 Plan, including cost-drivers and unique drivers of savings goals in specific territories.

2 Please see Exhibit Compact-1, Appendix C and Exhibit Compact-4 for additional data.

3 **Q. Discuss the Program Administrator’s tables provided in Exhibit Compact-4.**

4 A. Exhibit Compact-4 provides PA-specific tables for the Program Administrator in the
5 format collaboratively developed in the D.P.U. 08-50 Working Group and enhanced
6 based on Department and stakeholder feedback. These tables provide detailed underlying
7 information with respect to all aspects of the Three-Year Plan in a manner that is
8 common across all Program Administrators. The statewide tables contained in Appendix
9 C of the Three-Year Plan reflect the mathematical aggregation of the Program
10 Administrator specific information for all Program Administrators across the
11 Commonwealth.

12 The Energy Efficiency Data Tables, provided by the Program Administrator in Exhibit
13 Compact-4, are created using pivot tables. Pivot tables process a comprehensive dataset,
14 providing a more understandable, user-friendly display of the data. The PAs’ pivot tables
15 are populated from the data on the “Master Data” tab in the Excel workbook version of
16 the Data Tables. The Master Data tab is in turn populated by each PA’s Benefit-Cost
17 Screening model. The BCR Screening Models (“Screening Models”) provide all of the
18 formulas and links to each energy efficiency measure that populate the Master Data tab.

19 The pivot tables included in each PA’s Energy Efficiency Data Tables are formatted to
20 comply with the Department’s and stakeholders’ directions over the course of the

1 three-year energy efficiency plans. The pivot tables provide all the data views the
2 Department requires and also provide the ability for users to pivot the data and conduct
3 their own analysis. Finally, the Energy Efficiency Data Tables include a detailed list of
4 calculated fields and all other interim steps and data sets used in creating the pivot tables.

5 **Q. Can you further describe how the Program Administrator presented cost/benefit**
6 **analyses in the Three-Year Plan?**

7 A. The Program Administrator presented cost/benefit analyses in its energy efficiency data
8 tables, both by customer sector, by core initiative, and by program in Exhibit Compact-4.
9 The Program Administrator's analysis was completed using cost-effectiveness screening
10 models that implement the TRC test (Exhibit Compact-5). Consistent with the
11 Guidelines, the screening models filed by the Program Administrators include the
12 program and core initiative level budget information for each of the three years along
13 with the measure level costs, measure level and other resource benefits, and non-resource
14 benefits.

15 **Q. Describe all new or additional benefits that were captured in the most recent AESC**
16 **Study and how the Program Administrator incorporated these benefits into the**
17 **Plan.**

18 A. The AESC Study utilized a similar framework as in past studies, where there was an
19 engaged stakeholder process from all states in New England, in addition to other
20 stakeholders in Massachusetts including the Consultants, Acadia Center, and LEAN. In
21 the 2021 AESC Study there were new energy benefits streams that were studied
22 including:

- 1 • Motor Gasoline
- 2 • Motor Diesel.

3 Additionally, per the Climate Act, the PAs studied a social value of GHG reductions
4 which have been applied to the PAs' benefit cost models. This value was developed in
5 the initial AESC Study and additionally reviewed in a subsequent addendum to the AESC
6 Study that further researched the social value of GHG reductions. In discussions with the
7 study's lead vendor, the PAs determined that it is inappropriate to apply both the social
8 value of carbon derived in the AESC Study as well as the environmental compliance
9 benefits derived from the marginal abatement benefits from the study to the same
10 measures. Given this, the PAs have applied *either* the social value of GHG reductions (to
11 non-fossil fuel measures) *or* the environmental compliance benefits based off the
12 marginal abatement costs (to fossil fuel measures), based on the Climate Act's
13 requirement to include the social value of GHG reductions for non-fossil fuel heating and
14 cooling measures.

15 **Q. Do all Program Administrators offer customers the same level of incentives for each**
16 **measure?**

17 A. The Program Administrators generally offer the same level of incentives for prescriptive
18 measures. Typically, large C&I custom projects involve project-specific incentive levels.
19 Some flexibility with respect to incentive levels is appropriate and can best serve
20 customers. Service territories vary, as do the costs and other barriers customers face
21 depending on where they are located. In the Department's 2019-2021 Order, it directed

1 the Program Administrators to study Cape Light Compact’s enhanced incentives. In
2 response, the Program Administrators conducted a study to analyze Cape Light
3 Compact’s alternative incentives along with alternative incentives specific to the other
4 Program Administrators. While this study is ongoing, the preliminary results were used
5 to craft the incentive levels in the 2022-2024 Plan.

6 **K. Performance Incentives**

7 **Q. Does the Compact earn performance incentives?**

8
9 A. No. The Compact is a public entity and does not collect performance incentives.

10 **L. Funding Sources**

11 **Q. What is your understanding of the requirements under the statute regarding**
12 **funding sources and financing initiatives?**

13 A. General Laws c. 25, §19 authorizes the Department to review the funding of energy
14 efficiency programs administered by the Program Administrators. The statute also
15 directs the Program Administrators to include in their energy efficiency plans “a fully
16 reconciling funding mechanism which may include, but which shall not be limited to, the
17 charge authorized” by the Department pursuant to G.L. c. 25, §19. G.L. c. 25,
18 §21(b)(2)(vii). For electric PAs, the statute requires the Department to approve “a
19 mandatory charge of 2.5 mills per kilowatt-hour for all consumers, except those served
20 by a municipal lighting plant.” G.L. c. 25, §19(a). It also authorizes the Department to
21 approve and fund energy efficiency programs with amounts generated under the forward
22 capacity market (“FCM”), cap and trade pollution control programs, and “other funding

1 as approved by the department after consideration of: (i) the availability of other private
2 or public funds, utility administered or otherwise, that may be available for energy
3 efficiency or demand resources; and (ii) whether past programs have lowered the costs of
4 electricity to residential and commercial consumers.” *Id.*

5 **Q. Has the Program Administrator complied with the requirements under the statute**
6 **regarding funding sources and financing initiatives?**

7 A. Yes. The Program Administrator proposes to recover its costs, along with any applicable
8 performance incentives associated with the Three-Year Plans, through five sources: (1) a
9 system benefit charge (“SBC”) of \$0.0025 per kWh collected from customers; (2)
10 proceeds from the Program Administrator’s participation in the FCM administered by
11 ISO-NE; (3) proceeds from the RGGI, a multi-state carbon cap and trade system; (4)
12 outside funding; and (5) an EES, collected through the EERF tariff, to be recovered from
13 ratepayers through distribution rates. The Program Administrator proposes to allocate the
14 SBC, FCM, and RGGI revenue to each customer class in proportion to each classes’ kWh
15 consumption, consistent with G.L. c. 25, §19(a). However, the Program Administrator
16 does not expect to receive funding from the RGGI.

17 **Q. Are the Program Administrators considering leveraging any new, outside funding?**

18 A. The 2022-2024 Plan does not contain outside funding assumptions at this time given the
19 current absence of material viable funding sources.⁵ Given the very high GHG goals and

⁵ Note that the Compact proposes to leverage outside federal and state funding to offset the ratepayer impact of the enhancements proposed as part of CVEO, as further described in Exhibit Compact-9.

1 related costs and bill impacts, the Program Administrators are actively working to
2 identify outside funding opportunities and seeking assistance from government agencies
3 with locating and allocating funding to the Program Administrators for these efforts in
4 order to mitigate growing ratepayer costs.

5 Additionally, the Program Administrators expect that additional and significant funding
6 will be required to achieve the Plan's electrification goals, including to pay for costs such
7 as structural reinforcement to handle heavy equipment, required customer electrical
8 upgrades, and other costs associated with large building electrification efforts that would
9 otherwise likely be an obstacle to customer participation.

10 Both the DOER and the AGO have committed to assisting the PAs in efforts to identify
11 outside funding in support of mitigating ratepayer and participant costs.

12 **Q. How are the Program Administrator's proposing to recover performance**
13 **incentives?**

14 A. The Program Administrators are proposing to collect performance incentives at the
15 design level during the term and reconcile actual performance incentives following the
16 filing of their Term Reports. *Guidelines* §3.6.4.2; 2019-2021 Order at 89-90. The
17 Program Administrators would continue to make any needed adjustments after the Term
18 Report is approved.

19 In the Department's 2019-2021 Order, it directed the Program Administrators to remove
20 planned incentives from non-cost-effective core-initiatives within non-cost-effective

1 programs. 2019-2021 Order at 99. The Department later clarified that cost-effectiveness
2 should be assessed over the three-year term. Order on Program Administrators' Joint
3 Motion for Clarification and Reconsideration, D.P.U. 18-110A through D.P.U. 18-119A
4 at 15 (2021). Accordingly, in the Program Administrator's reconciliation of the EES
5 following the filing of the Term Report, the Program Administrator will remove planned
6 incentives from non-cost-effective core initiatives within non-cost-effective programs.

7 **Q. Has the Program Administrator allocated funding to income eligible programs in**
8 **accordance with the GCA?**

9 A. Yes. The Program Administrator has complied with the GCA's mandate in G.L. c. 25,
10 §19(c) that at least 10 percent of the amount expected for electric energy efficiency
11 programs be spent on income eligible programs (Exhibit Compact-4).

12 **M. Bill Impacts**

13 **Q. What is your understanding of the Department's directives governing bill impact**
14 **analyses associated with Three-Year Plans?**

15 A. As noted previously, the GCA requires the acquisition of all available cost-effective
16 energy efficiency and demand reduction resources. G.L. c. 25, §21(b)(1). However, the
17 Program Administrator's understanding is that the Department has determined that the
18 pace at which the Program Administrators acquire these resources is moderated in part by
19 the requirement that the Department consider the effect of any rate increases on
20 residential and commercial customers' bills before the approval of ratepayer funding for
21 energy efficiency programs. *See* D.P.U. 08-50-D at 9-10 & n.11; *see also* G.L. c. 25,
22 §19(a). The Program Administrator also understands that the Department directed the

1 Program Administrators in D.P.U. 08-50-D to provide traditional bill impacts for non-
2 participants as well as information for participants at various usage levels. The Three-
3 Year Plan addresses these requirements in Appendix A, Section A.1.10 and the Program
4 Administrator has provided PA specific bill impacts in Exhibit Compact-6.

5 **Q. Has the Program Administrator presented bill impact analyses that are consistent**
6 **with the Department’s directives in D.P.U. 08-50-D?**

7 A. Yes. The bill impact assumptions used by all the Program Administrators is described in
8 Appendix A, Section A.1.10 of the Three-Year Plan and the PA-specific bill impact
9 analyses are presented in Exhibit Compact-6. These bill analyses demonstrate that the
10 Program Administrator’s proposed Three-Year Plan results in bill impacts are material,
11 but also acceptable and necessary, particularly in light of the Plan’s mandated
12 contribution towards the Commonwealth’s GHG emissions reduction under the Climate
13 Act.

14 **N. Education and Marketing – The Statewide Branding of Energy Efficiency**

15 **Q. Describe your understanding of the requirements for public awareness of energy**
16 **efficiency programs under the GCA.**

17 A. General Laws c. 25, §21(b)(2)(iv) requires that a plan shall include “programs for public
18 education regarding energy efficiency.” Brand recognition and awareness is a critical
19 element to the engagement of program participants and increasing participation in
20 programs. By creating powerful, engaging, and motivating education and marketing
21 strategies, the Program Administrators can increase awareness of the benefits of energy
22 efficiency and drive increased participation in programs and services.

1 **Q. How does the Three-Year Plan include programs for public education and**
2 **marketing regarding energy efficiency?**

3 A. The ultimate goal of all educational, community outreach, and marketing efforts is to
4 build a culture of energy efficiency in the Commonwealth. The Plan describes the PAs'
5 proposed education offerings. The PAs would like to highlight a new effort, developed
6 after stakeholder feedback, related to CBO participation in school-age education efforts.
7 The Program Administrators have allocated \$1.5 million over the 2022-2024 term for
8 community-based delivery of residential education initiatives to increase awareness and
9 engagement in energy efficiency programs through innovative outreach and community
10 engagement. This offering is intended to provide financial awards and streamlined
11 reporting to encourage education efforts in communities for school-age students. The
12 awards will be open to community-based organizations in each Program Administrator's
13 service territory; however, the Program Administrators are committed to prioritizing
14 applications from community-based organizations in environmental justice communities.
15 The final design of this offering will be completed by the second quarter of 2022, and
16 awards will be based on meeting specified design criteria.

17 Mass Save marketing efforts play a key role as informational sources for customers.
18 With people spending more time at home, marketing strategies quickly pivoted in 2020 to
19 engage customers in their homes through streaming video, connected TV, streaming
20 radio, and social media platforms. The Mass Save website is a critical focal point in the
21 PAs' comprehensive marketing strategy, providing a consolidated one-stop-shop for

1 residents and businesses to learn about energy efficiency, program offerings, and partner
2 opportunities. In 2020, MassSave.com received over 1.2 million unique visitors.

3 Additionally, social media platforms have become an inseparable part of daily life for
4 Massachusetts residents and businesses, with users turning to social media platforms for
5 entertainment, news, and inspiration. In 2022-2024, statewide marketing will continue to
6 leverage the strong social media presence built over past terms. With over 130K
7 Facebook followers (www.facebook.com/MassSavers) and nearly 21.8K Twitter
8 followers (www.twitter.com/MassSave), Program Administrator marketing and education
9 reach an ever-broadening audience to promote energy efficiency. The social media
10 platforms allow the Program Administrators to tell a unique story that engages and
11 entertains by tapping into cultural moments and trending topics, and to support effective
12 peer-to-peer marketing, allowing customers to become brand ambassadors. For
13 additional discussion, see Section 5 of the Three-Year Plan.

14 **Q. Does the PA expect any updates or corrections to the data presented today?**

15 A: Yes. The Program Administrators expect to make a limited number of update during the
16 regulatory review process based on quality control review and pre-filing review with the
17 DOER and the AGO. None of these updates materially impacts overall statewide savings,
18 budgets, or benefits. In particular, when the Program Administrators update energy
19 efficiency data tables and BCR models, the following updates will be made:

1 1. Update to the BCR models to ensure that the Marginal Abatement Cost,
2 and not the SCC, is applied by all PAs to the following measures. This will have
3 the effect of reducing projected gas benefits over the term by approximately \$2
4 million (out of over \$3.8 billion in gas benefits):

Measure Name	Measure ID
C&I	
Condensing Unit Heater, Gas <= 300 mbh	GC2b019
Infrared Heaters, Gas	GC2b020
Condensing Unit Heater, Gas <= 300 mbh	GC1a023
Infrared Heaters, Gas	GC1a024
Residential	
Custom – Heating	GA2a094
Custom - Water Heating	GA2a096

- 5 2. Increase statewide residential heat pump production by 761 units.
- 6 3. Decrease planned delivered fuel furnaces by approximately 300 units.

7 When these limited updates are incorporated into the Program Administrators' data tables
8 and BCR models (along with any other updates or changes resulting from the regulatory
9 review process), other statewide values necessarily will change given the linkage of all
10 data points in the tables and BCR models (including performance incentives). None of
11 the changes that flow from these updates are expected to change the statewide
12 information provided today in any material way.

1 **III. THE COMPACT SPECIFIC COMPONENTS OF THE PLAN**

2 **A. Background on the Compact**

3 **Q. How is the Compact organized?**

4 A. The Compact is a joint powers entity organized in accordance with G.L. c. 40, §4A ½.
5 Each of the Compact's municipal members are approved municipal aggregators under
6 G.L. c. 164, §134(a).

7 **Q. Please describe the Compact's purposes.**

8 A. The Compact's members operate collectively on the Cape & Vineyard to offer a
9 municipal aggregation power supply program and administer an energy efficiency plan.
10 Among other things, the Compact: (1) provides the basis for aggregation of all consumers
11 on a non-discriminatory basis; (2) negotiates the best terms and conditions for electricity
12 supply and transparent pricing; (3) provides and enhances consumer protection and
13 options for service under contract provisions; (4) encourages environmental protection
14 through contract provisions; (5) utilizes and encourages renewable energy development
15 to the extent practicable through contract provisions, demonstration projects and state
16 mandated system benefit charges for renewable energy; (6) administers an energy
17 efficiency plan that advances consumer awareness and the adoption of a wide variety of
18 energy efficiency measures and that also utilizes and encourages demand side
19 management, all through contract provisions, demonstration projects and the use of state
20 mandated system benefit charges for energy efficiency and other related charges and
21 funds; and (7) provides full public accountability to consumers. These policies, purposes

1 and goals are set forth in the Compact’s governing agreement, a Joint Powers Agreement,
2 which is available on the Compact’s website at [https://3jy14ha9u771r7qzn35g0s6c-](https://3jy14ha9u771r7qzn35g0s6c-wpengine.netdna-ssl.com/wp-content/uploads/2021/09/Second-Amended-and-Restated-JPA-FINAL-9-1-21.pdf)
3 [wpengine.netdna-ssl.com/wp-content/uploads/2021/09/Second-Amended-and-Restated-](https://3jy14ha9u771r7qzn35g0s6c-wpengine.netdna-ssl.com/wp-content/uploads/2021/09/Second-Amended-and-Restated-JPA-FINAL-9-1-21.pdf)
4 [JPA-FINAL-9-1-21.pdf](https://3jy14ha9u771r7qzn35g0s6c-wpengine.netdna-ssl.com/wp-content/uploads/2021/09/Second-Amended-and-Restated-JPA-FINAL-9-1-21.pdf).

5 **Q. Briefly describe the Compact’s statutory authority to administer energy efficiency**
6 **programs.**

7 A. The Compact administers energy efficiency programs in accordance with two statutes:
8 (1) the Electric Restructuring Act of 1997, St. 1997, c. 164 (the “Restructuring Act”),
9 codified at G.L. c. 164, §134; and (2) An Act Relative to Green Communities, St. 2008,
10 c. 169, as amended (the “GCA”), codified at G.L. c. 25, §§19, 21-22. The Restructuring
11 Act authorizes the Compact to implement demand side management programs and
12 renewable energy programs that are consistent with any state energy conservation goals
13 adopted pursuant to G.L. c. 25A or G.L. c. 164. G.L. c. 164, §134(b). The Restructuring
14 Act also authorizes the Compact to propose energy plans that are, “more specific,
15 detailed, or comprehensive” or which cover, “additional subject areas than any such state-
16 wide conservation goals.” *Id.* The Restructuring Act expressly provides that the
17 Compact should not be prohibited from, “considering, adopting, enforcing, or in any
18 other way administering an energy plan which does not comply with any such state-wide
19 conservation goals so long as it does not violate the laws of the commonwealth.” *Id.*
20 After the GCA was enacted, the Department determined that the Compact’s energy plan
21 is consistent with state energy conservation goals (those referred to in the Restructuring
22 Act) if the plan meets the goals and requirements of the GCA (because the GCA replaces

1 the Department’s previous reliance on guidelines governing the conservation goals).

2 *Three-Year Energy Efficiency Plans for 2010-2012*, D.P.U. 09-116 through D.P.U. 09-
3 120 at 161 (2010).

B. Background on Compact Enhancements to the Statewide Energy Efficiency Plan

4 **Q. How is the Compact’s administration of energy efficiency different from the other**
5 **Program Administrators?**

6 A. The Compact is the only non-utility Program Administrator. As a municipal aggregator
7 with a certified energy plan, the Compact is different because it does not operate for
8 profit, has no stockholders, no rate of return and does not collect performance incentives.
9 Instead, the Compact is a public entity and is controlled by a twenty-two member
10 governing board consisting of appointed representatives from each of the twenty-one
11 towns on the Cape and Vineyard and from Dukes County (the “Governing Board”). In
12 addition, the Legislature has given municipal aggregators unique authority to administer
13 energy efficiency programming that is different from the statewide programming. G.L. c.
14 164, §134(b). The Compact utilizes this authority by offering enhancements to the
15 statewide plan.

16 **Q. How is the Governing Board involved in the development of the Compact’s energy**
17 **efficiency plans?**

18 A. The Compact’s Governing Board is responsible for the general management and
19 supervision of the Compact’s business and affairs and establishes all associated policies
20 and procedures. For example, the Compact’s Governing Board set the policy for the

1 Compact to administer energy efficiency in a fuel blind manner (providing
2 weatherization measures regardless of how a customer heats their home or business).

3 At the direction of the Governing Board, the Compact staff conduct significant outreach
4 within the Compact's member municipalities to solicit feedback for the development of
5 the Compact's programming. Compact staff then present plan development
6 recommendations which the Governing Board considers in its adoption of an energy
7 efficiency plan and related policies.

8 **Q. How does the Compact generally obtain feedback from stakeholders to inform its**
9 **energy efficiency program design?**

10 A. The Compact engages in grassroots, face-to-face stakeholder engagement. Compact staff
11 routinely present to Boards of Selectmen, economic development entities, and the general
12 public at community forums, senior centers, libraries, farmers markets, and other
13 community events.

14 **Q. Describe the Compact's outreach in planning for the 2022-2024 Three-Year Plan.**

15 A. Since March 2020, the COVID-19 pandemic has limited the Compact's traditional means
16 of soliciting stakeholder feedback. Many of the Compact's Cape & Vineyard based
17 stakeholders have not held their in-person community-based meetings since the pandemic
18 began. Despite the interruption in its traditional stakeholder engagement, Compact staff
19 attended virtual meetings with all Boards of Selectmen, initiated regular virtual meetings
20 with regional planning agency (Cape Cod Commission and Martha's Vineyard
21 Commission) staff and members of the Cape and Vineyard municipal energy and climate

1 committees. Compact Governing Board meetings are now hosted virtually, which has
2 increased Compact member participation and allows for increased community
3 participation. See Attachment A for a sampling of the Compact's community dialogue
4 related to its energy efficiency programs which have shaped the development of the
5 2022-2024 Three-Year Plan.

6 **Q. How does the Governing Board determine whether the Compact will offer**
7 **enhancements to the statewide plan?**

8 A. When designing a plan, the Compact staff present the Governing Board with
9 recommendations for enhanced incentives or programming based on: (1) feedback from
10 stakeholders; (2) staff experience in administering the prior plans; (3) potential studies
11 prepared by independent third parties; (4) the ratepayer impact associated with program
12 design; and (5) input from participating customers.

13 The Governing Board then deliberates, with members sharing their own feedback from
14 community engagement and any specific opinions of their appointing authorities. The
15 Governing Board ultimately determines whether to offer incentives that are greater than
16 or different from the statewide incentives offered by the other PAs.

17 **Q. Briefly describe the type of energy efficiency plan enhancements the Governing**
18 **Board has adopted in the past which have been approved by the Department.**

19 A. Below are examples of enhancements to the statewide plan adopted by the Governing
20 Board and approved by the Department:

- 1 ➤ Municipal Incentives: Up to 100% incentives for all cost-effective measures for
2 municipalities.
- 3 ➤ Moderate Income Customers: Offering 100% incentives for weatherization measures
4 for moderate income residential customers.
- 5 ➤ Renters: Offering 100% weatherization incentive for renters.
- 6 ➤ In-house Income Verification: Enables eligible customers not on a utility discount
7 rate to participate in the Compact's income eligible energy efficiency programs and
8 moderate income offerings.
- 9 ➤ Commercial & Industrial Renter Incentive: Up to 95% incentive for all cost-effective
10 measures for commercial customers who rent/lease their workspace.
- 11 ➤ Non-profit Initiative: Up to 100% incentive for all cost-effective measures.
- 12 ➤ Fuel Blind: Provide weatherization measures to all customers (e.g., oil and propane)
13 regardless of how they heat their homes or businesses. Note the Compact adopted
14 this approach to administering energy efficiency prior to the Legislature's
15 determination in An Act to Advance Clean Energy, St. 2018, c. 227, §1 that results in
16 a similar approach to energy efficiency administration by all PAs.
- 17 **Q. Have other Program Administrators ever elected to offer a Compact specific**
18 **enhancement as part of a later statewide plan offering?**
- 19
- 20 A. Yes. The PAs have adopted the following plan enhancements that were initially offered
21 by the Compact:
- 22 ➤ Moderate Income Customers: Offering 100% incentives for all cost-effective
23 weatherization measures for moderate income residential customers.
- 24 ➤ Renters: Offering 100% weatherization incentive for renters.
- 25 ➤ Income Verification: Enables eligible customers not on a utility discount rate to
26 participate in the residential income-qualified offerings. The other PAs have utilized
27 third-party services rather than in-house staff.

1 **Q. Does the Governing Board consider ratepayer impacts when reviewing and**
2 **approving the Compact’s energy efficiency plan?**

3 A. Yes. The Compact’s Governing Board fully considers ratepayer impacts as part of its
4 deliberation on energy efficiency plans and establishment of associated energy efficiency
5 policies. Compact staff prepare presentations for the Governing Board identifying the
6 bill impacts associated with each proposed plan (including any enhanced incentives
7 proposed by the Compact). Each member of the Governing Board represents the interests
8 of its appointing authority (e.g., a member municipality) when reviewing budgets, costs,
9 savings and bill impacts associated with the statewide plan as well as any Compact-
10 specific enhancements to that plan. For this proposed 2022-2024 Three-Year Plan, the
11 Governing Board has also undertaken extensive deliberation on ratepayer impacts
12 because of the requirement imposed on Program Administrators by the Legislature to
13 reduce greenhouse gas emissions in accordance with the methodology established by the
14 Office of Energy and Environmental Affairs.

15 **C. The Compact’s Enhancements to the 2019-2021 Three-Year Plan**

16 **Q. Does the Compact provide enhancements as part of its approved 2019-2021 Three-**
17 **Year Plan?**

18 A. Yes. The Compact provides enhancements in the commercial and industrial sector,
19 offering up to 100% incentives for certain targeted customers (e.g., small businesses,
20 microbusinesses, non-profits, municipalities, etc.). The Compact also provides
21 Residential incentives of up to 100% for qualified weatherization measures to certain

1 renters. The Department determined that these enhancements were reasonable and
2 consistent with past program design. D.P.U. 18-116 at 126.

3 **Q. In approving the Compact's 2019-2021 Three-Year Plan, what directives did the**
4 **Department issue regarding the Compact's future program enhancements?**

5
6 A. The Department required the Compact to conduct an analysis of eight enhanced
7 incentives through the statewide evaluation protocols to determine if these enhanced
8 incentives (including incentive levels) continue to be warranted. D.P.U. 18-116 at 126.
9 The Department also required the Compact to supplement its 2022-2024 Three-Year Plan
10 filing with detailed testimony and exhibits: (1) describing each proposed Statewide Plan
11 enhancement; (2) explaining and supporting why each proposed enhancement is
12 necessary and consistent with all requirements of the GCA; (3) describing Council and
13 stakeholder review of each proposal; and (4) clearly identifying the incremental budget
14 and projected savings, broken down by rate class and category, relative to the Statewide
15 Plan. *Id.* at 132-33.

16 **Q. Did the Compact undertake the statewide evaluation required by the Department?**

17 A. Yes. Guidehouse Inc. ("Guidehouse"), a statewide evaluation vendor, undertook an
18 evaluation to address the directive to the Compact to evaluate its enhanced incentives.
19 Guidehouse is evaluating the Residential and C&I enhanced incentives separately. In the
20 same evaluation, Guidehouse is addressing the Department's directive to the other
21 Program Administrators to undertake a statewide evaluation to determine if these

1 enhanced incentives of the Compact should be more widely adopted by the other
2 Program Administrators.

3 **Q. What is the status of the evaluation?**

4 A. The final evaluation reports for Residential and C&I are expected by the end of January
5 2022. Please see the status reports prepared by Guidehouse included in Exhibit 1,
6 Appendix J, Study 8 and Study 24.

7 **Q. Are the evaluators studying all eight of the Compact's 2019-2021 approved**
8 **enhanced incentives as directed by the Department?**

9 A. All eight enhancements were considered in the initial phases of the evaluations.
10 However, after this initial review, Guidehouse determined that the following incentives
11 were not Compact-specific enhancements to the 2019-2021 Three-Year Plan.

12 a) Small business no-cost energy assessment and instant savings measures ("ISMs").
13 These incentives were offered by all other PAs and thus are not unique to the
14 Compact.

15 b) Small Business zero-interest financing for direct install measures. Guidehouse
16 determined that the Compact's small business financing for direct install measures is
17 more limited than National Grid and Eversource's on-bill repayment options.

18 c) Up to 100% incentive for cost-effective envelope, HVAC, and lighting measures in
19 the C&I New Construction and Major Renovation ("NCMR") program. Guidehouse
20 determined that the Compact and all other PAs are aligned with the offer described in
21 the 2019-2021 Three-Year Plan (e.g., there was no evidence that the Compact's
22 incentives were higher than the other PAs).

23 See Exhibit 1, Appendix J, Study 24.

1 **Q. Have you reviewed any draft memoranda or analysis submitted by Guidehouse to**
2 **date that suggests the Compact's enhanced incentives are not warranted?**

3 A. No. First, as earlier noted, Guidehouse determined that some incentives were not actually
4 Compact-specific enhancements. Second, the draft memoranda and analysis I have
5 reviewed to date suggest that the Compact's enhanced incentives may lead to increased
6 customer participation in the Compact's energy efficiency program, among other factors,
7 including incentive levels and program implementation mechanisms. Third, based on the
8 documentation I have reviewed to date, I believe other PAs offer incentives comparable
9 to the Compact's enhanced incentives during the course of a plan term.

10 **D. The Compact's Enhancements to the 2022-2024 Three-Year Plan**

11 **Q. Is the Compact proposing enhancements as part of its 2022-2024 Three-Year Plan?**

12 A. Yes. The Compact is proposing the following enhancements:

Enhancement	Statewide Offering	CLC Enhancement to the Statewide Offering
Cape and Vineyard Electrification Offering		
Heat Pumps for Moderate Income customers	\$8k for partial displacement and \$16k for full displacement.	100% incentive for full cost of heat pump.
Solar PV	Other PAs are not offering solar PV.	Offering solar PV with a battery and heat pump.
Battery Storage costs	Pay for performance only.	Pay for performance and cost of the battery system.
Residential New Construction		
Incentive for income eligible and moderate-income customers	Pay-for-Savings relative to average new home. Capped at \$10,000/unit.	Pay-for-Savings plus enhanced incentives and support for weatherization and heat pump installation and operation for income eligible and moderate-income customers.
C&I targeted customers		
Incentive for targeted customers	Up to 70% incentive.	Up to 100% incentive.

- 1 **Q. Has the Compact Governing Board considered these proposed enhancements?**
- 2 A. Yes. The Governing Board reviewed the enhancements at its February 10, 2021, March
- 3 10, 2021, April 21, 2021, July 21, 2021, September 29, 2021, and October 14, 2021
- 4 meetings. This review included a presentation from staff and discussion of the
- 5 enhancements for each year of the plan term. Exhibit Compact-8 filed with the
- 6 Compact’s Three-Year Plan includes copies of the available meeting minutes and
- 7 relevant staff presentations related to consideration of these enhancements.⁶

⁶ The Compact will supplement Exhibit Compact-8 with the October 14, 2021 meeting minutes after they have been approved by the Compact Governing Board.

1 **Q. Is the Compact’s 100% uncapped insulation incentive for 1–4-unit rental properties**
2 **an enhancement to the 2022-2024 Three-Year Plan?**

3 A. No. While the Compact still offers this incentive, all Program Administrators plan to
4 offer this for the 2022-2024 Three-Year Plan (and planned to do so independent of the
5 statewide evaluation underway).

6 **1. The Compact’s Proposed Residential Program Enhancements: CVEO**

7 **Q. Please describe CVEO.**

8 A. CVEO is a comprehensive strategic electrification and energy optimization offering that
9 combines home weatherization with the following technologies: (1) cold climate air
10 source heat pump (“heat pump”); (2) battery storage; and (3) solar photovoltaics (“PV”).
11 CVEO is limited to 250 customers in non-gas heated homes. CVEO is also limited to
12 low-income⁷ (less than or equal to 60% of state median income (“SMI”)) and moderate-
13 income (61-80% of SMI) customers. Through CVEO, these customers will: (1) convert
14 oil, propane or electric resistance heat systems to heat pumps; (2) install solar PV systems
15 to support electrification of their heating system (which reduces greenhouse gas
16 emissions); and (3) install battery storage for demand response and resiliency. A detailed
17 summary of CVEO is included as Exhibit Compact-9 to the Compact’s 2022-2024 Three-
18 Year Plan.

⁷ Note the Compact’s descriptions of CVEO intend for the term low-income to be interchangeable with the term income eligible.

1 **Q. How is CVEO an enhancement to the statewide 2022-2024 Three-Year Plan?**

2 A. While all Program Administrators offer heat pumps and battery storage as a component
3 of the 2022-2024 Three-Year Plan, no other Program Administrator offers an incentive
4 for battery storage paired with solar PV. In addition, moderate income CVEO
5 participants receive a 100% incentive instead of the statewide 80% incentive for heat
6 pumps. All PAs offer a 100% incentive for heat pumps to income eligible customers.

7 **Q. Has the Compact proposed CVEO in prior plan filings?**

8 A. Yes. The Compact originally proposed CVEO as part of its 2019-2021 Three-Year Plan.
9 The Department did not approve or deny CVEO, but rather directed the Compact to
10 undertake additional consultation with stakeholders and to obtain Council approval of
11 CVEO prior to submitting any revised offering to the Department for approval. D.P.U.
12 18-116 at 131.

13 **Q. Did the Compact resubmit CVEO to the Department in accordance with the**
14 **directives in D.P.U. 18-116?**

15 A. Yes. On May 15, 2020, the Compact petitioned DPU for approval of CVEO in *Cape*
16 *Light Compact JPE*, D.P.U. 20-40. In this docket, the Compact proposed to offer CVEO
17 for 2020-2021. The Department undertook a full adjudication of the offering and briefing
18 was complete in January 2021. The Department has not issued a final order in D.P.U. 20-
19 40.

1 **Q. What aspects of CVEO are different in the 2022-2024 Three-Year Plan than**
2 **proposed to the Department in D.P.U. 20-40?**

3 A. The Compact has endeavored to maintain as many program design elements and input
4 assumptions as possible between D.P.U. 20-40 and the proposed 2022-2024 Three-Year
5 Plan. The program design and input assumptions used in D.P.U. 20-40 were reviewed
6 and vetted by stakeholders prior to the Department's review and were fully adjudicated in
7 that docket. However, the passage of time since the original proposal in D.P.U. 20-40
8 has necessitated updates to certain inputs. These changes include: (1) an increase in
9 assumed battery costs from \$10,000 per battery to \$12,000 per battery based on more
10 recent experience; (2) reductions in battery output due to the latest program data; (3)
11 reductions in SMART revenue due to being in a later block; (4) an increase in the
12 ConnectedSolutions incentive from the 2019-2021 plan to the 2022-2024 plan consistent
13 with Program Administrator planning assumptions, and (5) shifting participants from
14 being backloaded (at the end of the plan term) in 2020-2021 to being frontloaded (at the
15 beginning of the plan term) in 2022-2023 so the Compact can enroll more customers to
16 maximize a higher solar federal tax credit. These changes have impacted the Compact's
17 proposed budget, savings, and bill impacts associated with CVEO.

18 **Q. Please explain why CVEO is necessary and consistent with the GCA.**

19 A. Among other things, CVEO promotes equitable service to income eligible and moderate-
20 income customers and provides protection and value to participating customers as well as
21 to all ratepayers. CVEO fosters the environmental justice and equity programming that
22 the Council is seeking from PAs in the 2022-2024 Three-Year Plan. See Attachment B to

1 the Term Sheet. Exhibit Compact-1, Appendix M. CVEO is also aligned with the
2 Commonwealth's greenhouse gas emissions reductions goals set forth in the Global
3 Warming Solutions Act, St. 2008, c. 298 ("GWSA"), and the more recent Act Creating a
4 Next-Generation Roadmap for Massachusetts Climate Policy, St. 2021, c. 8 (the "Climate
5 Bill"). Moreover, CVEO is consistent with the GCA in that it advances strategic
6 electrification, energy storage and programs to support increased use of renewable
7 energy, all of which may be offered as part of energy efficiency programming under the
8 GCA. Further, CVEO technologies are cost-effective, and the current program design (as
9 well as that proposed in D.P.U. 20-40), seeks to mitigate bill impacts by leveraging
10 outside funding to support the overall budget for the offering. CVEO will also be
11 evaluated consistent with the statewide evaluation framework.

12 In addition, CVEO is consistent with the PA's commitment to the integrated delivery of
13 weatherization and electrification in 2022-2024. See Exhibit Compact-1, Appendix M.
14 Finally, CVEO represents the kind of program innovation that the Department requests
15 from Program Administrators (Three-Year Energy Efficiency Plans for 2016-2018,
16 D.P.U. 15-160 through D.P.U. 15-169 at 25-26 (2016)).

17 **Q. Describe Council and Stakeholder Review of CVEO.**

18 A. The Compact undertook significant stakeholder and Council outreach during 2019 and
19 into early 2020 as it redesigned the offering. During this time, the Compact met with
20 representatives from DOER, the AGO and LEAN, presented to the Council multiple

1 times and obtained a Council Resolution in support of CVEO. Exhibit Compact-10
2 contains the formal presentations to the Council in 2019-2020 as well as the Council's
3 April 15, 2020 Resolution in support of CVEO. The draft 2022-2024 Three-Year Plan
4 filed with the Council also made clear that the Compact's budget included the CVEO
5 offering for the new plan term. In addition, the Compact presented the Council with its
6 CVEO proposal for 2022-2024 at the Council's July 14, 2021 meeting; the Council's July
7 28, 2021 and October 27, 2021 Resolutions on the draft 2022-2024 Three-Year Plan
8 include express support for CVEO. Exhibit Compact-10 also contains the Compact's
9 2021 presentation to the Council, the Council's July 14, 2021 meeting minutes showing
10 express support from several members of the Council regarding CVEO, as well as the
11 Council's Resolutions.

12 **Q. Please identify the incremental budget and projected savings for the enhanced**
13 **incentives in CVEO, broken down by rate class and category, relative to the 2022-**
14 **2024 Three-Year Plan.**

15 A. Please see the chart below.

Cape and Vineyard Electrification Offering	2022-2024 Incremental Budget			
	Marketing and Advertising	Participant Incentive	STAT	Total Costs
2022	\$ 15,000	\$ 6,178,245	\$ 467,965	\$ 6,661,210
A - Residential	\$ 10,000	\$ 2,421,495	\$ 100,815	\$ 2,532,310
B - Income Eligible	\$ 5,000	\$ 3,756,750	\$ 367,150	\$ 4,128,900
2023	\$ 15,000	\$ 3,653,920	\$ 556,320	\$ 4,225,240
A - Residential	\$ 10,000	\$ 1,412,045	\$ 62,745	\$ 1,484,790
B - Income Eligible	\$ 5,000	\$ 2,241,875	\$ 493,575	\$ 2,740,450
2024	\$ -	\$ 453,750	\$ 8,750	\$ 462,500
A - Residential	\$ -	\$ 181,500	\$ 3,500	\$ 185,000
B - Income Eligible	\$ -	\$ 272,250	\$ 5,250	\$ 277,500
2022-2024	\$ 30,000	\$ 10,285,915	\$ 1,033,035	\$ 11,348,950
A - Residential	\$ 20,000	\$ 4,015,040	\$ 167,060	\$ 4,202,100
B - Income Eligible	\$ 10,000	\$ 6,270,875	\$ 865,975	\$ 7,146,850

2 **Q. Does the Compact plan to continue its coordination with NSTAR Electric Company**
3 **d/b/a Eversource Energy (“Eversource”) to ensure that the active demand reduction**
4 **component of CVEO (as well as certain other active demand reduction offerings of**
5 **the Compact) will not adversely impact the operation, safety or reliability of the**
6 **local distribution system?**

7 A. Yes. The Compact currently has a Memorandum of Agreement (“MOA”) in place with
8 Eversource regarding these matters, which was approved by the Department on February
9 10, 2020 in D.P.U. 18-116-A. This MOA remains in effect through December 31, 2021.
10 Eversource and the Compact have agreed to a new form of MOA for the 2022-2024 term
11 that contains certain minor revisions and clarifications but which is substantially similar
12 to the existing MOA, which is attached to the Compact’s Three-Year Plan filing as
13 Exhibit Compact-11.

1 **Q. Has Eversource notified the Compact under the MOA to express any concerns**
2 **regarding the Compact’s active demand reduction offerings?**

3 A. No. Throughout 2020 and 2021, the Compact called multiple events with different
4 technologies responding to each event. In accordance with the MOA, Eversource was
5 notified prior to all events and provided approval for the events. Also, in accordance
6 with the MOA, the Compact uses the same distributed energy resource providers as
7 Eversource, and Eversource staff have access to the Compact’s distributed energy
8 resource platforms. The Compact has not received notice under the MOA of any concern
9 regarding a negative impact on the operation, safety or reliability of Eversource’s
10 distribution system.

11 **2. The Compact’s Proposed Residential Program Enhancements:**
12 **Income Eligible and Moderate-Income Multi-Family New**
13 **Construction Projects**
14

15 **Q. Please describe the Compact’s Enhanced Incentives for Income Eligible and**
16 **Moderate-Income Multi-Family New Construction Projects.**

17 A. The Compact plans to offer enhanced incentives for income eligible and moderate-
18 income residential multi-family new construction projects. Specifically, the Compact
19 plans to offer:

20 (1) 100% incentive for weatherization measures above code for income eligible and
21 moderate-income buildings;

22 (2) 100% incentive for heat pumps for projects where 51% of the building is occupied by
23 income eligible customers;

1 (3) 80% incentive for heat pumps for projects where 51% of the building is moderate
2 income; and

3 (4) \$2,000 per unit incentive, capped at \$60,000, for an engineering study for the project
4 and funding for an operating and maintenance contract for up to 3 years.

5 **Q. Describe why this enhancement is necessary and consistent with the GCA.**

6 A. This Residential program enhancement promotes equitable service to low- and moderate-
7 income customers that the Compact believes is missing in current statewide multi-family
8 new construction offerings under the Residential New Buildings and Residential New
9 Homes & Renovations program. The Compact's member municipalities have a strong
10 desire to mitigate climate change and provide affordable year-round housing to residents
11 on the Cape & Vineyard. These additional incentives for low- and moderate-income
12 customers will be available to support the design of new construction and promote
13 strategic electrification measures such as heat pump installation in multi-family new
14 construction. The enhanced incentives are consistent with the GCA in that they are: (a)
15 programs for strategic electrification designed to result in cost-effective reductions in
16 greenhouse gas emissions through the use of expanded electricity consumption while
17 minimizing ratepayer costs; and (b) programs that result in customers switching to
18 renewable energy sources or other clean energy technologies. G.L. c. 25, §21(b)(2).

1 **Q. Describe Council and stakeholder review of the Compact’s Enhanced Incentives for**
2 **Income Eligible and Moderate-Income Multi-Family New Construction Projects.**

3 A. The Compact presented this enhancement to the Council at its meeting on October 13,
4 2021 and received positive feedback. The Council also included express support for this
5 enhancement in its October 27, 2021 Resolution on the Three-Year Plan. See Exhibit
6 Compact-10 for the October 13, 2021 Meeting Minutes and the Council’s October 27,
7 2021 Resolution. The Compact also reached out to LEAN to discuss the proposed
8 enhancement in advance of presenting to the Council and received positive feedback.

9 **Q. Identify the incremental budget and projected savings for the Compact’s Enhanced**
10 **Incentives for Income Eligible and Moderate-Income Multi-Family New**
11 **Construction Projects, broken down by rate class and category, relative to the**
12 **Statewide Plan.**

13
14 A. Please see the budget chart below. The Compact does not have projected savings for this
15 enhancement. In the Compact’s experience, one of the barriers to participants pursuing
16 certain measures in the Compact’s programs is cost. Thus, the Compact believes the
17 enhancement is necessary to overcome the cost barrier and to secure increased
18 participation in the Compact’s energy efficiency programs. And, the Compact is able to
19 do so while ensuring it satisfies cost-effectiveness considerations.

Residential New Construction	2022-2024 Incremental Budget			
	Marketing and Advertising	Participant Incentive	STAT	Total Costs
2022	\$ -	\$ 1,296,000	\$ 20,000	\$ 1,316,000
2023	\$ -	\$ 1,030,000	\$ 20,000	\$ 1,050,000
2024	\$ -	\$ 6,372,000	\$ 40,000	\$ 6,412,000
2022-2024	\$ -	\$ 8,698,000	\$ 80,000	\$ 8,778,000

1 **3. The Compact’s Proposed C&I Enhancements**

2 **Q. Please describe the Compact’s proposed C&I Enhanced Incentives.**

3 A. The Compact proposes to offer up to 100% incentives for municipal customers, small
4 non-profits, small businesses and micro businesses.

5 **Q. Describe why these enhancements are necessary and consistent with the GCA.**

6 A. The Commercial and Industrial Small Business Nonparticipant Customer Profile Study⁸
7 identified several of these customer classes as having historically lower participation
8 rates in the energy efficiency programs. They have also been identified by the Equity
9 Working Group as a priority with established equity targets for the 2022-2024 Three-
10 Year Plan. See Attachment B to the Term Sheet filed as Appendix M to Exhibit
11 Compact-1. Additionally, the Compact Governing Board has a long-standing history of
12 targeting these particular customer classes in C&I energy efficiency programming,
13 because of specific feedback from these customers. The Department has approved
14 similar enhancements in prior Compact plans. *See, e.g.,* Three Year Plans Order, D.P.U.
15 18-110 through D.P.U. 18-119 at 126 (2019). These enhanced incentives are consistent
16 with the GCA in that they are intended to help reduce the energy consumption or costs of
17 municipalities or other governmental bodies. G.L. c. 25, §21(b)(2). In addition, the
18 enhanced incentives are intended to help support economic development and promote job
19 retention (lowering energy consumption or costs of small businesses assists small
20 businesses in staying afloat and retaining employees). *Id.*

1 **Q. Describe Council and Stakeholder Review of the Compact’s Enhanced Incentives**
2 **for C&I.**

3 A. The Compact presented these enhancements to the Council at its meeting on October 13,
4 2021 and received positive feedback. The Council also included express support for this
5 enhancement in its October 27, 2021 Resolution on the Three-Year Statewide Plan. See
6 Exhibit Compact-10 filed with the Compact’s Three-Year Plan for the October 13, 2021
7 Meeting Minutes and the Council’s October 27, 2021 Resolution. Compact staff also
8 discussed these enhancements with the Council’s consultants and with the Council’s
9 representative from the Metropolitan Area Planning Council and received positive
10 feedback.

11 **Q. Identify the incremental budget and projected savings, broken down by rate class**
12 **and category, relative to the Statewide Plan, for the Compact’s C&I Enhanced**
13 **Incentives.**

14 A. Please see the budget chart below. The Compact does not have projected savings for this
15 enhancement. In the Compact’s experience, one of the barriers to participants pursuing
16 certain measures in the Compact’s programs is cost. Thus, the Compact believes the
17 enhancement is necessary to overcome the cost barrier and to secure increased
18 participation in the Compact’s energy efficiency programs. And, the Compact is able to
19 do so while ensuring it satisfies cost-effectiveness considerations.

⁸ Available on the Council website at https://ma-ecac.org/wp-content/uploads/Final-MA19X11_B_SBNONPART-Report-20200415-1.pdf.

1 auditing, legal services, etc.) are reasonably and fairly allocated between the two main
2 Compact programs.

3 **Q. What is the methodology for the Compact's shared cost allocation?**

4 A. The Governing Board determines how costs are shared as part of its role in setting the
5 policies and procedures of the Compact's operations. The Compact's approved
6 aggregation plan includes approval of the role of the Governing Board and as such, the
7 Department does not investigate the appropriateness of the Governing Board's
8 authorization of funds for collection through the EES. *Cape Light Compact*, D.P.U. 16-
9 177 at 10, n.10 (2016).

10 **Q. How does the Governing Board establish the shared cost allocation factors?**

11 A. The Governing Board hears recommendations from Compact staff regarding the annual
12 allocation of shared costs, deliberates and determines appropriate allocation factors.

13 **Q. Are there dockets pending at the Department regarding the Compact's shared
14 costs?**

15 A. Yes. *Cape Light Compact JPE*, D.P.U. 19-136 (the Compact's 2020 EES) remains
16 pending. In addition, the Department has yet to approve the Compact's term reports for
17 the 2013-2015 and 2016-2018 energy efficiency plans. *Cape Light Compact*, D.P.U. 16-
18 127; *Cape Light Compact JPE*, D.P.U. 19-96.

19 **Q. What are the shared cost allocation factors that the Compact's Governing Board
20 has set for the 2022-2024 Three-Year Plan?**

21 A. At its October 14, 2021 meeting, the Governing Board reviewed a presentation from
22 Compact staff regarding a proposal to set a fixed percentage for each of the three years

1 for planning and reporting purposes that is based on the actual breakdown of staff salaries
2 in 2021. Given that dockets remain pending at the Department regarding the Governing
3 Board's 2019 shared cost allocation factors and that the Department has not approved
4 certain shared costs allocated to be paid for with energy efficiency funds resulting from
5 those allocation factors, the sense of the Board (after hearing from Compact staff) was
6 that setting a fixed percentage would maintain a level of transparency but reduce any time
7 consuming, costly and confusing true-ups throughout the term. In addition, the Compact
8 believes that these fixed percentages should be viewed more favorably by the
9 Department, given the nature of the discovery and the open investigation in D.P.U. 19-
10 136. Thus, the Compact believes that the proposed shared cost allocation factors for the
11 2022-2024 Three-Year Plan will reduce ratepayer impacts.

12 The only shared cost for 2022-2024 that does not have a fixed allocation factor tied to the
13 breakdown of staff salaries in 2021 is legal costs (for legal consumer advocacy and other
14 legal shared costs). Those shared legal cost allocations are based on: (1) Governing
15 Board approvals of consumer advocacy worksheets for consumer advocacy matters; (2)
16 allocations to aggregation/operating or energy efficiency based on the subject matter of
17 the legal service provided; or (3) the same fixed percentage breakdown tied to staff
18 salaries as described above because the legal matter is employee related (e.g., certain
19 pension and other post-employment liabilities, or "OPEB" matters, etc.). See the chart
20 below for the fixed percentage allocation factors the Governing Board elected to utilize
21 for the Compact's 2022-2024 Three-Year Plan.

Shared Cost	Allocation Methodology – Governing Board Decision	Fixed Allocation Factors	
		Efficiency	Operating
Salary	Percentage based on 2021 staff’s actual time spent on energy efficiency or municipal aggregation	95%	5%
Software licenses	Same allocation as used for salary	95%	5%
Payroll services	Same allocation as used for salary	95%	5%
Internet	Same allocation as used for salary	95%	5%
Rent	Same allocation as used for salary	95%	5%
Custodial	Same allocation as used for salary	95%	5%
Other utilities	Same allocation as used for salary	95%	5%
Auditor	Same allocation as used for salary	95%	5%
Treasury services	Same allocation as used for salary	95%	5%
Financial software	Same allocation as used for salary	95%	5%
Insurance	Same allocation as used for salary	95%	5%
Legal, Consumer Advocacy	Case-specific, based on Governing Board Consumer Advocacy Worksheet	TBD	TBD
Legal, Other	Case-specific and may utilize fixed percentage salary allocation factors	TBD	TBD

1 **F. Additional Compact-Specific Matters**

2 **Q. Does the Compact plan to continue providing service to mutual customers of the**
3 **Compact and National Grid (Gas) during the term of the 2022-2024 Three-Year**
4 **Plan?**

5
6 A. Yes. The Compact continues to administer its Three-Year Plan to all electric customers
7 in the Compact’s service territory in a fuel-blind manner, which means that it will
8 continue to perform home energy audits and install certain electric weatherization
9 measures if and as requested by these mutual customers (including air sealing and
10 insulation that produce both electric and gas savings). Accordingly, the Compact planned
11 for approximately 6,000 home energy audits for mutual customers in the Compact’s
12 2022-2024 Three-Year Plan.

13 The Department has an open docket regarding the Compact’s and National Grid’s service
14 to their mutual customers, *Colonial Gas Company d/b/a National Grid*, D.P.U. 16-169.
15 National Grid sought to adjudicate the Compact’s service to mutual customers in the
16 Compact’s 2019-2021 Three Year Plan. In response, the Department determined that the
17 issues, “regarding the provision of energy efficiency services to mutual customers under
18 its and the Compact’s respective Three-Year Plans are complex, and the Department
19 finds that they involve certain issues of law and fact in common to those raised by
20 National Grid (gas) in D.P.U. 16-169. Accordingly, the Department will not make any
21 findings regarding the provision of energy efficiency services to mutual customers in this
22 Order. Instead, the Department will address these issues comprehensively as part of its

1 subsequent Order in D.P.U. 16-169.” *2019-2021 Three-Year Plans Order*, D.P.U. 18-
2 110 through D.P.U. 18-119 at 146 (2019).

3 **Q. Do the Compact and National Grid (Gas) generally work together to address other**
4 **issues regarding service to their mutual customers?**

5 A. Yes. Throughout plan administration and in the development of new statewide plans or
6 programming, issues may arise intermittently regarding the joint administration of energy
7 efficiency to mutual customers of the Compact and National Grid (gas). The Compact
8 and National Grid (gas) seek to address and resolve these issues in a fair and reasonable
9 manner, and to do so collaboratively.

10 **IV. CONCLUSION**

11 **Q. Does this conclude your testimony?**

12 A. Yes.

Value	Source	Reference Link(s)
Average Residential Electric Rate (\$/kWh):	\$ 0.27 National Grid value, as published for winter 2021-2022	https://www.nationalgridus.com/MA-Home/Rates/Service-Rates
Average Income-Eligible Electric Rate (\$/kWh):	\$ 0.18 National Grid value, as published for winter 2021-2022	https://www.nationalgridus.com/media/pdfs/billing-payments/electric-rates/ma/resitable.pdf
Average C&I Electric Rate (\$/kWh):	\$ 0.24 National Grid value for G1 rate, as published for winter 2021-2022	https://www.nationalgridus.com/MA-Business/Rates/Service-Rates?regionkey=mass
Average Residential Gas Rate (\$/MMBTU):	\$0.117 Average of National Grid & Eversource winter 20-21 rates, with supply portion inflated by 14% per EIA projections	https://www.nationalgridus.com/media/pdfs/billing-payments/electric-rates/ma/commtable.pdf
Average Income-Eligible Gas Rate (\$/MMBTU):	\$0.967 Average of National Grid & Eversource winter 20-21 rates, with supply portion inflated by 14% per EIA projections	https://www.eia.gov/outlooks/steo/special/winter/2021_winter_fuels.pdf
Average C&I Gas Rate (\$/MMBTU):	\$0.104 Average of National Grid & Eversource winter 20-21 G1 rates, with supply portion inflated by 14% per EIA projections	
Average Fuel Oil Price:	\$ 3.39 \$/gallon Projected by EIA for winter 2021-2022	https://www.eia.gov/outlooks/steo/special/winter/2021_winter_fuels.pdf
Average Propane Price:	\$ 3.57 \$/gallon Projected by EIA for winter 2021-2022	https://www.eia.gov/outlooks/steo/special/winter/2021_winter_fuels.pdf
Average Motor Gasoline Price:	\$ 2.93 \$/gallon 10-Year Average from EIA data, 2011-2021	
Fuel Oil MMTBU/Gallon	0.138 Industry standard conversion	https://www.eia.gov/energyexplained/units-and-calculators/
Propane MMTBU/Gallon	0.091 Industry standard conversion	https://www.eia.gov/energyexplained/units-and-calculators/
Motor Gasoline MMTBU/Gallon	0.120 Industry standard conversion	https://www.eia.gov/energyexplained/units-and-calculators/
Electric Emissions Rate in 2030	0.1065 Metric Tons CO ₂ e/MWh, as prescribed by EEA	
Oil Emissions Rate	0.0788 Metric Tons CO ₂ e/MMBTU, as prescribed by EEA	
Propane Emissions Rate	0.0631 Metric Tons CO ₂ e/MMBTU, as prescribed by EEA	
Natural Gas Emissions Rate	0.0531 Metric Tons CO ₂ e/MMBTU, as prescribed by EEA	
Motor Gasoline Emissions Rate	0.0706 Metric Tons CO ₂ e/MMBTU, Industry Standard	https://www.eia.gov/environment/emissions/co2_vol_mass.php
Central HP Midstream Savings	1,533 kWh savings from a baseline-efficiency to high-efficiency heat pump	
DMSHP Midstream Savings	584 kWh savings from a baseline-efficiency to high-efficiency heat pump	

Program Administrator	Sector	Program	Core Initiative	Sub Offering	End Use	Measure	BCR Measure ID	Quantity Definition	Measure Life	Total Resource Cost
Statewide - Deemed	A	A1 - R	A1a - Residential New Homes	Electrification	HVAC	RNC Heating - All-Electric	EA1a018	Homes	25	-
Statewide - Deemed	A	A1 - R	A1a - Residential New Homes	Electrification	Hot Wa	RNC Water Heating - All-Electric	EA1a019	Homes	15	-
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	MSHP Integrated Controls Retrofit Oil	EA2c270	Homes	10	2,000
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	MSHP Integrated Controls Retrofit, Propane	EA2c269	Homes	10	2,000
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Central Heat Pump partially displacing Oil Heat	EA2c266	Homes	17	12,724
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Central Heat Pump partially displacing Propane Heat	EA2c265	Homes	17	12,724
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Central Heat Pump fully displacing Oil Heat	EA2c272	Homes	17	16,163
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Central Heat Pump fully displacing Propane Heat	EA2c271	Homes	17	16,163
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	MSHP partially displacing Oil Heat	EA2c268	Homes	18	11,475
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	MSHP partially displacing Propane Heat	EA2c267	Homes	18	11,475
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	MSHP fully displacing Oil Heat	EA2c273	Homes	18	15,984
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	MSHP fully displacing Propane Heat	EA2c274	Homes	18	15,984
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Air-to-Water Heat Pump displacing Oil Heat	EA2c290	Homes	17	18,500
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Air-to-Water Heat Pump displacing Propane Heat	EA2c291	Homes	17	18,500
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Closed Loop GSHP replacing Oil Heat	EA2c292	Homes	30	32,499
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Closed Loop GSHP replacing Propane Heat	EA2c293	Homes	30	32,639
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Open Loop GSHP replacing Oil Heat	EA2c294	Homes	30	20,057
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Open Loop GSHP replacing Propane Heat	EA2c295	Homes	30	20,197
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - MSHP Integrated Controls Retrofit Oil	EA2c317	Homes	10	2,000
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - MSHP Integrated Controls Retrofit, Propane	EA2c318	Homes	10	2,000
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Central Heat Pump partially displacing Oil Heat	EA2c319	Homes	17	12,388
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Central Heat Pump partially displacing Propane	EA2c320	Homes	17	12,388
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Central Heat Pump fully displacing Oil Heat	EA2c321	Homes	17	19,180
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Central Heat Pump fully displacing Propane H	EA2c322	Homes	17	19,180
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - MSHP partially displacing Oil Heat	EA2c323	Homes	18	11,746
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - MSHP partially displacing Propane Heat	EA2c324	Homes	18	11,746
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - MSHP fully displacing Oil Heat	EA2c325	Homes	18	13,015
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - MSHP fully displacing Propane Heat	EA2c326	Homes	18	13,015
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Air-to-Water Heat Pump displacing Oil Heat	EA2c327	Homes	17	18,500
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Air-to-Water Heat Pump displacing Propane H	EA2c328	Homes	17	18,500
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Closed Loop GSHP replacing Oil Heat	EA2c329	Homes	30	38,762
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Closed Loop GSHP replacing Propane Heat	EA2c330	Homes	30	38,762
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Open Loop GSHP replacing Oil Heat	EA2c331	Homes	30	26,320
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	HVAC	Moderate Income Qualified - Open Loop GSHP replacing Propane Heat	EA2c332	Homes	30	26,320
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	Hot Wa	Heat Pump Water Heater displacing Oil	EA2c286	Widgets	13	64
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	Hot Wa	Heat Pump Water Heater displacing Propane	EA2c287	Widgets	13	855
Statewide - Deemed	A	A2 - R	A2c - Residential Retail	Electrification	Process	Induction Stove replacing Propane	EA2a352	Widgets	10	681
Statewide - Deemed	B	B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Central Heat Pump partially displacing Oil Heat (Single Family)	EB1a269	Homes	17	13,000
Statewide - Deemed	B	B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Central Heat Pump partially displacing Propane Heat (Single Family)	EB1a268	Homes	17	13,000
Statewide - Deemed	B	B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Central Heat Pump fully displacing Oil Heat (Single Family)	EB1a273	Homes	17	30,000
Statewide - Deemed	B	B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Central Heat Pump fully displacing Propane Heat (Single Family)	EB1a272	Homes	17	30,000
Statewide - Deemed	B	B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	MSHP partially displacing Oil Heat (Single Family)	EB1a271	Homes	18	18,000
Statewide - Deemed	B	B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	MSHP partially displacing Propane Heat (Single Family)	EB1a270	Homes	18	18,000
Statewide - Deemed	B	B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	MSHP fully displacing Oil Heat (Single Family)	EB1a286	Homes	18	35,000
Statewide - Deemed	B	B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	MSHP fully displacing Propane Heat (Single Family)	EB1a287	Homes	18	35,000
Statewide - Deemed	B	B1 - In	B1a - Income Eligible Coordina	Electrification	Hot Wa	Heat Pump Water Heater displacing Oil (Single Family)	EB1a281	Widgets	13	-

Statewide - Deemed	B - B1 - In	B1a - Income Eligible Coordina	Electrification	Hot Wa	Heat Pump Water Heater displacing Propane (Single Family)	EB1a282	Widgets	13	-
Statewide - Deemed	B - B1 - In	B1a - Income Eligible Coordina	Electrification	Hot Wa	Heat Pump Water Heater displacing Oil (Multifamily)	EB1b284	Widgets	13	-
Statewide - Deemed	B - B1 - In	B1a - Income Eligible Coordina	Electrification	Hot Wa	Heat Pump Water Heater displacing Propane (Multifamily)	EB1b285	Widgets	13	-
Statewide - Deemed	C - C2 - C	C2b - C&I New & Replacement	Electrification	Process	Electric Forklift	EC2b125	Widgets	8	\$ 6,000
Eversource	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	Custom - Heat Pumps displacing Oil	EA2a276	Dwelling U	15	300,000
Eversource	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	Custom - Heat Pumps displacing Propane	EA2a277	Dwelling U	15	300,000
Eversource	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Custom - Heat Pumps displacing Oil (Multifamily)	EB1a275	Dwelling U	15	15,000
Eversource	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Custom - Heat Pumps displacing Propane (Multifamily)	EB1a276	Dwelling U	15	-
Eversource	C - C2 - C	C2a - C&I Existing Building Re	Electrification	HVAC	Custom - HVAC (Electrification)	EC2a115	Projects	15	123,750
Eversource	C - C2 - C	C2a - C&I Existing Building Re	Electrification	HVAC	Custom - Electrification Other	EC2a163	Projects	15	1,375,000
Eversource	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump displacing Oil Heating	EC2b104	Projects	17	17,143
Eversource	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump displacing Oil Heating	EC2b105	Projects	17	17,143
Eversource	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump displacing Propane Heating	EC2b106	Projects	17	17,143
Eversource	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump displacing Propane Heating	EC2b107	Projects	17	17,143
Eversource	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump replacing Oil Heating	EC2b115	Projects	17	21,429
Eversource	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump replacing Oil Heating	EC2b116	Projects	17	21,429
Eversource	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump replacing Propane Heating	EC2b117	Projects	17	21,429
Eversource	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump replacing Propane Heating	EC2b118	Projects	17	21,429
National Grid	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	Custom - Heat Pumps displacing Oil	EA2a276	Projects	15	-
National Grid	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	Custom - Heat Pumps displacing Propane	EA2a277	Projects	15	-
National Grid	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Custom - Heat Pumps displacing Oil (Multifamily)	EB1a275	Projects	15	-
National Grid	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Custom - Heat Pumps displacing Propane (Multifamily)	EB1a276	Projects	15	-
National Grid	C - C2 - C	C2a - C&I Existing Building Re	Electrification	HVAC	Custom - HVAC (Electrification)	EC2a115	Projects	15	\$ 67,143
National Grid	C - C2 - C	C2a - C&I Existing Building Re	Electrification	HVAC	Custom - Electrification Other	EC2a163	Projects	15	\$ 335,715
National Grid	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump displacing Oil Heating	EC2b104	Projects	17	\$ 23,500
National Grid	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump displacing Oil Heating	EC2b105	Projects	17	\$ 23,500
National Grid	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump displacing Propane Heating	EC2b106	Projects	17	\$ 23,500
National Grid	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump displacing Propane Heating	EC2b107	Projects	17	\$ 23,500
National Grid	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump replacing Oil Heating	EC2b115	Projects	17	\$ -
National Grid	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump replacing Oil Heating	EC2b116	Projects	17	\$ -
National Grid	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump replacing Propane Heating	EC2b117	Projects	17	\$ -
National Grid	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump replacing Propane Heating	EC2b118	Projects	17	\$ -
Unitil	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	Custom - Heat Pumps displacing Oil	EA2a276	Projects	15	\$ -
Unitil	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	Custom - Heat Pumps displacing Propane	EA2a277	Projects	15	\$ -
Unitil	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Custom - Heat Pumps displacing Oil (Multifamily)	EB1a275	Projects	15	\$ -
Unitil	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Custom - Heat Pumps displacing Propane (Multifamily)	EB1a276	Projects	15	\$ -
Unitil	C - C2 - C	C2a - C&I Existing Building Re	Electrification	HVAC	Custom - HVAC (Electrification)	EC2a115	Projects	15	\$ 75,000
Unitil	C - C2 - C	C2a - C&I Existing Building Re	Electrification	HVAC	Custom - Electrification Other	EC2a163	Projects	15	\$ -
Unitil	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump displacing Oil Heating	EC2b104	Projects	17	\$ -
Unitil	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump displacing Oil Heating	EC2b105	Projects	17	\$ 20,000
Unitil	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump displacing Propane Heating	EC2b106	Projects	17	\$ -
Unitil	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump displacing Propane Heating	EC2b107	Projects	17	\$ -
Unitil	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump replacing Oil Heating	EC2b115	Projects	17	\$ 25,000
Unitil	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump replacing Oil Heating	EC2b116	Projects	17	\$ -
Unitil	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump replacing Propane Heating	EC2b117	Projects	17	\$ -
Unitil	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump replacing Propane Heating	EC2b118	Projects	17	\$ -
CLC	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	Custom - Heat Pumps displacing Oil	EA2a276	Projects	15	\$ 18,000
CLC	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	Custom - Heat Pumps displacing Propane	EA2a277	Projects	15	\$ 18,000
CLC	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Custom - Heat Pumps displacing Oil (Multifamily)	EB1a275	Projects	15	\$ 12,000
CLC	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	Custom - Heat Pumps displacing Propane (Multifamily)	EB1a276	Projects	15	\$ 12,000
CLC	C - C2 - C	C2a - C&I Existing Building Re	Electrification	HVAC	Custom - HVAC (Electrification)	EC2a115	Projects	15	\$ 150,000
CLC	C - C2 - C	C2a - C&I Existing Building Re	Electrification	HVAC	Custom - Electrification Other	EC2a163	Projects	15	\$ 444,500
CLC	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump displacing Oil Heating	EC2b104	Projects	17	\$ 10,410

CLC	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump displacing Oil Heating	EC2b105	Projects	17	\$	43,740
CLC	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump displacing Propane Heating	EC2b106	Projects	17	\$	10,530
CLC	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump displacing Propane Heating	EC2b107	Projects	17	\$	43,740
CLC	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump replacing Oil Heating	EC2b115	Projects	17	\$	-
CLC	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump replacing Oil Heating	EC2b116	Projects	17	\$	-
CLC	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ducted Heat Pump replacing Propane Heating	EC2b117	Projects	17	\$	-
CLC	C - C2 - C	C2b - C&I New & Replacement	Electrification	HVAC	Ductless Heat Pump replacing Propane Heating	EC2b118	Projects	17	\$	-
CLC	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	CVEO Heat Pumps, Oil	CVEO2	Homes	18	\$	18,808
CLC	A - A2 - R	A2a - Residential Coordinated	Electrification	HVAC	CVEO Heat Pumps, Propane	CVEO3	Homes	18	\$	18,870
CLC	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	CVEO Heat Pumps, Oil	CVEO10	Homes	14	\$	19,167
CLC	B - B1 - In	B1a - Income Eligible Coordina	Electrification	HVAC	CVEO Heat Pumps, Propane	CVEO11	Homes	15	\$	21,051
Statewide - Deemed	A - A2 - R	A2c - Residential Retail	Electrification	Process	Electric Lawnmower	EA2a341	Widgets	7	\$	101
Statewide - Deemed	A - A2 - R	A2c - Residential Retail	Electrification	Process	Electric Leafblower	EA2a349	Widgets	8	\$	-
Statewide - Deemed	A - A2 - R	A2c - Residential Retail	Electrification	Process	Electric Trimmer	EA2a350	Widgets	8	\$	3
Statewide - Deemed	A - A2 - R	A2c - Residential Retail	Electrification	Process	Electric Chainsaw	EA2a351	Widgets	8	\$	35
Statewide - Deemed	C - C2 - C	C2b - C&I New & Replacement	Electrification	Process	Electric Lawnmower	EC2b119	Widgets	7	\$	4,800
Statewide - Deemed	C - C2 - C	C2b - C&I New & Replacement	Electrification	Process	Electric Leafblower	EC2b122	Widgets	2	\$	114
Statewide - Deemed	C - C2 - C	C2b - C&I New & Replacement	Electrification	Process	Electric Trimmer	EC2b123	Widgets	2	\$	118
Statewide - Deemed	C - C2 - C	C2b - C&I New & Replacement	Electrification	Process	Electric Chainsaw	EC2b124	Widgets	2	\$	155

Incentive	Gross Annual kWh Used	Fossil Fuel Type #1	Fossil Fuel #1 Savings (MMBtu/Year)	Fossil Fuel Type #2	Fossil Fuel #2 Savings (MMBtu/Year)	Benefit-Cost Ratio	Customer Initial Purchase Cost (Negative Indicates a Cost)	Customer Operating Cost Savings (Negative Indicates an Increase)	Total Customer Lifetime Cost Impact (Positive Indicates a Savings)	GHG Savings in 2030
-	(5,845)			Propane	60.6	-	\$ -	\$ 788	\$ 19,688	3.20
-	(1,467)			Propane	13.5	-	\$ -	\$ 131	\$ 1,964	0.70
1,500	(1,678)	Fuel Oil - Res Distillate	24.6			4.78	\$ (500)	\$ 151	\$ 1,012	1.76
1,500	(1,678)			Propane	25.2	6.28	\$ (500)	\$ 532	\$ 4,820	1.41
4,000	(3,030)	Fuel Oil - Res Distillate	49.6			2.38	\$ (8,724)	\$ 400	\$ (1,917)	3.59
4,000	(3,677)			Propane	56.0	3.43	\$ (8,724)	\$ 1,193	\$ 11,561	3.14
10,000	(8,487)	Fuel Oil - Res Distillate	83.9			2.58	\$ (6,163)	\$ (230)	\$ (10,077)	5.71
10,000	(8,487)			Propane	83.9	3.50	\$ (6,163)	\$ 984	\$ 10,569	4.39
4,000	(3,629)	Fuel Oil - Res Distillate	44.9			2.39	\$ (7,475)	\$ 123	\$ (5,257)	3.15
4,000	(4,058)			Propane	48.7	3.35	\$ (7,475)	\$ 805	\$ 7,022	2.64
10,000	(7,146)	Fuel Oil - Res Distillate	69.3			2.34	\$ (5,984)	\$ (227)	\$ (10,062)	4.70
10,000	(7,146)			Propane	69.3	3.14	\$ (5,984)	\$ 777	\$ 7,998	3.61
7,500	(7,645)	Fuel Oil - Res Distillate	91.3			3.19	\$ (11,000)	\$ 179	\$ (7,962)	6.38
7,500	(7,645)			Propane	91.3	4.06	\$ (11,000)	\$ 1,500	\$ 14,500	4.94
15,000	(5,721)	Fuel Oil - Res Distillate	82.4			3.24	\$ (17,499)	\$ 480	\$ (3,110)	5.88
15,000	(5,721)			Propane	80.5	3.87	\$ (17,639)	\$ 1,598	\$ 30,301	4.47
15,000	(4,844)	Fuel Oil - Res Distillate	82.4			5.62	\$ (5,057)	\$ 716	\$ 16,436	5.98
15,000	(4,844)			Propane	80.5	6.61	\$ (5,197)	\$ 1,835	\$ 49,847	4.56
2,000	(1,678)	Fuel Oil - Res Distillate	24.6			4.78	\$ -	\$ 151	\$ 1,512	1.76
2,000	(1,678)			Propane	25.2	6.28	\$ -	\$ 532	\$ 5,320	1.41
16,000	(3,030)	Fuel Oil - Res Distillate	47.0			2.45	\$ 3,612	\$ 336	\$ 9,325	3.38
16,000	(3,677)			Propane	53.8	3.53	\$ 3,612	\$ 1,107	\$ 22,426	3.00
16,000	(8,487)	Fuel Oil - Res Distillate	83.9			2.18	\$ (3,180)	\$ (230)	\$ (7,094)	5.71
16,000	(8,487)			Propane	83.9	2.95	\$ (3,180)	\$ 984	\$ 13,552	4.39
16,000	(3,629)	Fuel Oil - Res Distillate	44.3			2.33	\$ 4,254	\$ 108	\$ 6,189	3.10
16,000	(4,058)			Propane	48.1	3.28	\$ 4,254	\$ 782	\$ 18,336	2.60
16,000	(7,146)	Fuel Oil - Res Distillate	69.3			2.87	\$ 2,985	\$ (227)	\$ (1,093)	4.70
16,000	(7,146)			Propane	69.3	3.86	\$ 2,985	\$ 777	\$ 16,967	3.61
16,000	(7,645)	Fuel Oil - Res Distillate	91.3			3.19	\$ (2,500)	\$ 179	\$ 538	6.38
16,000	(7,645)			Propane	91.3	4.06	\$ (2,500)	\$ 1,500	\$ 23,000	4.94
16,000	(5,721)	Fuel Oil - Res Distillate	86.7			2.72	\$ (22,762)	\$ 585	\$ (5,211)	6.22
16,000	(5,721)			Propane	75.9	3.26	\$ (22,762)	\$ 1,419	\$ 19,814	4.18
16,000	(4,844)	Fuel Oil - Res Distillate	86.7			4.28	\$ (10,320)	\$ 822	\$ 14,334	6.31
16,000	(4,844)			Propane	75.9	5.07	\$ (10,320)	\$ 1,656	\$ 39,360	4.27
1,000	(1,130)	Fuel Oil - Res Distillate	17.4			158.62	\$ 936	\$ 122	\$ 2,526	1.25
200	(831)			Propane	16.4	13.23	\$ (655)	\$ 416	\$ 4,751	0.95
500	(251)			Propane	2.1	1.01	\$ (181)	\$ 14	\$ (39)	0.11
13,000	(3,328)	Fuel Oil - Res Distillate	47.0			2.28	\$ -	\$ 555	\$ 9,436	3.35
13,000	(3,873)			Propane	53.8	3.31	\$ -	\$ 1,402	\$ 23,842	2.98
30,000	(8,437)	Fuel Oil - Res Distillate	83.9			1.34	\$ -	\$ 543	\$ 9,226	5.71
30,000	(8,437)			Propane	83.9	1.84	\$ -	\$ 1,757	\$ 29,871	4.39
18,000	(2,784)	Fuel Oil - Res Distillate	44.3			1.67	\$ -	\$ 586	\$ 10,551	3.19
18,000	(3,141)			Propane	48.1	2.28	\$ -	\$ 1,313	\$ 23,629	2.70
35,000	(5,882)			Propane	69.3	1.5	\$ -	\$ 1,648	\$ 29,656	3.75
35,000	(5,882)			Propane	69.3	1.5	\$ -	\$ 1,648	\$ 29,656	3.75
-	(1,138)	Fuel Oil - Res Distillate	17.4			2.95	\$ -	\$ 223	\$ 2,894	1.25

-	(831)			Propane	16.4	3.99	\$ -	\$ -	491	\$ 6,378	0.95
-	-	Fuel Oil - Res Distillate	-				\$ -	\$ -	-	\$ -	-
-	-			Propane			\$ -	\$ -	-	\$ -	-
\$ 6,000	(13,886)			Propane	137.0	6.52	\$ -	\$ -	1,974	\$ 15,791	7.16
300,000	(40,000)	Fuel Oil - Res Distillate	500.0				\$ -	\$ -	1,483	\$ 22,239	35.14
300,000	(40,000)			Propane	500.0	1.21	\$ -	\$ -	8,719	\$ 130,783	27.28
15,000	(5,336)	Fuel Oil - Res Distillate	73.7				\$ -	\$ -	850	\$ 12,747	5.24
-	-			Propane	-	0.83	\$ -	\$ -	-	\$ -	-
99,000	(19,140)	Fuel Oil - Com Fuel Oil	242.0				\$ (24,750)	\$ -	1,294	\$ (5,344)	17.03
1,100,000	(200,000)	Fuel Oil - Com Fuel Oil	2,500.0				\$ (275,000)	\$ -	12,813	\$ (82,804)	175.68
12,000	(3,180)	Fuel Oil - Com Fuel Oil	46.8				\$ (5,143)	\$ -	377	\$ 1,265	3.35
12,000	(3,828)	Fuel Oil - Com Fuel Oil	60.0				\$ (5,143)	\$ -	544	\$ 4,100	4.32
12,000	(3,180)			Propane	46.8	3.86	\$ (5,143)	\$ -	1,054	\$ 12,779	2.61
12,000	(3,828)			Propane	60.0	5.08	\$ (5,143)	\$ -	1,412	\$ 18,862	3.38
15,000	(8,975)	Fuel Oil - Com Fuel Oil	89.5				\$ (6,429)	\$ -	18	\$ (6,128)	6.10
15,000	(7,540)	Fuel Oil - Com Fuel Oil	89.5				\$ (6,429)	\$ -	366	\$ (200)	6.25
15,000	(8,975)			Propane	89.5	5.12	\$ (6,429)	\$ -	1,313	\$ 15,892	4.69
15,000	(7,540)			Propane	89.5	5.58	\$ (6,429)	\$ -	1,662	\$ 21,820	4.84
		Fuel Oil - Res Distillate					\$ -	\$ -	-	\$ -	-
		Fuel Oil - Res Distillate		Propane			\$ -	\$ -	-	\$ -	-
				Propane			\$ -	\$ -	-	\$ -	-
\$ 47,000	(9,953)	Fuel Oil - Com Fuel Oil	44.2	Propane	78.0		\$ (20,143)	\$ -	1,713	\$ 5,551	7.34
\$ 235,000	(39,812)	Fuel Oil - Com Fuel Oil	177.0	Propane	312.1		\$ (100,715)	\$ -	6,856	\$ 2,128	29.39
\$ 16,450	(7,625)	Fuel Oil - Com Fuel Oil	88.36				\$ (7,050)	\$ -	318	\$ (1,650)	6.15
\$ 16,450	(7,625)	Fuel Oil - Com Fuel Oil	88.36				\$ (7,050)	\$ -	318	\$ (1,650)	6.15
\$ 16,450	(12,280)			Propane	156.04		\$ (7,050)	\$ -	3,107	\$ 45,775	8.53
\$ 16,450	(12,280)			Propane	156.04		\$ (7,050)	\$ -	3,107	\$ 45,775	8.53
\$ -	-	Fuel Oil - Com Fuel Oil	0				\$ -	\$ -	-	\$ -	-
\$ -	-	Fuel Oil - Com Fuel Oil	0				\$ -	\$ -	-	\$ -	-
\$ -	-			Propane	0		\$ -	\$ -	-	\$ -	-
\$ -	-			Propane	0		\$ -	\$ -	-	\$ -	-
\$ -	-	Fuel Oil - Res Distillate					\$ -	\$ -	-	\$ -	-
\$ -	-	Fuel Oil - Res Distillate		Propane			\$ -	\$ -	-	\$ -	-
\$ -	-			Propane			\$ -	\$ -	-	\$ -	-
\$ 60,000	(15,000.00)	Fuel Oil - Com Fuel Oil	125.0	Propane		1.06	\$ (15,000)	\$ (574)	\$ (23,615)		8.25
\$ -	-	Fuel Oil - Com Fuel Oil		Propane			\$ -	\$ -	-	\$ -	-
\$ -	-	Fuel Oil - Com Fuel Oil					\$ -	\$ -	-	\$ -	-
\$ 15,000	(3,941.00)	Fuel Oil - Com Fuel Oil	50				\$ (5,000)	\$ -	271	\$ (400)	3.52
\$ -	-			Propane			\$ -	\$ -	-	\$ -	-
\$ -	-			Propane			\$ -	\$ -	-	\$ -	-
\$ 20,000	(4,200.00)	Fuel Oil - Com Fuel Oil	50				\$ (5,000)	\$ -	208	\$ (1,470)	3.49
\$ -	-	Fuel Oil - Com Fuel Oil					\$ -	\$ -	-	\$ -	-
\$ -	-			Propane			\$ -	\$ -	-	\$ -	-
\$ -	-			Propane			\$ -	\$ -	-	\$ -	-
\$ 13,500	(2,784)	Fuel Oil - Res Distillate	44.3				\$ (4,500)	\$ -	336	\$ 534	3.19
\$ 13,500	(3,141)			Propane	48.1	1.28	\$ (4,500)	\$ -	1,030	\$ 10,950	2.70
\$ 12,000	(1,837)	Fuel Oil - Res Distillate	18.2				\$ -	\$ -	117	\$ 1,749	1.24
\$ 12,000	(1,837)			Propane	18.2	1.63	\$ -	\$ -	380	\$ 5,702	0.95
\$ 150,000	(6,404)	Fuel Oil - Com Fuel Oil	382.5	Propane		1.32	\$ -	\$ -	7,840	\$ 117,600	29.46
\$ 444,500	328,512	Fuel Oil - Com Fuel Oil		Propane		2.17	\$ -	\$ -	79,828	\$ 1,197,426	34.99
\$ 7,000	(4,980)	Fuel Oil - Com Fuel Oil	51				\$ (3,410)	\$ -	43	\$ (2,684)	3.49

\$ 35,000	(4,050)	Fuel Oil - Com Fuel Oil	54		1.47	\$ (8,740)	\$ 342	\$ (2,920)	3.82
\$ 7,000	(8,100)			Propane	93	\$ (3,530)	\$ 1,662	\$ 24,728	5.00
\$ 35,000	(6,990)			Propane	99	\$ (8,740)	\$ 2,166	\$ 28,085	5.50
\$ -	-	Fuel Oil - Com Fuel Oil	0			\$ -	\$ -	\$ -	-
\$ -	-	Fuel Oil - Com Fuel Oil	0			\$ -	\$ -	\$ -	-
\$ -	-			Propane	0	\$ -	\$ -	\$ -	-
\$ -	-			Propane	0	\$ -	\$ -	\$ -	-
\$ 18,808	(6,912)	Fuel Oil - Res Distillate	63.5		1.93	\$ -	\$ (306)	\$ (5,512)	4.27
\$ 18,870	(7,228)			Propane	66.3	\$ -	\$ 635	\$ 11,435	3.41
\$ 19,167	(5,650)	Fuel Oil - Res Distillate	60.6		1.50	\$ -	\$ 472	\$ 6,609	4.17
\$ 21,051	(6,626)			Propane	69.2	\$ -	\$ 1,507	\$ 22,604	3.66
\$ 75	(218)	Motor Gasoline	2.5		1.24	\$ (26)	\$ 2	\$ (12)	0.15
\$ 30	(28)	Motor Gasoline	1.4		-	\$ 30	\$ 27	\$ 242	0.10
\$ 30	(25)	Motor Gasoline	1.4		160.91	\$ 27	\$ 27	\$ 246	0.10
\$ 30	(37)	Motor Gasoline	1.4		12.36	\$ (5)	\$ 24	\$ 188	0.09
\$ 3,500	(9,534)	Motor Gasoline	108.4		1.07	\$ (1,300)	\$ 323	\$ 964	6.64
\$ 100	(276)	Motor Gasoline	13.8		10.00	\$ (14)	\$ 269	\$ 524	0.95
\$ 100	(246)	Motor Gasoline	13.8		9.93	\$ (18)	\$ 276	\$ 535	0.95
\$ 100	(365)	Motor Gasoline	13.8		6.76	\$ (55)	\$ 247	\$ 440	0.94

Program Administrator	Sector	Program	Core Initiative	Sub Offering	End Use	Measure	BCR Measure ID	Quantity Definition	Measure Life
Statewide Deemed	A - Reside	A2 - Resid	A2c - Resid	Electrificati	HVAC	DMSHP Integrated Controls Retrofit, Gas	GA2c069	Homes	10
Statewide Deemed	A - Reside	A2 - Resid	A2c - Resid	Electrificati	HVAC	Central Ducted Heat Pump Partially Displacing Existing Furnace, Gas	GA2c070	Homes	17
Statewide Deemed	A - Reside	A2 - Resid	A2c - Resid	Electrificati	HVAC	Central Ducted Heat Pump Fully Displacing Existing Furnace, Gas	GA2c071	Homes	17
Statewide Deemed	A - Reside	A2 - Resid	A2c - Resid	Electrificati	HVAC	DMSHP with Integrated Controls Partially Displacing Existing Boiler, Gas	GA2c072	Homes	18
Statewide Deemed	A - Reside	A2 - Resid	A2c - Resid	Electrificati	HVAC	DMSHP with Integrated Controls Fully Displacing Existing Boiler, Gas	GA2c073	Homes	18
Statewide Deemed	A - Reside	A2 - Resid	A2c - Resid	Electrificati	HVAC	Air-to-Water Heat Pump displacing Existing Boiler, Gas	GA2c074	Homes	17
Statewide Deemed	A - Reside	A2 - Resid	A2c - Resid	Electrificati	HVAC	Closed Loop GSHP Replacing Furnace, Gas	GA2c075	Homes	30
Statewide Deemed	A - Reside	A2 - Resid	A2c - Resid	Electrificati	HVAC	Open Loop GSHP Replacing Furnace, Gas	GA2c076	Homes	30
Statewide Deemed	A - Reside	A2 - Resid	A2c - Resid	Electrificati	HVAC	Heat Pump Water Heater displacing Existing Water Heater, Gas	GA2c077	Homes	13
NSTAR Gas	C - Comm	C2 - C&I E	C2a - C&I	Electrificati	HVAC	Custom - HVAC (Electrification)	GC2a075	Projects	15
NSTAR Gas	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump displacing Gas Heating	GC2b052	Projects	17
NSTAR Gas	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump displacing Gas Heating	GC2b053	Projects	17
NSTAR Gas	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump replacing Gas Heating	GC2b054	Projects	17
NSTAR Gas	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump replacing Gas Heating	GC2b055	Projects	17
EGMA	C - Comm	C2 - C&I E	C2a - C&I	Electrificati	HVAC	Custom - HVAC (Electrification)	GC2a075	Projects	15
EGMA	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump displacing Gas Heating	GC2b052	Projects	17
EGMA	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump displacing Gas Heating	GC2b053	Projects	17
EGMA	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump replacing Gas Heating	GC2b054	Projects	17
EGMA	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump replacing Gas Heating	GC2b055	Projects	17
National Grid	C - Comm	C2 - C&I E	C2a - C&I	Electrificati	HVAC	Custom - HVAC (Electrification)	GC2a075	Projects	15
National Grid	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump displacing Gas Heating	GC2b052	Projects	17
National Grid	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump displacing Gas Heating	GC2b053	Projects	17
National Grid	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump replacing Gas Heating	GC2b054	Projects	17
National Grid	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump replacing Gas Heating	GC2b055	Projects	17
Liberty	C - Comm	C2 - C&I E	C2a - C&I	Electrificati	HVAC	Custom - HVAC (Electrification)	GC2a075	Projects	15
Liberty	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump displacing Gas Heating	GC2b052	Projects	17
Liberty	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump displacing Gas Heating	GC2b053	Projects	17
Liberty	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump replacing Gas Heating	GC2b054	Projects	17
Liberty	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump replacing Gas Heating	GC2b055	Projects	17
Unitil	C - Comm	C2 - C&I E	C2a - C&I	Electrificati	HVAC	Custom - HVAC (Electrification)	GC2a075	Projects	15
Unitil	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump displacing Gas Heating	GC2b052	Projects	17
Unitil	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump displacing Gas Heating	GC2b053	Projects	17
Unitil	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump replacing Gas Heating	GC2b054	Projects	17
Unitil	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump replacing Gas Heating	GC2b055	Projects	17
Berkshire	C - Comm	C2 - C&I E	C2a - C&I	Electrificati	HVAC	Custom - HVAC (Electrification)	GC2a075	Projects	15
Berkshire	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump displacing Gas Heating	GC2b052	Projects	17
Berkshire	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump displacing Gas Heating	GC2b053	Projects	17
Berkshire	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ducted Heat Pump replacing Gas Heating	GC2b054	Projects	17
Berkshire	C - Comm	C2 - C&I E	C2b - C&I	Electrificati	HVAC	Ductless Heat Pump replacing Gas Heating	GC2b055	Projects	17

Program Administrator	Sector	Program	Core Initiative	Sub Offering	Measure	2021 BCR Measure ID	
Administrator	A - Residential	A1 - Residential New Buildings	A1a - Residential New Homes & Renovations	Whole Initiative	LED Bulb	E19A1a004	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Single Family	LED Bulb (Single Family)	E19A2a071	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Single Family	LED Bulb (Specialty) (Single Family)	E19A2a072	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Single Family	LED Bulb (Reflectors) (Single Family)	E19A2a073	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Single Family	LED Recessed Trim Kits, Electric (Single Family)	E19A2a074	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Single Family	LED Recessed Trim Kits, Gas (Single Family)	E19A2a275	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Single Family	LED Recessed Trim Kits, Oil (Single Family)	E19A2a075	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Single Family	LED Recessed Trim Kits, Propane (Single Family)	E19A2a076	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	LED Bulb (Attached Low Rise)	E19A2a150	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	LED Bulb (Specialty) (Attached Low Rise)	E19A2a151	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	LED Bulb (Reflectors) (Attached Low Rise)	E19A2a152	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	LED Recessed Trim Kits, Electric (Attached Low Rise)	E19A2a153	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	LED Recessed Trim Kits, Gas (Attached Low Rise)	E19A2a267	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	LED Recessed Trim Kits, Oil (Attached Low Rise)	E19A2a154	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	LED Recessed Trim Kits, Propane (Attached Low Rise)	E19A2a155	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	LED Fixture, Indoor In Unit (Attached Low Rise)	E19A2a156	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	LED Fixture, Outdoor In Unit (Attached Low Rise)	E19A2a157	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Attached Low Rise	Heating System, Boiler, Oil (Attached Low Rise)	E19A2a165	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	High Rise	LED Bulb, In-Unit (High Rise)	E19A2a238	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	High Rise	LED Bulb, In-Unit Specialty (High Rise)	E19A2a239	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	High Rise	LED Bulb, In-Unit Reflector (High Rise)	E19A2a240	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	High Rise	LED Fixture, Indoor In Unit (High Rise)	E19A2a241	
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	High Rise	LED Fixture, Outdoor In Unit (High Rise)	E19A2a242	
	Statewide	A - Residential	A2 - Residential Existing Buildings	A2c - Residential Retail	Whole Initiative	Heating System, Boiler, Oil	E19A2c011
		A - Residential	A2 - Residential Existing Buildings	A2c - Residential Retail	Whole Initiative	Educational Kits, Electric	E19A2c095
		A - Residential	A2 - Residential Existing Buildings	A2c - Residential Retail	Whole Initiative	Educational Kits, Gas	E19A2c102
		A - Residential	A2 - Residential Existing Buildings	A2c - Residential Retail	Whole Initiative	Educational Kits, Oil	E19A2c097
		A - Residential	A2 - Residential Existing Buildings	A2c - Residential Retail	Whole Initiative	Educational Kits, Propane	E19A2c098
		A - Residential	A2 - Residential Existing Buildings	A2d - Residential Behavior	Whole Initiative	Temperature Optimization, Summer	E19A2d002
		A - Residential	A2 - Residential Existing Buildings	A2d - Residential Behavior	Whole Initiative	Temperature Optimization, Winter, Oil	E19A2d003
		A - Residential	A2 - Residential Existing Buildings	A2d - Residential Behavior	Whole Initiative	Temperature Optimization, Winter, Propane	E19A2d004
		C - Commercial & Industrial	C2 - C&I Existing Buildings	C2a - C&I Existing Building Retrofit	Residential End Use	LED Bulb, In-Unit (Residential End Use)	E19C2a089
		C - Commercial & Industrial	C2 - C&I Existing Buildings	C2a - C&I Existing Building Retrofit	Residential End Use	LED Bulb, In-Unit Specialty (Residential End Use)	E19C2a090
		C - Commercial & Industrial	C2 - C&I Existing Buildings	C2a - C&I Existing Building Retrofit	Residential End Use	LED Bulb, In-Unit Reflector (Residential End Use)	E19C2a091
		C - Commercial & Industrial	C2 - C&I Existing Buildings	C2a - C&I Existing Building Retrofit	Residential End Use	LED Fixture, Indoor In Unit (Residential End Use)	E19C2a092
		C - Commercial & Industrial	C2 - C&I Existing Buildings	C2a - C&I Existing Building Retrofit	Residential End Use	LED Fixture, Outdoor In Unit (Residential End Use)	E19C2a093
		C - Commercial & Industrial	C2 - C&I Existing Buildings	C2b - C&I New & Replacement Equipment	Upstream	HVAC Upstream - ECM Fan Motors	E19C2b055
		C - Commercial & Industrial	C2 - C&I Existing Buildings	C2b - C&I New & Replacement Equipment	Upstream	HVAC Upstream - DEMAND CONTROL VENTILATION (DCV)	E19C2b056
		A - Residential	A2 - Residential Existing Buildings	A2e - Residential Active Demand Reduction	ADR	Storage Targeted Dispatch, discharge (savings) Winter	E19A2d004
		A - Residential	A2 - Residential Existing Buildings	A2e - Residential Active Demand Reduction	ADR	Storage Targeted Dispatch, charge (consumption) Winter	E19A2d004
		A - Residential	A2 - Residential Existing Buildings	A2e - Residential Active Demand Reduction	ADR	EV Load Management (Winter)	E19A2d006
		B - Income Eligible	B1 - Income Eligible Existing Buildings	B1b - Income Eligible Active Demand Reduction	ADR	Storage Targeted Dispatch, discharge (savings) Winter	E19B1b004
B - Income Eligible		B1 - Income Eligible Existing Buildings	B1b - Income Eligible Active Demand Reduction	ADR	Storage Targeted Dispatch, charge (consumption) Winter	E19B1b004	
B - Income Eligible	B1 - Income Eligible Existing Buildings	B1b - Income Eligible Active Demand Reduction	ADR	EV Load Management (Winter)	E19B1b006		
C - Commercial & Industrial	C2 - C&I Existing Buildings	C2c - C&I Active Demand Reduction	ADR	Winter Interruptible Load	E19C2c007		
C - Commercial & Industrial	C2 - C&I Existing Buildings	C2c - C&I Active Demand Reduction	ADR	Storage Targeted Dispatch, discharge (savings) Winter	E19C2c005		
C - Commercial & Industrial	C2 - C&I Existing Buildings	C2c - C&I Active Demand Reduction	ADR	Storage Targeted Dispatch, charge (consumption) Winter	E19C2c005		
CLC	A - Residential	A2 - Residential Existing Buildings	A2d - Residential Behavior	Whole Initiative	Home Energy Reports	E19A2d001	

Program Administrator	Sector	Program	Core Initiative	Sub Offering	Measure	2021 BCR Measure ID
Statewide	A - Residential	A1 - Residential New Buildings	A1a - Residential New Homes & Renovations	Whole Initiative	LED Bulb	G19A1a004
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Whole Initiative	LED Bulb	G19A2a015
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Whole Initiative	LED Bulb (Specialty)	G19A2a016
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Whole Initiative	LED Bulb (Reflectors)	G19A2a017
	A - Residential	A2 - Residential Existing Buildings	A2a - Residential Coordinated Delivery	Whole Initiative	LED Recessed Trim Kit	G19A2a018
	A - Residential	A2 - Residential Existing Buildings	A2c - Residential Retail	Whole Initiative	Water Heater, Indirect, Gas	G19A2c028
	A - Residential	A2 - Residential Existing Buildings	A2d - Residential Behavior	Whole Initiative	Temperature Optimization, Winter	G19A2d002
Liberty Berkshire	A - Residential	A2 - Residential Existing Buildings	A2d - Residential Behavior	Whole Initiative	Home Energy Reports	G19A2d001
	A - Residential	A2 - Residential Existing Buildings	A2d - Residential Behavior	Whole Initiative	Home Energy Reports	G19A2d001

Realization Rate change dropped >50% in 2024 as compared to 2021

Measure	2024 BCR Measure ID	2021 Measure Life	2021 NTG	2021 RR	2024 Measure Life	2024 NTG	2024 RR	Combined % Reduction (2024/2021)	Reason for Drop
RNC Heating (Low Rise)	EA1a001	25.0	96%	100%	25.0	38%	100%	-60%	Eval-- New NTG & Baseline
RNC Cooling (Low Rise)	EA1a002	25.0	96%	100%	25.0	38%	100%	-60%	Eval-- New NTG & Baseline
RNC Water Heating (Low Rise)	EA1a003	15.0	96%	100%	15.0	38%	100%	-60%	Eval-- New NTG & Baseline
RNC Lighting (High Rise)	EA1a011	4.0	25%	100%	1.0	20%	100%	-80%	Eval - New ML
LED Bulb, Common Area, Other (Attached Low Rise)	EA2a159	3.0	109%	100%	1.0	86%	100%	-74%	Eval - New ML & NTG
LED Bulb, Common Area (High Rise)	EA2a243	3.0	107%	100%	1.0	86%	100%	-73%	Eval - New ML & NTG
LED Bulb (Single Family)	EB1a033	2.0	100%	101%	1.0	100%	101%	-50%	Eval - New ML
LED Bulb (Specialty) (Single Family)	EB1a034	2.0	100%	101%	1.0	100%	101%	-50%	Eval - New ML
LED Bulb (Reflectors) (Single Family)	EB1a035	2.0	100%	101%	1.0	100%	101%	-50%	Eval - New ML
LED Bulb (Multifamily)	EB1a103	2.0	100%	101%	1.0	100%	101%	-50%	Eval - New ML
LED Bulb (Specialty) (Multifamily)	EB1a104	2.0	100%	101%	1.0	100%	101%	-50%	Eval - New ML
LED Bulb (Reflectors) (Multifamily)	EB1a105	2.0	100%	101%	1.0	100%	101%	-50%	Eval - New ML
LED Bulb, Common Area (Multifamily)	EB1a108	3.0	100%	96%	1.0	100%	96%	-67%	Eval - New ML
Custom - Lighting Systems	EC1a013	13.0	102%	102%	6.0	65%	101%	-71%	Eval - New ML & NTG
Custom - Refrigeration	EC1a027	15.0	102%	113%	15.0	65%	80%	-55%	Eval - New NTG
Custom - Lighting Systems	EC2a008	13.0	92%	102%	6.0	58%	101%	-71%	Eval - New ML & NTG
Performance Lighting (Exterior)	EC2a010	12.0	94%	112%	6.0	71%	112%	-62%	Eval - New ML & NTG
Performance Lighting (Exterior with Controls)	EC2a012	12.0	94%	112%	6.0	71%	112%	-62%	Eval - New ML & NTG
Lighting Systems Interior	EC2a013	11.0	94%	112%	7.0	71%	112%	-52%	Eval - New ML & NTG
Lighting Systems Exterior	EC2a014	13.0	94%	107%	6.0	71%	112%	-63%	Eval - New ML & NTG
Custom - Lighting Systems (Turnkey)	EC2a052	11.0	92%	102%	6.0	73%	93%	-60%	Eval - New ML & NTG
Lighting Systems - Exterior (Turnkey)	EC2a049	10.0	94%	97%	6.0	80%	93%	-51%	Eval - New ML & NTG
LED Bulb, Common Area (Residential End Use)	EC2a094	3.0	109%	100%	1.0	86%	100%	-74%	Eval - New ML & NTG
Custom - Lighting Systems	EC2b012	10.0	91%	102%	6.0	64%	101%	-58%	Eval - New ML & NTG
Performance Lighting (Interior)	EC2b013	15.0	86%	119%	7.0	84%	119%	-55%	Eval - New ML & NTG
Performance Lighting (Exterior)	EC2b014	15.0	86%	112%	6.0	84%	112%	-61%	Eval - New ML & NTG
Performance Lighting (Exterior with Controls)	EC2b016	12.0	86%	112%	6.0	84%	112%	-51%	Eval - New ML & NTG
Lighting Systems - Interior	EC2b017	15.0	86%	112%	7.0	84%	112%	-55%	Eval - New ML & NTG
Lighting Systems - Exterior	EC2b018	15.0	86%	107%	6.0	84%	112%	-59%	Eval - New ML & NTG
Midstream - LED Screw In	EC2b059	3.0	53%	78%	2.0	35%	61%	-66%	Eval - New ML, NTG, & RR
Midstream - LED Stairwell Kit	EC2b060	10.0	66%	76%	6.0	14%	86%	-86%	Eval - New ML, NTG, & RR
Midstream - LED Linear Lamp (TLED)	EC2b058	10.0	66%	78%	7.0	14%	88%	-83%	Eval - New ML, NTG, & RR
Midstream - LED Linear Fixture	EC2b088	10.0	66%	78%	7.0	17%	98%	-77%	Eval - New ML, NTG, & RR
Midstream - High Bay / Low Bay	EC2b062	12.0	66%	78%	8.0	38%	91%	-55%	Eval - New ML, NTG, & RR
Midstream - LED Exterior	EC2b063	12.0	66%	68%	6.0	7%	92%	-93%	Eval - New ML, NTG, & RR

gs to drop >50% in 2024 as compared to 2021

Measure	2024 BCR Measure ID	2021 Net Lifetime kWh	2024 Net Lifetime kWh	% Reduction (2024/2021)	Reason for Drop
Foodservice - Commercial Electric Steam Cooker	EC2b031	311.2	46.5	-85%	Updated baseline
Foodservice - Commercial Electric Griddle	EC2b032	40.9	13.3	-67%	Updated baseline
Foodservice - Commercial Ice Machine, Remote Condensing Unit (Batch)	EC2b044	17.9	8.8	-51%	Updated baseline
Foodservice - Food Holding Cabinet, Full Size	EC2b048	28.2	11.7	-59%	Updated baseline
Midstream - Commercial Electric Steam Cooker	EC2b067	311.2	46.5	-85%	Updated baseline
Midstream - Commercial Electric Griddle	EC2b068	40.9	13.3	-67%	Updated baseline
Midstream - Commercial Ice Machine, Remote Condensing Unit (Batch)	EC2b080	17.9	8.8	-51%	Updated baseline
Midstream - Food Holding Cabinet, Full Size	EC2b084	28.2	11.7	-59%	Updated baseline
Midstream - Circulator Pump	EC2b057	32.1	6.8	-79%	Updated baseline

The following is a list of measures where an evaluation change caused Net Lifetime savings to drop >50% in 2024 as compared to 2021

Program Administrat or	Sector	Program	Core Initiative	Sub Offering	End Use	Measure	2024			2021 Measure Life	2021 Net Lifetime Savings per Unit	% Reduction (2024/2021)	
							2024 BCR Measure ID	2024 Measure Life	2024 Net Lifetime Savings per Unit				
Statewide	A - Reside A1 - Resid A1a - Resi	NewConstruction	HVAC			Heating(NewConstruction)	GA1a001	25.0	143	25.0	288	-51%	Eval-- New NTG & Baseline
Statewide	A - Reside A1 - Resid A1a - Resi	New Constructio	Hot Water			Water Heating (New Construction)	GA1a003	15.0	1	15.0	50	-98%	Eval-- New NTG & Baseline
Statewide	A - Reside A2 - Resid A2a - Resi	Attached Low Ri	HVAC			Programmable Thermostat, Gas (Attached Low Rise)	GA2a056	19.0	27	15.0	57	-53%	Updated gross savings
Statewide	A - Reside A2 - Resid A2c - Resi	Whole Initiative	Hot Water			Room Response Boiler Reset Control	GA2c035	15.0	26	15.0	77	-66%	?
Statewide	C - Commr C2 - C&I E C2a - C&I	Whole Initiative	HVAC			Programmable Thermostat, Gas	GC2a016	15.0	21	15.0	42	-51%	Updated gross savings
Statewide	C - Commr C2 - C&I E C2a - C&I	Whole Initiative	Hot Water			Faucet Aerator, Gas	GC2a021	3.0	4	10.0	14	-73%	Is this right? Why did ML drop?
Statewide	C - Commr C2 - C&I E C2a - C&I	Whole Initiative	Hot Water			Pre-Rinse Spray Valve	GC2a023	3.0	20	8.0	73	-72%	Is this right? Why did ML drop?
Statewide	C - Commr C2 - C&I E C2a - C&I	Turnkey	HVAC			Programmable Thermostat, Gas (Turnkey)	GC2a037	10.0	15	15.0	42	-65%	Updated gross savings
Statewide	C - Commr C2 - C&I E C2a - C&I	Turnkey	Hot Water			Faucet Aerator, Gas (Turnkey)	GC2a042	3.0	4	10.0	14	-71%	Is this right? Why did ML drop?
Statewide	C - Commr C2 - C&I E C2a - C&I	Turnkey	Hot Water			Pre-Rinse Spray Valve (Turnkey)	GC2a044	3.0	22	8.0	73	-70%	Is this right? Why did ML drop?
Statewide	C - Commr C2 - C&I E C2b - C&I	Whole Initiative	Foodservice			Foodservice, Ovens, Combination Oven, Gas	GC2b028	12.0	185	12.0	1,103	-83%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Whole Initiative	Foodservice			Foodservice, Ovens, Conveyer Oven, Gas	GC2b030	12.0	427	12.0	884	-52%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Whole Initiative	Foodservice			Foodservice, Ovens, Rack Oven, Gas	GC2b031	12.0	592	12.0	2,112	-72%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Whole Initiative	Foodservice			Foodservice, Griddle, Gas	GC2b032	12.0	128	12.0	379	-66%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Whole Initiative	Foodservice			Foodservice, Fryer, Gas	GC2b033	12.0	267	12.0	783	-66%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Whole Initiative	Foodservice			Foodservice, Steam Cooker, Gas	GC2b034	12.0	399	12.0	3,706	-89%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Upstream	Foodservice			Foodservice, Ovens, Combination Oven, Gas - Midstream	GC2b035	12.0	185	12.0	1,103	-83%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Upstream	Foodservice			Foodservice, Ovens, Conveyer Oven, Gas - Midstream	GC2b037	12.0	427	12.0	884	-52%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Upstream	Foodservice			Foodservice, Ovens, Rack Oven, Gas - Midstream	GC2b038	12.0	592	12.0	2,112	-72%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Upstream	Foodservice			Foodservice, Griddle, Gas - Midstream	GC2b039	12.0	128	12.0	379	-66%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Upstream	Foodservice			Foodservice, Fryer, Gas - Midstream	GC2b040	12.0	267	12.0	783	-66%	New baseline
Statewide	C - Commr C2 - C&I E C2b - C&I	Upstream	Foodservice			Foodservice, Steam Cooker, Gas - Midstream	GC2b041	12.0	399	12.0	3,706	-89%	New baseline

PA Community Partnerships, 2019-2021

Name of entity with which PAs partnered with during 2019-2021	Type of Entity	PAs involved	PA program the partnership was associated with	Length of engagement	Nature of engagement with this entity	How this engagement enhanced program delivery
Town of Webster	Municipality	National Grid	Municipal and Community Partnership	2019	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Municipal Recycling Events	State or Federal Government	National Grid, Eversource	Residential Existing Buildings, Income Eligible Existing Buildings			
Fraunhofer	Other	National Grid, Eversource	Residential Existing Buildings	2019-2020	National Grid and Eversource partnered with Fraunhofer, giving them anonymous smart t-stat data. Fraunhofer used this data to test an algorithm that gives personalized recommendations for air sealing and insulation. In partnership with Fraunhofer, National Grid and Eversource did targeted marketing to customers to test whether the personalized recommendations resulted in increased participation in the RCD program.	Opportunity to test different marketing techniques to encourage participation.
Levy Partnership and NYSERDA	Other	National Grid	Residential New Buildings and Residential Existing Buildings	2019-2021		The PAs will use the findings to inform their heat pump program.
City of Somerville	Municipality	National Grid	Municipal and Community Partnership	2019	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Town of Concord	Municipality	National Grid	Municipal and Community Partnership	2019	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Town of Newburyport	Municipality	National Grid	Municipal and Community Partnership	2019	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Arbella Insurance Group	Other	All	Residential Existing Buildings	2019-2021	Special offer for new and existing Arbella home, condo, dwelling fire policy to save 5% on their insurance if they complete a Home Energy Assessment through the Sponsors of Mass Save.	Cross-promotion of Mass Save programs to Arbella customers. Potential to increase participation.
Barnstable Employee Benefits Fair	Municipality	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Barnstable Sustainability Fair	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Bass River Farmer's Market	Other	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Brewster Conservation Day	Municipality	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Brewster Historical Society Farmers' Market	Other	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Building Energy Boston	Municipal Energy Advocate	Cape Light Compact	Residential, Income Eligible and C&I	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Cape Air Electric Vehicle Car Show	Municipal Energy Advocate	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Cape Cod Beer Farmers' Market	Other	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Cape Cod Commission Community Process on Climate	Community Based Organization	Cape Light Compact	Residential, Income Eligible and C&I	2019	Discuss role CLC Energy efficiency programs play in Regional Policy Plan	Opportunity to discuss how to integrate energy efficiency into local regulatory processes
Cape Cod Property Owners and Managers Association	Community Based Organization	Cape Light Compact	C&I Small Business	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Chamber Directors Meeting	Municipality	Cape Light Compact	C&I Small Business	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services

Dennis Conservation Day	Municipality	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Dennis Yarmouth Newcomers Club Meeting	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
EarthTech Expo	Municipal Energy Advocate	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Eastham Part Time Tax Payer	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Faith Based Organizations of Cape & Islands	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Falmouth Commission on Disabilities Wellness Fair	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Falmouth Community Emergency Preparedness Fair	School	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Falmouth Farmers' Market	Other	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
First Congregational Church Presentation and HEA Sign Up Event	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Harwich Farmers' Market	Other	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Harwich Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2019	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Hyannis Rotary Home and Garden Show	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Lower Cape Home and Garden Show	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Martha's Vineyard Electric Vehicle Car Day	Municipal Energy Advocate	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Oak Bluff Electric Vehicle Car Day	Municipal Energy Advocate	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Oak Bluffs COA Presentation	Municipality	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Outer Cape Year Rounders Festival	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Pleasant Bay Community Boating Presentation on EE	Other	Cape Light Compact	Residential, Income Eligible and C&I	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Philanthropy Day	Community Based Organization	Cape Light Compact	C&I Small Business	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Quashnet Energy Carnival	Community Based Organization	Cape Light Compact	Energy Eductaion	2019	Overview of energy efficiency and science of energy	Educational efforts help share future workforce development and general education offerings
Sandwich STEM Exploration Day	School	Cape Light Compact	Energy Eductaion	2019	Overview of energy efficiency and science of energy	Educational efforts help share future workforce development and general education offerings
Thrive Expo	Community Based Organization	Cape Light Compact	Residential, Income Eligible	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Tivoli Day	Community Based Organization	Cape Light Compact	Residential, Income Eligible	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Truro Energy Presentation	Other	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Truro Part Time Taxpayer	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Vineyard Haven Public Library Presentation	Other	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Waquoit Bay National Refuge (WBNERR) Block Party	Other	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Wellfleet Farmers' Market	Other	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Zero Waste Night at West Tisbury School	School	Cape Light Compact	Residential Existing Buildings	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Martha's Vineyard HVAC Contractor Event	Other	Cape Light Compact	Residential Existing Buildings & C&I	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Cape Cod HVAC Contractor Event	Other	Cape Light Compact	Residential Existing Buildings & C&I	2019	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services

City of New Bedford	Municipality	Eversource	Municipal and Community Partnership	2020	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
City of Pittsfield	Municipality	Eversource and Berkshire	Municipal and Community Partnership	2020	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Town of Lancaster	Municipality	National Grid	Municipal and Community Partnership	2020	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Berkshire Environmental Action Team	Community Based Organization	Eversource and Berkshire	Municipal and Community Partnership	2020	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Mass Landlords Association	Community Based Organization	ALL	RCD	2020	Engage in stakeholder feedback sessions and attend Mass Landlords meetings.	Promote Mass Save offerings available for renters and landlords, educate landlords about incentives available for them and their tenants, solicit feedback from landlords to inform future program design and implementation.
Brewster Senior Center	Business Association	Cape Light Compact	Residential Existing Buildings	2020	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Cotuit Library Presentation	Other	Cape Light Compact	Residential Existing Buildings	2020	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Eastham First Landing Event	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2020	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Oak Bluffs Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2020	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Provincetown Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2020	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Yarmouth Senior Center Presentation	Business Association	Cape Light Compact	Residential Existing Buildings	2020	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Cambodian Mutual Assistance Association of Greater Lowell (CMAA)	Community Based Organization	National Grid	Ngrid Community Solutions	2021	Connected to our work with the City of Lowell, partner to engage hard to reach customers - specifically the Khmer community in and around Lowell.	Marketing and education materials and website made available in Khmer co-developed with CMAA staff, CMAA sharing information with their constituents.
City of Worcester	Municipality	National Grid & Eversource	NGrid Community Solutions	2021	City approved the Green Worcester Climate Action Plan in March 2021. Working with the City to identify the ways Mass Save can support the plan's goals. Working toward a formal MOU for 2022-2024	Provide a single point of contact for the City to engage with Mass Save offerings.
Cities of Salem and Beverly	Municipality	National Grid	NGrid Community Solutions	2021	Signed MOU in June 2021. Support implementation of Resilient Together, Salem and Beverly's joint climate action plan.	Priorities include City buildings, small business, new construction and small multi-family (5-20 units). Leverage City relationships and communication channels. Collaborate on activities such as training and Main Street events, create a process to engage new construction projects early in the design process
Town of Andover	Municipality	National Grid and Eversource	Municipal and Community Partnership	2021	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
City of Cambridge	Municipality	Eversource	Municipal and Community Partnership	2021	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
City of Haverhill	Municipality	National Grid	Municipal and Community Partnership	2021	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.

Town of Marshfield	Municipality	Eversource	Municipal and Community Partnership	2021	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Town of Westborough	Municipality	National Grid and Eversource	Municipal and Community Partnership	2021	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Asian American Civic Association	Community Based Organization	National Grid and Eversource	Workforce Development	2021	Partner to administer weatherization training for Boston Clean Energy Pathways interns, recruit interns, and supervise interns during their internship.	Aid PAs in attracting more diverse, multilingual young people into jobs in energy efficiency to better reach more customers with Mass Save programs.
Greater Lawrence Technical High School	School	National Grid and Eversource	Workforce Development	2021	Partner to recruit and supervise Lawrence interns during their internship.	Aid PAs in attracting more diverse, multilingual young people into jobs in energy efficiency to better reach more customers with Mass Save programs.
MassHire Springfield	Community Based Organization	Eversource	Workforce Development	2021	Partner to recruit and supervise Springfield interns during their internship.	Aid PAs in attracting more diverse, multilingual young people into jobs in energy efficiency to better reach more customers with Mass Save programs.
MassHire Bristol	Community Based Organization	Liberty, National Grid	Workforce Development	2021	Partner to recruit and supervise Fall River interns during their internship.	Aid PAs in attracting more diverse, multilingual young people into jobs in energy efficiency to better reach more customers with Mass Save programs.
City of Boston	Municipality	Eversource, National Grid	Workforce Development	2021	Participate in green jobs Community Advisory Board with the Department of Environment, Energy, and Open Space	Inform design of new grant initiatives to best respond to market demand for energy efficiency workers and availability of training for workers.
Bourne Senior Center	Business Association	Cape Light Compact	Residential Existing Buildings	2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Barnstable Adult Community Center	Business Association	Cape Light Compact	Residential Existing Buildings	2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Chatham Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Dennis Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Eastham Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Falmouth Economic Development & Industrial Corporation	Other	Cape Light Compact	C&I Small Business	2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Falmouth Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Home Builders and Remodelers Association of Cape Cod	Business Association	Cape Light Compact	Residential Existing Buildings	2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Sandwich Senior Center	Business Association	Cape Light Compact	Residential Existing Buildings	2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
West Tisbury Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Yarmouth Energy Committee	Municipality	Cape Light Compact	Residential Existing Buildings	2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Yarmouth Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
First Time Homebuyers Class	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019 and 2020	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Community Development Partnership	Business Association	Cape Light Compact	C&I Small Business	2019, 2020	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Climate Change Collaborative: Round Table	Community Based Organization	Cape Light Compact	Residential Existing Buildings	2019, 2020 and 2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Bourne Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2019, 2020, and 2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Community Development Partnership	Business Association	Cape Light Compact	Residential Existing Buildings	2019, 2020, and 2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Housing Assistance Corporation	Business Association	Cape Light Compact	Income-Eligible Existing Buildings	2019, 2020, and 2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Island Housing Trust	Business Association	Cape Light Compact	Income-Eligible Existing Buildings	2019, 2020, and 2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services

Truro Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2019, 2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Cape & Islands Energy Committees	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2019, 2020 and 2021	Discuss program incentives, energy savings and how to participate	Provides participants with an opportunity to suggest changes to improve delivery of energy efficiency services and how to best incorporate with municipal energy efforts
City of Lowell	Municipality	National Grid	Ngrid Community Solutions	2019-2021	Established MOU with the City. Focused on enhanced financial and technical support to increase energy efficiency in City buildings. Second MOU continues work with City buildings and adds commitment to partner in other sectors.	Increased savings in City buildings, exceeded all goals to date. Partner with the City to reach new customers, leverage relationships and communications channels
Fall River Industrial Park Association	Business Association	National Grid	NGrid Community Solutions	2019-2021	Offer enhanced technical, financial and program management support to all businesses in the Fall River Industrial Park.	Implemented with our industrial initiative vendor (Leidos); offer workshops and outreach leveraging the meetings, communications and connections of the industrial park association
Passive House Massachusetts	Community Based Organization	ALL	Residential New Buildings	2019-2021	Partnership to raise awareness about passive house certification, educate the market, and train professionals on PH building standards.	Play role in market transformation of the multifamily building market to greater adoption of passive house building standards and participation in PAs passive house offer.
Green Jobs Academy	Community Based Organization	ALL	Workforce Development, Income Eligible and Residential	2019-2021	Partner to administer weatherization training for Springfield Clean Energy Pathways interns.	Aid PAs in attracting more diverse, multilingual young people into jobs in energy efficiency to better reach more customers with Mass Save programs.
Roxbury Community College	School	National Grid and Eversource	Workforce Development	2019-2021	Sit on board of advisors for Center for Smart Building Technology and contribute to the successful launch of the C4SBT.	Help create an additional training and education pathway for more young people and professionals from Environmental Justice communities in Boston to work in the energy efficiency and building decarbonization space to build the capacity of vendors contributing to Mass Save programs and ability of customers to take advantage of Mass Save programs.
University of Massachusetts Center for Energy Efficiency and Renewable Energy (CEERE)	School	ALL	Workforce Development	2019-2021	Engage in Massachusetts Energy Efficiency Partnership to host regular trainings for trade allies in C&I energy efficiency professional development.	Help develop the professional capacity of trade allies working in the C&I building space so that more customers can better access Mass Save offerings.
New Bedford Landlord Association	Community Based Organization	Liberty, National Grid, Eversource	RCD	2019-2021	Group of landlords Liberty presented to in 2020. Continue to engage with this landlord association through marketing efforts	
Love Live Local	Business Association	Cape Light Compact	C&I Small Business	2020 and 2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Net Zero Conference	Community Based Organization	Cape Light Compact		2020 and 2021	Discuss program incentives, energy savings and how to participate	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Orleans Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2020 and 2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
City of Chelsea	Municipality	National Grid and Eversource	Municipal and Community Partnership	2020, 2021	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
City of Framingham	Municipality	Eversource	Municipal and Community Partnership	2020, 2021	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
City of Lawrence	Municipality	National Grid and Eversource	Municipal and Community Partnership	2020, 2021	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
City of Methuen	Municipality	National Grid and Eversource	Municipal and Community Partnership	2020, 2021	Participant in PAs Municipal and Community Partnership Program	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.

All In Energy	Community Based Organization	Eversource, National Grid, Berkshire	Municipal and Community Partnership	2020, 2021	Partner of municipal participants in PAs Municipal and Community Partnership Program and collaborator to inform improved program design and implementation.	Co-create marketing materials and implement education and outreach efforts to encourage participation in Mass Save offerings among renters/landlords, English isolated customers, low and moderate income customers, and small businesses.
Brewster Select Board Meeting	Municipality	Cape Light Compact	Residential, Income Eligible and C&I	2020, 2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	Provides customers with an opportunity to suggest changes to improve delivery of energy efficiency services
Boston Contractor Academy	Community Based Organization	Eversource, National Grid	Workforce Development	2020-2021	Sit on board of advisors to advise on program design, provide guest speakers for workshops	Provides pathway for diverse, small business enterprises to begin working in Mass Save programs and connect with more customers
City of Newton	Municipality	National Grid and Eversource	Ngrid Community Solutions	2021-2023	MOU with the City and the gas and electric Pas. Focused on sectors other than municipal buildings; support implementation of Newton's Climate Action Plan	Letter from Mayor to residents, City to convene large business round table, leverage City communication channels
Fannie Mae	Other	National Grid and Eversource	Residential Existing Buildings	2020-2021	Partnership with Fannie Mae and Google Nest. Fannie Mae identifies new homeowners in their loan program within the qualified moderate income ranges after which they are eligible to access a no cost wireless thermostat via the online marketplace.	Partnership gave moderate income new homeowners an opportunity to receive a no cost wireless thermostat. PAs ensured cross-marketing to these customers to make them aware of other programs and measures they are eligible for.
United Way of North Central MA	Community Based Organization	Unitil	Residential and Income Eligible	2019-2021	Discuss program incentives, energy savings and how to participate	Unitil sponsors a Heating Forum annually in the fall (November) on MassSave programs available to non profit organizations and their clients in the area. Also describe billing programs available for customers in need, income qualified customers and how they can apply, etc. Unitil has sponsored this event for 21 years (as of 2021). There have been on average close to 75 attendees representing numerous non-profits at these events.
North Central MA Chamber of Commerce	Business Association	Unitil	Commercial & Industrial	2019-2021	Discuss program incentives, energy savings and how to participate	increased awareness of MassSave among business community in the region
Town of Ashby, MA	Municipality	Unitil	Commercial & Industrial	2019-2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	ensured full access by Town to energy efficiency staff, programs and resources
City of Fitchburg, MA	Municipality	Unitil	Commercial & Industrial	2019-2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	ensured full access by Town to energy efficiency staff, programs and resources
Town of Gardner, MA	Municipality	Unitil	Commercial & Industrial	2019-2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	ensured full access by Town to energy efficiency staff, programs and resources
Town of Lunenburg, MA	Municipality	Unitil	Commercial & Industrial	2019-2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	ensured full access by Town to energy efficiency staff, programs and resources
Town of Townsend, MA	Municipality	Unitil	Commercial & Industrial	2019-2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	ensured full access by Town to energy efficiency staff, programs and resources
Town of Westminster, MA	Municipality	Unitil	Commercial & Industrial	2019-2021	Discuss participation and savings numbers for town. Provide update any Program/Plan changes	ensured full access by Town to energy efficiency staff, programs and resources
Fitchburg Access Television	Other	Unitil	Residential, Income Eligible and C&I	2019-2021	Featured promotion of Program opportunities and successes through regular segments on local access television	spread information from trusted local source of municipal information to community residents on energy efficiency opportunities, case studies, etc.
Fitchburg State University	School	Unitil	Commercial & Industrial	2019-2021	Multi-year engagement to undertake suite of efficiency opportunities across the campus; engagement on the Board of Trustees	ensured continued engagement of large customer as they pursued energy efficiency opportunities
Montachussetts Opportunity Council	Community Based Organization	Unitil	Income Eligible	2019-2021	collaboration to serve low and moderate income residents participating in program	Community Action Agency and key partner in reaching low and moderate income customers, housing authorities and multi-family property owners in territory
Fitchburg Housing Authority	Other	Unitil	Income Eligible	2019-2021	continual engagement to identify and serve affordable housing properties and units	ensured access to programs by housing authorities and low income residents in territory
Fitchburg Redevelopment Authority	Business Association	Unitil	Commercial & Industrial	2019-2021	collaboration to promote opportunities for economic development and energy efficiency	mutual support with this economic development agency to attract and retain businesses in Fitchburg
Cleghorn Neighborhood Center	Community Based Organization	Unitil	Residential, Income Eligible and C&I	2019-2021	Discuss participation and savings opportunities. Provide update any Program/Plan changes	worked with this community based organization to low and moderate income residents to help build awareness, engagement with program
NewVue Communities	Community Based Organization	Unitil	Residential and Income Eligible	2019-2021	Discuss participation and savings opportunities. Provide update any Program/Plan changes	worked with this community based organization to low and moderate income residents to help build awareness, engagement with program

**Guide to the Filing Requirements of
the General Laws c. 25 and D.P.U. 08-50-B
in the
Massachusetts Joint Statewide Electric and Gas
Three-Year Energy Efficiency Plan for January 1, 2022 - December 31, 2024**

	FILING REQUIREMENT	LOCATION
1.	Executive Summary	Exhibit Compact-1 Pages 6-9
2.	Table of Contents	Exhibit Compact-1 Pages 2-4
3.	Pre-Hearing Statement	Pre-Hearing Statement
4.	Tables	Exhibit Compact-1, Appendix C Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables
	Funding sources	Exhibit Compact-1, Appendix A, Section A.1.10 Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables
	Program budgets, including a comparison of the Program Administrator’s Three-Year Plan budget to its previous year’s budget	Exhibit Compact-1, Appendix A, Section A.1.3 Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Tables IV.C
	Bill Impacts	Exhibit Compact-6 Bill Impact Analysis

	FILING REQUIREMENT	LOCATION
	<p>Cost-effectiveness analyses, including (1) a comparison of the Program Administrator’s costs, benefits, and savings to statewide totals; (2) a comparison of the Program Administrator’s Three-Year Plan costs, benefits, and savings to the previous program year; (3) an avoided costs factors summary; (4) a comparison of each Program Administrator’s distribution and transmission avoided costs factors; and (5) a comparison of the Program Administrator’s Three-Year Plan distribution and transmission avoided costs factors to its previous year’s plan</p>	<p>Exhibit Compact-1, Appendix A, Section A.1.6</p> <p>Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Tables IV.D</p>
	<p>Supporting information for D.P.U. 08-50 working group tables, specifically, IV.B.1; Table IV.B.3.1; Table IV.B.3.4; Table IV.D.3.1.i; Table IV.D.3.3.i; Table IV.I.2; Table V.B.1; Table VII.B.2, and Table IV.I.1; (The requested information is contained in the notes section of each table, as approved by the Department in D.P.U. 08-50-B.)</p>	<p>Exhibit Compact-1, Appendix C</p> <p>Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables</p>
	<p>Administrative cost information</p>	<p>Exhibit Compact-1, Appendix A, Section A.1.7</p> <p>Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Table IV.C.3</p>
	<p>Three-Year Plan Monitoring and Evaluation</p>	<p>Exhibit Compact-1 Section 4</p> <p>Exhibit Compact-1, Appendix H</p>
	<p>Performance incentives, including a narrative description</p>	<p>Not applicable to the Compact</p>
	<p>Three-Year Plan cost recovery - lost base revenues and energy efficiency surcharge</p>	<p>Exhibit Compact-1, Appendix A, Section A.1.10</p> <p>Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Table IV.I.1</p>

	FILING REQUIREMENT	LOCATION
	Low-income budget allocation	Exhibit Compact-1, Appendix A, Section A.1.7 Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Tables IV.B
	Outsourced services, including a comparison of outsourced services of the Program Administrator’s Three-Year Plan to its previous plan	Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Tables V.D.1, V.D.3
	Master Summary	Exhibit Compact-1, Appendix C Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Table VII.B.2
5.	Supporting Appendices	<i>See below</i>
	Assessment of all cost-effective energy efficiency and demand reduction resources	Exhibit Compact-1, Appendix A, Section A.1.5 Exhibit Compact-1, Appendix F
	Detailed cost-benefit analyses and input assumptions	Exhibit Compact-1, Appendix A, Sections A.1.5, A.1.6, A.1.9 Exhibit Compact-5 BCR Screening Model
	Bill impacts analyses for all rate classes	Exhibit Compact-6 Bill Impact Analysis
	Avoided cost study	Exhibit Compact-1 Section 4, Appendix A, Section A.1.6 Exhibit Compact-1, Appendix Q

	FILING REQUIREMENT	LOCATION
	Technical Reference Manual	Exhibit Compact-1, Appendix A, Section A.1.4 Exhibit Compact-1, Appendix O
	Sources for all assumptions	Exhibit Compact-1 Sections 2, 3, Appendix A Exhibit Compact-1, Appendix O
	Transmission and distribution calculations	Exhibit Compact-5 BCR Models
	Documents supporting competitive procurement	Exhibit Compact-1, Appendix A, Section A.1.7 Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Table V.D.1
	Glossary of terms	Exhibit Compact-1, Appendix B
	Screening tools	Exhibit Compact-5 BCR Screening Model
6.	Estimated lifetime cost, reliability, and magnitude of all proposed energy efficiency and demand reduction resources	Exhibit Compact-1, Appendix C Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Tables IV.D
7.	Amount of demand resources proposed	Exhibit Compact-1, Appendix C Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Tables IV.D.3.2.i
8.	Estimated energy cost savings, including reductions in capacity and energy costs, and increases in rate stability and affordability for low-income customers	Exhibit Compact-1, Appendix A, Section A.1.6, Appendix C Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Table IV.D.3.2

	FILING REQUIREMENT	LOCATION
9.	Program descriptions	Exhibit Compact-1 Sections 2 and 3
10.	Proposed mechanisms for performance incentives	Not applicable to the Compact
11.	Program budget	Exhibit Compact-1, Appendix C Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Tables IV.B.1, IV.C.1
12.	Proposed reconciling mechanism	Exhibit Compact-1, Appendix A, Section A.1.10 Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Table IV.I.1
13.	Estimated peak load reduction and estimated economic benefits (including job retention, job growth, and economic development)	Exhibit Compact-1, Sections 1, 2, 3, Appendix A, Sections A.1.2, A.1.6, Appendix C Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Table IV.D.3.2.i
14.	Estimated social value of greenhouse gas emissions reductions that will result from the Three-Year Plan, including a numerical value of the Plan’s contribution to meeting each statewide greenhouse gas emissions limit and sublimit	Exhibit Compact-1, Appendix A, Section A.1.6, Appendix C, Appendix Q Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables
15.	Data on percentage of monies collected that will be used for direct consumer benefit (incentives and technical assistance)	Exhibit Compact-1, Appendix C Exhibit Compact-4 PA-Specific Energy Efficiency Data Tables, Table IV.C.1

Energy Efficiency Data Tables

Overview

Cape Light Compact

November 1, 2021

DATA OVERVIEW

The following data tables provide a summary of the Program Administrator's benefits, costs, savings, and cost-effectiveness for 2019 through 2024. The 2019 through 2021 planned values are consistent with each Program Administrator's 2019-2021 Three-Year Plan. The 2019 and 2020 evaluated values are consistent with each Program Administrator's 2019 and 2020 Plan-Year Reports. The 2021 year-to-date data represents the most up-to-date estimated actual values available through June 30, 2021 (Q2). The 2022-2024 planned values are consistent with each Program Administrator's 2022-2024 Three-Year Plan.

SUPPORTING INFORMATION

The data included in these tables is based on other supporting models. The primary supporting models used by the Program Administrators are the Benefit-Cost Screening model, each Program Administrator's EES calculation support documents, and the Performance Incentive model. These exhibits should be referenced when looking for more detailed analyses, such as measure level detail and EES calculations. High-level summaries for each of these models are provided below, along with information on plan details that are not summarized in the following plan tables.

Benefit-Cost Screening Models

The Benefit-Cost Screening model provides measure level savings and benefits. This model uses the avoided cost values from the 2021 Avoided Energy Supply Cost study prepared by Synapse Energy Economics. The models also provide Program Administrator-specific information, including avoided T&D costs.

GHG

The avoided CO₂e (metric tons) in the savings table (table IV.D.3.2.i) are calculated consistent with the methodology stipulated by the Massachusetts Executive Office of Energy and Environmental Affairs in Letter from Sec. Theoharides, "Greenhouse Gas Emissions Reduction Goal for Mass Save," July 15, 2021. See: <https://www.mass.gov/doc/greenhouse-gas-emissions-reduction-goal-for-mass-save/download>

EM&V Activities

The Evaluation, Monitoring & Verification Section of the Joint Statewide Three-Year Plan describes in detail the EM&V activities planned for 2022-2024.

Performance Incentive Model

The Performance Incentive model filed as part of the Joint Statewide Three-Year Plan provides support for the performance incentive dollars proposed for collection by the Program Administrator. Note that performance incentives are not applicable to the Cape Light Compact.

EES Calculations

Each Program Administrator's Energy Efficiency Surcharge analysis provides supporting information on the EES rates proposed for effect in 2022-2024, including how the rates are calculated for each customer sector, and how revenue is collected from each customer sector.

2022-2024 Plan Data Tables

Template Version: October 28, 2021

PA-Specific Information

FILING INFORMATION

Distribution Company	Electric	
Program Administrator	Cape Light Compact	PA-specific
Date of Filing/Draft	November 1, 2021	

FILING DATES AND DOCKETS

Reporting Period	Filing Date	DPU Docket Number
2019 Planned	February 2, 2019	D.P.U. 18-116
2020 Planned	February 2, 2019	D.P.U. 18-116
2021 Planned	February 2, 2019	D.P.U. 18-116
2019 Evaluated	May 29, 2020	D.P.U. 20-50
2020 Evaluated	June 4, 2021	D.P.U. 21-70
2021 YTD	through June 30, 2021 (Q2)	n/a
2022 Planned	November 1, 2021	D.P.U. 21-126
2023 Planned	November 1, 2021	D.P.U. 21-126
2024 Planned	November 1, 2021	D.P.U. 21-126

RATES FOR ADJUSTMENTS

2020 Nominal Discount Rate	2.33%	
2021 Nominal Discount Rate	2.33%	
2023 Nominal Discount Rate	1.98%	
2024 Nominal Discount Rate	1.98%	
2022 Electric LI Rate Subsidy, Resi	44.63%	PA-specific
2022 Electric LI Rate Subsidy, C&I	55.37%	PA-specific
2023 Electric LI Rate Subsidy, Resi	45.72%	PA-specific
2023 Electric LI Rate Subsidy, C&I	54.28%	PA-specific
2024 Electric LI Rate Subsidy, Resi	45.72%	PA-specific
2024 Electric LI Rate Subsidy, C&I	54.28%	PA-specific
Effective Tax Rate	27.32%	PA-specific

Energy Efficiency Guidelines 3.4.6 requires that “Benefits and costs that are projected to occur over the term of each Energy Efficiency Program shall be stated in present value terms, using a discount rate that is equal to a twelve-month average of the historic yields from the ten-year United States Treasury note, using the previous calendar year to determine the twelve-month average.” The Program Administrators calculated the discount rate used in the 2022-2024 Plan consistently with this methodology, but averaged interest rates over the previous three years (instead of the previous one year) to account for the anomalous impact of the COVID-19 pandemic on interest rates.

Slicers for Pivot Tables

Tables with Master Data source

Electric
Gas
(blank)

Cape Light Compact
Eversource Electric
National Grid Electric
Statewide Electric
Unitil Electric
Berkshire
Eversource Gas (EGMA)
Eversource Gas (NSTAR)
Liberty
National Grid Gas
Statewide Gas
Unitil Gas
(blank)

Tables with Master Sector source

Electric
Gas
(blank)

Cape Light Compact
Eversource Electric
National Grid Electric
Statewide Electric
Unitil Electric
Berkshire
Eversource Gas (EGMA)
Eversource Gas (NSTAR)
Liberty
National Grid Gas
Statewide Gas
Unitil Gas
(blank)

IV.B. Program Administrator Funding Sources

1. Summary Table

Cape Light Compact

November 1, 2021

2022 Total Electric Funding Sources							2022 Funding as a Percent of Total Electric Funding Sources					
Sector	SBC	FCM	Other Funding	Carryover	EERF	Total	SBC	FCM	Other Funding	Carryover	EERF	Total
A - Residential	2,595,190	3,106,263		(1,952,455)	42,173,344	45,922,343	6%	7%	0%	-4%	92%	100%
B - Income Eligible	179,247	214,546		977,714	10,197,790	11,569,298	2%	2%	0%	8%	88%	100%
C - Commercial & Industrial	1,937,385	2,318,916		3,521,030	10,289,307	18,066,638	11%	13%	0%	19%	57%	100%
Grand Total	4,711,823	5,639,725		2,546,290	62,660,442	75,558,279	6%	7%	0%	3%	83%	100%

2023 Total Electric Funding Sources							2023 Funding as a Percent of Total Electric Funding Sources					
Sector	SBC	FCM	Other Funding	Carryover	EERF	Total	SBC	FCM	Other Funding	Carryover	EERF	Total
A - Residential	2,570,271	1,772,917		-	41,836,495	46,179,683	6%	4%	0%	0%	91%	100%
B - Income Eligible	177,334	122,321		-	10,365,552	10,665,207	2%	1%	0%	0%	97%	100%
C - Commercial & Industrial	1,886,768	1,301,452		-	16,223,392	19,411,613	10%	7%	0%	0%	84%	100%
Grand Total	4,634,373	3,196,690		-	68,425,439	76,256,502	6%	4%	0%	0%	90%	100%

2024 Total Electric Funding Sources							2024 Funding as a Percent of Total Electric Funding Sources					
Sector	SBC	FCM	Other Funding	Carryover	EERF	Total	SBC	FCM	Other Funding	Carryover	EERF	Total
A - Residential	2,564,155	1,235,544		-	48,798,689	52,598,388	5%	2%	0%	0%	93%	100%
B - Income Eligible	177,134	85,352		-	8,418,465	8,680,951	2%	1%	0%	0%	97%	100%
C - Commercial & Industrial	1,852,869	892,809		-	16,463,887	19,209,566	10%	5%	0%	0%	86%	100%
Grand Total	4,594,158	2,213,705		-	73,681,041	80,488,904	6%	3%	0%	0%	92%	100%

2022-2024 Total Electric Funding Sources							2022-2024 Funding as a Percent of Total Electric Funding Sources					
Sector	SBC	FCM	Other Funding	Carryover	EERF	Total	SBC	FCM	Other Funding	Carryover	EERF	Total
A - Residential	7,729,617	6,114,724		(1,952,455)	132,808,527	144,700,413	5%	4%	0%	-1%	92%	100%
B - Income Eligible	533,714	422,219		977,714	28,981,808	30,915,456	2%	1%	0%	3%	94%	100%
C - Commercial & Industrial	5,677,023	4,513,177		3,521,030	42,976,587	56,687,817	10%	8%	0%	6%	76%	100%
Grand Total	13,940,354	11,050,120		2,546,290	204,766,922	232,303,686	6%	5%	0%	1%	88%	100%

Notes:

For supporting information on SBC collections, see Table IV.B.3.1.

For supporting information on FCM revenue, see Table IV.B.3.2.

For supporting information on other funding see, Additional Sources of Information.

For supporting information on estimated carryover, see Table IV.B.3.5.

For supporting information on the EERF, see Table IV.B.3.6.

Funding sources for each year are represented in nominal dollars (2022\$, 2023\$, 2024\$).

IV.B. Program Administrator Funding Sources

3.1. System Benefit Charge Funds

Cape Light Compact

November 1, 2021

2022 System Benefit Charge Collections				
Sector	Sales (kWh)	SBC Charge (\$/kWh)	Collections	
			(\$)	(% of Total)
A - Residential	1,038,076,193	0.0025	2,595,190	55.1%
B - Income Eligible	71,698,808	0.0025	179,247	3.8%
C - Commercial & Industrial	774,954,059	0.0025	1,937,385	41.1%
Grand Total	1,884,729,059		4,711,823	100%

2023 System Benefit Charge Collections				
Sector	Sales (kWh)	SBC Charge (\$/kWh)	Collections	
			(\$)	(% of Total)
A - Residential	1,028,108,348	0.0025	2,570,271	55.5%
B - Income Eligible	70,933,429	0.0025	177,334	3.8%
C - Commercial & Industrial	754,707,362	0.0025	1,886,768	40.7%
Grand Total	1,853,749,139		4,634,373	100%

2024 System Benefit Charge Collections				
Sector	Sales (kWh)	SBC Charge (\$/kWh)	Collections	
			(\$)	(% of Total)
A - Residential	1,025,662,163	0.0025	2,564,155	55.8%
B - Income Eligible	70,853,417	0.0025	177,134	3.9%
C - Commercial & Industrial	741,147,797	0.0025	1,852,869	40.3%
Grand Total	1,837,663,376		4,594,158	100%

2022-2024 System Benefit Charge Collections				
Sector	Sales (kWh)	SBC Charge (\$/kWh)	Collections	
			(\$)	(% of Total)
A - Residential	3,091,846,703	0.0025	7,729,617	55.4%
B - Income Eligible	213,485,654	0.0025	533,714	3.8%
C - Commercial & Industrial	2,270,809,218	0.0025	5,677,023	40.7%
Grand Total	5,576,141,575		13,940,354	100%

Notes:

Collections are the sales multiplied by the SBC charge.

Consistent with the Department's Energy Efficiency Guidelines § 3.2.1.2, electric Program Administrators allocate revenue from the System Benefits Charge to the residential, low-income, and commercial and industrial customer sectors in proportion to the sector's kilowatt-hour consumption.

IV.B. Program Administrator Funding Sources

3.2. Forward Capacity Market Proceeds

Cape Light Compact
November 1, 2021

2022 Forward Capacity Market Revenue									
Auction	New or Existing	Zone (NEMA, SEMA, or WCMA)	Jan 2022 - May 2022			June 2022 - Dec 2022			Total Revenue (\$)
			Savings (kW)	Price (\$)	Revenue (\$)	Savings (kW)	Price (\$)	Revenue (\$)	
FCA-9	Existing	SEMA	15,571	20.36	1,584,816	15,571	20.36	2,218,743	3,803,559
FCA-12	New	SEMA	6,463	4.63	149,651			-	149,651
FCA-12	Existing	SEMA	28,223	4.63	653,504	29,897	3.80	795,260	1,448,764
FCA-13	New	SEMA			-	8,938	3.80	237,751	237,751
					-			-	-
Grand Total			50,257	n/a	2,387,971	54,406	n/a	3,251,754	5,639,725

2023 Forward Capacity Market Revenue									
Auction	New or Existing	Zone (NEMA, SEMA, or WCMA)	Jan 2023 - May 2023			June 2023 - Dec 2023			Total Revenue (\$)
			Savings (kW)	Price (\$)	Revenue (\$)	Savings (kW)	Price (\$)	Revenue (\$)	
FCA-9	Existing	SEMA	15,571	20.36	1,584,816			-	1,584,816
FCA-13	Existing	SEMA	29,897	3.80	568,043			-	568,043
FCA-13	New	SEMA	8,938	3.80	169,822			-	169,822
FCA-14	All	SEMA			-	62,398	2.00	874,009	874,009
					-			-	-
Grand Total			54,406	n/a	2,322,681	62,398	n/a	874,009	3,196,690

2024 Forward Capacity Market Revenue									
Auction	New or Existing	Zone (NEMA, SEMA, or WCMA)	Jan 2024 - May 2024			June 2024 - Dec 2024			Total Revenue (\$)
			Savings (kW)	Price (\$)	Revenue (\$)	Savings (kW)	Price (\$)	Revenue (\$)	
FCA-14	All	SEMA	62,398	2.00	624,292			-	624,292
FCA-15	All	SEMA			-	57,050	3.98	1,589,413	1,589,413
					-			-	-
					-			-	-
Grand Total			62,398	n/a	624,292	57,050	n/a	1,589,413	2,213,705

2022-2024 Forward Capacity Market Revenue								
Sector	2022		2023		2024		2022-2024	
	FCM Revenue (\$)	% of FCM Revenue	FCM Revenue (\$)	% of FCM Revenue	FCM Revenue (\$)	% of FCM Revenue	FCM Revenue (\$)	% of FCM Revenue
A - Residential	3,106,263	55.1%	1,772,917	55.5%	1,235,544	55.8%	6,114,724	55.3%
B - Income Eligible	214,546	3.8%	122,321	3.8%	85,352	3.9%	422,219	3.8%
C - Commercial & Industrial	2,318,916	41.1%	1,301,452	40.7%	892,809	40.3%	4,513,177	40.8%
Grand Total	5,639,725	100%	3,196,690	100%	2,213,705	100%	11,050,120	100%

Notes:
Revenue is allocated across customer sector based on percentage allocation of kWh sales. See Table IV.B.3.1.
Each Program Administrator completes this table according to how their FCM resources have cleared in each auction.

IV.B. Program Administrator Funding Sources

3.5. Carryover

Cape Light Compact

November 1, 2021

Estimated 2021 Carryover into 2022								
Sector	2019-2021 Planned		2019-2021 Actual		2019-2021 Beginning Balance (Carryover from 2018)	2021 Ending Balance w/o Interest (Carryover from 2021)	Interest on Carryover	Total 2021 Carryover into 2022
	Funding	Budget	Revenue	Expenditures				
A - Residential	74,123,011	72,520,946	83,490,936	85,797,676	(353,445)	1,953,295	(840)	1,952,455
B - Income Eligible	10,192,896	13,691,624	9,271,904	11,864,663	(3,541,109)	(948,351)	(29,363)	(977,714)
C - Commercial & Industrial	42,684,959	49,024,760	32,995,053	38,271,992	(8,586,064)	(3,309,126)	(211,905)	(3,521,030)
Grand Total	127,000,867	135,237,329	125,757,894	135,934,330	(12,480,619)	(2,304,182)	(242,108)	(2,546,290)

Notes:

The above table provides an estimate of the over- or under-collection for the EERF from the 2019-2021 Three-Year Plan. The Program Administrator's actual 2019-2021 carryover for collection in 2022 will be presented in its Energy Efficiency Reconciliation Factor filing.

A positive carryover value indicates an under-collection while a negative carryover value indicates an over-collection.

IV.B. Program Administrator Funding Sources

3.4 Other Funding

Cape Light Compact

November 1, 2021

Other Funding Sources, 2022-2024				
Sector	2022	2023	2024	2022-2024
A - Residential				
B - Income Eligible				
C - Commercial & Industrial				
Grand Total				

Notes:

"Other" Funding are those funds, private or public utility administered or otherwise, that may be available for energy efficiency or demand resources and do not include SBC Funds, FCM Revenue, or RGGI Proceeds. The Program Administrators assume no other funding sources for this plan.

IV.B. Program Administrator Funding Sources

3.6. EERF

Cape Light Compact

November 1, 2021

2022 Energy Efficiency Reconciliation Factor Funds							
Sector	Total Budget	Sales (kWh)	SBC + FCM + Other Funding + Carryover	Interest	EERF Funding Required	Low-Income Subsidization	EERF Funding Collected
A - Residential	45,771,794	1,038,076,193	3,748,999	150,549	42,173,344	4,257,231	46,430,576
B - Income Eligible	11,557,712	71,698,808	1,371,508	11,586	10,197,790	294,042	294,042
C - Commercial & Industrial	18,063,156	774,954,059	7,777,331	3,483	10,289,307	5,646,517	15,935,824
Grand Total	75,392,662	1,884,729,059	12,897,837	165,618	62,660,442	10,197,790	62,660,442

2023 Energy Efficiency Reconciliation Factor Funds							
Sector	Total Budget	Sales (kWh)	SBC + FCM + Other Funding	Interest	EERF Funding Required	Low-Income Subsidization	EERF Funding Collected
A - Residential	46,065,191	1,028,108,348	4,343,188	114,492	41,836,495	4,433,262	46,269,756
B - Income Eligible	10,638,765	70,933,429	299,654	26,442	10,365,552	305,869	305,869
C - Commercial & Industrial	19,363,486	754,707,362	3,188,220	48,127	16,223,392	5,626,422	21,849,814
Grand Total	76,067,442	1,853,749,139	7,831,063	189,060	68,425,439	10,365,552	68,425,439

2024 Energy Efficiency Reconciliation Factor Funds							
Sector	Total Budget	Sales (kWh)	SBC + FCM + Other Funding	Interest	EERF Funding Required	Low-Income Subsidization	EERF Funding Collected
A - Residential	52,467,982	1,025,662,163	3,799,699	130,405	48,798,689	3,600,217	52,398,906
B - Income Eligible	8,659,429	70,853,417	262,486	21,522	8,418,465	248,705	248,705
C - Commercial & Industrial	19,161,940	741,147,797	2,745,679	47,626	16,463,887	4,569,543	21,033,430
Grand Total	80,289,351	1,837,663,376	6,807,863	199,553	73,681,041	8,418,465	73,681,041

2022-2024 Energy Efficiency Reconciliation Factor Funds							
Sector	Total Budget	Sales (kWh)	SBC + FCM + Other Funding + Carryover	Interest	EERF Funding Required	Low-Income Subsidization	EERF Funding Collected
A - Residential	144,304,967	3,091,846,703	11,891,886	395,446	132,808,527	12,290,710	145,099,237
B - Income Eligible	30,855,906	213,485,654	1,933,648	59,550	28,981,808	848,617	848,617
C - Commercial & Industrial	56,588,582	2,270,809,218	13,711,230	99,235	42,976,587	15,842,481	58,819,068
Grand Total	231,749,455	5,576,141,575	27,536,764	554,231	204,766,922	28,981,808	204,766,922

Notes:

For supporting information on the Total Program Administrator Budget, which includes Performance Incentives, see Table IV.C.1.3.

For supporting information on the EERF calculation, including low income subsidization, refer to the Program Administrator's EERF exhibit.

IV.C. Program Administrator Budgets

1. Summary Table

Cape Light Compact

November 1, 2021

2022 Program Administrator Budget (\$)										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	1,911,927	786,508	33,935,429	8,512,088	625,843	45,771,794	-	45,771,794	2,680.32	3.07
A1 - Residential New Buildings	113,274	58,503	2,257,335	329,784	-	2,758,896	-	2,758,896	7,203.38	3.25
A1a - Residential New Homes & Renovations	113,274	58,503	2,257,335	329,784	-	2,758,896	-	2,758,896	7,203.38	3.25
A2 - Residential Existing Buildings	1,512,248	530,498	29,153,094	7,503,508	-	38,699,348	-	38,699,348	2,318.16	3.40
A2a - Residential Coordinated Delivery	909,822	208,696	20,384,374	3,127,908	-	24,630,801	-	24,630,801	4,008.27	3.56
A2b - Residential Conservation Services (RCS)	161,561	37,695	-	3,438,724	-	3,637,980	-	3,637,980	-	-
A2c - Residential Retail	405,164	273,290	8,533,860	655,821	-	9,868,135	-	9,868,135	1,163.01	4.36
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	35,700	10,817	234,860	281,056	-	562,433	-	562,433	272.50	1.84
A3 - Residential Hard-to-Measure	286,405	197,507	2,525,000	678,795	625,843	4,313,549	-	4,313,549	-	-
A3a - Residential Statewide Marketing	-	137,137	-	-	-	137,137	-	137,137	-	-
A3b - Residential Statewide Database	1,949	-	-	-	-	1,949	-	1,949	-	-
A3c - Residential DOER Assessment	134,309	-	-	-	-	134,309	-	134,309	-	-
A3d - Residential Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
A3e - Residential Workforce Development	-	-	-	462,435	-	462,435	-	462,435	-	-
A3f - Residential Evaluation and Market Research	-	-	-	-	625,843	625,843	-	625,843	-	-
A3g - Residential EEAC Consultants	34,894	-	-	-	-	34,894	-	34,894	-	-
A3h - Residential R&D and Demonstration	-	-	25,000	10,000	-	35,000	-	35,000	-	-
A3i - Residential HEAT Loan	115,253	23,370	2,500,000	168,460	-	2,807,082	-	2,807,082	-	-
A3j - Residential Education	-	37,000	-	37,900	-	74,900	-	74,900	-	-
B - Income Eligible	347,932	127,457	9,010,566	1,934,116	137,641	11,557,712	-	11,557,712	7,329.28	2.28
B1 - Income Eligible Existing Buildings	276,294	100,134	9,010,566	1,845,211	-	11,232,205	-	11,232,205	7,122.86	2.35
B1a - Income Eligible Coordinated Delivery	276,184	100,124	8,918,731	1,843,451	-	11,138,490	-	11,138,490	7,681.72	2.35
B1b - Income Eligible Active Demand Reduction	110	9	91,835	1,760	-	93,715	-	93,715	738.36	1.84
B2 - Income Eligible Hard-to-Measure	71,638	27,324	-	88,905	137,641	325,507	-	325,507	-	-
B2a - Income Eligible Statewide Marketing	-	27,324	-	-	-	27,324	-	27,324	-	-
B2b - Income Eligible Statewide Database	566	-	-	-	-	566	-	566	-	-
B2c - Income Eligible DOER Assessment	39,072	-	-	-	-	39,072	-	39,072	-	-
B2d - Income Eligible Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
B2e - Income Eligible Workforce Development	-	-	-	88,905	-	88,905	-	88,905	-	-
B2f - Income Eligible Evaluation and Market Research	-	-	-	-	137,641	137,641	-	137,641	-	-
B2g - Low-Income Energy Affordability Network (LEAN)	32,000	-	-	-	-	32,000	-	32,000	-	-
C - Commercial & Industrial	904,595	707,573	12,656,215	3,232,410	562,362	18,063,156	-	18,063,156	16,142.23	1.55
C1 - C&I New Buildings	40,598	9,890	566,187	179,798	-	796,473	-	796,473	9,370.27	2.89
C1a - C&I New Buildings & Major Renovations	40,598	9,890	566,187	179,798	-	796,473	-	796,473	9,370.27	2.89
C2 - C&I Existing Buildings	761,923	651,044	12,065,027	2,566,685	-	16,044,680	-	16,044,680	15,517.10	1.60
C2a - C&I Existing Building Retrofit	594,621	501,822	9,325,292	2,077,057	-	12,498,792	-	12,498,792	25,250.09	1.45
C2b - C&I New & Replacement Equipment	150,199	144,191	2,573,485	403,236	-	3,271,110	-	3,271,110	6,716.86	1.98
C2c - C&I Active Demand Reduction	17,103	5,032	166,250	86,392	-	274,777	-	274,777	5,284.18	3.93
C3 - C&I Hard-to-Measure	102,074	46,639	25,000	485,927	562,362	1,222,003	-	1,222,003	-	-
C3a - C&I Statewide Marketing	-	46,639	-	-	-	46,639	-	46,639	-	-
C3b - C&I Statewide Database	2,125	-	-	-	-	2,125	-	2,125	-	-
C3c - C&I DOER Assessment	70,818	-	-	-	-	70,818	-	70,818	-	-
C3d - C&I Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
C3e - C&I Workforce Development	-	-	-	475,927	-	475,927	-	475,927	-	-
C3f - C&I Evaluation and Market Research	-	-	-	-	562,362	562,362	-	562,362	-	-
C3g - C&I EEAC Consultants	29,132	-	-	-	-	29,132	-	29,132	-	-
C3h - C&I R&D and Demonstration	-	-	25,000	10,000	-	35,000	-	35,000	-	-
Grand Total	3,164,454	1,621,538	55,602,210	13,678,614	1,325,846	75,392,662	-	75,392,662	3,812.92	2.59

IV.C. Program Administrator Budgets

1. Summary Table

Cape Light Compact
November 1, 2021

2023 Program Administrator Budget (\$)										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	1,939,576	744,339	34,175,443	8,510,118	695,715	46,065,191	-	46,065,191	2,645.75	3.12
A1 - Residential New Buildings	104,481	53,901	2,101,015	321,845	-	2,581,241	-	2,581,241	6,792.74	4.21
A1a - Residential New Homes & Renovations	104,481	53,901	2,101,015	321,845	-	2,581,241	-	2,581,241	6,792.74	4.21
A2 - Residential Existing Buildings	1,549,575	494,513	29,549,428	7,499,435	-	39,092,951	-	39,092,951	2,295.40	3.40
A2a - Residential Coordinated Delivery	893,018	180,181	19,254,368	3,066,024	-	23,393,591	-	23,393,591	3,826.86	3.54
A2b - Residential Conservation Services (RCS)	159,058	33,054	-	3,436,230	-	3,628,342	-	3,628,342	-	-
A2c - Residential Retail	458,255	270,491	9,906,135	686,488	-	11,321,370	-	11,321,370	1,334.28	4.30
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	39,243	10,788	388,925	310,693	-	749,648	-	749,648	308.12	1.90
A3 - Residential Hard-to-Measure	285,520	195,925	2,525,000	688,838	695,715	4,390,999	-	4,390,999	-	-
A3a - Residential Statewide Marketing	-	137,137	-	-	-	137,137	-	137,137	-	-
A3b - Residential Statewide Database	1,949	-	-	-	-	1,949	-	1,949	-	-
A3c - Residential DOER Assessment	134,309	-	-	-	-	134,309	-	134,309	-	-
A3d - Residential Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
A3e - Residential Workforce Development	-	-	-	473,403	-	473,403	-	473,403	-	-
A3f - Residential Evaluation and Market Research	-	-	-	-	695,715	695,715	-	695,715	-	-
A3g - Residential EEAC Consultants	35,941	-	-	-	-	35,941	-	35,941	-	-
A3h - Residential R&D and Demonstration	-	-	25,000	10,000	-	35,000	-	35,000	-	-
A3i - Residential HEAT Loan	113,321	19,788	2,500,000	166,536	-	2,799,645	-	2,799,645	-	-
A3j - Residential Education	-	39,000	-	38,900	-	77,900	-	77,900	-	-
B - Income Eligible	362,230	121,253	7,883,296	2,118,603	153,383	10,638,765	-	10,638,765	6,730.12	1.87
B1 - Income Eligible Existing Buildings	289,592	93,929	7,883,296	2,028,961	-	10,295,778	-	10,295,778	6,513.14	1.93
B1a - Income Eligible Coordinated Delivery	289,476	93,920	7,655,181	2,024,575	-	10,063,152	-	10,063,152	7,187.97	1.94
B1b - Income Eligible Active Demand Reduction	116	9	228,115	4,386	-	232,626	-	232,626	1,286.87	1.69
B2 - Income Eligible Hard-to-Measure	72,638	27,324	-	89,642	153,383	342,987	-	342,987	-	-
B2a - Income Eligible Statewide Marketing	-	27,324	-	-	-	27,324	-	27,324	-	-
B2b - Income Eligible Statewide Database	566	-	-	-	-	566	-	566	-	-
B2c - Income Eligible DOER Assessment	39,072	-	-	-	-	39,072	-	39,072	-	-
B2d - Income Eligible Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
B2e - Income Eligible Workforce Development	-	-	-	89,642	-	89,642	-	89,642	-	-
B2f - Income Eligible Evaluation and Market Research	-	-	-	-	153,383	153,383	-	153,383	-	-
B2g - Low-Income Energy Affordability Network (LEAN)	33,000	-	-	-	-	33,000	-	33,000	-	-
C - Commercial & Industrial	944,193	670,558	13,921,557	3,190,296	636,882	19,363,486	-	19,363,486	16,911.34	1.71
C1 - C&I New Buildings	39,537	8,875	562,083	177,428	-	787,923	-	787,923	9,269.68	4.81
C1a - C&I New Buildings & Major Renovations	39,537	8,875	562,083	177,428	-	787,923	-	787,923	9,269.68	4.81
C2 - C&I Existing Buildings	801,708	615,043	13,334,473	2,516,526	-	17,267,752	-	17,267,752	16,290.33	1.69
C2a - C&I Existing Building Retrofit	618,495	472,427	10,183,939	2,014,300	-	13,289,162	-	13,289,162	25,556.08	1.54
C2b - C&I New & Replacement Equipment	163,599	137,528	2,928,284	411,720	-	3,641,132	-	3,641,132	7,554.22	2.05
C2c - C&I Active Demand Reduction	19,614	5,088	222,250	90,506	-	337,458	-	337,458	5,818.24	3.99
C3 - C&I Hard-to-Measure	102,948	46,639	25,000	496,342	636,882	1,307,811	-	1,307,811	-	-
C3a - C&I Statewide Marketing	-	46,639	-	-	-	46,639	-	46,639	-	-
C3b - C&I Statewide Database	2,125	-	-	-	-	2,125	-	2,125	-	-
C3c - C&I DOER Assessment	70,818	-	-	-	-	70,818	-	70,818	-	-
C3d - C&I Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
C3e - C&I Workforce Development	-	-	-	486,342	-	486,342	-	486,342	-	-
C3f - C&I Evaluation and Market Research	-	-	-	-	636,882	636,882	-	636,882	-	-
C3g - C&I EEAC Consultants	30,006	-	-	-	-	30,006	-	30,006	-	-
C3h - C&I R&D and Demonstration	-	-	25,000	10,000	-	35,000	-	35,000	-	-
Grand Total	3,245,999	1,536,150	55,980,296	13,819,018	1,485,980	76,067,442	-	76,067,442	3,777.54	2.59

IV.C. Program Administrator Budgets

1. Summary Table

Cape Light Compact

November 1, 2021

2024 Program Administrator Budget (\$)										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	2,183,185	761,903	40,255,770	8,543,857	723,267	52,467,982	-	52,467,982	2,967.90	2.78
A1 - Residential New Buildings	329,832	87,127	7,557,027	457,024	-	8,431,010	-	8,431,010	27,871.11	1.24
A1a - Residential New Homes & Renovations	329,832	87,127	7,557,027	457,024	-	8,431,010	-	8,431,010	27,871.11	1.24
A2 - Residential Existing Buildings	1,571,027	478,231	30,173,743	7,421,853	-	39,644,854	-	39,644,854	2,281.59	3.41
A2a - Residential Coordinated Delivery	858,371	159,153	17,973,420	2,950,355	-	21,941,299	-	21,941,299	3,609.36	3.54
A2b - Residential Conservation Services (RCS)	153,522	31,265	-	3,427,780	-	3,612,567	-	3,612,567	-	-
A2c - Residential Retail	516,946	276,739	11,715,985	704,267	-	13,213,936	-	13,213,936	1,557.33	4.22
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	42,188	11,074	484,338	339,452	-	877,052	-	877,052	311.90	1.98
A3 - Residential Hard-to-Measure	282,327	196,545	2,525,000	664,980	723,267	4,392,118	-	4,392,118	-	-
A3a - Residential Statewide Marketing	-	137,137	-	-	-	137,137	-	137,137	-	-
A3b - Residential Statewide Database	1,949	-	-	-	-	1,949	-	1,949	-	-
A3c - Residential DOER Assessment	134,309	-	-	-	-	134,309	-	134,309	-	-
A3d - Residential Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
A3e - Residential Workforce Development	-	-	-	455,065	-	455,065	-	455,065	-	-
A3f - Residential Evaluation and Market Research	-	-	-	-	723,267	723,267	-	723,267	-	-
A3g - Residential EEAC Consultants	37,019	-	-	-	-	37,019	-	37,019	-	-
A3h - Residential R&D and Demonstration	-	-	25,000	10,000	-	35,000	-	35,000	-	-
A3i - Residential HEAT Loan	109,049	18,408	2,500,000	160,016	-	2,787,473	-	2,787,473	-	-
A3j - Residential Education	-	41,000	-	39,900	-	80,900	-	80,900	-	-
B - Income Eligible	372,756	115,453	6,317,416	1,700,401	153,402	8,659,429	-	8,659,429	5,642.74	1.50
B1 - Income Eligible Existing Buildings	299,118	88,130	6,317,416	1,611,975	-	8,316,639	-	8,316,639	5,419.36	1.56
B1a - Income Eligible Coordinated Delivery	298,998	88,121	6,043,771	1,606,714	-	8,037,603	-	8,037,603	5,953.78	1.55
B1b - Income Eligible Active Demand Reduction	120	9	273,645	5,261	-	279,036	-	279,036	1,511.44	1.71
B2 - Income Eligible Hard-to-Measure	73,638	27,324	-	88,426	153,402	342,790	-	342,790	-	-
B2a - Income Eligible Statewide Marketing	-	27,324	-	-	-	27,324	-	27,324	-	-
B2b - Income Eligible Statewide Database	566	-	-	-	-	566	-	566	-	-
B2c - Income Eligible DOER Assessment	39,072	-	-	-	-	39,072	-	39,072	-	-
B2d - Income Eligible Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
B2e - Income Eligible Workforce Development	-	-	-	88,426	-	88,426	-	88,426	-	-
B2f - Income Eligible Evaluation and Market Research	-	-	-	-	153,402	153,402	-	153,402	-	-
B2g - Low-Income Energy Affordability Network (LEAN)	34,000	-	-	-	-	34,000	-	34,000	-	-
C - Commercial & Industrial	924,444	621,008	14,517,553	2,469,226	629,709	19,161,940	-	19,161,940	16,294.17	2.03
C1 - C&I New Buildings	38,864	8,480	559,424	178,703	-	785,472	-	785,472	9,240.84	6.01
C1a - C&I New Buildings & Major Renovations	38,864	8,480	559,424	178,703	-	785,472	-	785,472	9,240.84	6.01
C2 - C&I Existing Buildings	781,731	565,889	13,933,129	1,811,584	-	17,092,332	-	17,092,332	15,666.67	2.00
C2a - C&I Existing Building Retrofit	585,733	423,128	10,368,731	1,373,275	-	12,750,867	-	12,750,867	23,396.09	1.94
C2b - C&I New & Replacement Equipment	172,096	137,237	3,249,398	340,186	-	3,898,917	-	3,898,917	8,173.83	1.99
C2c - C&I Active Demand Reduction	23,902	5,524	315,000	98,123	-	442,549	-	442,549	6,413.75	4.09
C3 - C&I Hard-to-Measure	103,848	46,639	25,000	478,939	629,709	1,284,136	-	1,284,136	-	-
C3a - C&I Statewide Marketing	-	46,639	-	-	-	46,639	-	46,639	-	-
C3b - C&I Statewide Database	2,125	-	-	-	-	2,125	-	2,125	-	-
C3c - C&I DOER Assessment	70,818	-	-	-	-	70,818	-	70,818	-	-
C3d - C&I Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
C3e - C&I Workforce Development	-	-	-	468,939	-	468,939	-	468,939	-	-
C3f - C&I Evaluation and Market Research	-	-	-	-	629,709	629,709	-	629,709	-	-
C3g - C&I EEAC Consultants	30,906	-	-	-	-	30,906	-	30,906	-	-
C3h - C&I R&D and Demonstration	-	-	25,000	10,000	-	35,000	-	35,000	-	-
Grand Total	3,480,385	1,498,364	61,090,740	12,713,485	1,506,378	80,289,351	-	80,289,351	3,937.85	2.46

IV.C. Program Administrator Budgets

1. Summary Table

Cape Light Compact

November 1, 2021

2022-2024 Program Administrator Budget (\$)										
Program	Program Costs						Performance Incentive	Total Program Administrator Budget	Program Cost per Participant	Resource Benefit per Program Cost
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total Program Costs				
A - Residential	6,034,688	2,292,750	108,366,642	25,566,063	2,044,824	144,304,967	-	144,304,967	2,766.24	2.98
A1 - Residential New Buildings	547,587	199,531	11,915,377	1,108,653	-	13,771,148	-	13,771,148	12,924.59	2.20
A1a - Residential New Homes & Renovations	547,587	199,531	11,915,377	1,108,653	-	13,771,148	-	13,771,148	12,924.59	2.20
A2 - Residential Existing Buildings	4,632,849	1,503,242	88,876,265	22,424,797	-	117,437,154	-	117,437,154	2,298.14	3.41
A2a - Residential Coordinated Delivery	2,661,211	548,030	57,612,162	9,144,287	-	69,965,690	-	69,965,690	3,815.55	3.55
A2b - Residential Conservation Services (RCS)	474,142	102,014	-	10,302,734	-	10,878,890	-	10,878,890	-	-
A2c - Residential Retail	1,380,365	820,520	30,155,980	2,046,575	-	34,403,441	-	34,403,441	1,351.54	4.29
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	117,132	32,678	1,108,123	931,201	-	2,189,133	-	2,189,133	299.51	1.92
A3 - Residential Hard-to-Measure	854,251	589,977	7,575,000	2,032,614	2,044,824	13,096,666	-	13,096,666	-	-
A3a - Residential Statewide Marketing	-	411,410	-	-	-	411,410	-	411,410	-	-
A3b - Residential Statewide Database	5,846	-	-	-	-	5,846	-	5,846	-	-
A3c - Residential DOER Assessment	402,928	-	-	-	-	402,928	-	402,928	-	-
A3d - Residential Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
A3e - Residential Workforce Development	-	-	-	1,390,903	-	1,390,903	-	1,390,903	-	-
A3f - Residential Evaluation and Market Research	-	-	-	-	2,044,824	2,044,824	-	2,044,824	-	-
A3g - Residential EEAC Consultants	107,854	-	-	-	-	107,854	-	107,854	-	-
A3h - Residential R&D and Demonstration	-	-	75,000	30,000	-	105,000	-	105,000	-	-
A3i - Residential HEAT Loan	337,623	61,566	7,500,000	495,011	-	8,394,200	-	8,394,200	-	-
A3j - Residential Education	-	117,000	-	116,700	-	233,700	-	233,700	-	-
B - Income Eligible	1,082,918	364,163	23,211,278	5,753,120	444,426	30,855,906	-	30,855,906	6,575.85	1.92
B1 - Income Eligible Existing Buildings	865,004	282,193	23,211,278	5,486,147	-	29,844,622	-	29,844,622	6,360.33	1.98
B1a - Income Eligible Coordinated Delivery	864,658	282,165	22,617,683	5,474,740	-	29,239,245	-	29,239,245	6,961.73	1.99
B1b - Income Eligible Active Demand Reduction	347	28	593,595	11,407	-	605,377	-	605,377	1,229.67	1.72
B2 - Income Eligible Hard-to-Measure	217,914	81,971	-	266,973	444,426	1,011,284	-	1,011,284	-	-
B2a - Income Eligible Statewide Marketing	-	81,971	-	-	-	81,971	-	81,971	-	-
B2b - Income Eligible Statewide Database	1,698	-	-	-	-	1,698	-	1,698	-	-
B2c - Income Eligible DOER Assessment	117,216	-	-	-	-	117,216	-	117,216	-	-
B2d - Income Eligible Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
B2e - Income Eligible Workforce Development	-	-	-	266,973	-	266,973	-	266,973	-	-
B2f - Income Eligible Evaluation and Market Research	-	-	-	-	444,426	444,426	-	444,426	-	-
B2g - Low-Income Energy Affordability Network (LEAN)	99,000	-	-	-	-	99,000	-	99,000	-	-
C - Commercial & Industrial	2,773,232	1,999,139	41,095,325	8,891,932	1,828,954	56,588,582	-	56,588,582	16,450.17	1.77
C1 - C&I New Buildings	118,998	27,245	1,687,695	535,929	-	2,369,868	-	2,369,868	9,293.60	4.56
C1a - C&I New Buildings & Major Renovations	118,998	27,245	1,687,695	535,929	-	2,369,868	-	2,369,868	9,293.60	4.56
C2 - C&I Existing Buildings	2,345,363	1,831,977	39,332,630	6,894,795	-	50,404,764	-	50,404,764	15,825.67	1.77
C2a - C&I Existing Building Retrofit	1,798,850	1,397,377	29,877,963	5,464,632	-	38,538,821	-	38,538,821	24,704.37	1.64
C2b - C&I New & Replacement Equipment	485,894	418,956	8,751,167	1,155,142	-	10,811,159	-	10,811,159	7,476.60	2.01
C2c - C&I Active Demand Reduction	60,619	15,644	703,500	275,021	-	1,054,784	-	1,054,784	5,892.65	4.02
C3 - C&I Hard-to-Measure	308,871	139,917	75,000	1,461,208	1,828,954	3,813,950	-	3,813,950	-	-
C3a - C&I Statewide Marketing	-	139,917	-	-	-	139,917	-	139,917	-	-
C3b - C&I Statewide Database	6,375	-	-	-	-	6,375	-	6,375	-	-
C3c - C&I DOER Assessment	212,453	-	-	-	-	212,453	-	212,453	-	-
C3d - C&I Sponsorships & Subscriptions	-	-	-	-	-	-	-	-	-	-
C3e - C&I Workforce Development	-	-	-	1,431,208	-	1,431,208	-	1,431,208	-	-
C3f - C&I Evaluation and Market Research	-	-	-	-	1,828,954	1,828,954	-	1,828,954	-	-
C3g - C&I EEAC Consultants	90,043	-	-	-	-	90,043	-	90,043	-	-
C3h - C&I R&D and Demonstration	-	-	75,000	30,000	-	105,000	-	105,000	-	-
Grand Total	9,890,838	4,656,052	172,673,245	40,211,116	4,318,204	231,749,455	-	231,749,455	3,843.35	2.54

Notes:

Budgets for each year are represented in nominal dollars (2022\$, 2023\$, 2024\$).

Refer to common definitions for allocation of costs.

IV.C. Program Administrator Budgets

3. Program Planning and Administration

Cape Light Compact

November 1, 2021

Program Planning and Administration Expenditures							
Year	Internal Costs	External Costs				Total External Costs	Total Program Planning and Administration
	Labor, benefits, employee expenses, materials, and overhead	Legal Services	Assessments	Other Vendor Services	Hard to Measure Sponsorships & Subscriptions		
2022	\$ 1,604,316	\$ 645,080	\$ 352,419	\$ 562,640	\$ -	\$ 1,560,138	\$ 3,164,454
2023	\$ 1,627,990	\$ 675,030	\$ 355,340	\$ 587,640	\$ -	\$ 1,618,009	\$ 3,245,999
2024	\$ 1,684,397	\$ 675,030	\$ 358,318	\$ 762,640	\$ -	\$ 1,795,987	\$ 3,480,385
Grand Total	\$ 4,916,703	\$ 1,995,140	\$ 1,066,076	\$ 1,912,919	\$ -	\$ 4,974,135	\$ 9,890,838

Notes:

Assessments include costs associated with the Department of Energy Resource (DOER), Residential Conservation Services (RCS), Energy Efficiency Advisory Council (EEAC) Consultants, and the Low-Income Energy Affordability Network (LEAN).

Other Vendor Services include costs associated with third-party consultants that assist with program planning and administration.

The data included in the Hard to Measure Sponsorship and Subscriptions column is consistent with the hard-to-measure Sponsorships & Subscriptions lines in the Budget table.

IV.C. Program Administrator Budgets
2.2 Budget Historical Comparison

Cape Light Compact
November 1, 2021

2019-2024 Residential Program Administrator Budget									
PA Budget Categories	Program Administrator Budget (\$)								
	2019		2020		2021		2022	2023	2024
	Planned	Evaluated	Planned	Evaluated	Planned	YTD	Planned	Planned	Planned
Program Planning and Administration	1,436,504	1,448,851	1,436,066	1,428,051	1,509,802	647,029	1,911,927	1,939,576	2,183,185
Marketing and Advertising	735,758	578,992	737,359	491,643	770,291	219,934	786,508	744,339	761,903
Participant Incentive	17,505,513	21,425,751	16,407,017	20,801,818	15,610,097	9,394,315	33,935,429	34,175,443	40,255,770
Sales, Technical Assistance & Training	4,515,277	5,557,219	4,861,567	5,050,886	5,026,354	2,047,839	8,512,088	8,510,118	8,543,857
Evaluation and Market Research	656,583	481,278	655,004	762,803	657,754	247,768	625,843	695,715	723,267
Performance Incentive	-	-	-	-	-	-	-	-	-
Total Program Administrator Budget	24,849,635	29,492,091	24,097,012	28,535,201	23,574,299	12,556,885	45,771,794	46,065,191	52,467,982

2019-2024 Income Eligible Program Administrator Budget									
PA Budget Categories	Program Administrator Budget (\$)								
	2019		2020		2021		2022	2023	2024
	Planned	Evaluated	Planned	Evaluated	Planned	YTD	Planned	Planned	Planned
Program Planning and Administration	258,317	256,972	279,644	282,157	324,765	146,394	347,932	362,230	372,756
Marketing and Advertising	91,637	70,250	99,177	63,518	112,245	32,506	127,457	121,253	115,453
Participant Incentive	3,030,377	2,739,800	3,280,186	1,530,795	3,626,278	612,739	9,010,566	7,883,296	6,317,416
Sales, Technical Assistance & Training	675,712	593,672	730,161	416,432	806,421	149,121	1,934,116	2,118,603	1,700,401
Evaluation and Market Research	121,075	85,466	124,880	158,579	130,750	60,545	137,641	153,383	153,402
Performance Incentive	-	-	-	-	-	-	-	-	-
Total Program Administrator Budget	4,177,118	3,746,160	4,514,047	2,451,480	5,000,459	1,001,305	11,557,712	10,638,765	8,659,429

2019-2024 Commercial & Industrial Program Administrator Budget									
PA Budget Categories	Program Administrator Budget (\$)								
	2019		2020		2021		2022	2023	2024
	Planned	Evaluated	Planned	Evaluated	Planned	YTD	Planned	Planned	Planned
Program Planning and Administration	1,008,797	939,627	1,129,025	990,514	1,248,831	459,707	904,595	944,193	924,444
Marketing and Advertising	344,481	295,077	380,401	379,813	417,228	174,147	707,573	670,558	621,008
Participant Incentive	11,367,305	6,334,595	12,736,906	5,925,388	13,355,941	2,513,588	12,656,215	13,921,557	14,517,553
Sales, Technical Assistance & Training	1,676,934	1,032,419	1,872,797	1,098,233	1,963,007	501,867	3,232,410	3,190,296	2,469,226
Evaluation and Market Research	491,412	561,425	509,360	867,983	522,335	287,925	562,362	636,882	629,709
Performance Incentive	-	-	-	-	-	-	-	-	-
Total Program Administrator Budget	14,888,929	9,163,143	16,628,489	9,261,930	17,507,342	3,937,235	18,063,156	19,363,486	19,161,940

2019-2024 Total Program Administrator Budget									
PA Budget Categories	Program Administrator Budget (\$)								
	2019		2020		2021		2022	2023	2024
	Planned	Evaluated	Planned	Evaluated	Planned	YTD	Planned	Planned	Planned
Program Planning and Administration	2,703,617	2,645,450	2,844,734	2,700,722	3,083,398	1,253,130	3,164,454	3,245,999	3,480,385
Marketing and Advertising	1,171,876	944,319	1,216,937	934,973	1,299,764	426,587	1,621,538	1,536,150	1,498,364
Participant Incentive	31,903,196	30,500,145	32,424,108	28,258,001	32,592,316	12,520,642	55,602,210	55,980,296	61,090,740
Sales, Technical Assistance & Training	6,867,923	7,183,310	7,464,525	6,565,550	7,795,782	2,698,828	13,678,614	13,819,018	12,713,485
Evaluation and Market Research	1,269,070	1,128,170	1,289,244	1,789,365	1,310,839	596,238	1,325,846	1,485,980	1,506,378
Performance Incentive	-	-	-	-	-	-	-	-	-
Total Program Administrator Budget	43,915,682	42,401,394	45,239,548	40,248,612	46,082,099	17,495,425	75,392,662	76,067,442	80,289,351

Notes:

Budgets for each year are represented in nominal dollars (2019\$ through 2024\$).
2019-2021 planned values are from the Program Administrator's 2019-2021 Three-Year Plan, D.P.U. 18-116.
2019 evaluated values are from the Program Administrator's 2019 Plan Year Report, D.P.U. 20-50.
2020 evaluated values are from the Program Administrator's 2020 Plan Year Report, D.P.U. 21-70.
2021 YTD values are estimated actual cost through through June 30, 2021 (Q2).
For supporting information on the 2022-2024 values, see Table IV.C.1.
The Program Administrators have better aligned cost allocations across Program Administrators for this Three-Year Plan, consistent with the Department's directives in the 2016-2018 Three-Year Plan Order (January 31, 2016). As a result, historical budget categories may not be directly comparable for each Program Administrator.

IV.C. Program Administrator Budgets
2.2 Budget Historical Comparison

Cape Light Compact
November 1, 2021

2019-2024 Residential Program Administrator Budget									
PA Budget Categories	Budget Categories as a Percent of Total Program Administrator Budget (%)								
	2019		2020		2021		2022	2023	2024
	Planned	Evaluated	Planned	Evaluated	Planned	YTD	Planned	Planned	Planned
Program Planning and Administration	6%	5%	6%	5%	6%	5%	4%	4%	4%
Marketing and Advertising	3%	2%	3%	2%	3%	2%	2%	2%	1%
Participant Incentive	70%	73%	68%	73%	66%	75%	74%	74%	77%
Sales, Technical Assistance & Training	18%	19%	20%	18%	21%	16%	19%	18%	16%
Evaluation and Market Research	3%	2%	3%	3%	3%	2%	1%	2%	1%
Performance Incentive	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Program Administrator Budget	100%	100%	100%	100%	100%	100%	100%	100%	100%

2019-2024 Income Eligible Program Administrator Budget									
PA Budget Categories	Budget Categories as a Percent of Total Program Administrator Budget (%)								
	2019		2020		2021		2022	2023	2024
	Planned	Evaluated	Planned	Evaluated	Planned	YTD	Planned	Planned	Planned
Program Planning and Administration	6%	7%	6%	12%	6%	15%	3%	3%	4%
Marketing and Advertising	2%	2%	2%	3%	2%	3%	1%	1%	1%
Participant Incentive	73%	73%	73%	62%	73%	61%	78%	74%	73%
Sales, Technical Assistance & Training	16%	16%	16%	17%	16%	15%	17%	20%	20%
Evaluation and Market Research	3%	2%	3%	6%	3%	6%	1%	1%	2%
Performance Incentive	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Program Administrator Budget	100%	100%	100%	100%	100%	100%	100%	100%	100%

2019-2024 Commercial & Industrial Program Administrator Budget									
PA Budget Categories	Budget Categories as a Percent of Total Program Administrator Budget (%)								
	2019		2020		2021		2022	2023	2024
	Planned	Evaluated	Planned	Evaluated	Planned	YTD	Planned	Planned	Planned
Program Planning and Administration	7%	10%	7%	11%	7%	12%	5%	5%	5%
Marketing and Advertising	2%	3%	2%	4%	2%	4%	4%	3%	3%
Participant Incentive	76%	69%	77%	64%	76%	64%	70%	72%	76%
Sales, Technical Assistance & Training	11%	11%	11%	12%	11%	13%	18%	16%	13%
Evaluation and Market Research	3%	6%	3%	9%	3%	7%	3%	3%	3%
Performance Incentive	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Program Administrator Budget	100%	100%	100%	100%	100%	100%	100%	100%	100%

2019-2024 Total Program Administrator Budget									
PA Budget Categories	Budget Categories as a Percent of Total Program Administrator Budget (%)								
	2019		2020		2021		2022	2023	2024
	Planned	Evaluated	Planned	Evaluated	Planned	YTD	Planned	Planned	Planned
Program Planning and Administration	6%	6%	6%	7%	7%	7%	4%	4%	4%
Marketing and Advertising	3%	2%	3%	2%	3%	2%	2%	2%	2%
Participant Incentive	73%	72%	72%	70%	71%	72%	74%	74%	76%
Sales, Technical Assistance & Training	16%	17%	16%	16%	17%	15%	18%	18%	16%
Evaluation and Market Research	3%	3%	3%	4%	3%	3%	2%	2%	2%
Performance Incentive	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Program Administrator Budget	100%	100%	100%	100%	100%	100%	100%	100%	100%

Notes:

Budgets for each year are represented in nominal dollars (2019\$ through 2024\$).
2019-2021 planned values are from the Program Administrator's 2019-2021 Three-Year Plan, D.P.U. 18-116.
2019 evaluated values are from the Program Administrator's 2019 Plan Year Report, D.P.U. 20-50.
2020 evaluated values are from the Program Administrator's 2020 Plan Year Report, D.P.U. 21-70.
2021 YTD values are estimated actual cost through through June 30, 2021 (Q2).
For supporting information on the 2022-2024 values, see Table IV.C.1.
The Program Administrators have better aligned cost allocations across Program Administrators for this Three-Year Plan, consistent with the Department's directives in the 2016-2018 Three-Year Plan Order (January 31, 2016). As a result, historical budget categories may not be directly comparable for each Program Administrator.

IV.D. Cost-Effectiveness

1. Summary Table

Cape Light Compact

November 1, 2021

2022 Total Resource Cost Test (2022\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	2.90	98,650,483	150,613,824	45,771,794	-	6,191,547	51,963,340
A1 - Residential New Buildings	3.64	6,728,448	9,277,404	2,758,896	-	(209,941)	2,548,956
A1a - Residential New Homes & Renovations	3.64	6,728,448	9,277,404	2,758,896	-	(209,941)	2,548,956
A2 - Residential Existing Buildings	3.13	96,235,584	141,336,420	38,699,348	-	6,401,487	45,100,836
A2a - Residential Coordinated Delivery	3.67	70,584,794	97,004,788	24,630,801	-	1,789,193	26,419,993
A2b - Residential Conservation Services (RCS)	0.00	(3,637,980)	-	3,637,980	-	-	3,637,980
A2c - Residential Retail	2.99	28,814,911	43,295,340	9,868,135	-	4,612,295	14,480,429
A2d - Residential Behavior		-	-	-	-	-	-
A2e - Residential Active Demand Reduction	1.84	473,859	1,036,292	562,433	-	-	562,433
A3 - Residential Hard-to-Measure	0.00	(4,313,549)	-	4,313,549	-	-	4,313,549
B - Income Eligible	2.67	20,523,779	32,849,691	11,557,712	-	768,200	12,325,912
B1 - Income Eligible Existing Buildings	2.74	20,849,286	32,849,691	11,232,205	-	768,200	12,000,405
B1a - Income Eligible Coordinated Delivery	2.74	20,771,016	32,677,706	11,138,490	-	768,200	11,906,690
B1b - Income Eligible Active Demand Reduction	1.84	78,270	171,985	93,715	-	-	93,715
B2 - Income Eligible Hard-to-Measure	0.00	(325,507)	-	325,507	-	-	325,507
C - Commercial & Industrial	1.85	15,703,080	34,091,720	18,063,156	-	325,484	18,388,639
C1 - C&I New Buildings	3.60	1,951,997	2,702,364	796,473	-	(46,106)	750,367
C1a - C&I New Buildings & Major Renovations	3.60	1,951,997	2,702,364	796,473	-	(46,106)	750,367
C2 - C&I Existing Buildings	1.91	14,973,086	31,389,356	16,044,680	-	371,589	16,416,269
C2a - C&I Existing Building Retrofit	1.76	9,595,951	22,159,185	12,498,792	-	64,442	12,563,235
C2b - C&I New & Replacement Equipment	2.28	4,571,415	8,149,672	3,271,110	-	307,147	3,578,257
C2c - C&I Active Demand Reduction	3.93	805,721	1,080,499	274,777	-	-	274,777
C3 - C&I Hard-to-Measure	0.00	(1,222,003)	-	1,222,003	-	-	1,222,003
Grand Total	2.63	134,877,342	217,555,234	75,392,662	-	7,285,230	82,677,892

IV.D. Cost-Effectiveness

1. Summary Table

Cape Light Compact

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2023 Total Resource Cost Test (2022\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	3.00	102,541,848	153,749,129	45,170,809	-	6,036,471	51,207,281
A1 - Residential New Buildings	4.73	8,847,846	11,221,952	2,531,125	-	(157,019)	2,374,106
A1a - Residential New Homes & Renovations	4.73	8,847,846	11,221,952	2,531,125	-	(157,019)	2,374,106
A2 - Residential Existing Buildings	3.20	97,999,747	142,527,176	38,333,939	-	6,193,490	44,527,429
A2a - Residential Coordinated Delivery	3.80	67,926,064	92,146,935	22,939,391	-	1,281,480	24,220,871
A2b - Residential Conservation Services (RCS)	0.00	(3,557,896)	-	3,557,896	-	-	3,557,896
A2c - Residential Retail	3.06	32,945,425	48,958,994	11,101,559	-	4,912,010	16,013,569
A2d - Residential Behavior		-	-	-	-	-	-
A2e - Residential Active Demand Reduction	1.93	686,154	1,421,247	735,093	-	-	735,093
A3 - Residential Hard-to-Measure	0.00	(4,305,745)	-	4,305,745	-	-	4,305,745
B - Income Eligible	2.33	14,630,028	25,629,013	10,432,207	-	566,778	10,998,985
B1 - Income Eligible Existing Buildings	2.40	14,966,355	25,629,013	10,095,880	-	566,778	10,662,658
B1a - Income Eligible Coordinated Delivery	2.42	14,802,468	25,237,016	9,867,771	-	566,778	10,434,548
B1b - Income Eligible Active Demand Reduction	1.72	163,888	391,997	228,109	-	-	228,109
B2 - Income Eligible Hard-to-Measure	0.00	(336,327)	-	336,327	-	-	336,327
C - Commercial & Industrial	2.04	20,336,691	39,798,104	18,987,533	-	473,880	19,461,413
C1 - C&I New Buildings	6.18	3,774,706	4,503,529	772,625	-	(43,802)	728,823
C1a - C&I New Buildings & Major Renovations	6.18	3,774,706	4,503,529	772,625	-	(43,802)	728,823
C2 - C&I Existing Buildings	2.02	17,844,405	35,294,575	16,932,488	-	517,682	17,450,170
C2a - C&I Existing Building Retrofit	1.86	11,407,846	24,646,053	13,031,145	-	207,062	13,238,207
C2b - C&I New & Replacement Equipment	2.40	5,421,952	9,303,009	3,570,437	-	310,620	3,881,057
C2c - C&I Active Demand Reduction	4.07	1,014,606	1,345,513	330,906	-	-	330,906
C3 - C&I Hard-to-Measure	0.00	(1,282,420)	-	1,282,420	-	-	1,282,420
Grand Total	2.68	137,508,567	219,176,245	74,590,549	-	7,077,129	81,667,678

IV.D. Cost-Effectiveness

1. Summary Table

Cape Light Compact

November 1, 2021

2024 Total Resource Cost Test (2022\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	2.76	99,128,578	155,581,219	50,450,369	-	6,002,272	56,452,641
A1 - Residential New Buildings	1.35	2,784,735	10,754,231	8,106,802	-	(137,306)	7,969,496
A1a - Residential New Homes & Renovations	1.35	2,784,735	10,754,231	8,106,802	-	(137,306)	7,969,496
A2 - Residential Existing Buildings	3.27	100,567,066	144,826,987	38,120,344	-	6,139,578	44,259,921
A2a - Residential Coordinated Delivery	3.97	65,122,649	87,022,356	21,097,564	-	802,142	21,899,706
A2b - Residential Conservation Services (RCS)	0.00	(3,473,649)	-	3,473,649	-	-	3,473,649
A2c - Residential Retail	3.11	38,020,732	56,063,973	12,705,805	-	5,337,435	18,043,241
A2d - Residential Behavior		-	-	-	-	-	-
A2e - Residential Active Demand Reduction	2.06	897,333	1,740,659	843,326	-	-	843,326
A3 - Residential Hard-to-Measure	0.00	(4,223,223)	-	4,223,223	-	-	4,223,223
B - Income Eligible	2.24	9,976,256	18,025,287	8,326,437	-	(277,406)	8,049,032
B1 - Income Eligible Existing Buildings	2.34	10,305,864	18,025,287	7,996,829	-	(277,406)	7,719,423
B1a - Income Eligible Coordinated Delivery	2.36	10,098,052	17,549,170	7,728,523	-	(277,406)	7,451,117
B1b - Income Eligible Active Demand Reduction	1.77	207,812	476,117	268,306	-	-	268,306
B2 - Income Eligible Hard-to-Measure	0.00	(329,608)	-	329,608	-	-	329,608
C - Commercial & Industrial	2.45	27,551,748	46,606,695	18,425,083	-	629,864	19,054,948
C1 - C&I New Buildings	7.89	4,913,636	5,626,847	755,267	-	(42,056)	713,211
C1a - C&I New Buildings & Major Renovations	7.89	4,913,636	5,626,847	755,267	-	(42,056)	713,211
C2 - C&I Existing Buildings	2.40	23,872,867	40,979,848	16,435,061	-	671,920	17,106,981
C2a - C&I Existing Building Retrofit	2.32	16,778,248	29,449,652	12,260,542	-	410,862	12,671,404
C2b - C&I New & Replacement Equipment	2.42	5,708,703	9,718,749	3,748,987	-	261,058	4,010,046
C2c - C&I Active Demand Reduction	4.26	1,385,916	1,811,447	425,531	-	-	425,531
C3 - C&I Hard-to-Measure	0.00	(1,234,755)	-	1,234,755	-	-	1,234,755
Grand Total	2.64	136,656,581	220,213,201	77,201,890	-	6,354,730	83,556,620

IV.D. Cost-Effectiveness

1. Summary Table

Cape Light Compact

November 1, 2021

2022-2024 Total Resource Cost Test (2022\$)							
Program	Benefit-Cost Ratio	Net Benefits	Total TRC Test Benefits	Costs			
				Total Program Costs	Performance Incentive	Participant Costs	Total TRC Test Costs
A - Residential	2.88	300,320,909	459,944,171	141,392,972	-	18,230,290	159,623,262
A1 - Residential New Buildings	2.42	18,361,029	31,253,588	13,396,824	-	(504,266)	12,892,558
A1a - Residential New Homes & Renovations	2.42	18,361,029	31,253,588	13,396,824	-	(504,266)	12,892,558
A2 - Residential Existing Buildings	3.20	294,802,397	428,690,583	115,153,631	-	18,734,555	133,888,186
A2a - Residential Coordinated Delivery	3.81	203,633,508	276,174,079	68,667,755	-	3,872,815	72,540,571
A2b - Residential Conservation Services (RCS)	0.00	(10,669,525)	-	10,669,525	-	-	10,669,525
A2c - Residential Retail	3.06	99,781,069	148,318,307	33,675,499	-	14,861,740	48,537,239
A2d - Residential Behavior		-	-	-	-	-	-
A2e - Residential Active Demand Reduction	1.96	2,057,345	4,198,197	2,140,852	-	-	2,140,852
A3 - Residential Hard-to-Measure	0.00	(12,842,517)	-	12,842,517	-	-	12,842,517
B - Income Eligible	2.44	45,130,062	76,503,991	30,316,357	-	1,057,572	31,373,929
B1 - Income Eligible Existing Buildings	2.52	46,121,505	76,503,991	29,324,914	-	1,057,572	30,382,486
B1a - Income Eligible Coordinated Delivery	2.53	45,671,536	75,463,892	28,734,784	-	1,057,572	29,792,356
B1b - Income Eligible Active Demand Reduction	1.76	449,969	1,040,099	590,130	-	-	590,130
B2 - Income Eligible Hard-to-Measure	0.00	(991,443)	-	991,443	-	-	991,443
C - Commercial & Industrial	2.12	63,591,519	120,496,519	55,475,772	-	1,429,228	56,905,000
C1 - C&I New Buildings	5.85	10,640,338	12,832,740	2,324,365	-	(131,963)	2,192,402
C1a - C&I New Buildings & Major Renovations	5.85	10,640,338	12,832,740	2,324,365	-	(131,963)	2,192,402
C2 - C&I Existing Buildings	2.11	56,690,358	107,663,779	49,412,229	-	1,561,191	50,973,420
C2a - C&I Existing Building Retrofit	1.98	37,782,045	76,254,891	37,790,480	-	682,366	38,472,846
C2b - C&I New & Replacement Equipment	2.37	15,702,070	27,171,430	10,590,535	-	878,825	11,469,360
C2c - C&I Active Demand Reduction	4.11	3,206,244	4,237,459	1,031,215	-	-	1,031,215
C3 - C&I Hard-to-Measure	0.00	(3,739,178)	-	3,739,178	-	-	3,739,178
Grand Total	2.65	409,042,491	656,944,681	227,185,101	-	20,717,089	247,902,190

Notes:

The Benefit-Cost Ratio is the Total TRC Test Benefits divided by the Total TRC Test Costs.

The Net Benefits are the Total TRC Test Benefits minus the Total TRC Test Costs.

For supporting information on the Total TRC Test Benefits, see Table IV.D.3.1.i. The calculation of program benefits includes calculations of the social value of greenhouse gas emissions reductions except in the cases of conversions from fossil fuel heating and cooling to fossil fuel heating and cooling.

For supporting information on the Total Program Costs, see Table IV.C.1.

For supporting information on the Performance Incentive, refer to the Performance Incentive Model.

The Total TRC Costs are the sum of the Total Program Costs, Performance Incentives, and Participant Costs.

IV.D Cost-Effectiveness
2.3 TRC Cost Historical Comparison

Cape Light Compact
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2019-2024 TRC Costs (2019\$ and 2022\$)												
TRC Costs Categories	TRC Costs (\$)						TRC Cost Categories as a Percent of Total TRC Costs (%)					
	2019 Evaluated	2020 Evaluated	2021 Planned	2022 Planned	2023 Planned	2024 Planned	2019 Evaluated	2020 Evaluated	2021 Planned	2022 Planned	2023 Planned	2024 Planned
A - Residential												
PA Budget	29,492,091	27,885,470	22,512,972	45,771,794	45,170,809	50,450,369	80%	64%	76%	88%	88%	89%
Participant Cost	7,245,320	15,571,741	6,946,495	6,191,547	6,036,471	6,002,272	20%	36%	24%	12%	12%	11%
Residential Total TRC Costs	36,737,411	43,457,211	29,459,467	51,963,340	51,207,281	56,452,641	100%	100%	100%	100%	100%	100%
B - Income Eligible												
PA Budget	3,746,160	2,395,661	4,775,336	11,557,712	10,432,207	8,326,437	100%	100%	100%	94%	95%	103%
Participant Cost	-	-	-	768,200	566,778	(277,406)	0%	0%	0%	6%	5%	-3%
Low-Income Total TRC Costs	3,746,160	2,395,661	4,775,336	12,325,912	10,998,985	8,049,032	100%	100%	100%	100%	100%	100%
C - Commercial & Industrial												
PA Budget	9,163,143	9,051,041	16,719,153	18,063,156	18,987,533	18,425,083	90%	86%	92%	98%	98%	97%
Participant Cost	982,248	1,445,420	1,485,508	325,484	473,880	629,864	10%	14%	8%	2%	2%	3%
C&I Total TRC Costs	10,145,391	10,496,461	18,204,660	18,388,639	19,461,413	19,054,948	100%	100%	100%	100%	100%	100%
Grand Total												
PA Budget	42,401,394	39,332,172	44,007,460	75,392,662	74,590,549	77,201,890	84%	70%	84%	91%	91%	92%
Participant Cost	8,227,567	17,017,161	8,432,002	7,285,230	7,077,129	6,354,730	16%	30%	16%	9%	9%	8%
Grand Total TRC Costs	50,628,962	56,349,333	52,439,463	82,677,892	81,667,678	83,556,620	100%	100%	100%	100%	100%	100%

Notes:

2019 values are from the Program Administrator's 2019 Plan Year Report D.P.U. 20-50, in 2019\$.
2020 values are from the Program Administrator's 2020 Plan Year Report D.P.U. 21-70, in 2019\$.
2021 values are from the Program Administrator's 2019-2021 Three-Year Plan, D.P.U. 18-116, in 2019\$.
For supporting information on the 2022-2024 values, see Table IV.D.1. The 2022-2024 values are in 2022\$.

IV.D Cost-Effectiveness
3.1.i. Benefits Summary Table
Cape Light Compact
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Program	2022 Benefits (\$)							
	Electric Capacity	Electric Energy	Natural Gas	Oil	Propane	Wood	Motor Gasoline	Motor Diesel
A - Residential	11,336,623	3,518,934	17,626,884	62,383,093	44,895,191	-	233,406	-
A1 - Residential New Buildings	228,212	1,300,937	-	(476,417)	7,909,424	-	-	-
A1a - Residential New Homes & Renovations	228,212	1,300,937	-	(476,417)	7,909,424	-	-	-
A2 - Residential Existing Buildings	11,108,411	2,217,997	17,626,884	62,859,509	36,985,768	-	233,406	-
A2a - Residential Coordinated Delivery	7,508,703	16,721,937	17,642,480	35,433,962	9,774,728	-	-	-
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-
A2c - Residential Retail	2,558,656	(14,499,179)	(15,596)	27,425,548	27,211,040	-	233,406	-
A2d - Residential Behavior	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	1,041,052	(4,761)	-	-	-	-	-	-
B - Income Eligible	7,735,065	7,724,753	(4,184)	5,685,677	4,994,110	-	-	-
B1 - Income Eligible Existing Buildings	7,735,065	7,724,753	(4,184)	5,685,677	4,994,110	-	-	-
B1a - Income Eligible Coordinated Delivery	7,560,212	7,727,621	(4,184)	5,685,677	4,994,110	-	-	-
B1b - Income Eligible Active Demand Reduction	174,853	(2,868)	-	-	-	-	-	-
C - Commercial & Industrial	5,684,230	15,114,325	(524,549)	5,106,374	2,142,792	-	427,415	-
C1 - C&I New Buildings	664,455	1,721,639	(60,831)	(23,287)	-	-	-	-
C1a - C&I New Buildings & Major Renovations	664,455	1,721,639	(60,831)	(23,287)	-	-	-	-
C2 - C&I Existing Buildings	5,019,775	13,392,686	(463,718)	5,129,661	2,142,792	-	427,415	-
C2a - C&I Existing Building Retrofit	3,261,762	10,601,511	(441,672)	4,539,926	142,840	-	-	-
C2b - C&I New & Replacement Equipment	658,877	2,809,812	(22,046)	589,735	1,999,952	-	427,415	-
C2c - C&I Active Demand Reduction	1,099,136	(18,637)	-	-	-	-	-	-
Grand Total	24,755,918	26,358,012	17,098,151	73,175,144	52,032,093	-	660,821	-

Program	2023 Benefits (\$)							
	Electric Capacity	Electric Energy	Natural Gas	Oil	Propane	Wood	Motor Gasoline	Motor Diesel
A - Residential	9,094,854	(2,610,383)	17,683,615	67,839,961	50,902,448	-	234,971	-
A1 - Residential New Buildings	250,522	1,048,025	-	(791,273)	10,348,773	-	-	-
A1a - Residential New Homes & Renovations	250,522	1,048,025	-	(791,273)	10,348,773	-	-	-
A2 - Residential Existing Buildings	8,844,332	(3,658,408)	17,683,615	68,631,235	40,553,675	-	234,971	-
A2a - Residential Coordinated Delivery	5,097,073	15,420,249	17,700,851	35,101,361	8,951,963	-	-	-
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-
A2c - Residential Retail	2,302,449	(19,055,093)	(17,235)	33,529,874	31,601,713	-	234,971	-
A2d - Residential Behavior	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	1,444,811	(23,564)	-	-	-	-	-	-
B - Income Eligible	4,600,954	5,874,848	(5,923)	5,094,378	4,048,363	-	-	-
B1 - Income Eligible Existing Buildings	4,600,954	5,874,848	(5,923)	5,094,378	4,048,363	-	-	-
B1a - Income Eligible Coordinated Delivery	4,190,315	5,893,490	(5,923)	5,094,378	4,048,363	-	-	-
B1b - Income Eligible Active Demand Reduction	410,639	(18,642)	-	-	-	-	-	-
C - Commercial & Industrial	7,041,828	18,077,531	(491,244)	5,407,825	2,547,874	-	429,762	-
C1 - C&I New Buildings	1,052,380	2,874,249	(116,925)	(22,351)	-	-	-	-
C1a - C&I New Buildings & Major Renovations	1,052,380	2,874,249	(116,925)	(22,351)	-	-	-	-
C2 - C&I Existing Buildings	5,989,448	15,203,282	(374,319)	5,430,177	2,547,874	-	429,762	-
C2a - C&I Existing Building Retrofit	3,884,233	12,030,528	(358,416)	4,689,099	159,977	-	-	-
C2b - C&I New & Replacement Equipment	721,067	3,211,390	(15,903)	741,078	2,387,897	-	429,762	-
C2c - C&I Active Demand Reduction	1,384,148	(38,635)	-	-	-	-	-	-
Grand Total	20,737,636	21,341,996	17,186,448	78,342,165	57,498,685	-	664,732	-

IV.D Cost-Effectiveness
3.1.i. Benefits Summary Table
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Program	2024 Benefits (\$)							
	Electric Capacity	Electric Energy	Natural Gas	Oil	Propane	Wood	Motor Gasoline	Motor Diesel
A - Residential	6,716,050	(11,092,654)	17,745,448	75,323,028	56,186,240	-	236,397	-
A1 - Residential New Buildings	183,000	(95,134)	-	(307,766)	10,689,039	-	-	-
A1a - Residential New Homes & Renovations	183,000	(95,134)	-	(307,766)	10,689,039	-	-	-
A2 - Residential Existing Buildings	6,533,050	(10,997,520)	17,745,448	75,630,794	45,497,201	-	236,397	-
A2a - Residential Coordinated Delivery	2,754,599	14,428,898	17,764,347	34,227,806	8,009,357	-	-	-
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-
A2c - Residential Retail	2,012,745	(25,401,371)	(18,899)	41,402,987	37,487,844	-	236,397	-
A2d - Residential Behavior	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	1,765,706	(25,047)	-	-	-	-	-	-
B - Income Eligible	1,369,997	4,349,224	(7,298)	4,304,023	2,685,579	-	-	-
B1 - Income Eligible Existing Buildings	1,369,997	4,349,224	(7,298)	4,304,023	2,685,579	-	-	-
B1a - Income Eligible Coordinated Delivery	875,095	4,368,009	(7,298)	4,304,023	2,685,579	-	-	-
B1b - Income Eligible Active Demand Reduction	494,903	(18,785)	-	-	-	-	-	-
C - Commercial & Industrial	8,817,775	21,034,252	54,057	5,734,214	2,856,202	-	431,770	-
C1 - C&I New Buildings	1,312,835	3,581,967	(151,180)	(21,757)	-	-	-	-
C1a - C&I New Buildings & Major Renovations	1,312,835	3,581,967	(151,180)	(21,757)	-	-	-	-
C2 - C&I Existing Buildings	7,504,940	17,452,286	205,237	5,755,972	2,856,202	-	431,770	-
C2a - C&I Existing Building Retrofit	4,953,723	14,442,880	216,400	4,867,480	177,023	-	-	-
C2b - C&I New & Replacement Equipment	678,140	3,071,036	(11,162)	888,492	2,679,179	-	431,770	-
C2c - C&I Active Demand Reduction	1,873,078	(61,630)	-	-	-	-	-	-
Grand Total	16,903,823	14,290,822	17,792,207	85,361,266	61,728,021	-	668,167	-

Program	2022-2024 Benefits (\$)							
	Electric Capacity	Electric Energy	Natural Gas	Oil	Propane	Wood	Motor Gasoline	Motor Diesel
A - Residential	27,147,527	(10,184,104)	53,055,948	205,546,082	151,983,879	-	704,773	-
A1 - Residential New Buildings	661,733	2,253,827	-	(1,575,455)	28,947,235	-	-	-
A1a - Residential New Homes & Renovations	661,733	2,253,827	-	(1,575,455)	28,947,235	-	-	-
A2 - Residential Existing Buildings	26,485,794	(12,437,931)	53,055,948	207,121,538	123,036,644	-	704,773	-
A2a - Residential Coordinated Delivery	15,360,375	46,571,084	53,107,678	104,763,129	26,736,048	-	-	-
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-
A2c - Residential Retail	6,873,850	(58,955,643)	(51,730)	102,358,409	96,300,596	-	704,773	-
A2d - Residential Behavior	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	4,251,569	(53,371)	-	-	-	-	-	-
B - Income Eligible	13,706,016	17,948,825	(17,406)	15,084,079	11,728,052	-	-	-
B1 - Income Eligible Existing Buildings	13,706,016	17,948,825	(17,406)	15,084,079	11,728,052	-	-	-
B1a - Income Eligible Coordinated Delivery	12,625,621	17,989,120	(17,406)	15,084,079	11,728,052	-	-	-
B1b - Income Eligible Active Demand Reduction	1,080,395	(40,295)	-	-	-	-	-	-
C - Commercial & Industrial	21,543,834	54,226,108	(961,736)	16,248,413	7,546,868	-	1,288,947	-
C1 - C&I New Buildings	3,029,671	8,177,855	(328,937)	(67,395)	-	-	-	-
C1a - C&I New Buildings & Major Renovations	3,029,671	8,177,855	(328,937)	(67,395)	-	-	-	-
C2 - C&I Existing Buildings	18,514,162	46,048,253	(632,799)	16,315,809	7,546,868	-	1,288,947	-
C2a - C&I Existing Building Retrofit	12,099,717	37,074,919	(583,688)	14,096,504	479,840	-	-	-
C2b - C&I New & Replacement Equipment	2,058,084	9,092,238	(49,112)	2,219,305	7,067,027	-	1,288,947	-
C2c - C&I Active Demand Reduction	4,356,362	(118,903)	-	-	-	-	-	-
Grand Total	62,397,376	61,990,830	52,076,806	236,878,575	171,258,799	-	1,993,720	-

IV.D Cost-Effectiveness
3.1.i. Benefits Summary Table

Cape Light Compact
November 1, 2021

2022 Benefits (\$)						
Program	Water	Total Resource Benefits	Non-Resource Benefits	Total TRC Test Benefits	Resource Benefits per Participant	Total Environmental Compliance Benefits (Social Cost of Carbon)
A - Residential	651,359	140,645,490	9,968,334	150,613,824	8,236	69,117,011
A1 - Residential New Buildings	-	8,962,155	315,249	9,277,404	23,400	3,869,735
A1a - Residential New Homes & Renovations	-	8,962,155	315,249	9,277,404	23,400	3,869,735
A2 - Residential Existing Buildings	651,359	131,683,335	9,653,085	141,336,420	7,888	65,247,276
A2a - Residential Coordinated Delivery	569,816	87,651,625	9,353,162	97,004,788	14,264	47,910,016
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-
A2c - Residential Retail	81,543	42,995,418	299,923	43,295,340	5,067	17,342,574
A2d - Residential Behavior	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	-	1,036,292	-	1,036,292	502	(5,314)
B - Income Eligible	257,553	26,392,974	6,456,717	32,849,691	16,737	10,615,190
B1 - Income Eligible Existing Buildings	257,553	26,392,974	6,456,717	32,849,691	16,737	10,615,190
B1a - Income Eligible Coordinated Delivery	257,553	26,220,990	6,456,717	32,677,706	18,083	10,618,391
B1b - Income Eligible Active Demand Reduction	-	171,985	-	171,985	1,355	(3,201)
C - Commercial & Industrial	31,506	27,982,093	6,109,627	34,091,720	25,006	14,210,982
C1 - C&I New Buildings	-	2,301,977	400,387	2,702,364	27,082	1,148,655
C1a - C&I New Buildings & Major Renovations	-	2,301,977	400,387	2,702,364	27,082	1,148,655
C2 - C&I Existing Buildings	31,506	25,680,116	5,709,240	31,389,356	24,836	13,062,327
C2a - C&I Existing Building Retrofit	26,216	18,130,583	4,028,603	22,159,185	36,627	9,743,188
C2b - C&I New & Replacement Equipment	5,291	6,469,035	1,680,637	8,149,672	13,283	3,338,637
C2c - C&I Active Demand Reduction	-	1,080,499	-	1,080,499	20,779	(19,498)
Grand Total	940,419	195,020,557	22,534,677	217,555,234	9,863	93,943,182

2023 Benefits (\$)						
Program	Water	Total Resource Benefits	Non-Resource Benefits	Total TRC Test Benefits	Resource Benefits per Participant	Total Environmental Compliance Benefits (Social Cost of Carbon)
A - Residential	649,826	143,795,292	9,953,837	153,749,129	8,259	70,309,716
A1 - Residential New Buildings	-	10,856,046	365,906	11,221,952	28,569	4,521,280
A1a - Residential New Homes & Renovations	-	10,856,046	365,906	11,221,952	28,569	4,521,280
A2 - Residential Existing Buildings	649,826	132,939,246	9,587,930	142,527,176	7,806	65,788,436
A2a - Residential Coordinated Delivery	568,665	82,840,160	9,306,775	92,146,935	13,551	46,396,365
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-
A2c - Residential Retail	81,161	48,677,839	281,155	48,958,994	5,737	19,416,594
A2d - Residential Behavior	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	-	1,421,247	-	1,421,247	584	(24,522)
B - Income Eligible	257,036	19,869,656	5,759,357	25,629,013	12,570	8,530,535
B1 - Income Eligible Existing Buildings	257,036	19,869,656	5,759,357	25,629,013	12,570	8,530,535
B1a - Income Eligible Coordinated Delivery	257,036	19,477,659	5,759,357	25,237,016	13,913	8,549,936
B1b - Income Eligible Active Demand Reduction	-	391,997	-	391,997	2,168	(19,401)
C - Commercial & Industrial	36,511	33,050,087	6,748,017	39,798,104	28,865	16,637,467
C1 - C&I New Buildings	-	3,787,353	716,176	4,503,529	44,557	1,916,440
C1a - C&I New Buildings & Major Renovations	-	3,787,353	716,176	4,503,529	44,557	1,916,440
C2 - C&I Existing Buildings	36,511	29,262,734	6,031,841	35,294,575	27,606	14,721,027
C2a - C&I Existing Building Retrofit	30,845	20,436,265	4,209,788	24,646,053	39,301	10,899,425
C2b - C&I New & Replacement Equipment	5,665	7,480,956	1,822,053	9,303,009	15,521	3,861,422
C2c - C&I Active Demand Reduction	-	1,345,513	-	1,345,513	23,198	(39,821)
Grand Total	943,373	196,715,035	22,461,210	219,176,245	9,769	95,477,718

IV.D Cost-Effectiveness

3.1.i. Benefits Summary Table

Cape Light Compact
November 1, 2021

2024 Benefits (\$)						
Program	Water	Total Resource Benefits	Non-Resource Benefits	Total TRC Test Benefits	Resource Benefits per Participant	Total Environmental Compliance Benefits (Social Cost of Carbon)
A - Residential	648,464	145,762,973	9,818,245	155,581,219	8,245	70,833,165
A1 - Residential New Buildings	-	10,469,139	285,092	10,754,231	34,609	4,154,736
A1a - Residential New Homes & Renovations	-	10,469,139	285,092	10,754,231	34,609	4,154,736
A2 - Residential Existing Buildings	648,464	135,293,834	9,533,153	144,826,987	7,786	66,678,429
A2a - Residential Coordinated Delivery	567,473	77,752,481	9,269,874	87,022,356	12,790	44,765,080
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-
A2c - Residential Retail	80,991	55,800,694	263,279	56,063,973	6,576	21,939,782
A2d - Residential Behavior	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	-	1,740,659	-	1,740,659	619	(26,433)
B - Income Eligible	256,498	12,958,023	5,067,264	18,025,287	8,444	6,391,079
B1 - Income Eligible Existing Buildings	256,498	12,958,023	5,067,264	18,025,287	8,444	6,391,079
B1a - Income Eligible Coordinated Delivery	256,498	12,481,906	5,067,264	17,549,170	9,246	6,410,904
B1b - Income Eligible Active Demand Reduction	-	476,117	-	476,117	2,579	(19,825)
C - Commercial & Industrial	40,605	38,968,876	7,637,819	46,606,695	33,137	19,402,115
C1 - C&I New Buildings	-	4,721,865	904,983	5,626,847	55,551	2,387,267
C1a - C&I New Buildings & Major Renovations	-	4,721,865	904,983	5,626,847	55,551	2,387,267
C2 - C&I Existing Buildings	40,605	34,247,012	6,732,836	40,979,848	31,390	17,014,848
C2a - C&I Existing Building Retrofit	34,567	24,692,072	4,757,580	29,449,652	45,307	13,109,647
C2b - C&I New & Replacement Equipment	6,038	7,743,492	1,975,257	9,718,749	16,234	3,968,728
C2c - C&I Active Demand Reduction	-	1,811,447	-	1,811,447	26,253	(63,527)
Grand Total	945,567	197,689,873	22,523,328	220,213,201	9,696	96,626,360

2022-2024 Benefits (\$)						
Program	Water	Total Resource Benefits	Non-Resource Benefits	Total TRC Test Benefits	Resource Benefits per Participant	Total Environmental Compliance Benefits (Social Cost of Carbon)
A - Residential	1,949,649	430,203,755	29,740,416	459,944,171	8,247	210,259,892
A1 - Residential New Buildings	-	30,287,340	966,248	31,253,588	28,425	12,545,751
A1a - Residential New Homes & Renovations	-	30,287,340	966,248	31,253,588	28,425	12,545,751
A2 - Residential Existing Buildings	1,949,649	399,916,415	28,774,168	428,690,583	7,826	197,714,141
A2a - Residential Coordinated Delivery	1,705,954	248,244,267	27,929,812	276,174,079	13,538	139,071,461
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-
A2c - Residential Retail	243,696	147,473,951	844,357	148,318,307	5,794	58,698,950
A2d - Residential Behavior	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	-	4,198,197	-	4,198,197	574	(56,269)
B - Income Eligible	771,087	59,220,654	17,283,337	76,503,991	12,621	25,536,805
B1 - Income Eligible Existing Buildings	771,087	59,220,654	17,283,337	76,503,991	12,621	25,536,805
B1a - Income Eligible Coordinated Delivery	771,087	58,180,555	17,283,337	75,463,892	13,853	25,579,231
B1b - Income Eligible Active Demand Reduction	-	1,040,099	-	1,040,099	2,113	(42,426)
C - Commercial & Industrial	108,622	100,001,056	20,495,463	120,496,519	29,070	50,250,564
C1 - C&I New Buildings	-	10,811,194	2,021,546	12,832,740	42,397	5,452,363
C1a - C&I New Buildings & Major Renovations	-	10,811,194	2,021,546	12,832,740	42,397	5,452,363
C2 - C&I Existing Buildings	108,622	89,189,862	18,473,917	107,663,779	28,003	44,798,201
C2a - C&I Existing Building Retrofit	91,628	63,258,920	12,995,970	76,254,891	40,551	33,752,261
C2b - C&I New & Replacement Equipment	16,994	21,693,483	5,477,947	27,171,430	15,002	11,168,787
C2c - C&I Active Demand Reduction	-	4,237,459	-	4,237,459	23,673	(122,847)
Grand Total	2,829,359	589,425,465	67,519,215	656,944,681	9,775	286,047,261

IV.D Cost-Effectiveness

3.1.iii. Benefits Historical Comparison

Cape Light Compact
November 1, 2021

2019-2024 Benefits (\$)													
Sector	Electric		Natural Gas	Oil	Propane	Wood	Motor Gasoline	Motor Diesel	Water	Total Energy Benefits	Non-Resource Impacts	Total TRC Test Benefits	Total Environmental Compliance Benefits
	Capacity	Electric Energy											
A - Residential													
2019 Evaluated	7,560,140	18,224,702	6,385,760	19,278,483	8,125,294	-			454,685	60,029,064	9,895,755	69,924,819	11,802,805
2020 Evaluated	5,001,170	9,774,829	5,576,617	21,112,926	11,554,777	-			646,117	53,666,436	8,237,667	61,904,103	9,810,539
2021 Planned	5,191,763	8,065,716	6,825,161	26,495,829	13,939,381	-			319,395	60,837,245	6,225,746	67,062,991	10,697,240
2022 Planned	11,336,623	3,518,934	17,626,884	62,383,093	44,895,191	-	233,406	-	651,359	140,645,490	9,968,334	150,613,824	69,117,011
2023 Planned	9,094,854	(2,610,383)	17,683,615	67,839,961	50,902,448	-	234,971	-	649,826	143,795,292	9,953,837	153,749,129	70,309,716
2024 Planned	6,716,050	(11,092,654)	17,745,448	75,323,028	56,186,240	-	236,397	-	648,464	145,762,973	9,818,245	155,581,219	70,833,165
B - Income Eligible													
2019 Evaluated	754,143	1,816,018	-	1,367,607	346,444	-			257,405	4,541,617	2,344,210	6,885,827	842,146
2020 Evaluated	330,810	699,004	-	920,569	244,697	-			91,142	2,286,221	1,287,939	3,574,160	405,160
2021 Planned	642,023	2,136,267	-	2,496,555	591,203	-			-	5,866,048	4,289,803	10,155,851	1,171,286
2022 Planned	7,735,065	7,724,753	(4,184)	5,685,677	4,994,110	-	-	-	257,553	26,392,974	6,456,717	32,849,691	10,615,190
2023 Planned	4,600,954	5,874,848	(5,923)	5,094,378	4,048,363	-	-	-	257,036	19,869,656	5,759,357	25,629,013	8,530,535
2024 Planned	1,369,997	4,349,224	(7,298)	4,304,023	2,685,579	-	-	-	256,498	12,958,023	5,067,264	18,025,287	6,391,079
C - Commercial & Industrial													
2019 Evaluated	8,788,939	14,705,484	(533,791)	(525,831)	16,568	-			191,999	22,643,367	2,859,630	25,502,997	4,240,600
2020 Evaluated	14,281,397	30,706,769	(15,245,746)	(429,549)	10,547	-			78,386	29,401,803	2,363,031	31,764,834	5,127,665
2021 Planned	23,836,304	23,011,294	(953,462)	(1,277,822)	29,593	-			35,899	44,681,805	22,377,381	67,059,186	6,392,377
2022 Planned	5,684,230	15,114,325	(524,549)	5,106,374	2,142,792	-	427,415	-	31,506	27,982,093	6,109,627	34,091,720	14,210,982
2023 Planned	7,041,828	18,077,531	(491,244)	5,407,825	2,547,874	-	429,762	-	36,511	33,050,087	6,748,017	39,798,104	16,637,467
2024 Planned	8,817,775	21,034,252	54,057	5,734,214	2,856,202	-	431,770	-	40,605	38,968,876	7,637,819	46,606,695	19,402,115
Grand Total													
2019 Evaluated	17,103,222	34,746,204	5,851,969	20,120,259	8,488,305	-	-	-	904,088	87,214,047	15,099,595	102,313,642	16,885,551
2020 Evaluated	19,613,376	41,180,602	(9,669,129)	21,603,946	11,810,021	-	-	-	815,645	85,354,461	11,888,636	97,243,097	15,343,365
2021 Planned	29,670,090	33,213,277	5,871,699	27,714,562	14,560,177	-	-	-	355,294	111,385,098	32,892,929	144,278,028	18,260,903
2022 Planned	24,755,918	26,358,012	17,098,151	73,175,144	52,032,093	-	660,821	-	940,419	195,020,557	22,534,677	217,555,234	93,943,182
2023 Planned	20,737,636	21,341,996	17,186,448	78,342,165	57,498,685	-	664,732	-	943,373	196,715,035	22,461,210	219,176,245	95,477,718
2024 Planned	16,903,823	14,290,822	17,792,207	85,361,266	61,728,021	-	668,167	-	945,567	197,689,873	22,523,328	220,213,201	96,626,360

IV.D Cost-Effectiveness

3.1.iii. Benefits Historical Comparison

Cape Light Compact
November 1, 2021

2019-2024 Benefits, Percent of Total TRC Test Benefits (%)													
Sector	Electric		Natural Gas	Oil	Propane	Wood	Motor Gasoline	Motor Diesel	Water	Total Energy Benefits	Non-Resource Impacts	Total TRC Test Benefits	Total Environmental Compliance Benefits
	Capacity	Electric Energy											
A - Residential													
2019 Evaluated	11%	26%	9%	28%	12%	0%	0%	0%	1%	86%	14%	100%	17%
2020 Evaluated	8%	16%	9%	34%	19%	0%	0%	0%	1%	87%	13%	100%	16%
2021 Planned	8%	12%	10%	40%	21%	0%	0%	0%	0%	91%	9%	100%	16%
2022 Planned	8%	2%	12%	41%	30%	0%	0%	0%	0%	93%	7%	100%	46%
2023 Planned	6%	-2%	12%	44%	33%	0%	0%	0%	0%	94%	6%	100%	46%
2024 Planned	4%	-7%	11%	48%	36%	0%	0%	0%	0%	94%	6%	100%	46%
B - Income Eligible													
2019 Evaluated	11%	26%	0%	20%	5%	0%	0%	0%	4%	66%	34%	100%	12%
2020 Evaluated	9%	20%	0%	26%	7%	0%	0%	0%	3%	64%	36%	100%	11%
2021 Planned	6%	21%	0%	25%	6%	0%	0%	0%	0%	58%	42%	100%	12%
2022 Planned	24%	24%	0%	17%	15%	0%	0%	0%	1%	80%	20%	100%	32%
2023 Planned	18%	23%	0%	20%	16%	0%	0%	0%	1%	78%	22%	100%	33%
2024 Planned	8%	24%	0%	24%	15%	0%	0%	0%	1%	72%	28%	100%	35%
C - Commercial & Industrial													
2019 Evaluated	34%	58%	-2%	-2%	0%	0%	0%	0%	1%	89%	11%	100%	17%
2020 Evaluated	45%	97%	-48%	-1%	0%	0%	0%	0%	0%	93%	7%	100%	16%
2021 Planned	36%	34%	-1%	-2%	0%	0%	0%	0%	0%	67%	33%	100%	10%
2022 Planned	17%	44%	-2%	15%	6%	0%	1%	0%	0%	82%	18%	100%	42%
2023 Planned	18%	45%	-1%	14%	6%	0%	1%	0%	0%	83%	17%	100%	42%
2024 Planned	19%	45%	0%	12%	6%	0%	1%	0%	0%	84%	16%	100%	42%
Grand Total													
2019 Evaluated	17%	34%	6%	20%	8%	0%	0%	0%	1%	85%	15%	100%	17%
2020 Evaluated	20%	42%	-10%	22%	12%	0%	0%	0%	1%	88%	12%	100%	16%
2021 Planned	21%	23%	4%	19%	10%	0%	0%	0%	0%	77%	23%	100%	13%
2022 Planned	11%	12%	8%	34%	24%	0%	0%	0%	0%	90%	10%	100%	43%
2023 Planned	9%	10%	8%	36%	26%	0%	0%	0%	0%	90%	10%	100%	44%
2024 Planned	8%	6%	8%	39%	28%	0%	0%	0%	0%	90%	10%	100%	44%

Notes:

2019 values are from the Program Administrator's 2019 Plan Year Report D.P.U. 20-50, in 2019S.

2020 values are from the Program Administrator's 2020 Plan Year Report D.P.U. 21-70, in 2019S.

2021 values are from the Program Administrator's 2019-2021 Three-Year Plan, D.P.U. 18-116, in 2019S.

For supporting information on the 2022-2024 values, see Table IV.D.3.1.i. The 2022-2024 values are in 2022S.

IV.D. Cost-Effectiveness
3.2.i. Savings Summary Table
Cape Light Compact
November 1, 2021

Program	# of Participants	2022 Net Savings											
		Annual Capacity (kW)		Electric Energy (MWh)		Electric Energy (Source MMBTU)		Natural Gas (Therms)		Deliverable Fuels			
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Oil (MMBTU)		Propane (MMBTU)	
										Annual	Lifetime	Annual	Lifetime
A - Residential	17,077	3,545	107	1,035	15,472	7,367	96,237	250,114	5,342,689	56,187	1,084,805	34,449	662,659
A1 - Residential New Buildings	383	20	59	229	5,579	1,609	32,817	-	-	(492)	(8,335)	4,561	115,646
A1a - Residential New Homes & Renovations	383	20	59	229	5,579	1,609	32,817	-	-	(492)	(8,335)	4,561	115,646
A2 - Residential Existing Buildings	16,694	3,525	48	806	9,893	5,758	63,420	250,114	5,342,689	56,679	1,093,140	29,888	547,013
A2a - Residential Coordinated Delivery	6,145	748	688	3,712	71,473	26,074	426,135	250,524	5,348,019	29,400	613,417	7,036	143,894
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-	-	-	-	-	-
A2c - Residential Retail	8,485	406	(640)	(2,897)	(61,572)	(20,242)	(362,641)	(410)	(5,330)	27,279	479,723	22,852	403,118
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	2,064	2,370	-	(8)	(8)	(73)	(73)	-	-	-	-	-	-
B - Income Eligible	1,577	1,192	285	2,501	33,108	17,568	200,496	(110)	(1,430)	5,701	99,399	4,570	74,182
B1 - Income Eligible Existing Buildings	1,577	1,192	285	2,501	33,108	17,568	200,496	(110)	(1,430)	5,701	99,399	4,570	74,182
B1a - Income Eligible Coordinated Delivery	1,450	839	285	2,506	33,113	17,613	200,540	(110)	(1,430)	5,701	99,399	4,570	74,182
B1b - Income Eligible Active Demand Reduction	127	353	-	(5)	(5)	(44)	(44)	-	-	-	-	-	-
C - Commercial & Industrial	1,119	3,152	762	6,383	64,123	44,894	406,045	(20,164)	(161,912)	5,562	93,446	2,382	31,978
C1 - C&I New Buildings	85	80	53	424	7,492	2,983	45,696	(994)	(18,787)	(33)	(430)	-	-
C1a - C&I New Buildings & Major Renovations	85	80	53	424	7,492	2,983	45,696	(994)	(18,787)	(33)	(430)	-	-
C2 - C&I Existing Buildings	1,034	3,072	710	5,960	56,632	41,911	360,349	(19,170)	(143,125)	5,595	93,876	2,382	31,978
C2a - C&I Existing Building Retrofit	495	635	565	4,692	44,732	33,032	284,996	(18,185)	(136,321)	5,082	83,134	117	2,109
C2b - C&I New & Replacement Equipment	487	131	145	1,281	11,913	9,004	75,478	(985)	(6,804)	513	10,742	2,265	29,869
C2c - C&I Active Demand Reduction	52	2,306	-	(13)	(13)	(125)	(125)	-	-	-	-	-	-
Grand Total	19,773	7,888	1,155	9,919	112,703	69,829	702,778	229,841	5,179,347	67,451	1,277,650	41,401	768,819

Program	# of Participants	2023 Net Savings											
		Annual Capacity (kW)		Electric Energy (MWh)		Electric Energy (Source MMBTU)		Natural Gas (Therms)		Deliverable Fuels			
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Oil (MMBTU)		Propane (MMBTU)	
										Annual	Lifetime	Annual	Lifetime
A - Residential	17,411	4,184	(142)	(346)	(10,904)	(2,209)	(59,888)	250,073	5,342,156	61,023	1,170,050	38,750	746,331
A1 - Residential New Buildings	380	22	44	181	4,482	1,256	26,129	-	-	(745)	(13,662)	5,979	150,497
A1a - Residential New Homes & Renovations	380	22	44	181	4,482	1,256	26,129	-	-	(745)	(13,662)	5,979	150,497
A2 - Residential Existing Buildings	17,031	4,162	(186)	(528)	(15,386)	(3,465)	(86,016)	250,073	5,342,156	61,769	1,183,713	32,771	595,834
A2a - Residential Coordinated Delivery	6,113	519	702	3,474	65,582	24,035	386,160	250,524	5,348,019	28,800	602,623	6,313	130,882
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-	-	-	-	-	-
A2c - Residential Retail	8,485	372	(888)	(3,986)	(80,952)	(27,356)	(472,032)	(451)	(5,863)	32,968	581,090	26,458	464,951
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	2,433	3,271	-	(16)	(16)	(144)	(144)	-	-	-	-	-	-
B - Income Eligible	1,581	1,373	326	2,152	24,980	14,893	150,350	(155)	(2,015)	4,881	88,136	3,594	59,652
B1 - Income Eligible Existing Buildings	1,581	1,373	326	2,152	24,980	14,893	150,350	(155)	(2,015)	4,881	88,136	3,594	59,652
B1a - Income Eligible Coordinated Delivery	1,400	522	326	2,165	24,993	15,008	150,464	(155)	(2,015)	4,881	88,136	3,594	59,652
B1b - Income Eligible Active Demand Reduction	181	851	-	(12)	(12)	(114)	(114)	-	-	-	-	-	-
C - Commercial & Industrial	1,145	3,802	743	7,020	76,972	48,748	475,718	(19,298)	(150,816)	5,945	98,400	2,713	37,677
C1 - C&I New Buildings	85	119	83	671	12,454	4,666	74,802	(1,852)	(35,978)	(31)	(410)	-	-
C1a - C&I New Buildings & Major Renovations	85	119	83	671	12,454	4,666	74,802	(1,852)	(35,978)	(31)	(410)	-	-
C2 - C&I Existing Buildings	1,060	3,683	661	6,348	64,518	44,082	400,917	(17,447)	(114,838)	5,976	98,810	2,713	37,677
C2a - C&I Existing Building Retrofit	520	691	520	5,011	50,942	34,851	316,817	(16,678)	(109,957)	5,283	85,373	126	2,344
C2b - C&I New & Replacement Equipment	482	134	141	1,356	13,594	9,418	84,287	(769)	(4,881)	693	13,437	2,586	35,333
C2c - C&I Active Demand Reduction	58	2,858	-	(18)	(18)	(187)	(187)	-	-	-	-	-	-
Grand Total	20,137	9,359	928	8,826	91,048	61,432	566,181	230,620	5,189,325	71,850	1,356,586	45,056	843,660

IV.D. Cost-Effectiveness
3.2.i. Savings Summary Table
Cape Light Compact
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Program	2022 Net Savings													
	Other								Total Savings		Electric Energy, no Fuel Switching or ADR (MWh)		Avoided CO2e (Metric Tons)	
	Wood (MMBTU)		Motor Gasoline (MMBTU)		Motor Diesel (MMBTU)		Water (Gallons)		MMBTU		Annual	Lifetime	2025	2030
	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	2025	2030
A - Residential	-	-	574	4,456	-	-	2,845,470	37,779,224	123,014	2,377,970	6,534	112,438	9,208	8,935
A1 - Residential New Buildings	-	-	-	-	-	-	-	-	5,678	140,128	249	6,061	427	401
A1a - Residential New Homes & Renovations	-	-	-	-	-	-	-	-	5,678	140,128	249	6,061	427	401
A2 - Residential Existing Buildings	-	-	574	4,456	-	-	2,845,470	37,779,224	117,336	2,237,842	6,285	106,377	8,781	8,535
A2a - Residential Coordinated Delivery	-	-	-	-	-	-	2,328,496	33,063,728	87,562	1,718,248	4,088	78,159	4,650	4,281
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2c - Residential Retail	-	-	574	4,456	-	-	516,974	4,715,496	29,848	519,668	2,205	28,226	4,131	4,253
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	-	-	-	-	-	-	-	-	(73)	(73)	(8)	(8)	-	-
B - Income Eligible	-	-	-	-	-	-	1,242,020	14,904,240	27,829	373,933	3,125	42,513	1,109	903
B1 - Income Eligible Existing Buildings	-	-	-	-	-	-	1,242,020	14,904,240	27,829	373,933	3,125	42,513	1,109	903
B1a - Income Eligible Coordinated Delivery	-	-	-	-	-	-	1,242,020	14,904,240	27,873	373,978	3,130	42,517	1,109	903
B1b - Income Eligible Active Demand Reduction	-	-	-	-	-	-	-	-	(44)	(44)	(5)	(5)	-	-
C - Commercial & Industrial	-	-	2,208	8,210	-	-	193,090	1,818,521	50,821	515,278	6,831	69,529	2,226	991
C1 - C&I New Buildings	-	-	-	-	-	-	-	-	2,851	43,388	424	7,492	81	37
C1a - C&I New Buildings & Major Renovations	-	-	-	-	-	-	-	-	2,851	43,388	424	7,492	81	37
C2 - C&I Existing Buildings	-	-	2,208	8,210	-	-	193,090	1,818,521	47,971	471,890	6,407	62,038	2,145	954
C2a - C&I Existing Building Retrofit	-	-	-	-	-	-	154,978	1,513,626	36,413	356,607	4,790	46,202	1,360	674
C2b - C&I New & Replacement Equipment	-	-	2,208	8,210	-	-	38,112	304,896	11,683	115,409	1,630	15,849	785	279
C2c - C&I Active Demand Reduction	-	-	-	-	-	-	-	-	(125)	(125)	(13)	(13)	-	-
Grand Total	-	-	2,781	12,665	-	-	4,280,580	54,501,986	201,664	3,267,182	16,490	224,480	12,543	10,829

Program	2023 Net Savings													
	Other								Total Savings		Electric Energy, no Fuel Switching or ADR (MWh)		Avoided CO2e (Metric Tons)	
	Wood (MMBTU)		Motor Gasoline (MMBTU)		Motor Diesel (MMBTU)		Water (Gallons)		MMBTU		Annual	Lifetime	2025	2030
	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	2025	2030
A - Residential	-	-	574	4,456	-	-	2,844,616	37,766,418	122,571	2,390,709	6,151	104,211	9,733	9,625
A1 - Residential New Buildings	-	-	-	-	-	-	-	-	6,490	162,963	292	7,085	456	436
A1a - Residential New Homes & Renovations	-	-	-	-	-	-	-	-	6,490	162,963	292	7,085	456	436
A2 - Residential Existing Buildings	-	-	574	4,456	-	-	2,844,616	37,766,418	116,081	2,227,746	5,859	97,126	9,276	9,189
A2a - Residential Coordinated Delivery	-	-	-	-	-	-	2,328,496	33,063,728	84,201	1,654,467	3,705	69,646	4,512	4,167
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2c - Residential Retail	-	-	574	4,456	-	-	516,121	4,702,690	32,025	573,423	2,170	27,496	4,764	5,022
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	-	-	-	-	-	-	-	-	(144)	(144)	(16)	(16)	-	-
B - Income Eligible	-	-	-	-	-	-	1,242,020	14,904,240	23,353	297,936	2,616	32,089	978	752
B1 - Income Eligible Existing Buildings	-	-	-	-	-	-	1,242,020	14,904,240	23,353	297,936	2,616	32,089	978	752
B1a - Income Eligible Coordinated Delivery	-	-	-	-	-	-	1,242,020	14,904,240	23,467	298,051	2,628	32,102	978	752
B1b - Income Eligible Active Demand Reduction	-	-	-	-	-	-	-	-	(114)	(114)	(12)	(12)	-	-
C - Commercial & Industrial	-	-	2,208	8,210	-	-	224,155	2,111,561	55,475	596,714	6,832	72,928	2,517	1,233
C1 - C&I New Buildings	-	-	-	-	-	-	-	-	4,450	70,794	671	12,454	122	60
C1a - C&I New Buildings & Major Renovations	-	-	-	-	-	-	-	-	4,450	70,794	671	12,454	122	60
C2 - C&I Existing Buildings	-	-	2,208	8,210	-	-	224,155	2,111,561	51,026	525,920	6,161	60,473	2,394	1,173
C2a - C&I Existing Building Retrofit	-	-	-	-	-	-	183,262	1,784,421	38,593	393,538	4,439	42,360	1,465	763
C2b - C&I New & Replacement Equipment	-	-	2,208	8,210	-	-	40,892	327,140	12,620	132,569	1,741	18,132	929	410
C2c - C&I Active Demand Reduction	-	-	-	-	-	-	-	-	(187)	(187)	(18)	(18)	-	-
Grand Total	-	-	2,781	12,665	-	-	4,310,791	54,782,219	201,400	3,285,359	15,599	209,228	13,228	11,609

IV.D. Cost-Effectiveness
3.2.i. Savings Summary Table
Cape Light Compact
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Program	# of Participants	2024 Net Savings											
		Electric				Natural Gas		Deliverable Fuels					
		Annual Capacity (kW)		Electric Energy (MWh)		Electric Energy (Source MMBTU)		(Therms)		Oil (MMBTU)		Propane (MMBTU)	
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
A - Residential	17,679	4,631	(523)	(2,225)	(47,239)	(14,037)	(269,903)	250,032	5,341,623	67,766	1,290,868	43,007	819,953
A1 - Residential New Buildings	303	15	(15)	(23)	(399)	(142)	(2,131)	-	-	(349)	(5,325)	6,242	154,812
A1a - Residential New Homes & Renovations	303	15	(15)	(23)	(399)	(142)	(2,131)	-	-	(349)	(5,325)	6,242	154,812
A2 - Residential Existing Buildings	17,376	4,617	(508)	(2,202)	(46,841)	(13,896)	(267,773)	250,032	5,341,623	68,115	1,296,194	36,764	665,141
A2a - Residential Coordinated Delivery	6,079	305	729	3,320	61,176	21,433	355,888	250,524	5,348,019	27,749	583,695	5,512	116,460
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-	-	-	-	-	-
A2c - Residential Retail	8,485	333	(1,238)	(5,502)	(107,997)	(35,175)	(623,507)	(492)	(6,396)	40,367	712,499	31,253	548,681
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	2,812	3,979	-	(20)	(20)	(154)	(154)	-	-	-	-	-	-
B - Income Eligible	1,535	1,243	381	1,929	18,305	12,478	109,627	(190)	(2,470)	3,822	73,785	2,214	39,289
B1 - Income Eligible Existing Buildings	1,535	1,243	381	1,929	18,305	12,478	109,627	(190)	(2,470)	3,822	73,785	2,214	39,289
B1a - Income Eligible Coordinated Delivery	1,350	224	381	1,944	18,319	12,594	109,742	(190)	(2,470)	3,822	73,785	2,214	39,289
B1b - Income Eligible Active Demand Reduction	185	1,019	-	(15)	(15)	(115)	(115)	-	-	-	-	-	-
C - Commercial & Industrial	1,176	4,808	674	7,559	89,788	49,271	543,488	(7,891)	17,607	6,386	103,862	2,960	41,967
C1 - C&I New Buildings	85	143	101	820	15,443	5,351	91,593	(2,369)	(46,340)	(30)	(397)	-	-
C1a - C&I New Buildings & Major Renovations	85	143	101	820	15,443	5,351	91,593	(2,369)	(46,340)	(30)	(397)	-	-
C2 - C&I Existing Buildings	1,091	4,665	573	6,739	74,346	43,920	451,895	(5,522)	63,947	6,417	104,259	2,960	41,967
C2a - C&I Existing Building Retrofit	545	792	459	5,565	61,359	36,328	373,068	(4,952)	67,346	5,548	88,216	136	2,579
C2b - C&I New & Replacement Equipment	477	111	114	1,201	13,014	7,820	79,055	(571)	(3,399)	868	16,043	2,825	39,388
C2c - C&I Active Demand Reduction	69	3,762	-	(28)	(28)	(228)	(228)	-	-	-	-	-	-
Grand Total	20,389	10,683	532	7,263	60,854	47,712	383,212	241,951	5,356,760	77,974	1,468,516	48,181	901,209

Program	# of Participants	2022-2024 Net Savings											
		Electric				Natural Gas		Deliverable Fuels					
		Annual Capacity (kW)		Electric Energy (MWh)		Electric Energy (Source MMBTU)		(Therms)		Oil (MMBTU)		Propane (MMBTU)	
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
A - Residential	47,670	6,719	(557)	(1,501)	(42,636)	(8,582)	(233,256)	750,220	16,026,468	184,976	3,545,724	116,205	2,228,943
A1 - Residential New Buildings	1,066	57	88	388	9,662	2,723	56,815	-	-	(1,587)	(27,323)	16,782	420,956
A1a - Residential New Homes & Renovations	1,066	57	88	388	9,662	2,723	56,815	-	-	(1,587)	(27,323)	16,782	420,956
A2 - Residential Existing Buildings	46,604	6,662	(646)	(1,888)	(52,298)	(11,305)	(290,070)	750,220	16,026,468	186,563	3,573,047	99,423	1,807,987
A2a - Residential Coordinated Delivery	18,337	1,572	2,120	10,505	198,231	71,542	1,168,183	751,573	16,044,057	85,949	1,799,735	18,860	391,236
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-	-	-	-	-	-
A2c - Residential Retail	25,455	1,111	(2,765)	(12,385)	(250,521)	(82,773)	(1,458,180)	(1,353)	(17,589)	100,614	1,773,312	80,563	1,416,751
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	2,812	3,979	-	(8)	(8)	(73)	(73)	-	-	-	-	-	-
B - Income Eligible	4,385	2,604	992	6,610	76,420	45,170	460,702	(455)	(5,915)	14,404	261,320	10,377	173,123
B1 - Income Eligible Existing Buildings	4,385	2,604	992	6,610	76,420	45,170	460,702	(455)	(5,915)	14,404	261,320	10,377	173,123
B1a - Income Eligible Coordinated Delivery	4,200	1,585	992	6,615	76,425	45,214	460,746	(455)	(5,915)	14,404	261,320	10,377	173,123
B1b - Income Eligible Active Demand Reduction	185	1,019	-	(5)	(5)	(44)	(44)	-	-	-	-	-	-
C - Commercial & Industrial	3,330	6,599	2,180	21,007	230,929	143,327	1,425,667	(47,353)	(295,121)	17,893	295,709	8,055	111,622
C1 - C&I New Buildings	255	343	236	1,915	35,389	13,000	212,091	(5,214)	(101,105)	(94)	(1,237)	-	-
C1a - C&I New Buildings & Major Renovations	255	343	236	1,915	35,389	13,000	212,091	(5,214)	(101,105)	(94)	(1,237)	-	-
C2 - C&I Existing Buildings	3,075	6,256	1,943	19,093	195,541	130,328	1,213,575	(42,139)	(194,016)	17,987	296,945	8,055	111,622
C2a - C&I Existing Building Retrofit	1,560	2,118	1,544	15,268	157,033	104,211	974,880	(39,815)	(178,932)	15,913	256,723	379	7,031
C2b - C&I New & Replacement Equipment	1,446	376	399	3,838	38,520	26,242	238,820	(2,324)	(15,085)	2,074	40,222	7,676	104,591
C2c - C&I Active Demand Reduction	69	3,762	-	(13)	(13)	(125)	(125)	-	-	-	-	-	-
Grand Total	55,384	15,922	2,615	26,116	264,713	179,915	1,653,113	702,412	15,725,432	217,274	4,102,753	134,637	2,513,688

IV.D. Cost-Effectiveness
3.2.i. Savings Summary Table
Cape Light Compact
November 1, 2021

Program	2024 Net Savings													
	Other								Total Savings		Electric Energy, no Fuel Switching or ADR (MWh)		Avoided CO2e (Metric Tons)	
	Wood (MMBTU)		Motor Gasoline (MMBTU)		Motor Diesel (MMBTU)		Water (Gallons)		MMBTU					
	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	2025	2030
A - Residential	-	-	574	4,456	-	-	2,844,616	37,766,418	121,739	2,375,080	5,596	91,892	10,377	10,472
A1 - Residential New Buildings	-	-	-	-	-	-	-	-	5,751	147,356	190	4,618	451	449
A1a - Residential New Homes & Renovations	-	-	-	-	-	-	-	-	5,751	147,356	190	4,618	451	449
A2 - Residential Existing Buildings	-	-	574	4,456	-	-	2,844,616	37,766,418	115,987	2,227,724	5,406	87,273	9,926	10,023
A2a - Residential Coordinated Delivery	-	-	-	-	-	-	2,328,496	33,063,728	79,746	1,590,845	3,350	61,635	4,351	4,022
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2c - Residential Retail	-	-	574	4,456	-	-	516,121	4,702,690	36,395	637,033	2,075	25,658	5,577	6,001
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	-	-	-	-	-	-	-	-	(154)	(154)	(20)	(20)	(2)	-
B - Income Eligible	-	-	-	-	-	-	1,242,020	14,904,240	18,495	222,454	2,151	21,969	810	575
B1 - Income Eligible Existing Buildings	-	-	-	-	-	-	1,242,020	14,904,240	18,495	222,454	2,151	21,969	810	575
B1a - Income Eligible Coordinated Delivery	-	-	-	-	-	-	1,242,020	14,904,240	18,610	222,569	2,165	21,984	812	575
B1b - Income Eligible Active Demand Reduction	-	-	-	-	-	-	-	-	(115)	(115)	(15)	(15)	(1)	-
C - Commercial & Industrial	-	-	2,208	8,210	-	-	250,088	2,353,276	57,829	691,079	6,333	70,220	2,803	1,497
C1 - C&I New Buildings	-	-	-	-	-	-	-	-	5,084	86,562	820	15,443	154	73
C1a - C&I New Buildings & Major Renovations	-	-	-	-	-	-	-	-	5,084	86,562	820	15,443	154	73
C2 - C&I Existing Buildings	-	-	2,208	8,210	-	-	250,088	2,353,276	52,745	604,516	5,513	54,777	2,649	1,424
C2a - C&I Existing Building Retrofit	-	-	-	-	-	-	206,415	2,003,892	41,517	470,597	3,924	36,749	1,659	944
C2b - C&I New & Replacement Equipment	-	-	2,208	8,210	-	-	43,673	349,384	11,456	134,147	1,616	18,056	993	480
C2c - C&I Active Demand Reduction	-	-	-	-	-	-	-	-	(228)	(228)	(28)	(28)	(3)	-
Grand Total	-	-	2,781	12,665	-	-	4,336,724	55,023,934	198,062	3,288,613	14,079	184,080	13,991	12,544

Program	2022-2024 Net Savings													
	Other								Total Savings		Electric Energy, no Fuel Switching or ADR (MWh)		Avoided CO2e (Metric Tons)	
	Wood (MMBTU)		Motor Gasoline (MMBTU)		Motor Diesel (MMBTU)		Water (Gallons)		MMBTU					
	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	2025	2030
A - Residential	-	-	1,721	13,367	-	-	8,534,703	113,312,061	367,622	7,144,058	18,316	308,577	29,319	29,032
A1 - Residential New Buildings	-	-	-	-	-	-	-	-	17,919	450,448	731	17,765	1,334	1,286
A1a - Residential New Homes & Renovations	-	-	-	-	-	-	-	-	17,919	450,448	731	17,765	1,334	1,286
A2 - Residential Existing Buildings	-	-	1,721	13,367	-	-	8,534,703	113,312,061	349,703	6,693,610	17,585	290,812	27,985	27,746
A2a - Residential Coordinated Delivery	-	-	-	-	-	-	6,985,487	99,191,185	251,509	4,963,560	11,143	209,440	13,512	12,470
A2b - Residential Conservation Services (RCS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2c - Residential Retail	-	-	1,721	13,367	-	-	1,549,216	14,120,876	98,268	1,730,123	6,450	81,380	14,473	15,276
A2d - Residential Behavior	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2e - Residential Active Demand Reduction	-	-	-	-	-	-	-	-	(73)	(73)	(8)	(8)	-	-
B - Income Eligible	-	-	-	-	-	-	3,726,060	44,712,720	69,906	894,553	7,919	96,598	2,899	2,230
B1 - Income Eligible Existing Buildings	-	-	-	-	-	-	3,726,060	44,712,720	69,906	894,553	7,919	96,598	2,899	2,230
B1a - Income Eligible Coordinated Delivery	-	-	-	-	-	-	3,726,060	44,712,720	69,950	894,597	7,924	96,603	2,899	2,230
B1b - Income Eligible Active Demand Reduction	-	-	-	-	-	-	-	-	(44)	(44)	(5)	(5)	-	-
C - Commercial & Industrial	-	-	6,623	24,629	-	-	667,332	6,283,358	164,540	1,803,485	20,042	212,722	7,549	3,721
C1 - C&I New Buildings	-	-	-	-	-	-	-	-	12,384	200,744	1,915	35,389	357	170
C1a - C&I New Buildings & Major Renovations	-	-	-	-	-	-	-	-	12,384	200,744	1,915	35,389	357	170
C2 - C&I Existing Buildings	-	-	6,623	24,629	-	-	667,332	6,283,358	152,156	1,602,741	18,127	177,334	7,192	3,551
C2a - C&I Existing Building Retrofit	-	-	-	-	-	-	544,655	5,301,938	116,522	1,220,742	13,153	125,310	4,485	2,381
C2b - C&I New & Replacement Equipment	-	-	6,623	24,629	-	-	122,677	981,419	35,759	382,124	4,987	52,037	2,707	1,169
C2c - C&I Active Demand Reduction	-	-	-	-	-	-	-	-	(125)	(125)	(13)	(13)	-	-
Grand Total	-	-	8,344	37,995	-	-	12,928,095	164,308,138	602,068	9,842,096	46,277	617,897	39,767	34,982

IV.D Cost-Effectiveness

3.1.iii. Benefits Historical Comparison

Cape Light Compact

November 1, 2021

2019-2024 Net Savings													
Sector	# of Participants	Electric						Natural Gas		Deliverable Fuels			
		Annual Capacity (kW)		Electric Energy (MWh)		Electric Energy (MMBTU)		(Therms)		Oil (MMBTU)		Propane (MMBTU)	
		Summer	Winter	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
A - Residential													
2019 Evaluated	284,687	3,714	5,022	24,892	152,794	181,161	1,039,504	116,076	4,612,976	28,868	672,821	10,076	221,642
2020 Evaluated	197,173	2,306	3,104	14,367	84,067	104,686	563,375	126,403	3,976,008	35,158	726,621	16,157	311,527
2021 Planned	168,200	2,340	3,464	15,546	66,054	112,301	436,798	203,213	4,845,655	45,686	897,031	18,291	368,676
2022 Planned	17,077	3,545	107	1,035	15,472	7,367	96,237	250,114	5,342,689	56,187	1,084,805	34,449	662,659
2023 Planned	17,411	4,184	(142)	(346)	(10,904)	(2,209)	(59,888)	250,073	5,342,156	61,023	1,170,050	38,750	746,331
2024 Planned	17,679	4,631	(523)	(2,225)	(47,239)	(14,037)	(269,903)	250,032	5,341,623	67,766	1,290,868	43,007	819,953
B - Income Eligible													
2019 Evaluated	2,270	299	350	2,075	15,200	15,135	105,236	-	-	2,460	48,005	494	9,510
2020 Evaluated	1,717	168	193	1,112	5,773	8,107	39,822	-	-	1,621	31,679	331	6,587
2021 Planned	1,450	236	390	2,056	18,144	14,884	120,604	-	-	4,512	84,607	930	15,756
2022 Planned	1,577	1,192	285	2,501	33,108	17,568	200,496	(110)	(1,430)	5,701	99,399	4,570	74,182
2023 Planned	1,581	1,373	326	2,152	24,980	14,893	150,350	(155)	(2,015)	4,881	88,136	3,594	59,652
2024 Planned	1,535	1,243	381	1,929	18,305	12,478	109,627	(190)	(2,470)	3,822	73,785	2,214	39,289
C - Commercial & Industrial													
2019 Evaluated	1,357	2,152	2,019	11,669	132,875	82,659	879,506	(34,709)	(377,839)	(2,052)	(22,765)	53	474
2020 Evaluated	1,135	3,152	3,047	21,178	270,382	155,093	1,818,586	(743,798)	(11,019,917)	(1,851)	(17,854)	24	290
2021 Planned	2,039	2,854	2,496	17,087	196,715	124,576	1,316,050	(63,580)	(655,101)	(4,763)	(51,450)	35	778
2022 Planned	1,119	3,152	762	6,383	64,123	44,894	406,045	(20,164)	(161,912)	5,562	93,446	2,382	31,978
2023 Planned	1,145	3,802	743	7,020	76,972	48,748	475,718	(19,298)	(150,816)	5,945	98,400	2,713	37,677
2024 Planned	1,176	4,808	674	7,559	89,788	49,271	543,488	(7,891)	17,607	6,386	103,862	2,960	41,967
Grand Total													
2019 Evaluated	288,314	6,165	7,391	38,636	300,870	278,955	2,024,246	81,367	4,235,137	29,275	698,061	10,623	231,626
2020 Evaluated	200,025	5,627	6,344	36,657	360,222	267,886	2,421,784	(617,395)	(7,043,909)	34,928	740,446	16,513	318,403
2021 Planned	171,689	5,430	6,350	34,689	280,914	251,761	1,873,453	139,633	4,190,554	45,435	930,188	19,256	385,211
2022 Planned	19,773	7,888	1,155	9,919	112,703	69,829	702,778	229,841	5,179,347	67,451	1,277,650	41,401	768,819
2023 Planned	20,137	9,359	928	8,826	91,048	61,432	566,181	230,620	5,189,325	71,850	1,356,586	45,056	843,660
2024 Planned	20,389	10,683	532	7,263	60,854	47,712	383,212	241,951	5,356,760	77,974	1,468,516	48,181	901,209

Notes:

2019 values are from the Program Administrator's 2019 Plan Year Report D.P.U. 20-50.

2020 values are from the Program Administrator's 2020 Plan Year Report D.P.U. 21-70.

2021 values are from the Program Administrator's 2019-2021 Three-Year Plan, D.P.U. 18-116.

For supporting information on the 2022-2024 values, see Table IV.D.3.2.i.

The Program Administrators have developed new participant definitions through the common assumptions working group for this Three-Year Plan. Historical participant numbers may not be comparable.

IV.D Cost-Effectiveness

3.1.iii. Benefits Historical Comparison

Cape Light Compact
November 1, 2021

Sector	2019-2024 Net Savings									
	Other								Total Savings	
	Wood (MMBTU)		Motor Gasoline (MMBTU)		Motor Diesel (MMBTU)		Water (Gallons)		MMBTU	
	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime
A - Residential										
2019 Evaluated	-	-					3,876,723	27,863,522	231,711	2,395,264
2020 Evaluated	-	-					3,043,019	40,195,076	168,641	1,999,124
2021 Planned	-	-					2,701,602	19,586,572	196,599	2,187,071
2022 Planned	-	-	574	4,456	-	-	2,845,470	37,779,224	123,014	2,377,970
2023 Planned	-	-	574	4,456	-	-	2,844,616	37,766,418	122,571	2,390,709
2024 Planned	-	-	574	4,456	-	-	2,844,616	37,766,418	121,739	2,375,080
B - Income Eligible										
2019 Evaluated	-	-					1,328,006	15,936,072	18,089	162,751
2020 Evaluated	-	-					460,448	5,646,747	10,059	78,088
2021 Planned	-	-					-	-	20,326	220,967
2022 Planned	-	-	-	-	-	-	1,242,020	14,904,240	27,829	373,933
2023 Planned	-	-	-	-	-	-	1,242,020	14,904,240	23,353	297,936
2024 Planned	-	-	-	-	-	-	1,242,020	14,904,240	18,495	222,454
C - Commercial & Industrial										
2019 Evaluated	-	-					1,413,457	11,794,732	77,189	819,431
2020 Evaluated	-	-					476,315	4,837,725	78,887	699,031
2021 Planned	-	-					262,875	2,205,561	113,489	1,199,869
2022 Planned	-	-	2,208	8,210	-	-	193,090	1,818,521	50,821	515,278
2023 Planned	-	-	2,208	8,210	-	-	224,155	2,111,561	55,475	596,714
2024 Planned	-	-	2,208	8,210	-	-	250,088	2,353,276	57,829	691,079
Grand Total										
2019 Evaluated	-	-	-	-	-	-	6,618,186	55,594,326	326,989	3,377,446
2020 Evaluated	-	-	-	-	-	-	3,979,782	50,679,549	257,587	2,776,242
2021 Planned	-	-	-	-	-	-	2,964,476	21,792,133	330,415	3,607,907
2022 Planned	-	-	2,781	12,665	-	-	4,280,580	54,501,986	201,664	3,267,182
2023 Planned	-	-	2,781	12,665	-	-	4,310,791	54,782,219	201,400	3,285,359
2024 Planned	-	-	2,781	12,665	-	-	4,336,724	55,023,934	198,062	3,288,613

Notes:

2019 values are from the Program Administrator's 2019 Plan Year Report D.P.U. 20-50.

2020 values are from the Program Administrator's 2020 Plan Year Report D.P.U. 21-70.

2021 values are from the Program Administrator's 2019-2021 Three-Year Plan, D.P.U. 18-116.

For supporting information on the 2022-2024 values, see Table IV.D.3.2.i.

The Program Administrators have developed new participant definitions through the common assumptions working group for this Three-Year Plan. Historical participant numbers may not be comparable.

IV.H. Performance Incentive

1. Summary Table

Cape Light Compact

November 1, 2021

2022 Performance Incentives					
Sector	Total Program Costs	Pre-Tax		After-Tax	
		Performance Incentives	% of Program Costs	Performance Incentives	% of Program Costs
A - Residential	45,771,794	-	0%	-	0%
B - Income Eligible	11,557,712	-	0%	-	0%
C - Commercial & Industrial	18,063,156	-	0%	-	0%
Grand Total	75,392,662	-	0%	-	0%

2023 Performance Incentives					
Sector	Total Program Costs	Pre-Tax		After-Tax	
		Performance Incentives	% of Program Costs	Performance Incentives	% of Program Costs
A - Residential	46,065,191	-	0%	-	0%
B - Income Eligible	10,638,765	-	0%	-	0%
C - Commercial & Industrial	19,363,486	-	0%	-	0%
Grand Total	76,067,442	-	0%	-	0%

2024 Performance Incentives					
Sector	Total Program Costs	Pre-Tax		After-Tax	
		Performance Incentives	% of Program Costs	Performance Incentives	% of Program Costs
A - Residential	52,467,982	-	0%	-	0%
B - Income Eligible	8,659,429	-	0%	-	0%
C - Commercial & Industrial	19,161,940	-	0%	-	0%
Grand Total	80,289,351	-	0%	-	0%

2022-2024 Performance Incentives					
Sector	Total Program Costs	Pre-Tax		After-Tax	
		Performance Incentives	% of Program Costs	Performance Incentives	% of Program Costs
A - Residential	144,304,967	-	0%	-	0%
B - Income Eligible	30,855,906	-	0%	-	0%
C - Commercial & Industrial	56,588,582	-	0%	-	0%
Grand Total	231,749,455	-	0%	-	0%

Notes:

Performance Incentives for each year are represented in nominal dollars (2022\$, 2023\$, 2024\$).

For supporting information on the Performance Incentive, refer to the Performance Incentive Model.

Performance Incentives are not applicable to the Cape Light Compact.

V.B. Allocation of Funds

1. Low-Income Minimum

Cape Light Compact

November 1, 2021

2022 Sector Cost Allocation		
Sector	Program Budget	
	(\$)	(% of Total)
A - Residential	45,771,794	60.7%
B - Income Eligible	11,557,712	15.3%
C - Commercial & Industrial	18,063,156	24.0%
Grand Total	75,392,662	100%

2023 Sector Cost Allocation		
Sector	Program Budget	
	(\$)	(% of Total)
A - Residential	46,065,191	60.6%
B - Income Eligible	10,638,765	14.0%
C - Commercial & Industrial	19,363,486	25.5%
Grand Total	76,067,442	100%

2024 Sector Cost Allocation		
Sector	Program Budget	
	(\$)	(% of Total)
A - Residential	52,467,982	65.3%
B - Income Eligible	8,659,429	10.8%
C - Commercial & Industrial	19,161,940	23.9%
Grand Total	80,289,351	100%

2022-2024 Sector Cost Allocation		
Sector	Program Budget	
	(\$)	(% of Total)
A - Residential	144,304,967	62.3%
B - Income Eligible	30,855,906	13.3%
C - Commercial & Industrial	56,588,582	24.4%
Grand Total	231,749,455	100%

Notes:

General Laws c. 25, § 19(c) requires that at least 10 percent of the amount expended for electric energy efficiency programs and at least 20 percent of the amount expended for gas energy efficiency programs be spent on low-income programs.

V.D. Outsourced/Competitively Procured Services

1. Summary Table

Cape Light Compact
November 1, 2021

2022-2024 Competitively Procured Services										
Sector	Competitively Procured Services Costs (\$)					Competitively Procured Services Costs as a Percent of Total Sector Costs (%)				
	Total Cost of Services	In-House Activities	Outsourced Activities			Total Cost of Services	In-House Activities	Outsourced Activities		
			Total Outsourced	Competitively Procured	Non-Competitively Procured			Total Outsourced	Competitively Procured	Non-Competitively Procured
2022	18,816,433	3,477,049	15,339,384	14,562,765	776,620	100%	18%	82%	77%	4%
A - Residential	11,393,895	2,005,262	9,388,634	8,865,849	522,785	100%	18%	82%	78%	5%
B - Income Eligible	2,400,239	208,113	2,192,126	2,117,775	74,351	100%	9%	91%	88%	3%
C - Commercial & Industrial	5,022,299	1,263,674	3,758,625	3,579,142	179,483	100%	25%	75%	71%	4%
2023	19,110,207	3,411,734	15,698,473	14,890,904	807,570	100%	18%	82%	78%	4%
A - Residential	11,446,232	1,944,351	9,501,881	8,964,534	537,347	100%	17%	83%	78%	5%
B - Income Eligible	2,607,562	201,946	2,405,616	2,326,816	78,800	100%	8%	92%	89%	3%
C - Commercial & Industrial	5,056,413	1,265,437	3,790,976	3,599,554	191,422	100%	25%	75%	71%	4%
2024	18,218,693	3,575,547	14,643,146	13,833,577	809,570	100%	20%	80%	76%	4%
A - Residential	11,767,617	2,103,866	9,663,752	9,099,402	564,349	100%	18%	82%	77%	5%
B - Income Eligible	2,193,106	200,981	1,992,125	1,917,216	74,909	100%	9%	91%	87%	3%
C - Commercial & Industrial	4,257,970	1,270,701	2,987,269	2,816,959	170,311	100%	30%	70%	66%	4%
Grand Total	56,145,334	10,464,330	45,681,004	43,287,246	2,393,759	100%	19%	81%	77%	4%
A - Residential	34,607,745	6,053,479	28,554,266	26,929,784	1,624,482	100%	17%	83%	78%	5%
B - Income Eligible	7,200,907	611,039	6,589,867	6,361,807	228,061	100%	8%	92%	88%	3%
C - Commercial & Industrial	14,336,682	3,799,812	10,536,871	9,995,655	541,216	100%	27%	73%	70%	4%

Notes:

General Laws c. 25, § 19(a) and (b) requires the Department to ensure that energy efficiency programs use competitive procurement processes to the fullest extent practicable.
Costs for the Competitively Procured Services analysis include Program Planning and Administration; Marketing and Advertising; Sales, Technical Assistance & Training; and Evaluation and Market Research.
Costs for each year in 2016-2018 are represented in nominal dollars (2016\$, 2017\$, 2018\$).

V.D. Outsourced/Competitively Procured Services

3. Historical Comparison

Cape Light Compact
November 1, 2021

2019-2024 Competitively Procured Services										
Sector	Competitively Procured Services Costs (\$)					Competitively Procured Services Costs as a Percent of Total Sector Costs (%)				
	Total Cost of Services	In-House Activities	Outsourced Activities			Total Cost of Services	In-House Activities	Outsourced Activities		
			Total Outsourced	Competitively Procured	Non-Competitively Procured			Total Outsourced	Competitively Procured	Non-Competitively Procured
A - Residential	57,048,061	9,840,963	47,207,099	44,325,423	2,881,675	100%	17%	83%	78%	5%
2019	7,158,121	1,236,591	5,921,530	5,491,216	430,313	100%	17%	83%	77%	6%
2020	7,503,995	1,254,017	6,249,978	5,830,881	419,097	100%	17%	83%	78%	6%
2021	7,778,201	1,296,876	6,481,325	6,073,541	407,784	100%	17%	83%	78%	5%
2022	11,393,895	2,005,262	9,388,634	8,865,849	522,785	100%	18%	82%	78%	5%
2023	11,446,232	1,944,351	9,501,881	8,964,534	537,347	100%	17%	83%	78%	5%
2024	11,767,617	2,103,866	9,663,752	9,099,402	564,349	100%	18%	82%	77%	5%
B - Income Eligible	10,778,786	1,129,885	9,648,901	9,257,772	391,129	100%	10%	90%	86%	4%
2019	1,087,773	151,893	935,880	884,796	51,083	100%	14%	86%	81%	5%
2020	1,174,893	169,479	1,005,414	951,798	53,616	100%	14%	86%	81%	5%
2021	1,315,213	197,472	1,117,741	1,059,371	58,370	100%	15%	85%	81%	4%
2022	2,400,239	208,113	2,192,126	2,117,775	74,351	100%	9%	91%	88%	3%
2023	2,607,562	201,946	2,405,616	2,326,816	78,800	100%	8%	92%	89%	3%
2024	2,193,106	200,981	1,992,125	1,917,216	74,909	100%	9%	91%	87%	3%
C - Commercial & Industrial	25,590,108	7,129,669	18,460,439	17,199,536	1,260,903	100%	28%	72%	67%	5%
2019	3,417,896	1,006,275	2,411,622	2,193,035	218,586	100%	29%	71%	64%	6%
2020	3,787,856	1,115,154	2,672,702	2,425,432	247,270	100%	29%	71%	64%	7%
2021	4,047,673	1,208,429	2,839,244	2,585,414	253,830	100%	30%	70%	64%	6%
2022	5,022,299	1,263,674	3,758,625	3,579,142	179,483	100%	25%	75%	71%	4%
2023	5,056,413	1,265,437	3,790,976	3,599,554	191,422	100%	25%	75%	71%	4%
2024	4,257,970	1,270,701	2,987,269	2,816,959	170,311	100%	30%	70%	66%	4%
Grand Total	93,416,956	18,100,517	75,316,439	70,782,731	4,533,708	100%	19%	81%	76%	5%
2019	11,663,791	2,394,760	9,269,031	8,569,048	699,983	100%	21%	79%	73%	6%
2020	12,466,744	2,538,650	9,928,094	9,208,111	719,983	100%	20%	80%	74%	6%
2021	13,141,087	2,702,777	10,438,310	9,718,327	719,983	100%	21%	79%	74%	5%
2022	18,816,433	3,477,049	15,339,384	14,562,765	776,620	100%	18%	82%	77%	4%
2023	19,110,207	3,411,734	15,698,473	14,890,904	807,570	100%	18%	82%	78%	4%
2024	18,218,693	3,575,547	14,643,146	13,833,577	809,570	100%	20%	80%	76%	4%

Notes:

General Laws c. 25, § 19(a) and (b) requires the Department to ensure that energy efficiency programs use competitive procurement processes to the fullest extent practicable. Costs for the Competitively Procured Services analysis include Program Planning and Administration; Marketing and Advertising; Sales, Technical Assistance & Training; and Evaluation and Market Research. The 2019-2021 costs are from the Program Administrator's 2019-2021 Three-Year Plan, D.P.U. 18-116, in nominal dollars (2019\$, 2020\$, 2021\$). For supporting information on the 2022-2024 values, see Table V.D.1. Costs for each year are represented in nominal dollars (2022\$, 2023\$, 2024\$).

VII. Appendix
B.2. Summary of Activities
Cape Light Compact
November 1, 2021

2022-2024 Summary								
Sector	Net Annual Savings							
	Summer Capacity (kW)	Electric Energy (MWh)	Natural Gas (Therms)	Oil (MMBTU)	Propane (MMBTU)	Wood (MMBTU)	Water (Gallons)	Total Savings (MMBTU)
2022	7,888	9,919	229,841	67,451	41,401	-	4,280,580	201,664
A - Residential	3,545	1,035	250,114	56,187	34,449	-	2,845,470	123,014
B - Income Eligible	1,192	2,501	(110)	5,701	4,570	-	1,242,020	27,829
C - Commercial & Industrial	3,152	6,383	(20,164)	5,562	2,382	-	193,090	50,821
2023	9,359	8,826	230,620	71,850	45,056	-	4,310,791	201,400
A - Residential	4,184	(346)	250,073	61,023	38,750	-	2,844,616	122,571
B - Income Eligible	1,373	2,152	(155)	4,881	3,594	-	1,242,020	23,353
C - Commercial & Industrial	3,802	7,020	(19,298)	5,945	2,713	-	224,155	55,475
2024	10,683	7,263	241,951	77,974	48,181	-	4,336,724	198,062
A - Residential	4,631	(2,225)	250,032	67,766	43,007	-	2,844,616	121,739
B - Income Eligible	1,243	1,929	(190)	3,822	2,214	-	1,242,020	18,495
C - Commercial & Industrial	4,808	7,559	(7,891)	6,386	2,960	-	250,088	57,829
Grand Total	27,930	26,008	702,412	217,274	134,637	-	12,928,095	601,126
A - Residential	12,360	(1,536)	750,220	184,976	116,205	-	8,534,703	367,324
B - Income Eligible	3,808	6,582	(455)	14,404	10,377	-	3,726,060	69,676
C - Commercial & Industrial	11,762	20,961	(47,353)	17,893	8,055	-	667,332	164,125

2022-2024 Summary										
Sector	TRC Benefits (2022\$)							TRC Costs (2022\$)		
	Capacity	Electric Energy	Natural Gas	Deliverable Fuels & Other	Non-Energy Impacts	Environmental Compliance Benefits	Total Benefits	PA Budget	Participant Costs	Total TRC Test Costs
2022	24,755,918	26,358,012	17,098,151	126,808,477	22,534,677	93,943,182	217,555,234	75,392,662	7,285,230	82,677,892
A - Residential	11,336,623	3,518,934	17,626,884	108,163,049	9,968,334	69,117,011	150,613,824	45,771,794	6,191,547	51,963,340
B - Income Eligible	7,735,065	7,724,753	(4,184)	10,937,341	6,456,717	10,615,190	32,849,691	11,557,712	768,200	12,325,912
C - Commercial & Industrial	5,684,230	15,114,325	(524,549)	7,708,087	6,109,627	14,210,982	34,091,720	18,063,156	325,484	18,388,639
2023	20,737,636	21,341,996	17,186,448	137,448,956	22,461,210	95,477,718	219,176,245	74,590,549	7,077,129	81,667,678
A - Residential	9,094,854	(2,610,383)	17,683,615	119,627,206	9,953,837	70,309,716	153,749,129	45,170,809	6,036,471	51,207,281
B - Income Eligible	4,600,954	5,874,848	(5,923)	9,399,778	5,759,357	8,530,535	25,629,013	10,432,207	566,778	10,998,985
C - Commercial & Industrial	7,041,828	18,077,531	(491,244)	8,421,972	6,748,017	16,637,467	39,798,104	18,987,533	473,880	19,461,413
2024	16,903,823	14,290,822	17,792,207	148,703,020	22,523,328	96,626,360	220,213,201	77,201,890	6,354,730	83,556,620
A - Residential	6,716,050	(11,092,654)	17,745,448	132,394,129	9,818,245	70,833,165	155,581,219	50,450,369	6,002,272	56,452,641
B - Income Eligible	1,369,997	4,349,224	(7,298)	7,246,100	5,067,264	6,393,079	18,025,287	8,326,437	(277,406)	8,049,032
C - Commercial & Industrial	8,817,775	21,034,252	54,057	9,062,791	7,637,819	19,402,115	46,606,695	18,425,083	629,864	19,054,948
Grand Total	62,397,376	61,990,830	52,076,806	412,960,453	67,519,215	286,047,261	656,944,681	227,185,101	20,717,089	247,902,190
A - Residential	27,147,527	(10,184,104)	53,055,948	360,184,384	29,740,416	210,259,892	459,944,171	141,392,972	18,230,290	159,623,262
B - Income Eligible	13,706,016	17,948,825	(17,406)	27,583,219	17,283,337	25,536,805	76,503,991	30,316,357	1,057,572	31,373,929
C - Commercial & Industrial	21,543,834	54,226,108	(961,736)	25,192,850	20,495,463	50,250,564	120,496,519	55,475,772	1,429,228	56,905,000

2022-2024 Summary											
Sector	TRC Cost-Effectiveness		Cost of Saved Energy (PA Budget per annual savings unit)					Participants	Avg Measure Life (yrs.)	Avoided CO2e (Metric Tons)	
	B/C Ratio	Net Benefits	Summer Capacity (\$/kW)	Electric Energy (\$/MWh)	Natural Gas Costs (\$/Therm)	Total Savings (\$/MMBTU)	2025			2030	
2022	2.63	134,877,342	9,557	7,601	328	374	19,773	16	12,543	10,829	
A - Residential	2.90	98,650,483	12,912	44,228	183	372	17,077	19	9,208	8,935	
B - Income Eligible	2.67	20,523,779	9,699	4,621	(105,070)	415	1,577	13	1,109	903	
C - Commercial & Industrial	1.85	15,703,080	5,731	2,830	(896)	355	1,119	10	2,226	991	
2023	2.68	137,508,567	7,970	8,452	323	370	20,137	16	13,228	11,609	
A - Residential	3.00	102,541,848	10,797	(130,438)	181	369	17,411	20	9,733	9,625	
B - Income Eligible	2.33	14,630,028	7,596	4,847	(67,305)	447	1,581	13	978	752	
C - Commercial & Industrial	2.04	20,336,691	4,994	(984)	342	342	1,145	11	2,517	1,233	
2024	2.64	136,656,581	7,227	10,629	319	390	20,389	17	13,991	12,544	
A - Residential	2.76	99,128,578	10,893	(22,678)	202	414	17,679	20	10,377	10,472	
B - Income Eligible	2.24	9,976,256	6,699	4,316	(43,823)	450	1,535	12	810	575	
C - Commercial & Industrial	2.45	27,551,748	3,832	2,438	(2,335)	319	1,176	12	2,803	1,497	
Grand Total	2.65	409,042,491	8,134	8,735	323	378	60,299	16	39,761	34,982	
A - Residential	2.89	300,320,909	11,534	(36,296)	188	385	52,167	20	29,317	29,032	
B - Income Eligible	2.41	45,130,062	7,998	4,595	(72,066)	437	4,692	13	2,898	2,230	
C - Commercial & Industrial	2.11	63,591,519	4,852	2,657	(1,405)	339	3,440	11	7,546	3,721	

Calculated Fields

Formulas used in pivot tables

Cape Light Compact

November 1, 2021

Field	Formula
B/C Ratio	=Total Benefits /Total Resource Costs (First Yr\$)
Net Benefits	=Total Benefits -Total Resource Costs (First Yr\$)
Avg Measure Life	=ROUND('Total Net Lifetime Adjusted (MMBTU)'/Total Net Annual Adjusted (MMBTU)',0)
PA Budget (First Yr\$)	=Total Program Costs (First Yr\$)+Performance Incentive (First Yr\$)
Summer Cost (TRC Cost First Yr\$/Summer kW)	=Total Resource Costs (First Yr\$)/Net Summer Capacity (kW)
Energy Cost (TRC Cost First Yr\$/Annual MWh)	=Total Program Costs (First Yr\$)/Net Annual Electric Energy (MWh)
Natural Gas Costs (PA Cost First Yr\$/Annual Therm)	=PA Budget (First Yr\$)/Net Annual Natural Gas (Therms)
Summer Cost (PA Cost First Yr\$/Summer kW)	=PA Budget (First Yr\$)/Net Summer Capacity (kW)
Energy Cost (PA Cost First Yr\$/Annual MWh)	=PA Budget (First Yr\$)/Net Annual Electric Energy (MWh)
Natural Gas Costs (TRC Cost First Yr\$/Annual Therm)	=Total Program Costs (First Yr\$)/Net Annual Natural Gas (Therms)
Total Savings Cost (PA Cost First Yr\$/Annual MMBTU)	=PA Budget (First Yr\$)/Total Net Annual Adjusted (MMBTU)
Total Savings Cost (TRC Cost First Yr\$/Annual MMBTU)	=Total Resource Costs (First Yr\$)/Total Net Annual Adjusted (MMBTU)
Total PA Budget (Programs + PI + Benefit Burden)	=Total Program Costs'+Performance Incentive'+Benefit Burden'
Total PA Budget (Program + PI)	=Total Program Costs'+Performance Incentive'
Program Costs / Participant	=Total Program Costs'/Participants
Resource Benefit / Program Cost	=Total Resource Benefits'/Total Program Costs'
Resource Benefit / Participant	=Total Resource Benefits'/Participants

Notes

The above calculations are used to prepare the previous data tables.

This table is provided consistent with the Department's directives in D.P.U. 18-110 through D.P.U. 18-119, at 75 to provide a detailed list of calculated fields used in creating the pivot tables.

EXHIBIT COMPACT-5

BCR Screening Model

Provided in Excel format only

Cape Light Compact JPE
2022-2024 Residential Energy Efficiency Reconciliation Factor
\$ in Thousands

Year	EE Expenses	EE Charge Revenues	FCM, RGGI, & Other Revenues	Past Period Reconciliation with Interest	Interest on Deferral	Total EERF	Billed Distribution (GWh)	EE Reconciliation Factor (cents/kWh)	Low Income Reconciliation Factor (cents/kWh)	EE Reconciliation Factor (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K
	EEE	EEC	OR	PPRA	I		FkWh		EERFu	EERFR
2022	\$ 45,771.794	\$ (2,595.190)	\$ (3,106.263)	\$ 1,952.455	\$ 150.549	\$ 42,173.344	1,038.076	4.063	0.410	4.473
2023	\$ 46,065.191	\$ (2,570.271)	\$ (1,772.917)	\$ 0.000	\$ 114.492	\$ 41,836.495	1,028.108	4.069	0.431	4.500
2024	\$ 52,467.982	\$ (2,564.155)	\$ (1,235.544)	\$ (0.000)	\$ 130.405	\$ 48,798.689	1,025.662	4.758	0.351	5.109

Col. A: Effective years (January 1, 2022 - December 31, 2022; January 1, 2023 - December 31, 2023; January 1, 2024 - December 31, 2024).
Col. B: Consistent with the Cape Light Compact JPE's 2022-2024 Three-Year Plan (D.P.U. 21-126).
Col. C: 2022-2024 Residential Monthly Deferral, Lines 1, Cols. N.
Col. D: 2022-2024 Residential Monthly Deferral, Lines 3, Cols. N + Lines 4, Cols. N + Lines 5, Cols. N.
Col. E: 2022-2024 Residential Monthly Deferral, Lines 10, Cols. A.
Col. F: 2022-2024 Residential Monthly Deferral, Lines 9, Cols. N.
Col. G: Col. B + Col. C + Col. D + Col. E + Col. F.
Col. H: Eversource forecast of Cape Light Compact JPE sales through December 31, 2024. Residential sales only.
Col. I: Col. G / Col. H divided by 10.
Col. J: Low-income Energy Efficiency Reconciliation Factor, Cols. J.
Col. K: Col. I + Col. J.
Note that per D.P.U. 10-06, at 2-3 (June 24, 2010), lost base revenue is not applicable to the Cape Light Compact JPE.

Cape Light Compact JPE
2021 Residential Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Actual Dec-20	Col. B Actual Jan-21	Col. C Actual Feb-21	Col. D Actual Mar-21	Col. E Actual Apr-21	Col. F Actual May-21	Col. G Actual Jun-21	Col. H Actual Jul-21	Col. I Actual Aug-21	Col. J Actual Sep-21	Col. K Planned Oct-21	Col. L Planned Nov-21	Col. M Planned Dec-21	Col. N Total	
1	SBC Revenues	\$ -	\$ -	\$ (229.685)	\$ (229.685)	\$ (229.685)	\$ (229.685)	\$ (229.685)	\$ (229.685)	\$ (229.685)	\$ (229.685)	\$ (229.685)	\$ (229.685)	\$ (229.685)	\$ (459.371)	\$ (2,756.220)
2	EES Revenues	\$ -	\$ -	\$ (2,095.856)	\$ (2,095.856)	\$ (2,095.856)	\$ (2,095.856)	\$ (2,095.856)	\$ (2,095.856)	\$ (2,095.856)	\$ (2,095.856)	\$ (2,095.857)	\$ (2,095.857)	\$ (2,095.857)	\$ (4,191.714)	\$ (25,150.275)
3	FCM Revenues*	\$ -	\$ -	\$ (255.617)	\$ (256.593)	\$ (255.084)	\$ (250.865)	\$ (253.731)	\$ (260.318)	\$ (261.450)	\$ (265.552)	\$ (253.559)	\$ (253.559)	\$ (253.559)	\$ (507.118)	\$ (3,073.447)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (2,581.157)	\$ (2,582.134)	\$ (2,580.625)	\$ (2,576.406)	\$ (2,579.272)	\$ (2,585.859)	\$ (2,586.991)	\$ (2,591.093)	\$ (2,579.101)	\$ (2,579.101)	\$ (2,579.101)	\$ (5,158.202)	\$ (30,979.942)
7	Total Energy Efficiency Expenses	\$ 83.979	\$ 507.661	\$ 1,647.788	\$ 4,606.527	\$ 4,735.580	\$ 1,006.398	\$ 932.189	\$ 5,749.042	\$ 1,858.291	\$ 2,214.309	\$ 2,214.309	\$ 2,214.309	\$ 2,214.309	\$ 27,770.384	
8	Deferral (Over)/Under Recovery	\$ 83.979	\$ (2,073.496)	\$ (934.345)	\$ 2,025.902	\$ 2,159.174	\$ (1,572.874)	\$ (1,653.670)	\$ 3,162.051	\$ (732.802)	\$ (364.792)	\$ (364.792)	\$ (364.792)	\$ (2,943.893)		
9	Interest on Deferral Balance	\$ (0.137)	\$ (0.119)	\$ (0.148)	\$ (0.101)	\$ (0.099)	\$ (0.087)	\$ (0.101)	\$ (0.035)	\$ (0.026)	\$ 12.178	\$ 11.384	\$ 7.688	\$ 30.396		
10	(Over)/Under Ending Balance	\$ 5,131.617	\$ 5,215.458	\$ 3,141.843	\$ 2,207.350	\$ 4,233.150	\$ 6,392.225	\$ 4,819.264	\$ 3,165.493	\$ 6,327.509	\$ 5,594.681	\$ 5,242.067	\$ 4,888.660	\$ 1,952.455		
11	Surplus Revenue Annual Interest Rate		0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%		
12	Borrowing Annual Interest Rate		2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%		

*Sector portion of revenues are allocated based on 2021 forecasted kWh sales.

Cape Light Compact JPE
2022 Residential Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Planned Dec-21	Col. B Planned Jan-22	Col. C Planned Feb-22	Col. D Planned Mar-22	Col. E Planned Apr-22	Col. F Planned May-22	Col. G Planned Jun-22	Col. H Planned Jul-22	Col. I Planned Aug-22	Col. J Planned Sep-22	Col. K Planned Oct-22	Col. L Planned Nov-22	Col. M Planned Dec-22	Col. N Total	
1	SBC Revenues	\$ -	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (216.266)	\$ (432.532)	\$ (2,595.190)
2	EES Revenues	\$ -	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (3,514.445)	\$ (7,028.891)	\$ (42,173.344)
3	FCM Revenues*	\$ -	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (258.855)	\$ (517.710)	\$ (3,106.263)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (3,989.566)	\$ (7,979.133)	\$ (47,874.797)
7	Total Energy Efficiency Expenses	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 3,814.316	\$ 45,771.794
8	Deferral (Over)/Under Recovery	\$ 3,814.316	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (175.250)	\$ (4,164.817)	
9	Interest on Deferral Balance	\$ 10.453	\$ 15.409	\$ 14.976	\$ 14.542	\$ 14.107	\$ 13.671	\$ 13.233	\$ 12.794	\$ 12.354	\$ 11.913	\$ 11.471	\$ 11.030	\$ 10.589	\$ 5.625	\$ 150.549
10	(Over)/Under Ending Balance	\$ 1,952.455	\$ 5,777.224	\$ 5,617.383	\$ 5,457.109	\$ 5,296.401	\$ 5,135.258	\$ 4,973.678	\$ 4,811.661	\$ 4,649.205	\$ 4,486.309	\$ 4,322.972	\$ 4,159.192	\$ 4,000.000	\$ 0.000	
11	Surplus Revenue Annual Interest Rate		0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	
12	Borrowing Annual Interest Rate		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	

*Sector portion of revenues are allocated based on 2022 forecasted kWh sales.

**Cape Light Compact JPE
2023 Residential Monthly EES Deferral
\$ in Thousands**

Line	Description	Col. A Planned Dec-22	Col. B Planned Jan-23	Col. C Planned Feb-23	Col. D Planned Mar-23	Col. E Planned Apr-23	Col. F Planned May-23	Col. G Planned Jun-23	Col. H Planned Jul-23	Col. I Planned Aug-23	Col. J Planned Sep-23	Col. K Planned Oct-23	Col. L Planned Nov-23	Col. M Planned Dec-23	Col. N Total	
1	SBC Revenues	\$ -	\$ -	\$ (214.189)	\$ (214.189)	\$ (214.189)	\$ (214.189)	\$ (214.189)	\$ (214.189)	\$ (214.189)	\$ (214.189)	\$ (214.189)	\$ (214.189)	\$ (214.189)	\$ (428.378)	\$ (2,570.271)
2	EES Revenues	\$ -	\$ -	\$ (3,486.375)	\$ (3,486.375)	\$ (3,486.375)	\$ (3,486.375)	\$ (3,486.375)	\$ (3,486.375)	\$ (3,486.375)	\$ (3,486.375)	\$ (3,486.375)	\$ (3,486.375)	\$ (3,486.375)	\$ (6,972.749)	\$ (41,836.495)
3	FCM Revenues*	\$ -	\$ -	\$ (147.743)	\$ (147.743)	\$ (147.743)	\$ (147.743)	\$ (147.743)	\$ (147.743)	\$ (147.743)	\$ (147.743)	\$ (147.743)	\$ (147.743)	\$ (147.743)	\$ (295.486)	\$ (1,772.917)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (3,848.307)	\$ (3,848.307)	\$ (3,848.307)	\$ (3,848.307)	\$ (3,848.307)	\$ (3,848.307)	\$ (3,848.307)	\$ (3,848.307)	\$ (3,848.307)	\$ (3,848.307)	\$ (3,848.307)	\$ (7,696.614)	\$ (46,179.683)
7	Total Energy Efficiency Expenses	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 3,838.766	\$ 46,065.191
8	Deferral (Over)/Under Recovery	\$ 3,838.766	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (9.541)	\$ (3,857.848)	
9	Interest on Deferral Balance	\$ 5.198	\$ 10.398	\$ 10.400	\$ 10.402	\$ 10.405	\$ 10.407	\$ 10.409	\$ 10.412	\$ 10.414	\$ 10.414	\$ 10.417	\$ 10.419	\$ 10.419	\$ 5.210	\$ 114.492
10	(Over)/Under Ending Balance	\$ 0.000	\$ 3,843.964	\$ 3,844.821	\$ 3,845.680	\$ 3,846.542	\$ 3,847.406	\$ 3,848.272	\$ 3,849.140	\$ 3,850.011	\$ 3,850.884	\$ 3,851.760	\$ 3,852.638	\$ (0.000)		
11	Surplus Revenue Annual Interest Rate		0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
12	Borrowing Annual Interest Rate		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%

*Sector portion of revenues are allocated based on 2023 forecasted kWh sales.

**Cape Light Compact JPE
2024 Residential Monthly EES Deferral
\$ in Thousands**

Line	Description	Col. A Planned Dec-23	Col. B Planned Jan-24	Col. C Planned Feb-24	Col. D Planned Feb-24	Col. E Planned Mar-24	Col. F Planned Apr-24	Col. G Planned May-24	Col. H Planned Jun-24	Col. I Planned Jul-24	Col. J Planned Aug-24	Col. K Planned Sep-24	Col. L Planned Oct-24	Col. M Planned Nov-24	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (213.680)	\$ (213.680)	\$ (213.680)	\$ (213.680)	\$ (213.680)	\$ (213.680)	\$ (213.680)	\$ (213.680)	\$ (213.680)	\$ (213.680)	\$ (213.680)	\$ (2,564.155)
2	EES Revenues	\$ -	\$ -	\$ (4,066.557)	\$ (4,066.557)	\$ (4,066.557)	\$ (4,066.557)	\$ (4,066.557)	\$ (4,066.557)	\$ (4,066.557)	\$ (4,066.557)	\$ (4,066.557)	\$ (4,066.557)	\$ (4,066.557)	\$ (8,133.115)
3	FCM Revenues*	\$ -	\$ -	\$ (102.962)	\$ (102.962)	\$ (102.962)	\$ (102.962)	\$ (102.962)	\$ (102.962)	\$ (102.962)	\$ (102.962)	\$ (102.962)	\$ (102.962)	\$ (102.962)	\$ (1,235.544)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (4,383.199)	\$ (4,383.199)	\$ (4,383.199)	\$ (4,383.199)	\$ (4,383.199)	\$ (4,383.199)	\$ (4,383.199)	\$ (4,383.199)	\$ (4,383.199)	\$ (4,383.199)	\$ (4,383.199)	\$ (8,766.398)
7	Total Energy Efficiency Expenses	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 4,372.332	\$ 52,467.982
8	Deferral (Over)/Under Recovery	\$ 4,372.332	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (10.867)	\$ (4,394.066)
9	Interest on Deferral Balance	\$ 5.921	\$ 11.843	\$ 11.846	\$ 11.846	\$ 11.851	\$ 11.854	\$ 11.856	\$ 11.859	\$ 11.862	\$ 11.864	\$ 11.867	\$ 11.867	\$ 11.867	\$ 5.934
10	(Over)/Under Ending Balance	\$ (0.000)	\$ 4,378.253	\$ 4,379.229	\$ 4,380.207	\$ 4,381.188	\$ 4,382.172	\$ 4,383.159	\$ 4,384.148	\$ 4,385.140	\$ 4,386.135	\$ 4,387.132	\$ 4,388.132	\$ 4,388.132	\$ 0.000
11	Surplus Revenue Annual Interest Rate		0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
12	Borrowing Annual Interest Rate		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%

*Sector portion of revenues are allocated based on 2024 forecasted kWh sales.

**Cape Light Compact JPE
2022-2024 Low-Income Energy Efficiency Reconciliation Factor
\$ in Thousands**

Year	EE Expenses	EE Charge Revenues	FCM, RGGI, & Other Revenues	Past Period Reconciliation with Interest	Interest on Deferral	Total EERF	Billed Distribution (GWh)	Res-LI Rev. Req. Allocation	EE Reconciliation Factor (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J
	EEE	EEC	OR	PPRA	I		FkWh		EERFu
2022	\$ 11,557,712	\$ (179,247)	\$ (214,546)	\$ (977,714)	\$ 11,586	\$ 10,197,790	1,109,775	\$ 4,551,274	0.410
2023	\$ 10,638,765	\$ (177,334)	\$ (122,321)	\$ 0,000	\$ 26,442	\$ 10,365,652	1,099,042	\$ 4,739,130	0.431
2024	\$ 8,659,429	\$ (177,134)	\$ (85,352)	\$ 0,000	\$ 21,522	\$ 8,418,465	1,096,516	\$ 3,848,922	0.351

Col. A: Effective years (January 1, 2022 - December 31, 2022; January 1, 2023 - December 31, 2023; January 1, 2024 - December 31, 2024).
Col. B: Consistent with the Cape Light Compact JPE's 2022-2024 Three-Year Plan (D.P.U. 21-126).
Col. C: 2022-2024 Low-Income Monthly Deferral, Lines 1, Cols. N.
Col. D: 2022-2024 Low-Income Monthly Deferral, Lines 3, Cols. N + Lines 4, Cols. N + Lines 5, Cols. N.
Col. E: 2022-2024 Low-Income Monthly Deferral, Lines 10, Cols. A.
Col. F: 2022-2024 Low-Income Monthly Deferral, Lines 9, Cols. N.
Col. G: Col. B + Col. C + Col. D + Col. E + Col. F.
Col. H: Eversource forecast of Cape Light Compact JPE sales through December 31, 2024. Sum of residential and low-income sales.
Col. I: Consistent with Eversource's rate making practices, 44.6% of Col. G in 2022, 45.7% of Col. G in 2023, and 45.7% of Col. G in 2024.
Col. J: Col. I / Col. H divided by 10.
Note that per D.P.U. 10-06, at 2-3 (June 24, 2010), lost base revenue is not applicable to the Cape Light Compact JPE.

Cape Light Compact JPE
2021 Low-Income Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Actual Dec-20	Col. B Actual Jan-21	Col. C Actual Feb-21	Col. D Actual Mar-21	Col. E Actual Apr-21	Col. F Actual May-21	Col. G Actual Jun-21	Col. H Actual Jul-21	Col. I Actual Aug-21	Col. J Actual Sep-21	Col. K Planned Oct-21	Col. L Planned Nov-21	Col. M Planned Dec-21	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (15,725)	\$ (15,725)	\$ (15,725)	\$ (15,725)	\$ (15,725)	\$ (15,725)	\$ (15,725)	\$ (15,725)	\$ (15,725)	\$ (15,725)	\$ (31,450)	\$ (188,699)
2	EES Revenues	\$ -	\$ -	\$ (297,680)	\$ (297,680)	\$ (297,680)	\$ (297,680)	\$ (297,680)	\$ (297,680)	\$ (297,680)	\$ (297,680)	\$ (297,680)	\$ (297,680)	\$ (595,361)	\$ (3,572,162)
3	FCM Revenues*	\$ -	\$ -	\$ (18,272)	\$ (18,342)	\$ (18,234)	\$ (17,933)	\$ (18,138)	\$ (18,608)	\$ (18,689)	\$ (18,983)	\$ (18,125)	\$ (18,125)	\$ (36,251)	\$ (219,701)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (331,677)	\$ (331,747)	\$ (331,639)	\$ (331,338)	\$ (331,543)	\$ (332,013)	\$ (332,094)	\$ (332,388)	\$ (331,530)	\$ (331,530)	\$ (663,061)	\$ (3,980,561)
7	Total Energy Efficiency Expenses	\$ 12,281	\$ 150,896	\$ 219,671	\$ 152,587	\$ 260,251	\$ 210,072	\$ 194,323	\$ 243,485	\$ 297,924	\$ 1,308,510	\$ 1,308,510	\$ 1,308,510	\$ 1,308,510	\$ 5,667,022
8	Deferral (Over)/Under Recovery	\$ 12,281	\$ (180,781)	\$ (112,076)	\$ (179,052)	\$ (71,087)	\$ (121,471)	\$ (137,690)	\$ (88,610)	\$ (34,463)	\$ 976,980	\$ 976,980	\$ 645,450	\$ -	\$ -
9	Interest on Deferral Balance	\$ (0,240)	\$ (0,208)	\$ (0,257)	\$ (0,177)	\$ (0,172)	\$ (0,152)	\$ (0,176)	\$ (0,062)	\$ (0,045)	\$ (1,799)	\$ (1,231)	\$ (0,758)	\$ (5,276)	\$ (5,276)
10	(Over)/Under Ending Balance	\$ (2,658,899)	\$ (2,646,858)	\$ (2,827,846)	\$ (2,940,179)	\$ (3,119,408)	\$ (3,190,667)	\$ (3,312,290)	\$ (3,450,156)	\$ (3,538,827)	\$ (3,573,336)	\$ (2,598,155)	\$ (1,622,406)	\$ (977,714)	\$ (977,714)
11	Surplus Revenue Annual Interest Rate	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
12	Borrowing Annual Interest Rate	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%

*Sector portion of revenues are allocated based on 2021 forecasted kWh sales.

Cape Light Compact JPE
2022 Low-Income Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Planned Dec-21	Col. B Planned Jan-22	Col. C Planned Feb-22	Col. D Planned Mar-22	Col. E Planned Apr-22	Col. F Planned May-22	Col. G Planned Jun-22	Col. H Planned Jul-22	Col. I Planned Aug-22	Col. J Planned Sep-22	Col. K Planned Oct-22	Col. L Planned Nov-22	Col. M Planned Dec-22	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (14,937)	\$ (14,937)	\$ (14,937)	\$ (14,937)	\$ (14,937)	\$ (14,937)	\$ (14,937)	\$ (14,937)	\$ (14,937)	\$ (14,937)	\$ (29,875)	\$ (179,247)
2	EES Revenues	\$ -	\$ -	\$ (849,816)	\$ (849,816)	\$ (849,816)	\$ (849,816)	\$ (849,816)	\$ (849,816)	\$ (849,816)	\$ (849,816)	\$ (849,816)	\$ (849,816)	\$ (1,699,632)	\$ (10,197,790)
3	FCM Revenues*	\$ -	\$ -	\$ (17,879)	\$ (17,879)	\$ (17,879)	\$ (17,879)	\$ (17,879)	\$ (17,879)	\$ (17,879)	\$ (17,879)	\$ (17,879)	\$ (17,879)	\$ (35,758)	\$ (214,546)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (882,632)	\$ (882,632)	\$ (882,632)	\$ (882,632)	\$ (882,632)	\$ (882,632)	\$ (882,632)	\$ (882,632)	\$ (882,632)	\$ (882,632)	\$ (1,765,264)	\$ (10,591,584)
7	Total Energy Efficiency Expenses	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 963,143	\$ 11,557,712
8	Deferral (Over)/Under Recovery	\$ 963,143	\$ 80,511	\$ 80,511	\$ 80,511	\$ 80,511	\$ 80,511	\$ 80,511	\$ 80,511	\$ 80,511	\$ 80,511	\$ 80,511	\$ 80,511	\$ (802,121)	
9	Interest on Deferral Balance	\$ (0.083)	\$ 0.069	\$ 0.288	\$ 0.506	\$ 0.726	\$ 0.946	\$ 1.166	\$ 1.388	\$ 1.609	\$ 1.832	\$ 2.055	\$ 2.055	\$ 1.083	\$ 11,586
10	(Over)/Under Ending Balance	\$ (977,714)	\$ (14,654)	\$ 65,926	\$ 146,724	\$ 227,741	\$ 308,978	\$ 390,434	\$ 472,111	\$ 554,010	\$ 636,130	\$ 718,472	\$ 801,038	\$ 0,000	
11	Surplus Revenue Annual Interest Rate		0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	
12	Borrowing Annual Interest Rate		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	

*Sector portion of revenues are allocated based on 2022 forecasted kWh sales.

Cape Light Compact JPE
2023 Low-Income Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Planned Dec-22	Col. B Planned Jan-23	Col. C Planned Feb-23	Col. D Planned Mar-23	Col. E Planned Apr-23	Col. F Planned May-23	Col. G Planned Jun-23	Col. H Planned Jul-23	Col. I Planned Aug-23	Col. J Planned Sep-23	Col. K Planned Oct-23	Col. L Planned Nov-23	Col. M Planned Dec-23	Col. N Total
1	SBC Revenues	\$ -	\$ (14,778)	\$ (14,778)	\$ (14,778)	\$ (14,778)	\$ (14,778)	\$ (14,778)	\$ (14,778)	\$ (14,778)	\$ (14,778)	\$ (14,778)	\$ (14,778)	\$ (29,556)	\$ (177,334)
2	EES Revenues	\$ -	\$ (863,796)	\$ (863,796)	\$ (863,796)	\$ (863,796)	\$ (863,796)	\$ (863,796)	\$ (863,796)	\$ (863,796)	\$ (863,796)	\$ (863,796)	\$ (863,796)	\$ (1,727,592)	\$ (10,365,552)
3	FCM Revenues*	\$ -	\$ (10,193)	\$ (10,193)	\$ (10,193)	\$ (10,193)	\$ (10,193)	\$ (10,193)	\$ (10,193)	\$ (10,193)	\$ (10,193)	\$ (10,193)	\$ (10,193)	\$ (20,387)	\$ (122,321)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ (888,767)	\$ (888,767)	\$ (888,767)	\$ (888,767)	\$ (888,767)	\$ (888,767)	\$ (888,767)	\$ (888,767)	\$ (888,767)	\$ (888,767)	\$ (888,767)	\$ (1,777,534)	\$ (10,665,207)
7	Total Energy Efficiency Expenses	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 886,564	\$ 10,638,765
8	Deferral (Over)/Under Recovery	\$ 886,564	\$ (2,203)	\$ (2,203)	\$ (2,203)	\$ (2,203)	\$ (2,203)	\$ (2,203)	\$ (2,203)	\$ (2,203)	\$ (2,203)	\$ (2,203)	\$ (2,203)	\$ (890,971)	
9	Interest on Deferral Balance	\$ 1,201	\$ 2,401	\$ 2,402	\$ 2,402	\$ 2,403	\$ 2,404	\$ 2,404	\$ 2,405	\$ 2,405	\$ 2,406	\$ 2,406	\$ 2,406	\$ 1,203	\$ 26,442
10	(Over)/Under Ending Balance	\$ 0,000	\$ 887,764	\$ 887,962	\$ 888,161	\$ 888,360	\$ 888,559	\$ 888,759	\$ 888,960	\$ 889,161	\$ 889,362	\$ 889,565	\$ 889,767	\$ 0,000	
11	Surplus Revenue Annual Interest Rate		0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	
12	Borrowing Annual Interest Rate		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	

*Sector portion of revenues are allocated based on 2023 forecasted kWh sales.

Cape Light Compact JPE
2024 Low-Income Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Planned Dec-23	Col. B Planned Jan-24	Col. C Planned Feb-24	Col. D Planned Feb-24	Col. E Planned Mar-24	Col. F Planned Apr-24	Col. G Planned May-24	Col. H Planned Jun-24	Col. I Planned Jul-24	Col. J Planned Aug-24	Col. K Planned Sep-24	Col. L Planned Oct-24	Col. M Planned Nov-24	Col. N Total
1	SBC Revenues	\$ -	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (14,761)	\$ (177,134)
2	EES Revenues	\$ -	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (701,539)	\$ (8,418,465)
3	FCM Revenues*	\$ -	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (7,113)	\$ (85,352)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (723,413)	\$ (8,680,951)
7	Total Energy Efficiency Expenses	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 721,619	\$ 8,659,429
8	Deferral (Over)/Under Recovery	\$ 721,619	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (1,794)	\$ (725,206)
9	Interest on Deferral Balance	\$ 0,977	\$ 1,955	\$ 1,955	\$ 1,955	\$ 1,955	\$ 1,956	\$ 1,956	\$ 1,957	\$ 1,957	\$ 1,958	\$ 1,958	\$ 1,959	\$ 1,959	\$ 21,522
10	(Over)/Under Ending Balance	\$ 0,000	\$ 722,596	\$ 722,757	\$ 722,919	\$ 723,081	\$ 723,243	\$ 723,406	\$ 723,569	\$ 723,733	\$ 723,897	\$ 724,062	\$ 724,227	\$ 724,391	\$ 0,000
11	Surplus Revenue Annual Interest Rate		0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
12	Borrowing Annual Interest Rate		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%

*Sector portion of revenues are allocated based on 2024 forecasted kWh sales.

**Cape Light Compact JPE
2022-2024 Commercial & Industrial Energy Efficiency Reconciliation Factor
\$ in Thousands**

Year	EE Expenses	EE Charge Revenues	FCM, RGGI, & Other Revenues	Past Period Reconciliation with Interest	Interest on Deferral	Total EERF	Billed Distribution (GWh)	EE Reconciliation Factor (cents/kWh)	CI-LI Rev. Req. Allocation	Low Income Reconciliation Factor (cents/kWh)	EE Reconciliation Factor (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L
	EEE	EEC	OR	PPRA	I		FWWh			EERF _L	EERF _R
2022	\$ 18,063,156	\$ (1,937,385)	\$ (2,318,92)	\$ (3,521,030)	\$ 3,483	\$ 10,289,308	774,954	1,328	5,646,517	0.729	2.057
2023	\$ 19,363,486	\$ (1,886,768)	\$ (1,301,452)	\$ (0.000)	\$ 48,127	\$ 16,223,392	754,707	2,150	5,626,422	0.746	2.896
2024	\$ 19,161,940	\$ (1,852,869)	\$ (892,809)	\$ (0.000)	\$ 47,626	\$ 16,463,887	741,148	2,221	4,569,543	0.617	2.838

Col. A: Effective years (January 1, 2022 - December 31, 2022; January 1, 2023 - December 31, 2023; January 1, 2024 - December 31, 2024).
Col. B: Consistent with the Cape Light Compact JPE's 2022-2024 Three-Year Plan (D.P.U. 21-126).
Col. C: 2022-2024 Commercial & Industrial Monthly Deferral, Lines 1, Cols. N.
Col. D: 2022-2024 Commercial & Industrial Monthly Deferral, Lines 3, Cols. N + Lines 4, Cols. N + Lines 5, Cols. N.
Col. E: 2022-2024 Commercial & Industrial Monthly Deferral, Lines 10, Cols. A.
Col. F: 2022-2024 Commercial & Industrial Monthly Deferral, Lines 9, Cols. N.
Col. G: Col. B + Col. C + Col. D + Col. E + Col. F.
Col. H: Eversource forecast of Cape Light Compact JPE sales through December 31, 2024. C&I sales only.
Col. I: Col. G / Col. H divided by 10.
Col. J: Consistent with Eversource's rate making practices, 55.4% of Low-Income Energy Efficiency Reconciliation Factor, Col. G in 2022, 54.3% of Low-Income Energy Efficiency Reconciliation Factor, Col. G in 2023, and 54.3% of Low-Income Energy Efficiency Reconciliation Factor, Col. G in 2024.
Col. K: Col. J / Col. H divided by 10.
Col. L: Col. I + Col. K.
Note that per D.P.U. 10-06, at 2-3 (June 24, 2010), lost base revenue is not applicable to the Cape Light Compact JPE.

**Cape Light Compact JPE
2021 Commercial & Industrial Monthly EES Deferral
\$ in Thousands**

Line	Description	Col. A Actual Dec-20	Col. B Actual Jan-21	Col. C Actual Feb-21	Col. D Actual Mar-21	Col. E Actual Apr-21	Col. F Actual May-21	Col. G Actual Jun-21	Col. H Actual Jul-21	Col. I Actual Aug-21	Col. J Actual Sep-21	Col. K Planned Oct-21	Col. L Planned Nov-21	Col. M Planned Dec-21	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (155.532)	\$ (155.532)	\$ (155.532)	\$ (155.532)	\$ (155.532)	\$ (155.532)	\$ (155.532)	\$ (155.532)	\$ (155.533)	\$ (155.533)	\$ (311.065)	\$ (1,866.389)
2	EES Revenues	\$ -	\$ -	\$ (577.364)	\$ (577.364)	\$ (577.364)	\$ (577.364)	\$ (577.364)	\$ (577.364)	\$ (577.364)	\$ (577.364)	\$ (577.364)	\$ (577.364)	\$ (1,154.728)	\$ (6,928.366)
3	FCM Revenues*	\$ -	\$ -	\$ (209.917)	\$ (210.719)	\$ (209.480)	\$ (206.016)	\$ (208.369)	\$ (213.778)	\$ (214.708)	\$ (218.077)	\$ (208.228)	\$ (208.228)	\$ (416.456)	\$ (2,523.976)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (942.814)	\$ (943.615)	\$ (942.376)	\$ (938.912)	\$ (941.265)	\$ (946.674)	\$ (947.604)	\$ (950.973)	\$ (941.124)	\$ (941.124)	\$ (1,882.249)	\$ (11,318.732)
7	Total Energy Efficiency Expenses	\$ 76.625	\$ 356.948	\$ 721.154	\$ 991.513	\$ 1,023.929	\$ 796.802	\$ 604.435	\$ 1,082.595	\$ 1,033.381	\$ 4,386.512	\$ 4,386.512	\$ 4,386.512	\$ 19,846.918	
8	Deferral (Over)/Under Recovery	\$ 76.625	\$ (585.866)	\$ (222.461)	\$ 49.136	\$ 85.017	\$ (144.463)	\$ (342.239)	\$ 134.991	\$ 82.408	\$ 3,445.387	\$ 3,445.387	\$ 2,504.263		
9	Interest on Deferral Balance	\$ (2.020)	\$ (1.749)	\$ (2.168)	\$ (1.488)	\$ (1.450)	\$ (1.283)	\$ (1.481)	\$ (0.519)	\$ (0.380)	\$ (6.521)	\$ (4.515)	\$ (2.783)	\$ (26.358)	
10	(Over)/Under Ending Balance	\$ (12,022.859)	\$ (11,948.254)	\$ (12,535.869)	\$ (12,760.498)	\$ (12,712.850)	\$ (12,629.282)	\$ (12,775.028)	\$ (13,118.748)	\$ (12,984.276)	\$ (12,902.248)	\$ (9,463.382)	\$ (6,022.510)	\$ (3,521.030)	
11	Surplus Revenue Annual Interest Rate		0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	
12	Borrowing Annual Interest Rate		2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	

*Sector portion of revenues are allocated based on 2021 forecasted kWh sales.

Cape Light Compact JPE
2022 Commercial & Industrial Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Planned Dec-21	Col. B Planned Jan-22	Col. C Planned Feb-22	Col. D Planned Mar-22	Col. E Planned Apr-22	Col. F Planned May-22	Col. G Planned Jun-22	Col. H Planned Jul-22	Col. I Planned Aug-22	Col. J Planned Sep-22	Col. K Planned Oct-22	Col. L Planned Nov-22	Col. M Planned Dec-22	Col. N Total	
1	SBC Revenues	\$ -	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (161.449)	\$ (322.898)	\$ (1,937.385)
2	EES Revenues	\$ -	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (857.442)	\$ (1,714.885)	\$ (10,289.308)
3	FCM Revenues*	\$ -	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (193.243)	\$ (386.486)	\$ (2,318.916)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (1,212.134)	\$ (2,424.268)	\$ (14,545.608)
7	Total Energy Efficiency Expenses	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 1,505.263	\$ 18,063.156
8	Deferral (Over)/Under Recovery	\$ 1,505.263	\$ 293.129	\$ 293.129	\$ 293.129	\$ 293.129	\$ 293.129	\$ 293.129	\$ 293.129	\$ 293.129	\$ 293.129	\$ 293.129	\$ 293.129	\$ 293.129	\$ (919.005)	
9	Interest on Deferral Balance	\$ (0.461)	\$ (0.312)	\$ (0.263)	\$ (0.214)	\$ (0.165)	\$ (0.116)	\$ (0.068)	\$ (0.019)	\$ 0.490	\$ 1.286	\$ 2.083	\$ 1.241	\$ 1.241	\$ 3.483	
10	(Over)/Under Ending Balance	\$ (3,521.030)	\$ (2,016.228)	\$ (1,723.411)	\$ (1,430.545)	\$ (1,137.630)	\$ (844.666)	\$ (551.654)	\$ (258.592)	\$ 34.518	\$ 328.137	\$ 622.552	\$ 917.764	\$ (0.000)		
11	Surplus Revenue Annual Interest Rate		0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
12	Borrowing Annual Interest Rate		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%

*Sector portion of revenues are allocated based on 2022 forecasted kWh sales.

**Cape Light Compact JPE
2023 Commercial & Industrial Monthly EES Deferral
\$ in Thousands**

Line	Description	Col. A Planned Dec-22	Col. B Planned Jan-23	Col. C Planned Feb-23	Col. D Planned Mar-23	Col. E Planned Apr-23	Col. F Planned May-23	Col. G Planned Jun-23	Col. H Planned Jul-23	Col. I Planned Aug-23	Col. J Planned Sep-23	Col. K Planned Oct-23	Col. L Planned Nov-23	Col. M Planned Dec-23	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (157.231)	\$ (157.231)	\$ (157.231)	\$ (157.231)	\$ (157.231)	\$ (157.231)	\$ (157.231)	\$ (157.231)	\$ (157.231)	\$ (157.231)	\$ (157.231)	\$ (1,886.768)
2	EES Revenues	\$ -	\$ -	\$ (1,351.949)	\$ (1,351.949)	\$ (1,351.949)	\$ (1,351.949)	\$ (1,351.949)	\$ (1,351.949)	\$ (1,351.949)	\$ (1,351.949)	\$ (1,351.949)	\$ (1,351.949)	\$ (1,351.949)	\$ (16,223.392)
3	FCM Revenues*	\$ -	\$ -	\$ (108.454)	\$ (108.454)	\$ (108.454)	\$ (108.454)	\$ (108.454)	\$ (108.454)	\$ (108.454)	\$ (108.454)	\$ (108.454)	\$ (108.454)	\$ (108.454)	\$ (1,301.452)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (1,617.634)	\$ (1,617.634)	\$ (1,617.634)	\$ (1,617.634)	\$ (1,617.634)	\$ (1,617.634)	\$ (1,617.634)	\$ (1,617.634)	\$ (1,617.634)	\$ (1,617.634)	\$ (1,617.634)	\$ (3,235.269)
7	Total Energy Efficiency Expenses	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 1,613.624	\$ 19,363.486
8	Deferral (Over)/Under Recovery	\$ 1,613.624	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (4.011)	\$ (1,621.645)
9	Interest on Deferral Balance	\$ 2.185	\$ 4.371	\$ 4.372	\$ 4.373	\$ 4.374	\$ 4.375	\$ 4.376	\$ 4.377	\$ 4.378	\$ 4.379	\$ 4.380	\$ 4.380	\$ 2.190	\$ 48.127
10	(Over)/Under Ending Balance	\$ (0.000)	\$ 1,615.809	\$ 1,616.169	\$ 1,616.530	\$ 1,616.892	\$ 1,617.256	\$ 1,617.620	\$ 1,617.985	\$ 1,618.351	\$ 1,618.718	\$ 1,619.086	\$ 1,619.455	\$ (0.000)	
11	Surplus Revenue Annual Interest Rate		0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	
12	Borrowing Annual Interest Rate		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	

*Sector portion of revenues are allocated based on 2023 forecasted kWh sales.

**Cape Light Compact JPE
2024 Commercial & Industrial Monthly EES Deferral
\$ in Thousands**

Line	Description	Col. A Planned Dec-23	Col. B Planned Jan-24	Col. C Planned Feb-24	Col. D Planned Feb-24	Col. E Planned Mar-24	Col. F Planned Apr-24	Col. G Planned May-24	Col. H Planned Jun-24	Col. I Planned Jul-24	Col. J Planned Aug-24	Col. K Planned Sep-24	Col. L Planned Oct-24	Col. M Planned Nov-24	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (154.406)	\$ (154.406)	\$ (154.406)	\$ (154.406)	\$ (154.406)	\$ (154.406)	\$ (154.406)	\$ (154.406)	\$ (154.406)	\$ (154.406)	\$ (154.406)	\$ (1,852.869)
2	EES Revenues	\$ -	\$ -	\$ (1,371.991)	\$ (1,371.991)	\$ (1,371.991)	\$ (1,371.991)	\$ (1,371.991)	\$ (1,371.991)	\$ (1,371.991)	\$ (1,371.991)	\$ (1,371.991)	\$ (1,371.991)	\$ (1,371.991)	\$ (16,463.887)
3	FCM Revenues*	\$ -	\$ -	\$ (74.401)	\$ (74.401)	\$ (74.401)	\$ (74.401)	\$ (74.401)	\$ (74.401)	\$ (74.401)	\$ (74.401)	\$ (74.401)	\$ (74.401)	\$ (74.401)	\$ (892.809)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (1,600.797)	\$ (1,600.797)	\$ (1,600.797)	\$ (1,600.797)	\$ (1,600.797)	\$ (1,600.797)	\$ (1,600.797)	\$ (1,600.797)	\$ (1,600.797)	\$ (1,600.797)	\$ (1,600.797)	\$ (19,209.566)
7	Total Energy Efficiency Expenses	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 1,596.828	\$ 19,161.940
8	Deferral (Over)/Under Recovery	\$ 1,596.828	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (3.969)	\$ (1,604.766)
9	Interest on Deferral Balance	\$ 2.162	\$ 4.325	\$ 4.326	\$ 4.327	\$ 4.328	\$ 4.329	\$ 4.330	\$ 4.331	\$ 4.332	\$ 4.333	\$ 4.334	\$ 4.334	\$ 2.167	\$ 47.626
10	(Over)/Under Ending Balance	\$ (0.000)	\$ 1,598.991	\$ 1,599.347	\$ 1,599.705	\$ 1,600.063	\$ 1,600.422	\$ 1,600.782	\$ 1,601.144	\$ 1,601.506	\$ 1,601.869	\$ 1,602.233	\$ 1,602.599	\$ (0.000)	
11	Surplus Revenue Annual Interest Rate		0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	
12	Borrowing Annual Interest Rate		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	

*Sector portion of revenues are allocated based on 2024 forecasted kWh sales.

Cape Light Compact JPE
2021 Total Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Actual Dec-20	Col. B Actual Jan-21	Col. C Actual Feb-21	Col. D Actual Mar-21	Col. E Actual Apr-21	Col. F Actual May-21	Col. G Actual Jun-21	Col. H Actual Jul-21	Col. I Actual Aug-21	Col. J Actual Sep-21	Col. K Planned Oct-21	Col. L Planned Nov-21	Col. M Planned Dec-21	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (400.942)	\$ (400.942)	\$ (400.942)	\$ (400.942)	\$ (400.942)	\$ (400.942)	\$ (400.942)	\$ (400.942)	\$ (400.943)	\$ (400.943)	\$ (801.886)	\$ (4,811.307)
2	EES Revenues	\$ -	\$ -	\$ (2,970.900)	\$ (2,970.900)	\$ (2,970.900)	\$ (2,970.900)	\$ (2,970.900)	\$ (2,970.900)	\$ (2,970.900)	\$ (2,970.900)	\$ (2,970.901)	\$ (2,970.901)	\$ (5,941.802)	\$ (35,650.804)
3	FCM Revenues*	\$ -	\$ -	\$ (483.806)	\$ (485.654)	\$ (482.799)	\$ (474.814)	\$ (480.238)	\$ (492.704)	\$ (494.848)	\$ (502.612)	\$ (479.912)	\$ (479.912)	\$ (959.825)	\$ (5,817.124)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (3,855.648)	\$ (3,857.496)	\$ (3,854.641)	\$ (3,846.656)	\$ (3,852.080)	\$ (3,864.546)	\$ (3,866.690)	\$ (3,874.454)	\$ (3,851.756)	\$ (3,851.756)	\$ (7,703.512)	\$ (46,279.236)
7	Total Energy Efficiency Expenses	\$ 172.885	\$ 1,015.505	\$ 2,588.614	\$ 5,750.627	\$ 6,019.760	\$ 2,013.273	\$ 1,730.947	\$ 7,075.122	\$ 3,189.597	\$ 7,909.332	\$ 7,909.332	\$ 7,909.332	\$ 7,909.332	\$ 53,284.325
8	Deferral (Over)/Under Recovery	\$ 172.885	\$ (2,840.143)	\$ (1,268.882)	\$ 1,895.986	\$ 2,173.104	\$ (1,838.807)	\$ (2,133.599)	\$ 3,208.432	\$ (684.857)	\$ 4,057.576	\$ 4,057.576	\$ 205.819	\$ -	\$ -
9	Interest on Deferral Balance	\$ (2.397)	\$ (2.076)	\$ (2.573)	\$ (1.766)	\$ (1.720)	\$ (1.522)	\$ (1.758)	\$ (0.616)	\$ (0.451)	\$ 3.857	\$ 5.638	\$ 4.147	\$ (1.238)	\$ -
10	(Over)/Under Ending Balance	\$ (9,550.141)	\$ (9,379.653)	\$ (12,221.873)	\$ (13,493.328)	\$ (11,599.107)	\$ (9,427.724)	\$ (11,268.053)	\$ (13,403.410)	\$ (10,195.594)	\$ (10,880.902)	\$ (6,819.470)	\$ (2,756.256)	\$ (2,546.290)	\$ -

*Sector portion of revenues are allocated based on 2021 forecasted kWh sales.

Cape Light Compact JPE
2022 Total Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Planned Dec-21	Col. B Planned Jan-22	Col. C Planned Feb-22	Col. D Planned Mar-22	Col. E Planned Apr-22	Col. F Planned May-22	Col. G Planned Jun-22	Col. H Planned Jul-22	Col. I Planned Aug-22	Col. J Planned Sep-22	Col. K Planned Oct-22	Col. L Planned Nov-22	Col. M Planned Dec-22	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (392.652)	\$ (392.652)	\$ (392.652)	\$ (392.652)	\$ (392.652)	\$ (392.652)	\$ (392.652)	\$ (392.652)	\$ (392.652)	\$ (392.652)	\$ (785.304)	\$ (4,711.823)
2	EES Revenues	\$ -	\$ -	\$ (5,221.704)	\$ (5,221.704)	\$ (5,221.704)	\$ (5,221.704)	\$ (5,221.704)	\$ (5,221.704)	\$ (5,221.704)	\$ (5,221.704)	\$ (5,221.704)	\$ (5,221.704)	\$ (10,443.407)	\$ (62,660.442)
3	FCM Revenues*	\$ -	\$ -	\$ (469.977)	\$ (469.977)	\$ (469.977)	\$ (469.977)	\$ (469.977)	\$ (469.977)	\$ (469.977)	\$ (469.977)	\$ (469.977)	\$ (469.977)	\$ (939.954)	\$ (5,639.725)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (6,084.332)	\$ (6,084.332)	\$ (6,084.332)	\$ (6,084.332)	\$ (6,084.332)	\$ (6,084.332)	\$ (6,084.332)	\$ (6,084.332)	\$ (6,084.332)	\$ (6,084.332)	\$ (12,168.665)	\$ (73,011.989)
7	Total Energy Efficiency Expenses	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 6,282.722	\$ 75,392.662
8	Deferral (Over)/Under Recovery	\$ 6,282.722	\$ 198.389	\$ 198.389	\$ 198.389	\$ 198.389	\$ 198.389	\$ 198.389	\$ 198.389	\$ 198.389	\$ 198.389	\$ 198.389	\$ 198.389	\$ (5,885.943)	
9	Interest on Deferral Balance	\$ 9,909	\$ 15.167	\$ 15.001	\$ 14.835	\$ 14.668	\$ 14.500	\$ 14.332	\$ 14.163	\$ 14.000	\$ 13.832	\$ 13.663	\$ 13.500	\$ 13.332	\$ 165.618
10	(Over)/Under Ending Balance	\$ (2,546.290)	\$ 3,746.341	\$ 3,959.897	\$ 4,173.288	\$ 4,386.512	\$ 4,599.569	\$ 4,812.459	\$ 5,025.180	\$ 5,237.733	\$ 5,450.576	\$ 5,663.996	\$ 5,877.994	\$ 0.000	

*Sector portion of revenues are allocated based on 2022 forecasted kWh sales.

Cape Light Compact JPE
2023 Total Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Planned Dec-22	Col. B Planned Jan-23	Col. C Planned Feb-23	Col. D Planned Mar-23	Col. E Planned Apr-23	Col. F Planned May-23	Col. G Planned Jun-23	Col. H Planned Jul-23	Col. I Planned Aug-23	Col. J Planned Sep-23	Col. K Planned Oct-23	Col. L Planned Nov-23	Col. M Planned Dec-23	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (386.198)	\$ (386.198)	\$ (386.198)	\$ (386.198)	\$ (386.198)	\$ (386.198)	\$ (386.198)	\$ (386.198)	\$ (386.198)	\$ (386.198)	\$ (772.395)	\$ (4,634.373)
2	EES Revenues	\$ -	\$ -	\$ (5,702.120)	\$ (5,702.120)	\$ (5,702.120)	\$ (5,702.120)	\$ (5,702.120)	\$ (5,702.120)	\$ (5,702.120)	\$ (5,702.120)	\$ (5,702.120)	\$ (5,702.120)	\$ (11,404.240)	\$ (68,425.439)
3	FCM Revenues*	\$ -	\$ -	\$ (266.391)	\$ (266.391)	\$ (266.391)	\$ (266.391)	\$ (266.391)	\$ (266.391)	\$ (266.391)	\$ (266.391)	\$ (266.391)	\$ (266.391)	\$ (532.782)	\$ (3,196.690)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ (6,354.709)	\$ (6,354.709)	\$ (6,354.709)	\$ (6,354.709)	\$ (6,354.709)	\$ (6,354.709)	\$ (6,354.709)	\$ (6,354.709)	\$ (6,354.709)	\$ (6,354.709)	\$ (6,354.709)	\$ (12,709.417)	\$ (76,256.502)
7	Total Energy Efficiency Expenses	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 6,338.954	\$ 76,067.442
8	Deferral (Over)/Under Recovery	\$ 6,338.954	\$ (15.755)	\$ (15.755)	\$ (15.755)	\$ (15.755)	\$ (15.755)	\$ (15.755)	\$ (15.755)	\$ (15.755)	\$ (15.755)	\$ (15.755)	\$ (15.755)	\$ (6,370.464)	
9	Interest on Deferral Balance	\$ 8.584	\$ 17.170	\$ 17.174	\$ 17.178	\$ 17.181	\$ 17.185	\$ 17.189	\$ 17.193	\$ 17.197	\$ 17.201	\$ 17.205	\$ 17.209	\$ 8.603	\$ 189.060
10	(Over)/Under Ending Balance	\$ 0.000	\$ 6,347.538	\$ 6,348.952	\$ 6,350.371	\$ 6,351.794	\$ 6,353.220	\$ 6,354.650	\$ 6,356.085	\$ 6,357.523	\$ 6,358.965	\$ 6,360.410	\$ 6,361.860	\$ (0.000)	

*Sector portion of revenues are allocated based on 2023 forecasted kWh sales.

Cape Light Compact JPE
2024 Total Monthly EES Deferral
\$ in Thousands

Line	Description	Col. A Planned Dec-23	Col. B Planned Jan-24	Col. C Planned Feb-24	Col. D Planned Feb-24	Col. E Planned Mar-24	Col. F Planned Apr-24	Col. G Planned May-24	Col. H Planned Jun-24	Col. I Planned Jul-24	Col. J Planned Aug-24	Col. K Planned Sep-24	Col. L Planned Oct-24	Col. M Planned Nov-24	Col. N Total
1	SBC Revenues	\$ -	\$ -	\$ (382.847)	\$ (382.847)	\$ (382.847)	\$ (382.847)	\$ (382.847)	\$ (382.847)	\$ (382.847)	\$ (382.847)	\$ (382.847)	\$ (382.847)	\$ (382.847)	\$ (4,594.158)
2	EES Revenues	\$ -	\$ -	\$ (6,140.087)	\$ (6,140.087)	\$ (6,140.087)	\$ (6,140.087)	\$ (6,140.087)	\$ (6,140.087)	\$ (6,140.087)	\$ (6,140.087)	\$ (6,140.087)	\$ (6,140.087)	\$ (6,140.087)	\$ (73,681.041)
3	FCM Revenues*	\$ -	\$ -	\$ (184.475)	\$ (184.475)	\$ (184.475)	\$ (184.475)	\$ (184.475)	\$ (184.475)	\$ (184.475)	\$ (184.475)	\$ (184.475)	\$ (184.475)	\$ (184.475)	\$ (2,213.705)
4	RGGI Revenues*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Total Energy Efficiency Revenues	\$ -	\$ -	\$ (6,707.409)	\$ (6,707.409)	\$ (6,707.409)	\$ (6,707.409)	\$ (6,707.409)	\$ (6,707.409)	\$ (6,707.409)	\$ (6,707.409)	\$ (6,707.409)	\$ (6,707.409)	\$ (6,707.409)	\$ (80,488.904)
7	Total Energy Efficiency Expenses	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 6,690.779	\$ 80,289.351
8	Deferral (Over)/Under Recovery	\$ 6,690.779	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (16.629)	\$ (6,724.038)
9	Interest on Deferral Balance	\$ 9.060	\$ 18.123	\$ 18.127	\$ 18.131	\$ 18.135	\$ 18.139	\$ 18.143	\$ 18.147	\$ 18.151	\$ 18.156	\$ 18.160	\$ 18.160	\$ 9.081	\$ 199.553
10	(Over)/Under Ending Balance	\$ (0.000)	\$ 6,699.840	\$ 6,701.333	\$ 6,702.831	\$ 6,704.332	\$ 6,705.838	\$ 6,707.347	\$ 6,708.861	\$ 6,710.379	\$ 6,711.901	\$ 6,713.427	\$ 6,714.957	\$ 0.000	

*Sector portion of revenues are allocated based on 2024 forecasted kWh sales.

**CAPE LIGHT COMPACT JPE
Summary of Bill Impact Analysis**

Rate Class Information				Total Bill Comparison		Total Bill Comparison		Total Bill Comparison		Total Bill Comparison	
Rate		Month		2021 In Effect vs. 2022 Planned Change in Total Bill		2022 Planned vs. 2023 Planned Change in Total Bill		2023 Planned vs. 2024 Planned Change in Total Bill		2021 In Effect vs. 2024 Planned Change in Total Bill	
		Avg kWh	Avg kW	Amount	%	Amount	%	Amount	%	Amount	%
Rate R-1 Residential	R-1	516		9.78	7.33%	0.14	0.10%	3.14	2.19%	13.06	9.79%
Rate R-2 Residential Assistance	R-2	488		0.82	1.12%	0.06	0.08%	(0.25)	-0.34%	0.63	0.86%
Rate R-3 Residential Space Heating	R-3	740		14.01	7.76%	0.20	0.10%	4.51	2.31%	18.72	10.36%
Rate R-4 Residential Assistance Space Heating	R-4	874		1.46	1.20%	0.12	0.10%	(0.45)	-0.36%	1.13	0.93%
Rate G-1 Small General Service	G-1	400	2	3.89	4.38%	3.35	3.62%	(0.23)	-0.24%	7.01	7.90%
Rate G-1 Small General Service	G-1	5,700	19	55.41	4.94%	47.82	4.06%	(3.30)	-0.27%	99.93	8.91%
Rate G-1 Small General Service	G-1	10,800	27	104.97	5.11%	90.61	4.20%	(6.26)	-0.28%	189.32	9.22%
Rate G-1 Seasonal Small General Service	G-1S	450	9	4.38	3.76%	3.77	3.12%	(0.26)	-0.21%	7.89	6.78%
Rate G-1 Seasonal Small General Service	G-1S	1,200	8	11.66	3.88%	10.07	3.23%	(0.70)	-0.22%	21.03	7.00%
Rate G-1 Seasonal Small General Service	G-1S	2,700	9	26.24	4.25%	22.66	3.52%	(1.57)	-0.24%	47.33	7.67%
Rate G-2 Medium General Time-of-Use	G-2	61,500	205	597.78	5.62%	515.99	4.59%	(35.67)	-0.30%	1,078.10	10.13%
Rate G-2 Medium General Time-of-Use	G-2	85,600	214	832.04	6.00%	718.18	4.89%	(49.65)	-0.32%	1,500.57	10.82%
Rate G-2 Medium General Time-of-Use	G-2	126,500	253	1,229.58	6.27%	1,061.33	5.10%	(73.37)	-0.34%	2,217.54	11.31%
Rate G-3 Large General Time-Of-Use	G-3	373,100	1,066	3,626.54	6.35%	3,130.31	5.16%	(216.40)	-0.34%	6,540.45	11.46%
Rate G-3 Large General Time-Of-Use	G-3	354,600	788	3,446.71	6.65%	2,975.09	5.38%	(205.66)	-0.35%	6,216.14	12.00%
Rate G-3 Large General Time-Of-Use	G-3	614,900	1,118	5,976.82	6.92%	5,159.02	5.58%	(356.65)	-0.37%	10,779.19	12.47%
Rate G-4 General Power	G-4	7,800	52	75.82	5.10%	65.44	4.19%	(4.52)	-0.28%	136.74	9.20%
Rate G-4 General Power	G-4	6,750	27	65.61	5.50%	56.63	4.50%	(3.92)	-0.30%	118.32	9.92%
Rate G-4 General Power	G-4	9,450	27	91.86	5.70%	79.28	4.66%	(5.48)	-0.31%	165.66	10.29%
Rate G-5 Commercial Space Heating	G-5	1,472		14.31	4.56%	12.35	3.76%	(0.86)	-0.25%	25.80	8.21%
Rate G-6 All Electric Schools	G-6	60,748		590.47	5.71%	509.68	4.66%	(35.24)	-0.31%	1,064.91	10.29%
Rate G-7 Optional General Time-of-Use	G-7	7,000	20	68.04	4.95%	58.73	4.07%	(4.06)	-0.27%	122.71	8.92%
Rate G-7 Optional General Time-of-Use	G-7	15,500	31	150.66	5.34%	130.04	4.38%	(8.99)	-0.29%	271.71	9.64%
Rate G-7 Optional General Time-of-Use	G-7	11,700	18	113.72	5.57%	98.16	4.55%	(6.78)	-0.30%	205.10	10.04%
Rate G-7 Optional Seasonal General Time-of-Use	G-7S	450	9	4.37	2.67%	3.78	2.25%	(0.26)	-0.15%	7.89	4.83%
Rate G-7 Optional Seasonal General Time-of-Use	G-7S	1,500	10	14.58	4.13%	12.58	3.42%	(0.87)	-0.23%	26.29	7.45%
Rate G-7 Optional Seasonal General Time-of-Use	G-7S	3,900	13	37.90	4.78%	32.72	3.94%	(2.26)	-0.26%	68.36	8.63%

The 2021 EES rates are effective January 1, 2021 through December 31, 2021.
The 2022 EES rates are proposed for effect January 1, 2022 through December 31, 2022.
The 2023 EES rates are provided for informational purposes, for effect January 1, 2023 through December 31, 2023.
The 2024 EES rates are provided for informational purposes, for effect January 1, 2024 through December 31, 2024.
All rates include the most up to date information as of the date of filing.

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-1 Residential

1	Monthly	2021 In Effect			2022 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	100	\$20.74	\$10.74	\$31.48	\$22.64	\$10.74	\$33.38	\$1.90	6.0%
4	200	\$34.49	\$21.49	\$55.98	\$38.27	\$21.49	\$59.76	\$3.78	6.8%
5	300	\$48.23	\$32.23	\$80.46	\$53.91	\$32.23	\$86.14	\$5.68	7.1%
6	400	\$61.97	\$42.97	\$104.94	\$69.55	\$42.97	\$112.52	\$7.58	7.2%
7	500	\$75.72	\$53.72	\$129.44	\$85.19	\$53.72	\$138.91	\$9.47	7.3%
8	600	\$89.46	\$64.46	\$153.92	\$100.82	\$64.46	\$165.28	\$11.36	7.4%
9	700	\$103.20	\$75.20	\$178.40	\$116.46	\$75.20	\$191.66	\$13.26	7.4%
10	800	\$116.94	\$85.94	\$202.88	\$132.10	\$85.94	\$218.04	\$15.16	7.5%
11	900	\$130.69	\$96.69	\$227.38	\$147.73	\$96.69	\$244.42	\$17.04	7.5%
12	1,000	\$144.43	\$107.43	\$251.86	\$163.37	\$107.43	\$270.80	\$18.94	7.5%
13	1,250	\$178.79	\$134.29	\$313.08	\$202.46	\$134.29	\$336.75	\$23.67	7.6%
14	1,500	\$213.15	\$161.15	\$374.30	\$241.56	\$161.15	\$402.71	\$28.41	7.6%
15	2,000	\$281.86	\$214.86	\$496.72	\$319.74	\$214.86	\$534.60	\$37.88	7.6%
16	Avg 516	\$77.91	\$55.43	\$133.34	\$87.69	\$55.43	\$143.12	\$9.78	7.3%

17		2021 In Effect	2022 Planned	
18		<u>Rates</u>	<u>Rates</u>	<u>Change</u>
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04944	\$0.04944	\$0.00000
21	Revenue Decoupling	\$0.00299	\$0.00299	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00123	\$0.00123	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00478	\$0.00478	\$0.00000
24	Pension Adjustment Factor	\$0.00133	\$0.00133	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00763	\$0.00763	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00003	\$0.00003	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00330	\$0.00330	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00090	\$0.00090	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00001	\$0.00001	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00160	\$0.00160	\$0.00000
33	Vegetation Management	\$0.00174	\$0.00174	\$0.00000
34	Tax Act Credit Factor	(\$0.00192)	(\$0.00192)	\$0.00000
35	Grid Modernization	\$0.00081	\$0.00081	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03524	\$0.03524	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.02579	\$0.04473	\$0.01894
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-2 Residential Assistance

	Monthly kWh	2021 In Effect			2022 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
1									
2	100	\$11.72	\$6.88	\$18.60	\$11.89	\$6.88	\$18.77	\$0.17	0.9%
3	200	\$18.96	\$13.75	\$32.71	\$19.29	\$13.75	\$33.04	\$0.33	1.0%
4	300	\$26.20	\$20.63	\$46.83	\$26.70	\$20.63	\$47.33	\$0.50	1.1%
5	400	\$33.44	\$27.50	\$60.94	\$34.11	\$27.50	\$61.61	\$0.67	1.1%
6	500	\$40.68	\$34.38	\$75.06	\$41.52	\$34.38	\$75.90	\$0.84	1.1%
7	600	\$47.92	\$41.25	\$89.17	\$48.92	\$41.25	\$90.17	\$1.00	1.1%
8	700	\$55.16	\$48.13	\$103.29	\$56.33	\$48.13	\$104.46	\$1.17	1.1%
9	800	\$62.40	\$55.00	\$117.40	\$63.74	\$55.00	\$118.74	\$1.34	1.1%
10	900	\$69.64	\$61.88	\$131.52	\$71.15	\$61.88	\$133.03	\$1.51	1.1%
11	1,000	\$76.88	\$68.76	\$145.64	\$78.55	\$68.76	\$147.31	\$1.67	1.1%
12	1,250	\$94.98	\$85.94	\$180.92	\$97.07	\$85.94	\$183.01	\$2.09	1.2%
13	1,500	\$113.08	\$103.13	\$216.21	\$115.59	\$103.13	\$218.72	\$2.51	1.2%
14	2,000	\$149.27	\$137.51	\$286.78	\$152.63	\$137.51	\$290.14	\$3.36	1.2%
15									
16	Avg 488	\$39.81	\$33.55	\$73.36	\$40.63	\$33.55	\$74.18	\$0.82	1.1%

	2021 In Effect	2022 Planned	Change	
17				
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>	
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04944	\$0.04944	\$0.00000
21	Revenue Decoupling	\$0.00299	\$0.00299	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00123	\$0.00123	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00478	\$0.00478	\$0.00000
24	Pension Adjustment Factor	\$0.00133	\$0.00133	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00763	\$0.00763	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00003	\$0.00003	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00330	\$0.00330	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00090	\$0.00090	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00001	\$0.00001	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00160	\$0.00160	\$0.00000
33	Vegetation Management	\$0.00174	\$0.00174	\$0.00000
34	Tax Act Credit Factor	(\$0.00192)	(\$0.00192)	\$0.00000
35	Grid Modernization	\$0.00081	\$0.00081	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03524	\$0.03524	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.00148	\$0.00410	\$0.00262
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000
42	Low Income Discount	36%	36%	0%

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-3 Residential Space Heating

	Monthly kWh	2021 In Effect			2022 Planned			Total Bill Impact		
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
1										
2	100	\$19.72	\$10.74	\$30.46	\$21.62	\$10.74	\$32.36	\$1.90	6.2%	
3	200	\$32.44	\$21.49	\$53.93	\$36.23	\$21.49	\$57.72	\$3.79	7.0%	
4	300	\$45.16	\$32.23	\$77.39	\$50.85	\$32.23	\$83.08	\$5.69	7.4%	
5	400	\$57.68	\$42.97	\$100.65	\$65.46	\$42.97	\$108.43	\$7.78	7.7%	
6	500	\$70.61	\$53.72	\$124.33	\$80.08	\$53.72	\$133.80	\$9.47	7.6%	
7	600	\$83.53	\$64.46	\$147.99	\$94.69	\$64.46	\$159.15	\$11.36	7.7%	
8	700	\$96.05	\$75.20	\$171.25	\$109.31	\$75.20	\$184.51	\$13.26	7.7%	
9	800	\$108.77	\$86.94	\$195.71	\$123.92	\$86.94	\$209.86	\$15.15	7.8%	
10	900	\$121.49	\$96.69	\$218.18	\$138.54	\$96.69	\$235.23	\$17.05	7.8%	
11	1,000	\$134.21	\$107.43	\$241.64	\$153.15	\$107.43	\$260.58	\$18.94	7.8%	
12	1,250	\$166.01	\$134.29	\$300.30	\$189.69	\$134.29	\$323.98	\$23.68	7.9%	
13	1,500	\$197.82	\$161.15	\$358.97	\$226.23	\$161.15	\$387.38	\$28.41	7.9%	
14	2,000	\$261.42	\$214.86	\$476.28	\$299.30	\$214.86	\$514.16	\$37.88	8.0%	
15										
16	Avg	740	\$101.14	\$79.50	\$180.64	\$115.15	\$79.50	\$194.65	\$14.01	7.8%

	2021 In Effect	2022 Planned	Change	
17				
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>	
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04310	\$0.04310	\$0.00000
21	Revenue Decoupling	\$0.00236	\$0.00236	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00097	\$0.00097	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00376	\$0.00376	\$0.00000
24	Pension Adjustment Factor	\$0.00127	\$0.00127	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00601	\$0.00601	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00259	\$0.00259	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00071	\$0.00071	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00126	\$0.00126	\$0.00000
33	Vegetation Management	\$0.00167	\$0.00167	\$0.00000
34	Tax Act Credit Factor	(\$0.00151)	(\$0.00151)	\$0.00000
35	Grid Modernization	\$0.00064	\$0.00064	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03604	\$0.03604	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.02579	\$0.04473	\$0.01894
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-4 Residential Assistance Space Heating

	Monthly kWh	2021 In Effect		2022 Planned		Total Bill Impact				
		Delivery	Supplier	Delivery	Supplier	Change	% Change			
1	100	\$11.07	\$6.88	\$11.23	\$6.88	\$0.16	0.9%			
2	200	\$17.65	\$13.75	\$17.99	\$13.75	\$0.34	1.1%			
3	300	\$24.24	\$20.63	\$24.74	\$20.63	\$0.50	1.1%			
4	400	\$30.82	\$27.50	\$31.49	\$27.50	\$0.67	1.1%			
5	500	\$37.41	\$34.38	\$38.25	\$34.38	\$0.84	1.2%			
6	600	\$43.99	\$41.25	\$45.00	\$41.25	\$1.01	1.2%			
7	700	\$50.58	\$48.13	\$51.75	\$48.13	\$1.17	1.2%			
8	800	\$57.16	\$55.00	\$58.51	\$55.00	\$1.35	1.2%			
9	900	\$63.75	\$61.88	\$65.26	\$61.88	\$1.51	1.2%			
10	1,000	\$70.34	\$68.76	\$72.01	\$68.76	\$1.67	1.2%			
11	1,250	\$86.80	\$85.94	\$88.90	\$85.94	\$2.10	1.2%			
12	1,500	\$103.26	\$103.13	\$105.78	\$103.13	\$2.52	1.2%			
13	2,000	\$136.19	\$137.51	\$139.55	\$137.51	\$2.77	1.2%			
14	Avg	874	\$62.04	\$60.09	\$122.13	\$63.50	\$60.09	\$123.59	\$1.46	1.2%

	2021 In Effect	2022 Planned	Change
17			
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>
19	Customer Charge	\$7.00	\$7.00
20	Distribution Energy	\$0.04310	\$0.04310
21	Revenue Decoupling	\$0.00236	\$0.00236
22	Solar Massachusetts Renewable Target	\$0.00097	\$0.00097
23	Residential Assistance Adjustment Factor	\$0.00376	\$0.00376
24	Pension Adjustment Factor	\$0.00127	\$0.00127
25	Net Metering Recovery Surcharge	\$0.00601	\$0.00601
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070
27	AG Consulting Expense	\$0.00002	\$0.00002
28	Storm Cost Recovery Adjustment Factor	\$0.00259	\$0.00259
29	Storm Reserve Adjustment	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00071	\$0.00071
31	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00126	\$0.00126
33	Vegetation Management	\$0.00167	\$0.00167
34	Tax Act Credit Factor	(\$0.00151)	(\$0.00151)
35	Grid Modernization	\$0.00064	\$0.00064
36	Transition	(\$0.00117)	(\$0.00117)
37	Transmission Energy	\$0.03604	\$0.03604
38	Energy Efficiency Reconciliation Factor	\$0.00148	\$0.00410
39	System Benefits Charge	\$0.00250	\$0.00250
40	Renewable Energy Charge	\$0.00050	\$0.00050
41	Supply Charge	\$0.10743	\$0.10743
42	Low Income Discount	36%	36%
			0%

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-1 Small General Service**

1	Monthly kW	Monthly kWh	2021 In Effect			2022 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 200									
4	5	1,000	\$112.90	\$99.99	\$212.89	\$122.62	\$99.99	\$222.61	\$9.72	4.6%
5	10	2,000	\$219.80	\$199.98	\$419.78	\$239.24	\$199.98	\$439.22	\$19.44	4.6%
6	15	3,000	\$330.58	\$299.97	\$630.55	\$359.74	\$299.97	\$659.71	\$29.16	4.6%
7	25	5,000	\$532.40	\$499.95	\$1,032.35	\$581.00	\$499.95	\$1,080.95	\$48.60	4.7%
8	50	10,000	\$1,036.95	\$999.90	\$2,036.85	\$1,134.15	\$999.90	\$2,134.05	\$97.20	4.8%
9	100	20,000	\$2,046.05	\$1,999.80	\$4,045.85	\$2,240.45	\$1,999.80	\$4,240.25	\$194.40	4.8%
10	Avg	2	\$48.76	\$40.00	\$88.76	\$52.65	\$40.00	\$92.65	\$3.89	4.4%
11	Hours Use: 300									
12	5	1,500	\$166.35	\$149.99	\$316.34	\$180.93	\$149.99	\$330.92	\$14.58	4.6%
13	10	3,000	\$303.68	\$299.97	\$603.65	\$332.84	\$299.97	\$632.81	\$29.16	4.8%
14	15	4,500	\$441.59	\$449.96	\$891.55	\$485.33	\$449.96	\$935.29	\$43.74	4.9%
15	25	7,500	\$717.42	\$749.93	\$1,467.35	\$790.32	\$749.93	\$1,540.25	\$72.90	5.0%
16	50	15,000	\$1,407.00	\$1,499.85	\$2,906.85	\$1,552.80	\$1,499.85	\$3,052.65	\$145.80	5.0%
17	100	30,000	\$2,786.15	\$2,999.70	\$5,785.85	\$3,077.75	\$2,999.70	\$6,077.45	\$291.60	5.0%
18	Avg	19	\$551.92	\$569.94	\$1,121.86	\$607.33	\$569.94	\$1,177.27	\$55.41	4.9%
19	Hours Use: 400									
20	5	2,000	\$219.80	\$199.98	\$419.78	\$239.24	\$199.98	\$439.22	\$19.44	4.6%
21	10	4,000	\$377.69	\$399.96	\$777.65	\$416.57	\$399.96	\$816.53	\$38.88	5.0%
22	15	6,000	\$552.61	\$599.94	\$1,152.55	\$610.93	\$599.94	\$1,210.87	\$58.32	5.1%
23	25	10,000	\$902.45	\$999.90	\$1,902.35	\$999.65	\$999.90	\$1,999.55	\$97.20	5.1%
24	50	20,000	\$1,777.05	\$1,999.80	\$3,776.85	\$1,971.45	\$1,999.80	\$3,971.25	\$194.40	5.1%
25	100	40,000	\$3,526.25	\$3,999.60	\$7,525.85	\$3,915.05	\$3,999.60	\$7,914.65	\$388.80	5.2%
26	Avg	27	\$972.42	\$1,079.89	\$2,052.31	\$1,077.39	\$1,079.89	\$2,157.28	\$104.97	5.1%
27			2021 In Effect			2022 Planned				
28			Rates			Rates			Change	
29	Customer Charge		\$6.00			\$6.00			\$0.00	
30	Distribution Demand <=10 kW		\$0.00			\$0.00			\$0.00	
31	Distribution Demand >10 kW		\$5.38			\$5.38			\$0.00	
32	Distribution Energy <=2,300 kWh		\$0.04512			\$0.04512			\$0.00000	
33	Distribution Energy >2,300 kWh		\$0.01223			\$0.01223			\$0.00000	
34	Revenue Decoupling		\$0.00190			\$0.00190			\$0.00000	
35	Solar Massachusetts Renewable Target		\$0.00078			\$0.00078			\$0.00000	
36	Residential Assistance Adjustment Factor		\$0.00303			\$0.00303			\$0.00000	
37	Pension Adjustment Factor		\$0.00102			\$0.00102			\$0.00000	
38	Net Metering Recovery Surcharge		\$0.00484			\$0.00484			\$0.00000	
39	Long Term Renewable Contract Adjustment		\$0.00070			\$0.00070			\$0.00000	
40	AG Consulting Expense		\$0.00002			\$0.00002			\$0.00000	
41	Storm Cost Recovery Adjustment Factor		\$0.00210			\$0.00210			\$0.00000	
42	Storm Reserve Adjustment		\$0.00000			\$0.00000			\$0.00000	
43	Basic Service Cost True Up Factor		\$0.00057			\$0.00057			\$0.00000	
44	Solar Program Cost Adjustment Factor		\$0.00000			\$0.00000			\$0.00000	
45	Solar Expansion Cost Recovery Factor		\$0.00102			\$0.00102			\$0.00000	
46	Vegetation Management		\$0.00133			\$0.00133			\$0.00000	
47	Tax Act Credit Factor		(\$0.00122)			(\$0.00122)			\$0.00000	
48	Grid Modernization		\$0.00055			\$0.00055			\$0.00000	
49	Transition		(\$0.00117)			(\$0.00117)			\$0.00000	
50	Transmission Energy		\$0.03246			\$0.03246			\$0.00000	
51	Energy Efficiency Reconciliation Factor		\$0.01085			\$0.02057			\$0.00972	
52	System Benefits Charge		\$0.00250			\$0.00250			\$0.00000	
53	Renewable Energy Charge		\$0.00050			\$0.00050			\$0.00000	
54	Supply Charge		\$0.09999			\$0.09999			\$0.00000	

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-1 Seasonal Small General Service**

1	Monthly kW	Monthly kWh	2021 In Effect			2022 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 50									
4	5	250	\$42.36	\$25.00	\$67.36	\$44.79	\$25.00	\$69.79	\$2.43	3.6%
5	10	500	\$78.72	\$50.00	\$128.72	\$83.58	\$50.00	\$133.58	\$4.86	3.8%
6	20	1,000	\$198.83	\$99.99	\$298.82	\$208.55	\$99.99	\$308.54	\$9.72	3.3%
7	50	2,500	\$519.23	\$249.98	\$769.21	\$543.53	\$249.98	\$793.51	\$24.30	3.2%
8	Avg 9	450	\$71.44	\$45.00	\$116.44	\$75.82	\$45.00	\$120.82	\$4.38	3.8%
9	Hours Use: 150									
10	5	750	\$115.07	\$74.99	\$190.06	\$122.36	\$74.99	\$197.35	\$7.29	3.8%
11	10	1,500	\$224.15	\$149.99	\$374.14	\$238.73	\$149.99	\$388.72	\$14.58	3.9%
12	20	3,000	\$421.21	\$299.97	\$721.18	\$450.37	\$299.97	\$750.34	\$29.16	4.0%
13	50	7,500	\$961.03	\$749.93	\$1,710.96	\$1,033.93	\$749.93	\$1,783.86	\$72.90	4.3%
14	Avg 8	1,200	\$180.52	\$119.99	\$300.51	\$192.18	\$119.99	\$312.17	\$11.66	3.9%
15	Hours Use: 300									
16	5	1,500	\$224.15	\$149.99	\$374.14	\$238.73	\$149.99	\$388.72	\$14.58	3.9%
17	10	3,000	\$373.81	\$299.97	\$673.78	\$402.97	\$299.97	\$702.94	\$29.16	4.3%
18	20	6,000	\$686.29	\$599.94	\$1,286.23	\$744.61	\$599.94	\$1,344.55	\$58.32	4.5%
19	50	15,000	\$1,623.73	\$1,499.85	\$3,123.58	\$1,769.53	\$1,499.85	\$3,269.38	\$145.80	4.7%
20	Avg 9	2,700	\$347.30	\$269.97	\$617.27	\$373.54	\$269.97	\$643.51	\$26.24	4.3%
21					2021 In Effect			2022 Planned		
22					Rates			Rates		Change
23	Customer Charge				\$6.00			\$6.00		\$0.00
24	Distribution Demand <=10 kW				\$0.00			\$0.00		\$0.00
25	Distribution Demand >10 kW				\$4.74			\$4.74		\$0.00
26	Distribution Energy <=1,800 kWh				\$0.08365			\$0.08365		\$0.00000
27	Distribution Energy >1,800 kWh				\$0.02658			\$0.02658		\$0.00000
28	Revenue Decoupling				\$0.00190			\$0.00190		\$0.00000
29	Solar Massachusetts Renewable Target				\$0.00078			\$0.00078		\$0.00000
30	Residential Assistance Adjustment Factor				\$0.00303			\$0.00303		\$0.00000
31	Pension Adjustment Factor				\$0.00102			\$0.00102		\$0.00000
32	Net Metering Recovery Surcharge				\$0.00484			\$0.00484		\$0.00000
33	Long Term Renewable Contract Adjustment				\$0.00070			\$0.00070		\$0.00000
34	AG Consulting Expense				\$0.00002			\$0.00002		\$0.00000
35	Storm Cost Recovery Adjustment Factor				\$0.00210			\$0.00210		\$0.00000
36	Storm Reserve Adjustment				\$0.00000			\$0.00000		\$0.00000
37	Basic Service Cost True Up Factor				\$0.00057			\$0.00057		\$0.00000
38	Solar Program Cost Adjustment Factor				\$0.00000			\$0.00000		\$0.00000
39	Solar Expansion Cost Recovery Factor				\$0.00102			\$0.00102		\$0.00000
40	Vegetation Management				\$0.00133			\$0.00133		\$0.00000
41	Tax Act Credit Factor				(\$0.00122)			(\$0.00122)		\$0.00000
42	Grid Modernization				\$0.00055			\$0.00055		\$0.00000
43	Transition				(\$0.00117)			(\$0.00117)		\$0.00000
44	Transmission Energy				\$0.03246			\$0.03246		\$0.00000
45	Energy Efficiency Reconciliation Factor				\$0.01085			\$0.02057		\$0.00972
46	System Benefits Charge				\$0.00250			\$0.00250		\$0.00000
47	Renewable Energy Charge				\$0.00050			\$0.00050		\$0.00000
48	Supply Charge				\$0.09999			\$0.09999		\$0.00000

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-2 Medium General Time-of-Use

1	Monthly kVA	Monthly kWh	2021 In Effect			2022 Planned			Total Bill Impact		
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
3	Hours Use: 300										
4	100	30,000	\$2,744.10	\$2,635.20	\$5,379.30	\$3,035.70	\$2,635.20	\$5,670.90	\$291.60	5.4%	
5	150	45,000	\$3,931.14	\$3,952.80	\$7,883.94	\$4,368.54	\$3,952.80	\$8,321.34	\$437.40	5.5%	
6	200	60,000	\$5,118.19	\$5,270.40	\$10,388.59	\$5,701.39	\$5,270.40	\$10,971.79	\$583.20	5.6%	
7	300	90,000	\$7,492.29	\$7,905.60	\$15,397.89	\$8,367.09	\$7,905.60	\$16,272.69	\$874.80	5.7%	
8	500	150,000	\$12,240.48	\$13,176.00	\$25,416.48	\$13,698.48	\$13,176.00	\$26,874.48	\$1,458.00	5.7%	
9	Avg	205	61,500	\$5,236.89	\$5,402.16	\$10,639.05	\$5,834.67	\$5,402.16	\$11,236.83	\$597.78	5.6%
10	Hours Use: 400										
11	100	40,000	\$3,161.46	\$3,513.60	\$6,675.06	\$3,550.26	\$3,513.60	\$7,063.86	\$388.80	5.8%	
12	150	60,000	\$4,557.19	\$5,270.40	\$9,827.59	\$5,140.39	\$5,270.40	\$10,410.79	\$583.20	5.9%	
13	200	80,000	\$5,952.92	\$7,027.20	\$12,980.12	\$6,730.52	\$7,027.20	\$13,757.72	\$777.60	6.0%	
14	300	120,000	\$8,744.38	\$10,540.80	\$19,285.18	\$9,910.78	\$10,540.80	\$20,451.58	\$1,166.40	6.0%	
15	500	200,000	\$14,327.30	\$17,568.00	\$31,895.30	\$16,271.30	\$17,568.00	\$33,839.30	\$1,944.00	6.1%	
16	Avg	214	85,600	\$6,343.72	\$7,519.10	\$13,862.82	\$7,175.76	\$7,519.10	\$14,694.86	\$832.04	6.0%
17	Hours Use: 500										
18	100	50,000	\$3,578.83	\$4,392.00	\$7,970.83	\$4,064.83	\$4,392.00	\$8,456.83	\$486.00	6.1%	
19	150	75,000	\$5,183.24	\$6,588.00	\$11,771.24	\$5,912.24	\$6,588.00	\$12,500.24	\$729.00	6.2%	
20	200	100,000	\$6,787.65	\$8,784.00	\$15,571.65	\$7,759.65	\$8,784.00	\$16,543.65	\$972.00	6.2%	
21	300	150,000	\$9,996.48	\$13,176.00	\$23,172.48	\$11,454.48	\$13,176.00	\$24,630.48	\$1,458.00	6.3%	
22	500	250,000	\$16,414.13	\$21,960.00	\$38,374.13	\$18,844.13	\$21,960.00	\$40,804.13	\$2,430.00	6.3%	
23	Avg	253	126,500	\$8,488.33	\$11,111.76	\$19,600.09	\$9,717.91	\$11,111.76	\$20,829.67	\$1,229.58	6.3%
24					2021 In Effect		2022 Planned				
25					Rates		Rates	Change			
26	Customer Charge				\$370.00		\$370.00	\$0.00			
27	Distribution Demand				\$1.70		\$1.70	\$0.00			
28	Transmission Demand				\$9.52		\$9.52	\$0.00			
29	Distribution Energy - Peak				\$0.01991		\$0.01991	\$0.00000			
30	Distribution Energy - Low A				\$0.01675		\$0.01675	\$0.00000			
31	Distribution Energy - Low B				\$0.01086		\$0.01086	\$0.00000			
32	Revenue Decoupling				\$0.00122		\$0.00122	\$0.00000			
33	Solar Massachusetts Renewable Target				\$0.00050		\$0.00050	\$0.00000			
34	Residential Assistance Adjustment Factor				\$0.00194		\$0.00194	\$0.00000			
35	Pension Adjustment Factor				\$0.00067		\$0.00067	\$0.00000			
36	Net Metering Recovery Surcharge				\$0.00310		\$0.00310	\$0.00000			
37	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000			
38	AG Consulting Expense				\$0.00001		\$0.00001	\$0.00000			
39	Storm Cost Recovery Adjustment Factor				\$0.00135		\$0.00135	\$0.00000			
40	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000			
41	Basic Service Cost True Up Factor				\$0.00037		\$0.00037	\$0.00000			
42	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000			
43	Solar Expansion Cost Recovery Factor				\$0.00065		\$0.00065	\$0.00000			
44	Vegetation Management				\$0.00088		\$0.00088	\$0.00000			
45	Tax Act Credit Factor				(\$0.00078)		(\$0.00078)	\$0.00000			
46	Grid Modernization				\$0.00036		\$0.00036	\$0.00000			
47	Transition				(\$0.00117)		(\$0.00117)	\$0.00000			
48	Transmission Energy				\$0.00322		\$0.00322	\$0.00000			
49	Energy Efficiency Reconciliation Factor				\$0.01085		\$0.02057	\$0.00972			
50	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000			
51	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000			
52	Supply Charge				\$0.08784		\$0.08784	\$0.00000			
53	Peak Use:				28%						
54	Low A Use:				25%						
55	Low B Use:				47%						

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-4 General Power**

1	2	Monthly kW	Monthly kWh	2021 In Effect			2022 Planned			Total Bill Impact		
				Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
3		Hours Use: 150										
4		20	3,000	\$275.42	\$299.97	\$575.39	\$304.58	\$299.97	\$604.55	\$29.16	5.1%	
5		30	4,500	\$410.13	\$449.96	\$860.09	\$453.87	\$449.96	\$903.83	\$43.74	5.1%	
6		40	6,000	\$544.84	\$599.94	\$1,144.78	\$603.16	\$599.94	\$1,203.10	\$58.32	5.1%	
7		70	10,500	\$948.97	\$1,049.90	\$1,998.87	\$1,051.03	\$1,049.90	\$2,100.93	\$102.06	5.1%	
8		100	15,000	\$1,353.10	\$1,499.85	\$2,852.95	\$1,498.90	\$1,499.85	\$2,998.75	\$145.80	5.1%	
9		Avg	52	7,800	\$706.49	\$779.92	\$1,486.41	\$782.31	\$779.92	\$1,562.23	\$75.82	5.1%
10		Hours Use: 250										
11		20	5,000	\$384.90	\$499.95	\$884.85	\$433.50	\$499.95	\$933.45	\$48.60	5.5%	
12		30	7,500	\$574.35	\$749.93	\$1,324.28	\$647.25	\$749.93	\$1,397.18	\$72.90	5.5%	
13		40	10,000	\$763.80	\$999.90	\$1,763.70	\$861.00	\$999.90	\$1,860.90	\$97.20	5.5%	
14		70	17,500	\$1,332.15	\$1,749.83	\$3,081.98	\$1,502.25	\$1,749.83	\$3,252.08	\$170.10	5.5%	
15		100	25,000	\$1,900.50	\$2,499.75	\$4,400.25	\$2,143.50	\$2,499.75	\$4,643.25	\$243.00	5.5%	
16		Avg	27	6,750	\$517.52	\$674.93	\$1,192.45	\$583.13	\$674.93	\$1,258.06	\$65.61	5.5%
17		Hours Use: 350										
18		20	7,000	\$494.38	\$699.93	\$1,194.31	\$562.42	\$699.93	\$1,262.35	\$68.04	5.7%	
19		30	10,500	\$738.57	\$1,049.90	\$1,788.47	\$840.63	\$1,049.90	\$1,890.53	\$102.06	5.7%	
20		40	14,000	\$982.76	\$1,399.86	\$2,382.62	\$1,118.84	\$1,399.86	\$2,518.70	\$136.08	5.7%	
21		70	24,500	\$1,715.33	\$2,449.76	\$4,165.09	\$1,953.47	\$2,449.76	\$4,403.23	\$238.14	5.7%	
22		100	35,000	\$2,447.90	\$3,499.65	\$5,947.55	\$2,788.10	\$3,499.65	\$6,287.75	\$340.20	5.7%	
23		Avg	27	9,450	\$665.31	\$944.91	\$1,610.22	\$757.17	\$944.91	\$1,702.08	\$91.86	5.7%
24						2021 In Effect		2022 Planned				
25						Rates		Rates		Change		
26		Customer Charge				\$6.00		\$6.00		\$0.00		
27		Distribution Demand				\$1.92		\$1.92		\$0.00		
28		Transmission Demand				\$3.34		\$3.34		\$0.00		
29		Distribution Energy				\$0.02203		\$0.02203		\$0.00000		
30		Revenue Decoupling				\$0.00175		\$0.00175		\$0.00000		
31		Solar Massachusetts Renewable Target				\$0.00072		\$0.00072		\$0.00000		
32		Residential Assistance Adjustment Factor				\$0.00280		\$0.00280		\$0.00000		
33		Pension Adjustment Factor				\$0.00109		\$0.00109		\$0.00000		
34		Net Metering Recovery Surcharge				\$0.00446		\$0.00446		\$0.00000		
35		Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070		\$0.00000		
36		AG Consulting Expense				\$0.00002		\$0.00002		\$0.00000		
37		Storm Cost Recovery Adjustment Factor				\$0.00191		\$0.00191		\$0.00000		
38		Storm Reserve Adjustment				\$0.00000		\$0.00000		\$0.00000		
39		Basic Service Cost True Up Factor				\$0.00053		\$0.00053		\$0.00000		
40		Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000		\$0.00000		
41		Solar Expansion Cost Recovery Factor				\$0.00094		\$0.00094		\$0.00000		
42		Vegetation Management				\$0.00142		\$0.00142		\$0.00000		
43		Tax Act Credit Factor				(\$0.00112)		(\$0.00112)		\$0.00000		
44		Grid Modernization				\$0.00046		\$0.00046		\$0.00000		
45		Transition				(\$0.00117)		(\$0.00117)		\$0.00000		
46		Transmission Energy				\$0.00435		\$0.00435		\$0.00000		
47		Energy Efficiency Reconciliation Factor				\$0.01085		\$0.02057		\$0.00972		
48		System Benefits Charge				\$0.00250		\$0.00250		\$0.00000		
49		Renewable Energy Charge				\$0.00050		\$0.00050		\$0.00000		
50		Supply Charge				\$0.09999		\$0.09999		\$0.00000		

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-5 Commercial Space Heating**

1	Monthly	2021 In Effect			2022 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	100	\$16.93	\$10.00	\$26.93	\$17.90	\$10.00	\$27.90	\$0.97	3.6%
4	200	\$27.86	\$20.00	\$47.86	\$29.81	\$20.00	\$49.81	\$1.95	4.1%
5	300	\$38.80	\$30.00	\$68.80	\$41.71	\$30.00	\$71.71	\$2.91	4.2%
6	500	\$60.66	\$50.00	\$110.66	\$65.52	\$50.00	\$115.52	\$4.86	4.4%
7	750	\$87.99	\$74.99	\$162.98	\$95.28	\$74.99	\$170.27	\$7.29	4.5%
8	1,000	\$115.32	\$99.99	\$215.31	\$125.04	\$99.99	\$225.03	\$9.72	4.5%
9	1,500	\$169.98	\$149.99	\$319.97	\$184.56	\$149.99	\$334.55	\$14.58	4.6%
10	3,000	\$333.96	\$299.97	\$633.93	\$363.12	\$299.97	\$663.09	\$29.16	4.6%
11	5,000	\$552.60	\$499.95	\$1,052.55	\$601.20	\$499.95	\$1,101.15	\$48.60	4.6%
12	Avg 1,472	\$166.92	\$147.19	\$314.11	\$181.23	\$147.19	\$328.42	\$14.31	4.6%

13		2021 In Effect	2022 Planned	
14		Rates	Rates	Change
15	Customer Charge	\$6.00	\$6.00	\$0.00
16	Distribution Energy	\$0.03965	\$0.03965	\$0.00000
17	Revenue Decoupling	\$0.00222	\$0.00222	\$0.00000
18	Solar Massachusetts Renewable Target	\$0.00091	\$0.00091	\$0.00000
19	Residential Assistance Adjustment Factor	\$0.00354	\$0.00354	\$0.00000
20	Pension Adjustment Factor	\$0.00195	\$0.00195	\$0.00000
21	Net Metering Recovery Surcharge	\$0.00565	\$0.00565	\$0.00000
22	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
23	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
24	Storm Cost Recovery Adjustment Factor	\$0.00245	\$0.00245	\$0.00000
25	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
26	Basic Service Cost True Up Factor	\$0.00067	\$0.00067	\$0.00000
27	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
28	Solar Expansion Cost Recovery Factor	\$0.00119	\$0.00119	\$0.00000
29	Vegetation Management	\$0.00256	\$0.00256	\$0.00000
30	Tax Act Credit Factor	(\$0.00142)	(\$0.00142)	\$0.00000
31	Grid Modernization	\$0.00071	\$0.00071	\$0.00000
32	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
33	Transmission Energy	\$0.03584	\$0.03584	\$0.00000
34	Energy Efficiency Reconciliation Factor	\$0.01085	\$0.02057	\$0.00972
35	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
36	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
37	Supply Charge	\$0.09999	\$0.09999	\$0.00000

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-6 All Electric Schools**

	Monthly kWh	2021 In Effect			2022 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
1	25,000	\$1,777.00	\$2,499.75	\$4,276.75	\$2,020.00	\$2,499.75	\$4,519.75	\$243.00	5.7%
2	40,000	\$2,825.20	\$3,999.60	\$6,824.80	\$3,214.00	\$3,999.60	\$7,213.60	\$388.80	5.7%
3	50,000	\$3,524.00	\$4,999.50	\$8,523.50	\$4,010.00	\$4,999.50	\$9,009.50	\$486.00	5.7%
4	60,000	\$4,222.80	\$5,999.40	\$10,222.20	\$4,806.00	\$5,999.40	\$10,805.40	\$583.20	5.7%
5	150,000	\$10,512.00	\$14,998.50	\$25,510.50	\$11,970.00	\$14,998.50	\$26,968.50	\$1,458.00	5.7%
6	Avg 60,748	\$4,275.07	\$6,074.19	\$10,349.26	\$4,865.54	\$6,074.19	\$10,939.73	\$590.47	5.7%

	2021 In Effect Rates	2022 Planned Rates	Change	
9				
10				
11	Customer Charge	\$30.00	\$30.00	\$0.00
12	Distribution Energy	\$0.01802	\$0.01802	\$0.00000
13	Revenue Decoupling	\$0.00084	\$0.00084	\$0.00000
14	Solar Massachusetts Renewable Target	\$0.00035	\$0.00035	\$0.00000
15	Residential Assistance Adjustment Factor	\$0.00135	\$0.00135	\$0.00000
16	Pension Adjustment Factor	\$0.00083	\$0.00083	\$0.00000
17	Net Metering Recovery Surcharge	\$0.00215	\$0.00215	\$0.00000
18	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
19	AG Consulting Expense	\$0.00001	\$0.00001	\$0.00000
20	Storm Cost Recovery Adjustment Factor	\$0.00092	\$0.00092	\$0.00000
21	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
22	Basic Service Cost True Up Factor	\$0.00025	\$0.00025	\$0.00000
23	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
24	Solar Expansion Cost Recovery Factor	\$0.00045	\$0.00045	\$0.00000
25	Vegetation Management	\$0.00109	\$0.00109	\$0.00000
26	Tax Act Credit Factor	(\$0.00054)	(\$0.00054)	\$0.00000
27	Grid Modernization	\$0.00023	\$0.00023	\$0.00000
28	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
29	Transmission Energy	\$0.03055	\$0.03055	\$0.00000
30	Energy Efficiency Reconciliation Factor	\$0.01085	\$0.02057	\$0.00972
31	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
32	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
33	Supply Charge	\$0.09999	\$0.09999	\$0.00000

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-7 Optional General Time-of-Use**

1	Monthly kVA	Monthly kWh	2021 In Effect			2022 Planned			Total Bill Impact		
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
3	Hours Use: 350										
4	5	1,750	\$176.43	\$174.98	\$351.41	\$193.44	\$174.98	\$368.42	\$17.01	4.8%	
5	10	3,500	\$342.86	\$349.97	\$692.83	\$376.88	\$349.97	\$726.85	\$34.02	4.9%	
6	20	7,000	\$675.73	\$699.93	\$1,375.66	\$743.77	\$699.93	\$1,443.70	\$68.04	4.9%	
7	50	17,500	\$1,674.32	\$1,749.83	\$3,424.15	\$1,844.42	\$1,749.83	\$3,594.25	\$170.10	5.0%	
8	75	26,250	\$2,506.48	\$2,624.74	\$5,131.22	\$2,761.63	\$2,624.74	\$5,386.37	\$255.15	5.0%	
9	Avg	20	7,000	\$675.73	\$699.93	\$1,375.66	\$743.77	\$699.93	\$1,443.70	\$68.04	4.9%
10	Hours Use: 500										
11	5	2,500	\$213.07	\$249.98	\$463.05	\$237.37	\$249.98	\$487.35	\$24.30	5.2%	
12	10	5,000	\$416.13	\$499.95	\$916.08	\$464.73	\$499.95	\$964.68	\$48.60	5.3%	
13	20	10,000	\$822.27	\$999.90	\$1,822.17	\$919.47	\$999.90	\$1,919.37	\$97.20	5.3%	
14	50	25,000	\$2,040.67	\$2,499.75	\$4,540.42	\$2,283.67	\$2,499.75	\$4,783.42	\$243.00	5.4%	
15	75	37,500	\$3,056.01	\$3,749.63	\$6,805.64	\$3,420.51	\$3,749.63	\$7,170.14	\$364.50	5.4%	
16	Avg	31	15,500	\$1,269.02	\$1,549.85	\$2,818.87	\$1,419.68	\$1,549.85	\$2,969.53	\$150.66	5.3%
17	Hours Use: 650										
18	5	3,250	\$249.70	\$324.97	\$574.67	\$281.29	\$324.97	\$606.26	\$31.59	5.5%	
19	10	6,500	\$499.40	\$649.94	\$1,139.34	\$552.58	\$649.94	\$1,202.52	\$63.18	5.5%	
20	20	13,000	\$998.81	\$1,299.87	\$2,268.68	\$1,095.17	\$1,299.87	\$2,395.04	\$126.36	5.6%	
21	50	32,500	\$2,407.02	\$3,249.68	\$5,656.70	\$2,722.92	\$3,249.68	\$5,972.60	\$315.90	5.6%	
22	75	48,750	\$3,605.53	\$4,874.51	\$8,480.04	\$4,079.38	\$4,874.51	\$8,953.89	\$473.85	5.6%	
23	Avg	18	11,700	\$872.93	\$1,169.88	\$2,042.81	\$986.65	\$1,169.88	\$2,156.53	\$113.72	5.6%
24					2021 In Effect		2022 Planned				
25					Rates		Rates	Change			
26	Customer Charge				\$10.00		\$10.00	\$0.00			
27	Distribution Demand				\$3.68		\$3.68	\$0.00			
28	Transmission Demand				\$12.51		\$12.51	\$0.00			
29	Distribution Energy - Peak				\$0.02528		\$0.02528	\$0.00000			
30	Distribution Energy - Low Load				\$0.01771		\$0.01771	\$0.00000			
31	Revenue Decoupling				\$0.00190		\$0.00190	\$0.00000			
32	Solar Massachusetts Renewable Target				\$0.00078		\$0.00078	\$0.00000			
33	Residential Assistance Adjustment Factor				\$0.00303		\$0.00303	\$0.00000			
34	Pension Adjustment Factor				\$0.00102		\$0.00102	\$0.00000			
35	Net Metering Recovery Surcharge				\$0.00484		\$0.00484	\$0.00000			
36	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000			
37	AG Consulting Expense				\$0.00002		\$0.00002	\$0.00000			
38	Storm Cost Recovery Adjustment Factor				\$0.00210		\$0.00210	\$0.00000			
39	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000			
40	Basic Service Cost True Up Factor				\$0.00057		\$0.00057	\$0.00000			
41	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000			
42	Solar Expansion Cost Recovery Factor				\$0.00102		\$0.00102	\$0.00000			
43	Vegetation Management				\$0.00133		\$0.00133	\$0.00000			
44	Tax Act Credit Factor				(\$0.00122)		(\$0.00122)	\$0.00000			
45	Grid Modernization				\$0.00055		\$0.00055	\$0.00000			
46	Transition				(\$0.00117)		(\$0.00117)	\$0.00000			
47	Energy Efficiency Reconciliation Factor				\$0.01085		\$0.02057	\$0.00972			
48	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000			
49	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000			
50	Supply Charge				\$0.09999		\$0.09999	\$0.00000			
51	Peak Use:				24%						
52	Low A Use:				76%						

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-7 Optional Seasonal General Time-of-Use**

1	Monthly kVA	Monthly kWh	2021 In Effect			2022 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 50									
4	5	250	\$70.24	\$25.00	\$95.24	\$72.67	\$25.00	\$97.67	\$2.43	2.6%
5	10	500	\$130.49	\$50.00	\$180.49	\$135.35	\$50.00	\$185.35	\$4.86	2.7%
6	20	1,000	\$250.97	\$99.99	\$350.96	\$260.69	\$99.99	\$360.68	\$9.72	2.8%
7	50	2,500	\$612.43	\$249.98	\$862.41	\$636.73	\$249.98	\$886.71	\$24.30	2.8%
8	75	3,750	\$913.65	\$374.96	\$1,288.61	\$950.10	\$374.96	\$1,325.06	\$36.45	2.8%
9	Avg	9	\$118.44	\$45.00	\$163.44	\$122.81	\$45.00	\$167.81	\$4.37	2.7%
10	Hours Use: 150									
11	5	750	\$106.53	\$74.99	\$181.52	\$113.82	\$74.99	\$188.81	\$7.29	4.0%
12	10	1,500	\$203.06	\$149.99	\$353.05	\$217.64	\$149.99	\$367.63	\$14.58	4.1%
13	20	3,000	\$396.12	\$299.97	\$696.09	\$425.28	\$299.97	\$725.25	\$29.16	4.2%
14	50	7,500	\$975.30	\$749.93	\$1,725.23	\$1,048.20	\$749.93	\$1,798.13	\$72.90	4.2%
15	75	11,250	\$1,457.95	\$1,124.89	\$2,582.84	\$1,567.30	\$1,124.89	\$2,692.19	\$109.35	4.2%
16	Avg	10	\$203.06	\$149.99	\$353.05	\$217.64	\$149.99	\$367.63	\$14.58	4.1%
17	Hours Use: 300									
18	5	1,500	\$160.96	\$149.99	\$310.95	\$175.54	\$149.99	\$325.53	\$14.58	4.7%
19	10	3,000	\$311.92	\$299.97	\$611.89	\$341.08	\$299.97	\$641.05	\$29.16	4.8%
20	20	6,000	\$613.84	\$599.94	\$1,213.78	\$672.16	\$599.94	\$1,272.10	\$58.32	4.8%
21	50	15,000	\$1,519.60	\$1,499.85	\$3,019.45	\$1,665.40	\$1,499.85	\$3,165.25	\$145.80	4.8%
22	75	22,500	\$2,274.40	\$2,249.78	\$4,524.18	\$2,493.10	\$2,249.78	\$4,742.88	\$218.70	4.8%
23	Avg	13	\$402.50	\$389.96	\$792.46	\$440.40	\$389.96	\$830.36	\$37.90	4.8%
24					2021 In Effect			2022 Planned		
25					Rates			Rates	Change	
26	Customer Charge				\$10.00			\$10.00	\$0.00	
27	Distribution Demand				\$3.72			\$3.72	\$0.00	
28	Transmission Demand				\$4.70			\$4.70	\$0.00	
29	Distribution Energy - Peak				\$0.04929			\$0.04929	\$0.00000	
30	Distribution Energy - Low Load				\$0.04145			\$0.04145	\$0.00000	
31	Revenue Decoupling				\$0.00190			\$0.00190	\$0.00000	
32	Solar Massachusetts Renewable Target				\$0.00078			\$0.00078	\$0.00000	
33	Residential Assistance Adjustment Factor				\$0.00303			\$0.00303	\$0.00000	
34	Pension Adjustment Factor				\$0.00102			\$0.00102	\$0.00000	
35	Net Metering Recovery Surcharge				\$0.00484			\$0.00484	\$0.00000	
36	Long Term Renewable Contract Adjustment				\$0.00070			\$0.00070	\$0.00000	
37	AG Consulting Expense				\$0.00002			\$0.00002	\$0.00000	
38	Storm Cost Recovery Adjustment Factor				\$0.00210			\$0.00210	\$0.00000	
39	Storm Reserve Adjustment				\$0.00000			\$0.00000	\$0.00000	
40	Basic Service Cost True Up Factor				\$0.00057			\$0.00057	\$0.00000	
41	Solar Program Cost Adjustment Factor				\$0.00000			\$0.00000	\$0.00000	
42	Solar Expansion Cost Recovery Factor				\$0.00102			\$0.00102	\$0.00000	
43	Vegetation Management				\$0.00133			\$0.00133	\$0.00000	
44	Tax Act Credit Factor				(\$0.00122)			(\$0.00122)	\$0.00000	
45	Grid Modernization				\$0.00055			\$0.00055	\$0.00000	
46	Transition				(\$0.00117)			(\$0.00117)	\$0.00000	
47	Energy Efficiency Reconciliation Factor				\$0.01085			\$0.02057	\$0.00972	
48	System Benefits Charge				\$0.00250			\$0.00250	\$0.00000	
49	Renewable Energy Charge				\$0.00050			\$0.00050	\$0.00000	
50	Supply Charge				\$0.09999			\$0.09999	\$0.00000	
51	Peak Use:				23%					
52	Low A Use:				77%					

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-1 Residential

1	Monthly	2022 Planned			2023 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	100	\$22.64	\$10.74	\$33.38	\$22.66	\$10.74	\$33.40	\$0.02	0.1%
4	200	\$38.27	\$21.49	\$59.76	\$38.33	\$21.49	\$59.82	\$0.06	0.1%
5	300	\$53.91	\$32.23	\$86.14	\$53.99	\$32.23	\$86.22	\$0.08	0.1%
6	400	\$69.55	\$42.97	\$112.52	\$69.66	\$42.97	\$112.63	\$0.11	0.1%
7	500	\$85.19	\$53.72	\$138.91	\$85.32	\$53.72	\$139.04	\$0.13	0.1%
8	600	\$100.82	\$64.46	\$165.28	\$100.98	\$64.46	\$165.44	\$0.16	0.1%
9	700	\$116.46	\$75.20	\$191.66	\$116.65	\$75.20	\$191.85	\$0.19	0.1%
10	800	\$132.10	\$85.94	\$218.04	\$132.31	\$85.94	\$218.25	\$0.21	0.1%
11	900	\$147.73	\$96.69	\$244.42	\$147.98	\$96.69	\$244.67	\$0.25	0.1%
12	1,000	\$163.37	\$107.43	\$270.80	\$163.64	\$107.43	\$271.07	\$0.27	0.1%
13	1,250	\$202.46	\$134.29	\$336.75	\$202.80	\$134.29	\$337.09	\$0.34	0.1%
14	1,500	\$241.56	\$161.15	\$402.71	\$241.96	\$161.15	\$403.11	\$0.40	0.1%
15	2,000	\$319.74	\$214.86	\$534.60	\$320.28	\$214.86	\$535.14	\$0.54	0.1%
16	Avg 516	\$87.69	\$55.43	\$143.12	\$87.83	\$55.43	\$143.26	\$0.14	0.1%

17		2022 Planned	2023 Planned	
18		<u>Rates</u>	<u>Rates</u>	<u>Change</u>
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04944	\$0.04944	\$0.00000
21	Revenue Decoupling	\$0.00299	\$0.00299	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00123	\$0.00123	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00478	\$0.00478	\$0.00000
24	Pension Adjustment Factor	\$0.00133	\$0.00133	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00763	\$0.00763	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00003	\$0.00003	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00330	\$0.00330	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00090	\$0.00090	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00001	\$0.00001	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00160	\$0.00160	\$0.00000
33	Vegetation Management	\$0.00174	\$0.00174	\$0.00000
34	Tax Act Credit Factor	(\$0.00192)	(\$0.00192)	\$0.00000
35	Grid Modernization	\$0.00081	\$0.00081	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03524	\$0.03524	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.04473	\$0.04500	\$0.00027
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-2 Residential Assistance

	Monthly kWh	2022 Planned		2023 Planned		Total Bill Impact				
		Delivery	Supplier	Delivery	Supplier	Change	% Change			
1	100	\$11.89	\$6.88	\$11.90	\$6.88	\$0.01	0.1%			
2	200	\$19.29	\$13.75	\$19.32	\$13.75	\$0.03	0.1%			
3	300	\$26.70	\$20.63	\$26.74	\$20.63	\$0.04	0.1%			
4	400	\$34.11	\$27.50	\$34.16	\$27.50	\$0.05	0.1%			
5	500	\$41.52	\$34.38	\$41.58	\$34.38	\$0.06	0.1%			
6	600	\$48.92	\$41.25	\$49.00	\$41.25	\$0.08	0.1%			
7	700	\$56.33	\$48.13	\$56.43	\$48.13	\$0.10	0.1%			
8	800	\$63.74	\$55.00	\$63.85	\$55.00	\$0.11	0.1%			
9	900	\$71.15	\$61.88	\$71.27	\$61.88	\$0.12	0.1%			
10	1,000	\$78.55	\$68.76	\$78.69	\$68.76	\$0.14	0.1%			
11	1,250	\$97.07	\$85.94	\$97.24	\$85.94	\$0.17	0.1%			
12	1,500	\$115.59	\$103.13	\$115.79	\$103.13	\$0.20	0.1%			
13	2,000	\$152.63	\$137.51	\$152.90	\$137.51	\$0.27	0.1%			
14	Avg	488	\$40.63	\$33.55	\$74.18	\$40.69	\$33.55	\$74.24	\$0.06	0.1%

	2022 Planned	2023 Planned	Change
17			
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>
19	Customer Charge	\$7.00	\$7.00
20	Distribution Energy	\$0.04944	\$0.04944
21	Revenue Decoupling	\$0.00299	\$0.00299
22	Solar Massachusetts Renewable Target	\$0.00123	\$0.00123
23	Residential Assistance Adjustment Factor	\$0.00478	\$0.00478
24	Pension Adjustment Factor	\$0.00133	\$0.00133
25	Net Metering Recovery Surcharge	\$0.00763	\$0.00763
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070
27	AG Consulting Expense	\$0.00003	\$0.00003
28	Storm Cost Recovery Adjustment Factor	\$0.00330	\$0.00330
29	Storm Reserve Adjustment	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00090	\$0.00090
31	Solar Program Cost Adjustment Factor	\$0.00001	\$0.00001
32	Solar Expansion Cost Recovery Factor	\$0.00160	\$0.00160
33	Vegetation Management	\$0.00174	\$0.00174
34	Tax Act Credit Factor	(\$0.00192)	(\$0.00192)
35	Grid Modernization	\$0.00081	\$0.00081
36	Transition	(\$0.00117)	(\$0.00117)
37	Transmission Energy	\$0.03524	\$0.03524
38	Energy Efficiency Reconciliation Factor	\$0.00410	\$0.00431
39	System Benefits Charge	\$0.00250	\$0.00250
40	Renewable Energy Charge	\$0.00050	\$0.00050
41	Supply Charge	\$0.10743	\$0.10743
42	Low Income Discount	36%	36%
			0%

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-3 Residential Space Heating

	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact		
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
1										
2	100	\$21.62	\$10.74	\$32.36	\$21.64	\$10.74	\$32.38	\$0.02	0.1%	
3	200	\$36.23	\$21.49	\$57.72	\$36.28	\$21.49	\$57.77	\$0.05	0.1%	
4	300	\$50.85	\$32.23	\$83.08	\$50.93	\$32.23	\$83.16	\$0.08	0.1%	
5	400	\$65.46	\$42.97	\$108.43	\$65.57	\$42.97	\$108.54	\$0.11	0.1%	
6	500	\$80.08	\$53.72	\$133.80	\$80.21	\$53.72	\$133.93	\$0.13	0.1%	
7	600	\$94.69	\$64.46	\$159.15	\$94.85	\$64.46	\$159.31	\$0.16	0.1%	
8	700	\$109.31	\$75.20	\$184.51	\$109.49	\$75.20	\$184.69	\$0.18	0.1%	
9	800	\$123.92	\$85.94	\$209.86	\$124.14	\$85.94	\$210.08	\$0.22	0.1%	
10	900	\$138.54	\$96.69	\$235.23	\$138.78	\$96.69	\$235.47	\$0.24	0.1%	
11	1,000	\$153.15	\$107.43	\$260.58	\$153.42	\$107.43	\$260.85	\$0.27	0.1%	
12	1,250	\$189.69	\$134.29	\$323.98	\$190.03	\$134.29	\$324.32	\$0.34	0.1%	
13	1,500	\$226.23	\$161.15	\$387.38	\$226.63	\$161.15	\$387.78	\$0.40	0.1%	
14	2,000	\$299.30	\$214.86	\$514.16	\$299.84	\$214.86	\$514.70	\$0.54	0.1%	
15	Avg	740	\$115.15	\$79.50	\$194.65	\$115.35	\$79.50	\$194.85	\$0.20	0.1%

	2022 Planned	2023 Planned	Change	
17				
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>	
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04310	\$0.04310	\$0.00000
21	Revenue Decoupling	\$0.00236	\$0.00236	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00097	\$0.00097	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00376	\$0.00376	\$0.00000
24	Pension Adjustment Factor	\$0.00127	\$0.00127	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00601	\$0.00601	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00259	\$0.00259	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00071	\$0.00071	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00126	\$0.00126	\$0.00000
33	Vegetation Management	\$0.00167	\$0.00167	\$0.00000
34	Tax Act Credit Factor	(\$0.00151)	(\$0.00151)	\$0.00000
35	Grid Modernization	\$0.00064	\$0.00064	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03604	\$0.03604	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.04473	\$0.04500	\$0.00027
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-4 Residential Assistance Space Heating

	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
1									
2	100	\$11.23	\$6.88	\$18.11	\$11.25	\$6.88	\$18.13	\$0.02	0.1%
3	200	\$17.99	\$13.75	\$31.74	\$18.01	\$13.75	\$31.76	\$0.02	0.1%
4	300	\$24.74	\$20.63	\$45.37	\$24.78	\$20.63	\$45.41	\$0.04	0.1%
5	400	\$31.49	\$27.50	\$58.99	\$31.55	\$27.50	\$59.05	\$0.06	0.1%
6	500	\$38.25	\$34.38	\$72.63	\$38.31	\$34.38	\$72.69	\$0.06	0.1%
7	600	\$45.00	\$41.25	\$86.25	\$45.08	\$41.25	\$86.33	\$0.08	0.1%
8	700	\$51.75	\$48.13	\$99.88	\$51.85	\$48.13	\$99.98	\$0.10	0.1%
9	800	\$58.51	\$55.00	\$113.51	\$58.61	\$55.00	\$113.61	\$0.10	0.1%
10	900	\$65.26	\$61.88	\$127.14	\$65.38	\$61.88	\$127.26	\$0.12	0.1%
11	1,000	\$72.01	\$68.76	\$140.77	\$72.15	\$68.76	\$140.91	\$0.14	0.1%
12	1,250	\$88.90	\$85.94	\$174.84	\$89.06	\$85.94	\$175.00	\$0.16	0.1%
13	1,500	\$105.78	\$103.13	\$208.91	\$105.98	\$103.13	\$209.11	\$0.20	0.1%
14	2,000	\$139.55	\$137.51	\$277.06	\$139.81	\$137.51	\$277.32	\$0.26	0.1%
15									
16	Avg 874	\$63.50	\$60.09	\$123.59	\$63.62	\$60.09	\$123.71	\$0.12	0.1%

	2022 Planned	2023 Planned	Change	
17				
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>	
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04310	\$0.04310	\$0.00000
21	Revenue Decoupling	\$0.00236	\$0.00236	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00097	\$0.00097	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00376	\$0.00376	\$0.00000
24	Pension Adjustment Factor	\$0.00127	\$0.00127	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00601	\$0.00601	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00259	\$0.00259	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00071	\$0.00071	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00126	\$0.00126	\$0.00000
33	Vegetation Management	\$0.00167	\$0.00167	\$0.00000
34	Tax Act Credit Factor	(\$0.00151)	(\$0.00151)	\$0.00000
35	Grid Modernization	\$0.00064	\$0.00064	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03604	\$0.03604	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.00410	\$0.00431	\$0.00021
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000
42	Low Income Discount	36%	36%	0%

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-1 Small General Service

1	Monthly kW	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 200									
4	5	1,000	\$122.62	\$99.99	\$222.61	\$131.01	\$99.99	\$231.00	\$8.39	3.8%
5	10	2,000	\$239.24	\$199.98	\$439.22	\$256.02	\$199.98	\$456.00	\$16.78	3.8%
6	15	3,000	\$359.74	\$299.97	\$659.71	\$384.91	\$299.97	\$684.88	\$25.17	3.8%
7	25	5,000	\$581.00	\$499.95	\$1,080.95	\$622.95	\$499.95	\$1,122.90	\$41.95	3.9%
8	50	10,000	\$1,134.15	\$999.90	\$2,134.05	\$1,218.05	\$999.90	\$2,217.95	\$83.90	3.9%
9	100	20,000	\$2,240.45	\$1,999.80	\$4,240.25	\$2,408.25	\$1,999.80	\$4,408.05	\$167.80	4.0%
10	Avg	2	\$52.65	\$40.00	\$92.65	\$56.00	\$40.00	\$96.00	\$3.35	3.6%
11	Hours Use: 300									
12	5	1,500	\$180.93	\$149.99	\$330.92	\$193.52	\$149.99	\$343.51	\$12.59	3.8%
13	10	3,000	\$332.84	\$299.97	\$632.81	\$358.01	\$299.97	\$657.98	\$25.17	4.0%
14	15	4,500	\$485.33	\$449.96	\$935.29	\$523.09	\$449.96	\$973.05	\$37.76	4.0%
15	25	7,500	\$790.32	\$749.93	\$1,540.25	\$853.25	\$749.93	\$1,603.18	\$62.93	4.1%
16	50	15,000	\$1,552.80	\$1,499.85	\$3,052.65	\$1,678.65	\$1,499.85	\$3,178.50	\$125.85	4.1%
17	100	30,000	\$3,077.75	\$2,999.70	\$6,077.45	\$3,329.45	\$2,999.70	\$6,329.15	\$251.70	4.1%
18	Avg	19	\$607.33	\$569.94	\$1,177.27	\$655.15	\$569.94	\$1,225.09	\$47.82	4.1%
19	Hours Use: 400									
20	5	2,000	\$239.24	\$199.98	\$439.22	\$256.02	\$199.98	\$456.00	\$16.78	3.8%
21	10	4,000	\$416.57	\$399.96	\$816.53	\$450.13	\$399.96	\$850.09	\$33.56	4.1%
22	15	6,000	\$610.93	\$599.94	\$1,210.87	\$661.27	\$599.94	\$1,261.21	\$50.34	4.2%
23	25	10,000	\$999.65	\$999.90	\$1,999.55	\$1,083.55	\$999.90	\$2,083.45	\$83.90	4.2%
24	50	20,000	\$1,971.45	\$1,999.80	\$3,971.25	\$2,139.25	\$1,999.80	\$4,139.05	\$167.80	4.2%
25	100	40,000	\$3,915.05	\$3,999.60	\$7,914.65	\$4,250.65	\$3,999.60	\$8,250.25	\$335.60	4.2%
26	Avg	27	\$1,077.39	\$1,079.89	\$2,157.28	\$1,168.00	\$1,079.89	\$2,247.89	\$90.61	4.2%
27	2022 Planned									
28	Rates									
29	Customer Charge				\$6.00	\$6.00		\$0.00		
30	Distribution Demand <=10 kW				\$0.00	\$0.00		\$0.00		
31	Distribution Demand >10 kW				\$5.38	\$5.38		\$0.00		
32	Distribution Energy <=2,300 kWh				\$0.04512	\$0.04512		\$0.00000		
33	Distribution Energy >2,300 kWh				\$0.01223	\$0.01223		\$0.00000		
34	Revenue Decoupling				\$0.00190	\$0.00190		\$0.00000		
35	Solar Massachusetts Renewable Target				\$0.00078	\$0.00078		\$0.00000		
36	Residential Assistance Adjustment Factor				\$0.00303	\$0.00303		\$0.00000		
37	Pension Adjustment Factor				\$0.00102	\$0.00102		\$0.00000		
38	Net Metering Recovery Surcharge				\$0.00484	\$0.00484		\$0.00000		
39	Long Term Renewable Contract Adjustment				\$0.00070	\$0.00070		\$0.00000		
40	AG Consulting Expense				\$0.00002	\$0.00002		\$0.00000		
41	Storm Cost Recovery Adjustment Factor				\$0.00210	\$0.00210		\$0.00000		
42	Storm Reserve Adjustment				\$0.00000	\$0.00000		\$0.00000		
43	Basic Service Cost True Up Factor				\$0.00057	\$0.00057		\$0.00000		
44	Solar Program Cost Adjustment Factor				\$0.00000	\$0.00000		\$0.00000		
45	Solar Expansion Cost Recovery Factor				\$0.00102	\$0.00102		\$0.00000		
46	Vegetation Management				\$0.00133	\$0.00133		\$0.00000		
47	Tax Act Credit Factor				(\$0.00122)	(\$0.00122)		\$0.00000		
48	Grid Modernization				\$0.00055	\$0.00055		\$0.00000		
49	Transition				(\$0.00117)	(\$0.00117)		\$0.00000		
50	Transmission Energy				\$0.03246	\$0.03246		\$0.00000		
51	Energy Efficiency Reconciliation Factor				\$0.02057	\$0.02896		\$0.00839		
52	System Benefits Charge				\$0.00250	\$0.00250		\$0.00000		
53	Renewable Energy Charge				\$0.00050	\$0.00050		\$0.00000		
54	Supply Charge				\$0.09999	\$0.09999		\$0.00000		

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-1 Seasonal Small General Service**

1	Monthly kW	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 50									
4	5	250	\$44.79	\$25.00	\$69.79	\$46.89	\$25.00	\$71.89	\$2.10	3.0%
5	10	500	\$83.58	\$50.00	\$133.58	\$87.77	\$50.00	\$137.77	\$4.19	3.1%
6	20	1,000	\$208.55	\$99.99	\$308.54	\$216.94	\$99.99	\$316.93	\$8.39	2.7%
7	50	2,500	\$543.53	\$249.98	\$793.51	\$564.50	\$249.98	\$814.48	\$20.97	2.6%
8	Avg 9	450	\$75.82	\$45.00	\$120.82	\$79.59	\$45.00	\$124.59	\$3.77	3.1%
9	Hours Use: 150									
10	5	750	\$122.36	\$74.99	\$197.35	\$128.66	\$74.99	\$203.65	\$6.30	3.2%
11	10	1,500	\$238.73	\$149.99	\$388.72	\$251.31	\$149.99	\$401.30	\$12.58	3.2%
12	20	3,000	\$450.37	\$299.97	\$750.34	\$475.54	\$299.97	\$775.51	\$25.17	3.4%
13	50	7,500	\$1,033.93	\$749.93	\$1,783.86	\$1,096.85	\$749.93	\$1,846.78	\$62.92	3.5%
14	Avg 8	1,200	\$192.18	\$119.99	\$312.17	\$202.25	\$119.99	\$322.24	\$10.07	3.2%
15	Hours Use: 300									
16	5	1,500	\$238.73	\$149.99	\$388.72	\$251.31	\$149.99	\$401.30	\$12.58	3.2%
17	10	3,000	\$402.97	\$299.97	\$702.94	\$428.14	\$299.97	\$728.11	\$25.17	3.6%
18	20	6,000	\$744.61	\$599.94	\$1,344.55	\$794.95	\$599.94	\$1,394.89	\$50.34	3.7%
19	50	15,000	\$1,769.53	\$1,499.85	\$3,269.38	\$1,895.38	\$1,499.85	\$3,395.23	\$125.85	3.8%
20	Avg 9	2,700	\$373.54	\$269.97	\$643.51	\$396.20	\$269.97	\$666.17	\$22.66	3.5%
21					2022 Planned	2023 Planned				
22					Rates	Rates	Change			
23	Customer Charge				\$6.00	\$6.00	\$0.00			
24	Distribution Demand <=10 kW				\$0.00	\$0.00	\$0.00			
25	Distribution Demand >10 kW				\$4.74	\$4.74	\$0.00			
26	Distribution Energy <=1,800 kWh				\$0.08365	\$0.08365	\$0.00000			
27	Distribution Energy >1,800 kWh				\$0.02658	\$0.02658	\$0.00000			
28	Revenue Decoupling				\$0.00190	\$0.00190	\$0.00000			
29	Solar Massachusetts Renewable Target				\$0.00078	\$0.00078	\$0.00000			
30	Residential Assistance Adjustment Factor				\$0.00303	\$0.00303	\$0.00000			
31	Pension Adjustment Factor				\$0.00102	\$0.00102	\$0.00000			
32	Net Metering Recovery Surcharge				\$0.00484	\$0.00484	\$0.00000			
33	Long Term Renewable Contract Adjustment				\$0.00070	\$0.00070	\$0.00000			
34	AG Consulting Expense				\$0.00002	\$0.00002	\$0.00000			
35	Storm Cost Recovery Adjustment Factor				\$0.00210	\$0.00210	\$0.00000			
36	Storm Reserve Adjustment				\$0.00000	\$0.00000	\$0.00000			
37	Basic Service Cost True Up Factor				\$0.00057	\$0.00057	\$0.00000			
38	Solar Program Cost Adjustment Factor				\$0.00000	\$0.00000	\$0.00000			
39	Solar Expansion Cost Recovery Factor				\$0.00102	\$0.00102	\$0.00000			
40	Vegetation Management				\$0.00133	\$0.00133	\$0.00000			
41	Tax Act Credit Factor				(\$0.00122)	(\$0.00122)	\$0.00000			
42	Grid Modernization				\$0.00055	\$0.00055	\$0.00000			
43	Transition				(\$0.00117)	(\$0.00117)	\$0.00000			
44	Transmission Energy				\$0.03246	\$0.03246	\$0.00000			
45	Energy Efficiency Reconciliation Factor				\$0.02057	\$0.02896	\$0.00839			
46	System Benefits Charge				\$0.00250	\$0.00250	\$0.00000			
47	Renewable Energy Charge				\$0.00050	\$0.00050	\$0.00000			
48	Supply Charge				\$0.09999	\$0.09999	\$0.00000			

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-2 Medium General Time-of-Use**

1	Monthly kVA	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 300									
4	100	30,000	\$3,035.70	\$2,635.20	\$5,670.90	\$3,287.40	\$2,635.20	\$5,922.60	\$251.70	4.4%
5	150	45,000	\$4,368.54	\$3,952.80	\$8,321.34	\$4,746.09	\$3,952.80	\$8,698.89	\$377.55	4.5%
6	200	60,000	\$5,701.39	\$5,270.40	\$10,971.79	\$6,204.79	\$5,270.40	\$11,475.19	\$503.40	4.6%
7	300	90,000	\$8,367.09	\$7,905.60	\$16,272.69	\$9,122.19	\$7,905.60	\$17,027.79	\$755.10	4.6%
8	500	150,000	\$13,698.48	\$13,176.00	\$26,874.48	\$14,956.98	\$13,176.00	\$28,132.98	\$1,258.50	4.7%
9	Avg	205	\$5,834.67	\$5,402.16	\$11,236.83	\$6,350.66	\$5,402.16	\$11,752.82	\$515.99	4.6%
10	Hours Use: 400									
11	100	40,000	\$3,550.26	\$3,513.60	\$7,063.86	\$3,885.86	\$3,513.60	\$7,399.46	\$335.60	4.8%
12	150	60,000	\$5,140.39	\$5,270.40	\$10,410.79	\$5,643.79	\$5,270.40	\$10,914.19	\$503.40	4.8%
13	200	80,000	\$6,730.52	\$7,027.20	\$13,757.72	\$7,401.72	\$7,027.20	\$14,428.92	\$671.20	4.9%
14	300	120,000	\$9,910.78	\$10,540.80	\$20,451.58	\$10,917.58	\$10,540.80	\$21,458.38	\$1,006.80	4.9%
15	500	200,000	\$16,271.30	\$17,568.00	\$33,839.30	\$17,949.30	\$17,568.00	\$35,517.30	\$1,678.00	5.0%
16	Avg	214	\$7,175.76	\$7,519.10	\$14,694.86	\$7,893.94	\$7,519.10	\$15,413.04	\$718.18	4.9%
17	Hours Use: 500									
18	100	50,000	\$4,064.83	\$4,392.00	\$8,456.83	\$4,484.33	\$4,392.00	\$8,876.33	\$419.50	5.0%
19	150	75,000	\$5,912.24	\$6,588.00	\$12,500.24	\$6,541.49	\$6,588.00	\$13,129.49	\$629.25	5.0%
20	200	100,000	\$7,759.65	\$8,784.00	\$16,543.65	\$8,598.65	\$8,784.00	\$17,382.65	\$839.00	5.1%
21	300	150,000	\$11,454.48	\$13,176.00	\$24,630.48	\$12,712.98	\$13,176.00	\$25,888.98	\$1,258.50	5.1%
22	500	250,000	\$18,844.13	\$21,960.00	\$40,804.13	\$20,941.63	\$21,960.00	\$42,901.63	\$2,097.50	5.1%
23	Avg	253	\$9,717.91	\$11,111.76	\$20,829.67	\$10,779.24	\$11,111.76	\$21,891.00	\$1,061.33	5.1%
24					2022 Planned		2023 Planned			
25					Rates		Rates	Change		
26	Customer Charge				\$370.00		\$370.00	\$0.00		
27	Distribution Demand				\$1.70		\$1.70	\$0.00		
28	Transmission Demand				\$9.52		\$9.52	\$0.00		
29	Distribution Energy - Peak				\$0.01991		\$0.01991	\$0.00000		
30	Distribution Energy - Low A				\$0.01675		\$0.01675	\$0.00000		
31	Distribution Energy - Low B				\$0.01086		\$0.01086	\$0.00000		
32	Revenue Decoupling				\$0.00122		\$0.00122	\$0.00000		
33	Solar Massachusetts Renewable Target				\$0.00050		\$0.00050	\$0.00000		
34	Residential Assistance Adjustment Factor				\$0.00194		\$0.00194	\$0.00000		
35	Pension Adjustment Factor				\$0.00067		\$0.00067	\$0.00000		
36	Net Metering Recovery Surcharge				\$0.00310		\$0.00310	\$0.00000		
37	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000		
38	AG Consulting Expense				\$0.00001		\$0.00001	\$0.00000		
39	Storm Cost Recovery Adjustment Factor				\$0.00135		\$0.00135	\$0.00000		
40	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000		
41	Basic Service Cost True Up Factor				\$0.00037		\$0.00037	\$0.00000		
42	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000		
43	Solar Expansion Cost Recovery Factor				\$0.00065		\$0.00065	\$0.00000		
44	Vegetation Management				\$0.00088		\$0.00088	\$0.00000		
45	Tax Act Credit Factor				(\$0.00078)		(\$0.00078)	\$0.00000		
46	Grid Modernization				\$0.00036		\$0.00036	\$0.00000		
47	Transition				(\$0.00117)		(\$0.00117)	\$0.00000		
48	Transmission Energy				\$0.00322		\$0.00322	\$0.00000		
49	Energy Efficiency Reconciliation Factor				\$0.02057		\$0.02896	\$0.00839		
50	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000		
51	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000		
52	Supply Charge				\$0.08784		\$0.08784	\$0.00000		
53	Peak Use:				28%					
54	Low A Use:				25%					
55	Low B Use:				47%					

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-3 Large General Time-Of-Use

1	Monthly kVA	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 350									
4	500	175,000	\$13,599.33	\$15,372.00	\$28,971.33	\$15,067.58	\$15,372.00	\$30,439.58	\$1,468.25	5.1%
5	750	262,500	\$19,933.99	\$23,058.00	\$42,991.99	\$22,136.37	\$23,058.00	\$45,194.37	\$2,202.38	5.1%
6	1,000	350,000	\$26,268.66	\$30,744.00	\$57,012.66	\$29,205.16	\$30,744.00	\$59,949.16	\$2,936.50	5.2%
7	2,000	700,000	\$51,607.31	\$61,488.00	\$113,095.31	\$57,480.31	\$61,488.00	\$118,968.31	\$5,873.00	5.2%
8	3,000	1,050,000	\$76,945.97	\$92,232.00	\$169,177.97	\$85,755.47	\$92,232.00	\$177,987.47	\$8,809.50	5.2%
9	Avg	1,066	\$27,941.01	\$32,773.10	\$60,714.11	\$31,071.32	\$32,773.10	\$63,844.42	\$3,130.31	5.2%
10	Hours Use: 450									
11	500	225,000	\$15,641.99	\$19,764.00	\$35,405.99	\$17,529.74	\$19,764.00	\$37,293.74	\$1,887.75	5.3%
12	750	337,500	\$22,997.99	\$29,646.00	\$52,643.99	\$25,829.61	\$29,646.00	\$55,475.61	\$2,831.62	5.4%
13	1,000	450,000	\$30,353.99	\$39,528.00	\$69,881.99	\$34,129.49	\$39,528.00	\$73,657.49	\$3,775.50	5.4%
14	2,000	900,000	\$59,777.97	\$79,056.00	\$138,833.97	\$67,328.97	\$79,056.00	\$146,384.97	\$7,551.00	5.4%
15	3,000	1,350,000	\$89,201.96	\$118,584.00	\$207,785.96	\$100,528.46	\$118,584.00	\$219,112.46	\$11,326.50	5.5%
16	Avg	788	\$24,116.10	\$31,148.06	\$55,264.16	\$27,091.19	\$31,148.06	\$58,239.25	\$2,975.09	5.4%
17	Hours Use: 550									
18	500	275,000	\$17,684.66	\$24,156.00	\$41,840.66	\$19,991.91	\$24,156.00	\$44,147.91	\$2,307.25	5.5%
19	750	412,500	\$26,061.99	\$36,234.00	\$62,295.99	\$29,522.86	\$36,234.00	\$65,756.86	\$3,460.87	5.6%
20	1,000	550,000	\$34,439.32	\$48,312.00	\$82,751.32	\$39,053.82	\$48,312.00	\$87,365.82	\$4,614.50	5.6%
21	2,000	1,100,000	\$67,948.63	\$96,624.00	\$164,572.63	\$77,177.63	\$96,624.00	\$173,801.63	\$9,229.00	5.6%
22	3,000	1,650,000	\$101,457.95	\$144,936.00	\$246,393.95	\$115,301.45	\$144,936.00	\$260,237.45	\$13,843.50	5.6%
23	Avg	1,118	\$38,393.41	\$54,012.82	\$92,406.23	\$43,552.43	\$54,012.82	\$97,565.25	\$5,159.02	5.6%
24					2022 Planned		2023 Planned			
25					Rates		Rates	Change		
26	Customer Charge				\$930.00		\$930.00	\$0.00		
27	Distribution Demand				\$0.97		\$0.97	\$0.00		
28	Transmission Demand				\$10.07		\$10.07	\$0.00		
29	Distribution Energy - Peak				\$0.01387		\$0.01387	\$0.00000		
30	Distribution Energy - Low A				\$0.01276		\$0.01276	\$0.00000		
31	Distribution Energy - Low B				\$0.00883		\$0.00883	\$0.00000		
32	Revenue Decoupling				\$0.00077		\$0.00077	\$0.00000		
33	Solar Massachusetts Renewable Target				\$0.00032		\$0.00032	\$0.00000		
34	Residential Assistance Adjustment Factor				\$0.00123		\$0.00123	\$0.00000		
35	Pension Adjustment Factor				\$0.00047		\$0.00047	\$0.00000		
36	Net Metering Recovery Surcharge				\$0.00196		\$0.00196	\$0.00000		
37	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000		
38	AG Consulting Expense				\$0.00001		\$0.00001	\$0.00000		
39	Storm Cost Recovery Adjustment Factor				\$0.00085		\$0.00085	\$0.00000		
40	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000		
41	Basic Service Cost True Up Factor				\$0.00023		\$0.00023	\$0.00000		
42	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000		
43	Solar Expansion Cost Recovery Factor				\$0.00041		\$0.00041	\$0.00000		
44	Vegetation Management				\$0.00062		\$0.00062	\$0.00000		
45	Tax Act Credit Factor				(\$0.00049)		(\$0.00049)	\$0.00000		
46	Grid Modernization				\$0.00020		\$0.00020	\$0.00000		
47	Transition				(\$0.00117)		(\$0.00117)	\$0.00000		
48	Transmission Energy				\$0.00000		\$0.00000	\$0.00000		
49	Energy Efficiency Reconciliation Factor				\$0.02057		\$0.02896	\$0.00839		
50	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000		
51	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000		
52	Supply Charge				\$0.08784		\$0.08784	\$0.00000		
53	Peak Use:				27%					
54	Low A Use:				25%					
55	Low B Use:				48%					

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-4 General Power

1	Monthly kW	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 150									
4	20	3,000	\$304.58	\$299.97	\$604.55	\$329.75	\$299.97	\$629.72	\$25.17	4.2%
5	30	4,500	\$453.87	\$449.96	\$903.83	\$491.63	\$449.96	\$941.59	\$37.76	4.2%
6	40	6,000	\$603.16	\$599.94	\$1,203.10	\$653.50	\$599.94	\$1,253.44	\$50.34	4.2%
7	70	10,500	\$1,051.03	\$1,049.90	\$2,100.93	\$1,139.13	\$1,049.90	\$2,189.03	\$88.10	4.2%
8	100	15,000	\$1,498.90	\$1,499.85	\$2,998.75	\$1,624.75	\$1,499.85	\$3,124.60	\$125.85	4.2%
9	Avg	52	\$782.31	\$779.92	\$1,562.23	\$847.75	\$779.92	\$1,627.67	\$65.44	4.2%
10	Hours Use: 250									
11	20	5,000	\$433.50	\$499.95	\$933.45	\$475.45	\$499.95	\$975.40	\$41.95	4.5%
12	30	7,500	\$647.25	\$749.93	\$1,397.18	\$710.18	\$749.93	\$1,460.11	\$62.93	4.5%
13	40	10,000	\$861.00	\$999.90	\$1,860.90	\$944.90	\$999.90	\$1,944.80	\$83.90	4.5%
14	70	17,500	\$1,502.25	\$1,749.83	\$3,252.08	\$1,649.08	\$1,749.83	\$3,398.91	\$146.83	4.5%
15	100	25,000	\$2,143.50	\$2,499.75	\$4,643.25	\$2,353.25	\$2,499.75	\$4,853.00	\$209.75	4.5%
16	Avg	27	\$583.13	\$674.93	\$1,258.06	\$639.76	\$674.93	\$1,314.69	\$56.63	4.5%
17	Hours Use: 350									
18	20	7,000	\$562.42	\$699.93	\$1,262.35	\$621.15	\$699.93	\$1,321.08	\$58.73	4.7%
19	30	10,500	\$840.63	\$1,049.90	\$1,890.53	\$928.73	\$1,049.90	\$1,978.63	\$88.10	4.7%
20	40	14,000	\$1,118.84	\$1,399.86	\$2,518.70	\$1,236.30	\$1,399.86	\$2,636.16	\$117.46	4.7%
21	70	24,500	\$1,953.47	\$2,449.76	\$4,403.23	\$2,159.03	\$2,449.76	\$4,608.79	\$205.56	4.7%
22	100	35,000	\$2,788.10	\$3,499.65	\$6,287.75	\$3,081.75	\$3,499.65	\$6,581.40	\$293.65	4.7%
23	Avg	27	\$757.17	\$944.91	\$1,702.08	\$836.45	\$944.91	\$1,781.36	\$79.28	4.7%
24					2022 Planned		2023 Planned			
25					Rates		Rates	Change		
26	Customer Charge				\$6.00		\$6.00	\$0.00		
27	Distribution Demand				\$1.92		\$1.92	\$0.00		
28	Transmission Demand				\$3.34		\$3.34	\$0.00		
29	Distribution Energy				\$0.02203		\$0.02203	\$0.00000		
30	Revenue Decoupling				\$0.00175		\$0.00175	\$0.00000		
31	Solar Massachusetts Renewable Target				\$0.00072		\$0.00072	\$0.00000		
32	Residential Assistance Adjustment Factor				\$0.00280		\$0.00280	\$0.00000		
33	Pension Adjustment Factor				\$0.00109		\$0.00109	\$0.00000		
34	Net Metering Recovery Surcharge				\$0.00446		\$0.00446	\$0.00000		
35	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000		
36	AG Consulting Expense				\$0.00002		\$0.00002	\$0.00000		
37	Storm Cost Recovery Adjustment Factor				\$0.00191		\$0.00191	\$0.00000		
38	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000		
39	Basic Service Cost True Up Factor				\$0.00053		\$0.00053	\$0.00000		
40	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000		
41	Solar Expansion Cost Recovery Factor				\$0.00094		\$0.00094	\$0.00000		
42	Vegetation Management				\$0.00142		\$0.00142	\$0.00000		
43	Tax Act Credit Factor				(\$0.00112)		(\$0.00112)	\$0.00000		
44	Grid Modernization				\$0.00046		\$0.00046	\$0.00000		
45	Transition				(\$0.00117)		(\$0.00117)	\$0.00000		
46	Transmission Energy				\$0.00435		\$0.00435	\$0.00000		
47	Energy Efficiency Reconciliation Factor				\$0.02057		\$0.02896	\$0.00839		
48	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000		
49	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000		
50	Supply Charge				\$0.09999		\$0.09999	\$0.00000		

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-5 Commercial Space Heating**

1	Monthly	2022 Planned			2023 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	100	\$17.90	\$10.00	\$27.90	\$18.74	\$10.00	\$28.74	\$0.84	3.0%
4	200	\$29.81	\$20.00	\$49.81	\$31.49	\$20.00	\$51.49	\$1.68	3.4%
5	300	\$41.71	\$30.00	\$71.71	\$44.23	\$30.00	\$74.23	\$2.52	3.5%
6	500	\$65.52	\$50.00	\$115.52	\$69.72	\$50.00	\$119.72	\$4.20	3.6%
7	750	\$95.28	\$74.99	\$170.27	\$101.57	\$74.99	\$176.56	\$6.29	3.7%
8	1,000	\$125.04	\$99.99	\$225.03	\$133.43	\$99.99	\$233.42	\$8.39	3.7%
9	1,500	\$184.56	\$149.99	\$334.55	\$197.15	\$149.99	\$347.14	\$12.59	3.8%
10	3,000	\$363.12	\$299.97	\$663.09	\$388.29	\$299.97	\$688.26	\$25.17	3.8%
11	5,000	\$601.20	\$499.95	\$1,101.15	\$643.15	\$499.95	\$1,143.10	\$41.95	3.8%
12	Avg 1,472	\$181.23	\$147.19	\$328.42	\$193.58	\$147.19	\$340.77	\$12.35	3.8%

13		2022 Planned	2023 Planned	
14		Rates	Rates	Change
15	Customer Charge	\$6.00	\$6.00	\$0.00
16	Distribution Energy	\$0.03965	\$0.03965	\$0.00000
17	Revenue Decoupling	\$0.00222	\$0.00222	\$0.00000
18	Solar Massachusetts Renewable Target	\$0.00091	\$0.00091	\$0.00000
19	Residential Assistance Adjustment Factor	\$0.00354	\$0.00354	\$0.00000
20	Pension Adjustment Factor	\$0.00195	\$0.00195	\$0.00000
21	Net Metering Recovery Surcharge	\$0.00565	\$0.00565	\$0.00000
22	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
23	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
24	Storm Cost Recovery Adjustment Factor	\$0.00245	\$0.00245	\$0.00000
25	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
26	Basic Service Cost True Up Factor	\$0.00067	\$0.00067	\$0.00000
27	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
28	Solar Expansion Cost Recovery Factor	\$0.00119	\$0.00119	\$0.00000
29	Vegetation Management	\$0.00256	\$0.00256	\$0.00000
30	Tax Act Credit Factor	(\$0.00142)	(\$0.00142)	\$0.00000
31	Grid Modernization	\$0.00071	\$0.00071	\$0.00000
32	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
33	Transmission Energy	\$0.03584	\$0.03584	\$0.00000
34	Energy Efficiency Reconciliation Factor	\$0.02057	\$0.02896	\$0.00839
35	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
36	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
37	Supply Charge	\$0.09999	\$0.09999	\$0.00000

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-6 All Electric Schools**

	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
1	25,000	\$2,020.00	\$2,499.75	\$4,519.75	\$2,229.75	\$2,499.75	\$4,729.50	\$209.75	4.6%
2	40,000	\$3,214.00	\$3,999.60	\$7,213.60	\$3,549.60	\$3,999.60	\$7,549.20	\$335.60	4.7%
3	50,000	\$4,010.00	\$4,999.50	\$9,009.50	\$4,429.50	\$4,999.50	\$9,429.00	\$419.50	4.7%
4	60,000	\$4,806.00	\$5,999.40	\$10,805.40	\$5,309.40	\$5,999.40	\$11,308.80	\$503.40	4.7%
5	150,000	\$11,970.00	\$14,998.50	\$26,968.50	\$13,228.50	\$14,998.50	\$28,227.00	\$1,258.50	4.7%
6	Avg 60,748	\$4,865.54	\$6,074.19	\$10,939.73	\$5,375.22	\$6,074.19	\$11,449.41	\$509.68	4.7%

	2022 Planned Rates	2023 Planned Rates	Change	
9				
10				
11	Customer Charge	\$30.00	\$30.00	\$0.00
12	Distribution Energy	\$0.01802	\$0.01802	\$0.00000
13	Revenue Decoupling	\$0.00084	\$0.00084	\$0.00000
14	Solar Massachusetts Renewable Target	\$0.00035	\$0.00035	\$0.00000
15	Residential Assistance Adjustment Factor	\$0.00135	\$0.00135	\$0.00000
16	Pension Adjustment Factor	\$0.00083	\$0.00083	\$0.00000
17	Net Metering Recovery Surcharge	\$0.00215	\$0.00215	\$0.00000
18	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
19	AG Consulting Expense	\$0.00001	\$0.00001	\$0.00000
20	Storm Cost Recovery Adjustment Factor	\$0.00092	\$0.00092	\$0.00000
21	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
22	Basic Service Cost True Up Factor	\$0.00025	\$0.00025	\$0.00000
23	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
24	Solar Expansion Cost Recovery Factor	\$0.00045	\$0.00045	\$0.00000
25	Vegetation Management	\$0.00109	\$0.00109	\$0.00000
26	Tax Act Credit Factor	(\$0.00054)	(\$0.00054)	\$0.00000
27	Grid Modernization	\$0.00023	\$0.00023	\$0.00000
28	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
29	Transmission Energy	\$0.03055	\$0.03055	\$0.00000
30	Energy Efficiency Reconciliation Factor	\$0.02057	\$0.02896	\$0.00839
31	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
32	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
33	Supply Charge	\$0.09999	\$0.09999	\$0.00000

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-7 Optional General Time-of-Use**

1	Monthly kVA	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 350									
4	5	1,750	\$193.44	\$174.98	\$368.42	\$208.12	\$174.98	\$383.10	\$14.68	4.0%
5	10	3,500	\$376.88	\$349.97	\$726.85	\$406.25	\$349.97	\$756.22	\$29.37	4.0%
6	20	7,000	\$743.77	\$699.93	\$1,443.70	\$802.50	\$699.93	\$1,502.43	\$58.73	4.1%
7	50	17,500	\$1,844.42	\$1,749.83	\$3,594.25	\$1,991.24	\$1,749.83	\$3,741.07	\$146.82	4.1%
8	75	26,250	\$2,761.63	\$2,624.74	\$5,386.37	\$2,981.87	\$2,624.74	\$5,606.61	\$220.24	4.1%
9	Avg	20	\$743.77	\$699.93	\$1,443.70	\$802.50	\$699.93	\$1,502.43	\$58.73	4.1%
10	Hours Use: 500									
11	5	2,500	\$237.37	\$249.98	\$487.35	\$258.34	\$249.98	\$508.32	\$20.97	4.3%
12	10	5,000	\$464.73	\$499.95	\$964.68	\$506.68	\$499.95	\$1,006.63	\$41.95	4.3%
13	20	10,000	\$919.47	\$999.90	\$1,919.37	\$1,003.37	\$999.90	\$2,003.27	\$83.90	4.4%
14	50	25,000	\$2,283.67	\$2,499.75	\$4,783.42	\$2,493.42	\$2,499.75	\$4,993.17	\$209.75	4.4%
15	75	37,500	\$3,420.51	\$3,749.63	\$7,170.14	\$3,735.13	\$3,749.63	\$7,484.76	\$314.62	4.4%
16	Avg	31	\$1,419.68	\$1,549.85	\$2,969.53	\$1,549.72	\$1,549.85	\$3,099.57	\$130.04	4.4%
17	Hours Use: 650									
18	5	3,250	\$281.29	\$324.97	\$606.26	\$308.56	\$324.97	\$633.53	\$27.27	4.5%
19	10	6,500	\$552.58	\$649.94	\$1,202.52	\$607.12	\$649.94	\$1,257.06	\$54.54	4.5%
20	20	13,000	\$1,095.17	\$1,299.87	\$2,395.04	\$1,204.24	\$1,299.87	\$2,504.11	\$109.07	4.6%
21	50	32,500	\$2,722.92	\$3,249.68	\$5,972.60	\$2,995.60	\$3,249.68	\$6,245.28	\$272.68	4.6%
22	75	48,750	\$4,079.38	\$4,874.51	\$8,953.89	\$4,488.39	\$4,874.51	\$9,362.90	\$409.01	4.6%
23	Avg	18	\$986.65	\$1,169.88	\$2,156.53	\$1,084.81	\$1,169.88	\$2,254.69	\$98.16	4.6%
24					2022 Planned		2023 Planned			
25					Rates		Rates	Change		
26	Customer Charge				\$10.00		\$10.00	\$0.00		
27	Distribution Demand				\$3.68		\$3.68	\$0.00		
28	Transmission Demand				\$12.51		\$12.51	\$0.00		
29	Distribution Energy - Peak				\$0.02528		\$0.02528	\$0.00000		
30	Distribution Energy - Low Load				\$0.01771		\$0.01771	\$0.00000		
31	Revenue Decoupling				\$0.00190		\$0.00190	\$0.00000		
32	Solar Massachusetts Renewable Target				\$0.00078		\$0.00078	\$0.00000		
33	Residential Assistance Adjustment Factor				\$0.00303		\$0.00303	\$0.00000		
34	Pension Adjustment Factor				\$0.00102		\$0.00102	\$0.00000		
35	Net Metering Recovery Surcharge				\$0.00484		\$0.00484	\$0.00000		
36	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000		
37	AG Consulting Expense				\$0.00002		\$0.00002	\$0.00000		
38	Storm Cost Recovery Adjustment Factor				\$0.00210		\$0.00210	\$0.00000		
39	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000		
40	Basic Service Cost True Up Factor				\$0.00057		\$0.00057	\$0.00000		
41	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000		
42	Solar Expansion Cost Recovery Factor				\$0.00102		\$0.00102	\$0.00000		
43	Vegetation Management				\$0.00133		\$0.00133	\$0.00000		
44	Tax Act Credit Factor				(\$0.00122)		(\$0.00122)	\$0.00000		
45	Grid Modernization				\$0.00055		\$0.00055	\$0.00000		
46	Transition				(\$0.00117)		(\$0.00117)	\$0.00000		
47	Energy Efficiency Reconciliation Factor				\$0.02057		\$0.02896	\$0.00839		
48	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000		
49	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000		
50	Supply Charge				\$0.09999		\$0.09999	\$0.00000		
51	Peak Use:				24%					
52	Low A Use:				76%					

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-7 Optional Seasonal General Time-of-Use**

1	Monthly kVA	Monthly kWh	2022 Planned			2023 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 50									
4	5	250	\$72.67	\$25.00	\$97.67	\$74.77	\$25.00	\$99.77	\$2.10	2.2%
5	10	500	\$135.35	\$50.00	\$185.35	\$139.54	\$50.00	\$189.54	\$4.19	2.3%
6	20	1,000	\$260.69	\$99.99	\$360.68	\$269.08	\$99.99	\$369.07	\$8.39	2.3%
7	50	2,500	\$636.73	\$249.98	\$886.71	\$657.71	\$249.98	\$907.69	\$20.98	2.4%
8	75	3,750	\$950.10	\$374.96	\$1,325.06	\$981.56	\$374.96	\$1,356.52	\$31.46	2.4%
9	Avg 9	450	\$122.81	\$45.00	\$167.81	\$126.59	\$45.00	\$171.59	\$3.78	2.3%
10	Hours Use: 150									
11	5	750	\$113.82	\$74.99	\$188.81	\$120.11	\$74.99	\$195.10	\$6.29	3.3%
12	10	1,500	\$217.64	\$149.99	\$367.63	\$230.22	\$149.99	\$380.21	\$12.58	3.4%
13	20	3,000	\$425.28	\$299.97	\$725.25	\$450.45	\$299.97	\$750.42	\$25.17	3.5%
14	50	7,500	\$1,048.20	\$749.93	\$1,798.13	\$1,111.12	\$749.93	\$1,861.05	\$62.92	3.5%
15	75	11,250	\$1,567.30	\$1,124.89	\$2,692.19	\$1,661.69	\$1,124.89	\$2,786.58	\$94.39	3.5%
16	Avg 10	1,500	\$217.64	\$149.99	\$367.63	\$230.22	\$149.99	\$380.21	\$12.58	3.4%
17	Hours Use: 300									
18	5	1,500	\$175.54	\$149.99	\$325.53	\$188.12	\$149.99	\$338.11	\$12.58	3.9%
19	10	3,000	\$341.08	\$299.97	\$641.05	\$366.25	\$299.97	\$666.22	\$25.17	3.9%
20	20	6,000	\$672.16	\$599.94	\$1,272.10	\$722.50	\$599.94	\$1,322.44	\$50.34	4.0%
21	50	15,000	\$1,665.40	\$1,499.85	\$3,165.25	\$1,791.25	\$1,499.85	\$3,291.10	\$125.85	4.0%
22	75	22,500	\$2,493.10	\$2,249.78	\$4,742.88	\$2,681.87	\$2,249.78	\$4,931.65	\$188.77	4.0%
23	Avg 13	3,900	\$440.40	\$389.96	\$830.36	\$473.12	\$389.96	\$863.08	\$32.72	3.9%
24					2022 Planned			2023 Planned		
25					Rates			Rates	Change	
26	Customer Charge				\$10.00			\$10.00	\$0.00	
27	Distribution Demand				\$3.72			\$3.72	\$0.00	
28	Transmission Demand				\$4.70			\$4.70	\$0.00	
29	Distribution Energy - Peak				\$0.04929			\$0.04929	\$0.00000	
30	Distribution Energy - Low Load				\$0.04145			\$0.04145	\$0.00000	
31	Revenue Decoupling				\$0.00190			\$0.00190	\$0.00000	
32	Solar Massachusetts Renewable Target				\$0.00078			\$0.00078	\$0.00000	
33	Residential Assistance Adjustment Factor				\$0.00303			\$0.00303	\$0.00000	
34	Pension Adjustment Factor				\$0.00102			\$0.00102	\$0.00000	
35	Net Metering Recovery Surcharge				\$0.00484			\$0.00484	\$0.00000	
36	Long Term Renewable Contract Adjustment				\$0.00070			\$0.00070	\$0.00000	
37	AG Consulting Expense				\$0.00002			\$0.00002	\$0.00000	
38	Storm Cost Recovery Adjustment Factor				\$0.00210			\$0.00210	\$0.00000	
39	Storm Reserve Adjustment				\$0.00000			\$0.00000	\$0.00000	
40	Basic Service Cost True Up Factor				\$0.00057			\$0.00057	\$0.00000	
41	Solar Program Cost Adjustment Factor				\$0.00000			\$0.00000	\$0.00000	
42	Solar Expansion Cost Recovery Factor				\$0.00102			\$0.00102	\$0.00000	
43	Vegetation Management				\$0.00133			\$0.00133	\$0.00000	
44	Tax Act Credit Factor				(\$0.00122)			(\$0.00122)	\$0.00000	
45	Grid Modernization				\$0.00055			\$0.00055	\$0.00000	
46	Transition				(\$0.00117)			(\$0.00117)	\$0.00000	
47	Energy Efficiency Reconciliation Factor				\$0.02057			\$0.02896	\$0.00839	
48	System Benefits Charge				\$0.00250			\$0.00250	\$0.00000	
49	Renewable Energy Charge				\$0.00050			\$0.00050	\$0.00000	
50	Supply Charge				\$0.09999			\$0.09999	\$0.00000	
51	Peak Use:				23%					
52	Low A Use:				77%					

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

Rate R-1 Residential

1	Monthly	2023 Planned			2024 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	100	\$22.66	\$10.74	\$33.40	\$23.27	\$10.74	\$34.01	\$0.61	1.8%
4	200	\$38.33	\$21.49	\$59.82	\$39.55	\$21.49	\$61.04	\$1.22	2.0%
5	300	\$53.99	\$32.23	\$86.22	\$55.82	\$32.23	\$88.05	\$1.83	2.1%
6	400	\$69.66	\$42.97	\$112.63	\$72.09	\$42.97	\$115.06	\$2.43	2.2%
7	500	\$85.32	\$53.72	\$139.04	\$88.37	\$53.72	\$142.09	\$3.05	2.2%
8	600	\$100.98	\$64.46	\$165.44	\$104.64	\$64.46	\$169.10	\$3.66	2.2%
9	700	\$116.65	\$75.20	\$191.85	\$120.91	\$75.20	\$196.11	\$4.26	2.2%
10	800	\$132.31	\$85.94	\$218.25	\$137.18	\$85.94	\$223.12	\$4.87	2.2%
11	900	\$147.98	\$96.69	\$244.67	\$153.46	\$96.69	\$250.15	\$5.48	2.2%
12	1,000	\$163.64	\$107.43	\$271.07	\$169.73	\$107.43	\$277.16	\$6.09	2.2%
13	1,250	\$202.80	\$134.29	\$337.09	\$210.41	\$134.29	\$344.70	\$7.61	2.3%
14	1,500	\$241.96	\$161.15	\$403.11	\$251.10	\$161.15	\$412.25	\$9.14	2.3%
15	2,000	\$320.28	\$214.86	\$535.14	\$332.46	\$214.86	\$547.32	\$12.18	2.3%
16	Avg 516	\$67.63	\$55.43	\$143.26	\$90.97	\$55.43	\$146.40	\$3.14	2.2%

17		2023 Planned	2024 Planned	
18		<u>Rates</u>	<u>Rates</u>	<u>Change</u>
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04944	\$0.04944	\$0.00000
21	Revenue Decoupling	\$0.00299	\$0.00299	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00123	\$0.00123	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00478	\$0.00478	\$0.00000
24	Pension Adjustment Factor	\$0.00133	\$0.00133	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00763	\$0.00763	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00003	\$0.00003	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00330	\$0.00330	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00090	\$0.00090	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00001	\$0.00001	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00160	\$0.00160	\$0.00000
33	Vegetation Management	\$0.00174	\$0.00174	\$0.00000
34	Tax Act Credit Factor	(\$0.00192)	(\$0.00192)	\$0.00000
35	Grid Modernization	\$0.00081	\$0.00081	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03524	\$0.03524	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.04500	\$0.05109	\$0.00609
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-2 Residential Assistance

	Monthly kWh	2023 Planned			2024 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
1									
2	100	\$11.90	\$6.88	\$18.78	\$11.85	\$6.88	\$18.73	(\$0.05)	-0.3%
3	200	\$19.32	\$13.75	\$33.07	\$19.22	\$13.75	\$32.97	(\$0.10)	-0.3%
4	300	\$26.74	\$20.63	\$47.37	\$26.59	\$20.63	\$47.22	(\$0.15)	-0.3%
5	400	\$34.16	\$27.50	\$61.66	\$33.96	\$27.50	\$61.46	(\$0.20)	-0.3%
6	500	\$41.58	\$34.38	\$75.96	\$41.33	\$34.38	\$75.71	(\$0.25)	-0.3%
7	600	\$49.00	\$41.25	\$90.25	\$48.70	\$41.25	\$89.95	(\$0.30)	-0.3%
8	700	\$56.43	\$48.13	\$104.56	\$56.07	\$48.13	\$104.20	(\$0.36)	-0.3%
9	800	\$63.85	\$55.00	\$118.85	\$63.44	\$55.00	\$118.44	(\$0.41)	-0.3%
10	900	\$71.27	\$61.88	\$133.15	\$70.81	\$61.88	\$132.69	(\$0.46)	-0.3%
11	1,000	\$78.69	\$68.76	\$147.45	\$78.18	\$68.76	\$146.94	(\$0.51)	-0.3%
12	1,250	\$97.24	\$85.94	\$183.18	\$96.60	\$85.94	\$182.54	(\$0.64)	-0.3%
13	1,500	\$115.79	\$103.13	\$218.92	\$115.02	\$103.13	\$218.15	(\$0.77)	-0.4%
14	2,000	\$152.90	\$137.51	\$290.41	\$151.87	\$137.51	\$289.38	(\$1.03)	-0.4%
15									
16	Avg 488	\$40.69	\$33.55	\$74.24	\$40.44	\$33.55	\$73.99	(\$0.25)	-0.3%

	2023 Planned	2024 Planned	Change	
17				
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>	
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04944	\$0.04944	\$0.00000
21	Revenue Decoupling	\$0.00299	\$0.00299	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00123	\$0.00123	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00478	\$0.00478	\$0.00000
24	Pension Adjustment Factor	\$0.00133	\$0.00133	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00763	\$0.00763	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00003	\$0.00003	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00330	\$0.00330	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00090	\$0.00090	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00001	\$0.00001	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00160	\$0.00160	\$0.00000
33	Vegetation Management	\$0.00174	\$0.00174	\$0.00000
34	Tax Act Credit Factor	(\$0.00192)	(\$0.00192)	\$0.00000
35	Grid Modernization	\$0.00081	\$0.00081	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03524	\$0.03524	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.00431	\$0.00351	(\$0.00080)
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000
42	Low Income Discount	36%	36%	0%

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-3 Residential Space Heating

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	2023 Planned		2024 Planned		Total Bill Impact		
																Delivery	Supplier	Total	Delivery	Supplier	Total	Change
	Monthly	kWh	\$21.64	\$10.74	\$32.38	\$22.25	\$10.74	\$32.99	\$0.61	1.9%												
	100		\$36.28	\$21.49	\$57.77	\$37.50	\$21.49	\$58.99	\$1.22	2.1%												
	200		\$50.93	\$32.23	\$83.16	\$52.75	\$32.23	\$84.98	\$1.82	2.2%												
	300		\$65.57	\$42.97	\$108.54	\$68.00	\$42.97	\$110.97	\$2.43	2.2%												
	400		\$80.21	\$53.72	\$133.93	\$83.26	\$53.72	\$136.98	\$3.05	2.3%												
	500		\$94.85	\$64.46	\$159.31	\$98.51	\$64.46	\$162.97	\$3.66	2.3%												
	600		\$109.49	\$75.20	\$184.69	\$113.76	\$75.20	\$188.96	\$4.27	2.3%												
	700		\$124.14	\$85.94	\$210.08	\$129.01	\$85.94	\$214.95	\$4.87	2.3%												
	800		\$138.78	\$96.69	\$235.47	\$144.26	\$96.69	\$240.95	\$5.48	2.3%												
	900		\$153.42	\$107.43	\$260.85	\$159.51	\$107.43	\$266.94	\$6.09	2.3%												
	1,000		\$190.03	\$134.29	\$324.32	\$197.64	\$134.29	\$331.93	\$7.61	2.3%												
	1,250		\$226.63	\$161.15	\$387.78	\$235.77	\$161.15	\$396.92	\$9.14	2.4%												
	1,500		\$299.84	\$214.86	\$514.70	\$312.02	\$214.86	\$526.88	\$12.18	2.4%												
	2,000		\$115.35	\$79.50	\$194.85	\$119.86	\$79.50	\$199.36	\$4.51	2.3%												
	Avg	740																				

17	2023 Planned	2024 Planned	Change
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>
19	Customer Charge	\$7.00	\$7.00
20	Distribution Energy	\$0.04310	\$0.04310
21	Revenue Decoupling	\$0.00236	\$0.00236
22	Solar Massachusetts Renewable Target	\$0.00097	\$0.00097
23	Residential Assistance Adjustment Factor	\$0.00376	\$0.00376
24	Pension Adjustment Factor	\$0.00127	\$0.00127
25	Net Metering Recovery Surcharge	\$0.00601	\$0.00601
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070
27	AG Consulting Expense	\$0.00002	\$0.00002
28	Storm Cost Recovery Adjustment Factor	\$0.00259	\$0.00259
29	Storm Reserve Adjustment	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00071	\$0.00071
31	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00126	\$0.00126
33	Vegetation Management	\$0.00167	\$0.00167
34	Tax Act Credit Factor	(\$0.00151)	(\$0.00151)
35	Grid Modernization	\$0.00064	\$0.00064
36	Transition	(\$0.00117)	(\$0.00117)
37	Transmission Energy	\$0.03604	\$0.03604
38	Energy Efficiency Reconciliation Factor	\$0.04500	\$0.05109
39	System Benefits Charge	\$0.00250	\$0.00250
40	Renewable Energy Charge	\$0.00050	\$0.00050
41	Supply Charge	\$0.10743	\$0.10743

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-4 Residential Assistance Space Heating

1	2	3	2023 Planned			2024 Planned			Total Bill Impact	
			4	5	6	7	8	9	10	11
13	14	15	16	17	18	19	20	21	22	23
Monthly	kWh	Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
100		\$11.25	\$6.88	\$18.13	\$11.20	\$6.88	\$18.08	(\$0.05)	-0.3%	
200		\$18.01	\$13.75	\$31.76	\$17.91	\$13.75	\$31.66	(\$0.10)	-0.3%	
300		\$24.78	\$20.63	\$45.41	\$24.63	\$20.63	\$45.26	(\$0.15)	-0.3%	
400		\$31.55	\$27.50	\$59.05	\$31.34	\$27.50	\$58.84	(\$0.21)	-0.4%	
500		\$38.31	\$34.38	\$72.69	\$38.06	\$34.38	\$72.44	(\$0.25)	-0.3%	
600		\$45.08	\$41.25	\$86.33	\$44.77	\$41.25	\$86.02	(\$0.31)	-0.4%	
700		\$51.85	\$48.13	\$99.98	\$51.49	\$48.13	\$99.62	(\$0.36)	-0.4%	
800		\$58.61	\$55.00	\$113.61	\$58.20	\$55.00	\$113.20	(\$0.41)	-0.4%	
900		\$65.38	\$61.88	\$127.26	\$64.92	\$61.88	\$126.80	(\$0.46)	-0.4%	
1,000		\$72.15	\$68.76	\$140.91	\$71.64	\$68.76	\$140.40	(\$0.51)	-0.4%	
1,250		\$89.06	\$85.94	\$175.00	\$88.42	\$85.94	\$174.36	(\$0.64)	-0.4%	
1,500		\$105.98	\$103.13	\$209.11	\$105.21	\$103.13	\$208.34	(\$0.77)	-0.4%	
2,000		\$139.81	\$137.51	\$277.32	\$138.79	\$137.51	\$276.30	(\$1.02)	-0.4%	
Avg	874	\$63.62	\$60.09	\$123.71	\$63.17	\$60.09	\$123.26	(\$0.45)	-0.4%	

17	2023 Planned	2024 Planned	Change	
18	Rates	Rates		
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04310	\$0.04310	\$0.00000
21	Revenue Decoupling	\$0.00236	\$0.00236	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00097	\$0.00097	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00376	\$0.00376	\$0.00000
24	Pension Adjustment Factor	\$0.00127	\$0.00127	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00601	\$0.00601	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00259	\$0.00259	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00071	\$0.00071	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00126	\$0.00126	\$0.00000
33	Vegetation Management	\$0.00167	\$0.00167	\$0.00000
34	Tax Act Credit Factor	(\$0.00151)	(\$0.00151)	\$0.00000
35	Grid Modernization	\$0.00064	\$0.00064	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03604	\$0.03604	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.00431	\$0.00351	(\$0.00080)
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000
42	Low Income Discount	36%	36%	0%

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-1 Small General Service

1	Monthly kW	Monthly kWh	2023 Planned			2024 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 200									
4	5	1,000	\$131.01	\$99.99	\$231.00	\$130.43	\$99.99	\$230.42	(\$0.58)	-0.3%
5	10	2,000	\$256.02	\$199.98	\$456.00	\$254.86	\$199.98	\$454.84	(\$1.16)	-0.3%
6	15	3,000	\$384.91	\$299.97	\$684.88	\$383.17	\$299.97	\$683.14	(\$1.74)	-0.3%
7	25	5,000	\$622.95	\$499.95	\$1,122.90	\$620.05	\$499.95	\$1,120.00	(\$2.90)	-0.3%
8	50	10,000	\$1,218.05	\$999.90	\$2,217.95	\$1,212.25	\$999.90	\$2,212.15	(\$5.80)	-0.3%
9	100	20,000	\$2,408.25	\$1,999.80	\$4,408.05	\$2,396.65	\$1,999.80	\$4,396.45	(\$11.60)	-0.3%
10	Avg	2	\$56.00	\$40.00	\$96.00	\$55.77	\$40.00	\$95.77	(\$0.23)	-0.2%
11	Hours Use: 300									
12	5	1,500	\$193.52	\$149.99	\$343.51	\$192.65	\$149.99	\$342.64	(\$0.87)	-0.3%
13	10	3,000	\$358.01	\$299.97	\$657.98	\$356.27	\$299.97	\$656.24	(\$1.74)	-0.3%
14	15	4,500	\$523.09	\$449.96	\$973.05	\$520.48	\$449.96	\$970.44	(\$2.61)	-0.3%
15	25	7,500	\$853.25	\$749.93	\$1,603.18	\$848.90	\$749.93	\$1,598.83	(\$4.35)	-0.3%
16	50	15,000	\$1,678.65	\$1,499.85	\$3,178.50	\$1,669.95	\$1,499.85	\$3,169.80	(\$8.70)	-0.3%
17	100	30,000	\$3,329.45	\$2,999.70	\$6,329.15	\$3,312.05	\$2,999.70	\$6,311.75	(\$17.40)	-0.3%
18	Avg	19	\$655.15	\$569.94	\$1,225.09	\$651.85	\$569.94	\$1,221.79	(\$3.30)	-0.3%
19	Hours Use: 400									
20	5	2,000	\$256.02	\$199.98	\$456.00	\$254.86	\$199.98	\$454.84	(\$1.16)	-0.3%
21	10	4,000	\$450.13	\$399.96	\$850.09	\$447.81	\$399.96	\$847.77	(\$2.32)	-0.3%
22	15	6,000	\$661.27	\$599.94	\$1,261.21	\$657.79	\$599.94	\$1,257.73	(\$3.48)	-0.3%
23	25	10,000	\$1,083.55	\$999.90	\$2,083.45	\$1,077.75	\$999.90	\$2,077.65	(\$5.80)	-0.3%
24	50	20,000	\$2,139.25	\$1,999.80	\$4,139.05	\$2,127.65	\$1,999.80	\$4,127.45	(\$11.60)	-0.3%
25	100	40,000	\$4,250.65	\$3,999.60	\$8,250.25	\$4,227.45	\$3,999.60	\$8,227.05	(\$23.20)	-0.3%
26	Avg	27	\$1,168.00	\$1,079.89	\$2,247.89	\$1,161.74	\$1,079.89	\$2,241.63	(\$6.26)	-0.3%
27										
28						2023 Planned	2024 Planned			
29						Rates	Rates	Change		
29	Customer Charge					\$6.00	\$6.00	\$0.00		
30	Distribution Demand <=10 kW					\$0.00	\$0.00	\$0.00		
31	Distribution Demand >10 kW					\$5.38	\$5.38	\$0.00		
32	Distribution Energy <=2,300 kWh					\$0.04512	\$0.04512	\$0.00000		
33	Distribution Energy >2,300 kWh					\$0.01223	\$0.01223	\$0.00000		
34	Revenue Decoupling					\$0.00190	\$0.00190	\$0.00000		
35	Solar Massachusetts Renewable Target					\$0.00078	\$0.00078	\$0.00000		
36	Residential Assistance Adjustment Factor					\$0.00303	\$0.00303	\$0.00000		
37	Pension Adjustment Factor					\$0.00102	\$0.00102	\$0.00000		
38	Net Metering Recovery Surcharge					\$0.00484	\$0.00484	\$0.00000		
39	Long Term Renewable Contract Adjustment					\$0.00070	\$0.00070	\$0.00000		
40	AG Consulting Expense					\$0.00002	\$0.00002	\$0.00000		
41	Storm Cost Recovery Adjustment Factor					\$0.00210	\$0.00210	\$0.00000		
42	Storm Reserve Adjustment					\$0.00000	\$0.00000	\$0.00000		
43	Basic Service Cost True Up Factor					\$0.00057	\$0.00057	\$0.00000		
44	Solar Program Cost Adjustment Factor					\$0.00000	\$0.00000	\$0.00000		
45	Solar Expansion Cost Recovery Factor					\$0.00102	\$0.00102	\$0.00000		
46	Vegetation Management					\$0.00133	\$0.00133	\$0.00000		
47	Tax Act Credit Factor					(\$0.00122)	(\$0.00122)	\$0.00000		
48	Grid Modernization					\$0.00055	\$0.00055	\$0.00000		
49	Transition					(\$0.00117)	(\$0.00117)	\$0.00000		
50	Transmission Energy					\$0.03246	\$0.03246	\$0.00000		
51	Energy Efficiency Reconciliation Factor					\$0.02896	\$0.02838	(\$0.00058)		
52	System Benefits Charge					\$0.00250	\$0.00250	\$0.00000		
53	Renewable Energy Charge					\$0.00050	\$0.00050	\$0.00000		
54	Supply Charge					\$0.09999	\$0.09999	\$0.00000		

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-1 Seasonal Small General Service**

1	Monthly kW	Monthly kWh	2023 Planned			2024 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 50									
4	5	250	\$46.89	\$25.00	\$71.89	\$46.74	\$25.00	\$71.74	(\$0.15)	-0.2%
5	10	500	\$87.77	\$50.00	\$137.77	\$87.48	\$50.00	\$137.48	(\$0.29)	-0.2%
6	20	1,000	\$216.94	\$99.99	\$316.93	\$216.36	\$99.99	\$316.35	(\$0.58)	-0.2%
7	50	2,500	\$564.50	\$249.98	\$814.48	\$563.05	\$249.98	\$813.03	(\$1.45)	-0.2%
8	Avg 9	450	\$79.59	\$45.00	\$124.59	\$79.33	\$45.00	\$124.33	(\$0.26)	-0.2%
9	Hours Use: 150									
10	5	750	\$128.66	\$74.99	\$203.65	\$128.22	\$74.99	\$203.21	(\$0.44)	-0.2%
11	10	1,500	\$251.31	\$149.99	\$401.30	\$250.44	\$149.99	\$400.43	(\$0.87)	-0.2%
12	20	3,000	\$475.54	\$299.97	\$775.51	\$473.80	\$299.97	\$773.77	(\$1.74)	-0.2%
13	50	7,500	\$1,096.85	\$749.93	\$1,846.78	\$1,092.50	\$749.93	\$1,842.43	(\$4.35)	-0.2%
14	Avg 8	1,200	\$202.25	\$119.99	\$322.24	\$201.55	\$119.99	\$321.54	(\$0.70)	-0.2%
15	Hours Use: 300									
16	5	1,500	\$251.31	\$149.99	\$401.30	\$250.44	\$149.99	\$400.43	(\$0.87)	-0.2%
17	10	3,000	\$428.14	\$299.97	\$728.11	\$426.40	\$299.97	\$726.37	(\$1.74)	-0.2%
18	20	6,000	\$794.95	\$599.94	\$1,394.89	\$791.47	\$599.94	\$1,391.41	(\$3.48)	-0.2%
19	50	15,000	\$1,895.38	\$1,499.85	\$3,395.23	\$1,886.68	\$1,499.85	\$3,386.53	(\$8.70)	-0.3%
20	Avg 9	2,700	\$396.20	\$269.97	\$666.17	\$394.63	\$269.97	\$664.60	(\$1.57)	-0.2%
21					2023 Planned	2024 Planned				
22					Rates	Rates	Change			
23	Customer Charge				\$6.00	\$6.00	\$0.00			
24	Distribution Demand <=10 kW				\$0.00	\$0.00	\$0.00			
25	Distribution Demand >10 kW				\$4.74	\$4.74	\$0.00			
26	Distribution Energy <=1,800 kWh				\$0.08365	\$0.08365	\$0.00000			
27	Distribution Energy >1,800 kWh				\$0.02658	\$0.02658	\$0.00000			
28	Revenue Decoupling				\$0.00190	\$0.00190	\$0.00000			
29	Solar Massachusetts Renewable Target				\$0.00078	\$0.00078	\$0.00000			
30	Residential Assistance Adjustment Factor				\$0.00303	\$0.00303	\$0.00000			
31	Pension Adjustment Factor				\$0.00102	\$0.00102	\$0.00000			
32	Net Metering Recovery Surcharge				\$0.00484	\$0.00484	\$0.00000			
33	Long Term Renewable Contract Adjustment				\$0.00070	\$0.00070	\$0.00000			
34	AG Consulting Expense				\$0.00002	\$0.00002	\$0.00000			
35	Storm Cost Recovery Adjustment Factor				\$0.00210	\$0.00210	\$0.00000			
36	Storm Reserve Adjustment				\$0.00000	\$0.00000	\$0.00000			
37	Basic Service Cost True Up Factor				\$0.00057	\$0.00057	\$0.00000			
38	Solar Program Cost Adjustment Factor				\$0.00000	\$0.00000	\$0.00000			
39	Solar Expansion Cost Recovery Factor				\$0.00102	\$0.00102	\$0.00000			
40	Vegetation Management				\$0.00133	\$0.00133	\$0.00000			
41	Tax Act Credit Factor				(\$0.00122)	(\$0.00122)	\$0.00000			
42	Grid Modernization				\$0.00055	\$0.00055	\$0.00000			
43	Transmission				(\$0.00117)	(\$0.00117)	\$0.00000			
44	Transmission Energy				\$0.03246	\$0.03246	\$0.00000			
45	Energy Efficiency Reconciliation Factor				\$0.02896	\$0.02838	(\$0.00058)			
46	System Benefits Charge				\$0.00250	\$0.00250	\$0.00000			
47	Renewable Energy Charge				\$0.00050	\$0.00050	\$0.00000			
48	Supply Charge				\$0.09999	\$0.09999	\$0.00000			

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-2 Medium General Time-of-Use

1	Monthly kVA	Monthly kWh	2023 Planned			2024 Planned			Total Bill Impact		
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
3	Hours Use: 300										
4	100	30,000	\$3,287.40	\$2,635.20	\$5,922.60	\$3,270.00	\$2,635.20	\$5,905.20	(\$17.40)	-0.3%	
5	150	45,000	\$4,746.09	\$3,952.80	\$8,698.89	\$4,719.99	\$3,952.80	\$8,672.79	(\$26.10)	-0.3%	
6	200	60,000	\$6,204.79	\$5,270.40	\$11,475.19	\$6,169.99	\$5,270.40	\$11,440.39	(\$34.80)	-0.3%	
7	300	90,000	\$9,122.19	\$7,905.60	\$17,027.79	\$9,069.99	\$7,905.60	\$16,975.59	(\$52.20)	-0.3%	
8	500	150,000	\$14,956.98	\$13,176.00	\$28,132.98	\$14,869.98	\$13,176.00	\$28,045.98	(\$87.00)	-0.3%	
9	Avg	205	61,500	\$6,350.66	\$5,402.16	\$11,752.82	\$6,314.99	\$5,402.16	\$11,717.15	(\$35.67)	-0.3%
10	Hours Use: 400										
11	100	40,000	\$3,885.86	\$3,513.60	\$7,399.46	\$3,862.66	\$3,513.60	\$7,376.26	(\$23.20)	-0.3%	
12	150	60,000	\$5,643.79	\$5,270.40	\$10,914.19	\$5,608.99	\$5,270.40	\$10,879.39	(\$34.80)	-0.3%	
13	200	80,000	\$7,401.72	\$7,027.20	\$14,428.92	\$7,355.32	\$7,027.20	\$14,382.52	(\$46.40)	-0.3%	
14	300	120,000	\$10,917.58	\$10,540.80	\$21,458.38	\$10,847.98	\$10,540.80	\$21,388.78	(\$69.60)	-0.3%	
15	500	200,000	\$17,949.30	\$17,568.00	\$35,517.30	\$17,833.30	\$17,568.00	\$35,401.30	(\$116.00)	-0.3%	
16	Avg	214	85,600	\$7,893.94	\$7,519.10	\$15,413.04	\$7,844.29	\$7,519.10	\$15,363.39	(\$49.65)	-0.3%
17	Hours Use: 500										
18	100	50,000	\$4,484.33	\$4,392.00	\$8,876.33	\$4,455.33	\$4,392.00	\$8,847.33	(\$29.00)	-0.3%	
19	150	75,000	\$6,541.49	\$6,588.00	\$13,129.49	\$6,497.99	\$6,588.00	\$13,085.99	(\$43.50)	-0.3%	
20	200	100,000	\$8,598.65	\$8,784.00	\$17,382.65	\$8,540.65	\$8,784.00	\$17,324.65	(\$58.00)	-0.3%	
21	300	150,000	\$12,712.98	\$13,176.00	\$25,888.98	\$12,625.98	\$13,176.00	\$25,801.98	(\$87.00)	-0.3%	
22	500	250,000	\$20,941.63	\$21,960.00	\$42,901.63	\$20,796.63	\$21,960.00	\$42,756.63	(\$145.00)	-0.3%	
23	Avg	253	126,500	\$10,779.24	\$11,111.76	\$21,891.00	\$10,705.87	\$11,111.76	\$21,817.63	(\$73.37)	-0.3%
24					2023 Planned		2024 Planned				
25					Rates		Rates	Change			
26	Customer Charge				\$370.00		\$370.00	\$0.00			
27	Distribution Demand				\$1.70		\$1.70	\$0.00			
28	Transmission Demand				\$9.52		\$9.52	\$0.00			
29	Distribution Energy - Peak				\$0.01991		\$0.01991	\$0.00000			
30	Distribution Energy - Low A				\$0.01675		\$0.01675	\$0.00000			
31	Distribution Energy - Low B				\$0.01086		\$0.01086	\$0.00000			
32	Revenue Decoupling				\$0.00122		\$0.00122	\$0.00000			
33	Solar Massachusetts Renewable Target				\$0.00050		\$0.00050	\$0.00000			
34	Residential Assistance Adjustment Factor				\$0.00194		\$0.00194	\$0.00000			
35	Pension Adjustment Factor				\$0.00067		\$0.00067	\$0.00000			
36	Net Metering Recovery Surcharge				\$0.00310		\$0.00310	\$0.00000			
37	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000			
38	AG Consulting Expense				\$0.00001		\$0.00001	\$0.00000			
39	Storm Cost Recovery Adjustment Factor				\$0.00135		\$0.00135	\$0.00000			
40	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000			
41	Basic Service Cost True Up Factor				\$0.00037		\$0.00037	\$0.00000			
42	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000			
43	Solar Expansion Cost Recovery Factor				\$0.00065		\$0.00065	\$0.00000			
44	Vegetation Management				\$0.00088		\$0.00088	\$0.00000			
45	Tax Act Credit Factor				(\$0.00078)		(\$0.00078)	\$0.00000			
46	Grid Modernization				\$0.00036		\$0.00036	\$0.00000			
47	Transition				(\$0.00117)		(\$0.00117)	\$0.00000			
48	Transmission Energy				\$0.00322		\$0.00322	\$0.00000			
49	Energy Efficiency Reconciliation Factor				\$0.02896		\$0.02838	(\$0.00058)			
50	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000			
51	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000			
52	Supply Charge				\$0.08784		\$0.08784	\$0.00000			
53	Peak Use:				28%						
54	Low A Use:				25%						
55	Low B Use:				47%						

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-3 Large General Time-Of-Use

1	Monthly kVA	Monthly kWh	2023 Planned			2024 Planned			Total Bill Impact		
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
3	Hours Use: 350										
4	500	175,000	\$15,067.58	\$15,372.00	\$30,439.58	\$14,966.08	\$15,372.00	\$30,338.08	(\$101.50)	-0.3%	
5	750	262,500	\$22,136.37	\$23,058.00	\$45,194.37	\$21,984.12	\$23,058.00	\$45,042.12	(\$152.25)	-0.3%	
6	1,000	350,000	\$29,205.16	\$30,744.00	\$59,949.16	\$29,002.16	\$30,744.00	\$59,746.16	(\$203.00)	-0.3%	
7	2,000	700,000	\$57,480.31	\$61,488.00	\$118,968.31	\$57,074.31	\$61,488.00	\$118,562.31	(\$406.00)	-0.3%	
8	3,000	1,050,000	\$85,755.47	\$92,232.00	\$177,987.47	\$85,146.47	\$92,232.00	\$177,378.47	(\$609.00)	-0.3%	
9	Avg	1,066	373,100	\$31,071.32	\$32,773.10	\$63,844.42	\$30,854.92	\$32,773.10	\$63,628.02	(\$216.40)	-0.3%
10	Hours Use: 450										
11	500	225,000	\$17,529.74	\$19,764.00	\$37,293.74	\$17,399.24	\$19,764.00	\$37,163.24	(\$130.50)	-0.3%	
12	750	337,500	\$25,829.61	\$29,646.00	\$55,475.61	\$25,633.86	\$29,646.00	\$55,279.86	(\$195.75)	-0.4%	
13	1,000	450,000	\$34,129.49	\$39,528.00	\$73,657.49	\$33,868.49	\$39,528.00	\$73,396.49	(\$261.00)	-0.4%	
14	2,000	900,000	\$67,328.97	\$79,056.00	\$146,384.97	\$66,806.97	\$79,056.00	\$145,862.97	(\$522.00)	-0.4%	
15	3,000	1,350,000	\$100,528.46	\$118,584.00	\$219,112.46	\$99,745.46	\$118,584.00	\$218,329.46	(\$783.00)	-0.4%	
16	Avg	788	354,600	\$27,091.19	\$31,148.06	\$58,239.25	\$26,885.53	\$31,148.06	\$58,033.59	(\$205.66)	-0.4%
17	Hours Use: 550										
18	500	275,000	\$19,991.91	\$24,156.00	\$44,147.91	\$19,832.41	\$24,156.00	\$43,988.41	(\$159.50)	-0.4%	
19	750	412,500	\$29,522.86	\$36,234.00	\$65,756.86	\$29,283.61	\$36,234.00	\$65,517.61	(\$239.25)	-0.4%	
20	1,000	550,000	\$39,053.82	\$48,312.00	\$87,365.82	\$38,734.82	\$48,312.00	\$87,046.82	(\$319.00)	-0.4%	
21	2,000	1,100,000	\$77,177.63	\$96,624.00	\$173,801.63	\$76,539.63	\$96,624.00	\$173,163.63	(\$638.00)	-0.4%	
22	3,000	1,650,000	\$115,301.45	\$144,936.00	\$260,237.45	\$114,344.45	\$144,936.00	\$259,280.45	(\$957.00)	-0.4%	
23	Avg	1,118	614,900	\$43,552.43	\$54,012.82	\$97,565.25	\$43,195.78	\$54,012.82	\$97,208.60	(\$356.65)	-0.4%
24					2023 Planned		2024 Planned				
25					Rates		Rates	Change			
26	Customer Charge				\$930.00		\$930.00	\$0.00			
27	Distribution Demand				\$0.97		\$0.97	\$0.00			
28	Transmission Demand				\$10.07		\$10.07	\$0.00			
29	Distribution Energy - Peak				\$0.01387		\$0.01387	\$0.00000			
30	Distribution Energy - Low A				\$0.01276		\$0.01276	\$0.00000			
31	Distribution Energy - Low B				\$0.00883		\$0.00883	\$0.00000			
32	Revenue Decoupling				\$0.00077		\$0.00077	\$0.00000			
33	Solar Massachusetts Renewable Target				\$0.00032		\$0.00032	\$0.00000			
34	Residential Assistance Adjustment Factor				\$0.00123		\$0.00123	\$0.00000			
35	Pension Adjustment Factor				\$0.00047		\$0.00047	\$0.00000			
36	Net Metering Recovery Surcharge				\$0.00196		\$0.00196	\$0.00000			
37	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000			
38	AG Consulting Expense				\$0.00001		\$0.00001	\$0.00000			
39	Storm Cost Recovery Adjustment Factor				\$0.00085		\$0.00085	\$0.00000			
40	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000			
41	Basic Service Cost True Up Factor				\$0.00023		\$0.00023	\$0.00000			
42	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000			
43	Solar Expansion Cost Recovery Factor				\$0.00041		\$0.00041	\$0.00000			
44	Vegetation Management				\$0.00062		\$0.00062	\$0.00000			
45	Tax Act Credit Factor				(\$0.00049)		(\$0.00049)	\$0.00000			
46	Grid Modernization				\$0.00020		\$0.00020	\$0.00000			
47	Transition				(\$0.00117)		(\$0.00117)	\$0.00000			
48	Transmission Energy				\$0.00000		\$0.00000	\$0.00000			
49	Energy Efficiency Reconciliation Factor				\$0.02896		\$0.02838	(\$0.00058)			
50	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000			
51	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000			
52	Supply Charge				\$0.08784		\$0.08784	\$0.00000			
53	Peak Use:				27%						
54	Low A Use:				25%						
55	Low B Use:				48%						

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-4 General Power**

1	Monthly kW	Monthly kWh	2023 Planned			2024 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 150									
4	20	3,000	\$329.75	\$299.97	\$629.72	\$328.01	\$299.97	\$627.98	(\$1.74)	-0.3%
5	30	4,500	\$491.63	\$449.96	\$941.59	\$489.02	\$449.96	\$938.98	(\$2.61)	-0.3%
6	40	6,000	\$653.50	\$599.94	\$1,253.44	\$650.02	\$599.94	\$1,249.96	(\$3.48)	-0.3%
7	70	10,500	\$1,139.13	\$1,049.90	\$2,189.03	\$1,133.04	\$1,049.90	\$2,182.94	(\$6.09)	-0.3%
8	100	15,000	\$1,624.75	\$1,499.85	\$3,124.60	\$1,616.05	\$1,499.85	\$3,115.90	(\$8.70)	-0.3%
9	Avg	52	\$847.75	\$779.92	\$1,627.67	\$843.23	\$779.92	\$1,623.15	(\$4.52)	-0.3%
10	Hours Use: 250									
11	20	5,000	\$475.45	\$499.95	\$975.40	\$472.55	\$499.95	\$972.50	(\$2.90)	-0.3%
12	30	7,500	\$710.18	\$749.93	\$1,460.11	\$705.83	\$749.93	\$1,455.76	(\$4.35)	-0.3%
13	40	10,000	\$944.90	\$999.90	\$1,944.80	\$939.10	\$999.90	\$1,939.00	(\$5.80)	-0.3%
14	70	17,500	\$1,649.08	\$1,749.83	\$3,398.91	\$1,638.93	\$1,749.83	\$3,388.76	(\$10.15)	-0.3%
15	100	25,000	\$2,353.25	\$2,499.75	\$4,853.00	\$2,338.75	\$2,499.75	\$4,838.50	(\$14.50)	-0.3%
16	Avg	27	\$639.76	\$674.93	\$1,314.69	\$635.84	\$674.93	\$1,310.77	(\$3.92)	-0.3%
17	Hours Use: 350									
18	20	7,000	\$621.15	\$699.93	\$1,321.08	\$617.09	\$699.93	\$1,317.02	(\$4.06)	-0.3%
19	30	10,500	\$928.73	\$1,049.90	\$1,978.63	\$922.64	\$1,049.90	\$1,972.54	(\$6.09)	-0.3%
20	40	14,000	\$1,236.30	\$1,399.86	\$2,636.16	\$1,228.18	\$1,399.86	\$2,628.04	(\$8.12)	-0.3%
21	70	24,500	\$2,159.03	\$2,449.76	\$4,608.79	\$2,144.82	\$2,449.76	\$4,594.58	(\$14.21)	-0.3%
22	100	35,000	\$3,081.75	\$3,499.65	\$6,581.40	\$3,061.45	\$3,499.65	\$6,561.10	(\$20.30)	-0.3%
23	Avg	27	\$836.45	\$944.91	\$1,781.36	\$830.97	\$944.91	\$1,775.88	(\$5.48)	-0.3%
24					2023 Planned			2024 Planned		
25					Rates			Rates	Change	
26	Customer Charge				\$6.00		\$6.00	\$6.00	\$0.00	
27	Distribution Demand				\$1.92		\$1.92	\$1.92	\$0.00	
28	Transmission Demand				\$3.34		\$3.34	\$3.34	\$0.00	
29	Distribution Energy				\$0.02203		\$0.02203	\$0.02203	\$0.00000	
30	Revenue Decoupling				\$0.00175		\$0.00175	\$0.00175	\$0.00000	
31	Solar Massachusetts Renewable Target				\$0.00072		\$0.00072	\$0.00072	\$0.00000	
32	Residential Assistance Adjustment Factor				\$0.00280		\$0.00280	\$0.00280	\$0.00000	
33	Pension Adjustment Factor				\$0.00109		\$0.00109	\$0.00109	\$0.00000	
34	Net Metering Recovery Surcharge				\$0.00446		\$0.00446	\$0.00446	\$0.00000	
35	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00070	\$0.00000	
36	AG Consulting Expense				\$0.00002		\$0.00002	\$0.00002	\$0.00000	
37	Storm Cost Recovery Adjustment Factor				\$0.00191		\$0.00191	\$0.00191	\$0.00000	
38	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000	\$0.00000	
39	Basic Service Cost True Up Factor				\$0.00053		\$0.00053	\$0.00053	\$0.00000	
40	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000	\$0.00000	
41	Solar Expansion Cost Recovery Factor				\$0.00094		\$0.00094	\$0.00094	\$0.00000	
42	Vegetation Management				\$0.00142		\$0.00142	\$0.00142	\$0.00000	
43	Tax Act Credit Factor				(\$0.00112)		(\$0.00112)	(\$0.00112)	\$0.00000	
44	Grid Modernization				\$0.00046		\$0.00046	\$0.00046	\$0.00000	
45	Transition				(\$0.00117)		(\$0.00117)	(\$0.00117)	\$0.00000	
46	Transmission Energy				\$0.00435		\$0.00435	\$0.00435	\$0.00000	
47	Energy Efficiency Reconciliation Factor				\$0.02896		\$0.02838	(\$0.00058)		
48	System Benefits Charge				\$0.00250		\$0.00250	\$0.00250	\$0.00000	
49	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00050	\$0.00000	
50	Supply Charge				\$0.09999		\$0.09999	\$0.09999	\$0.00000	

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-5 Commercial Space Heating

1	Monthly	2023 Planned			2024 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	100	\$18.74	\$10.00	\$28.74	\$18.69	\$10.00	\$28.69	(\$0.05)	-0.2%
4	200	\$31.49	\$20.00	\$51.49	\$31.37	\$20.00	\$51.37	(\$0.12)	-0.2%
5	300	\$44.23	\$30.00	\$74.23	\$44.06	\$30.00	\$74.06	(\$0.17)	-0.2%
6	500	\$69.72	\$50.00	\$119.72	\$69.43	\$50.00	\$119.43	(\$0.29)	-0.2%
7	750	\$101.57	\$74.99	\$176.56	\$101.14	\$74.99	\$176.13	(\$0.43)	-0.2%
8	1,000	\$133.43	\$99.99	\$233.42	\$132.85	\$99.99	\$232.84	(\$0.58)	-0.2%
9	1,500	\$197.15	\$149.99	\$347.14	\$196.28	\$149.99	\$346.27	(\$0.87)	-0.3%
10	3,000	\$388.29	\$299.97	\$688.26	\$386.55	\$299.97	\$686.52	(\$1.74)	-0.3%
11	5,000	\$643.15	\$499.95	\$1,143.10	\$640.25	\$499.95	\$1,140.20	(\$2.90)	-0.3%
12	Avg 1,472	\$193.58	\$147.19	\$340.77	\$192.72	\$147.19	\$339.91	(\$0.86)	-0.3%

13		2023 Planned	2024 Planned	Change
		Rates	Rates	
14				
15	Customer Charge	\$6.00	\$6.00	\$0.00
16	Distribution Energy	\$0.03965	\$0.03965	\$0.00000
17	Revenue Decoupling	\$0.00222	\$0.00222	\$0.00000
18	Solar Massachusetts Renewable Target	\$0.00091	\$0.00091	\$0.00000
19	Residential Assistance Adjustment Factor	\$0.00354	\$0.00354	\$0.00000
20	Pension Adjustment Factor	\$0.00195	\$0.00195	\$0.00000
21	Net Metering Recovery Surcharge	\$0.00565	\$0.00565	\$0.00000
22	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
23	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
24	Storm Cost Recovery Adjustment Factor	\$0.00245	\$0.00245	\$0.00000
25	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
26	Basic Service Cost True Up Factor	\$0.00067	\$0.00067	\$0.00000
27	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
28	Solar Expansion Cost Recovery Factor	\$0.00119	\$0.00119	\$0.00000
29	Vegetation Management	\$0.00256	\$0.00256	\$0.00000
30	Tax Act Credit Factor	(\$0.00142)	(\$0.00142)	\$0.00000
31	Grid Modernization	\$0.00071	\$0.00071	\$0.00000
32	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
33	Transmission Energy	\$0.03584	\$0.03584	\$0.00000
34	Energy Efficiency Reconciliation Factor	\$0.02896	\$0.02838	(\$0.00058)
35	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
36	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
37	Supply Charge	\$0.09999	\$0.09999	\$0.00000

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-6 All Electric Schools**

1	Monthly	2023 Planned			2024 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	25,000	\$2,229.75	\$2,499.75	\$4,729.50	\$2,215.25	\$2,499.75	\$4,715.00	(\$14.50)	-0.3%
4	40,000	\$3,549.60	\$3,999.60	\$7,549.20	\$3,526.40	\$3,999.60	\$7,526.00	(\$23.20)	-0.3%
5	50,000	\$4,429.50	\$4,999.50	\$9,429.00	\$4,400.50	\$4,999.50	\$9,400.00	(\$29.00)	-0.3%
6	60,000	\$5,309.40	\$5,999.40	\$11,308.80	\$5,274.60	\$5,999.40	\$11,274.00	(\$34.80)	-0.3%
7	150,000	\$13,228.50	\$14,998.50	\$28,227.00	\$13,141.50	\$14,998.50	\$28,140.00	(\$87.00)	-0.3%
8	Avg 60,748	\$5,375.22	\$6,074.19	\$11,449.41	\$5,339.98	\$6,074.19	\$11,414.17	(\$35.24)	-0.3%

9		2023 Planned	2024 Planned	
10		Rates	Rates	Change
11	Customer Charge	\$30.00	\$30.00	\$0.00
12	Distribution Energy	\$0.01802	\$0.01802	\$0.00000
13	Revenue Decoupling	\$0.00084	\$0.00084	\$0.00000
14	Solar Massachusetts Renewable Target	\$0.00035	\$0.00035	\$0.00000
15	Residential Assistance Adjustment Factor	\$0.00135	\$0.00135	\$0.00000
16	Pension Adjustment Factor	\$0.00083	\$0.00083	\$0.00000
17	Net Metering Recovery Surcharge	\$0.00215	\$0.00215	\$0.00000
18	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
19	AG Consulting Expense	\$0.00001	\$0.00001	\$0.00000
20	Storm Cost Recovery Adjustment Factor	\$0.00092	\$0.00092	\$0.00000
21	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
22	Basic Service Cost True Up Factor	\$0.00025	\$0.00025	\$0.00000
23	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
24	Solar Expansion Cost Recovery Factor	\$0.00045	\$0.00045	\$0.00000
25	Vegetation Management	\$0.00109	\$0.00109	\$0.00000
26	Tax Act Credit Factor	(\$0.00054)	(\$0.00054)	\$0.00000
27	Grid Modernization	\$0.00023	\$0.00023	\$0.00000
28	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
29	Transmission Energy	\$0.03055	\$0.03055	\$0.00000
30	Energy Efficiency Reconciliation Factor	\$0.02896	\$0.02838	(\$0.00058)
31	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
32	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
33	Supply Charge	\$0.09999	\$0.09999	\$0.00000

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-7 Optional General Time-of-Use

1	Monthly kVA	Monthly kWh	2023 Planned			2024 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 350									
4	5	1,750	\$208.12	\$174.98	\$383.10	\$207.11	\$174.98	\$382.09	(\$1.01)	-0.3%
5	10	3,500	\$406.25	\$349.97	\$756.22	\$404.22	\$349.97	\$754.19	(\$2.03)	-0.3%
6	20	7,000	\$802.50	\$699.93	\$1,502.43	\$798.44	\$699.93	\$1,498.37	(\$4.06)	-0.3%
7	50	17,500	\$1,991.24	\$1,749.83	\$3,741.07	\$1,981.09	\$1,749.83	\$3,730.92	(\$10.15)	-0.3%
8	75	26,250	\$2,981.87	\$2,624.74	\$5,606.61	\$2,966.64	\$2,624.74	\$5,591.38	(\$15.23)	-0.3%
9	Avg	20	\$802.50	\$699.93	\$1,502.43	\$798.44	\$699.93	\$1,498.37	(\$4.06)	-0.3%
10	Hours Use: 500									
11	5	2,500	\$258.34	\$249.98	\$508.32	\$256.89	\$249.98	\$506.87	(\$1.45)	-0.3%
12	10	5,000	\$506.68	\$499.95	\$1,006.63	\$503.78	\$499.95	\$1,003.73	(\$2.90)	-0.3%
13	20	10,000	\$1,003.37	\$999.90	\$2,003.27	\$997.57	\$999.90	\$1,997.47	(\$5.80)	-0.3%
14	50	25,000	\$2,493.42	\$2,499.75	\$4,993.17	\$2,478.92	\$2,499.75	\$4,978.67	(\$14.50)	-0.3%
15	75	37,500	\$3,735.13	\$3,749.63	\$7,484.76	\$3,713.38	\$3,749.63	\$7,463.01	(\$21.75)	-0.3%
16	Avg	31	\$1,549.72	\$1,549.85	\$3,099.57	\$1,540.73	\$1,549.85	\$3,090.58	(\$8.99)	-0.3%
17	Hours Use: 650									
18	5	3,250	\$308.56	\$324.97	\$633.53	\$306.67	\$324.97	\$631.64	(\$1.89)	-0.3%
19	10	6,500	\$607.12	\$649.94	\$1,257.06	\$603.35	\$649.94	\$1,253.29	(\$3.77)	-0.3%
20	20	13,000	\$1,204.24	\$1,299.87	\$2,504.11	\$1,196.70	\$1,299.87	\$2,496.57	(\$7.54)	-0.3%
21	50	32,500	\$2,995.60	\$3,249.68	\$6,245.28	\$2,976.75	\$3,249.68	\$6,226.43	(\$18.85)	-0.3%
22	75	48,750	\$4,488.39	\$4,874.51	\$9,362.90	\$4,460.12	\$4,874.51	\$9,334.63	(\$28.27)	-0.3%
23	Avg	18	\$1,084.81	\$1,169.88	\$2,254.69	\$1,078.03	\$1,169.88	\$2,247.91	(\$6.78)	-0.3%
24					2023 Planned			2024 Planned		
25					Rates			Rates	Change	
26	Customer Charge				\$10.00		\$10.00	\$0.00		
27	Distribution Demand				\$3.68		\$3.68	\$0.00		
28	Transmission Demand				\$12.51		\$12.51	\$0.00		
29	Distribution Energy - Peak				\$0.02528		\$0.02528	\$0.00000		
30	Distribution Energy - Low Load				\$0.01771		\$0.01771	\$0.00000		
31	Revenue Decoupling				\$0.00190		\$0.00190	\$0.00000		
32	Solar Massachusetts Renewable Target				\$0.00078		\$0.00078	\$0.00000		
33	Residential Assistance Adjustment Factor				\$0.00303		\$0.00303	\$0.00000		
34	Pension Adjustment Factor				\$0.00102		\$0.00102	\$0.00000		
35	Net Metering Recovery Surcharge				\$0.00484		\$0.00484	\$0.00000		
36	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000		
37	AG Consulting Expense				\$0.00002		\$0.00002	\$0.00000		
38	Storm Cost Recovery Adjustment Factor				\$0.00210		\$0.00210	\$0.00000		
39	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000		
40	Basic Service Cost True Up Factor				\$0.00057		\$0.00057	\$0.00000		
41	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000		
42	Solar Expansion Cost Recovery Factor				\$0.00102		\$0.00102	\$0.00000		
43	Vegetation Management				\$0.00133		\$0.00133	\$0.00000		
44	Tax Act Credit Factor				(\$0.00122)		(\$0.00122)	\$0.00000		
45	Grid Modernization				\$0.00055		\$0.00055	\$0.00000		
46	Transition				(\$0.00117)		(\$0.00117)	\$0.00000		
47	Energy Efficiency Reconciliation Factor				\$0.02896		\$0.02838	(\$0.00058)		
48	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000		
49	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000		
50	Supply Charge				\$0.09999		\$0.09999	\$0.00000		
51	Peak Use:				24%					
52	Low A Use:				76%					

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-7 Optional Seasonal General Time-of-Use**

1	Monthly kVA	Monthly kWh	2023 Planned			2024 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 50									
4	5	250	\$74.77	\$25.00	\$99.77	\$74.63	\$25.00	\$99.63	(\$0.14)	-0.1%
5	10	500	\$139.54	\$50.00	\$189.54	\$139.25	\$50.00	\$189.25	(\$0.29)	-0.2%
6	20	1,000	\$269.08	\$99.99	\$369.07	\$268.50	\$99.99	\$368.49	(\$0.58)	-0.2%
7	50	2,500	\$657.71	\$249.98	\$907.69	\$656.26	\$249.98	\$906.24	(\$1.45)	-0.2%
8	75	3,750	\$981.56	\$374.96	\$1,356.52	\$979.39	\$374.96	\$1,354.35	(\$2.17)	-0.2%
9	Avg	9	\$126.59	\$45.00	\$171.59	\$126.33	\$45.00	\$171.33	(\$0.26)	-0.2%
10	Hours Use: 150									
11	5	750	\$120.11	\$74.99	\$195.10	\$119.68	\$74.99	\$194.67	(\$0.43)	-0.2%
12	10	1,500	\$230.22	\$149.99	\$380.21	\$229.35	\$149.99	\$379.34	(\$0.87)	-0.2%
13	20	3,000	\$450.45	\$299.97	\$750.42	\$448.71	\$299.97	\$748.68	(\$1.74)	-0.2%
14	50	7,500	\$1,111.12	\$749.93	\$1,861.05	\$1,106.77	\$749.93	\$1,856.70	(\$4.35)	-0.2%
15	75	11,250	\$1,661.69	\$1,124.89	\$2,786.58	\$1,655.16	\$1,124.89	\$2,780.05	(\$6.53)	-0.2%
16	Avg	10	\$230.22	\$149.99	\$380.21	\$229.35	\$149.99	\$379.34	(\$0.87)	-0.2%
17	Hours Use: 300									
18	5	1,500	\$188.12	\$149.99	\$338.11	\$187.25	\$149.99	\$337.24	(\$0.87)	-0.3%
19	10	3,000	\$366.25	\$299.97	\$666.22	\$364.51	\$299.97	\$664.48	(\$1.74)	-0.3%
20	20	6,000	\$722.50	\$599.94	\$1,322.44	\$719.02	\$599.94	\$1,318.96	(\$3.48)	-0.3%
21	50	15,000	\$1,791.25	\$1,499.85	\$3,291.10	\$1,782.55	\$1,499.85	\$3,282.40	(\$8.70)	-0.3%
22	75	22,500	\$2,681.87	\$2,249.78	\$4,931.65	\$2,668.82	\$2,249.78	\$4,918.60	(\$13.05)	-0.3%
23	Avg	13	\$473.12	\$389.96	\$863.08	\$470.86	\$389.96	\$860.82	(\$2.26)	-0.3%
24					2023 Planned			2024 Planned		
25					Rates			Rates	Change	
26	Customer Charge				\$10.00			\$10.00	\$0.00	
27	Distribution Demand				\$3.72			\$3.72	\$0.00	
28	Transmission Demand				\$4.70			\$4.70	\$0.00	
29	Distribution Energy - Peak				\$0.04929			\$0.04929	\$0.00000	
30	Distribution Energy - Low Load				\$0.04145			\$0.04145	\$0.00000	
31	Revenue Decoupling				\$0.00190			\$0.00190	\$0.00000	
32	Solar Massachusetts Renewable Target				\$0.00078			\$0.00078	\$0.00000	
33	Residential Assistance Adjustment Factor				\$0.00303			\$0.00303	\$0.00000	
34	Pension Adjustment Factor				\$0.00102			\$0.00102	\$0.00000	
35	Net Metering Recovery Surcharge				\$0.00484			\$0.00484	\$0.00000	
36	Long Term Renewable Contract Adjustment				\$0.00070			\$0.00070	\$0.00000	
37	AG Consulting Expense				\$0.00002			\$0.00002	\$0.00000	
38	Storm Cost Recovery Adjustment Factor				\$0.00210			\$0.00210	\$0.00000	
39	Storm Reserve Adjustment				\$0.00000			\$0.00000	\$0.00000	
40	Basic Service Cost True Up Factor				\$0.00057			\$0.00057	\$0.00000	
41	Solar Program Cost Adjustment Factor				\$0.00000			\$0.00000	\$0.00000	
42	Solar Expansion Cost Recovery Factor				\$0.00102			\$0.00102	\$0.00000	
43	Vegetation Management				\$0.00133			\$0.00133	\$0.00000	
44	Tax Act Credit Factor				(\$0.00122)			(\$0.00122)	\$0.00000	
45	Grid Modernization				\$0.00055			\$0.00055	\$0.00000	
46	Transition				(\$0.00117)			(\$0.00117)	\$0.00000	
47	Energy Efficiency Reconciliation Factor				\$0.02896			\$0.02838	(\$0.00058)	
48	System Benefits Charge				\$0.00250			\$0.00250	\$0.00000	
49	Renewable Energy Charge				\$0.00050			\$0.00050	\$0.00000	
50	Supply Charge				\$0.09999			\$0.09999	\$0.00000	
51	Peak Use:			23%						
52	Low A Use:			77%						

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-1 Residential

1	Monthly	2021 In Effect			2024 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	100	\$20.74	\$10.74	\$31.48	\$23.27	\$10.74	\$34.01	\$2.53	8.0%
4	200	\$34.49	\$21.49	\$55.98	\$39.55	\$21.49	\$61.04	\$5.06	9.0%
5	300	\$48.23	\$32.23	\$80.46	\$55.62	\$32.23	\$88.05	\$7.59	9.4%
6	400	\$61.97	\$42.97	\$104.94	\$72.09	\$42.97	\$115.06	\$10.12	9.6%
7	500	\$75.72	\$53.72	\$129.44	\$88.37	\$53.72	\$142.09	\$12.65	9.8%
8	600	\$89.46	\$64.46	\$153.92	\$104.64	\$64.46	\$169.10	\$15.18	9.9%
9	700	\$103.20	\$75.20	\$178.40	\$120.91	\$75.20	\$196.11	\$17.71	9.9%
10	800	\$116.94	\$85.94	\$202.88	\$137.18	\$85.94	\$223.12	\$20.24	10.0%
11	900	\$130.69	\$96.69	\$227.38	\$153.46	\$96.69	\$250.15	\$22.77	10.0%
12	1,000	\$144.43	\$107.43	\$251.86	\$169.73	\$107.43	\$277.16	\$25.30	10.0%
13	1,250	\$178.79	\$134.29	\$313.08	\$210.41	\$134.29	\$344.70	\$31.62	10.1%
14	1,500	\$213.15	\$161.15	\$374.30	\$251.10	\$161.15	\$412.25	\$37.95	10.1%
15	2,000	\$281.86	\$214.86	\$496.72	\$332.46	\$214.86	\$547.32	\$50.60	10.2%
16	Avg 516	\$77.91	\$55.43	\$133.34	\$90.97	\$55.43	\$146.40	\$13.06	9.8%

17		2021 In Effect	2024 Planned	
18		<u>Rates</u>	<u>Rates</u>	<u>Change</u>
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04944	\$0.04944	\$0.00000
21	Revenue Decoupling	\$0.00299	\$0.00299	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00123	\$0.00123	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00478	\$0.00478	\$0.00000
24	Pension Adjustment Factor	\$0.00133	\$0.00133	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00763	\$0.00763	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00003	\$0.00003	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00330	\$0.00330	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00090	\$0.00090	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00001	\$0.00001	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00160	\$0.00160	\$0.00000
33	Vegetation Management	\$0.00174	\$0.00174	\$0.00000
34	Tax Act Credit Factor	(\$0.00192)	(\$0.00192)	\$0.00000
35	Grid Modernization	\$0.00081	\$0.00081	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03524	\$0.03524	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.02579	\$0.05109	\$0.02530
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-2 Residential Assistance

	Monthly kWh	2021 In Effect		2024 Planned		Total Bill Impact	
		Delivery	Supplier	Delivery	Supplier	Change	% Change
1							
2	100	\$11.72	\$6.88	\$11.85	\$6.88	\$0.13	0.7%
3	200	\$18.96	\$13.75	\$19.22	\$13.75	\$0.26	0.8%
4	300	\$26.20	\$20.63	\$26.59	\$20.63	\$0.39	0.8%
5	400	\$33.44	\$27.50	\$33.96	\$27.50	\$0.52	0.9%
6	500	\$40.68	\$34.38	\$41.33	\$34.38	\$0.65	0.9%
7	600	\$47.92	\$41.25	\$48.70	\$41.25	\$0.78	0.9%
8	700	\$55.16	\$48.13	\$56.07	\$48.13	\$0.91	0.9%
9	800	\$62.40	\$55.00	\$63.44	\$55.00	\$1.04	0.9%
10	900	\$69.64	\$61.88	\$70.81	\$61.88	\$1.17	0.9%
11	1,000	\$76.88	\$68.76	\$78.18	\$68.76	\$1.30	0.9%
12	1,250	\$94.98	\$85.94	\$96.60	\$85.94	\$1.62	0.9%
13	1,500	\$113.08	\$103.13	\$115.02	\$103.13	\$1.94	0.9%
14	2,000	\$149.27	\$137.51	\$151.87	\$137.51	\$2.60	0.9%
15							
16	Avg 488	\$39.81	\$33.55	\$40.44	\$33.55	\$0.63	0.9%

	2021 In Effect	2024 Planned	Change	
17				
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>	
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04944	\$0.04944	\$0.00000
21	Revenue Decoupling	\$0.00299	\$0.00299	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00123	\$0.00123	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00478	\$0.00478	\$0.00000
24	Pension Adjustment Factor	\$0.00133	\$0.00133	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00763	\$0.00763	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00003	\$0.00003	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00330	\$0.00330	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00090	\$0.00090	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00001	\$0.00001	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00160	\$0.00160	\$0.00000
33	Vegetation Management	\$0.00174	\$0.00174	\$0.00000
34	Tax Act Credit Factor	(\$0.00192)	(\$0.00192)	\$0.00000
35	Grid Modernization	\$0.00081	\$0.00081	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03524	\$0.03524	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.00148	\$0.00351	\$0.00203
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000
42	Low Income Discount	36%	36%	0%

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-3 Residential Space Heating

	Monthly kWh	2021 In Effect			2024 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
1									
2	100	\$19.72	\$10.74	\$30.46	\$22.25	\$10.74	\$32.99	\$2.53	8.3%
3	200	\$32.44	\$21.49	\$53.93	\$37.50	\$21.49	\$58.99	\$5.06	9.4%
4	300	\$45.16	\$32.23	\$77.39	\$52.75	\$32.23	\$84.98	\$7.59	9.8%
5	400	\$57.88	\$42.97	\$100.85	\$68.00	\$42.97	\$110.97	\$10.12	10.0%
6	500	\$70.61	\$53.72	\$124.33	\$83.26	\$53.72	\$136.98	\$12.65	10.2%
7	600	\$83.33	\$64.46	\$147.79	\$98.51	\$64.46	\$162.97	\$15.18	10.3%
8	700	\$96.05	\$75.20	\$171.25	\$113.76	\$75.20	\$188.96	\$17.71	10.3%
9	800	\$108.77	\$85.94	\$194.71	\$129.01	\$85.94	\$214.95	\$20.24	10.4%
10	900	\$121.49	\$96.69	\$218.18	\$144.26	\$96.69	\$240.95	\$22.77	10.4%
11	1,000	\$134.21	\$107.43	\$241.64	\$159.51	\$107.43	\$266.94	\$25.30	10.5%
12	1,250	\$166.01	\$134.29	\$300.30	\$197.64	\$134.29	\$331.93	\$31.63	10.5%
13	1,500	\$197.82	\$161.15	\$358.97	\$235.77	\$161.15	\$396.92	\$37.95	10.6%
14	2,000	\$261.42	\$214.86	\$476.28	\$312.02	\$214.86	\$526.88	\$50.60	10.6%
15									
16	Avg 740	\$101.14	\$79.50	\$180.64	\$119.86	\$79.50	\$199.36	\$18.72	10.4%

	2021 In Effect	2024 Planned	Change	
17				
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>	
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04310	\$0.04310	\$0.00000
21	Revenue Decoupling	\$0.00236	\$0.00236	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00097	\$0.00097	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00376	\$0.00376	\$0.00000
24	Pension Adjustment Factor	\$0.00127	\$0.00127	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00601	\$0.00601	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00259	\$0.00259	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00071	\$0.00071	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00126	\$0.00126	\$0.00000
33	Vegetation Management	\$0.00167	\$0.00167	\$0.00000
34	Tax Act Credit Factor	(\$0.00151)	(\$0.00151)	\$0.00000
35	Grid Modernization	\$0.00064	\$0.00064	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03604	\$0.03604	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.02579	\$0.05109	\$0.02530
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

Rate R-4 Residential Assistance Space Heating

	Monthly kWh	2021 In Effect		2024 Planned		Total Bill Impact	
		Delivery	Supplier	Delivery	Supplier	Change	% Change
1							
2	100	\$11.07	\$6.88	\$11.20	\$6.88	\$0.13	0.7%
3	200	\$17.65	\$13.75	\$17.91	\$13.75	\$0.26	0.8%
4	300	\$24.24	\$20.63	\$24.63	\$20.63	\$0.39	0.9%
5	400	\$30.82	\$27.50	\$31.34	\$27.50	\$0.52	0.9%
6	500	\$37.41	\$34.38	\$38.06	\$34.38	\$0.65	0.9%
7	600	\$43.99	\$41.25	\$44.77	\$41.25	\$0.78	0.9%
8	700	\$50.58	\$48.13	\$51.49	\$48.13	\$0.91	0.9%
9	800	\$57.16	\$55.00	\$58.20	\$55.00	\$1.04	0.9%
10	900	\$63.75	\$61.88	\$64.82	\$61.88	\$1.17	0.9%
11	1,000	\$70.34	\$68.76	\$71.64	\$68.76	\$1.30	0.9%
12	1,250	\$86.80	\$85.94	\$88.42	\$85.94	\$1.62	0.9%
13	1,500	\$103.26	\$103.13	\$105.21	\$103.13	\$1.95	0.9%
14	2,000	\$136.19	\$137.51	\$138.79	\$137.51	\$2.60	0.9%
15							
16	Avg 874	\$62.04	\$60.09	\$63.17	\$60.09	\$1.13	0.9%

	2021 In Effect	2024 Planned	Change	
17				
18	<u>Rates</u>	<u>Rates</u>	<u>Change</u>	
19	Customer Charge	\$7.00	\$7.00	\$0.00
20	Distribution Energy	\$0.04310	\$0.04310	\$0.00000
21	Revenue Decoupling	\$0.00236	\$0.00236	\$0.00000
22	Solar Massachusetts Renewable Target	\$0.00097	\$0.00097	\$0.00000
23	Residential Assistance Adjustment Factor	\$0.00376	\$0.00376	\$0.00000
24	Pension Adjustment Factor	\$0.00127	\$0.00127	\$0.00000
25	Net Metering Recovery Surcharge	\$0.00601	\$0.00601	\$0.00000
26	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
27	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
28	Storm Cost Recovery Adjustment Factor	\$0.00259	\$0.00259	\$0.00000
29	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
30	Basic Service Cost True Up Factor	\$0.00071	\$0.00071	\$0.00000
31	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
32	Solar Expansion Cost Recovery Factor	\$0.00126	\$0.00126	\$0.00000
33	Vegetation Management	\$0.00167	\$0.00167	\$0.00000
34	Tax Act Credit Factor	(\$0.00151)	(\$0.00151)	\$0.00000
35	Grid Modernization	\$0.00064	\$0.00064	\$0.00000
36	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
37	Transmission Energy	\$0.03604	\$0.03604	\$0.00000
38	Energy Efficiency Reconciliation Factor	\$0.00148	\$0.00351	\$0.00203
39	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
40	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
41	Supply Charge	\$0.10743	\$0.10743	\$0.00000
42	Low Income Discount	36%	36%	0%

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-1 Small General Service**

1	2	Monthly kW	Monthly kWh	2021 In Effect			2024 Planned			Total Bill Impact	
				Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3		Hours Use: 200									
4		5	1,000	\$112.90	\$99.99	\$212.89	\$130.43	\$99.99	\$230.42	\$17.53	8.2%
5		10	2,000	\$219.80	\$199.98	\$419.78	\$254.86	\$199.98	\$454.84	\$35.06	8.4%
6		15	3,000	\$330.58	\$299.97	\$630.55	\$383.17	\$299.97	\$683.14	\$52.59	8.3%
7		25	5,000	\$532.40	\$499.95	\$1,032.35	\$620.05	\$499.95	\$1,120.00	\$87.65	8.5%
8		50	10,000	\$1,036.95	\$999.90	\$2,036.85	\$1,212.25	\$999.90	\$2,212.15	\$175.30	8.6%
9		100	20,000	\$2,046.05	\$1,999.80	\$4,045.85	\$2,396.65	\$1,999.80	\$4,396.45	\$350.60	8.7%
10	Avg	2	400	\$48.76	\$40.00	\$88.76	\$55.77	\$40.00	\$95.77	\$7.01	7.9%
11		Hours Use: 300									
12		5	1,500	\$166.35	\$149.99	\$316.34	\$192.65	\$149.99	\$342.64	\$26.30	8.3%
13		10	3,000	\$303.68	\$299.97	\$603.65	\$356.27	\$299.97	\$656.24	\$52.59	8.7%
14		15	4,500	\$441.59	\$449.96	\$891.55	\$520.48	\$449.96	\$970.44	\$78.89	8.8%
15		25	7,500	\$717.42	\$749.93	\$1,467.35	\$848.90	\$749.93	\$1,598.83	\$131.48	9.0%
16		50	15,000	\$1,407.00	\$1,499.85	\$2,906.85	\$1,669.95	\$1,499.85	\$3,169.80	\$262.95	9.0%
17		100	30,000	\$2,786.15	\$2,999.70	\$5,785.85	\$3,312.05	\$2,999.70	\$6,311.75	\$525.90	9.1%
18	Avg	19	5,700	\$551.92	\$569.94	\$1,121.86	\$651.85	\$569.94	\$1,221.79	\$99.93	8.9%
19		Hours Use: 400									
20		5	2,000	\$219.80	\$199.98	\$419.78	\$254.86	\$199.98	\$454.84	\$35.06	8.4%
21		10	4,000	\$377.69	\$399.96	\$777.65	\$447.81	\$399.96	\$847.77	\$70.12	9.0%
22		15	6,000	\$552.61	\$599.94	\$1,152.55	\$657.79	\$599.94	\$1,257.73	\$105.18	9.1%
23		25	10,000	\$902.45	\$999.90	\$1,902.35	\$1,077.75	\$999.90	\$2,077.65	\$175.30	9.2%
24		50	20,000	\$1,777.05	\$1,999.80	\$3,776.85	\$2,127.65	\$1,999.80	\$4,127.45	\$350.60	9.3%
25		100	40,000	\$3,526.25	\$3,999.60	\$7,525.85	\$4,227.45	\$3,999.60	\$8,227.05	\$701.20	9.3%
26	Avg	27	10,800	\$972.42	\$1,079.89	\$2,052.31	\$1,161.74	\$1,079.89	\$2,241.63	\$189.32	9.2%
27						2021 In Effect	2024 Planned				
28						Rates	Rates	Change			
29		Customer Charge				\$6.00	\$6.00	\$0.00			
30		Distribution Demand <=10 kW				\$0.00	\$0.00	\$0.00			
31		Distribution Demand >10 kW				\$5.38	\$5.38	\$0.00			
32		Distribution Energy <=2,300 kWh				\$0.04512	\$0.04512	\$0.00000			
33		Distribution Energy >2,300 kWh				\$0.01223	\$0.01223	\$0.00000			
34		Revenue Decoupling				\$0.00190	\$0.00190	\$0.00000			
35		Solar Massachusetts Renewable Target				\$0.00078	\$0.00078	\$0.00000			
36		Residential Assistance Adjustment Factor				\$0.00303	\$0.00303	\$0.00000			
37		Pension Adjustment Factor				\$0.00102	\$0.00102	\$0.00000			
38		Net Metering Recovery Surcharge				\$0.00484	\$0.00484	\$0.00000			
39		Long Term Renewable Contract Adjustment				\$0.00070	\$0.00070	\$0.00000			
40		AG Consulting Expense				\$0.00002	\$0.00002	\$0.00000			
41		Storm Cost Recovery Adjustment Factor				\$0.00210	\$0.00210	\$0.00000			
42		Storm Reserve Adjustment				\$0.00000	\$0.00000	\$0.00000			
43		Basic Service Cost True Up Factor				\$0.00057	\$0.00057	\$0.00000			
44		Solar Program Cost Adjustment Factor				\$0.00000	\$0.00000	\$0.00000			
45		Solar Expansion Cost Recovery Factor				\$0.00102	\$0.00102	\$0.00000			
46		Vegetation Management				\$0.00133	\$0.00133	\$0.00000			
47		Tax Act Credit Factor				(\$0.00122)	(\$0.00122)	\$0.00000			
48		Grid Modernization				\$0.00055	\$0.00055	\$0.00000			
49		Transition				(\$0.00117)	(\$0.00117)	\$0.00000			
50		Transmission Energy				\$0.03246	\$0.03246	\$0.00000			
51		Energy Efficiency Reconciliation Factor				\$0.01085	\$0.02838	\$0.01753			
52		System Benefits Charge				\$0.00250	\$0.00250	\$0.00000			
53		Renewable Energy Charge				\$0.00050	\$0.00050	\$0.00000			
54		Supply Charge				\$0.09999	\$0.09999	\$0.00000			

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-1 Seasonal Small General Service**

1	Monthly kW	Monthly kWh	2021 In Effect			2024 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 50									
4	5	250	\$42.36	\$25.00	\$67.36	\$46.74	\$25.00	\$71.74	\$4.38	6.5%
5	10	500	\$78.72	\$50.00	\$128.72	\$87.48	\$50.00	\$137.48	\$8.76	6.8%
6	20	1,000	\$198.83	\$99.99	\$298.82	\$216.36	\$99.99	\$316.35	\$17.53	5.9%
7	50	2,500	\$519.23	\$249.98	\$769.21	\$563.05	\$249.98	\$813.03	\$43.82	5.7%
8	Avg 9	450	\$71.44	\$45.00	\$116.44	\$79.33	\$45.00	\$124.33	\$7.89	6.8%
9	Hours Use: 150									
10	5	750	\$115.07	\$74.99	\$190.06	\$128.22	\$74.99	\$203.21	\$13.15	6.9%
11	10	1,500	\$224.15	\$149.99	\$374.14	\$250.44	\$149.99	\$400.43	\$26.29	7.0%
12	20	3,000	\$421.21	\$299.97	\$721.18	\$473.80	\$299.97	\$773.77	\$52.59	7.3%
13	50	7,500	\$961.03	\$749.93	\$1,710.96	\$1,092.50	\$749.93	\$1,842.43	\$131.47	7.7%
14	Avg 8	1,200	\$180.52	\$119.99	\$300.51	\$201.55	\$119.99	\$321.54	\$21.03	7.0%
15	Hours Use: 300									
16	5	1,500	\$224.15	\$149.99	\$374.14	\$250.44	\$149.99	\$400.43	\$26.29	7.0%
17	10	3,000	\$373.81	\$299.97	\$673.78	\$426.40	\$299.97	\$726.37	\$52.59	7.8%
18	20	6,000	\$686.29	\$599.94	\$1,286.23	\$791.47	\$599.94	\$1,391.41	\$105.18	8.2%
19	50	15,000	\$1,623.73	\$1,499.85	\$3,123.58	\$1,886.68	\$1,499.85	\$3,386.53	\$262.95	8.4%
20	Avg 9	2,700	\$347.30	\$269.97	\$617.27	\$394.63	\$269.97	\$664.60	\$47.33	7.7%
21					2021 In Effect		2024 Planned			
22					<u>Rates</u>		<u>Rates</u>	<u>Change</u>		
23	Customer Charge				\$6.00		\$6.00	\$0.00		
24	Distribution Demand <=10 kW				\$0.00		\$0.00	\$0.00		
25	Distribution Demand >10 kW				\$4.74		\$4.74	\$0.00		
26	Distribution Energy <=1,800 kWh				\$0.08365		\$0.08365	\$0.00000		
27	Distribution Energy >1,800 kWh				\$0.02658		\$0.02658	\$0.00000		
28	Revenue Decoupling				\$0.00190		\$0.00190	\$0.00000		
29	Solar Massachusetts Renewable Target				\$0.00078		\$0.00078	\$0.00000		
30	Residential Assistance Adjustment Factor				\$0.00303		\$0.00303	\$0.00000		
31	Pension Adjustment Factor				\$0.00102		\$0.00102	\$0.00000		
32	Net Metering Recovery Surcharge				\$0.00484		\$0.00484	\$0.00000		
33	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000		
34	AG Consulting Expense				\$0.00002		\$0.00002	\$0.00000		
35	Storm Cost Recovery Adjustment Factor				\$0.00210		\$0.00210	\$0.00000		
36	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000		
37	Basic Service Cost True Up Factor				\$0.00057		\$0.00057	\$0.00000		
38	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000		
39	Solar Expansion Cost Recovery Factor				\$0.00102		\$0.00102	\$0.00000		
40	Vegetation Management				\$0.00133		\$0.00133	\$0.00000		
41	Tax Act Credit Factor				(\$0.00122)		(\$0.00122)	\$0.00000		
42	Grid Modernization				\$0.00055		\$0.00055	\$0.00000		
43	Transition				(\$0.00117)		(\$0.00117)	\$0.00000		
44	Transmission Energy				\$0.03246		\$0.03246	\$0.00000		
45	Energy Efficiency Reconciliation Factor				\$0.01085		\$0.02838	\$0.01753		
46	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000		
47	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000		
48	Supply Charge				\$0.09999		\$0.09999	\$0.00000		

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-2 Medium General Time-of-Use

1	Monthly kVA	Monthly kWh	2021 In Effect			2024 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 300									
4	100	30,000	\$2,744.10	\$2,635.20	\$5,379.30	\$3,270.00	\$2,635.20	\$5,905.20	\$525.90	9.8%
5	150	45,000	\$3,931.14	\$3,952.80	\$7,883.94	\$4,719.99	\$3,952.80	\$8,672.79	\$788.85	10.0%
6	200	60,000	\$5,118.19	\$5,270.40	\$10,388.59	\$6,169.99	\$5,270.40	\$11,440.39	\$1,051.80	10.1%
7	300	90,000	\$7,492.29	\$7,905.60	\$15,397.89	\$9,069.99	\$7,905.60	\$16,975.59	\$1,577.70	10.2%
8	500	150,000	\$12,240.48	\$13,176.00	\$25,416.48	\$14,869.98	\$13,176.00	\$28,045.98	\$2,629.50	10.3%
9	Avg	205	\$12,240.48	\$13,176.00	\$25,416.48	\$14,869.98	\$13,176.00	\$28,045.98	\$2,629.50	10.3%
9	Avg	205	\$5,236.89	\$5,402.16	\$10,639.05	\$6,314.99	\$5,402.16	\$11,717.15	\$1,078.10	10.1%
10	Hours Use: 400									
11	100	40,000	\$3,161.46	\$3,513.60	\$6,675.06	\$3,862.66	\$3,513.60	\$7,376.26	\$701.20	10.5%
12	150	60,000	\$4,557.19	\$5,270.40	\$9,827.59	\$5,608.99	\$5,270.40	\$10,879.39	\$1,051.80	10.7%
13	200	80,000	\$5,952.92	\$7,027.20	\$12,980.12	\$7,355.32	\$7,027.20	\$14,382.52	\$1,402.40	10.8%
14	300	120,000	\$8,744.38	\$10,540.80	\$19,285.18	\$10,847.98	\$10,540.80	\$21,388.78	\$2,103.60	10.9%
15	500	200,000	\$14,327.30	\$17,568.00	\$31,895.30	\$17,833.30	\$17,568.00	\$35,401.30	\$3,506.00	11.0%
16	Avg	214	\$8,634.72	\$7,519.10	\$13,862.82	\$7,844.29	\$7,519.10	\$15,363.39	\$1,500.57	10.8%
17	Hours Use: 500									
18	100	50,000	\$3,578.83	\$4,392.00	\$7,970.83	\$4,455.33	\$4,392.00	\$8,847.33	\$876.50	11.0%
19	150	75,000	\$5,183.24	\$6,588.00	\$11,771.24	\$6,497.99	\$6,588.00	\$13,085.99	\$1,314.75	11.2%
20	200	100,000	\$6,787.65	\$8,784.00	\$15,571.65	\$8,540.65	\$8,784.00	\$17,324.65	\$1,753.00	11.3%
21	300	150,000	\$9,996.48	\$13,176.00	\$23,172.48	\$12,625.98	\$13,176.00	\$25,801.98	\$2,629.50	11.3%
22	500	250,000	\$16,414.13	\$21,960.00	\$38,374.13	\$20,796.63	\$21,960.00	\$42,756.63	\$4,382.50	11.4%
23	Avg	253	\$8,488.33	\$11,111.76	\$19,600.09	\$10,705.87	\$11,111.76	\$21,817.63	\$2,217.54	11.3%
24					2021 In Effect		2024 Planned			
25					Rates		Rates	Change		
26	Customer Charge				\$370.00		\$370.00	\$0.00		
27	Distribution Demand				\$1.70		\$1.70	\$0.00		
28	Transmission Demand				\$9.52		\$9.52	\$0.00		
29	Distribution Energy - Peak				\$0.01991		\$0.01991	\$0.00000		
30	Distribution Energy - Low A				\$0.01675		\$0.01675	\$0.00000		
31	Distribution Energy - Low B				\$0.01086		\$0.01086	\$0.00000		
32	Revenue Decoupling				\$0.00122		\$0.00122	\$0.00000		
33	Solar Massachusetts Renewable Target				\$0.00050		\$0.00050	\$0.00000		
34	Residential Assistance Adjustment Factor				\$0.00194		\$0.00194	\$0.00000		
35	Pension Adjustment Factor				\$0.00067		\$0.00067	\$0.00000		
36	Net Metering Recovery Surcharge				\$0.00310		\$0.00310	\$0.00000		
37	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000		
38	AG Consulting Expense				\$0.00001		\$0.00001	\$0.00000		
39	Storm Cost Recovery Adjustment Factor				\$0.00135		\$0.00135	\$0.00000		
40	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000		
41	Basic Service Cost True Up Factor				\$0.00037		\$0.00037	\$0.00000		
42	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000		
43	Solar Expansion Cost Recovery Factor				\$0.00065		\$0.00065	\$0.00000		
44	Vegetation Management				\$0.00088		\$0.00088	\$0.00000		
45	Tax Act Credit Factor				(\$0.00078)		(\$0.00078)	\$0.00000		
46	Grid Modernization				\$0.00036		\$0.00036	\$0.00000		
47	Transition				(\$0.00117)		(\$0.00117)	\$0.00000		
48	Transmission Energy				\$0.00322		\$0.00322	\$0.00000		
49	Energy Efficiency Reconciliation Factor				\$0.01085		\$0.02838	\$0.01753		
50	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000		
51	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000		
52	Supply Charge				\$0.08784		\$0.08784	\$0.00000		
53	Peak Use:				28%					
54	Low A Use:				25%					
55	Low B Use:				47%					

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-3 Large General Time-Of-Use

1	2	Monthly kVA	Monthly kWh	2021 In Effect			2024 Planned			Total Bill Impact	
				Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3		Hours Use: 350									
4		500	175,000	\$11,898.33	\$15,372.00	\$27,270.33	\$14,966.08	\$15,372.00	\$30,338.08	\$3,067.75	11.2%
5		750	262,500	\$17,382.49	\$23,058.00	\$40,440.49	\$21,984.12	\$23,058.00	\$45,042.12	\$4,601.63	11.4%
6		1,000	350,000	\$22,866.66	\$30,744.00	\$53,610.66	\$29,002.16	\$30,744.00	\$59,746.16	\$6,135.50	11.4%
7		2,000	700,000	\$44,803.31	\$61,488.00	\$106,291.31	\$57,074.31	\$61,488.00	\$118,562.31	\$12,271.00	11.5%
8		3,000	1,050,000	\$66,739.97	\$92,232.00	\$158,971.97	\$85,146.47	\$92,232.00	\$177,378.47	\$18,406.50	11.6%
9		Avg	1,066	\$24,314.47	\$32,773.10	\$57,087.57	\$30,854.92	\$32,773.10	\$63,628.02	\$6,540.45	11.5%
10		Hours Use: 450									
11		500	225,000	\$13,454.99	\$19,764.00	\$33,218.99	\$17,399.24	\$19,764.00	\$37,163.24	\$3,944.25	11.9%
12		750	337,500	\$19,717.49	\$29,646.00	\$49,363.49	\$25,633.86	\$29,646.00	\$55,279.86	\$5,916.37	12.0%
13		1,000	450,000	\$25,979.99	\$39,528.00	\$65,507.99	\$33,868.49	\$39,528.00	\$73,396.49	\$7,888.50	12.0%
14		2,000	900,000	\$51,029.97	\$79,056.00	\$130,085.97	\$66,806.97	\$79,056.00	\$145,862.97	\$15,777.00	12.1%
15		3,000	1,350,000	\$76,079.96	\$118,584.00	\$194,663.96	\$99,745.46	\$118,584.00	\$218,329.46	\$23,665.50	12.2%
16		Avg	788	\$20,669.39	\$31,148.06	\$51,817.45	\$26,885.53	\$31,148.06	\$58,033.59	\$6,216.14	12.0%
17		Hours Use: 550									
18		500	275,000	\$15,011.66	\$24,156.00	\$39,167.66	\$19,832.41	\$24,156.00	\$43,988.41	\$4,820.75	12.3%
19		750	412,500	\$22,052.49	\$36,234.00	\$58,286.49	\$29,283.61	\$36,234.00	\$65,517.61	\$7,231.12	12.4%
20		1,000	550,000	\$29,093.32	\$48,312.00	\$77,405.32	\$38,734.82	\$48,312.00	\$87,046.82	\$9,641.50	12.5%
21		2,000	1,100,000	\$57,256.63	\$96,624.00	\$153,880.63	\$76,539.63	\$96,624.00	\$173,163.63	\$19,283.00	12.5%
22		3,000	1,650,000	\$85,419.95	\$144,936.00	\$230,355.95	\$114,344.45	\$144,936.00	\$259,280.45	\$28,924.50	12.6%
23		Avg	1,118	\$32,416.59	\$54,012.82	\$86,429.41	\$43,195.78	\$54,012.82	\$97,208.60	\$10,779.19	12.5%
24							2021 In Effect	2024 Planned			
25							Rates	Rates	Change		
26		Customer Charge					\$930.00	\$930.00	\$0.00		
27		Distribution Demand					\$0.97	\$0.97	\$0.00		
28		Transmission Demand					\$10.07	\$10.07	\$0.00		
29		Distribution Energy - Peak					\$0.01387	\$0.01387	\$0.00000		
30		Distribution Energy - Low A					\$0.01276	\$0.01276	\$0.00000		
31		Distribution Energy - Low B					\$0.00883	\$0.00883	\$0.00000		
32		Revenue Decoupling					\$0.00077	\$0.00077	\$0.00000		
33		Solar Massachusetts Renewable Target					\$0.00032	\$0.00032	\$0.00000		
34		Residential Assistance Adjustment Factor					\$0.00123	\$0.00123	\$0.00000		
35		Pension Adjustment Factor					\$0.00047	\$0.00047	\$0.00000		
36		Net Metering Recovery Surcharge					\$0.00196	\$0.00196	\$0.00000		
37		Long Term Renewable Contract Adjustment					\$0.00070	\$0.00070	\$0.00000		
38		AG Consulting Expense					\$0.00001	\$0.00001	\$0.00000		
39		Storm Cost Recovery Adjustment Factor					\$0.00085	\$0.00085	\$0.00000		
40		Storm Reserve Adjustment					\$0.00000	\$0.00000	\$0.00000		
41		Basic Service Cost True Up Factor					\$0.00023	\$0.00023	\$0.00000		
42		Solar Program Cost Adjustment Factor					\$0.00000	\$0.00000	\$0.00000		
43		Solar Expansion Cost Recovery Factor					\$0.00041	\$0.00041	\$0.00000		
44		Vegetation Management					\$0.00062	\$0.00062	\$0.00000		
45		Tax Act Credit Factor					(\$0.00049)	(\$0.00049)	\$0.00000		
46		Grid Modernization					\$0.00020	\$0.00020	\$0.00000		
47		Transition					(\$0.00117)	(\$0.00117)	\$0.00000		
48		Transmission Energy					\$0.00000	\$0.00000	\$0.00000		
49		Energy Efficiency Reconciliation Factor					\$0.01085	\$0.02838	\$0.01753		
50		System Benefits Charge					\$0.00250	\$0.00250	\$0.00000		
51		Renewable Energy Charge					\$0.00050	\$0.00050	\$0.00000		
52		Supply Charge					\$0.08784	\$0.08784	\$0.00000		
53		Peak Use:			27%						
54		Low A Use:			25%						
55		Low B Use:			48%						

Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022

South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-4 General Power

1	2	Monthly kW	Monthly kWh	2021 In Effect			2024 Planned			Total Bill Impact		
				Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
3		Hours Use: 150										
4		20	3,000	\$275.42	\$299.97	\$575.39	\$328.01	\$299.97	\$627.98	\$52.59	9.1%	
5		30	4,500	\$410.13	\$449.96	\$860.09	\$489.02	\$449.96	\$938.98	\$78.89	9.2%	
6		40	6,000	\$544.84	\$599.94	\$1,144.78	\$650.02	\$599.94	\$1,249.96	\$105.18	9.2%	
7		70	10,500	\$948.97	\$1,049.90	\$1,998.87	\$1,133.04	\$1,049.90	\$2,182.94	\$184.07	9.2%	
8		100	15,000	\$1,353.10	\$1,499.85	\$2,852.95	\$1,616.05	\$1,499.85	\$3,115.90	\$262.95	9.2%	
9		Avg	52	7,800	\$706.49	\$779.92	\$1,486.41	\$843.23	\$779.92	\$1,623.15	\$136.74	9.2%
10		Hours Use: 250										
11		20	5,000	\$384.90	\$499.95	\$884.85	\$472.55	\$499.95	\$972.50	\$87.65	9.9%	
12		30	7,500	\$574.35	\$749.93	\$1,324.28	\$705.83	\$749.93	\$1,455.76	\$131.48	9.9%	
13		40	10,000	\$763.80	\$999.90	\$1,763.70	\$939.10	\$999.90	\$1,939.00	\$175.30	9.9%	
14		70	17,500	\$1,332.15	\$1,749.83	\$3,081.98	\$1,638.93	\$1,749.83	\$3,388.76	\$306.78	10.0%	
15		100	25,000	\$1,900.50	\$2,499.75	\$4,400.25	\$2,338.75	\$2,499.75	\$4,838.50	\$438.25	10.0%	
16		Avg	27	6,750	\$517.52	\$674.93	\$1,192.45	\$635.84	\$674.93	\$1,310.77	\$118.32	9.9%
17		Hours Use: 350										
18		20	7,000	\$494.38	\$699.93	\$1,194.31	\$617.09	\$699.93	\$1,317.02	\$122.71	10.3%	
19		30	10,500	\$738.57	\$1,049.90	\$1,788.47	\$922.64	\$1,049.90	\$1,972.54	\$184.07	10.3%	
20		40	14,000	\$982.76	\$1,399.86	\$2,382.62	\$1,228.18	\$1,399.86	\$2,628.04	\$245.42	10.3%	
21		70	24,500	\$1,715.33	\$2,449.76	\$4,165.09	\$2,144.82	\$2,449.76	\$4,594.58	\$429.49	10.3%	
22		100	35,000	\$2,447.90	\$3,499.65	\$5,947.55	\$3,061.45	\$3,499.65	\$6,561.10	\$613.55	10.3%	
23		Avg	27	9,450	\$665.31	\$944.91	\$1,610.22	\$830.97	\$944.91	\$1,775.88	\$165.66	10.3%
24												
25						2021 In Effect Rates		2024 Planned Rates		Change		
26		Customer Charge				\$6.00		\$6.00		\$0.00		
27		Distribution Demand				\$1.92		\$1.92		\$0.00		
28		Transmission Demand				\$3.34		\$3.34		\$0.00		
29		Distribution Energy				\$0.02203		\$0.02203		\$0.00000		
30		Revenue Decoupling				\$0.00175		\$0.00175		\$0.00000		
31		Solar Massachusetts Renewable Target				\$0.00072		\$0.00072		\$0.00000		
32		Residential Assistance Adjustment Factor				\$0.00280		\$0.00280		\$0.00000		
33		Pension Adjustment Factor				\$0.00109		\$0.00109		\$0.00000		
34		Net Metering Recovery Surcharge				\$0.00446		\$0.00446		\$0.00000		
35		Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070		\$0.00000		
36		AG Consulting Expense				\$0.00002		\$0.00002		\$0.00000		
37		Storm Cost Recovery Adjustment Factor				\$0.00191		\$0.00191		\$0.00000		
38		Storm Reserve Adjustment				\$0.00000		\$0.00000		\$0.00000		
39		Basic Service Cost True Up Factor				\$0.00053		\$0.00053		\$0.00000		
40		Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000		\$0.00000		
41		Solar Expansion Cost Recovery Factor				\$0.00094		\$0.00094		\$0.00000		
42		Vegetation Management				\$0.00142		\$0.00142		\$0.00000		
43		Tax Act Credit Factor				(\$0.00112)		(\$0.00112)		\$0.00000		
44		Grid Modernization				\$0.00046		\$0.00046		\$0.00000		
45		Transition				(\$0.00117)		(\$0.00117)		\$0.00000		
46		Transmission Energy				\$0.00435		\$0.00435		\$0.00000		
47		Energy Efficiency Reconciliation Factor				\$0.01085		\$0.02838		\$0.01753		
48		System Benefits Charge				\$0.00250		\$0.00250		\$0.00000		
49		Renewable Energy Charge				\$0.00050		\$0.00050		\$0.00000		
50		Supply Charge				\$0.09999		\$0.09999		\$0.00000		

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-5 Commercial Space Heating**

1	Monthly	2021 In Effect			2024 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	100	\$16.93	\$10.00	\$26.93	\$18.69	\$10.00	\$28.69	\$1.76	6.5%
4	200	\$27.86	\$20.00	\$47.86	\$31.37	\$20.00	\$51.37	\$3.51	7.3%
5	300	\$38.80	\$30.00	\$68.80	\$44.06	\$30.00	\$74.06	\$5.26	7.6%
6	500	\$60.66	\$50.00	\$110.66	\$69.43	\$50.00	\$119.43	\$8.77	7.9%
7	750	\$87.99	\$74.99	\$162.98	\$101.14	\$74.99	\$176.13	\$13.15	8.1%
8	1,000	\$115.32	\$99.99	\$215.31	\$132.85	\$99.99	\$232.84	\$17.53	8.1%
9	1,500	\$169.98	\$149.99	\$319.97	\$196.28	\$149.99	\$346.27	\$26.30	8.2%
10	3,000	\$333.96	\$299.97	\$633.93	\$386.55	\$299.97	\$686.52	\$52.59	8.3%
11	5,000	\$552.60	\$499.95	\$1,052.55	\$640.25	\$499.95	\$1,140.20	\$87.65	8.3%
12	Avg 1,472	\$166.92	\$147.19	\$314.11	\$192.72	\$147.19	\$339.91	\$25.80	8.2%

13		2021 In Effect	2024 Planned	
14		Rates	Rates	Change
15	Customer Charge	\$6.00	\$6.00	\$0.00
16	Distribution Energy	\$0.03965	\$0.03965	\$0.00000
17	Revenue Decoupling	\$0.00222	\$0.00222	\$0.00000
18	Solar Massachusetts Renewable Target	\$0.00091	\$0.00091	\$0.00000
19	Residential Assistance Adjustment Factor	\$0.00354	\$0.00354	\$0.00000
20	Pension Adjustment Factor	\$0.00195	\$0.00195	\$0.00000
21	Net Metering Recovery Surcharge	\$0.00565	\$0.00565	\$0.00000
22	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
23	AG Consulting Expense	\$0.00002	\$0.00002	\$0.00000
24	Storm Cost Recovery Adjustment Factor	\$0.00245	\$0.00245	\$0.00000
25	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
26	Basic Service Cost True Up Factor	\$0.00067	\$0.00067	\$0.00000
27	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
28	Solar Expansion Cost Recovery Factor	\$0.00119	\$0.00119	\$0.00000
29	Vegetation Management	\$0.00256	\$0.00256	\$0.00000
30	Tax Act Credit Factor	(\$0.00142)	(\$0.00142)	\$0.00000
31	Grid Modernization	\$0.00071	\$0.00071	\$0.00000
32	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
33	Transmission Energy	\$0.03584	\$0.03584	\$0.00000
34	Energy Efficiency Reconciliation Factor	\$0.01085	\$0.02838	\$0.01753
35	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
36	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
37	Supply Charge	\$0.09999	\$0.09999	\$0.00000

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-6 All Electric Schools**

1	Monthly	2021 In Effect			2024 Planned			Total Bill Impact	
		Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
2	kWh								
3	25,000	\$1,777.00	\$2,499.75	\$4,276.75	\$2,215.25	\$2,499.75	\$4,715.00	\$438.25	10.2%
4	40,000	\$2,825.20	\$3,999.60	\$6,824.80	\$3,526.40	\$3,999.60	\$7,526.00	\$701.20	10.3%
5	50,000	\$3,524.00	\$4,999.50	\$8,523.50	\$4,400.50	\$4,999.50	\$9,400.00	\$876.50	10.3%
6	60,000	\$4,222.80	\$5,999.40	\$10,222.20	\$5,274.60	\$5,999.40	\$11,274.00	\$1,051.80	10.3%
7	150,000	\$10,512.00	\$14,998.50	\$25,510.50	\$13,141.50	\$14,998.50	\$28,140.00	\$2,629.50	10.3%
8	Avg 60,748	\$4,275.07	\$6,074.19	\$10,349.26	\$5,339.98	\$6,074.19	\$11,414.17	\$1,064.91	10.3%

9		2021 In Effect	2024 Planned	
10		Rates	Rates	Change
11	Customer Charge	\$30.00	\$30.00	\$0.00
12	Distribution Energy	\$0.01802	\$0.01802	\$0.00000
13	Revenue Decoupling	\$0.00084	\$0.00084	\$0.00000
14	Solar Massachusetts Renewable Target	\$0.00035	\$0.00035	\$0.00000
15	Residential Assistance Adjustment Factor	\$0.00135	\$0.00135	\$0.00000
16	Pension Adjustment Factor	\$0.00083	\$0.00083	\$0.00000
17	Net Metering Recovery Surcharge	\$0.00215	\$0.00215	\$0.00000
18	Long Term Renewable Contract Adjustment	\$0.00070	\$0.00070	\$0.00000
19	AG Consulting Expense	\$0.00001	\$0.00001	\$0.00000
20	Storm Cost Recovery Adjustment Factor	\$0.00092	\$0.00092	\$0.00000
21	Storm Reserve Adjustment	\$0.00000	\$0.00000	\$0.00000
22	Basic Service Cost True Up Factor	\$0.00025	\$0.00025	\$0.00000
23	Solar Program Cost Adjustment Factor	\$0.00000	\$0.00000	\$0.00000
24	Solar Expansion Cost Recovery Factor	\$0.00045	\$0.00045	\$0.00000
25	Vegetation Management	\$0.00109	\$0.00109	\$0.00000
26	Tax Act Credit Factor	(\$0.00054)	(\$0.00054)	\$0.00000
27	Grid Modernization	\$0.00023	\$0.00023	\$0.00000
28	Transition	(\$0.00117)	(\$0.00117)	\$0.00000
29	Transmission Energy	\$0.03055	\$0.03055	\$0.00000
30	Energy Efficiency Reconciliation Factor	\$0.01085	\$0.02838	\$0.01753
31	System Benefits Charge	\$0.00250	\$0.00250	\$0.00000
32	Renewable Energy Charge	\$0.00050	\$0.00050	\$0.00000
33	Supply Charge	\$0.09999	\$0.09999	\$0.00000

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-7 Optional General Time-of-Use**

1	Monthly kVA	Monthly kWh	2021 In Effect			2024 Planned			Total Bill Impact		
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change	
3	Hours Use: 350										
4	5	1,750	\$176.43	\$174.98	\$351.41	\$207.11	\$174.98	\$382.09	\$30.68	8.7%	
5	10	3,500	\$342.86	\$349.97	\$692.83	\$404.22	\$349.97	\$754.19	\$61.36	8.9%	
6	20	7,000	\$675.73	\$699.93	\$1,375.66	\$798.44	\$699.93	\$1,498.37	\$122.71	8.9%	
7	50	17,500	\$1,674.32	\$1,749.83	\$3,424.15	\$1,981.09	\$1,749.83	\$3,730.92	\$306.77	9.0%	
8	75	26,250	\$2,506.48	\$2,624.74	\$5,131.22	\$2,966.64	\$2,624.74	\$5,591.38	\$460.16	9.0%	
9	Avg	20	7,000	\$675.73	\$699.93	\$1,375.66	\$798.44	\$699.93	\$1,498.37	\$122.71	8.9%
10	Hours Use: 500										
11	5	2,500	\$213.07	\$249.98	\$463.05	\$256.89	\$249.98	\$506.87	\$43.82	9.5%	
12	10	5,000	\$416.13	\$499.95	\$916.08	\$503.78	\$499.95	\$1,003.73	\$87.65	9.6%	
13	20	10,000	\$822.27	\$999.90	\$1,822.17	\$997.57	\$999.90	\$1,997.47	\$175.30	9.6%	
14	50	25,000	\$2,040.67	\$2,499.75	\$4,540.42	\$2,478.92	\$2,499.75	\$4,978.67	\$438.25	9.7%	
15	75	37,500	\$3,056.01	\$3,749.63	\$6,805.64	\$3,713.38	\$3,749.63	\$7,463.01	\$657.37	9.7%	
16	Avg	31	15,500	\$1,269.02	\$1,549.85	\$2,818.87	\$1,540.73	\$1,549.85	\$3,090.58	\$271.71	9.6%
17	Hours Use: 650										
18	5	3,250	\$249.70	\$324.97	\$574.67	\$306.67	\$324.97	\$631.64	\$56.97	9.9%	
19	10	6,500	\$499.40	\$649.94	\$1,139.34	\$603.35	\$649.94	\$1,253.29	\$113.95	10.0%	
20	20	13,000	\$998.81	\$1,299.87	\$2,268.68	\$1,196.70	\$1,299.87	\$2,496.57	\$227.89	10.0%	
21	50	32,500	\$2,407.02	\$3,249.68	\$5,656.70	\$2,976.75	\$3,249.68	\$6,226.43	\$569.73	10.1%	
22	75	48,750	\$3,605.53	\$4,874.51	\$8,480.04	\$4,460.12	\$4,874.51	\$9,334.63	\$854.59	10.1%	
23	Avg	18	11,700	\$872.93	\$1,169.88	\$2,042.81	\$1,078.03	\$1,169.88	\$2,247.91	\$205.10	10.0%
24					2021 In Effect		2024 Planned				
25					Rates		Rates	Change			
26	Customer Charge				\$10.00		\$10.00	\$0.00			
27	Distribution Demand				\$3.68		\$3.68	\$0.00			
28	Transmission Demand				\$12.51		\$12.51	\$0.00			
29	Distribution Energy - Peak				\$0.02528		\$0.02528	\$0.00000			
30	Distribution Energy - Low Load				\$0.01771		\$0.01771	\$0.00000			
31	Revenue Decoupling				\$0.00190		\$0.00190	\$0.00000			
32	Solar Massachusetts Renewable Target				\$0.00078		\$0.00078	\$0.00000			
33	Residential Assistance Adjustment Factor				\$0.00303		\$0.00303	\$0.00000			
34	Pension Adjustment Factor				\$0.00102		\$0.00102	\$0.00000			
35	Net Metering Recovery Surcharge				\$0.00484		\$0.00484	\$0.00000			
36	Long Term Renewable Contract Adjustment				\$0.00070		\$0.00070	\$0.00000			
37	AG Consulting Expense				\$0.00002		\$0.00002	\$0.00000			
38	Storm Cost Recovery Adjustment Factor				\$0.00210		\$0.00210	\$0.00000			
39	Storm Reserve Adjustment				\$0.00000		\$0.00000	\$0.00000			
40	Basic Service Cost True Up Factor				\$0.00057		\$0.00057	\$0.00000			
41	Solar Program Cost Adjustment Factor				\$0.00000		\$0.00000	\$0.00000			
42	Solar Expansion Cost Recovery Factor				\$0.00102		\$0.00102	\$0.00000			
43	Vegetation Management				\$0.00133		\$0.00133	\$0.00000			
44	Tax Act Credit Factor				(\$0.00122)		(\$0.00122)	\$0.00000			
45	Grid Modernization				\$0.00055		\$0.00055	\$0.00000			
46	Transition				(\$0.00117)		(\$0.00117)	\$0.00000			
47	Energy Efficiency Reconciliation Factor				\$0.01085		\$0.02838	\$0.01753			
48	System Benefits Charge				\$0.00250		\$0.00250	\$0.00000			
49	Renewable Energy Charge				\$0.00050		\$0.00050	\$0.00000			
50	Supply Charge				\$0.09999		\$0.09999	\$0.00000			
51	Peak Use:				24%						
52	Low A Use:				76%						

**Cape Light Compact JPE
Calculation of Monthly Typical Bill
Proposed January 1, 2022**

**South Shore, Cape Cod, and Martha's Vineyard Service Area
Rate G-7 Optional Seasonal General Time-of-Use**

1	Monthly kVA	Monthly kWh	2021 In Effect			2024 Planned			Total Bill Impact	
			Delivery	Supplier	Total	Delivery	Supplier	Total	Change	% Change
3	Hours Use: 50									
4	5	250	\$70.24	\$25.00	\$95.24	\$74.63	\$25.00	\$99.63	\$4.39	4.6%
5	10	500	\$130.49	\$50.00	\$180.49	\$139.25	\$50.00	\$189.25	\$8.76	4.9%
6	20	1,000	\$250.97	\$99.99	\$350.96	\$268.50	\$99.99	\$368.49	\$17.53	5.0%
7	50	2,500	\$612.43	\$249.98	\$862.41	\$656.26	\$249.98	\$906.24	\$43.83	5.1%
8	75	3,750	\$913.65	\$374.96	\$1,288.61	\$979.39	\$374.96	\$1,354.35	\$65.74	5.1%
9	Avg	9	\$118.44	\$45.00	\$163.44	\$126.33	\$45.00	\$171.33	\$7.89	4.8%
10	Hours Use: 150									
11	5	750	\$106.53	\$74.99	\$181.52	\$119.68	\$74.99	\$194.67	\$13.15	7.2%
12	10	1,500	\$203.06	\$149.99	\$353.05	\$229.35	\$149.99	\$379.34	\$26.29	7.4%
13	20	3,000	\$396.12	\$299.97	\$696.09	\$448.71	\$299.97	\$748.68	\$52.59	7.6%
14	50	7,500	\$975.30	\$749.93	\$1,725.23	\$1,106.77	\$749.93	\$1,856.70	\$131.47	7.6%
15	75	11,250	\$1,457.95	\$1,124.89	\$2,582.84	\$1,655.16	\$1,124.89	\$2,780.05	\$197.21	7.6%
16	Avg	10	\$203.06	\$149.99	\$353.05	\$229.35	\$149.99	\$379.34	\$26.29	7.4%
17	Hours Use: 300									
18	5	1,500	\$160.96	\$149.99	\$310.95	\$187.25	\$149.99	\$337.24	\$26.29	8.5%
19	10	3,000	\$311.92	\$299.97	\$611.89	\$364.51	\$299.97	\$664.48	\$52.59	8.6%
20	20	6,000	\$613.84	\$599.94	\$1,213.78	\$719.02	\$599.94	\$1,318.96	\$105.18	8.7%
21	50	15,000	\$1,519.60	\$1,499.85	\$3,019.45	\$1,782.55	\$1,499.85	\$3,282.40	\$262.95	8.7%
22	75	22,500	\$2,274.40	\$2,249.78	\$4,524.18	\$2,668.82	\$2,249.78	\$4,918.60	\$394.42	8.7%
23	Avg	13	\$402.50	\$389.96	\$792.46	\$470.86	\$389.96	\$860.82	\$68.36	8.6%
24					2021 In Effect			2024 Planned		
25					Rates			Rates	Change	
26	Customer Charge				\$10.00			\$10.00	\$0.00	
27	Distribution Demand				\$3.72			\$3.72	\$0.00	
28	Transmission Demand				\$4.70			\$4.70	\$0.00	
29	Distribution Energy - Peak				\$0.04929			\$0.04929	\$0.00000	
30	Distribution Energy - Low Load				\$0.04145			\$0.04145	\$0.00000	
31	Revenue Decoupling				\$0.00190			\$0.00190	\$0.00000	
32	Solar Massachusetts Renewable Target				\$0.00078			\$0.00078	\$0.00000	
33	Residential Assistance Adjustment Factor				\$0.00303			\$0.00303	\$0.00000	
34	Pension Adjustment Factor				\$0.00102			\$0.00102	\$0.00000	
35	Net Metering Recovery Surcharge				\$0.00484			\$0.00484	\$0.00000	
36	Long Term Renewable Contract Adjustment				\$0.00070			\$0.00070	\$0.00000	
37	AG Consulting Expense				\$0.00002			\$0.00002	\$0.00000	
38	Storm Cost Recovery Adjustment Factor				\$0.00210			\$0.00210	\$0.00000	
39	Storm Reserve Adjustment				\$0.00000			\$0.00000	\$0.00000	
40	Basic Service Cost True Up Factor				\$0.00057			\$0.00057	\$0.00000	
41	Solar Program Cost Adjustment Factor				\$0.00000			\$0.00000	\$0.00000	
42	Solar Expansion Cost Recovery Factor				\$0.00102			\$0.00102	\$0.00000	
43	Vegetation Management				\$0.00133			\$0.00133	\$0.00000	
44	Tax Act Credit Factor				(\$0.00122)			(\$0.00122)	\$0.00000	
45	Grid Modernization				\$0.00055			\$0.00055	\$0.00000	
46	Transition				(\$0.00117)			(\$0.00117)	\$0.00000	
47	Energy Efficiency Reconciliation Factor				\$0.01085			\$0.02838	\$0.01753	
48	System Benefits Charge				\$0.00250			\$0.00250	\$0.00000	
49	Renewable Energy Charge				\$0.00050			\$0.00050	\$0.00000	
50	Supply Charge				\$0.09999			\$0.09999	\$0.00000	
51	Peak Use:				23%					
52	Low A Use:				77%					

PARTICIPANT BILL IMPACTS

Class	Rate Class	Pre-Participation			Low Participation								
		2021			Savings (Reduced Usage) %	Monthly Usage		2022			2024		
		Monthly Usage kWh	kW	Total Bill \$		Total Bill \$	Change from 2021 Bill \$	%	Total Bill \$	Change from 2021 Bill \$	%		
Residential	Rate R-1 Residential	516	-	\$ 133.35	2%	506	-	\$ 140.48	\$ 7.13	5.3%	\$ 143.70	\$ 10.35	7.8%
	Rate R-2 Residential Assistance	488	-	\$ 73.36	25%	366	-	\$ 56.76	\$ (16.60)	-22.6%	\$ 56.62	\$ (16.74)	-22.8%
	Rate R-3 Residential Space Heating	740	-	\$ 180.63	2%	725	-	\$ 190.85	\$ 10.22	5.7%	\$ 195.46	\$ 14.83	8.2%
	Rate R-4 Residential Assistance Space Heating	874	-	\$ 122.13	25%	656	-	\$ 93.88	\$ (28.25)	-23.1%	\$ 93.64	\$ (28.49)	-23.3%
Small Comm.	Rate G-1 Small General Service	400	2	\$ 88.76	1%	396	2	\$ 91.78	\$ 3.02	3.4%	\$ 94.87	\$ 6.11	6.9%
	Rate G-1 Small General Service	5,700	19	\$ 1,121.87	1%	5,643	19	\$ 1,166.80	\$ 44.93	4.0%	\$ 1,210.87	\$ 89.00	7.9%
	Rate G-1 Small General Service	10,800	27	\$ 2,052.31	1%	10,692	27	\$ 2,137.44	\$ 85.13	4.1%	\$ 2,220.95	\$ 168.64	8.2%
	Rate G-1 Seasonal Small General Service	450	9	\$ 116.44	1%	446	9	\$ 119.79	\$ 3.35	2.9%	\$ 123.28	\$ 6.84	5.9%
	Rate G-1 Seasonal Small General Service	1,200	8	\$ 300.50	1%	1,188	8	\$ 309.11	\$ 8.61	2.9%	\$ 318.38	\$ 17.88	6.0%
	Rate G-1 Seasonal Small General Service	2,700	9	\$ 617.27	1%	2,673	9	\$ 638.17	\$ 20.90	3.4%	\$ 659.04	\$ 41.77	6.8%
	Rate G-2 Medium General Time-of-Use	61,500	205	\$ 10,639.05	1%	60,885	203	\$ 11,128.73	\$ 489.68	4.6%	\$ 11,604.24	\$ 965.19	9.1%
	Rate G-2 Medium General Time-of-Use	85,600	214	\$ 13,862.83	1%	84,744	212	\$ 14,553.18	\$ 690.35	5.0%	\$ 15,215.03	\$ 1,352.20	9.8%
	Rate G-2 Medium General Time-of-Use	126,500	253	\$ 19,600.09	1%	125,235	250	\$ 20,619.80	\$ 1,019.71	5.2%	\$ 21,597.88	\$ 1,997.79	10.2%
	Rate G-3 Large General Time-Of-Use	373,100	1,066	\$ 57,087.58	1%	369,369	1,055	\$ 60,112.52	\$ 3,024.94	5.3%	\$ 62,997.29	\$ 5,909.71	10.4%
	Rate G-3 Large General Time-Of-Use	354,600	788	\$ 51,817.45	1%	351,054	780	\$ 54,719.50	\$ 2,902.05	5.6%	\$ 57,461.23	\$ 5,643.78	10.9%
	Rate G-3 Large General Time-Of-Use	614,900	1,118	\$ 86,429.40	1%	608,751	1,107	\$ 91,493.46	\$ 5,064.06	5.9%	\$ 96,247.80	\$ 9,818.40	11.4%
	Rate G-4 General Power	7,800	52	\$ 1,486.41	1%	7,722	51	\$ 1,544.14	\$ 57.73	3.9%	\$ 1,604.45	\$ 118.04	7.9%
	Rate G-4 General Power	6,750	27	\$ 1,192.45	1%	6,683	27	\$ 1,247.04	\$ 54.59	4.6%	\$ 1,299.23	\$ 106.78	9.0%
	Rate G-4 General Power	9,450	27	\$ 1,610.22	1%	9,356	27	\$ 1,686.61	\$ 76.39	4.7%	\$ 1,759.68	\$ 149.46	9.3%
	Rate G-5 Commercial Space Heating	1,472	-	\$ 314.10	1%	1,457	-	\$ 325.13	\$ 11.03	3.5%	\$ 336.51	\$ 22.41	7.1%
	Rate G-6 All Electric Schools	60,748	-	\$ 10,349.26	1%	60,141	-	\$ 10,830.72	\$ 481.46	4.7%	\$ 11,300.42	\$ 951.16	9.2%
	Rate G-7 Optional General Time-of-Use	7,000	20	\$ 1,375.66	1%	6,930	20	\$ 1,432.60	\$ 56.94	4.1%	\$ 1,486.72	\$ 111.06	8.1%
	Rate G-7 Optional General Time-of-Use	15,500	31	\$ 2,818.86	1%	15,345	31	\$ 2,944.94	\$ 126.08	4.5%	\$ 3,064.79	\$ 245.93	8.7%
	Rate G-7 Optional General Time-of-Use	11,700	18	\$ 2,042.81	1%	11,583	18	\$ 2,137.98	\$ 95.17	4.7%	\$ 2,228.45	\$ 185.64	9.1%
	Rate G-7 Optional Seasonal General Time-of-Use	450	9	\$ 163.43	1%	446	9	\$ 167.08	\$ 3.65	2.2%	\$ 170.56	\$ 7.13	4.4%
	Rate G-7 Optional Seasonal General Time-of-Use	1,500	10	\$ 353.04	1%	1,485	10	\$ 364.89	\$ 11.85	3.4%	\$ 376.49	\$ 23.45	6.6%
	Rate G-7 Optional Seasonal General Time-of-Use	3,900	13	\$ 792.46	1%	3,861	13	\$ 823.26	\$ 30.80	3.9%	\$ 853.41	\$ 60.95	7.7%

Notes:
The Program Administrators determined that there is no low, medium, or high savings scenario for low-income and street lighting participants.
Customer participation in the Energy Efficiency programs is assumed to occur in 2022.

PARTICIPANT BILL IMPACTS

Class	Rate Class	Pre-Participation			Medium Participation								
		2021			Savings (Reduced Usage)	Monthly Usage		2022			2024		
		Monthly Usage kWh	kW	Total Bill \$		%	kWh	kW	Total Bill \$	Change from 2021 Bill \$	%	Total Bill \$	Change from 2021 Bill \$
Residential	Rate R-1 Residential	516	-	\$ 133.35	10%	464	-	\$ 129.40	\$ (3.95)	-3.0%	\$ 132.35	\$ (1.00)	-0.7%
	Rate R-2 Residential Assistance	488	-	\$ 73.36	25%	366	-	\$ 56.76	\$ (16.60)	-22.6%	\$ 56.62	\$ (16.74)	-22.8%
	Rate R-3 Residential Space Heating	740	-	\$ 180.63	10%	666	-	\$ 175.88	\$ (4.75)	-2.6%	\$ 180.12	\$ (0.51)	-0.3%
	Rate R-4 Residential Assistance Space Heating	874	-	\$ 122.13	25%	656	-	\$ 93.88	\$ (28.25)	-23.1%	\$ 93.64	\$ (28.49)	-23.3%
Small Comm.	Rate G-1 Small General Service	400	2	\$ 88.76	10%	360	2	\$ 83.98	\$ (4.78)	-5.4%	\$ 86.79	\$ (1.97)	-2.2%
	Rate G-1 Small General Service	5,700	19	\$ 1,121.87	10%	5,130	17	\$ 1,061.79	\$ (60.08)	-5.4%	\$ 1,101.86	\$ (20.01)	-1.8%
	Rate G-1 Small General Service	10,800	27	\$ 2,052.31	10%	9,720	24	\$ 1,942.73	\$ (109.58)	-5.3%	\$ 2,018.64	\$ (33.67)	-1.6%
	Rate G-1 Seasonal Small General Service	450	9	\$ 116.44	10%	405	8	\$ 109.33	\$ (7.11)	-6.1%	\$ 112.49	\$ (3.95)	-3.4%
	Rate G-1 Seasonal Small General Service	1,200	8	\$ 300.50	10%	1,080	7	\$ 281.55	\$ (18.95)	-6.3%	\$ 289.99	\$ (10.51)	-3.5%
	Rate G-1 Seasonal Small General Service	2,700	9	\$ 617.27	10%	2,430	8	\$ 590.04	\$ (27.23)	-4.4%	\$ 609.01	\$ (8.26)	-1.3%
	Rate G-2 Medium General Time-of-Use	61,500	205	\$ 10,639.05	10%	55,350	185	\$ 10,155.76	\$ (483.29)	-4.5%	\$ 10,588.04	\$ (51.01)	-0.5%
	Rate G-2 Medium General Time-of-Use	85,600	214	\$ 13,862.83	10%	77,040	193	\$ 13,266.86	\$ (595.97)	-4.3%	\$ 13,868.54	\$ 5.71	0.0%
	Rate G-2 Medium General Time-of-Use	126,500	253	\$ 19,600.09	10%	113,850	228	\$ 18,787.07	\$ (813.02)	-4.1%	\$ 19,676.24	\$ 76.15	0.4%
	Rate G-3 Large General Time-Of-Use	373,100	1,066	\$ 57,087.58	10%	335,790	959	\$ 54,731.28	\$ (2,356.30)	-4.1%	\$ 57,353.80	\$ 266.22	0.5%
	Rate G-3 Large General Time-Of-Use	354,600	788	\$ 51,817.45	10%	319,140	709	\$ 49,828.54	\$ (1,988.91)	-3.8%	\$ 52,321.02	\$ 503.57	1.0%
	Rate G-3 Large General Time-Of-Use	614,900	1,118	\$ 86,429.40	10%	553,410	1,006	\$ 83,256.40	\$ (3,173.00)	-3.7%	\$ 87,578.53	\$ 1,149.13	1.3%
	Rate G-4 General Power	7,800	52	\$ 1,486.41	10%	7,020	47	\$ 1,407.66	\$ (78.75)	-5.3%	\$ 1,462.49	\$ (23.92)	-1.6%
	Rate G-4 General Power	6,750	27	\$ 1,192.45	10%	6,075	24	\$ 1,131.27	\$ (61.18)	-5.1%	\$ 1,178.72	\$ (13.73)	-1.2%
	Rate G-4 General Power	9,450	27	\$ 1,610.22	10%	8,505	24	\$ 1,530.89	\$ (79.33)	-4.9%	\$ 1,597.31	\$ (12.91)	-0.8%
	Rate G-5 Commercial Space Heating	1,472	-	\$ 314.10	10%	1,325	-	\$ 296.21	\$ (17.89)	-5.7%	\$ 306.56	\$ (7.54)	-2.4%
	Rate G-6 All Electric Schools	60,748	-	\$ 10,349.26	10%	54,673	-	\$ 9,848.72	\$ (500.54)	-4.8%	\$ 10,275.72	\$ (73.54)	-0.7%
	Rate G-7 Optional General Time-of-Use	7,000	20	\$ 1,375.66	10%	6,300	18	\$ 1,300.33	\$ (75.33)	-5.5%	\$ 1,349.53	\$ (26.13)	-1.9%
	Rate G-7 Optional General Time-of-Use	15,500	31	\$ 2,818.86	10%	13,950	28	\$ 2,675.19	\$ (143.67)	-5.1%	\$ 2,784.14	\$ (34.72)	-1.2%
	Rate G-7 Optional General Time-of-Use	11,700	18	\$ 2,042.81	10%	10,530	16	\$ 1,938.64	\$ (104.17)	-5.1%	\$ 2,020.88	\$ (21.93)	-1.1%
	Rate G-7 Optional Seasonal General Time-of-Use	450	9	\$ 163.43	10%	405	8	\$ 151.18	\$ (12.25)	-7.5%	\$ 154.35	\$ (9.08)	-5.6%
	Rate G-7 Optional Seasonal General Time-of-Use	1,500	10	\$ 353.04	10%	1,350	9	\$ 331.86	\$ (21.18)	-6.0%	\$ 342.41	\$ (10.63)	-3.0%
	Rate G-7 Optional Seasonal General Time-of-Use	3,900	13	\$ 792.46	10%	3,510	12	\$ 750.85	\$ (41.61)	-5.3%	\$ 778.27	\$ (14.19)	-1.8%

Notes:
The Program Administrators determined that there is no low, medium, or high savings scenario for low-income and street lighting participants.
Customer participation in the Energy Efficiency programs is assumed to occur in 2022.

PARTICIPANT BILL IMPACTS

Class	Rate Class	Pre-Participation			High Participation								
		2021			Savings (Reduced Usage)	Monthly Usage		2022			2024		
		Monthly Usage kWh	kW	Total Bill \$		%	kWh	kW	Total Bill \$	Change from 2021 Bill \$	%	Total Bill \$	Change from 2021 Bill \$
Residential	Rate R-1 Residential	516	-	\$ 133.35	30%	361	-	\$ 102.23	\$ (31.12)	-23.3%	\$ 104.53	\$ (28.82)	-21.6%
	Rate R-2 Residential Assistance	488	-	\$ 73.36	25%	366	-	\$ 56.76	\$ (16.60)	-22.6%	\$ 56.62	\$ (16.74)	-22.8%
	Rate R-3 Residential Space Heating	740	-	\$ 180.63	30%	518	-	\$ 138.35	\$ (42.28)	-23.4%	\$ 141.65	\$ (38.98)	-21.6%
	Rate R-4 Residential Assistance Space Heating	874	-	\$ 122.13	25%	656	-	\$ 93.88	\$ (28.25)	-23.1%	\$ 93.64	\$ (28.49)	-23.3%
Small Comm.	Rate G-1 Small General Service	400	2	\$ 88.76	20%	320	2	\$ 75.32	\$ (13.44)	-15.1%	\$ 77.81	\$ (10.95)	-12.3%
	Rate G-1 Small General Service	5,700	19	\$ 1,121.87	20%	4,560	15	\$ 946.31	\$ (175.56)	-15.6%	\$ 981.92	\$ (139.95)	-12.5%
	Rate G-1 Small General Service	10,800	27	\$ 2,052.31	20%	8,640	22	\$ 1,733.55	\$ (318.76)	-15.5%	\$ 1,801.03	\$ (251.28)	-12.2%
	Rate G-1 Seasonal Small General Service	450	9	\$ 116.44	20%	360	7	\$ 97.85	\$ (18.59)	-16.0%	\$ 100.66	\$ (15.78)	-13.6%
	Rate G-1 Seasonal Small General Service	1,200	8	\$ 300.50	20%	960	6	\$ 250.93	\$ (49.57)	-16.5%	\$ 258.43	\$ (42.07)	-14.0%
	Rate G-1 Seasonal Small General Service	2,700	9	\$ 617.27	20%	2,160	7	\$ 536.56	\$ (80.71)	-13.1%	\$ 553.43	\$ (63.84)	-10.3%
	Rate G-2 Medium General Time-of-Use	61,500	205	\$ 10,639.05	20%	49,200	164	\$ 9,063.47	\$ (1,575.58)	-14.8%	\$ 9,447.72	\$ (1,191.33)	-11.2%
	Rate G-2 Medium General Time-of-Use	85,600	214	\$ 13,862.83	20%	68,480	171	\$ 11,827.64	\$ (2,035.19)	-14.7%	\$ 12,362.47	\$ (1,500.36)	-10.8%
	Rate G-2 Medium General Time-of-Use	126,500	253	\$ 19,600.09	20%	101,200	202	\$ 16,733.25	\$ (2,866.84)	-14.6%	\$ 17,523.62	\$ (2,076.47)	-10.6%
	Rate G-3 Large General Time-Of-Use	373,100	1,066	\$ 57,087.58	20%	298,480	853	\$ 48,759.50	\$ (8,328.08)	-14.6%	\$ 51,090.62	\$ (5,996.96)	-10.5%
	Rate G-3 Large General Time-Of-Use	354,600	788	\$ 51,817.45	20%	283,680	630	\$ 44,392.92	\$ (7,424.53)	-14.3%	\$ 46,608.46	\$ (5,208.99)	-10.1%
	Rate G-3 Large General Time-Of-Use	614,900	1,118	\$ 86,429.40	20%	491,920	894	\$ 74,106.57	\$ (12,322.83)	-14.3%	\$ 77,948.46	\$ (8,480.94)	-9.8%
	Rate G-4 General Power	7,800	52	\$ 1,486.41	20%	6,240	42	\$ 1,253.09	\$ (233.32)	-15.7%	\$ 1,301.82	\$ (184.59)	-12.4%
	Rate G-4 General Power	6,750	27	\$ 1,192.45	20%	5,400	22	\$ 1,009.75	\$ (182.70)	-15.3%	\$ 1,051.92	\$ (140.53)	-11.8%
	Rate G-4 General Power	9,450	27	\$ 1,610.22	20%	7,560	22	\$ 1,364.96	\$ (245.26)	-15.2%	\$ 1,424.01	\$ (186.21)	-11.6%
	Rate G-5 Commercial Space Heating	1,472	-	\$ 314.10	20%	1,178	-	\$ 264.02	\$ (50.08)	-15.9%	\$ 273.22	\$ (40.88)	-13.0%
	Rate G-6 All Electric Schools	60,748	-	\$ 10,349.26	20%	48,598	-	\$ 8,757.71	\$ (1,591.55)	-15.4%	\$ 9,137.27	\$ (1,211.99)	-11.7%
	Rate G-7 Optional General Time-of-Use	7,000	20	\$ 1,375.66	20%	5,600	16	\$ 1,156.96	\$ (218.70)	-15.9%	\$ 1,200.69	\$ (174.97)	-12.7%
	Rate G-7 Optional General Time-of-Use	15,500	31	\$ 2,818.86	20%	12,400	25	\$ 2,380.85	\$ (438.01)	-15.5%	\$ 2,477.70	\$ (341.16)	-12.1%
	Rate G-7 Optional General Time-of-Use	11,700	18	\$ 2,042.81	20%	9,360	14	\$ 1,720.75	\$ (322.06)	-15.8%	\$ 1,793.85	\$ (248.96)	-12.2%
	Rate G-7 Optional Seasonal General Time-of-Use	450	9	\$ 163.43	20%	360	7	\$ 134.56	\$ (28.87)	-17.7%	\$ 137.37	\$ (26.06)	-15.9%
	Rate G-7 Optional Seasonal General Time-of-Use	1,500	10	\$ 353.04	20%	1,200	8	\$ 296.10	\$ (56.94)	-16.1%	\$ 305.47	\$ (47.57)	-13.5%
	Rate G-7 Optional Seasonal General Time-of-Use	3,900	13	\$ 792.46	20%	3,120	10	\$ 662.92	\$ (129.54)	-16.3%	\$ 687.29	\$ (105.17)	-13.3%

Notes:
The Program Administrators determined that there is no low, medium, or high savings scenario for low-income and street lighting participants.
Customer participation in the Energy Efficiency programs is assumed to occur in 2022.

**THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES**

Petition of the Towns of Aquinnah, Barnstable, Bourne, Brewster,)
 Chatham, Chilmark, Dennis, Edgartown, Eastham, Falmouth,)
 Harwich, Mashpee, Oak Bluffs, Orleans, Provincetown, Sandwich,)
 Tisbury, Truro, Wellfleet, West Tisbury, and Yarmouth, and Dukes) D.P.U. 21-126
 County, acting together as the Cape Light Compact JPE, pursuant to)
 G.L. c. 25, § 21, for approval by the Department of Public Utilities)
 of its Three-Year Energy Efficiency Plan for 2022 through 2024.)

**AFFIDAVIT OF MARGARET T. DOWNEY ON BEHALF OF
THE CAPE LIGHT COMPACT JPE**

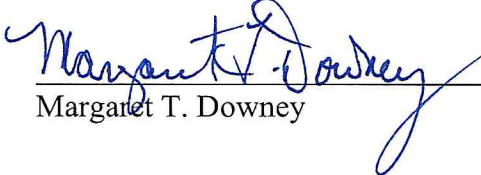
I, Margaret T. Downey, do depose and say:

1. My name is Margaret T. Downey and my business address is c/o Cape Light Compact JPE, 261 Whites Path, Unit 4, South Yarmouth, MA 02664.
2. I am the Administrator for the Cape Light Compact JPE (the "Compact").
3. As the Compact's Administrator, I oversee the administration of the Compact and its development and implementation of its energy efficiency plans since 2001, as well as its provision of competitive energy supply through its municipal aggregation program. With respect to the Compact's activities as an electric energy efficiency program administrator, I oversee the Compact's annual energy efficiency program budget that is part of the three-year plan, approved by the Department of Public Utilities. I am responsible for local and state regulatory reporting and approvals, as well as the oversight of the participation and compliance in the ISO New England forward capacity market. I regularly make presentations and provide reports to customers, Compact staff, board members, regulatory agencies and community advocates. In

addition, I serve as the Compact's representative on the Massachusetts Energy Efficiency Advisory Council.

4. I certify that the information contained in the Compact's Petition filed with the Department on November 1, 2021, was prepared by me or under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury as of this 1st day of November, 2021.


Margaret T. Downey

**THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES**

Petition of the Towns of Aquinnah, Barnstable, Bourne, Brewster,)
 Chatham, Chilmark, Dennis, Edgartown, Eastham, Falmouth,)
 Harwich, Mashpee, Oak Bluffs, Orleans, Provincetown, Sandwich,)
 Tisbury, Truro, Wellfleet, West Tisbury, and Yarmouth, and Dukes) D.P.U. 21-126
 County, acting together as the Cape Light Compact JPE, pursuant to)
 G.L. c. 25, § 21, for approval by the Department of Public Utilities)
 of its Three-Year Energy Efficiency Plan for 2022 through 2024.)

**AFFIDAVIT OF MARGARET SONG ON BEHALF OF
THE CAPE LIGHT COMPACT JPE**

I, Margaret Song, do depose and say:

1. My name is Margaret Song and my business address is c/o Cape Light Compact JPE, 261 Whites Path, Unit 4, South Yarmouth, MA 02664.

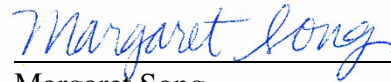
2. I am the Commercial & Industrial Program Manager for the Cape Light Compact JPE (the "Compact").

3. As the Compact's Commercial & Industrial Program Manager, I oversee the implementation of Compact's commercial and industrial energy efficiency programs for Cape Cod and Martha's Vineyard. In addition, I assisted in the design of the Compact-specific commercial and industrial programs, as well as the development of the corresponding Compact budgets, savings goals.

4. On behalf of the Compact, I participate on the Commercial & Industrial Management Committee and assisted in the development of the commercial and industrial program offerings that are included in the 2022-2024 Massachusetts Joint Statewide Three-Year Electric and Gas Energy Efficiency Plan.

5. I certify that the information concerning the Compact's commercial and industrial energy efficiency programs contained in the Compact's 2022-2024 Three-Year Energy Efficiency Plan (Petition Exhibits Compact-1, Compact-8 and Compact-10) filed with the Department on November 1, 2021, was prepared by me or under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury as of this 1st day of November, 2021.



Margaret Song

**THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES**

Petition of the Towns of Aquinnah, Barnstable, Bourne, Brewster,)
 Chatham, Chilmark, Dennis, Edgartown, Eastham, Falmouth,)
 Harwich, Mashpee, Oak Bluffs, Orleans, Provincetown, Sandwich,)
 Tisbury, Truro, Wellfleet, West Tisbury, and Yarmouth, and Dukes) D.P.U. 21-126
 County, acting together as the Cape Light Compact JPE, pursuant to)
 G.L. c. 25, § 21, for approval by the Department of Public Utilities)
 of its Three-Year Energy Efficiency Plan for 2022 through 2024.)

**AFFIDAVIT OF BRIANA KANE ON BEHALF OF
THE CAPE LIGHT COMPACT JPE**

I, Briana Kane, do depose and say:

1. My name is Briana Kane and my business address is c/o Cape Light Compact JPE, 261 Whites Path, Unit 4, South Yarmouth, MA 02664.

2. I am the Residential Program Manager for the Cape Light Compact JPE (the “Compact”).

3. As the Compact’s Residential Program Manager, I oversee the implementation of Compact’s residential and income eligible energy efficiency programs for Cape Cod and Martha’s Vineyard. In addition, I assisted in the design of the Compact-specific residential and income eligible programs, as well as the development of the corresponding Compact budgets, savings goals.

4. On behalf of the Compact, I participate on the Residential Management Committee and assisted in the development of the residential and income eligible program offerings that are included in the 2022-2024 Massachusetts Joint Statewide Three-Year Electric and Gas Energy Efficiency Plan.

5. I certify that the information concerning the Compact's residential and income eligible energy efficiency programs contained in the Compact's 2022-2024 Three-Year Energy Efficiency Plan (Petition Exhibits Compact-1, Compact-8, Compact-9 and Compact-10) filed with the Department on November 1, 2021, was prepared by me or under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury as of this 1st day of November, 2021.



Briana Kane

**THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES**

Petition of the Towns of Aquinnah, Barnstable, Bourne, Brewster,)
 Chatham, Chilmark, Dennis, Edgartown, Eastham, Falmouth,)
 Harwich, Mashpee, Oak Bluffs, Orleans, Provincetown, Sandwich,)
 Tisbury, Truro, Wellfleet, West Tisbury, and Yarmouth, and Dukes) D.P.U. 21-126
 County, acting together as the Cape Light Compact JPE, pursuant to)
 G.L. c. 25, § 21, for approval by the Department of Public Utilities)
 of its Three-Year Energy Efficiency Plan for 2022 through 2024.)

AFFIDAVIT OF ERIN MALONE

I, Erin Malone, do depose and say:

1. My name is Erin Malone and my business address is c/o Synapse Energy Economics, Inc., 485 Massachusetts Avenue, Suite 3, Cambridge, MA 02139.
2. I am a Senior Associate for Synapse Energy Economics, Inc.
3. As consultant to the Compact, I assisted in the development of certain quantitative components in the Compact’s 2022-2024 Three-Year Energy Efficiency Plan. Specifically, I was responsible for the Compact’s quantitative analysis included in the Energy Efficiency Data Tables (“Data Tables”). To complete the Data Tables, I worked with the Compact to analyze costs, savings and benefits through internal budget modeling and the Benefit-Cost screening model, and coordinated with the Program Administrators on consistent program assumptions for all applicable calculations. I also assisted the Compact in the development of its Bill Impact Analysis.
4. I certify that the information concerning the quantitative analysis included in the Compact’s Data Tables contained in Exhibit Compact-4 and the Bill Impact Analysis contained

in Exhibit Compact-6 filed with the Department on November 1, 2021, was prepared by me or

under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury as of this 1st day of November, 2021.



Erin Malone

**Cape Light Compact JPE
Governing Board
Meeting Minutes
Wednesday, February 10, 2021**

Pursuant to Massachusetts Governor Charles D. Baker's Order Suspending Certain Provisions of the Open Meeting Law on March 12, 2020, the Cape Light Compact JPE Board of Directors met on Wednesday, February 10, 2021 at 2pm. The meeting was held through a Zoom videoconference for members of the Board with audio call-in available for members of the public.

Participating Remotely Were:

1. Forrest Filler, Aquinnah
2. David Anthony, Secretary/Executive Committee, Barnstable
3. Robert Schofield, Executive Committee, Bourne
4. Colin Odell, Executive Committee, Brewster
5. Peter Cocolis, Chatham
6. Timothy Carroll, Executive Committee, Chilmark
7. Brad Crowell, Dennis
8. Erik Peckar, Dukes County
9. Alan Strahler, Edgartown
10. Ronald Zweig, Falmouth
11. Richard Toole, Executive Committee, Oak Bluffs
12. Martin Culik, Chair/Executive Committee, Orleans
13. Nathaniel Mayo, Provincetown
14. Leanne Drake, Sandwich
15. Jay Grande, Tisbury Alternate
16. Bob Higgins-Steele, Truro Alternate
17. Richard Elkin, Executive Committee, Wellfleet
18. Sue Hruby, West Tisbury
19. Joyce Flynn, Vice Chair/Executive Committee, Yarmouth

Absent Were:

1. Fred Fenlon, Eastham
2. Valerie Bell, Harwich
3. Wayne Taylor, Mashpee
4. Kirk Metell, Tisbury
5. Jarrod Cabral, Truro

Legal Counsel Participating Remotely:

Jeffrey Bernstein, Esq., BCK Law, P.C.

Staff Participating Remotely:

Austin Brandt, Senior Power Supply Planner
Lindsay Henderson, Senior Analyst
Maggie Downey, Administrator
Melissa Allard, Senior Administrative Coordinator

Public Participants:

None.

Martin Culik called the meeting to order at 2:03 PM.

PUBLIC COMMENT:

There were no members of the public present, and no public comments were submitted to the Board in writing under the public comment guidelines.

APPROVAL OF MINUTES:

The Board considered the January 13, 2020 Open Session Meeting Minutes.

Richard Elkin moved the Board to accept the minutes as amended and to release them as amended, seconded by Joyce Flynn.

Forest	Filler	Aquinnah	Yes
David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Peter	Cocolis	Chatham	Yes
Tim	Carroll	Chilmark	Yes
Erik	Peckar	Dukes County	Yes
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (16-0-0)

Colin Odell and Brad Crowell joined meeting at 2:08PM.

CHAIR REPORT:

1. Reminder to update Board member List

Martin Culik reminded Board Members to send update contact information to Maggie Downey so she can put a contact list together for the Compact.

John Grande joined meeting at 2:15PM.

ENERGY EFFICIENCY: DISCUSSION ON 2021 MAIN STREETS EFFORT:

1. Update on 2021 Main Streets Effort, Lindsay Henderson

Lindsay Henderson reviewed the 2021 Main Streets Update PowerPoint. Lindsay Henderson stated that the towns have been contacting her confirming their interest in participating in the Main Streets effort over the last couple of weeks. She stated that the Compact is aware that some towns do not have a defined Main Street, but she will figure out a way to make it work. She stated that the Compact is looking to help as many towns as possible. The Compact is looking to hold the events from mid-April through June, and then start up again the last week of August through October. The Compact is offering up to 100% incentive through at least June. She stated that letters and flyers would be sent to customers in the participating towns in advance of the events.

Lindsay Henderson reviewed the "Status of Town Interest" slide. She stated it needs to be updated since it was created on Monday. She asked that Board Members get back to her to confirm whether their town is interested. She stated that it would be helpful to have the town administration co-sign the letters that will go out to customers. She also stated that she will be asking participating towns to assist in marketing the event through their town website and/or email notices. She stated that she is working on a draft schedule that she will share soon.

Joyce Flynn asked if the incentives are up to 100% through June, are those participating in the fall at a disadvantage? Lindsay Henderson stated that right now it is only thought the end of June, but most likely it will be extended at least for the Main Streets effort. Richard Toole asked if the letter will be sent to the towns before they are sent to the customers. Lindsay Henderson answered yes, they will be sent to the towns first for their review and edits.

2. Demand Response Discussion and Potential Vote on Eligible Technologies, Austin Brandt

Austin Brandt reviewed the Backup Generator Participation in ConnectedSolutions PowerPoint. Austin Brandt stated the reason that we are having this discussion is that in the summer of 2020 the Compact began implementing a Commercial Demand Response (DR) program and the question has come up several times on whether to allow fossil fuel (e.g., natural gas or diesel) backup generation to be able to participate in the program. He stated it is ultimately a policy decision and is seeking direction from the Board. He stated that his presentation will frame the issue and go over the various options. He also stated that there is not a staff recommendation and reiterated that staff is looking for direction from the Board.

Austin Brandt stated the Compact DR program is branded as the ConnectedSolutions program. He stated the Compact offers it to residential and commercial customers, but for this conversation he is focusing on commercial customers. The overall goal of these programs is to reduce rate payer costs by essentially reducing ISO-NE systemwide peak demand to reduce capacity costs. He stated there are two types of dispatch types. Target dispatch is where the Compact is calling events on select days of the summer where it may set the annual peak for the summer. Daily dispatch is where the Compact call events daily during peak hours in July and August.

Austin Brandt stated that commercial customers participate in ConnectedSolutions by reducing facility load when called upon during these target events. He stated many large commercial customers have behind-the-meter fossil fuel backup generators that could be used as a DR resource. Austin Brandt stated that staff is looking for direction from the board whether the Compact should allow emissions-compliant fossil fuel generator participation in commercial ConnectedSolutions programs. He stated that the Compact did not allow fossil fuel generators to participate in summer 2020 or winter 2020/21 in either targeted or daily dispatch. National Grid allows emissions-compliant fossil fuel generator participation in both dispatch programs.

Eversource and Unitil allow emissions-compliant fossil fuel generator participation in targeted dispatch, but not daily dispatch. He stated that the Department of Public Utilities (DPU) and Energy Efficiency Advisory Council (EEAC) have not taken a stance on this issue.

Austin Brandt reviewed the status of the ConnectedSolutions program. The Compact has approximately 1.8 MW summer commercial capacity currently enrolled. He stated that this is under what the Compact had planned in the 2019-2021 Energy Efficiency Plan. He stated that the Compact's curtailment service provider (CSP) partners are currently aware of 3.2 MW of natural gas generation interested in participating and there is likely more.

Austin Brandt reviewed the pros and cons of allowing emissions-compliant fossil fuel generator participation in commercial ConnectedSolutions programs. Generators could comprise a substantial portion of CLC DR portfolio if allowed.

Austin Brandt reviewed the policy options. The first option is that the Compact could continue disallowance of fossil fuel generators in Compact DR programs. Second option is to allow participation of fossil fuel generators in Targeted Dispatch only. Third option would be to allow only certain types of generators such as natural gas and combined heat and power, but not diesel. Option four is a combination of option two and three. Lastly, option five would be no limitation on generation participation.

Richard Elkin asked how long the Compact's commitment is. He asked if this is something that is reviewed every year. Austin Brandt stated that the Board can change its policy at its discretion. However, from an implementation perspective it makes things difficult when we allow participation in one year and then disallow it in the next because it leads to unhappy customers and lower participation. Peter Cocolis stated that he would not support option 5. He stated he would support option 4, but he is a little unsettled doing it and asked what would happen if we did not allow it. Austin Brandt stated that if the Compact does not allow fossil fuel generation then it would go with the status quo. Brad Crowell stated that knowing how many generators are in our territory may be useful in guiding this decision. He stated that the industry is moving towards storage and asked if the Compact could use this as a tool to get more people to adopt batteries. David Anthony asked if there a way to craft a program that in some way incentivizes battery storage but still recognizes traditional generators. Austin Brandt stated that that is the current case. The Compact's incentive rate for curtailment, which is what generators would fall under, is \$35 per kW performed and for commercial batteries it is \$100 per kW.

Sue Hrubby asked if the Compact understands how many generators are in our territory and asked how many PA's are allowing them. Austin Brandt answered that the Compact is the only PA that is not allowing fossil fuel generation participation at all. He stated that he does not know how many installed generators there are. Colin Odell stated that it can be found on the Massachusetts DEP registration website. Austin Brandt stated that he will look into that and bring this information to the Board for the March meeting. Colin Odell stated that it is not easy to operate a dedicated emergency generator in a DR situation. These generators are typically run when there is no power. Austin Brandt stated that the generators the Compact would be looking at are ones that are relatively large units that are likely already participating in the ISO's capacity and energy market. Therefore, they would already have the infrastructure in place.

Richard Elkin asked if there is a way to only offer the option to existing fossil fuel generators and existing and new batteries. Austin Brandt stated that the goal of DR programs is to utilize existing resources and pay them to perform. He stated that the Board could choose to impose an installation cutoff date in order to participate, but he is not sure how the Compact would go about deciding that date or if it would be in best interest of the program. Colin Odell stated that it will be many years before batteries will be used to replace emergency generators for things like an elevator or a pump station. The incentives are not enticing enough to get a

customer to switch. He stated he does not believe that batteries and generators, for the foreseeable future, compete with each other.

Joyce Flynn asked if the Compact, in the long term, has an interest in working with many small customers opposed to a few large customers. Austin Brandt answered yes. On the residential side and small business, the Compact has a Wi-Fi thermostat program which targets residential and commercial load. The Compact is actively studying incorporating other connected home devices into our platform to be able to ask customers to curtail those. Erik Peckar stated that the islands are looking to be to be 100% renewable by 2040. With those measures in place and thinking about these programs he would support option one - not allowing fossil fuel generation to participate in the Compact's DR program. Austin Brandt stated that Erik Peckar raised a good point and that is why this has been brought to the Board. He stated that he wants to re-emphasize that the Compact would be focusing on the large commercial customers and institutional customers that are going to have the types of generation and interest to participate.

Martin Culik looked for sense of Board on whether they would like to decide today on what option or think on it and discuss at next Board Meeting. Sense of Board is to wait and continue discussion at the March meeting.

ADMINISTRATOR'S REPORT:

1. Scheduling Town Updates with Boards of Selectmen

Maggie Downey stated that she is working with Melissa Allard to schedule meetings with each town's Select Board to give an update on the Compact's activities. She stated that she will let the Board Members know when each of their town's meetings are scheduled so they can join if available. Martin Culik stated that he believes that having Board Members get more involved to be important. He stated that Board Members could attend their Select Board meeting once a quarter to give a few updates under public comment. Richard Toole agrees that it is a good idea. Sense of the Board is they are willing to attend their Select Board meeting and speak to the bullet points prepared by staff. Maggie Downey stated that she will have this available in April and will send the bullet points to each Board Member but will leave it up to them on whether they present them to their towns.

2. Rural Energy Savings Programs (RESP) Loan Update

Maggie Downey stated that she reached out for an update on the RESP Loan application. Due to change in the administration and staff out due to COVID illness, they are behind and have not reviewed the Compact's application. She stated that she set a reminder in another month if she has not heard to reach out again.

3. 2022-2024 Energy Efficiency Plan Update

Maggie Downey stated that the Compact is getting ready to file its first draft of the 2022-2024 Energy Efficiency Plan on April 30th. She stated that staff will be presenting at the next two Board meetings any new programs that are being proposed statewide. At the April meeting there will be an outline of the budget and savings. It will be refined throughout 2021. There will be a final Board vote in October before the final filing to the DPU on October 31, 2021.

4. Monthly Operating and Energy Efficiency Budgets

Maggie Downey stated the operating and energy efficiency budgets are in the Board packet. She stated they are in there for their informational purposes. She is working with Megan Terrio on the format for quarterly reports.

Open Session Vote on entry into Executive Session pursuant to M.G.L. c. 30A §§21(a) (10) to discuss matters below, to return to open session:

Martin Culik at 3:30PM moved to enter into Executive Session pursuant to M.G.L. c. 30A §21(a)(3) and (10) to (1) review and approve executive session minutes which contain discussions regarding pending or imminent regulatory litigation and trade secrets and confidential, competitively-sensitive or other proprietary power supply information related to a proposed Low-Income Community Solar project (when the release of the discussion would have a detrimental effect on the Compact's negotiating position); and (2) to discuss pending or imminent regulatory litigation and trade secrets and confidential, competitively-sensitive or other proprietary power supply information related to a proposed Low-Income Community Solar project, not to return to open session thereafter. Seconded by Richard Elkin.

Forest	Filler	Aquinnah	Yes
David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Tim	Carroll	Chilmark	Yes
Brad	Crowell	Dennis	Yes
Erik	Peckar	Dukes County	Yes
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
John	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (18-0-0)

ADJOURNMENT:

Motion to adjourn made at 3:40PM moved by Robert Schofield, seconded by Tim Carroll.

Forest	Filler	Aquinnah	Yes
David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Tim	Carroll	Chilmark	Yes
Brad	Crowell	Dennis	Yes
Erik	Peckar	Dukes County	Yes
Alan	Strahler	Edgartown	Yes

Ron	Zweig	Falmouth	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
John	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (18-0-0)

Respectfully submitted,

Melissa Allard

LIST OF DOCUMENTS AND EXHIBITS:

- Meeting Notice/Agenda
- January 13, 2020 Draft Meeting Minutes
- 2020 Operating Budget
- 2020 Energy Efficiency Budget
- 2021 Main Streets PowerPoint
- Backup Generator Participation in ConnectedSolutions PowerPoint

**Cape Light Compact JPE
Governing Board
Meeting Minutes
Wednesday, March 10, 2021**

Pursuant to Massachusetts Governor Charles D. Baker's Order Suspending Certain Provisions of the Open Meeting Law on March 12, 2020, the Cape Light Compact JPE Board of Directors met on Wednesday, March 10, 2021 at 2 p.m. The meeting was held through a Zoom videoconference for members of the Board with audio call-in available for members of the public.

Participating Remotely Were:

1. Forrest Filler, Aquinnah
2. Peter Doyle, Barnstable Alternate
3. Robert Schofield, Executive Committee, Bourne
4. Colin Odell, Executive Committee, Brewster
5. Peter Cocolis, Chatham
6. Timothy Carroll, Executive Committee, Chilmark
7. Erik Peckar, Dukes County
8. Alan Strahler, Edgartown
9. Ronald Zweig, Falmouth
10. Valerie Bell, Harwich
11. Richard Toole, Executive Committee, Oak Bluffs
12. Martin Culik, Chair/Executive Committee, Orleans
13. Nathaniel Mayo, Provincetown
14. Leanne Drake, Sandwich
15. Jay Grande, Tisbury Alternate
16. Bob Higgins-Steele, Truro Alternate
17. Richard Elkin, Executive Committee, Wellfleet
18. Sue Hraby, West Tisbury
19. Joyce Flynn, Vice Chair/Executive Committee, Yarmouth

Absent Were:

1. David Anthony, Secretary/Executive Committee, Barnstable
2. Brad Crowell, Dennis
3. Fred Fenlon, Eastham
4. Wayne Taylor, Mashpee
5. Kirk Metell, Tisbury
6. Jarrod Cabral, Truro

Legal Counsel Participating Remotely:

Rebecca Zachas, BCK Law, P.C.

Staff Participating Remotely:

Austin Brandt, Senior Power Supply Planner
Maggie Downey, Administrator
Melissa Allard, Senior Administrative Coordinator

Public Participants:

None.

Martin Culik called the meeting to order at 2:02 PM.

Open Session Vote on entry into Executive Session pursuant to M.G.L. c. 30A §§21(a)(3) and (10) to discuss matters below, to return to open session:

Martin Culik at 2:02 PM moved to enter into Executive Session pursuant to M.G.L. c. 30A §21(a)(3) and (10) to (1) review and approve executive session minutes which contain discussions regarding pending or imminent regulatory litigation and trade secrets and confidential, competitively-sensitive or other proprietary power supply information related to a proposed Low-Income Community Solar project (when the release of the discussion would have a detrimental effect on the Compact's negotiating position); and (2) to discuss pending or imminent regulatory litigation and trade secrets and confidential, competitively-sensitive or other proprietary power supply information related to a proposed Low-Income Community Solar project, to return to open session thereafter. Seconded by Tim Carroll.

Forest	Filler	Aquinnah	Yes
Peter	Cocolis	Chatham	Yes
Tim	Carroll	Chilmark	Yes
Ron	Zweig	Falmouth	Yes
Valerie	Bell	Harwich	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
John	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (14-0-0)

Robert Schofield, Colin Odell, and Alan Strahler joined meeting at 2:05 PM.

Peter Doyle joined meeting at 2:20 PM.

Return to Open Session

At 2:52 PM, Martin Culik asked for a motion to end executive session, moved by Robert Schofield, seconded by Ron Zweig.

Forest	Filler	Aquinnah	Yes
Peter	Doyle	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes

Tim	Carroll	Chilmark	Yes
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Valerie	Bell	Harwich	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
John	Grande	Tisbury	Absent
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (17-0-0)

PUBLIC COMMENT:

There were no members of the public present, and no public comments were submitted to the Board in writing under the public comment guidelines.

APPROVAL OF MINUTES:

The Board considered the February 10, 2020 Open Session Meeting Minutes.

Peter Cocolis moved the Board to accept the minutes as amended and to release them as amended, seconded by Ron Zweig.

Forest	Filler	Aquinnah	Yes
Peter	Doyle	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Tim	Carroll	Chilmark	Yes
Erik	Peckar	Dukes County	Yes
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Valerie	Bell	Harwich	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
John	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes

Joyce	Flynn	Yarmouth	Yes
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Motion carried in the affirmative (19-0-0)

CHAIR REPORT:

1. Update on Plan to Contact Legislative Delegation Regarding Remote Participation

Martin Culik stated that he and Counsel have prepared a letter to send to Senator Cyr requesting that joint powers entities be allowed to revise the quorum requirements to allow remote participation to count towards a quorum. Martin noted that Vineyard members lose their entire day to attend a 2 and half hour monthly Board meeting and some Cape Board members have a 100-mile round-trip drive. The letter requests a meeting with the Senator on this subject. He asked if anyone would like to participate in the meeting with the legislative delegation. Erik Peckar, Sue Hruby, Nate Mayo, and Joyce Flynn stated they would join. Martin Culik stated that the Compact would start with Julian Cyr and if it gets some traction move on from there.

ENERGY EFFICIENCY: DISCUSSION ON 2021 MAIN STREETS EFFORT:

1. Overview of Process and Key Themes for the MA Statewide 2022-2024 Energy Efficiency Plan, Maggie Downey

Maggie Downey stated that the Compact is required under Massachusetts General Laws to submit a statewide Massachusetts electric energy efficiency plan. Staff has been preparing the draft for the next 3-year plan, with the utility Program Administrators.

Maggie Downey reviewed the Draft 2022-2024 Massachusetts Energy Efficiency Plan (EEP) PowerPoint. She stated that the 2022-2024 EEP will have three priority statewide goals: (1) equity, (2) strategic electrification; and (3) workforce development. The Compact will also be resubmitting its Cape and Vineyard Electrification Offering (CVEO) unless it is approved by the Department of Public Utilities before the October 31, 2021 filing deadline.

Richard Elkin asked if the Compact's Energy Efficiency Plan should be saying energy efficiency and greenhouse gas reduction. Maggie Downey stated that the Green Communities Act requires that the Compact pursue all cost-effective measures. The larger utility program administrators (PAs) are using that to pursue high efficiency heating systems. The Compact plans to serve moderate income customers with enhanced incentives for heat pumps with the goal of moving customers off oil and propane and onto cleaner fuels. This is the definition of strategic electrification. Richard Elkin asked if the climate bill would affect the filing. Maggie Downey stated that she does not believe it will affect the April 30th filing, but it will affect the October filing.

Richard Elkin stated that the Compact is not aware of how much delivered fuel (oil and propane) is being used on Cape Cod. Maggie Downey stated that the Cape Cod Commission and others are working on this as part of their Climate Plan. She stated that on Martha's Vineyard the only fuel source for heating systems is oil, propane or electric and on the Outer Cape it is the same. She stated that the Compact will have targets on heat pump installations in the EEP, but it will take several years to get customers who can and are willing to move off a deliverable fuel and install a heat pump. Erik Peckar stated Martha's Vineyard is working on figuring out the baseline of what the deliverable fuel usage is as it works to become 100% renewable by 2040. He stated that Vineyard Commission has essentially finished an Excel modeling document and is willing to share with the Board.

Maggie Downey reviewed the likely program changes in the 2022-2024 EEP. She stated that the Compact will no longer be installing lighting/LEDs as part of the Residential Home Energy Assessment, except for MassNet Eligible customers. There will no longer be incentives for LEDs because it is no longer cost effective, and the market has transformed (residential energy efficiency lighting is now the baseline). Incentives for oil heating systems will cease for market rate customers under the energy efficiency program. Moderate income customers will be offered enhanced incentives for heating systems. She stated that the Compact will mostly likely see a new all-electric construction offering as well.

Maggie Downey reviewed what changes may be happening on the C&I side. She stated that these changes might be enhanced incentives based upon equity, weatherization incentives for small businesses, more electrification incentives and decreases in what lighting measures are offered. Colin Odell asked how likely it is that the Compact will be able to maintain cost effective programs without lighting. Maggie Downey stated that the Compact is looking to claim more Non-Energy Impacts (NEIs). She stated that evaluation consultant for the EEAC has approved that the Compact/Program Administrators can claim a third of the NEIs that are given to low-income measures for moderate income measures. She stated that a lot of the savings are dependent upon the NEIs and so far, everything is cost effective at the sector level.

Maggie Downey stated that staff will be developing the Compact's preliminary budget and savings goals which the Board will vote on at the April Board Meeting.

2. Continuation of Demand Response Discussion and Potential Vote on Eligible Technologies, Austin Brandt

Austin Brandt stated that he has not been able to gather the information the Board asked for on existing generators on Cape Cod and Martha's Vineyard yet. He stated that he sent requests to a state agency and Eversource. He hopes to have the information for the next Board meeting.

ADMINISTRATOR'S REPORT:

1. Any Questions on Monthly Operating and Energy Efficiency Budgets

Maggie Downey asked if there were any questions on the budget reports in the packet. There were no questions.

1. Spring MA Maritime Interns

Maggie Downey stated the Compact has another Massachusetts Maritime intern, Anna Deely, for the spring. Anna Deely is working with Phil Moffitt on the evaluation program.

1. April Board Meeting Date Changing to April 21st

Maggie Downey stated that the April Board meeting is being moved to April 21st as there is an Energy Efficiency Action Council (EEAC) meeting on April 14th.

Tim Carroll left meeting at 3:40 PM.

ADJOURNMENT:

Motion to adjourn made at 3:45 PM moved by Colin Odell, seconded by Robert Schofield.

Forest	Filler	Aquinnah	Yes
Peter	Doyle	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Erik	Peckar	Dukes County	Yes
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Valerie	Bell	Harwich	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
John	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

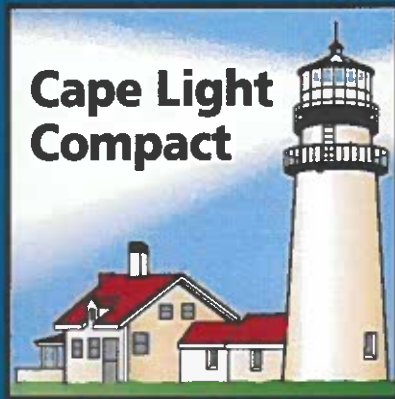
Motion carried in the affirmative (18-0-0)

Respectfully submitted,

Melissa Allard

LIST OF DOCUMENTS AND EXHIBITS:

- Meeting Notice/Agenda
- February 10, 2020 Draft Meeting Minutes
- 2020 Operating Budget
- 2020 Energy Efficiency Budget
- Draft 2022-2024 Massachusetts Energy Efficiency Plan PowerPoint



*Your Trusted, Local
Energy Resource*

Draft 2022-2024 Massachusetts Energy Efficiency Plan

Cape Light Compact
March 10th Governing Board
Meeting



2022-2024 Energy Efficiency Plan Key Priorities

Equity

- Targeting Moderate Income (61%-80% of State Median Income)
- Increasing Participation for Customers with Limited English Proficiency

Strategic Electrification

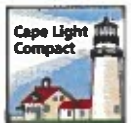
- Focus on Delivered Fuels and Greenhouse Gas Reductions
- Cold Climate Heat Pump Goals for residential and commercial sectors

Workforce Development

- Clean Energy Pathways - Administered by Community Based Organization (CBO)
- Paid internship program – Pair's participants with local vendors
- One program in Compact service territory: Focus on HVAC or Insulation

Cape Light Compact Enhancements

- Cape and Vineyard Electrification (CVEO)



What's Changing: Likely and Possibly?

- Enhanced Incentives for replacement of heating systems for Moderate Income Customers
- Installing LEADS will no longer be offered (except for Income Eligible Customers)
- No retail incentives for LEDs
- Incentives for oil and propane (delivered fuels) heating systems for market rate customers (above 81% of SMI) will cease.

Residential and Income Eligible Sector: Likely Additions



- All-Electric New Construction Offering

Residential and Income Eligible Sector: Likely Additions



Note:
Evaluation results are pending, and that could change results.



What's Changing: Likely and Possibly?

- Enhanced incentives based upon equity (i.e. renters)
- Weatherization incentives for small businesses
- Looking at more electrification incentives

Commercial &
Industrial Sector:
Likely Additions



- Decreases or removal of lighting (i.e. exterior and screw-in)
- Baselines (from which we base our savings) rising. Could remove some measures.

Commercial &
Industrial Sector:
Likely Decreases



Note:
Evaluation results are pending, and that could change results.



Looking Ahead: March - April

Compact Staff

- Developing Compact's preliminary budget and savings goals
- Writing April 30 Draft EEP for Compact Board and Energy Efficiency Advisory Council (EEAC) review

Compact Board

- April Board meeting vote on the Compact's Preliminary Budget, Savings Goals and Enhancements

Items Still Evolving Statewide

- Goals – focus moving from kWh savings to Greenhouse Gas reductions
- Impact of Electrification
- Climate Bill



Income Eligible Programs

2021 Income Guidelines

# OF HOUSEHOLD MEMBERS	ENHANCED RESIDENTIAL	RESIDENTIAL PROGRAM
1	\$39,105	\$52,140
2	\$51,137	\$68,183
3	\$63,169	\$84,225
4	\$75,201	\$100,268

Residents above the listed income guidelines, please call 1-800-797-6699 for more information.

CUSTOMERS BELOW THIS INCOME LEVEL ARE ELIGIBLE FOR:

Fuel Assistance
Weatherization
100% Incentive
(Air Sealing, Insulation)
Electric Discount Rate
Gas Discount Rates

CUSTOMERS BELOW THIS INCOME LEVEL ARE ELIGIBLE FOR:

Weatherization
100% Incentive
(Insulation)
No-cost Air Sealing

**Cape Light Compact JPE
Governing Board
Meeting Minutes
Wednesday, April 21, 2021**

Pursuant to Massachusetts Governor Charles D. Baker's Order Suspending Certain Provisions of the Open Meeting Law on March 12, 2020, the Cape Light Compact JPE Board of Directors met on Wednesday, April 21, 2021 at 2 p.m. The meeting was held through a Zoom videoconference for members of the Board with audio call-in available for members of the public.

Participating Remotely Were:

1. David Anthony, Secretary/Executive Committee, Barnstable
2. Peter Doyle, Barnstable Alternate
3. Robert Schofield, Executive Committee, Bourne
4. Colin Odell, Executive Committee, Brewster
5. Peter Cocolis, Chatham
6. Erik Peckar, Dukes County
7. Fred Fenlon, Eastham
8. Alan Strahler, Edgartown
9. Ronald Zweig, Falmouth
10. Valerie Bell, Harwich
11. Richard Toole, Executive Committee, Oak Bluffs
12. Martin Culik, Chair/Executive Committee, Orleans
13. Nathaniel Mayo, Provincetown
14. Leanne Drake, Sandwich
15. Jay Grande, Tisbury Alternate
16. Bob Higgins-Steele, Truro Alternate
17. Richard Elkin, Executive Committee, Wellfleet
18. Sue Hrubby, West Tisbury
19. Joyce Flynn, Vice Chair/Executive Committee, Yarmouth
20. Mike Duffy, Yarmouth Alternate

Absent Were:

1. Forrest Filler, Aquinnah
2. Timothy Carroll, Executive Committee, Chilmark
3. Brad Crowell, Dennis
4. Wayne Taylor, Mashpee
5. Kirk Metell, Tisbury
6. Jarrod Cabral, Truro

Legal Counsel Participating Remotely:

Jeffrey Bernstein, Esq., BCK Law, P.C.

Staff Participating Remotely:

Austin Brandt, Senior Power Supply Planner
Brianna Kane, Residential Program Manager
Dan Schell, Marketing and Communications Coordinator
Maggie Downey, Administrator

Margaret Song, Commercial & Industrial Program Manager
Melissa Allard, Senior Administrative Coordinator

Public Participants:

None.

Martin Culik called the meeting to order at 2:01 PM.

PUBLIC COMMENT:

There were no members of the public present, and no public comments were submitted to the Board in writing under the public comment guidelines.

APPROVAL OF MINUTES:

The Board considered the March 10, 2020 Open Session Meeting Minutes.

Colin Odell stated that in the return to open session vote he was not absent and voted “yes.”

Robert Schofield moved the Board to accept the minutes as amended and to release them as amended, seconded by Richard Elkin.

David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Erik	Peckar	Dukes County	Yes
Fred	Fenlon	Eastham	Abstained
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Valerie	Bell	Harwich	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
John	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Mike	Duffy	Yarmouth	Yes

Motion carried in the affirmative (17-0-1)

Joyce Flynn joined meeting at 2:04PM.

CHAIR REPORT:

1. Update on Plan to Contact Legislative Delegation Regarding Remote Participation

Martin Culik stated that the Compact met virtually with Elizabeth Ganz from Julian Cyr's office to talk about potential legislation regarding remote participation. He stated that there may be proposed legislation to amend the open meeting law regarding remote participation, which is an alternative to filing legislation to amend the Joint Powers statute. Martin Culik asked if Jeff Bernstein had anything to add. Jeff Bernstein answered no but noted that this alternative is something to consider and after additional conversation with Senator Cyr's office can be discussed in greater depth at the next Board Meeting.

OVERVIEW OF CLIMATE BILL, JEFF BERNSTEIN

Jeff Bernstein reviewed the Highlights of an Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy PowerPoint. He stated that the legislature has passed, and the governor signed the extensive legislation. He stated that some of the highlights he thinks are most important to the Compact are as follows (1) the law represents the Commonwealth's commitment to achieve Net Zero emissions by 2050; (2) it furthers efforts to combat climate change; and (3) it furthers environmental justice efforts. The law will be effective as of June 24, 2021.

Jeff Bernstein stated that the new law amends several sections of the Global Warming Solutions Act. Specifically, the Secretary of Executive Office of Energy and Environment (EOEA) must adopt interim statewide greenhouse gas (GHG) emissions limits, issue a roadmap plan for each limit, must adopt sector based statewide GHG emissions sublimit, and intersect with statewide energy efficiency plans.

Jeff Bernstein stated that the new law amends the Green Communities Act as well. Specifically, the statewide energy efficiency plan must be constructed to meet or exceed the necessary Green House Gas (GHG) reduction goal set by the Secretary of EOEA, Program Administrator (PA) Quarterly Reports to the Energy Efficiency Action Council (EEAC) must now include a quantification of the degree to which the plan contributes to meeting the GHG emission limits and sublimits imposed by statute or regulation, Department of Public Utilities (DPU) cost-effectiveness reviews of statewide energy efficiency plans must consider the social value of GHG emissions reductions in the calculation of program benefits, and the Massachusetts Clean Energy Center (CEC) must implement a clean energy equity workforce and market development (EWMD) program.

Jeff Bernstein stated that the DPU's priorities have been revised. They now expressly include safety, security, reliability of service, affordability, equity, and reductions in GHG emissions to meet statewide GHG emissions limits and sublimits established pursuant to the Global Warming Solutions Act (GWSA).

Jeff Bernstein stated that the new statute addresses several areas of the state's building codes and standards. of Department of Energy Resources (DOER) may develop a municipal opt-in specialized stretch energy code, the State Board membership will increase from 11 to 15 members, with the Commissioner of DOER now a member of the State Board and new appliances are added to the testing, certification, and enforcement of efficiency standards under the Massachusetts Appliance Efficiency Standards Act.

Jeff Bernstein stated that there are changes to Massachusetts Environmental Policy Act (MEPA) that require consideration of public health impacts for projects located near environmental justice populations and enhanced public participation requirements. He stated that the Governor will be appointing an environmental justice council.

Jeff Bernstein stated that DOER solar incentive programs must incorporate concepts of equitable access, solar access and affordability for low-income communities and effective consumer protection provisions. The

Secretary will control a grant program to provide solar energy technology to non-profits that provide food security, homeless shelter, and other similar services. Electric and gas distribution companies may also own solar energy projects in municipalities at high risk from the effects of climate change.

Jeff Bernstein stated that another significant change is that market net metering credits from solar facilities from late 2016 forward may be allocated to customers of any distribution company and are no longer limited by distribution company service territory or load zone. He stated that a new Smart Alternative on-bill credit (AOBCS) has several new options for customers who develop qualifying projects. They can receive those credits for the portion that exceeds their usage, they can designate customers in the distribution company service territory to receive the credits, or they can direct the distribution company to purchase all or just a portion of the credits.

Jeff Bernstein stated that the solar and wind property tax exemption has been greatly expanded. He stated that there are three major categories and those include an owned or leased solar, wind or solar or wind system co-located with energy storage capped at producing no more than 125 percent of the annual electric needs of the real property where it is located; a solar, wind or solar or wind system co-located with energy storage that is equal to or less than 25 kilowatts or less; a solar or wind system or energy storage system, or a combination of solar or wind with energy storage, that has entered into an agreement for payment in lieu of taxes (PILOT) with the municipality where the system is located.

Alan Strahler asked will the PILOT agreements be going away. Jeff Bernstein answered no, they are just going to be done pursuant to a different statutory and there are certain classifications of projects that are automatically exempt from property taxation that did not exist prior to this legislation.

Richard Elkin asked if there is authorization that energy conservation programs can be directed to GHG reduction initiatives. Jeff Bernstein stated that there is not really authorization as much as direction that when it comes to the Compact's programs, it now must consider GHG reductions and societal cost of GHG. Maggie Downey stated that the State is going to set a GHG reduction goal for all the PAs. She stated that all the energy efficiency measures that the Compact delivers reduce GHG. Those goals will be set by July.

Colin Odell stated that there is a societal benefit in the benefit cost ratio calculation for anything that does bring carbon reduction with it. For the measures that are carbon to carbon, there is no benefit so that increases the benefit from carbon elimination measures which should improve the benefit cost ratio.

Erik Peckar asked how the Renewable Portfolio Standards (RPS) increases relates to the contract the Compact has in place with NextEra. Austin Brandt stated that since the Compact already has a signed contract with NextEra when this takes effect, the Compact may be exempted from the increase for the rest of the contract term. Erik Peckar asked if the Compact is exempt would it still consider reaching meeting those standards anyway. Maggie Downey stated that staff needs to investigate this more. Jeff Bernstein stated there is an issue as to whether regulatory or statutory changes are at the Supplier's risk. Maggie Downey stated she will put this on a future agenda.

Richard Elkin asked if the \$12 million in workforce equity is a line item in the Compact's budget somewhere. Maggie Downey stated that the details have not been worked out yet. Richard Elkin asked since the Compact already has 100% of its energy matched with RECs, is there a nuance on how much is Class 1 and Class 2 RECs. Jeff Bernstein stated that this increase is for Class 1 RECs. Richard Elkin asked how far off is the Compact. Austin Brandt stated that the Compact's program requires the current RPS standards plus 1%. Maggie Downey stated that this will be put on a future agenda showing the Compact's compliance with the RPS.

Maggie Downey asked that when it comes to the new DPU priorities, does it mean anything regarding the order in which the priorities are listed? Specifically, is there any legislative construct that places more importance on one priority over another? Jeff Bernstein stated that the legislation does not prioritize one or another higher than the others.

Jay Grande left meeting at 2:58PM.

ENERGY EFFICIENCY:

1. Discussion Potential Vote on April Draft of MA Statewide 2022-2024 Energy Efficiency Plan, Maggie Downey and Phil Moffit

Maggie Downey started reviewing the Cape Light Compact JPE 2022-2024 Energy Efficiency Plan PowerPoint. She reviewed the Energy Efficiency Plan schedule.

Maggie Downey reviewed the key priorities of the Plan which are equity, strategic electrification, workforce development, and Compact enhancements. She stated for equity, the Compact will continue to offer 100% insulation incentives to renter and moderate-income customers, up to \$7,000 to address pre-weatherization barriers, enhanced incentives for heating systems when paired with weatherization, and Main Streets and other targeted small business enhancements for Cape & Vineyard Environmental Justice Communities.

Maggie Downey reviewed the strategic electrification for residential and commercial. For residential customers there will be a heat pump contractor network, continued workforce development and training to increase contractor comfort in recommending and installing heat pumps, targeted outreach to customers whose homes have already been weatherized, introduction of New Construction Path-to-Zero, and increased installation of heat pumps to delivered fuel customers in income-eligible programs. For commercial customers, there will be an introduction of a small commercial heat pump offering that mirrors the established Residential Sector's offering, continued workforce development and training to increase contractor comfort in recommending and installing heat pumps, increased engagement with manufacturers, distributors, and installers to better characterize the scenarios in which heat pumps are being installed and, to streamline the application process. Maggie noted that evaluation study results may impact the ability to offer substantial commercial weatherization services to commercial customers.

Maggie Downey stated that for workforce development there is going to be a Clean Energy Pathways Internship Program. Also, there will be expanded collaboration and funding to MA CEC. The Compact will review and revise, if needed, its procurement practices to increase the number of certified Minority, Women and Veteran owned businesses contracting and subcontracting with the Compact's energy efficiency program.

Maggie Downey reviewed the Cape & Vineyard Electric Offering (CVEO) program. Then she reviewed the investment in priority areas. She stated that 37% of the Compact's proposed budget is being allocated to the statewide priority areas.

Phil Moffitt continued the PowerPoint presentation. He stated that the primary reason for a decrease in the Compact's preliminary savings goals is because of the loss of lighting. Lighting upgrades have decreased over the years. As for heat pumps, it has been increasing.

Phil Moffit stated that the proposed total budget it is a bit higher than previous years and will range from \$59 to \$62 million for each year of the Plan. He stated the Compact programs are still cost effective, especially residential with the heat pumps.

Phill Moffitt reviewed the bill impacts for residential and commercial customers with and without CVEO. The impacts are higher compared to our current plan. He stated for low-income customers they are not that much higher.

Erik Peckar asked if there is funding available for older homes to increase from a 100 to a 200-amp service. Maggie Downey stated that even now if you are installing a heat pump and your electric panel needs an upgrade, it can be wrapped in as part of the funding for your upgrade to a heat pump. Briana Kane stated that it typically does not fall under a barrier and falls on the customer as part of the overall project costs. Maggie Downey asked if it would fall under the heat loan. Briana Kane stated she would have to double check.

Colin Odell stated there is going to be a need for massive distribution system upgrades required between the electrification of residential and commercial buildings heating systems and electric vehicles. He stated that you may be surprised as to a home's ability to accommodate increased electric load because a lot of the residential development in the 70's on the Cape was when people believed that electricity would be too cheap to meter so there are a lot of services that are capable of taking electric heat because the houses were designed for this and it is only recently that houses transitioned to natural gas. He stated that you may find that there is more capacity for electric heating than you think out there. Briana Kane stated that the biggest issue the Compact hears is that people need to upgrade because they have an older electric (i.e., Federal Pacific) panel. She stated that she agrees that there a lot of people do have 200-amp services and that the difference is when they expand, how much they are putting on to that as they move down a more efficient pathway.

Colin Odell moved the CLC/JPE Board of Directors vote to support the preliminary budget, associated kWh/energy savings and Cape & Vineyard Electrification Offering (CVEO) for the Cape Light Compact's 2022-2024 Energy Efficiency Plan filing with the Massachusetts Energy Efficiency Advisory Council (EEAC).

The Compact Administrator is authorized and directed to take all actions necessary or appropriate to implement this vote, and to execute and deliver all documents as may be necessary or appropriate to implement this vote. Seconded by Peter Cocolis.

David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Fred	Fenlon	Eastham	Yes
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Valerie	Bell	Harwich	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (16-0-0)

2. Continuation of Demand Response Discussion and Potential Vote on Eligible Technologies, Austin Brandt

Austin Brandt reviewed the Generator Participation in CLC Commercial ConnectedSolutions PowerPoint. He stated that the Compact offers a demand response (DR) program branded as ConnectedSolutions. The goal is to reduce ISO-NE systemwide peak demand in order to reduce capacity costs to ratepayers. The Compact offers two types of dispatch. One is a targeted dispatch and the other is daily dispatch.

Austin Brandt stated that the Compact has approximately 1.8 MW summer commercial capacity currently enrolled. Approximately 1 MW is storage, and 0.8 MW is curtailment which uses generators. He stated for this current three year plan the Compact is planning on 1.5 MW commercial curtailment.

Austin Brandt stated that the Compact's ConnectedSolutions program partners are currently aware of 3.2 MW of natural gas generation interested in participating. He stated that emissions compliance standards for generators varies by generator manufacturer date, fuel type, power, location, and emergency or non-emergency use designation and at this moment the Compact does not have this type of information on the generators in its territory. He stated that generators participating in wholesale and retail markets/programs must be permitted for non-emergency use and that if generation can participate in Compact's ConnectedSolutions program, the Compact will require verification that participating generators are permitted for non-emergency use.

Austin Brandt stated that the question is whether the Compact should allow emissions-compliant generators to participate in the Compact's commercial ConnectedSolutions programs. Some of the reasons to allow it would be to: (1) provide cost-effective demand reductions; (2) make it easier to reach DR participation goals; (3) simplifies program implementation; and (4) align with other PA participation policies. He stated reasons not to allow participation would be that because energy efficiency dollars will be used to pay customers to burn fossil fuels and will lead to higher ConnectedSolutions bill impacts.

Austin Brandt then reviewed the five policy options: (1) continue disallowance of generation in CLC DR programs; (2) allow participation in Targeted Dispatch only; (3) allow only certain types of generators; (4) combination of Options 2 & 3; and (5) no limitation on generation participation.

Richard Elkin asked how much money will be saved in lowering peak demand as opposed to how much the Compact would spend on implementing this program say under option 5. Austin Brandt stated in pure dollar sense, he does not have the answer. He stated that is what the cost-effective assessment does. It takes the KW delivered through the programs and runs it though the BCR model. He stated that these curtailment programs are robustly cost effective.

Alan Strahler stated that he brought this conversation up with Edgartown Energy Committee and they believe that the Compact should only accept battery power and renewable sources and not fossil fueled generators. He stated therefore he chooses option one. Sue Hraby stated that West Tisbury did not go as far as Edgartown; however, they did discuss it and agree that the Compact should not be encouraging fossil fuels. She stated especially considering the new state legislation, from a policy point of view she believes it does not make sense.

Colin Odell stated that allowing fossil fuel generators may equitably distribute the impact of fossil fuel burning because natural gas is the marginal fuel source for ISO New England. He stated that in a curtailment event, you are changing where you burn a fossil fuel (natural gas) to reduce the impact of load on the distributions and transmissions systems. He stated that the result may be that it is an overall reduction in fossil fuels because you reduce line losses.

David Anthony asked if the Compact limits participation, what is the impact on the Compact's participation goals and what is the practical fall out. Austin Brandt stated that when the Compact does its reporting to the DPU, they look at what was budgeted for and what was spent. He stated that either way for the three year plan the Compact is not going to hit those goals. If goals are not achieved, there will need to be an explanation sent to the DPU.

Alan Strahler moved the CLCJPE Board of Directors vote to continue not to allow fossil fuel generators to participate in the Compact's ConnectedSolutions offering until such a time that the Board decides to revisit the issue. Seconded by Sue Hruby.

David	Anthony	Barnstable	No
Robert	Schofield	Bourne	No
Colin	Odell	Brewster	No
Peter	Cocolis	Chatham	No
Fred	Fenlon	Eastham	No
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Valerie	Bell	Harwich	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Abstained
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	No
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (9-6-1)

3. Marketing Update: Compact Website and Quarterly Letters to Member Towns, Dan Schell

Dan Schell reviewed the Cape Light Compact Marketing Update PowerPoint. He stated that the Compact has a comprehensive marketing program. He stated that many of the programs such as residential retail, small business program, etc. have statewide marketing vendors as well as Compact specific marketing vendors. At the statewide level there is strategic marketing plan which create materials, digital marketing, paid search marketing and more. He stated today he will be going over Compact specific marketing.

Dan Schell reviewed the marketing focus for 2021. He stated there is an increased focus on Renters and Income Eligible (IE) customers. Also, there is an increase in marketing to commercial customers. He stated that marketing will begin to transition residential customers away from lighting and emphasize weatherization and heat pumps.

Dan Schell reviewed the 2021 organic marketing which contains e-newsletters, social media, and blog posts. He also reviewed 2021 marketing tactics which include radio, print, digital and video. He stated that radio is one of our higher-level awareness advertising, so the focus is on home energy assessment for homes and businesses, as well as power supply.

Dan Schell reviewed the 2021 Programmatic slide. He stated there will be a direct mailer to enroll the most at risk with ConnectedSolutions, as well as for the Main Streets initiative. The Compact is planning on scheduling dehumidifier turn-in events again this year. He stated as the Compact's programs are changing, setting up community outreach to HVAC contractors, senior centers, and other organizations.

Dan Schell stated that the Compact is looking to bring in a specialist to make sure the Compact's website is compliant with the Americans with Disabilities Act (ADA). Also, a user experience audit will be forthcoming which will examine whether the Compact's website is easy to use. He stated that it will be nice to have a fresh pair of eyes reviewing the website and that it is important because of how much the Compact drives customers to the website. Lastly, he stated there will be a survey sent via direct mail seeing how much customers understand the Compact.

Dan Schell stated that the Compact is looking to revise the quarterly report that is sent to the Towns to make it clearer and easier to read. He stated that it could be used by the Board for presenting to Select Boards during public comment and that staff will also provide other relevant program updates.

Erik Peckar asked if there will be a questionnaire in the survey related to the Local Green program and seeing if people are interested in participating.

Sue Hruby stated she is very happy that the quarterly report is being revised. She stated that the West Tisbury energy committee also looks at the reports and that it is a particular interest because we are working on how to energize the residents to start strategic electrification. Having the information on the number of households involved is helpful.

Colin Odell stated that he is happy to see the changes as well, but that it is missing carbon avoidance in some manner because virtually every town on the Cape has passed some type of climate emergency initiative and carbon reduction is a big part of that. He stated it would be good to see how the Compact's efforts are doing on carbon reduction.

ADMINISTRATOR'S REPORT:

1. Any Questions on Monthly Operating and Energy Efficiency Budgets. May Presentation by Comptroller.

Maggie Downey asked if there were any questions on the budget reports in the Board Packet. There were none.

Maggie Downey stated Megan Terrio will be doing a presentation on the Compact's quarterly revenue expenditures and fund balances at the May Board Meeting.

2. Staffing Update

Maggie Downey stated that Austin Brandt will be leaving the Compact to attend a three-year full-time graduate program. She stated that the Compact is advertising for a new Power Supply Planner. She stated that Dan Schell will moving up to a Senior Analyst position and taking on demand response tasks and will no longer be working on marketing. The Compact is working with some existing staff members who have a background in marketing. She then turned it over to Austin Brandt.

Austin Brandt stated that he moved here from North Carolina in 2013 to do an AmeriCorps program and did not expect to still be here this many years later. He stated that it has been a privilege to work for the Compact,

Maggie and under the direction of the Board. He stated that he has learned a lot from everyone and will consider himself lucky if for the rest of his career he can continue working with organizations whose goals he believes in like the Compact's.

Martin Culik thanked him on behalf of the Board for all his efforts and stated that he has been a great asset to the Compact.

3. Office Space RFP

Maggie Downey stated that the Compact's lease is up at the end of the calendar year. The Compact is required to go out to bid again. She stated that she is going to put out another RFP next month. Martin Culik asked if she would need help to review the RFP. She asked if David Anthony and Colin Odell will help again. Both agreed to assist in the RFP process.

Richard Toole left meeting at 4:35PM.

Open Session Vote on entry into Executive Session pursuant to M.G.L. c. 30A §§21(a)(3) and (10) to discuss matters below, to return to open session:

Martin Culik at 4:36 PM moved to enter into Executive Session pursuant to M.G.L. c. 30A §21(a)(3) and (10) to (1) review and approve executive session minutes which contain discussions regarding pending or imminent regulatory litigation and trade secrets and confidential, competitively-sensitive or other proprietary power supply information related to a proposed Low-Income Community Solar project (when the release of the discussion would have a detrimental effect on the Compact's negotiating position); and (2) to discuss pending or imminent regulatory litigation and trade secrets and confidential, competitively-sensitive or other proprietary power supply information related to a proposed Low-Income Community Solar project, not to return to open session thereafter. Seconded by Robert Schofield.

David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Erik	Peckar	Dukes County	Yes
Fred	Fenlon	Eastham	Yes
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Valerie	Bell	Harwich	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (16-0-0)

ADJOURNMENT:

Motion to adjourn made at 4:45 PM moved by Robert Schofield, seconded by Colin Odell.

David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Erik	Peckar	Dukes County	Yes
Fred	Fenlon	Eastham	Yes
Alan	Strahler	Edgartown	Yes
Ron	Zweig	Falmouth	Yes
Valerie	Bell	Harwich	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (16-0-0)

Respectfully submitted,

Melissa Allard

LIST OF DOCUMENTS AND EXHIBITS:

- Meeting Notice/Agenda
- March 10, 2021 Draft Meeting Minutes
- Highlights of an Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy PowerPoint
- Cape Light Compact JPE 2022-2024 Energy Efficiency Plan PowerPoint
- Generator Participation in CLC Commercial Connected Solutions PowerPoint
- Cape Light Compact Marketing Update PowerPoint

Cape Light Compact JPE 2022-2024 Energy Efficiency Plan

April 21, 2021

**Cape Light
Compact**



Working Together Toward A Smarter Energy Future

2022-2024 EEP Schedule



- March 10 Discuss Plan Priorities
- April 21 Compact Board votes on First Draft of Proposed 2022-2024 Energy Efficiency Plan (EEP)
- April 30th Compact and Utility Program Administrators presents draft EEP to the state Energy Efficiency Advisory Council
- May – September Compact staff continue to refine EEP
- September - Compact Board finalizes proposed 2022-2024 EEP Program and Budgets
- October 29, 2021 – Compact files EEP with the Department of Public Utilities

2022-2024 Energy Efficiency Plan Key Priorities

Equity

- Targeting Moderate Income (61%-80% of State Median Income)
- Increasing Participation for Customers with Limited English Proficiency

Strategic Electrification

- Focus on Delivered Fuels and Greenhouse Gas Reductions
- Cold Climate Heat Pump Goals for residential and commercial sectors

Workforce Development

- Clean Energy Pathways - Administered by Community Based Organization (CBO)
- Paid internship program – Pairs participants with local vendors
- One program in Compact service territory: Focus on HVAC or Insulation

Cape Light Compact Enhancements

- Cape and Vineyard Electrification (CVEO)



Equity



- 100% insulation incentives to our renter and moderate-income customers
- Up to \$7,000 to address pre-weatherization barriers (i.e., knob and tube, vermiculite)
- Enhanced incentives for heating systems when paired with weatherization (if needed)
 - 80% of installed costs for Heat Pumps when displacing oil, propane or electric resistance heating systems
 - 70% of installed costs for replacing non-condensing to condensing natural gas and propane heating systems
- Main Streets and other targeted small business enhancements for Cape & Vineyard Environmental Justice Communities

Strategic Electrification: Residential



- Introduction of a heat pump contractor network.
- Continued workforce development and training to increase contractor comfort in recommending and installing heat pumps.
- Targeted outreach to customers whose homes have already been weatherized.
- Introduction of New Construction Path-to-Zero.
- Increased installation of heat pumps to delivered fuel customers in income-eligible programs.

Strategic Electrification: C&I



- Introduction of a small commercial heat pump offering that mirrors the established Residential Sector's offering.
- Continued workforce development and training to increase contractor comfort in recommending and installing heat pumps.
- Increased engagement with manufacturers, distributors, and installers to better characterize the scenarios in which heat pumps are being installed and to streamline the application process.
- Evaluation results may impact the ability to offer substantial commercial weatherization services to a broader audience.
- Increased technical assistance and financial support for customers constructing new buildings minimizing overall energy consumption.

Workforce Development



- Clean Energy Pathways Internship Program
 - Targets 18–24-year-olds from backgrounds underrepresented in the energy efficiency workforce: multilingual, people of color, women.
 - Provides paid training and placement with an existing energy efficiency business
 - Offers a new path for full employment in the energy efficiency workforce
- Expand Collaboration and Funding to MA Clean Energy Center (CEC): \$12M
- Review and revise procurement practices to increase the number of certified Minority, Women and Veteran owned businesses contracting and subcontracting in energy efficiency program

Cape & Vineyard Electrification



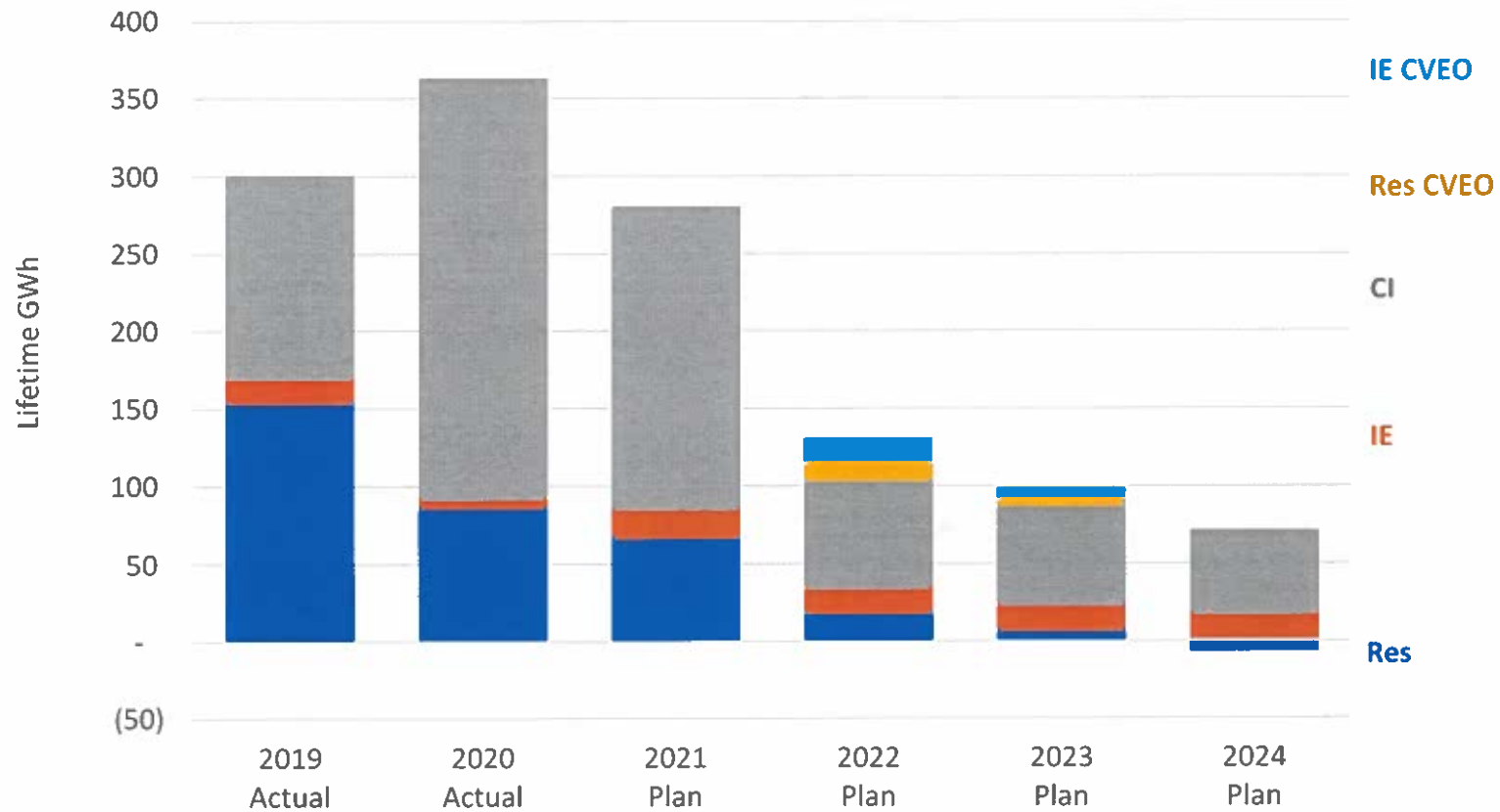
- Objectives
 - **250** total non-gas heated participants, tiered services by income: Low-income (up to 60%), moderate income (61-80%)
 - **Enhanced incentives for all three measures for customers below 81% of SMI**
 - Convert oil, propane, electric resistance heat to cold climate heat pumps
 - Install PV systems to support electrification of heating system and reduce GHG emissions
 - Install battery storage for demand response
- Addresses the upfront cost barriers

Investment in Priority Areas

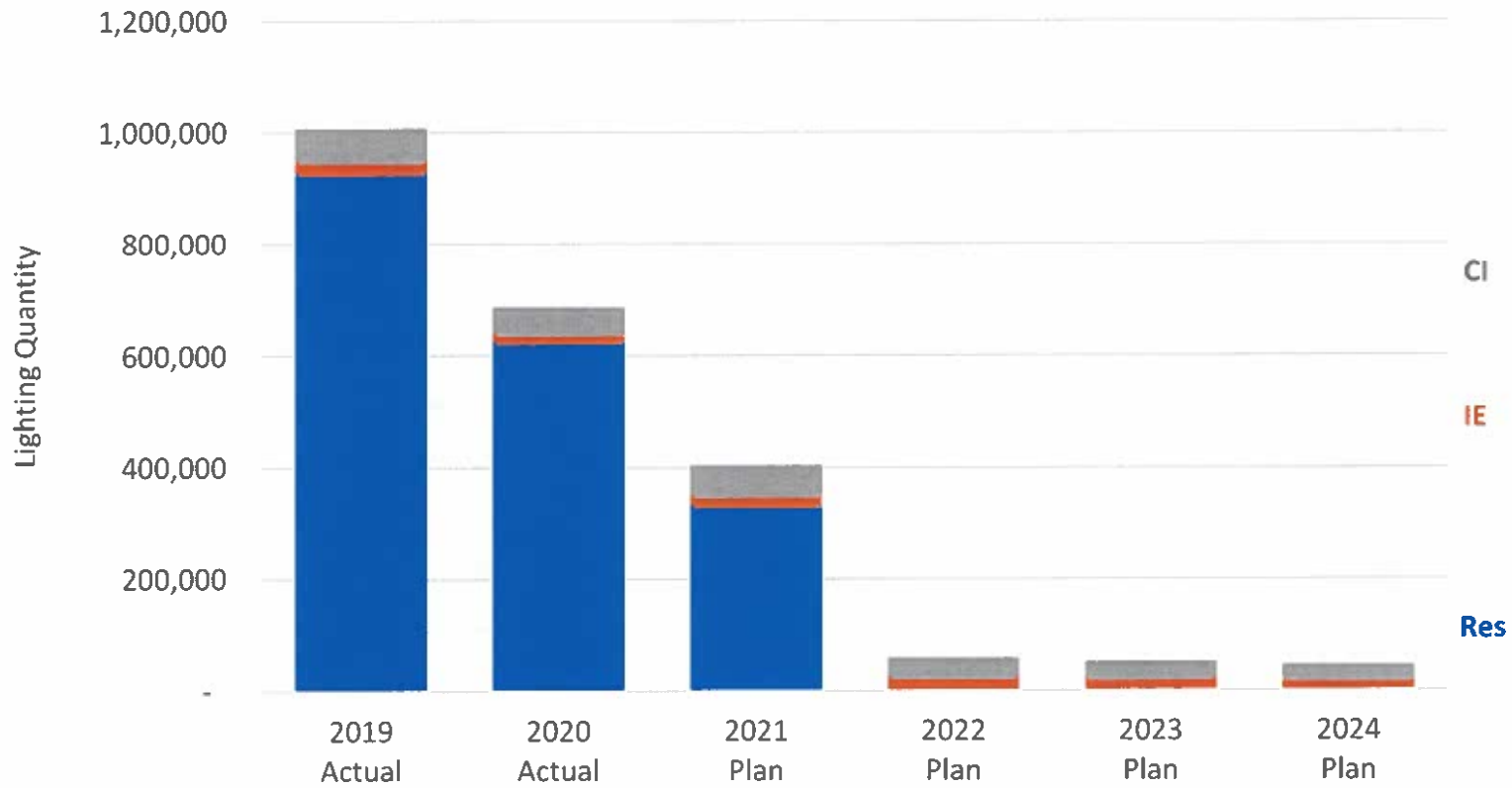


Priority Area (\$M)	2022	2023	2024	2022-24	% Total 2022-24
Equity	\$6.2M	\$6.7M	\$7.4M	\$20.3M	11%
Strategic Electrification	\$9.5M	\$10.9M	\$12.2M	\$32.6M	18%
Workforce Development	\$0.9M	\$1.0M	\$0.9M	\$2.8M	2%
CVEO	\$6.8M	\$4.2M	\$0.5M	\$11.5M	6%
Total	\$23.5M	\$22.7M	\$21.0M	\$67.2M	37%

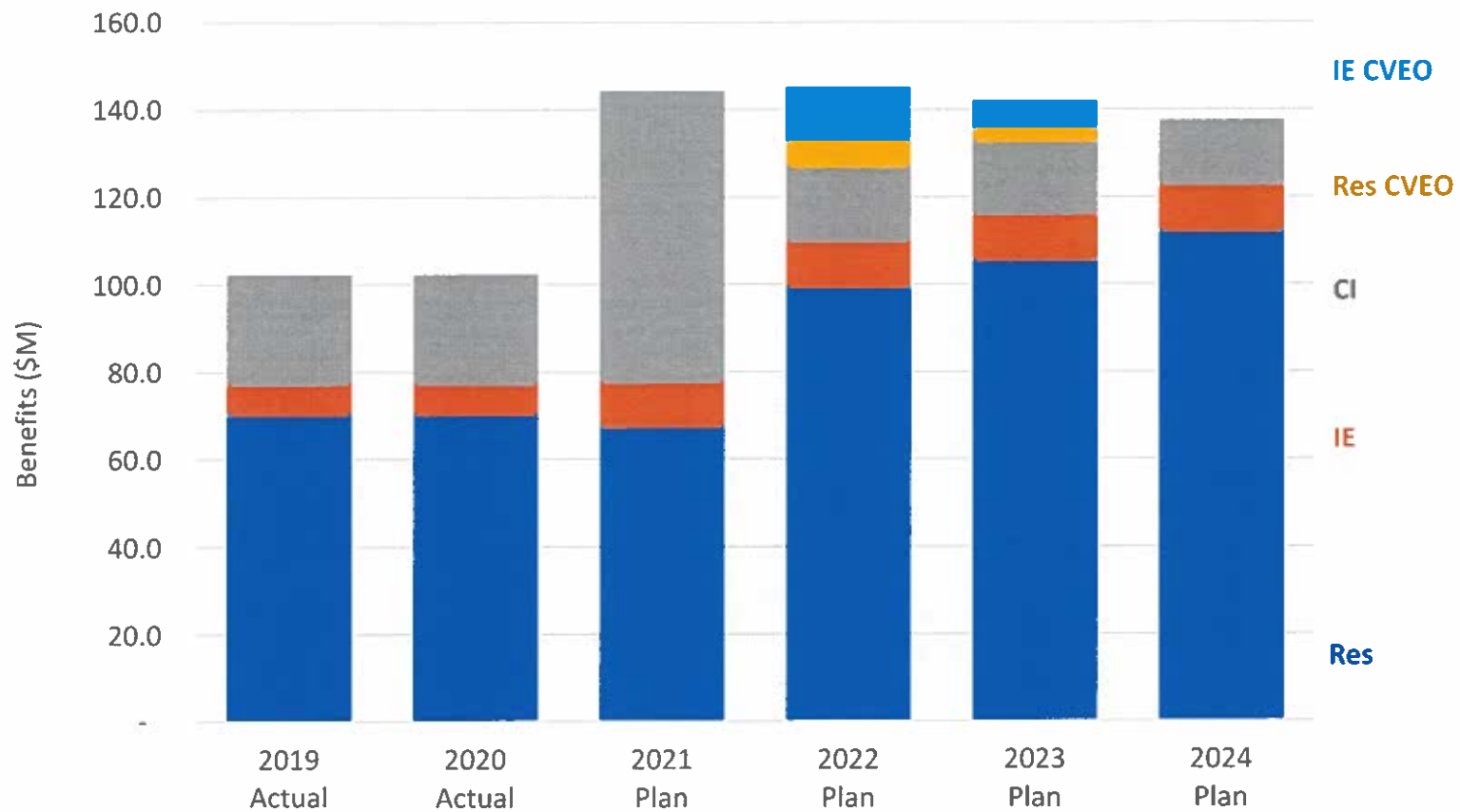
Preliminary Savings Goals - GWh



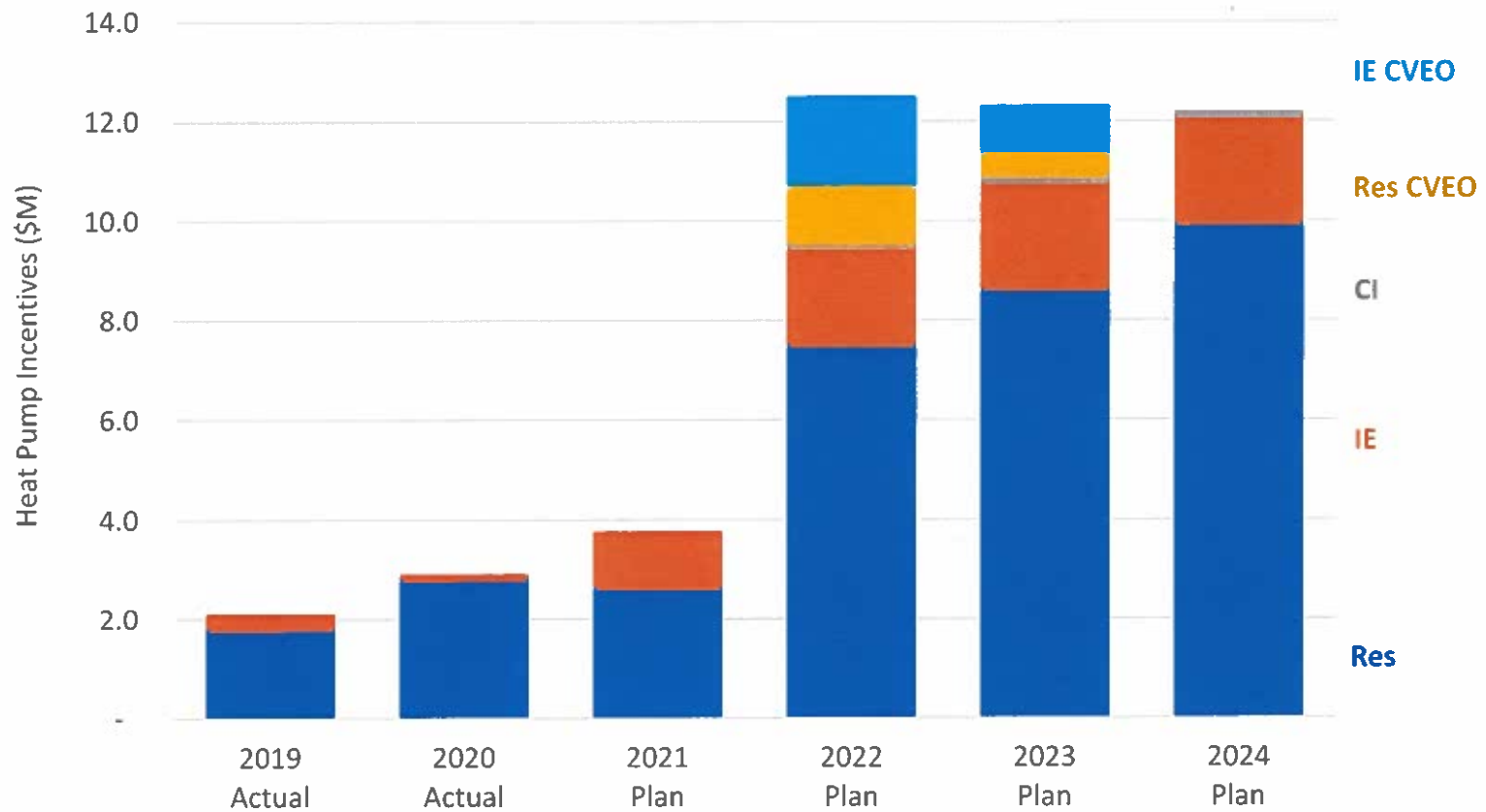
Lighting



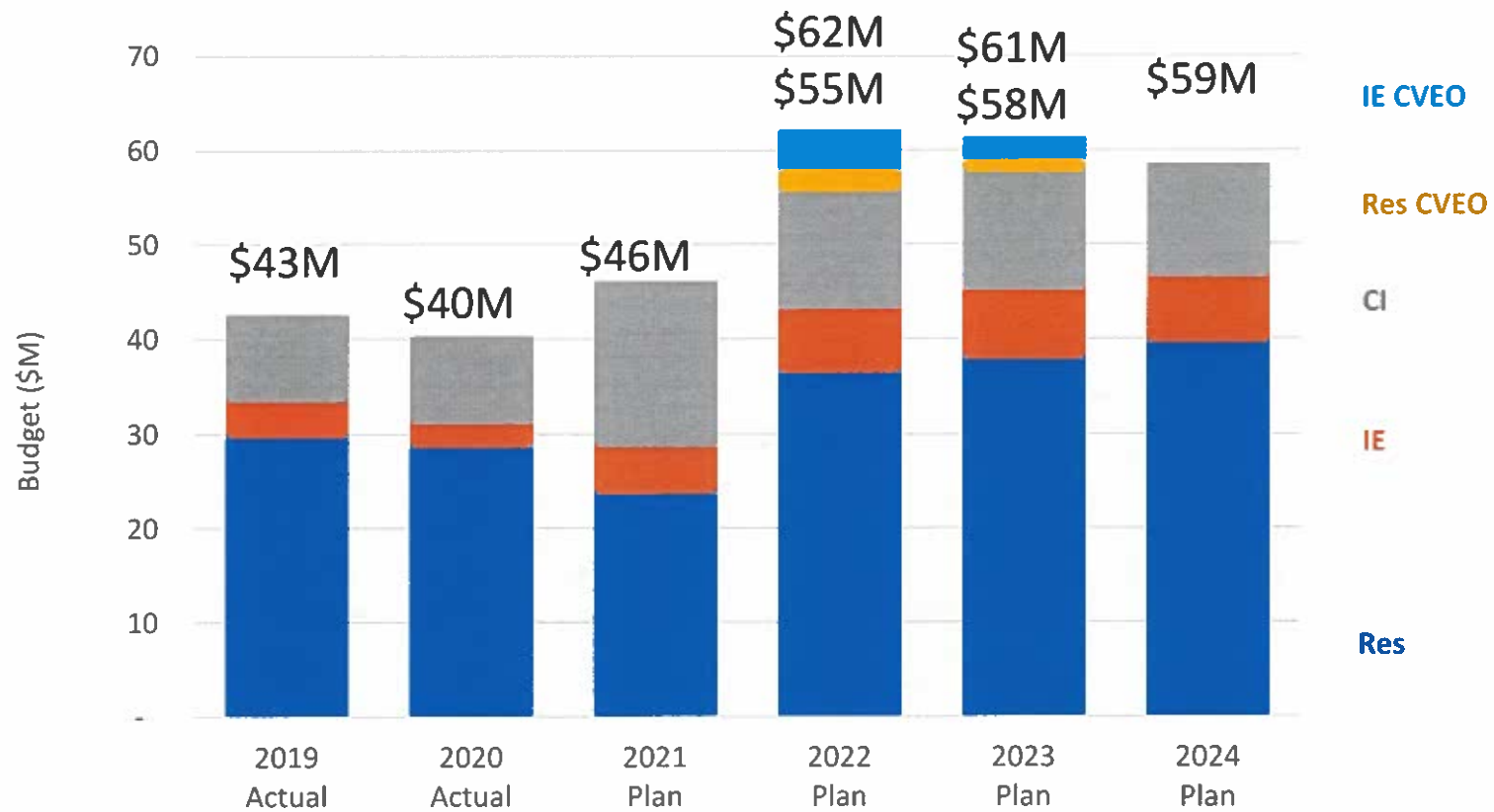
Preliminary Savings Goals - Benefits



Heat Pumps



Proposed Budget



Benefit / Cost Ratio



Benefit-Cost Ratio						
Sector	2019 Actual	2020 Actual	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Without CVEO						
Res	1.9	1.8	2.3	2.3	2.4	2.4
IE	1.8	1.5	2.1	1.6	1.5	1.5
C&I	2.5	3.8	3.7	1.3	1.3	1.2
Total	2.0	2.2	2.8	2.1	2.1	2.1
With CVEO						
Res				2.3	2.4	2.4
IE				1.9	1.7	1.5
C&I				1.3	1.3	1.2
Total				2.1	2.1	2.1

Cost per kWh



\$/Lifetime kWh						
Sector	2019 Actual	2020 Actual	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Without CVEO						
Res	0.19	0.34	0.36	2.10	6.54	(5.82)
IE	0.25	0.43	0.28	0.42	0.44	0.42
C&I	0.07	0.03	0.09	0.18	0.20	0.22
Total	0.14	0.11	0.16	0.54	0.67	0.90
With CVEO						
Res				1.29	3.38	(5.84)
IE				0.35	0.41	0.44
C&I				0.18	0.20	0.22
Total				0.48	0.62	0.91

Cost per MMBTU



\$/Lifetime MMBTU						
Sector	2019 Actual	2020 Actual	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Without CVEO						
Res	12	14	12	15	15	15
IE	23	32	31	32	35	33
C&I	11	3	32	23	24	26
Total	13	7	17	17	18	18
With CVEO						
Res				15	15	15
IE				26	31	35
C&I				23	24	26
Total				18	18	18



Bill Impacts - Residential

Residential (R-1) - Without CVEO

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)
2019	\$0.02028	+	\$0.00250	x	516	=	\$11.75
2020	\$0.02162	+		x		=	\$12.45
2021	\$0.02579	+		x		=	\$14.60
2022	\$0.03179	+		x		=	\$17.69
2023	\$0.03555	+		x		=	\$19.63
2024	\$0.03761	+		x		=	\$20.70

Residential (R-1) - With CVEO

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)
2019	\$0.02028	+	\$0.00250	x	516	=	\$11.75
2020	\$0.02162	+		x		=	\$12.45
2021	\$0.02579	+		x		=	\$14.60
2022	\$0.03588	+		x		=	\$19.80
2023	\$0.03793	+		x		=	\$20.86
2024	\$0.03792	+		x		=	\$20.86



Bill Impacts – Income Eligible

Low Income (R-2) - Without CVEO

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)
2019	\$0.00005	+	\$0.00250	x	488	=	\$1.24
2020	\$0.00167	+		x		=	\$2.03
2021	\$0.00148	+		x		=	\$1.94
2022	\$0.00253	+		x		=	\$2.45
2023	\$0.00292	+		x		=	\$2.64
2024	\$0.00280	+		x		=	\$2.59

Low Income (R-2) - With CVEO

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)
2019	\$0.00005	+	\$0.00250	x	488	=	\$1.24
2020	\$0.00167	+		x		=	\$2.03
2021	\$0.00148	+		x		=	\$1.94
2022	\$0.00419	+		x		=	\$3.26
2023	\$0.00389	+		x		=	\$3.12
2024	\$0.00292	+		x		=	\$2.64



Bill Impacts – C&I

C&I Small General Service (G-1) - Without CVEO

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)		Avg. Monthly Usage (kWh)		Total Cost (per month)
2019	\$0.00214	+	\$0.00250	x	400	=	\$1.86		10,800	=	\$50.11
2020	\$0.01210	+		x		=	\$5.84			=	\$157.68
2021	\$0.01085	+		x		=	\$5.34			=	\$144.18
2022	\$0.01533	+		x		=	\$7.13			=	\$192.56
2023	\$0.01751	+		x		=	\$8.00			=	\$216.11
2024	\$0.01756	+		x		=	\$8.02			=	\$216.65

C&I Small General Service (G-1) - With CVEO

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)		Avg. Monthly Usage (kWh)		Total Cost (per month)
2019	\$0.00214	+	\$0.00250	x	400	=	\$1.86		10,800	=	\$50.11
2020	\$0.01210	+		x		=	\$5.84			=	\$157.68
2021	\$0.01085	+		x		=	\$5.34			=	\$144.18
2022	\$0.01828	+		x		=	\$8.31			=	\$224.42
2023	\$0.01919	+		x		=	\$8.68			=	\$234.25
2024	\$0.01778	+		x		=	\$8.11			=	\$219.02

**Cape Light Compact JPE
Governing Board
Meeting Minutes
Wednesday, September 29, 2021**

Pursuant to Massachusetts Governor Charles D. Baker's Order Suspending Certain Provisions of the Open Meeting Law on March 12, 2020, the Cape Light Compact JPE Board of Directors met on Wednesday, September 29, 2021 at 2 p.m. The meeting was held through a Zoom videoconference for members of the Board with audio call-in available for members of the public.

Participating Remotely Were:

1. David Anthony, Secretary/Executive Committee, Barnstable
2. Robert Schofield, Executive Committee, Bourne
3. Francis Erdman, Bourne Alternate
4. Colin Odell, Executive Committee, Brewster
5. Peter Cocolis, Chatham
6. Timothy Carroll, Executive Committee, Chilmark
7. Erik Peckar, Dukes County
8. Fred Fenlon, Eastham
9. Alan Strahler, Edgartown
10. Matthew Patrick, Falmouth
11. Wayne Taylor, Mashpee
12. Richard Toole, Executive Committee, Oak Bluffs
13. Martin Culik, Chair/Executive Committee, Orleans
14. Nathaniel Mayo, Provincetown
15. Leanne Drake, Sandwich
16. Jay Grande, Tisbury Alternate
17. Bob Higgins-Steele, Truro Alternate
18. Richard Elkin, Executive Committee, Wellfleet
19. Sue Hruby, West Tisbury
20. Joyce Flynn, Vice Chair/Executive Committee, Yarmouth
21. Mike Duffy, Yarmouth Alternate

Absent Were:

1. Forest Filler, Aquinnah
2. Brad Crowell, Dennis
3. Valerie Bell, Harwich
4. Wayne Taylor, Mashpee
5. Kirk Metell, Tisbury
6. Jarrod Cabral, Truro

Legal Counsel Participating Remotely:

Jeffrey Bernstein, Esq., BCK Law, P.C.

Staff Participating Remotely:

Briana Kane, Residential Program Manager
Maggie Downey, Administrator

Margaret Song, Commercial & Industrial Program Manager
Melissa Allard, Senior Administrative Coordinator
Phil Moffitt, Planning & Evaluation Manager

Public Participants:

None.

Martin Culik called the meeting to order at 2:03 PM.

PUBLIC COMMENT:

There were no members of the public present, and no public comments were submitted to the Board in writing under the public comment guidelines.

CHAIR REPORT:

1. Introduce Matthew Patrick, new Town of Falmouth Board Member

Martin Culik introduced the new Falmouth Board Member, Matt Patrick, and asked him to introduce himself.

Matt Patrick stated that he is a former Massachusetts state legislator. He worked on the Green Communities Act and is responsible for the virtual net metering section that allows independent power producers to build a photovoltaic system to provide people with power. He also helped get the energy efficiency standards legislation passed. He stated that as the Executive Director of Cape and Islands Self Reliance he wrote the 1994 Barnstable County Energy Management Plan with his staff.

2. In Person Board Meetings

Martin Culik stated that he talked to Maggie Downey about resuming in person meetings in December 2021 or January 2022. He stated that they will keep the Board posted.

3. Senate Bill 2132

Martin Culik stated that the Compact sent a letter to Senator Barrett regarding Senate Bill 21-32. He stated it is an act to institute a new governance structure for Mass Save which is essentially to create a board of directors for Mass Save. This would impact the Compact Governing Board because there would be duplication of efforts by adding this new layer of governance of the Mass Save energy efficiency programs. Martin stated that the letter is asking Senator Barrett and other members of the Joint Committee on Telecommunications and Energy to carefully consider this proposed legislation and noted that the Compact does have its own Board of Directors. He stated that he will keep the Board updated on this.

ADMINISTRATOR'S REPORT:

1. Discuss and Potential Vote to appoint Mariel Marchand to represent Cape Light Compact on Cape & Vineyard Electric Cooperative (CVEC) Board

Maggie Downey stated that she is looking for approval from the Board to appoint Mariel Marchand to represent the Compact on the CVEC Board.

Tim Carroll moved the Board vote to approve Mariel Marchand as the Cape light Compact's representative on CVEC.

The Compact Administrator is authorized and directed to take all actions necessary or appropriate to implement this vote, and to execute and deliver all documents as may be necessary or appropriate to implement this vote. Seconded by Bob Schofield.

David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Tim	Carroll	Chilmark	Yes
Fred	Fenlon	Eastham	Yes
Alan	Strahler	Edgartown	Yes
Matt	Patrick	Falmouth	Yes
Wayne	Taylor	Mashpee	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
Jay	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (17-0-0)

2. Discuss and Potential Vote on Vacation Buy-Back Proposal for Compact Staff

Maggie Downey stated she is asking the Board to waive the policy and allow staff to participate in the buy-back program of their accrued vacation time. She stated there are approximately seven staff members interested with about a \$43,400 impact.

David Anthony moved under the unique circumstances existing of this date the CLC/JPE Board of Directors vote to waive section 8.3(l) of the CLC/JPE Policies and Procedures Manual and allow all Compact employees to buy-back up to 10 days of their existing accrued vacation days, on, or before October 31, 2021.

The Compact Administrator is authorized and directed to take all actions necessary or appropriate to implement this vote, and to execute and deliver all documents as may be necessary or appropriate to implement this vote. Seconded by Bob Schofield.

David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes

Tim	Carroll	Chilmark	Yes
Fred	Fenlon	Eastham	Yes
Alan	Strahler	Edgartown	Yes
Matt	Patrick	Falmouth	Yes
Wayne	Taylor	Mashpee	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
Jay	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (17-0-0)

3. Review, Discuss and Potential Vote Regarding Eversource’s Phase II Electric Vehicle Infrastructure Program and Electric Vehicle Demand Charge Alternative Proposal, DPU 21-90, Using the Compact’s Consumer Advocacy Worksheet

Maggie Downey stated that she is using the Compact’s Consumer Advocacy Worksheet to affirm the Compact’s participation in the latest Department of Public Utilities (DPU) docket DPU 21-90. She stated it is Eversource’s phase two of its electric vehicle infrastructure plan. She stated there are two main issues of interest: (1) the Compact wants to make sure that Eversource’s efforts are coordinated with the municipalities; and (2) that Eversource’s electric vehicle infrastructure plan is consistent and coordinates with the Compact’s energy efficiency programs.

Joyce Flynn moved the CLC/JPE Board of Directors vote to adopt a process to allocate consumer advocacy costs between the Compact 's energy efficiency and operating budgets for DPU 21-90 as follows:

- 1. After identifying a regulatory matter, rulemaking proceeding, legislative action or other activity relating to or affecting the Compact 's administration of its energy efficiency plan or its provision of power supply (taken together, "Consumer Advocacy Matter"), the Compact Administrator will provide the Board with pertinent information regarding the Consumer Advocacy Matter and present a completed consumer advocacy worksheet (as attached) for the Board's consideration and review.*
- 2. The Board will thereafter vote to authorize and direct the Compact Administrator to take all actions deemed necessary or appropriate to implement the Compact 's participation in the Consumer Advocacy Matter (subject to any limitations imposed by the Board), and to execute and deliver all documents as may be necessary or appropriate to enable and effectuate such participation.*

Seconded by Bob Schofield.

David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes

Tim	Carroll	Chilmark	Yes
Fred	Fenlon	Eastham	Yes
Alan	Strahler	Edgartown	Yes
Matt	Patrick	Falmouth	Yes
Wayne	Taylor	Mashpee	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Yes
Leanne	Drake	Sandwich	Yes
Jay	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (17-0-0)

4. Update on “Energize the Cape & Vineyard” Proposal

Maggie Downey stated that the “Energize the Cape & Vineyard” effort will not be asking the Board for a \$50,000 commitment in the 2022 calendar year. She stated that the effort has been tabled for now. An agreement could not be reached on how to operate the large organization and structures. She stated that this will impact some of the towns because they applied for funds through Department of Energy Resources (DOER) REPA Grant. She stated that there was a conversation with DOER regarding whether the funds could be used by the Towns for another purpose and DOER did not support this request and the funds will have to be excluded as part of the final REPA grant contract award.

Alan Strahler asked if this effort is just on hold and will be resumed when an agreement is made and the Compact’s role is determined. Maggie Downey stated that she does not know if it will come back as a singular entity. She thinks it may come back in smaller segments by groups of towns.

Sue Hruby joined the meeting at 2:24 PM.

REVIEW AND DISCUSS CAPE LIGHT COMPACT’S DRAFT 2022-2024 ENERGY EFFICIENCY PLAN: PROPOSED GREENHOUSE GAS (GHG) REDUCTION GOALS, BUDGET, ELECTRIFICATION GOALS AND PROPOSED ENHANCEMENTS TO STATEWIDE INCENTIVES

Maggie Downey presented the Cape Light Compact JPE 2022-2024 Energy Efficiency Plan PowerPoint.

Maggie Downey stated that after the April draft plan was filed, the legislature passed the Climate Act Creating a Next-Generation Roadmap for Massachusetts climate policy. The new act requires the Compact to set Greenhouse Gas (GHG) emission reduction goals. She stated that it has fundamentally changed the role of the Compact and the role of the Massachusetts Energy Efficiency Plan (EEP). She stated that the Compact is no longer charged with just reducing kilowatt hours. It now has a specific goal to reduce GHG using the energy efficiency programs to address climate change in the Commonwealth. She stated that the Clean Energy Climate Plan determined what was set for the GHG goals. It requires electrification of 1 million homes by 2050 and electrification of 300 to 400 million square feet of commercial building space by 2050. She stated that these

goals were set through Mass Save under the EEPs with no additional funding resources. Therefore, the Compact is forced to use its energy efficiency surcharge to achieve these goals.

Maggie Downey stated that the Compact also must incorporate the Energy Efficiency Action Council priorities into our plans which are GHG emissions reductions, electrification, equity, and workforce development. She stated that there are also Compact Board priorities to consider which are to achieve GHG reductions goals, continue commercial enhanced incentives, the Cape and Vineyard Electrification Offering (CVEO), and enhanced incentives for income eligible/moderate income new construction projects.

Maggie Downey reviewed the Climate Plan GHG reduction goals. The Compact's allocation of the statewide reduction goals for 2030 is 24,406 metric tons for the next three-year plan. She stated that the numbers presented in the Compact's September 15th Draft EEP exceed the allocated GHG reduction goal. The draft EEP reflects a reduction of 34,186 metric tons of GHG, which means the Compact would be exceeding its GHG reduction allocation by 140%. She stated that the other goal for the Climate Plan is electrification. The Compact's draft EEP includes moving 4,483 residents from oil and propane to electric heat.

Maggie Downey reviewed the EEAC and key priorities that were touched on at the July Board Meeting. For equity the Compact is targeting moderate income and increasing participation for customers with limited English proficiency. For strategic electrification it is to focus on delivered fuels (oil and propane) and GHG reductions and cold climate heat pump goals for residential and commercial sectors. For workforce development the Program Administrators (PAs) have developed Clean Energy Pathways which focus on high schoolers and over 18 years old individuals to train and pair with an internship. This would help encourage them to join the energy efficiency network.

Briana Kane reviewed the Compact Board priorities. Currently for the commercial and industrial program there are 100% incentives for municipalities, small non-profits, small businesses. The Department of Public Utilities (DPU) directed the Compact to conduct an evaluation to define specific enhancements. She stated that the Compact is still waiting on the results of this evaluation.

Briana Kane reviewed the proposed Residential Program enhancements for multi-family new construction projects, which was developed based on the feedback from stakeholders such as Board Members, towns, and independent contractors. These stakeholders are looking for enhanced incentives for income eligible/moderate income new construction projects. She stated that because the Compact is offering more incentives for these projects that there need to be certain criteria in place. Briana reviewed the proposed criteria for this new program: (1) The projects need to be deed restricted; (2) have no installation of fossil fuel or electric baseboard heating systems (3) they must agree to work with Compact evaluation vendors' (4) they must have a cap on the incentive for the engineering study; and (5) the contractor must be certified for multi-family new construction projects. She reviewed the criteria of CVEO to convert oil, propane, electric resistance heat to cold climate heat pumps, install PV systems to support electrification of heating system and reduce GHG emissions, and install battery storage for demand response.

Briana Kane reviewed the investment in Board priority areas for each year of the next three-year plan and then the total. She stated that the total over three years for these enhancements is \$58.65 million dollars in the current draft plan. She reviewed the proposed budget slide and presented the total budget for each year.

Margaret Song continued by reviewing the PowerPoint starting at the scenario analysis slide. She stated that the staff is looking for direction from the Board because there are multiple stakeholder interests and priorities at play. She stated that staff likes all these enhancements and statewide goals but as mentioned before, the

Compact is exceeding what is required for GHG reduction goals and achieving all of the priorities discussed will increase customers' electric bills. She included slides that show GHG reductions and bill impacts for the residential, income eligible, and commercial and industrial programs based on certain scenarios. Those scenarios are the Compact's September 15th draft plan as presented; eliminate the Behavior Initiative (Opower) and Residential New Construction Enhanced Incentives, eliminate the Opower and reduce heat pumps to a 20% goal, eliminate Opower and reduce heat pumps to 40%, and eliminate Opower and reduce heat pumps to 60%.

Margaret Song stated that while the plan as presented achieves all goals, the bill impacts are significant for residential customers. She stated that the staff does not recommend any changes in the commercial programs as there are no new enhancements. As for residential, staff is recommending the scenario where behavior program is removed, and residential heat pumps are reduced by 20%.

Colin Odell stated that with respect to the bill impacts he does not find the average monthly usage accurate. He stated he has looked at his own usage over the past year and his lowest monthly usage is around 750 kWh. Margaret Song stated that the number is the average usage from all the customers, which includes seasonal customers. Therefore, it may accurately portray consumption of an average year-round home. Margaret noted that this methodology is what is required by the DPU for calculating customer bill impacts.

Alan Strahler stated while looking at the bill impacts for residential for the scenario where the behavior program is removed and residential heat pumps are reduced by 20%, there is not a huge difference in total monthly cost (monthly bill impact) over the three years. He then asked about an option where the Compact removes Opower and does not reduce the heat pumps and whether the Board could see the total cost monthly for that as well. Briana Kane stated that when staff was looking at bill impacts, she recommended removing Opower because it has not been cost effective and the program has a high cost. She stated that there would be about a sixty cents reduction on the average monthly bill from the September 15th plan if Opower is removed.

Matt Patrick looked for clarification whether we were talking about the energy efficiency surcharge line on the electric bill and asked whether all electric customers pay this charge regardless of who their competitive suppliers is. Maggie Downey stated that was correct. Matt Patrick asked if that money goes to the Compact's programs. Maggie Downey stated that was correct as well.

Erik Peckar stated going back to Colin Odell's question on the average monthly usage if the Compact has looked at the potential growth of that amount based upon energy efficiency programs like installing heat pumps and strategic electrification. He asked if the Compact expects that number to go up and how that may impact the total costs. Margaret Song stated that there is likely an increase in load growth. She stated that the question lies with how aggressive the remainder of the energy efficiency measures are to help mitigate that anticipated load growth. She noted that the Compact is watching it.

Sue Hruby indicated that the Compact needs to be prepared for complaints from customers on an increase in their electric bill and know how to respond. She stated good communication plan to prepare customers for these impacts is needed.

Maggie Downey asked if the sense of the Board was to go along with the staff recommendation on the scenario where behavior program is removed, and residential heat pumps are reduced by 20%. Richard Elkin stated that he would like to see the option with just the behavior program removed. Maggie Downey asked for a sense of the Board on going ahead with that option as well. David Anthony stated that he thinks just reducing the Opower offer will still result in significant bill increases and that the Board should continue to review all of the scenarios presented. He stated that the Compact is trying to balance bill impacts to the programs that are being

offered and that there needs to be a bit more than just window dressing on removing a program that people did not think was effective to begin with. He recommends going with the staff recommendation. Martin Culik stated that there seems to be a consensus to remove Opower and suggests coming back for further discussion and a vote at the October Board meeting.

Colin Odell stated that he would like to see the comparisons made to how much of an increase the energy efficiency surcharge will be compared to the current surcharge. He also asked to add the percentage change as well. Maggie Downey stated that it can be done. Bob Higgins-Steele stated that if the Compact is going to be facing blowback, then he would rather have blowback on the September 15th scenario. Martin Culik asked if he would consider it without Opower. Bob Higgins-Steele stated yes.

Martin Culik suggests that at the next meeting we include a scenario with just removing Opower for the Board to review and discuss. Martin Culik asked if there was a sense of the Board to meet with the Cape & Islands legislative delegation and conduct public education. Sense of the Board was yes.

APPROVAL OF MINUTES:

The Board considered the July 21, 2021 Open Session Meeting Minutes.

Joyce Flynn moved the Board to accept the minutes as amended and to release them as amended, seconded by Colin Odell.

David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Tim	Carroll	Chilmark	Yes
Erik	Peckar	Dukes County	Yes
Fred	Fenlon	Eastham	Yes
Alan	Strahler	Edgartown	Yes
Matt	Patrick	Falmouth	Yes
Wayne	Taylor	Mashpee	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Nate	Mayo	Provincetown	Abstained
Leanne	Drake	Sandwich	Yes
Jay	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (18-0-1)

Open Session Vote on entry into Executive Session pursuant to M.G.L. c. 30A §§21(a)(3) and (10) to discuss matters below, to return to open session:

Martin Culik at 4:05 PM moved to enter into Executive Session pursuant to M.G.L. c. 30A §21(a)(3) and (1) review and approve executive session minutes which contain discussions regarding pending or imminent regulatory litigation and trade secrets and confidential, competitively-sensitive or other proprietary power supply information related to a proposed Low-Income Community Solar project (when the release of the discussion would have a detrimental effect on the Compact's negotiating position); (2) to discuss pending or imminent regulatory litigation and trade secrets and confidential, competitively-sensitive or other proprietary power supply information related to the Compact's Power Supply Offering, not to return to open session thereafter. Seconded by Joyce Flynn.

David	Anthony	Barnstable	Yes
Robert	Schofield	Bourne	Yes
Colin	Odell	Brewster	Yes
Peter	Cocolis	Chatham	Yes
Tim	Carroll	Chilmark	Yes
Fred	Fenlon	Eastham	Yes
Alan	Strahler	Edgartown	Yes
Matt	Patrick	Falmouth	Yes
Wayne	Taylor	Mashpee	Yes
Richard	Toole	Oak Bluffs	Yes
Martin	Culik	Orleans	Yes
Leanne	Drake	Sandwich	Yes
Jay	Grande	Tisbury	Yes
Bob	Higgins-Steele	Truro	Yes
Richard	Elkin	Wellfleet	Yes
Sue	Hruby	West Tisbury	Yes
Joyce	Flynn	Yarmouth	Yes

Motion carried in the affirmative (17-0-0)

Respectfully submitted,

Melissa Allard

LIST OF DOCUMENTS AND EXHIBITS:

- Meeting Notice/Agenda
- July 21, 2021 Draft Meeting Minutes
- Action Agenda Request: Compact Board Representative to the Cape & Vineyard Electric Cooperative (CVEC)
- Action Agenda Request: Waive Section 8.3(1) of CLCJPE Policies and Procedures Manual (Vacation Buy-Back)
- Action Agenda Request: Consumer Advocacy Worksheet: MA Department of Public Utilities (DPU) 21-90, Eversource Phase II Electric Vehicle Infrastructure Plan
- Consumer Advocacy Allocation Worksheet
- Climate Collaborative & the Energize Initiative Email
- Cape Light Compact JPE 2022-2024 Energy Efficiency Plan PowerPoint

Cape Light Compact JPE 2022-2024 Energy Efficiency Plan

September 29, 2021

**Cape Light
Compact**



Working Together Toward A Smarter Energy Future

MA Climate Policies EEAC and CLC Board Priorities



- An Act creating a next-generation roadmap for Massachusetts climate policy (Climate Act)
 - Requires Energy & Environment (EEA) to set Greenhouse Gas (GHG) emissions reduction goals for Program Administrators/CLC
- Clean Energy Climate Plan (Climate Plan)
 - Requires electrification of 1 million homes by 2050
 - Requires electrification of 300 to 400 million square feet of commercial building space
- EEAC Priorities
 - GHG Emissions Reductions
 - Electrification
 - Equity
 - Workforce Development
- CLC Board Priorities
 - Achieve GHG Emissions Reductions Goals
 - Continue C&I Enhanced Incentives
 - CVEO
 - Enhanced incentives for Income Eligible/Moderate Income New Construction

Climate Plan: GHG Reduction Goals



Cumulative Annual Emissions Reduction (Metric tons of CO ₂ e)	State Goals for 2030	CLC's Allocation	CLC's Plan (Sep 15th)	% of Goal Allocation
Residential and Income Eligible	351,000	17,652	30,948	175%
Commercial and Industrial	153,000	6,754	3,238	48%
Electric Total	504,000	24,406	34,186	140%

Climate Plan: Electrification Goals



- Requires electrification of 1 million homes and 300 to 400 million square feet of commercial building space
- Electrification through installation of heat pumps

Electrification Goals	State Goal	CLC's GHG Allocation (%)	CLC's Electrification Goal	CLC's Plan (Sep 15th)
State Goal for 2050				
Resi and IE (homes)	1,000,000	5.0%	50,291	4,483
C&I (sq ft)	400,000,000	4.4%	17,657,516	710,000
EEAC Goal for 2022-2024 Plan				
Resi and IE (homes)	120,000	5.0%	6,035	4,483

Energy Efficiency Advisory Council (EEAC) Key Priorities

Equity

- Targeting Moderate Income (61%-80% of State Median Income)
- Increasing Participation for Customers with Limited English Proficiency

Strategic Electrification

- Focus on Delivered Fuels and Greenhouse Gas Reductions
- Cold Climate Heat Pump Goals for residential and commercial sectors

Workforce Development

- Clean Energy Pathways - Administered by Community Based Organization (CBO)
- Paid internship program – Pairs participants with local vendors
- One program in Compact service territory: Focus on HVAC or Insulation



CLC Board Priorities: C&I Enhancements



Up to 100% incentives for municipal customers, small non-profits, small businesses and micro businesses

Consistent with DPU directives, an evaluation is underway to define specific enhancements. Results forthcoming.

Proposed: Residential Enhancement



Enhanced incentives for Income Eligible (IE)/Moderate Income (MI) New Construction Projects

1. Needs to be deed restricted project for 25+ years.
2. Heating system shall not be fossil fuel or electric baseboard.
 1. If 51% of the site is IE, the incentive is 100% of the cost,
 2. If 51% of the site is MI, the incentive is 80% of the cost.
 3. If the site is a mix of IE, MI, affordable and market rate, the incentive will be calculated as currently done
3. Envelope: CLC will pay 100% for all weatherization measures above code.
4. The project will need to agree to work with CLC evaluation
5. Engineering study: \$2,000 price per unit, up to \$60K, based on obtaining three quotes
6. O&M costs for 1-3 year period
7. Contractor must be "certified" for multi-family
8. CLC incentive offering is valid for three-years
9. Ensure that incentive and other grant funds do not exceed 100% of the project costs.
This can be done through a Sources and Uses review or similar project funding document.

CLC Board Priorities: Cape & Vineyard Electrification (CVEO)



- Objectives
 - **250** total non-gas heated participants, tiered services by income: IE (up to 60%), MI (61-80%)
 - **Enhanced incentives for all three measures for customers below 81% of State Median Income**
 - Convert oil, propane, electric resistance heat to cold climate heat pumps
 - Install PV systems to support electrification of heating system and reduce GHG emissions
 - Install battery storage for demand response
- Addresses the upfront cost barriers

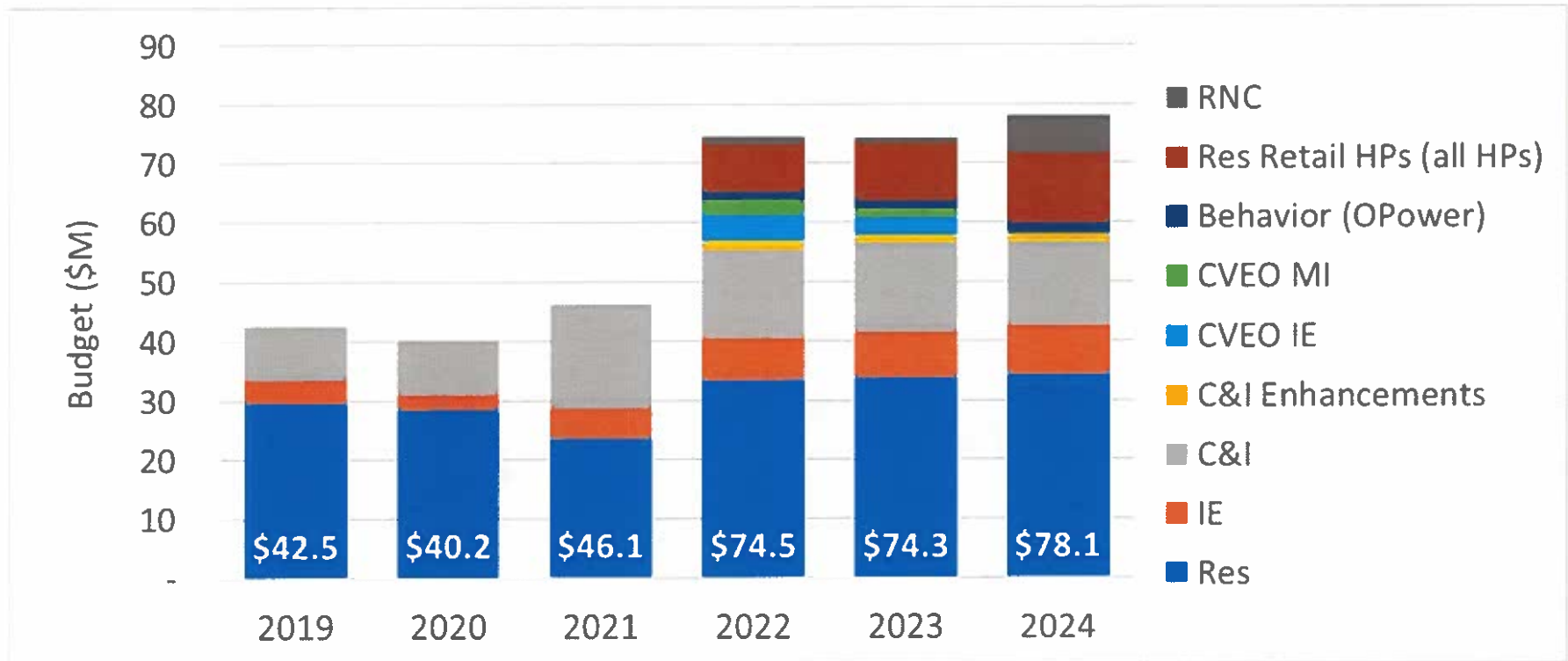
Investment in Board Priority Areas



CLC Board Priority (\$M)	2022	2023	2024	2022-2024
C&I Enhancements	1.48	1.40	1.22	4.10
CVEO IE	4.41	2.93	0.36	7.70
CVEO MI	2.72	1.62	0.24	4.58
Behavior (OPower)	1.34	1.34	1.34	4.02
Res Retail HPs (all HPs)	8.01	9.58	11.88	29.47
RNC	1.32	1.05	6.41	8.78
Total	19.28	17.92	21.45	58.65



Proposed Budget

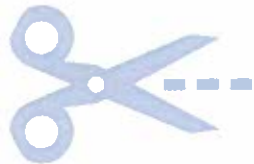




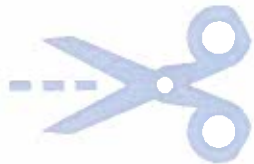
Scenario Analysis



September 15 – Plan with all enhancements and state goals



Remove behavior program and proposed enhanced incentives for Residential New Construction



Remove behavior program +

- Reduce residential heat pumps by 5%, 40%, and then 20%

Scenarios: GHG Reductions



Cumulative Annual Emissions Reduction (Metric tons of CO ₂ e)	CLC's Plan (Sep 15th)		No Opower, no RNC enhancements		No Opower, HPs reduced by 20%		No Opower, HPs reduced by 40%		No Opower, HPs reduced by 60%	
	Metric tons	%	Metric tons	%	Metric tons	%	Metric tons	%	Metric tons	%
Residential and Income Eligible	30,948	175%	30,948	175%	28,050	159%	25,132	142%	22,134	125%
Commercial and Industrial	3,238	48%	3,238	48%	3,238	48%	3,238	48%	3,238	48%
Electric Total	34,186	140%	34,186	140%	31,289	128%	28,370	116%	25,373	104%



Bill Impacts – Residential

Years	EERF	Energy Conservation	Avg. Monthly Usage (kWh)	Total Cost (per month)	Change from Sep 15 Plan
2019-2021 Actual					
2019	\$0.02028 +	\$0.00250 x	530 =	\$12.07	
2020	\$0.02162 +	x	=	\$12.78	
2021	\$0.02579 +	x	=	\$14.99	
2022-2024 Plan - September 15 Plan					
2022	\$0.04570 +	x	=	\$25.55	
2023	\$0.04625 +	x	=	\$25.84	
2024	\$0.05263 +	x	=	\$29.22	
2022-2024 Plan - No Opower, No RNC					
2022	\$0.04201 +	x	=	\$23.59	-\$1.96
2023	\$0.04385 +	x	=	\$24.57	-\$1.27
2024	\$0.04503 +	x	=	\$25.19	-\$4.03
2022-2024 Plan - No Opower, Heat Pumps reduced by 20%					
2022	\$0.04173 +	x	=	\$23.44	-\$2.10
2023	\$0.04302 +	x	=	\$24.13	-\$1.71
2024	\$0.04909 +	x	=	\$27.34	-\$1.88
2022-2024 Plan - No Opower, Heat Pumps reduced by 40%					
2022	\$0.04021 +	x	=	\$22.64	-\$2.91
2023	\$0.04113 +	x	=	\$23.12	-\$2.71
2024	\$0.04675 +	x	=	\$26.10	-\$3.12
2022-2024 Plan - No Opower, Heat Pumps reduced by 60%					
2022	\$0.03849 +	x	=	\$21.72	-\$3.82
2023	\$0.03915 +	x	=	\$22.07	-\$3.76
2024	\$0.04431 +	x	=	\$24.81	-\$4.41



Bill Impacts – Income Eligible

Years	EERF	Energy Conservation	Avg. Monthly Usage (kWh)	Total Cost (per month)	Change from Sep 15 Plan
2019-2021 Actual					
2019	\$0.00005 +	\$0.00250	x 582	= \$1.48	
2020	\$0.00167 +		x	= \$2.43	
2021	\$0.00148 +		x	= \$2.32	
2022-2024 Plan - September 15 Plan					
2022	\$0.00406 +		x	= \$3.82	
2023	\$0.00431 +		x	= \$3.96	
2024	\$0.00348 +		x	= \$3.48	
2022-2024 Plan - No Opower, No RNC					
2022	\$0.00404 +		x	= \$3.81	-\$0.01
2023	\$0.00432 +		x	= \$3.97	\$0.01
2024	\$0.00351 +		x	= \$3.50	\$0.02
2022-2024 Plan - No Opower, Heat Pumps reduced by 20%					
2022	\$0.00404 +		x	= \$3.81	-\$0.01
2023	\$0.00432 +		x	= \$3.97	\$0.01
2024	\$0.00350 +		x	= \$3.49	\$0.01
2022-2024 Plan - No Opower, Heat Pumps reduced by 40%					
2022	\$0.00404 +		x	= \$3.81	-\$0.01
2023	\$0.00433 +		x	= \$3.98	\$0.01
2024	\$0.00351 +		x	= \$3.50	\$0.02
2022-2024 Plan - No Opower, Heat Pumps reduced by 60%					
2022	\$0.00405 +		x	= \$3.81	-\$0.01
2023	\$0.00434 +		x	= \$3.98	\$0.02
2024	\$0.00352 +		x	= \$3.50	\$0.02



Bill Impacts – C&I

Years	EERF	Energy Conservation	Avg. Monthly Usage (kWh)	Total Cost (per month)	Change from Sep 15 Plan	Avg. Monthly Usage (kWh)	Total Cost (per month)	Change from Sep 15 Plan
2019-2021 Actual								
2019	\$0.00214 +	\$0.00250 x	400 =	\$1.86		10,800 =	\$50.11	
2020	\$0.01210 +	x	=	\$5.84		=	\$157.68	
2021	\$0.01085 +	x	=	\$5.34		=	\$144.18	
2022-2024 Plan - September 15 Plan								
2022	\$0.01694 +	x	=	\$7.78		=	\$209.95	
2023	\$0.02507 +	x	=	\$11.03		=	\$297.76	
2024	\$0.02309 +	x	=	\$10.24		=	\$276.37	
2022-2024 Plan - No Opower, No RNC								
2022	\$0.01577 +	x	=	\$7.31	-\$0.47	=	\$197.32	-\$12.64
2023	\$0.02506 +	x	=	\$11.02	\$0.00	=	\$297.65	-\$0.11
2024	\$0.02331 +	x	=	\$10.32	\$0.09	=	\$278.75	\$2.38
2022-2024 Plan - No Opower, Heat Pumps reduced by 20%								
2022	\$0.01579 +	x	=	\$7.32	-\$0.46	=	\$197.53	-\$12.42
2023	\$0.02509 +	x	=	\$11.04	\$0.01	=	\$297.97	\$0.22
2024	\$0.02322 +	x	=	\$10.29	\$0.05	=	\$277.78	\$1.40
2022-2024 Plan - No Opower, Heat Pumps reduced by 40%								
2022	\$0.01582 +	x	=	\$7.33	-\$0.45	=	\$197.86	-\$12.10
2023	\$0.02514 +	x	=	\$11.06	\$0.03	=	\$298.51	\$0.76
2024	\$0.02327 +	x	=	\$10.31	\$0.07	=	\$278.32	\$1.94
2022-2024 Plan - No Opower, Heat Pumps reduced by 60%								
2022	\$0.01589 +	x	=	\$7.36	-\$0.42	=	\$198.61	-\$11.34
2023	\$0.02520 +	x	=	\$11.08	\$0.05	=	\$299.16	\$1.40
2024	\$0.02332 +	x	=	\$10.33	\$0.09	=	\$278.86	\$2.48

Staff Recommendation



While the Plan as presented achieves all goals, the bill impacts are untenable for residential customers.

Staff does not recommend any changes in the commercial programs as there are no new enhancements.

Recommend scenario where behavior program is removed, and residential heat pumps are reduced by 20%

Appendix

**Cape Light
Compact**



Working Together Toward A Smarter Energy Future

EEAC Priority: Equity



- 100% insulation incentives to our renter and moderate-income customers
- Up to \$7,000 to address pre-weatherization barriers (i.e., knob and tube, vermiculite)
- Enhanced incentives for heating systems when paired with weatherization (if needed)
 - 80% of installed costs for Heat Pumps when displacing oil, propane or electric resistance heating systems
 - 70% of installed costs for replacing non-condensing to condensing natural gas and propane heating systems
- Main Streets and other targeted small business enhancements for Cape & Vineyard Environmental Justice Communities

EEAC Priority: Strategic Electrification for Residential Customers



- Introduction of a heat pump contractor network.
- Continued workforce development and training to increase contractor comfort in recommending and installing heat pumps.
- Targeted outreach to customers whose homes have already been weatherized.
- Introduction of New Construction Path-to-Zero.
- Increased installation of heat pumps to delivered fuel customers in income-eligible programs.

EEAC Priority Strategic Electrification for C&I Customers



- Introduction of a small commercial heat pump offering that mirrors the established Residential Sector's offering.
- Continued workforce development and training to increase contractor comfort in recommending and installing heat pumps.
- Increased engagement with manufacturers, distributors, and installers to better characterize the scenarios in which heat pumps are being installed and to streamline the application process.
- Evaluation results may impact the ability to offer substantial commercial weatherization services to a broader audience.
- Increased technical assistance and financial support for customers constructing new buildings minimizing overall energy consumption.

EEAC Priority: Workforce Development



- Clean Energy Pathways Internship Program
 - Targets 18–24-year-olds from backgrounds underrepresented in the energy efficiency workforce: multilingual, people of color, women.
 - Provides paid training and placement with an existing energy efficiency business
 - Offers a new path for full employment in the energy efficiency workforce
- Expand Collaboration and Funding to MA Clean Energy Center (CEC): \$12M
- Review and revise procurement practices to increase the number of certified Minority, Women and Veteran owned businesses contracting and subcontracting in energy efficiency program

Cape Light Compact JPE 2022-2024 Energy Efficiency Plan

October 14, 2021

**Cape Light
Compact**



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MA Climate Policies EEAC and CLC Board Priorities



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Climate Plan: GHG Reduction Goals



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Electric Total	504,000	24,406	34,186	140%



Climate Plan: Electrification Goals

- Requires electrification of 1 million homes and 300 to 400 million square feet of commercial building space
- Electrification through installation of heat pumps

Electrification Goals	State Goal	CLC's GHG Allocation (%)	CLC's Electrification Goal	CLC's Plan (Sep 15th)
State Goal for 2050				
Resi and IE (homes)	1,000,000	5.0%	50,291	4,483
C&I (sq ft)	400,000,000	4.4%	17,657,516	710,000
EEAC Goal for 2022-2024 Plan				
Resi and IE (homes)	120,000	5.0%	6,035	4,483

Energy Efficiency Advisory Council (EEAC) Key Priorities

Equity

- Targeting Moderate Income (61%-80% of State Median Income)
- Increasing Participation for Customers with Limited English Proficiency

Strategic Electrification

- Focus on Delivered Fuels and Greenhouse Gas Reductions
- Cold Climate Heat Pump Goals for residential and commercial sectors

Workforce Development

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- Paid internship program – Pairs participants with local vendors
- One program in Compact service territory: Focus on HVAC or Insulation



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Up to 100% incentives for municipal customers, small non-profits, small businesses and micro businesses

Consistent with DPU directives, an evaluation is underway to define specific enhancements. Results forthcoming.

Proposed: Residential Enhancement



Enhanced incentives for Income Eligible (IE)/Moderate Income (MI) New Construction Projects

1. Needs to be deed restricted project for 25+ years.
2. Heating system shall not be fossil fuel or electric baseboard.
 1. If 51% of the site is IE, the incentive is 100% of the cost,
 2. If 51% of the site is MI, the incentive is 80% of the cost.
 3. If the site is a mix of IE, MI, affordable and market rate, the incentive will be calculated as currently done
3. Envelope: CLC will pay 100% for all weatherization measures above code.
4. The project will need to agree to work with CLC evaluation
5. Engineering study: \$2,000 price per unit, up to \$60K, based on obtaining three quotes
6. O&M costs for 1-3 year period
7. Contractor must be "certified" for multi-family
8. CLC incentive offering is valid for three-years
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This can be done through a Sources and Uses review or similar project funding document.

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- Objectives
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 - Convert oil, propane, electric resistance heat to cold climate heat pumps
 - Install PV systems to support electrification of heating system and reduce GHG emissions
 - Install battery storage for demand response
- Addresses the upfront cost barriers

Heating System Incentives for Market Rate Customers: Final Direction from Board Needed



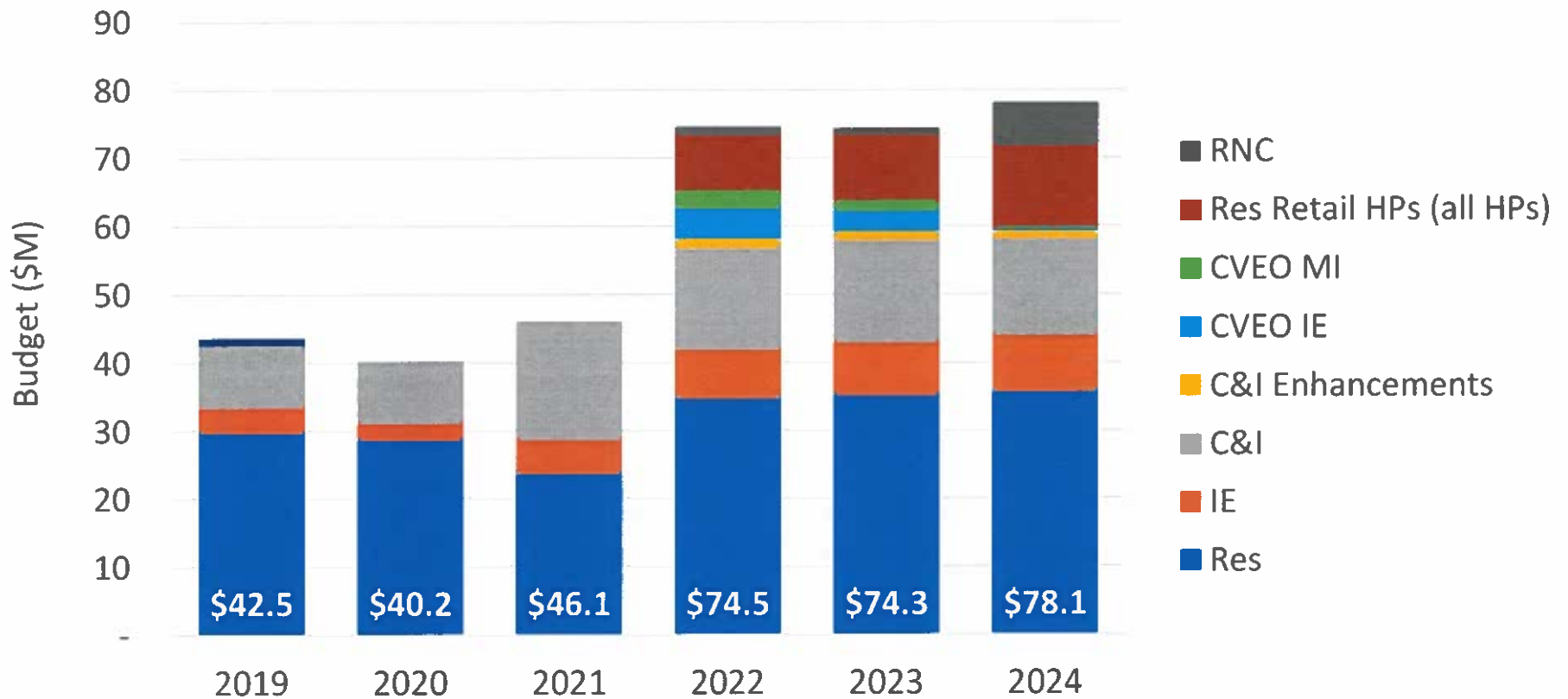
- Propane
 - Incentives will only be available for ***non-condensing to condensing equipment***
- Oil
 - Incentives for Oil furnaces will still be available

Investment in Board Priority Areas



CLC Board Priority (\$M)	2022	2023	2024	2022-2024
C&I Enhancements	1.48	1.40	1.22	4.10
CVEO IE	4.41	2.93	0.36	7.70
CVEO MI	2.72	1.62	0.24	4.58
Res Retail HPs (all HPs)	8.01	9.58	11.88	29.47
RNC	1.32	1.05	6.41	8.78
Total	17.94	16.58	20.11	54.63

Proposed Budget





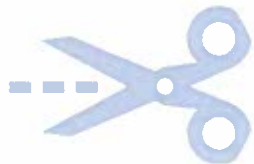
Scenario Analysis



September 15 – Plan with all enhancements and state goals



Remove behavior program (Opower)



Remove behavior program +

- Reduce residential heat pumps by 20%, 40%, and then 60%

Scenarios: GHG Reductions



Cumulative Annual Emissions Reduction	CLC's Plan (Proposed)		No Behavior (OPower)		No Behavior (OPower). Res Retail HPs reduced by 20%.		No Behavior (OPower). Res Retail HPs reduced by 40%.		No Behavior (OPower). Res Retail HPs reduced by 60%.	
	Metric Tons	% Goal	Metric Tons	% Goal	Metric Tons	% Goal	Metric Tons	% Goal	Metric Tons	% Goal
Resi and IE	30,948	175%	30,948	175%	28,050	159%	25,132	142%	22,134	125%
C&I	3,238	48%	3,238	48%	3,238	48%	3,238	48%	3,238	48%
Total	34,186	140%	34,186	140%	31,289	128%	28,370	116%	25,373	104%

Bill Impacts – Residential



Years	EERF	Energy Conservation	Avg. Monthly Usage (kWh)	Total Cost (per month)	% Change from 2021
2021 In effect					
2021	\$0.02579 +	\$0.00250 x	530 =	\$14.99	
2022-2024 Plan - Proposed Plan					
2022	\$0.04570 +	x	=	\$25.55	70%
2023	\$0.04625 +	x	=	\$25.84	72%
2024	\$0.05263 +	x	=	\$29.22	95%
2022-2024 Plan - No Behavior (OPower)					
2022	\$0.04330 +	x	=	\$24.27	62%
2023	\$0.04489 +	x	=	\$25.12	68%
2024	\$0.05140 +	x	=	\$28.57	91%
2022-2024 Plan - No Behavior (OPower). Res Retail HPs reduced by 20%.					
2022	\$0.04173 +	x	=	\$23.44	56%
2023	\$0.04302 +	x	=	\$24.13	61%
2024	\$0.04909 +	x	=	\$27.34	82%
2022-2024 Plan - No Behavior (OPower). Res Retail HPs reduced by 40%.					
2022	\$0.04021 +	x	=	\$22.64	51%
2023	\$0.04113 +	x	=	\$23.12	54%
2024	\$0.04675 +	x	=	\$26.10	74%
2022-2024 Plan - No Behavior (OPower). Res Retail HPs reduced by 60%.					
2022	\$0.03849 +	x	=	\$21.72	45%
2023	\$0.03915 +	x	=	\$22.07	47%
2024	\$0.04431 +	x	=	\$24.81	65%

Bill Impacts – Income Eligible



Years	EERF	Energy Conservation	Avg. Monthly Usage (kWh)	Total Cost (per month)	% Change from 2021
2021 In effect					
2021	\$0.00148 +	\$0.00250 x	582 =	\$2.32	
2022-2024 Plan - Proposed Plan					
2022	\$0.00406 +	x	=	\$3.82	65%
2023	\$0.00431 +	x	=	\$3.96	71%
2024	\$0.00348 +	x	=	\$3.48	50%
2022-2024 Plan - No Behavior (OPower)					
2022	\$0.00403 +	x	=	\$3.80	64%
2023	\$0.00432 +	x	=	\$3.97	71%
2024	\$0.00349 +	x	=	\$3.49	51%
2022-2024 Plan - No Behavior (OPower). Res Retail HPs reduced by 20%.					
2022	\$0.00404 +	x	=	\$3.81	64%
2023	\$0.00432 +	x	=	\$3.97	71%
2024	\$0.00350 +	x	=	\$3.49	51%
2022-2024 Plan - No Behavior (OPower). Res Retail HPs reduced by 40%.					
2022	\$0.00404 +	x	=	\$3.81	64%
2023	\$0.00433 +	x	=	\$3.98	72%
2024	\$0.00351 +	x	=	\$3.50	51%
2022-2024 Plan - No Behavior (OPower). Res Retail HPs reduced by 60%.					
2022	\$0.00405 +	x	=	\$3.81	65%
2023	\$0.00434 +	x	=	\$3.98	72%
2024	\$0.00352 +	x	=	\$3.50	51%



Bill Impacts – C&I

Years	EERF	Energy Conservation	Avg. Monthly Usage (kWh)	Total Cost (per month)	% Change from 2021	Avg. Monthly Usage (kWh)	Total Cost (per month)	% Change from 2021
2021 In effect								
2021	\$0.01085 +	\$0.00250 x	400 =	\$5.34		10,800 =	\$144.18	
2022-2024 Plan - Proposed Plan								
2022	\$0.01694 +	x	=	\$7.78	46%	=	\$209.95	46%
2023	\$0.02507 +	x	=	\$11.03	107%	=	\$297.76	107%
2024	\$0.02309 +	x	=	\$10.24	92%	=	\$276.37	92%
2022-2024 Plan - No Behavior (OPower)								
2022	\$0.01575 +	x	=	\$7.30	37%	=	\$197.10	37%
2023	\$0.02504 +	x	=	\$11.02	106%	=	\$297.43	106%
2024	\$0.02316 +	x	=	\$10.26	92%	=	\$277.13	92%
2022-2024 Plan - No Behavior (OPower). Res Retail HPs reduced by 20%.								
2022	\$0.01579 +	x	=	\$7.32	37%	=	\$197.53	37%
2023	\$0.02509 +	x	=	\$11.04	107%	=	\$297.97	107%
2024	\$0.02322 +	x	=	\$10.29	93%	=	\$277.78	93%
2022-2024 Plan - No Behavior (OPower). Res Retail HPs reduced by 40%.								
2022	\$0.01582 +	x	=	\$7.33	37%	=	\$197.86	37%
2023	\$0.02514 +	x	=	\$11.06	107%	=	\$298.51	107%
2024	\$0.02327 +	x	=	\$10.31	93%	=	\$278.32	93%
2022-2024 Plan - No Behavior (OPower). Res Retail HPs reduced by 60%.								
2022	\$0.01589 +	x	=	\$7.36	38%	=	\$198.61	38%
2023	\$0.02520 +	x	=	\$11.08	107%	=	\$299.16	107%
2024	\$0.02332 +	x	=	\$10.33	93%	=	\$278.86	93%

Staff Recommendation



While the Plan as presented achieves all goals, the bill impacts are untenable for residential customers.

Staff does not recommend any changes in the commercial programs as there are no new enhancements.

Recommend scenario where behavior program is removed, and residential heat pumps are reduced by 20%

Appendix

**Cape Light
Compact**



Working Together Toward A Smarter Energy Future

EEAC Priority: Equity



- 100% insulation incentives to our renter and moderate-income customers
- Up to \$7,000 to address pre-weatherization barriers (i.e., knob and tube, vermiculite)
- Enhanced incentives for heating systems when paired with weatherization (if needed)
 - 80% of installed costs for Heat Pumps when displacing oil, propane or electric resistance heating systems
 - 70% of installed costs for replacing non-condensing to condensing natural gas and propane heating systems
- Main Streets and other targeted small business enhancements for Cape & Vineyard Environmental Justice Communities

EEAC Priority: Strategic Electrification for Residential Customers



- Introduction of a heat pump contractor network.
- Continued workforce development and training to increase contractor comfort in recommending and installing heat pumps.
- Targeted outreach to customers whose homes have already been weatherized.
- Introduction of New Construction Path-to-Zero.
- Increased installation of heat pumps to delivered fuel customers in income-eligible programs.

EEAC Priority Strategic Electrification for C&I Customers



- Introduction of a small commercial heat pump offering that mirrors the established Residential Sector's offering.
- Continued workforce development and training to increase contractor comfort in recommending and installing heat pumps.
- Increased engagement with manufacturers, distributors, and installers to better characterize the scenarios in which heat pumps are being installed and to streamline the application process.
- Evaluation results may impact the ability to offer substantial commercial weatherization services to a broader audience.
- Increased technical assistance and financial support for customers constructing new buildings minimizing overall energy consumption.

EEAC Priority: Workforce Development



- Clean Energy Pathways Internship Program
 - Targets 18–24-year-olds from backgrounds underrepresented in the energy efficiency workforce: multilingual, people of color, women.
 - Provides paid training and placement with an existing energy efficiency business
 - Offers a new path for full employment in the energy efficiency workforce
- Expand Collaboration and Funding to MA Clean Energy Center (CEC): \$12M
- Review and revise procurement practices to increase the number of certified Minority, Women and Veteran owned businesses contracting and subcontracting in energy efficiency program

CVEO for 2022-2024 Plan

1. CVEO Overview

The Cape and Vineyard Electrification Offering (CVEO) is the Compact's integrated and comprehensive strategic electrification and energy optimization offering that combines home weatherization from the Compact's historically successful energy efficiency programs with three technologies: (1) cold climate air source heat pumps (heat pump); (2) battery storage; and (3) solar photovoltaic (PV) arrays. CVEO is a cost-effective solution for low- and moderate-income customers who reside in deed-restricted residences to reduce overall customer energy usage, offset increased electric usage from heat pumps with renewable generation, and provide storage for active demand reduction and resiliency purposes.

Heat pumps will be implemented and installed through the Compact's normal energy efficiency program delivery channels. Solar PV and batteries will be installed through an innovative third-party ownership (TPO) structure. In addition, battery performance will be incented through the statewide pay-for-performance offering structure (i.e., ConnectedSolutions).

1.1 Participation Requirements

To participate in CVEO, a customer must meet the following requirements:

- *Non-gas heat.* The customer's home must be heated with oil, propane, or electric resistance heat.
- *Income thresholds.* The customer must be income constrained. Specifically, low-income customers are defined as 60 percent of state median income (SMI) and moderate-income customers as 61–80 percent of SMI for energy efficiency program purposes. The Compact will issue income verification paperwork to the customer if the customer is not already identified as income-qualified in the Compact's data system.¹
- *Property deed restrictions.* For low-income participants, the customer must reside in a deed-restricted property. This requirement ensures the CVEO technologies continue to benefit income-constrained customers for the duration of the technology's life.
- *Efficiency audit.* The customer must have completed an energy efficiency home energy assessment within the previous two years and must have implemented all recommendations from the audit.²

¹ Per census data, the average household in Barnstable and Dukes Counties is a little over two family members. For a family of two in 2019, the gross maximum income is \$46,437 for low-income customers and \$61,915 for moderate-income customers. See, <https://www.masslegalhelp.org/housing/poverty-guidelines>

² Water heaters are evaluated as part of a home energy assessment, and heat pump water heaters are a standard energy efficiency measure that could be recommended to a customer as part of the audit process.

- *All technologies.* Customers will be required to implement all three measures in their homes.
- *Technical suitability.* The installation site must be suitable for all three technologies. As examples, the roof should be of a suitable age and condition for solar PV and the house should be able to be comfortably heated with heat pump technology. The Compact implementation vendor would perform site reviews to determine site suitability.

1.2 Expected Participants

The Compact aims to serve 250 CVEO participants over 2022 and 2023.³ To maintain the proposed budget, the Compact would not serve more than 250 customers over the two-year term, even if customer demand for CVEO is high. If the Compact cannot reach the 2022 participant goal in 2022, the Compact will attempt to enroll the remaining customers in 2023, or, if needed and possible, 2024 such that CVEO serves 250 participants total by the end of the plan term.⁴ Table 1 summarizes participation goals by year and income level.

Table 1. CVEO participant goals by year and income (# of customers)

Income Level		2022	2023	2024	Total
Low Income	<=60% SMI	100	50	0	150
Moderate Income	61–80% SMI	66	34	0	100
Total		166	84	0	250

Low-income renters are eligible to be served under CVEO. Occupation by the homeowner is not a CVEO eligibility requirement, although homeowner consent to participate is required. As long as the property meets all other CVEO eligibility requirements and has a restriction in place so that it can only be rented to occupants with income less than 61 percent of SMI, then rental homes may be served. The renters’ household income will be checked at the time of application to confirm income eligibility.

1.3 CVEO within Statewide Efficiency Programs

CVEO measures and budgets are spread throughout the statewide core initiatives. Costs and savings for low-income customers are within the income eligible sector, while costs and savings for moderate- income customers are within the residential sector. This approach is consistent with statewide definitions for income eligibility for the two customer sectors.

Because of the combined nature of the solar and battery installation costs, funding, and ownership, the Compact has combined the installation costs of both systems into the solar measure line entries within the Residential and Income Eligible Coordinated Delivery core initiatives. The incentive costs for battery performance via ConnectedSolutions are shown in the Residential and Income Eligible

³ The Compact proposes to implement CVEO in two years primarily because the federal tax credit for solar projects decreases after 2023, and to be consistent with the original design in D.P.U. 20-40.

⁴ The Compact is motivated to enroll all CVEO customers in 2022 and 2023, because federal tax credits for solar projects, which contribute significantly to the design and funding of CVEO, decrease starting in 2024.

Active Demand Reduction (ADR) core initiatives. To summarize:

- Heat Pumps → Residential and Income Eligible Coordinated Delivery core initiatives
- Solar and Battery Installation → Residential and Income Eligible Coordinated Delivery core initiatives
- Battery Performance → Residential and Income Eligible Active Demand Reduction (ADR) core initiatives

CVEO is not a Demonstration Project as defined by the Department. Unlike a Demonstration Project, the CVEO is not intended “to test the ability of the project to deliver cost-effective benefits to customers.”⁵ There are a few reasons why the Compact is not proposing CVEO as a Demonstration Project.

- *Consistent with law.* CVEO is aligned with the directives in the 2018 amendments to the Green Communities Act, and the Act to Advance Clean Energy.⁶
- *Cost-effective.* CVEO is a compilation of three technologies that third-party analyses have proven are cost-effective.⁷ The Compact expects CVEO will deliver cost-effective benefits to customers and the utility system consistent with Massachusetts’ Total Resource Cost test and with the Green Communities Act requirement to procure all available cost-effective energy efficiency resources.
- *Well-established technologies.* Heat pumps have been part of the program administrators’ plans for years.⁸ While solar PV may be new to efficiency programs, it is well-adopted by customers and has been providing numerous benefits to the Commonwealth for decades. Relative to solar and heat pumps, at-home batteries are a newer technology; but these are currently being dispatched as demand resources within the Program Administrators’ existing ConnectedSolutions demand response offerings. The Compact plans to apply relevant lessons learned from demand response technologies as it implements its storage efforts.

2. CVEO Technologies, Incentives, and Funding

The Compact’s CVEO proposal maximizes existing funding sources for solar and storage, which minimizes costs to participants and the costs collected from ratepayers through the Energy Efficiency Surcharge (EES) to fund CVEO. The following sections describe the technology costs, participant incentives, alternative funding sources, ownership structures, and cost-effectiveness for each CVEO technology. Some of the key features of CVEO from the participants perspective are:

- low-income customers will receive all three technologies at no cost,

⁵ D.P.U. 16-178, at 26.

⁶ In 2018, the Act to Advance Clean Energy, Acts of 2018 amended the Green Communities Act, G.L. c. 25, §§ 19, 21-22.

⁷ See D.P.U. 18-116, Exhibit Compact-12, and e.g., Navigant Consulting, Inc., “Ductless Mini-Split Heat Pump Cost Study (RES 28),” October 5, 2018.

⁸ See, e.g., D.P.U. 15-166 (2016).

- moderate-income customers will receive all three technologies at a maximum cost of \$5,000 per participant,
- a third party will install and own the solar and storage technologies for 10 years and will optimize existing incentive programs for solar and storage before energy efficiency funding sources contribute to the technology costs, and
- the customer will own the heat pump system.

2.1 Heat Pumps

The Compact proposes to offer both low- and moderate-income customers a 100 percent incentive for the cost of switching from heating with oil, propane, or electric baseboards to heating with heat pumps.

The Compact's goal is that the majority of CVEO participants (approximately 70 percent) will fully replace their existing heating systems with heat pumps. The Compact recognizes that it may not be feasible for all customers to fully replace their existing heating systems, and those customers will instead rely on heat pumps to offset their existing heating systems. These assumptions are reflected in the Compact's proposed heat pump measure mix and resulting budget and savings estimates.

All CVEO participants will be required to implement recommendations from a recent home energy assessment, including any weatherization recommendations. As such, a CVEO participant's heating demand for the heat pump should be downsized from his or her current heating system.

The Compact will procure and contract with a vendor to install the heat pump (consistent with current practice) and will secure commercially reasonable warranties and a maintenance agreement for the heat pump. The Compact intends to procure a 5- to 10-year heat pump maintenance contract for CVEO participants, such that customers will not be responsible for any maintenance issues that occur during the contract period. The Compact will issue an RFP for such a contract after the Department approves CVEO and will determine additional details at that time.

Program Costs

The cost for a heat pump depends on the size of the home, whether the system is fully or partially displacing an existing heating system, whether the system is ducted or uses mini-splits, and other design considerations. The CVEO heat pump measure mix assumes heat pump costs range from \$13,000 to \$25,000 per system. Table 2 summarizes the CVEO heat pump costs by year, customer group, and budget category.

For low-income customers, the Compact's proposal to offer heat pumps at 100 percent incentive is consistent with the statewide incentives for heat pumps offered by all Program Administrators. This CVEO incentive cost over the two years is about \$2.8 million. In addition to the incentive cost, the Compact estimates needing approximately \$570,000 over the two years in sales, technical assistance, and training (STAT) costs to serve low-income CVEO participants. These costs are included in the

Income Eligible Coordinated Delivery core initiative.

For moderate-income customers, the other Program Administrators are proposing to offer an 80 percent incentive for the incremental cost of a heat pump. For CVEO, the Compact proposes to treat moderate-income customers like low-income customers and provide a 100 percent incentive for the full heat pump equipment cost. The CVEO heat pump incentive cost for moderate-income customers over the two years is about \$2 million, of which about \$640,000 is the incremental incentive above the statewide incentive for market rate customers. These costs are included in the Residential Coordinated Delivery core initiative.

Table 2. CVEO heat pump costs (\$)

Year and Income	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Total Costs
2022	-	3,201,000	182,400	3,383,400
Low-Income	-	1,836,000	182,400	2,018,400
Moderate-Income	-	1,365,000	-	1,365,000
2023	-	1,628,000	384,200	2,012,200
Low-Income	-	965,000	384,200	1,349,200
Moderate-Income	-	663,000	-	663,000
2024	-	-	-	-
Low-Income	-	-	-	-
Moderate-Income	-	-	-	-
2022-2024	-	4,829,000	566,600	5,395,600
Low-Income	-	2,801,000	566,600	3,367,600
Moderate-Income	-	2,028,000	-	2,028,000

Program Funding

The Compact proposes to fund all heat pump costs through its energy efficiency programs.

The Alternative Energy Portfolio Standard (APS) provides an incentive for heat pumps that meet certain technology requirements.⁹ Air source heat pumps that meet the eligibility criteria outlined in the APS regulations are eligible to generate Alternative Energy Credits.¹⁰ The Compact estimates that APS could provide between \$25,000 and \$210,000 over the two-year term to offset CVEO heat pump costs, which would be 0.5 percent to 4.0 percent of the total heat pump budget. The Compact will reduce future EES rates with any APS revenue it receives. The Compact would notify the Department of such funding availability during its annual EES filing.

Benefits and Cost-Effectiveness

Over the two years of implementation, CVEO heat pumps are expected to provide approximately

⁹ DOER. 2018. "Small Air Source Heat Pumps in the Massachusetts Alternative Portfolio Standard." Available at: <https://www.mass.gov/files/documents/2018/04/05/Small%20ASHP%20030518.pdf>.

¹⁰ For more information, see the Compact's response to information request DPU 2-3 in D.P.U. 20-40, available at: <https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/12668046>

\$10.1 million in benefits and \$5.2 million in net benefits with a benefit-cost ratio of 2.1. They will contribute about 794 metric tons to the 2030 avoided greenhouse gas emissions goal.

2.2 Solar PV and Battery Installation

To install solar PV and battery systems in low- and moderate-income customers' homes, the Compact is proposing an innovative TPO structure. The Compact expects a TPO would install and own for 10 years both the solar PV and battery systems installed at a CVEO participant's home. The systems would be provided at no cost to low-income customers, and a moderate-income customer would be responsible for 25 percent of the costs, capped at \$5,000 with the option to finance. The Compact expects all CVEO solar PV and battery storage systems will be installed behind the participant's home meter.

Pending Department approval, the Compact would issue an RFP for a pre-paid Power Purchase Agreement (PPA) for the CVEO solar PV and battery systems. The Compact explains its expectations and goals for this TPO structure below; however, actual program design may vary depending on responses to the RFP.

Equipment Costs

Using data from MassCEC, the Compact determined that the average solar PV system installed on residential buildings in Barnstable and Dukes counties in 2018 was approximately 7.5 kW_{DC} and cost about \$28,000 per system.¹¹ The Compact also estimated the installed cost of an at-home behind-the-meter battery system (including two battery units) to be approximately \$24,000, including costs for any potential electrical equipment or additional work to install the batteries.¹² The Compact assumes two batteries will be needed per CVEO participant in order to provide sufficient resiliency during outage events. However, final determination on the number of batteries per participant will be made on a site-by-site basis, taking into account responses to the RFP (including actual battery costs), the participant's typical usage, and solar PV size. All combined, the Compact estimates that the solar PV and battery system would cost a customer about \$52,000 up front without outside incentives or financing.¹³

If the Compact were to offer a 100 percent incentive for solar and batteries for all 250 CVEO participants, consistent with the Compact's goal that low- and moderate-income customers have

¹¹ See, <http://www.masscec.com/data-and-reports>. In 2021, the Compact revisited solar installation data from MassCEC. Relative to 2018, in 2020, PV system sizes have generally increased about 10 percent while costs have generally decreased about 5 percent. The Compact chose to maintain the assumptions that are based on 2018 data for a few reasons, including to be consistent between CVEO filings, as the EEAC consultants and stakeholders had previously reviewed and agreed to CVEO inputs. The Compact finds the change in average PV system data to be within the range of variances the Compact could experience across CVEO participants, and therefore does not merit adjustments to the PV inputs at this time.

¹² See D.P.U. 18-116, Exhibit Compact-12.

¹³ If situations arose that would prevent solar PV from operating without incurring additional, unintended costs, then the Compact would take every effort to mitigate and/or address these costs for the customer.

little to no upfront costs, then the cost would be about \$13 million just in program incentives. To avoid burdening ratepayers with this full cost, the Compact worked with stakeholders to explore alternative funding opportunities for the installation of these measures.

Massachusetts Incentive Programs

There are multiple incentive programs available in Massachusetts for solar and battery systems.

- *SMART*. Through the Solar Massachusetts Renewable Target (SMART) program, customers receive a fixed compensation rate per kWh of solar produced. Customers can earn additional SMART incentives through compensation adders that reward configurations deemed more valuable, including battery storage. Customers are eligible to receive the SMART incentive for 10 years if their facility is less than or equal to 25 kW_{AC}.¹⁴ In 2020, DOER expanded its SMART program for low-income customers by (1) designating 5 percent of each capacity block for low-income customers,¹⁵ (2) expanding the definition of low-income customers to include anyone residing in an Environmental Justice Community (as defined by DOER),¹⁶ and (3) requiring that low-income customers see bill savings as a result of the solar installation.^{17,18}
- *Federal ITC*. The federal solar investment tax credit (ITC) deducts a percentage of the solar installation costs from the solar owner's federal taxes. The residential solar ITC is 26 percent in 2022 and 22 percent in 2023.¹⁹
- *State ITC*. Massachusetts provides a 15 percent tax credit up to \$1,000 for the net expenditure of a renewable energy system installed on a primary residence.²⁰
- *ConnectedSolutions*. The Program Administrators including the Compact implement a pay-for-performance storage program, through which customers receive an incentive for reducing load during specific peak periods on the electric grid.²¹
- *Net Metering*. Net metering allows customers to offset their electric usage with energy they generate. Electric meters track the net flow from a customer selling to the grid (e.g., in the middle of the day when their solar resource is operating at a level that exceeds their home's consumption) and from a customer buying from the grid (e.g., at night when the solar resource is not producing any electricity but the home still has demand for electricity). Over a month, if a customer buys more electricity than they sell, the difference will appear in the form of a

¹⁴ 225 C.M.R. §20.00. Available at: <https://www.mass.gov/doc/225-cmr-2000-final-071020-clean/download>

¹⁵ 225 C.M.R. §20.05(3)(d). Available at: <https://www.mass.gov/doc/225-cmr-2000-final-071020-clean/download>

¹⁶ An interactive map showing Environmental Justice communities is available at the following link: <https://mass-eoeea.maps.arcgis.com/apps/webappviewer/index.html?id=1d6f63e7762a48e5930de84ed4849212>

¹⁷ 225 CMR 20.00. *Guideline Regarding Low Income Generation Units*. Revised September 22, 2021. Available at: <https://www.mass.gov/doc/low-income-guideline-final-clean-092221/download>

¹⁸ 225 C.M.R. §20.06(1)(k). Available at: <https://www.mass.gov/doc/225-cmr-2000-final-071020-clean/download>

¹⁹ <https://www.natlawreview.com/article/covid-19-stimulus-bill-includes-key-renewable-energy-tax-credits>

²⁰ DSIRE, NC Clean Energy Technology Center, "Residential Renewable Energy Income Tax Credit." Available at: <http://programs.dsireusa.org/system/program/detail/144>.

²¹ <https://www.capelightcompact.org/enrollmybattery/>

reduced electric bill. If a customer sells more electricity than they buy, they will earn net metering credits, which can be rolled over to reduce their electric bill in the following month.²²

- *CPS*. Massachusetts' Clean Peak Energy Standard (CPS) provides incentives to clean energy technologies that can supply electricity or reduce demand during seasonal peak demand periods.²³

Many of these incentive structures are not currently optimized for low- or moderate- income customers. For example, tax credits reduce owed income taxes, but low- and moderate-income customers often do not have a sufficient tax burden to benefit from investment tax credit structures.

While net metering will provide savings over the long term, low- and moderate-income customers still face financing barriers, especially upfront costs, to installing solar. For similar reasons, the solar finance programs available in Massachusetts can be difficult for low- and moderate-income customers to optimize.

Third-Party Ownership Structure

The Compact faced two primary challenges when redesigning a CVEO incentive for solar and storage installation after the initial proposal in D.P.U. 18-116: (1) the Compact did not want to burden energy efficiency ratepayers with the full cost of solar and battery installation; and (2) the Compact could not optimize some of the existing incentive programs if the solar and battery systems were owned by low- and moderate-income customers directly. Therefore, the Compact is proposing that a third party install, own, and maintain the solar and battery system for CVEO participants. Through this proposed structure, the TPO optimizes existing incentive programs while CVEO participants have little to no upfront costs.

The TPO would pay for the procurement and installation of the solar PV and battery systems, then use the existing incentive programs to offset its initial costs. The Compact expects the TPO will use the incentive programs as follows:

- *SMART*. The TPO will claim SMART revenue for the systems installed through CVEO.
- *Federal ITC*. The TPO will claim the federal ITC for the systems installed through CVEO. The Compact assumes the federal ITC applies to both solar and storage installation costs when installed at the same time.
- *Tax depreciation*. For tax purposes, a business can depreciate its investments in certain tangible property, including investments in solar equipment, over a specified period through annual deductions. The TPO will use tax depreciation for both solar and storage investments. CVEO participants would not be eligible for this funding revenue if they owned the system outright,

²² Department of Public Utilities, 220 CMR 18, "Net Metering." Available at: https://www.mass.gov/files/220_cmr_18.00_final_12-1-17_1.pdf.

²³ <https://www.mass.gov/clean-peak-energy-standard>

which is a benefit of using a TPO structure.²⁴

- *ConnectedSolutions*. The Compact will require the TPO enroll CVEO batteries in ConnectedSolutions. The TPO will claim the ConnectedSolutions incentive, which the Compact funds using energy efficiency revenue. This dynamic is explained in more detail below.

After the TPO leverages the above funding sources, the Compact would use energy efficiency funding to cover the TPO's remaining cost such that the solar PV and battery systems are provided at no cost to low-income customers, and a moderate-income customer would be responsible for up to 25 percent of the costs, capped at \$5,000. In conversations with stakeholders, it was acknowledged that moderate-income customers had some ability to pay for the total cost of CVEO, likely over the course of a 10-year PPA with the TPO or upfront.

Table 3 summarizes the expected funding from each incentive program for CVEO solar PV and batteries installation.

Table 3. Solar and battery funding by sources

Funding Source	Estimated Amount (\$M)	Percent of Costs (%)
SMART	\$1.8	13%
ITC	\$3.3	24%
Depreciation	\$2.4	18%
ConnectedSolutions	\$1.0	7%
Participant's Cost	\$0.5	4%
Energy Efficiency Programs	\$4.5	33%

It will be up to the TPO to determine how it wants to optimize the revenue from the system over the ownership period; however, the Compact will require that the batteries be enrolled in at least one peak demand reduction program (i.e., ConnectedSolutions or the Clean Peak Standard) to ensure the batteries provide system benefits. The Compact expects, and has budgeted for, the TPO to participate in the Compact's ConnectedSolutions active demand response program.²⁵

There are other Massachusetts incentive programs that the Compact considered but did not directly account for in the TPO structure.

- *Net metering*. The Compact assumes the bill savings and net metering credits will accrue directly to the participating customer. Therefore, net metering does not impact the Compact's or the TPO's CVEO costs. Net metering will offset the CVEO participant's electric bill by design, because these customers also install heat pumps, which increase a customer's electric use.

²⁴ See, e.g., <https://seia.org/initiatives/depreciation-solar-energy-property-macrs>. For additional information, see the Compact's response to DPU 2-8 in D.P.U. 20-40, available at <https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/12668054>, including Attachment DPU 2-8, available at <https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/12668055>

²⁵ As part of the RFP process, the Compact will ask respondents to indicate whether they plan to enroll the batteries in the ConnectedSolutions program and/or qualify them as eligible units under the Clean Peak Standard. If the respondent intends for the storage units to participate in both programs, the Compact will require they submit information on which program they intend to optimize dispatch for, or if the battery units are able to earn maximum incentives under both programs. This information will be used as part of the Compact's evaluation of the respondents' pre-paid PPA pricing proposals. See the Compact's response to information request DPU 4-8 in D.P.U. 20-40.

- *Massachusetts ITC.* The Compact's understanding is that the Massachusetts' solar ITC is a personal tax credit and cannot be claimed by a corporate entity such as the TPO. Further, it is possible the TPO may not be headquartered in Massachusetts to qualify for a state-specific tax credit. Therefore, the Compact did not account for a state solar ITC in its CVEO calculations.
- *CPS.* CLC is still exploring whether it makes economic sense to qualify CVEO batteries for the CPS given current limited data on CPS certificate prices and the requirement of 15-minute interval data which can increase the cost of the system. Should CPS benefit CVEO and offset energy efficiency revenue, then the Compact will address this new revenue in its annual EES filing.

Implementation and Contracting

The RFP respondent that the Compact selects to be the TPO would own the combined system for up to 10 years and would be responsible for system performance and maintenance during that period. A 10- year ownership period is consistent with the 10-year period for SMART payments and is reflective of the upfront cost and commitment to invest in solar PV and storage technologies by the TPO and participants.

The TPO and CVEO participants will sign a contract spelling out the rights and obligations of paired-system ownership prepared by the Compact that contains commercially reasonable terms and conditions and appropriate protections for customers.

The Compact will contract with the TPO to govern program implementation and will include in that contract all customer protections and requirements for vendor warranties and best practices that it currently incorporates into its vendor contracts. The Compact will have the ability under this contract to enforce any failure of the TPO to abide by required program conditions and to bring suit against the TPO on behalf of any CVEO participants who may suffer losses or damages due to the negligence of the TPO.²⁶

The Compact will coordinate ADR aspects with Eversource in accordance with the parties' Memorandum of Agreement. The TPO will qualify the solar PV and battery storage facilities for all federal and state incentives identified in its bid response. The TPO will participate in the ConnectedSolutions program for a period of at least five years after the battery installation and receive the SMART incentive payment for the solar PV paired with storage for a period of 10 years. The TPO will also undertake any mechanical upgrades necessary to the participant's electrical panel to install the solar PV and battery systems. The TPO will assist in facilitating battery dispatch for the Compact and will comply with any necessary requirements of the Compact's dispatch vendor.

The TPO will contract with individual customers for a 10-year term. The contract will govern site access, maintenance, and the PPA rate for moderate-income customers who finance their cost contribution (maximum of \$5,000 per customer). Low-income customers will have a zero-dollar PPA.

²⁶ See the Compact's response to information request DPU 1-2 in D.P.U. 20-40.

Participants will agree to keep the solar PV and battery systems in operation and to not shut off the systems unless there is an emergency. In addition, participants will agree to maintain their property to allow for solar insolation (e.g., no planting of large trees blocking the sun). Participants may need to execute various documents for purposes of net metering the solar PV system, qualifying the solar PV and battery systems for SMART and qualifying the battery system for ConnectedSolutions. At a minimum, the TPO and participant contract will contain mandatory terms set forth during the procurement process; and compliance will be required as part of any bid award to ensure program participants are adequately protected.²⁷

At the end of the 10-year period, the system would revert to the host customer at no cost to the participant.²⁸ Sometime near the end of the participants' 10-year contract term (e.g., year eight), the Compact, on behalf of participants, intends to issue an RFP for optional, extended system maintenance at the conclusion of the TPO's ownership period. If participants do not want the paired solar PV and battery storage at the end of the PPA term, the TPO is responsible for removing the paired system.

Participants who elect to keep the paired solar PV and storage system will be responsible for decommissioning the system at end of useful life. The Compact has a grant commitment from the Mayflower wind project and will utilize these funds to cover the cost of decommissioning low-income participants' PV and storage systems.

TRC Costs

The Department was previously asked by the River Run Condominium Trust to rule that "in calculating the cost-effectiveness of a renewable energy project, distribution companies should calculate the net cost of project equipment by deducting the amount of the tax credit, rather than using its 100 percent initial cost."²⁹ The Department determined:

Although tax credits represent transfer payments from taxpayers to energy efficiency programs, the resulting liability constitutes a societal cost outside the scope of the Total Resource Cost Test. Because societal costs and benefits are excluded from the Total Resource Test, it is both proper and consistent to exclude the societal consequences of tax credits as well. Therefore, the Department finds that River Run's proposal to interpret "net cost of energy efficient equipment" from Section 3.2.3 of the Guidelines

²⁷ Mandatory contract terms may include, but are not limited to: early termination rights for failure of TPO to timely permit and/or install the systems; a guaranteed annual energy output (kWh/year minus onsite parasitic load) for the solar PV system; a set annual system degradation factor for the solar PV and battery systems; indemnification of the Compact and program participants; no limitation of the TPO's liability; commercially reasonable insurance provisions; dispute resolution; and solar PV and battery storage buy-out rights.

²⁸ Low-income participants may purchase the solar PV and battery systems for zero dollars at the end of the 10-year term. Moderate-income participants will have paid for the solar PV and battery systems and will therefore have a zero-dollar buyout at the end of the 10-year term.

²⁹ Massachusetts Department of Public Utilities, "Petition of River Run Condominium Trust for ruling on whether tax credits may be included in determining the net cost of energy efficient equipment under the guidelines for Energy Efficiency Programs, as approved in D.T.E. 98-100 and established by G.L. c. 25, § 19," July 9, 2008, D.P.U. 07-49, at 2.

as incorporating tax credits in benefit-cost analyses is consistent with the Department’s interpretation and application of the Total Resource Cost Test.³⁰

Based on Massachusetts precedent, the Compact treated the federal ITC and tax depreciation as a reduction in costs to the customer (in this case, the TPO), thereby reducing TRC costs. Table 4 summarizes the TRC costs the Compact calculated for the solar PV and storage installation for each year and each income level, which is shown in the solar PV line of the Compact’s benefit-cost screening model and used to determine cost-effectiveness.

Table 4. TRC costs for solar and storage TPO for low- and moderate-income participants (\$)

Year	Solar PV	Storage	Total Cost	ITC	Depreciation	Solar TRC Cost
2022	28,875	24,000	52,875	13,748	9,660	29,467
2023	28,875	24,000	52,875	11,633	9,882	31,360

Program Costs

Once the TPO has exhausted the funding available from other incentive programs for PV solar and storage installation, the Compact estimates needing approximately \$3.2 million from energy efficiency program funding to ensure zero cost for low-income participants, and approximately \$1.8 million to ensure low costs for moderate-income participants. In addition, across both years and income levels, the Compact expects a small marketing budget of \$30,000, as well as STAT costs totaling about \$448,000. The Compact anticipates STAT costs for its implementation vendor, potential technical assistance to prepare required participant documents, and to work with the TPO. The Compact would include these costs in the Residential and Income Eligible Coordinated Delivery core initiatives. Table 5 summarizes the CVEO solar and battery installation costs by year, customer group, and budget category.

Table 5. CVEO solar and battery installation costs (\$)

Year and Income	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Total Costs
2022	15,000	2,826,600	282,660	3,124,260
Low-Income	5,000	1,830,000	183,000	2,018,000
Moderate-Income	10,000	996,600	99,660	1,106,260
2023	15,000	1,648,400	164,840	1,828,240
Low-Income	5,000	1,050,000	105,000	1,160,000
Moderate-Income	10,000	598,400	59,840	668,240
2024	-	-	-	-
Low-Income	-	-	-	-
Moderate-Income	-	-	-	-
2022-2024	30,000	4,475,000	447,500	4,952,500
Low-Income	10,000	2,880,000	288,000	3,178,000
Moderate-Income	20,000	1,595,000	159,500	1,774,500

³⁰ Massachusetts Department of Public Utilities, “Petition of River Run Condominium Trust for ruling on whether tax credits may be included in determining the net cost of energy efficient equipment under the guidelines for Energy Efficiency Programs, as approved in D.T.E. 98-100 and established by G.L. c. 25, § 19,” July 9, 2008, D.P.U. 07-49, at 11-12.

Benefits and Cost-Effectiveness

Over the two-year term, CVEO solar PV and battery installations are expected to provide approximately \$30.5 million in benefits and \$23 million in net benefits with a benefit-cost ratio of 4.1. They will contribute about 222 metric tons to the 2030 avoided greenhouse gas emissions goal.

2.3 Battery Performance

In 2020, the Compact began implementing the statewide pay-for-performance battery program, ConnectedSolutions.³¹ The Compact will implement the same ADR program design proposed by the electric Program Administrators in the 2022–2024 Plan.

The Compact will require the TPO to enroll the batteries installed through CVEO in ConnectedSolutions, using a daily dispatch strategy during summer months.³² The TPO will claim the ConnectedSolutions incentive, which the Compact funds using energy efficiency revenue. Through this structure, the Compact ensures the batteries are available to perform during events and thereby reduce electricity loads at peak periods. While funded through energy efficiency programs, ConnectedSolutions is one of the few residential battery incentive programs available in Massachusetts, and one of the goals of CVEO is to maximize available incentive programs. Further, the Compact finds that the ConnectedSolutions incentive would not be enough on its own to allow low- or moderate-income customers to install batteries at their homes due to the upfront cost barrier. By combining ConnectedSolutions with the TPO structure, the Compact maximizes current incentive programs for batteries while maintaining control of the batteries' ability to reduce system peaks.

In addition to participating in the Compact's ConnectedSolutions offer, the battery will provide a participant with the ability to run at least essential household items (refrigerator, stove and HVAC elements, well pump, etc.) during a power outage.

Program Costs

The Compact estimates the cost of CVEO batteries participating in ConnectedSolutions will be about \$982,000 in incentives and about \$20,000 in STAT. This budget reflects that it will take time to roll out CVEO and enroll customers in ConnectedSolutions, and that participation accumulates year-to-year as new customers enroll in ConnectedSolutions. Specifically, the Compact assumed the following when developing the ConnectedSolutions budget, savings, and cost-effectiveness.

³¹ In the 2019–2021 Plan Order, the Department directed the Compact to reach a final agreement with NSTAR Electric regarding all aspects of coordination necessary to implement ADR offerings in the Compact's service area. On September 27, 2019, the Compact submitted its Memorandum of Agreement with NSTAR Electric to the Department for review and approval. On February 10, 2020, the Department approved the Memorandum of Agreement and the Compact's ADR budget. D.P.U. 18-116-A, February 10, 2020.

³² See, D.P.U. 20-34.

- 2022: half the 2022 CVEO participants will install batteries before summer 2022 and will therefore participate in ConnectedSolutions in 2022. The remaining half will install batteries in the second half of the year, thereby missing summer peak savings.
- 2023: all 2022 CVEO participants will have installed batteries and half of the 2023 participants will install batteries before summer 2023 and will therefore participate in ConnectedSolutions in 2023.
- 2024: All 2022 and 2023 CVEO participants will have installed batteries before summer 2024 and will therefore participate in ConnectedSolutions in 2024.

Table 6 summarizes the costs for CVEO battery performance for the plan. These costs are specific to CVEO batteries and do not include costs for other ADR measures or offerings. The Compact would include these costs in the Residential and Income Eligible Active Demand Reduction core initiatives.

Table 6. CVEO battery performance costs (\$)

Year and Income	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Total Costs
2022	-	150,645	2,905	153,550
Low-Income	-	90,750	1,750	92,500
Moderate-Income	-	59,895	1,155	61,050
2023	-	377,520	7,280	384,800
Low-Income	-	226,875	4,375	231,250
Moderate-Income	-	150,645	2,905	153,550
2024	-	453,750	8,750	462,500
Low-Income	-	272,250	5,250	277,500
Moderate-Income	-	181,500	3,500	185,000
2022-2024	-	981,915	18,935	1,000,850
Low-Income	-	589,875	11,375	601,250
Moderate-Income	-	392,040	7,560	399,600

Benefits and Cost-Effectiveness

Over the two-year term, CVEO batteries enrolled in ConnectedSolutions are expected to provide approximately \$1.7 million in benefits and \$700,000 in net benefits with a benefit-cost ratio of 1.7. Because batteries have a one-year measure life, they will not contribute to the 2030 avoided greenhouse gas emissions goal.

3. Additional CVEO Details

3.1 Marketing

The Compact will market CVEO publicly through its grassroots efforts and various media avenues including social media, radio, and local community television. Each of the Compact’s Governing Board members will work with their respective municipalities to market CVEO. The Compact will work with various contractor and stakeholder communities to help identify qualified participants.

The Compact is already coordinating with the Department of Housing and Community Development, the Cape Cod Commission, Habitat for Humanity, and affordable housing organizations on Martha's Vineyard to identify eligible customers with deed-restricted properties. The Compact will then undertake targeted program marketing for low-income customers on deed-restricted properties.

3.2 Evaluation

The Compact will evaluate CVEO consistent with statewide evaluation protocols. The Program Administrators have developed a statewide cost estimate for 2022–2024 evaluations. The Strategic Evaluation Plan considers aspects of CVEO, including studies for the core initiatives within which CVEO is a part.

The Compact will share its progress and results with other Program Administrators through the Demand Response Coordinating Committee and/or management committees. To the extent relevant to CVEO, the Compact will also review other Program Administrators' evaluations of their demonstration offerings as a resource to better implement CVEO based on the evaluated results.

The Compact is still considering the details of its own evaluation efforts. CVEO could be evaluated in a stand-alone study, or portions of it could be integrated and evaluated as part of the statewide evaluation efforts. The Compact will likely evaluate both qualitative aspects—such as baseline determinations, policy barriers, and customer satisfaction—as well as quantitative aspects—such as achieved kW and kWh savings, customer acquisition costs, and coincident peak savings. A CVEO evaluation could include customer surveys, vendor interviews, potential metrics for evaluating projects, and data analysis.

The Compact plans to further develop and refine the CVEO evaluation plan after the Department approves CVEO. The Compact currently expects the planned evaluation budget will sufficiently cover the cost of CVEO-related evaluation studies.

4. Financial and Cost-Effectiveness Summary

CVEO is expected to result in the following budget, bill impacts, savings, and cost-effectiveness.

4.1 Budget

The Compact developed the CVEO budget for each technology from the ground up. Table 7 summarizes the budget the Compact proposes for CVEO. The budget is about \$11.4 million, which is driven by the incentives needed to ensure low-income customers have no upfront cost or copayment and moderate-income customers have a maximum cost of \$5,000.

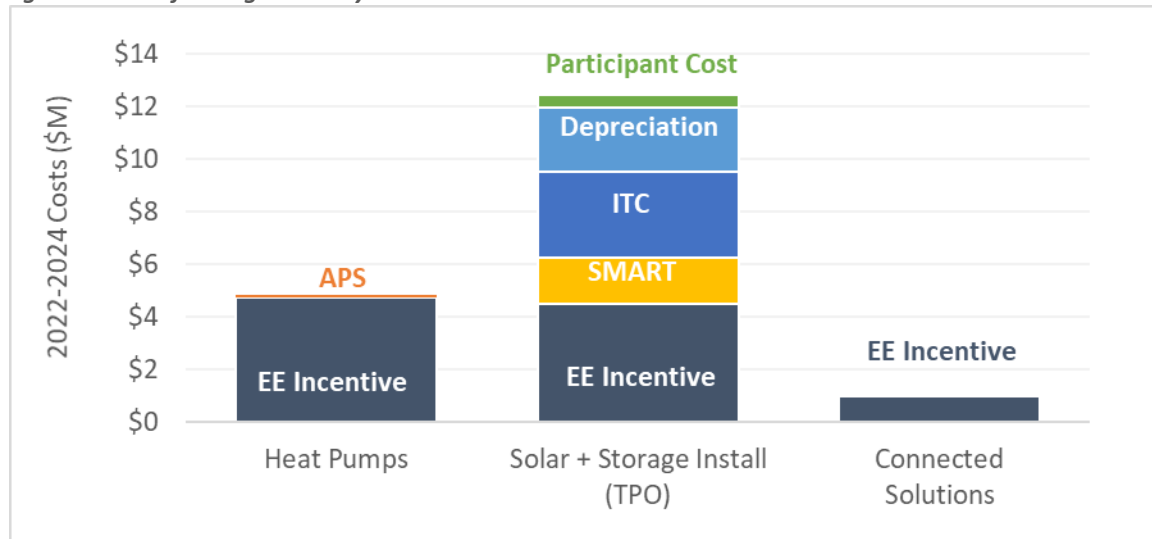
Table 7. CVEO costs by category, year, and technology (\$)

Year, Technology, Core Initiative	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Total Costs
2022				
Heat Pumps	-	3,201,000	182,400	3,383,400
B1a - Income Eligible Coordinated Delivery	-	1,836,000	182,400	2,018,400
A2a - Residential Coordinated Delivery	-	1,365,000	-	1,365,000
Solar	15,000	2,826,600	282,660	3,124,260
B1a - Income Eligible Coordinated Delivery	5,000	1,830,000	183,000	2,018,000
A2a - Residential Coordinated Delivery	10,000	996,600	99,660	1,106,260
Storage	-	150,645	2,905	153,550
B1b - Income Eligible Active Demand Reduction	-	90,750	1,750	92,500
A2e - Residential Active Demand Reduction	-	59,895	1,155	61,050
CVEO Total	15,000	6,178,245	467,965	6,661,210
2023				
Heat Pumps	-	1,628,000	384,200	2,012,200
B1a - Income Eligible Coordinated Delivery	-	965,000	384,200	1,349,200
A2a - Residential Coordinated Delivery	-	663,000	-	663,000
Solar	15,000	1,648,400	164,840	1,828,240
B1a - Income Eligible Coordinated Delivery	5,000	1,050,000	105,000	1,160,000
A2a - Residential Coordinated Delivery	10,000	598,400	59,840	668,240
Storage	-	377,520	7,280	384,800
B1b - Income Eligible Active Demand Reduction	-	226,875	4,375	231,250
A2e - Residential Active Demand Reduction	-	150,645	2,905	153,550
CVEO Total	15,000	3,653,920	556,320	4,225,240
2024				
Heat Pumps	-	-	-	-
B1a - Income Eligible Coordinated Delivery	-	-	-	-
A2a - Residential Coordinated Delivery	-	-	-	-
Solar	-	-	-	-
B1a - Income Eligible Coordinated Delivery	-	-	-	-
A2a - Residential Coordinated Delivery	-	-	-	-
Storage	-	453,750	8,750	462,500
B1b - Income Eligible Active Demand Reduction	-	272,250	5,250	277,500
A2e - Residential Active Demand Reduction	-	181,500	3,500	185,000
CVEO Total	-	453,750	8,750	462,500
2022-24				
Heat Pumps	-	4,829,000	566,600	5,395,600
B1a - Income Eligible Coordinated Delivery	-	2,801,000	566,600	3,367,600
A2a - Residential Coordinated Delivery	-	2,028,000	-	2,028,000
Solar	30,000	4,475,000	447,500	4,952,500
B1a - Income Eligible Coordinated Delivery	10,000	2,880,000	288,000	3,178,000
A2a - Residential Coordinated Delivery	20,000	1,595,000	159,500	1,774,500
Storage	-	981,915	18,935	1,000,850
B1b - Income Eligible Active Demand Reduction	-	589,875	11,375	601,250
A2e - Residential Active Demand Reduction	-	392,040	7,560	399,600
CVEO Total	30,000	10,285,915	1,033,035	11,348,950

4.2 Funding

The Compact designed CVEO to leverage as much non-energy efficiency funding as possible. Figure 1 summarizes how the equipment costs for each CVEO technology will be funded. The Compact expects about \$9 million in outside funding will offset revenue collected from ratepayers, with energy efficiency funding paying about 50 percent of total CVEO equipment costs (marketing and STAT costs are not included in the figure).

Figure 1. CVEO funding summary



4.3 Bill Impacts

Non-Participant Bill Impacts

The Compact proposes to collect the CVEO budget in each year of the three-year plan. The Compact will file the EES including CVEO costs for the Department’s review on or before November 1 of each year for the EES effective January 1 of the following year.

Table 8 provides the CVEO-only portion of the EES rates proposed and estimated for 2022-2024. Table 9 summarizes the estimated bill impacts for residential and low-income customers attributable to CVEO. Table 9 compares bills for the Compact’s plan with and without CVEO. For example, an average residential customer in 2022 will see a total monthly bill of \$143.12 with CVEO and a total monthly bill of \$141.00 without CVEO. The difference between these two bills is \$2.12, or 1.5 percent.

In estimating the rate and bill impacts below, the Compact has removed all CVEO-related costs, including STAT costs and incentives that are consistent with statewide incentives. The Compact emphasizes that only a portion of the CVEO incentive structure represents an enhancement above and beyond the statewide incentives. Those enhancements are: (1) a 100 percent incentive for moderate income heat pumps (relative to the 80 percent incentive offered statewide), and (2) the

cost to install both solar PV and battery systems. Those enhancement-specific costs are approximately \$5.6 million, which is about 50 percent of the CVEO budget. The remaining proposed budget is consistent with statewide program designs and incentive levels.

Table 8. CVEO portion of EES rates (cents per kWh)

Customer Sector	2022 EES	2023 EES	2024 EES
Residential	0.411	0.259	0.030
Low-Income	0.166	0.114	0.012
C&I	0.296	0.198	0.021

Table 9. Bill impacts to non-participants from CVEO

Rate Class	2022		2023		2024	
	\$	%	\$	%	\$	%
Residential (R-1)	\$2.12	1.5%	\$1.34	0.9%	\$0.16	0.1%
Low-Income (R-2)	\$0.52	0.7%	\$0.35	0.5%	\$0.03	0.0%

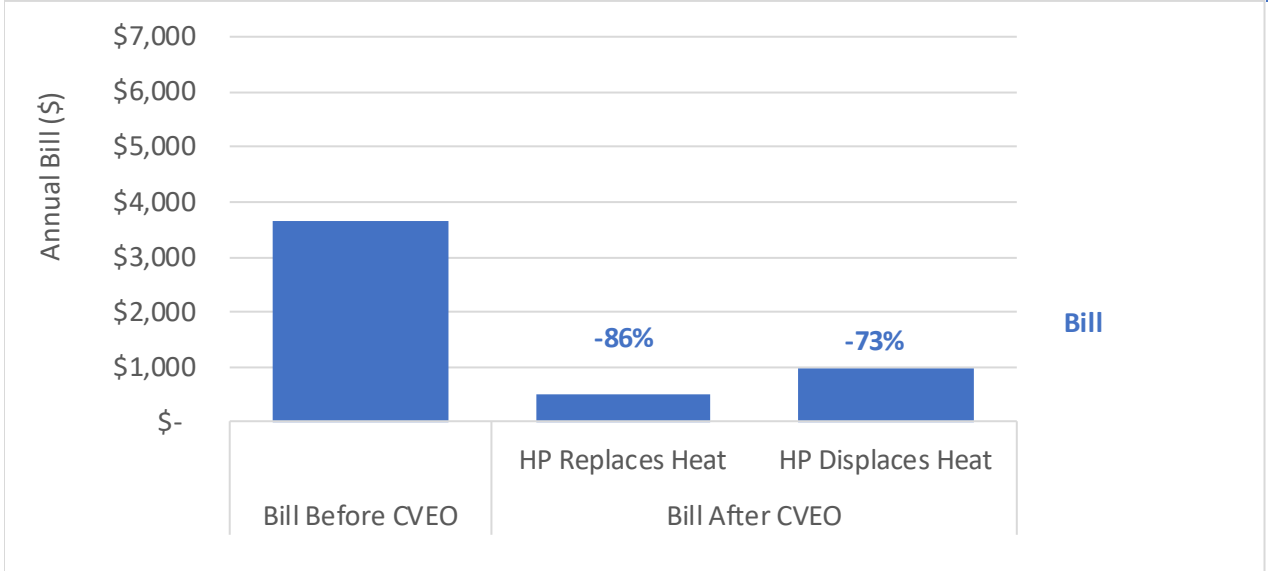
Participant Bill Impacts

In response to feedback the Compact received from stakeholders including LEAN and the Attorney General, the Compact designed CVEO to ensure that participants see bill reductions because of participation in the offering. The Compact estimated a participant’s energy bills before participation and after participation when the heat pump partially or fully displaces the customer’s current heating system and the solar PV reduces electric consumption.

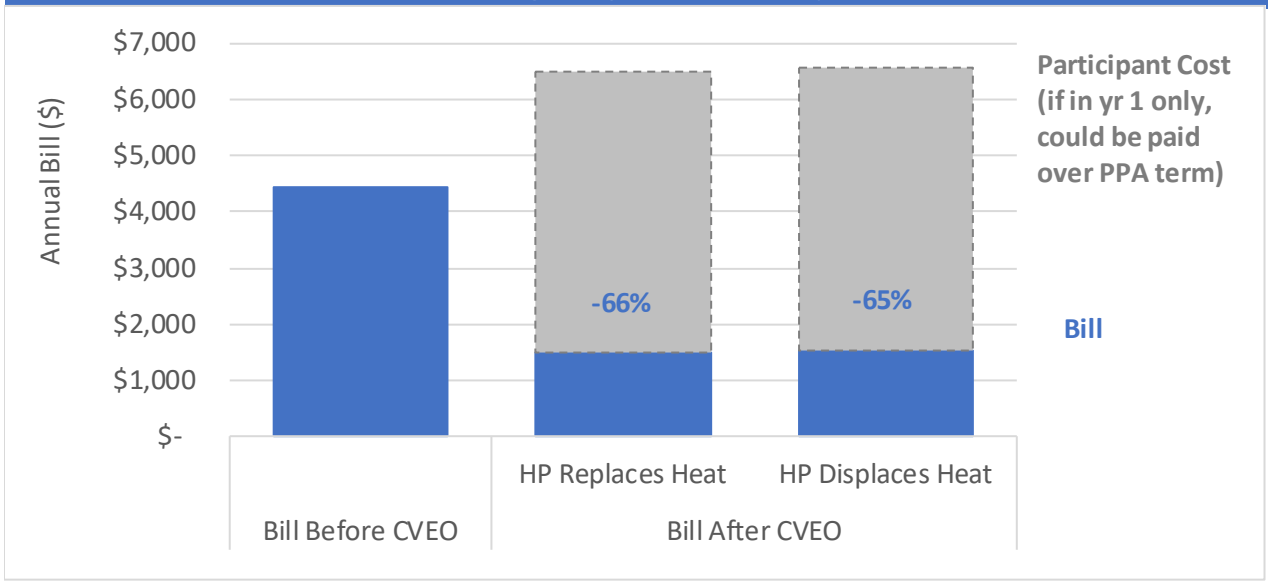
Figure 2 summarizes the net energy bill impact to low- and moderate-income CVEO participants in 2022 when the participant heated with propane prior to CVEO participation. Depending on whether the heat pump installed through CVEO fully or partially displaces the participant’s propane heating use, a customer can expect to see a bill reduction between 58 and 86 percent. The Compact similarly analyzed bills for customers that used oil or electric baseboard heating prior to participating in CVEO and found similar results (see EEAC presentations in Exhibit Compact-10 to the Compact’s 2022-2024 Three-Year Plan filing). The Compact’s goal is that most CVEO participants will use heat pumps to fully replace their existing heating system, which provides a larger bill reduction to participants.

Figure 2. 2022 CVEO participant bill impacts for customer that heats with propane

Low-Income Customer Using Propane Heat Before CVEO



Moderate-Income Customer Using Propane Heat Before CVEO



4.4 Savings and Cost-Effectiveness

All CVEO technologies are cost-effective individually and collectively with a benefit-cost ratio greater than 1.0 using the Massachusetts Total Resource Cost test.³³ The customer sectors to which the Compact proposes to add CVEO measures remain cost-effective with a benefit-cost ratio greater than 1.0. This indicates that investment in CVEO will result in benefits to the utility system and customers. Table 10 summarizes the savings and cost-effectiveness for CVEO by technology.

³³ Energy Efficiency Guidelines § 3.4.

The Compact thoroughly reviewed cost-effectiveness and all related assumptions for CVEO, and assumptions were reviewed and modified based on EEAC consultant feedback.

Table 10. CVEO savings and cost-effectiveness summary

2022				
Year, Savings, Cost-Effectiveness	Heat Pumps	Solar	Battery	Total
Savings				
Participants				166
Annual MWh	(578)	1,382	(8)	795
Lifetime MWh	(8,824)	34,553	(8)	25,721
Annual MMBTU	4,012	9,684	(73)	13,622
Lifetime MMBTU	75,597	204,238	(73)	279,762
Summer kW	78	947	548	1,573
Winter kW	(158)	-	-	(158)
2025 Total Avoided CO2e (Metric Tons)	460	258	-	718
2030 Total Avoided CO2e (Metric Tons)	507	147	-	654
Cost-Effectiveness				
Benefits	\$ 6.7	\$ 20.2	\$ 0.3	\$ 27.2
TRC Costs	\$ 3.2	\$ 4.9	\$ 0.2	\$ 8.2
Net Benefits	\$ 3.5	\$ 15.3	\$ 0.1	\$ 18.9
Benefit-Cost Ratio	2.1	4.1	1.8	3.3
CLC Budget	\$ 3.4	\$ 3.1	\$ 0.2	\$ 6.7

2023				
Year, Savings, Cost-Effectiveness	Heat Pumps	Solar	Battery	Total
Savings				
Participants				84
Annual MWh	(408)	699	(21)	270
Lifetime MWh	(6,399)	17,485	(21)	11,065
Annual MMBTU	1,864	4,834	(190)	6,508
Lifetime MMBTU	36,655	102,292	(190)	138,757
Summer kW	18	479	1,373	1,870
Winter kW	(95)	-	-	(95)
2025 Total Avoided CO2e (Metric Tons)	255	131	-	385
2030 Total Avoided CO2e (Metric Tons)	287	74	-	362
Cost-Effectiveness				
Benefits	\$ 3.4	\$ 10.3	\$ 0.6	\$ 14.3
TRC Costs	\$ 1.6	\$ 2.6	\$ 0.4	\$ 4.6
Net Benefits	\$ 1.7	\$ 7.7	\$ 0.3	\$ 9.7
Benefit-Cost Ratio	2.1	3.9	1.7	3.1
CLC Budget	\$ 2.0	\$ 1.8	\$ 0.4	\$ 4.2

2024				
Year, Savings, Cost-Effectiveness	Heat Pumps	Solar	Battery	Total
Savings				
Participants				-
Annual MWh	-	-	(25)	(25)
Lifetime MWh	-	-	(25)	(25)
Annual MMBTU	-	-	(192)	(192)
Lifetime MMBTU	-	-	(192)	(192)
Summer kW	-	-	1,650	1,650
Winter kW	-	-	-	-
2025 Total Avoided CO2e (Metric Tons)	-	-	(2)	(2)
2030 Total Avoided CO2e (Metric Tons)	-	-	-	-
Cost-Effectiveness				
Benefits	\$ -	\$ -	\$ 0.8	\$ 0.8
TRC Costs	\$ -	\$ -	\$ 0.5	\$ 0.5
Net Benefits	\$ -	\$ -	\$ 0.3	\$ 0.3
Benefit-Cost Ratio	-	-	1.7	1.7
CLC Budget	\$ -	\$ -	\$ 0.5	\$ 0.5

2022-2024 Plan				
Year, Savings, Cost-Effectiveness	Heat Pumps	Solar	Battery	Total
Savings				
Participants				250
Annual MWh	(987)	2,082	(54)	1,041
Lifetime MWh	(15,222)	52,038	(54)	36,762
Annual MMBTU	5,876	14,517	(456)	19,938
Lifetime MMBTU	112,252	306,530	(456)	418,326
Summer kW	97	1,426	3,571	5,093
Winter kW	(253)	-	-	(253)
2025 Total Avoided CO2e (Metric Tons)	715	389	(2)	1,101
2030 Total Avoided CO2e (Metric Tons)	794	222	-	1,016
Cost-Effectiveness				
Benefits	\$ 10.1	\$ 30.5	\$ 1.7	\$ 42.3
TRC Costs	\$ 4.8	\$ 7.5	\$ 1.0	\$ 13.3
Net Benefits	\$ 5.2	\$ 23.0	\$ 0.7	\$ 28.9
Benefit-Cost Ratio	2.1	4.1	1.7	3.2
CLC Budget	\$ 5.4	\$ 5.0	\$ 1.0	\$ 11.3

All three CVEO measures can provide the utility system, customers, and society a host of benefits that range from avoided energy and capacity costs to reduced environmental impacts. For example, CVEO can help reduce system peak demand and potentially alleviate distribution constraints (in coordination with the distribution company). Renewable generation can provide benefits to all customers by aligning customer-sited energy sources with peak load hours. Batteries can shift load to

non-peak hours to reduce peak use.

In addition, CVEO's heat pumps can save energy and reduce GHG emissions by moving customers off oil, propane, and electric baseboard heat. The Compact's service territory has some of the highest incidence of electric heat, and neither Martha's Vineyard nor the Outer Cape have natural gas service available.

An added benefit of the combined CVEO measures for low-income customers is a reduction in the subsidies that non-low-income customers pay to reduce bills for low-income customers. Non-low-income ratepayers subsidize low-income customers' total rates and bills, including the EES rates, by 36 percent. With CVEO, low-income customers use less energy due to solar, although savings are partially offset by increased consumption from heat pumps, and ratepayers no longer need to subsidize low-income customers that amount. The Compact estimates that, for the 150 proposed low-income CVEO participants, over the 10-year period of the TPO contract, non-low-income customers will collectively save between \$80,000 and \$700,000 in reduced low-income subsidies.

Proposed Cape & Vineyard Electrification Offering – Update

November 6, 2019



**Cape Light
Compact**

Working Together Toward A Smarter Energy Future

Snapshot of Cape Cod and Martha's Vineyard



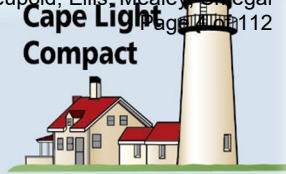
- 2016-2018 US Census Data:
 - 3,296 Solar Installations
 - 272 installations (8%) were in low-income census block groups (area defined as having majority of residents below 60% of state median income)
- 2016-2018 MA CEC Solar Loan Data:
 - 377 Solar Installations Using Solar Loan Program
 - 87 installations (2%) were on homes where residents earned 80% or less than the state median income.



CVEO 2.0: Why?

- Low and moderate income customers are being left behind in terms of:
 - Solar
 - Generally cannot take monetize tax credits, high upfront cost
 - 3rd Quarter 2019 EDC report indicated only one LI customer participating in SMART across the state
 - Battery storage
 - Low- and moderate-income customers cannot front costs associated with storage. Statewide PFP program does not address this barrier
 - Electrification
 - High upfront cost to convert to heat pumps
- LI customers tend to have high energy burdens (% of income spent on energy)

DPU 2019-2021 Order and CVEO



- “Appreciative of the Compact’s efforts but...not sufficient stakeholder involvement...Enhanced storage incentive and bundled enhanced incentive, CVEO, not approved at this time.”
 - Stakeholder Involvement
 - On-going meetings locally on Cape and Vineyard
 - Sought feedback from DOER, Attorney General’s Office, Acadia Center and LEAN

Summary of changes



- Reduced participation, reduced costs, reduced impacts
- Compact issued a Request for Information (RFI) to solar developers to inform new design
- Third-Party Ownership (TPO) of PV systems and batteries leverages private investment to maximize tax and other incentives, greatly reduces amount of energy efficiency funds collected from ratepayers
- Addresses the upfront cost barrier

Proposed Cape & Vineyard Electrification Offering



- Objectives
 - **250** total non-gas heated participants, tiered services by income - Low-income (up to 60%), moderate income (61-80%)
 - Enhanced incentives for all three measures for customers below 81% of SMI
 - Statewide offerings for customers over 81%
 - Deed restricted properties
 - Convert oil, propane, electric resistance heat to cold climate **heat pumps**
 - Install **PV** systems to support electrification of heating system and reduce GHG emissions
 - Install **battery** storage for demand response

Average Customer Estimated Annual Energy Bill: Before and After



	<u>LOW-INCOME (R-2)</u>		<u>RESIDENTIAL (R-1)</u>	
	HP Replaces Oil	HP Displaces Oil	HP Replaces Oil	HP Displaces Oil
<i>Energy Bills Before Heat Pump and Solar</i>				
Oil Bill	\$1,824	\$1,824	\$1,824	\$1,824
Electric Bill	\$911	\$911	\$1,582	\$1,582
Total	\$2,735	\$2,735	\$3,406	\$3,406
<i>Energy Bills After Heat Pump and Solar</i>				
Oil Bill	\$0	\$421	\$0	\$421
Electric Bill	\$580	\$259	\$918	\$460
Total	\$580	\$680	\$918	\$880
<u>Net Bill Savings</u>				
Change in Annual Bill	-\$2,155	-\$2,056	-\$2,488	-\$2,525



TPO Key Design Considerations

- **PPA or Lease:** Compact will issue RFP for a “pre-paid” TPO solar + storage power purchase agreement (PPA) or lease agreement and select qualified bidder
- **TPO:** Tax-equity TPO will own system for up to 10 years. Will be responsible for system performance and maintenance during TPO ownership period.
 - Vendor and participants will sign Compact’s contract
- **From Customer perspective:**
 - LI participant will have \$0 lease or PPA
 - MI participants may have a non-\$0 PPA, depending on Compact’s incentive structure
- **After 10 years:** At end of TPO ownership period, customer may “purchase” the system for \$0
 - Intent for post-term optional maintenance contract

CVEO Funding Sources – TPO Model



- Federal Investment Tax Credit
- Federal Accelerated Depreciation Tax Deduction
- SMART Base Incentive
- SMART Low-Income Adder
- SMART Storage Adder
- Alternative Energy Credit Incentive
- Clean Peak Standard Incentive
- ConnectedSolutions Participation Incentive
- Energy Efficiency Funds



Next Steps

- Finalizing program details
- Once finalized, Compact will run its budget, and BCR models to present to Executive Committee in December
- Present CVEO to Energy Efficiency Advisory Council (EEAC) in December, introduce draft Resolution
- EEAC to vote in January on CVEO

Proposed Cape & Vineyard Electrification Offering – Update

Energy Efficiency Advisory Council
December 18, 2019



**Cape Light
Compact**

Proposed Cape & Vineyard Electrification Offering



- Objectives
 - **250** total non-gas heated participants, all low-income (up to 60%) or moderate income (61-80%)
 - Convert oil, propane, electric resistance heat to cold climate heat pumps
 - Install PV systems to support electrification of heating system and reduce GHG emissions
 - Install battery storage for demand response and resiliency
- Addresses the issue of upfront cost barrier

DPU 2019-2021 Order and CVEO



- *“Appreciative of the Compact’s efforts but...not sufficient stakeholder involvement...Enhanced storage incentive and bundled enhanced incentive, CVEO, not approved at this time.”*
- Stakeholder Involvement
 - Ongoing dialogue with DOER, Attorney General’s Office, Acadia Center, LEAN and others
 - Continued dialogue locally on Cape and Vineyard throughout 2019



Summary of changes

- Compact issued a Request for Information to solar developers to inform new design
- Proposing innovative third-party ownership model for solar PV + battery systems which leverages private investment to maximize all tax and other incentive payments and reduces impact on energy efficiency budget
- As compared to original CVEO proposal: narrower customer target, lower cost, reduced bill impacts



Next Steps

- Finalizing program details with stakeholders
- Once finalized, Compact will finalize its budget and BCR calculations
- Present CVEO to Energy Efficiency Advisory Council (EEAC) in January, introduce draft Resolution
- EEAC vote in early 2020
- Resubmit CVEO to the Department of Public Utilities

Cape & Vineyard Electrification Offering

Energy Efficiency Advisory Council
February 12, 2020



**Cape Light
Compact**

Working Together Toward A Smarter Energy Future

Cape & Vineyard Electrification Offering (CVEO)



- Cape Light Compact (CLC) is seeking passage of a resolution in support of CVEO from the EEAC
- CVEO advances the 2018 amendments to the Green Communities Act, and the revised proposal addresses concerns raised by stakeholders and the DPU
- Utilizing energy efficiency funds and leveraging outside funds, CVEO cost-effectively reduces participating customers' overall energy bills



CVEO Overview

- Deploys three technologies as a package:
 - Cold climate heat pumps
 - Solar photovoltaic (PV) systems
 - Battery energy storage systems (BESS)
- Focuses on low-income ($\leq 60\%$ SMI) and moderate-income (61-80% SMI) customer groups; limited to 250 customers
- All participants will be required to have energy assessment and install recommended measures prior to CVEO enrollment



Policy Background

- Designed with 2018 GCA Amendments in mind
 - Heat pumps: a plan may include “... strategic electrification, such as measures that are designed to result in cost-effective reductions in greenhouse gas emissions through the use of expanded electricity consumption while minimizing ratepayer costs.” G.L. 25, § 21, (b)(2)(iv)(A).
 - Batteries: a plan may include “...efficiency and load management programs including energy storage and other active demand management technologies.” G.L. 25, § 21, (b)(2)(iv)(A).
 - Solar PV: a plan may include “...programs that result in customers switching to renewable energy sources or other clean energy technologies.” G.L. 25, § 21, (b)(2)(iv)(J).
- Municipal Aggregators have unique authority



Background on Plan

- Compact initially proposed CVEO as part of 2019-2021 energy efficiency plan
 - 700 total customers, tiered services by income level
- DPU did not approve when initially proposed but stated it “merits close consideration.” Requested additional consideration of stakeholder concerns and required EEAC approval of redesign prior to resubmittal to DPU.
 - CLC has worked with stakeholders to develop a revised proposal



CVEO Objectives

- Serve **250** total non-gas heated participants, tiered services by income: Low-income (up to 60%), moderate income (61-80%)
 - Enhanced incentives for all three measures
- Convert oil, propane, electric resistance heat to cold climate heat pumps
- Install PV systems to support electrification of heating system and reduce GHG emissions
- Install battery storage for demand response & resiliency
- Addresses the issue of upfront cost barrier



CVEO Participant Incentives

Income Level (SMI)		Customers			Heat Pumps	Solar PV + Storage
		2020	2021	Total		
Low-Income	<=60%	50	100	150	100% of cost covered (EE funds)	100% of cost covered (EE Funds and non-EE funds)
Moderate Income	61-80%	25	75	100	100% of cost covered (EE funds)	75+% of cost covered (EE funds and non-EE funds) \$5,000 customer contribution cap
Total Participants		75	175	<u>250</u>		



Summary of Changes

- Reduced size (250 customers, from 640 for 2020/2021)
- Eliminated enhanced incentives for >80% SMI
- Better leverages existing incentives/programs
 - Innovative third-party ownership (TPO) model for solar PV + battery systems allows monetization of tax credits and other incentive programs to reduce impact of EES on ratepayers
 - Federal ITC, depreciation, SMART, ConnectedSolutions, Clean Peak Standard, APS
 - Compact issued a Request for Information to solar developers to inform new design, and worked closely with stakeholders
- Changes result in lower overall cost, reduced bill impacts



Focus on Equity

- Low- and moderate-income customers are being left behind in terms of:
 - Electrification
 - Difficult to switch customers from oil and propane due to high upfront cost of heat pumps
 - Solar
 - Generally cannot take advantage of tax credits, high upfront cost
 - Only 8% of CC/MV solar installations are in LI census block groups
 - 2% of CC/MV MassCEC solar loans were to homes where residents earned 80% or less of SMI.
 - Reduces impact to electric bill from converting to heat pumps
 - Battery storage
 - Low- and moderate-income customers cannot pay for storage; statewide pay-for-performance program is not adequate for storage adoption in this customer group
- LI customers tend to have high energy burdens (% of income spent on energy)



TPO Key Design Considerations

- **PPA:** Compact will issue RFP for a “pre-paid” TPO PV + BESS power purchase agreement (PPA) and select qualified bidder
- **TPO:** Tax-equity TPO will own system for up to 10 years. Will be responsible for system performance and maintenance during TPO ownership period.
 - Vendor and participants will sign Compact’s contract
- **Participant cost:**
 - LI participant will have \$0 PPA
 - MI participants may have a non-zero PPA: responsible for 25% of system up to \$5,000
- **After 10 years:** At end of TPO ownership period, systems revert to customer at no additional cost



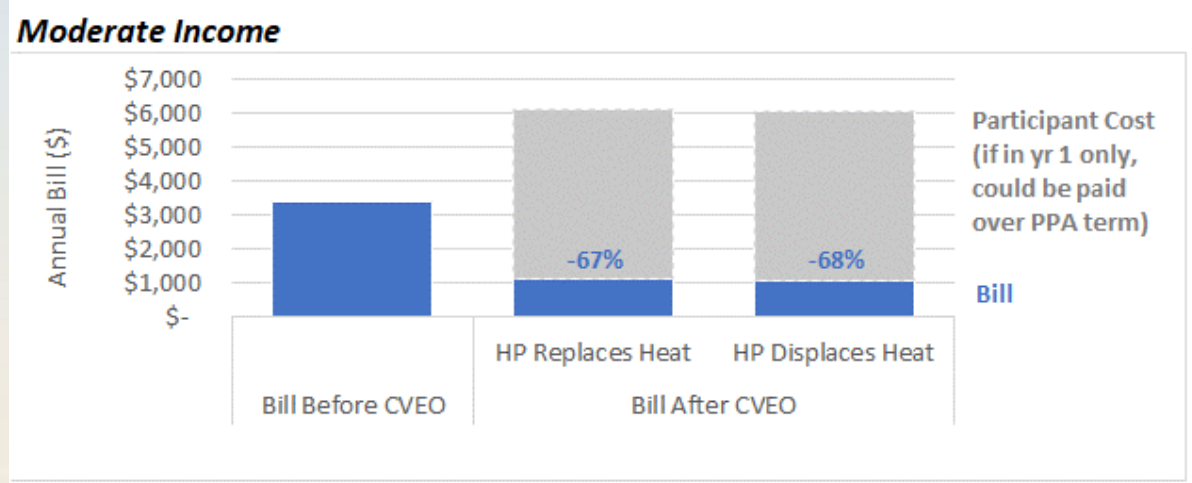
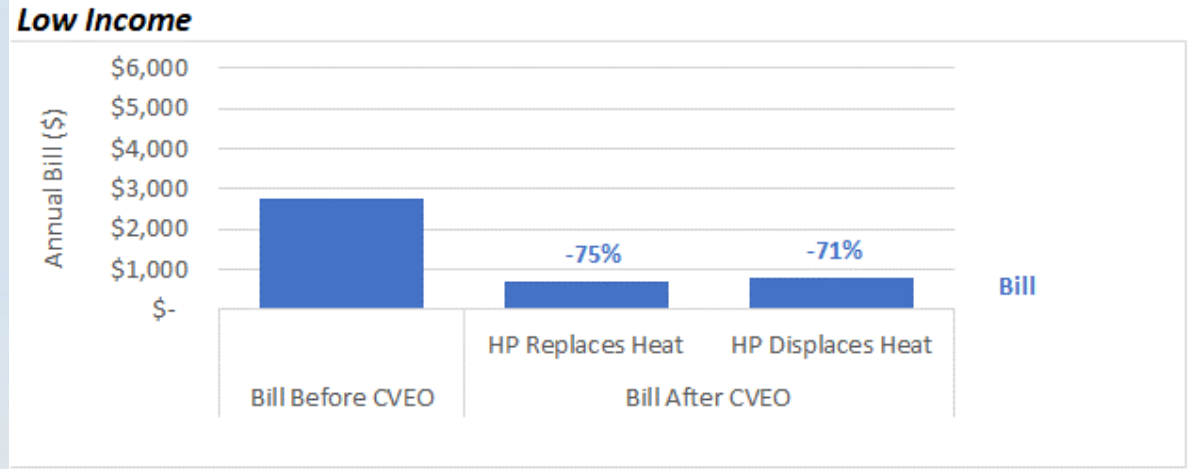
Participants' Perspective

- Low-Income: All three technologies installed at no cost
- Moderate-Income:
 - HPs installed at no cost
 - PV+BESS payment for 25% of system cost, \$5,000 cap
 - Likely option to spread payment over term of PPA
- Both
 - Reduced energy bills
 - Customer owns HPs, TPO owns PV+BESS until end of PPA term
 - PV+BESS maintenance at \$0 cost over PPA term
 - CLC will issue RFP for extended maintenance beyond PPA at customer's option and expense
 - No HP maintenance cost for 5-10 years
 - CLC will procure 5-10 year maintenance contract for CVEO participants



Customer Energy Cost Impact

Oil Heating Before CVEO



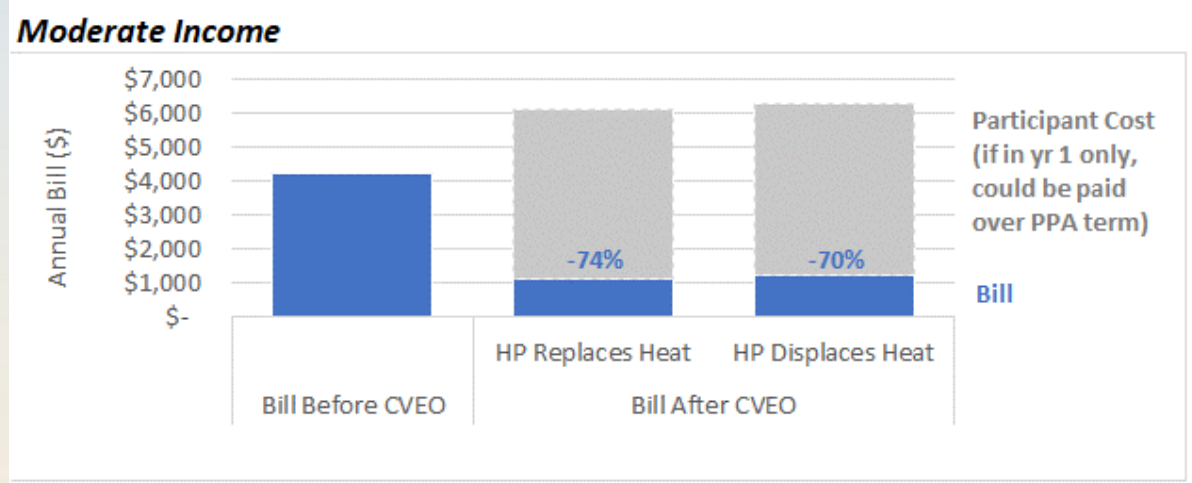
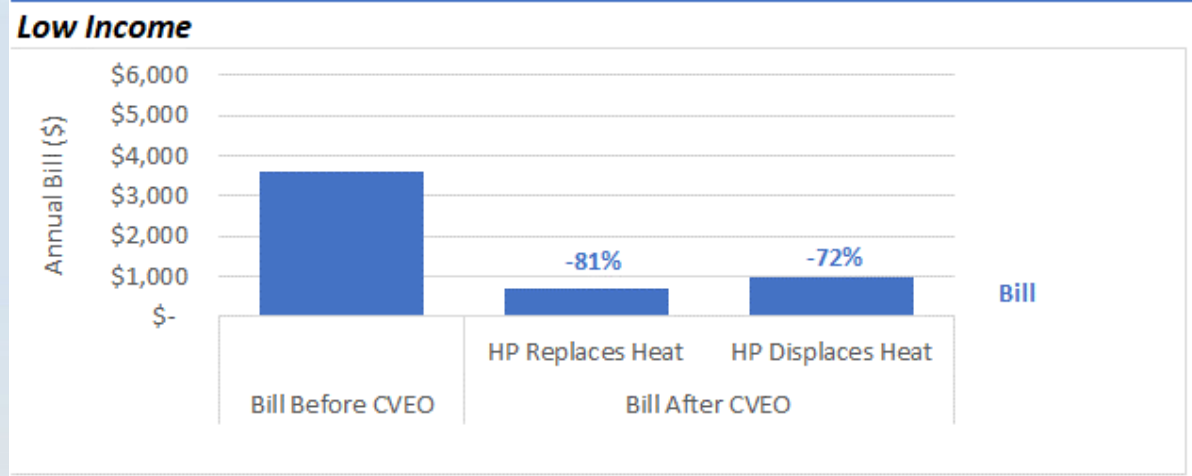
Package of measures is more beneficial to participant than installing any of the three alone

Gray bar shown is participant cost share for PV/BESS system. May be able to be spread over PPA term.



Customer Energy Cost Impact

Propane Heating Before CVEO



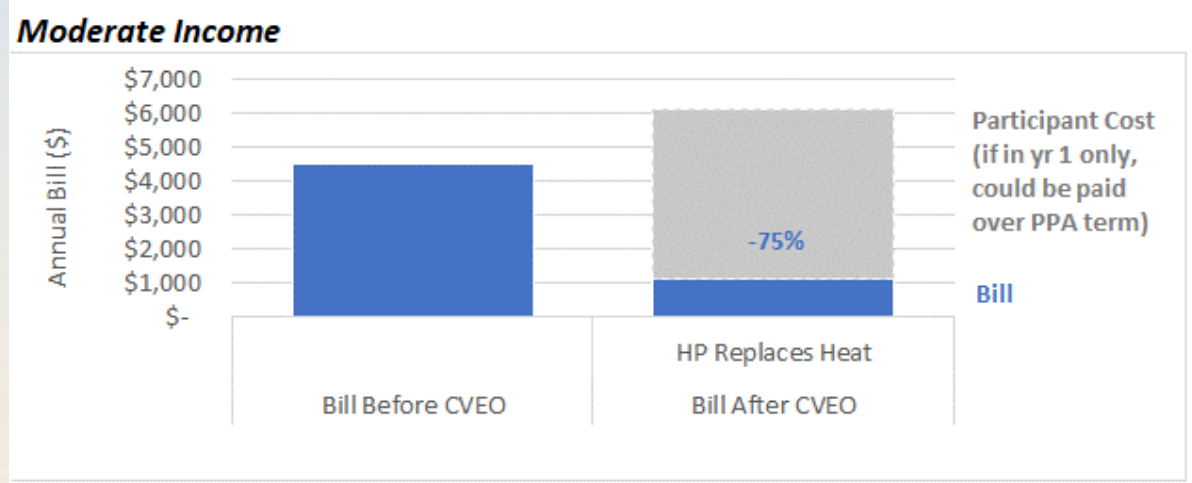
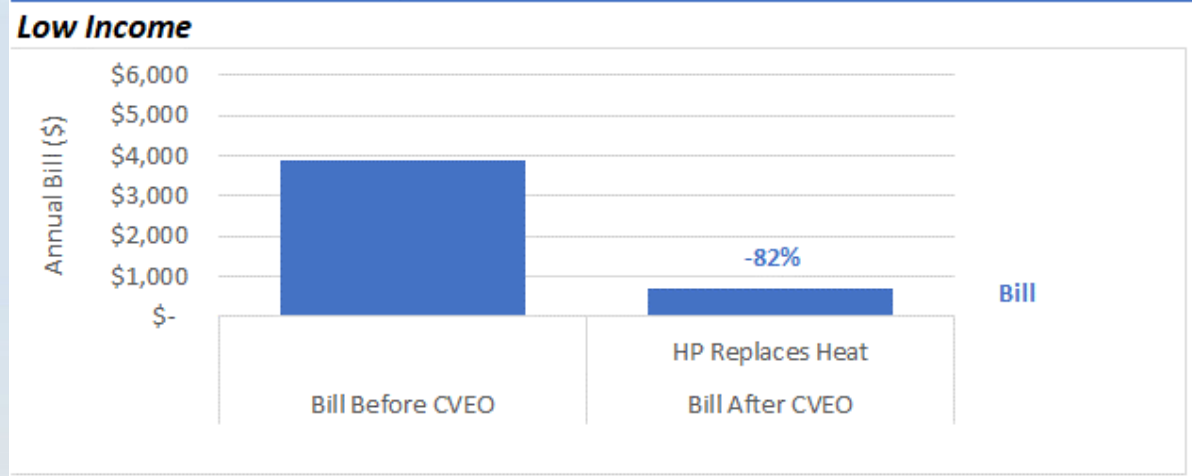
Package of measures is more beneficial to participant than installing any of the three alone

Gray bar shown is participant cost share for PV/BESS system. May be able to be spread over PPA term.



Customer Energy Cost Impact

Electric Baseboard Heating Before CVEO



Package of measures is more beneficial to participant than installing any of the three alone

Gray bar shown is participant cost share for PV/BESS system. May be able to be spread over PPA term.



Revised Budget

2020-2021	Heat Pumps	PV + Storage	Total
Plan	\$7.2M	\$20.5M	\$27.6M
Revised	\$6.8M	\$5.0M	\$11.7M
Difference	-\$0.4M	-\$15.5M	-\$15.9M



Bill Impacts

Residential (R-1)

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)
2018	\$0.01859	+	\$0.00250	x	516	=	\$10.88
2019	\$0.02028	+		x		=	\$11.75
2020, 1-6	\$0.02162	+		x		=	\$12.45
2020, 7-12	\$0.02268	+		x		=	\$12.99
2021	\$0.02578	+		x		=	\$14.59
2019-2021	\$0.02259	+		x		=	\$12.95

Low Income (R-2)

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)
2018	\$0.00148	+	\$0.00250	x	488	=	\$1.94
2019	\$0.00005	+		x		=	\$1.24
2020, 1-6	\$0.00167	+		x		=	\$2.03
2020, 7-12	\$0.00316	+		x		=	\$2.76
2021	\$0.00431	+		x		=	\$3.32
2019-2021	\$0.00230	+		x		=	\$2.34



Savings and Cost-Effectiveness

2020-2021	Plan	Revised	Difference	
			Change	% Change
Savings				
Participants	640	250	(390)	-61%
Annual MWh	4,945	1,221	(3,724)	-75%
Lifetime MWh	133,279	38,860	(94,418)	-71%
Summer kW	7,579	2,777	(4,802)	-63%
Winter kW	8,061	1,416	(6,646)	-82%
Annual CO2 Short Tons	3,934	1,935	(1,999)	-51%
Cost-Effectiveness				
Benefits (\$M)	\$ 88.9	\$ 27.0	\$ (62)	-70%
TRC Costs (\$M)	\$ 29.9	\$ 12.6	\$ (17)	-58%
Net Benefits (\$M)	\$ 58.9	\$ 14.4	\$ (45)	-76%
Benefit-Cost Ratio	3.0	2.1	(0.8)	-28%
CLC Budget (\$M)	\$ 27.6	\$ 11.7	\$ (16)	-57%

CVEO measures only

Next Steps

- Discussion and vote on Council Resolution
- Submit to Department of Public Utilities as a compliance filing in D.P.U. 18-116



Cape & Vineyard Electrification Offering

Summary of Updates
Between February and April 2020 EEAC Meetings



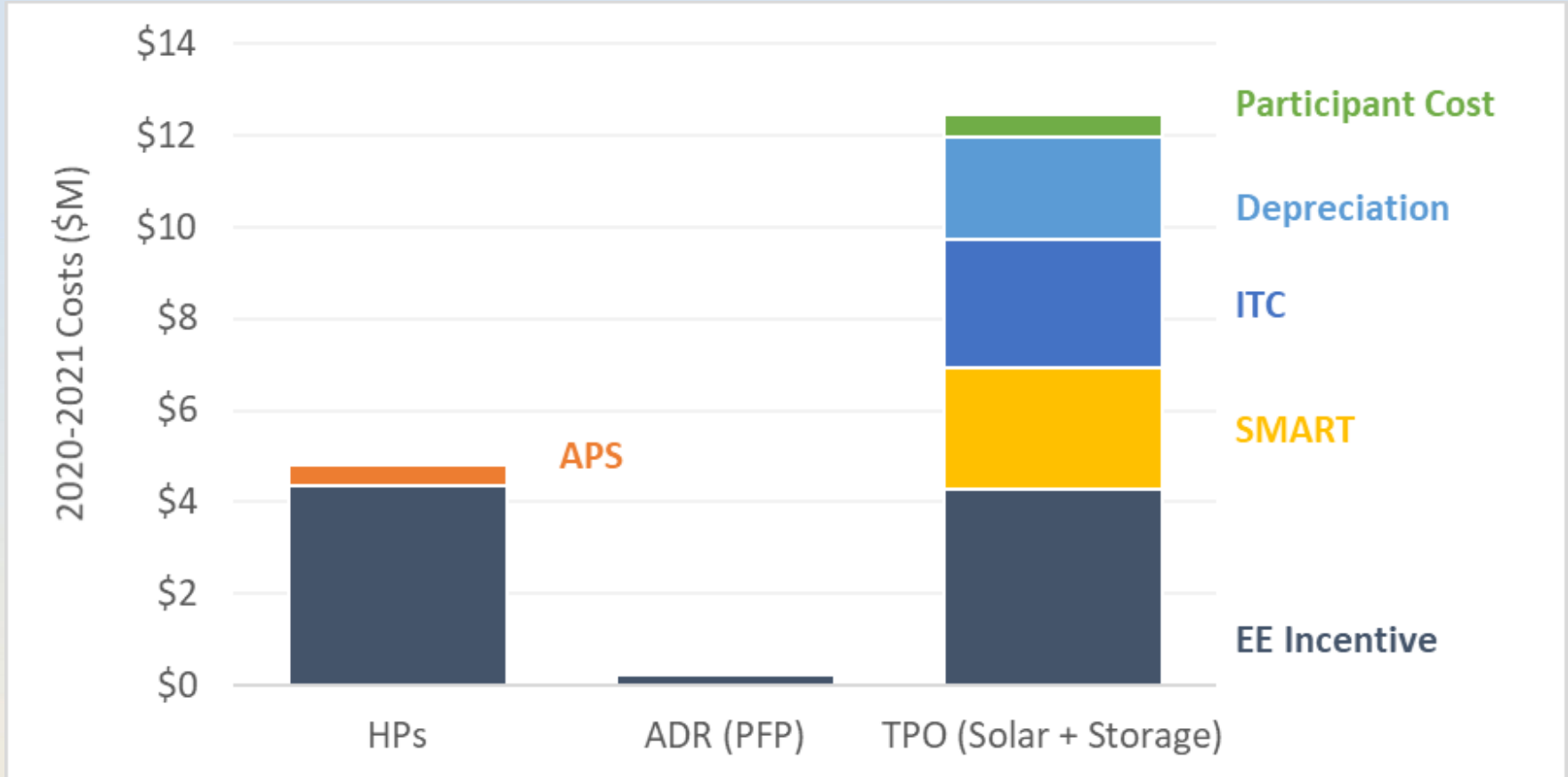
Working Together Toward A Smarter Energy Future



Changes from February EEAC to April EEAC Presentations

- Further QC and consultant review resulted in changes in the heat pump measure mix. These changes:
 - Decreased the heat pump budget by about \$1.4M
 - Decreased the CVEO budget from \$11.7M to \$10.4M
 - Increased the CVEO BCR from 2.1 to 2.4
- Corrected budget change and bill impact tables.

Funding Summary



**RESOLUTION OF THE ENERGY EFFICIENCY ADVISORY COUNCIL
REGARDING THE PROPOSED
CAPE & VINEYARD ELECTRIFICATION OFFERING OF
THE CAPE LIGHT COMPACT JPE**

Adopted April 15, 2020

Introduction and Background

In its 2019-2021 three-year energy efficiency plan (“2019-2021 Plan”), the Cape Light Compact JPE (“Compact”) proposed the Cape & Vineyard Electrification Offering (“CVEO”), an integrated and comprehensive strategic electrification and energy optimization offering that combines home weatherization from the Compact’s historically successful energy efficiency programs with three technologies: (1) cold climate air source heat pumps; (2) battery storage; and (3) solar photovoltaic (“PV”) arrays. The offering was designed to address changes to the Green Communities Act of 2008 (St. 2008, c. 169) as a result of the 2018 Act to Advance Clean Energy (St. 2018, c. 227) (the “2018 Act”). These 2018 changes expanded the permissible scope of energy efficiency plans to include strategic electrification, energy storage and other active demand management technologies and programs that result in customers switching to renewable energy sources or other clean energy technologies. Although not explicitly addressed by the Council in its October 30, 2018 resolution, the 2019-2021 Plan included CVEO as a Compact-specific enhancement and the Council supported the overall 2019-2021 Plan.

The Compact’s CVEO proposal submitted as part of the 2019-2021 Plan targeted 700 residential participants to convert their oil, propane or electric resistance heat to cold climate heat pumps, install solar PV systems to support electrification of their heating system and reduce greenhouse gas emissions and install battery storage for demand response and resiliency. The Compact proposed to offer incentives tiered by income for customers participating in the offering. Low-income participants would have no out-of-pocket expenditures and moderate-income participants would have highly subsidized incentives, to address the up-front technology cost barriers faced by these customers. The proposed incentives declined as a participant’s income surpassed 80% of state median income (“SMI”).

In its January 29, 2019 Order in D.P.U. 18-116 on the 2019-2021 Plan, the Department of Public Utilities (“Department”) did not approve CVEO and determined that additional stakeholder input on the proposed structure of CVEO was necessary. The Department directed the Compact to work with the Council (particularly, the Department of Energy Resources (“DOER”) and the Office of the Attorney General, who raised concerns specific to program costs, bill impacts and the proposed funding of the solar PV component) as part of any CVEO redesign. The Department also directed the Compact to obtain Council approval before submitting a revised proposal and budget to the Department for review.¹

¹ The Department also directed the Compact to reach a final agreement with NSTAR Electric regarding all aspects of coordination necessary to implement active demand reduction (“ADR”) offerings in the Compact’s service area. On September 27, 2019, the Compact submitted its Memorandum of Agreement (“MOA”) with NSTAR Electric to the Department for review and approval. On February 10, 2020, the Department approved the MOA and the Compact’s ADR budget.

The Compact is currently seeking the support of the Council to fund and implement a revised CVEO proposal for 2020-2021. The redesign is based on feedback from Council members the Compact received throughout 2019 and is further informed by the results of the Compact's 2019 Request for Information from solar PV developers and battery installers. The redesign includes the following changes to reduce program costs and associated bill impacts, and utilize outside funding for the solar PV and battery storage components:

- Limited to low- and moderate-income customers (*i.e.*, < 80% of state median income), no longer offering the package of measures to extended moderate income or market rate residential customers, which removes 350 participants over the three-year term (320 participants for 2020-2021) and eliminates enhanced incentives for these customers;
- Reduce low- and moderate-income participants to a maximum of 250 potentially eligible customers over 2020-2021 (from 320 originally proposed over 2020-2021);
- Greater alignment with the statewide storage pay-for-performance offering; and
- Use of an innovative third-party owner ("TPO") model for paired solar PV and battery storage systems, which lowers planned energy efficiency funding requirements for low- and moderate-income participants by maximizing non-energy efficiency funding sources and tax credits, as described below.

The Compact intends to procure a TPO for the paired PV and battery storage systems furnished as part of CVEO that will monetize tax credits and other existing incentive programs (*e.g.*, federal investment tax credit, depreciation, Solar Massachusetts Renewable Target, ConnectedSolutions, Clean Peak Standard, Alternative Portfolio Standard, *etc.*) for the paired systems for up to 10 years. The TPO will be responsible for performance and maintenance of the paired systems during the 10-year ownership period. The TPO and CVEO participants will sign a form of contract spelling out the rights and obligations of paired system ownership prepared by the Compact that contains commercially reasonable terms and conditions and appropriate protections for customers. The contract will be at no cost for low-income customers and low cost (capped at \$5,000) for moderate-income customers. At the end of the 10-year TPO ownership period, ownership of the paired systems will revert to participants at no additional cost. The Compact separately will also procure a long-term maintenance contract for the heat pumps installed, with no out-of-pocket expenditures to the participant, as part of the offering.

The Compact’s proposed savings, cost-effectiveness and revised budget for CVEO is set forth in the table below:

2020-2021	CVEO
Savings	
Participants	250
Annual MWh	1,096
Lifetime MWh	36,258
Summer kW	2,848
Winter kW	1,407
Annual CO ₂ Short Tons	1,911
Cost-Effectiveness	
Benefits (\$M)	\$28.5
TRC Costs (\$M)	\$11.8
Net Benefits (\$M)	\$16.7
Benefit-Cost Ratio	2.4
CLC Budget (\$M)	\$10.4

The Compact’s proposed revised participants and participant incentives for CVEO are set forth in the table below:

Income Level (SMI)		Customers			Heat Pumps	Solar PV + Storage
		2020	2021	Total		
Low-Income	<=60%	50	100	150	100% of cost covered (EE Funds)	100% of cost covered (EE & non-EE Funds)
Moderate Income	61-80%	25	75	100	100% of cost covered (EE Funds)	75+% of cost covered (EE & non-EE Funds) \$5,000 customer contribution cap
Total Participants		75	175	<u>250</u>		

The Compact’s proposed budget for the redesigned CVEO is \$10.4 million, a reduction of approximately \$17 million from the proposal as originally submitted in the 2019-2021 Plan. A budget comparison is set forth in the table below:

2020-2021	Heat Pumps	PV + Storage	Total
Plan	\$7.2M	\$20.5M	\$27.6M
Revised	\$5.4M	\$5.0M	\$10.4M
Difference	-\$1.8M	-\$15.5M	-\$17.3M

A comparison of savings and cost-effectiveness associated with the redesigned CVEO is set forth in the table below:

2020-2021	Plan	Revised	Difference	
			Change	% Change
Savings				
Participants	640	250	(390)	-61%
Annual MWh	4,486	1,096	(3,390)	-76%
Lifetime MWh	125,047	36,258	(88,789)	-71%
Summer kW	7,642	2,848	(4,794)	-63%
Winter kW	8,198	1,407	(6,791)	-83%
Annual CO ₂ Short Tons	5,173	1,911	(3,262)	-63%
Cost-Effectiveness				
Benefits (\$M)	\$97.7	\$28.5	\$(69)	-71%
TRC Costs (\$M)	\$33.3	\$11.8	\$(21)	-65%
Net Benefits (\$M)	\$64.4	\$16.7	\$(48)	-74%
Benefit-Cost Ratio	2.9	2.4	(0.5)	-18%
CLC Budget (\$M)	\$27.6	\$10.4	\$(17)	-63%

Summary of CVEO Benefits and Bill Impacts

The following benefits are achieved through the redesign of CVEO:

- Reduced energy bills for participants as a result of the combined technology package (net energy bill reductions as a result of the solar PV production offsets, and after accounting for increased electricity usage from heat pumps).
- Reduced overall low-income subsidy paid by non-low-income customers.
- Reduced overall bill impact (from leveraging outside and existing funding sources).

The following bill impacts are associated with the redesign of CVEO:

- Bill impacts to non-participant residential customers are expected to increase by about \$0.48 or 0.4% per month from current 2020 EES rates in 2020 if rates are adjusted mid-year, and by about \$1.41 or 1.2% per month from 2020 to 2021 EES rates.
- Bill impacts to non-participant low-income customers are expected to increase by about \$0.40 or 0.6% per month from current 2020 EES rates in 2020 if rates are adjusted mid-year, and by about \$0.32 or 0.5% per month from 2020 to 2021 EES rates.

Summary of Council Review and Analysis

In its October 30, 2018 resolution supporting the statewide 2019-2021 Plan, the Council:

- supported the Program Administrators' commitment to energy optimization with a focus on fuel switching to cold climate air source heat pumps and other clean energy sources;
- recommended that Program Administrators include goals specific to active demand management, highlighted peak demand reduction as a key priority and supported the Program Administrators' commitment to target summer and winter peak energy reduction, including through demand management and energy storage;
- sought to increase participation by, and savings from underserved populations and geographies, including moderate-income customers, and recommended a review of low-income programs to identify potential improvements in participation and achievement of savings;
- sought to promote strategic electrification and to promote and incent fuel switching strategies that support benefits for customers and achieve Global Warming Solutions Act supportive emissions reductions; and
- recognized that the 2018 Act was enacted late in the three-year planning process and urged the Program Administrators to continue efforts to introduce new approaches and clean energy sources into the energy efficiency programs.

After review of the material supporting this resolution, the Council has determined that the Compact engaged in a full and robust stakeholder review of the redesigned CVEO as directed by the Department. The Compact's outreach resulted in a redesign of CVEO that addresses the

concerns of the Department and is consistent with the Council's priorities and the statutory directives in the 2018 Act.

The Council and its Consultants have examined the data and supporting information provided by the Compact. The Council concludes that CVEO is cost-effective both individually for each technology and as a package offering, outside funding sources are sufficiently leveraged through the proposed TPO (*e.g.*, tax credits and other incentives for solar PV and battery storage), the participant target is reasonably narrowed to focus on low- and moderate-income customers, and CVEO is combined with home weatherization. As a result of these changes, the budget for CVEO is significantly and appropriately reduced, while maintaining direct benefits to low- and moderate-income residential customers on Cape Cod and Martha's Vineyard. The Compact's continued focus on equity as part of the redesigned CVEO will provide both low- and moderate-income customers access to a targeted technology package of energy solutions that comprehensively address their energy needs and the upfront cost barriers of new technology. The Council further concludes that the requested budget associated with the revised CVEO is reasonable and appropriate.

Council Review and Support

Having reviewed the proposed redesign of CVEO and based on its analysis of the incentives, budget, savings, cost-effectiveness and other supporting information presented by the Compact, the Council resolves to support CVEO.

In recognition of: (1) the significant time and effort undertaken by the Compact to address stakeholder concerns in the redesign of CVEO; (2) the limited time remaining to implement this offering during the 2019-2021 Plan term; (3) the time and effort it will take for the Compact to begin implementation of the offering and engage customers; and (4) the expiration at the end of 2021 of federal tax credits that provide a significant amount of the revenue support for the Compact's revised proposal, the Council respectfully requests the Department to review and approve the Compact's revised CVEO.

The Council hereby directs that this Resolution be transmitted in full by DOER to the Department.

Cape & Vineyard Electrification Offering

Energy Efficiency Advisory Council

July 14, 2021



**Cape Light
Compact**

Working Together Toward A Smarter Energy Future

Cape & Vineyard Electrification Offering (CVEO)

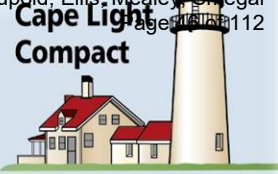


- Cape Light Compact (CLC) is seeking passage of a resolution in support of CVEO from the EEAC
- CVEO advances the 2018 amendments to the Green Communities Act, and the revised proposal addresses concerns raised by stakeholders and the DPU
- Utilizing energy efficiency funds and leveraging outside funds, CVEO cost-effectively reduces participating customers' overall energy bills



CVEO Overview

- Deploys three technologies as a package:
 - Cold climate heat pumps
 - Solar photovoltaic (PV) systems
 - Battery energy storage systems (BESS)
- Focuses on low-income ($\leq 60\%$ SMI) and moderate-income (61-80% SMI) customer groups; limited to 250 customers
- All participants will be required to have energy assessment and install recommended measures prior to CVEO enrollment



Policy Background

- Designed with 2018 GCA Amendments in mind
 - Heat pumps: a plan may include “... strategic electrification, such as measures that are designed to result in cost-effective reductions in greenhouse gas emissions through the use of expanded electricity consumption while minimizing ratepayer costs.” G.L. 25, § 21, (b)(2)(iv)(A).
 - Batteries: a plan may include “...efficiency and load management programs including energy storage and other active demand management technologies.” G.L. 25, § 21, (b)(2)(iv)(A).
 - Solar PV: a plan may include “...programs that result in customers switching to renewable energy sources or other clean energy technologies.” G.L. 25, § 21, (b)(2)(iv)(J).
- Municipal Aggregators have unique authority



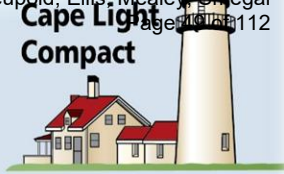
Background on Plan

- Compact initially proposed CVEO as part of 2019-2021 energy efficiency plan
 - 700 total customers, tiered services by income level
- DPU did not approve when initially proposed but stated it “merits close consideration.” Requested additional consideration of stakeholder concerns and required EEAC approval of redesign prior to resubmittal to DPU.
 - CLC has worked with stakeholders to develop a revised proposal



CVEO Objectives

- Serve **250** total non-gas heated participants, tiered services by income: Low-income (up to 60%), moderate income (61-80%)
 - Enhanced incentives for all three measures
- Convert oil, propane, electric resistance heat to cold climate heat pumps
- Install PV systems to support electrification of heating system and reduce GHG emissions
- Install battery storage for demand response & resiliency
- Addresses the issue of upfront cost barrier



CVEO Participant Incentives

Income Level (SMI)		Customers			Heat Pumps	Solar PV + Storage
		2022	2023	Total		
Low-Income	<=60%	100	50	150	100% of cost covered (EE funds)	100% of cost covered (EE Funds and non-EE funds)
Moderate Income	61-80%	66	34	100	100% of cost covered (EE funds)	75+% of cost covered (EE funds and non-EE funds) \$5,000 customer contribution cap
Total Participants		166	84	<u>250</u>		



Changes from Original Proposal

- Reduced size
- Eliminated enhanced incentives for >80% SMI
- Better leverages existing incentives/programs
 - Innovative third-party ownership (TPO) model for solar PV + battery systems allows monetization of tax credits and other incentive programs to reduce impact of EES on ratepayers
 - Federal ITC, depreciation, SMART, ConnectedSolutions, Clean Peak Standard, APS
 - Compact issued a Request for Information to solar developers to inform new design, and worked closely with stakeholders
- Changes result in lower overall cost, reduced bill impacts



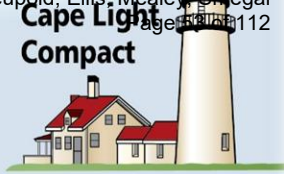
Focus on Equity

- Low- and moderate-income customers are being left behind in terms of:
 - Electrification
 - Difficult to switch customers from oil and propane due to high upfront cost of heat pumps
 - Solar
 - Generally cannot take advantage of tax credits, high upfront cost
 - Only 8% of CC/MV solar installations are in LI census block groups
 - 2% of CC/MV MassCEC solar loans were to homes where residents earned 80% or less of SMI.
 - Reduces impact to electric bill from converting to heat pumps
 - Battery storage
 - Low- and moderate-income customers cannot pay for storage; statewide pay-for-performance program is not adequate for storage adoption in this customer group
- LI customers tend to have high energy burdens (% of income spent on energy)



TPO Key Design Considerations

- **PPA:** Compact will issue RFP for a “pre-paid” TPO PV + BESS power purchase agreement (PPA) and select qualified bidder
- **TPO:** Tax-equity TPO will own system for up to 10 years. Will be responsible for system performance and maintenance during TPO ownership period.
 - Vendor and participants will sign Compact’s contract
- **Participant cost:**
 - LI participant will have \$0 PPA
 - MI participants may have a non-zero PPA: responsible for 25% of system up to \$5,000
- **After 10 years:** At end of TPO ownership period, systems revert to customer at no additional cost



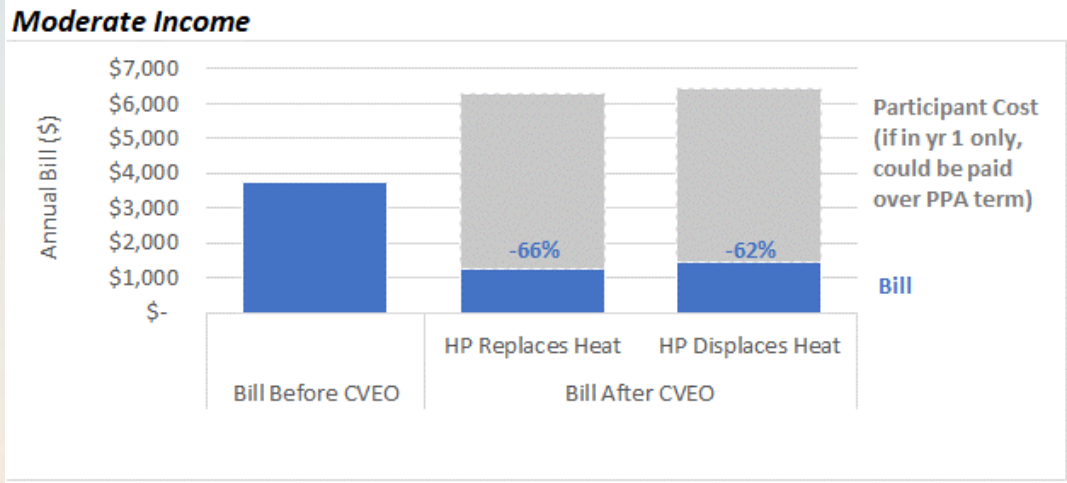
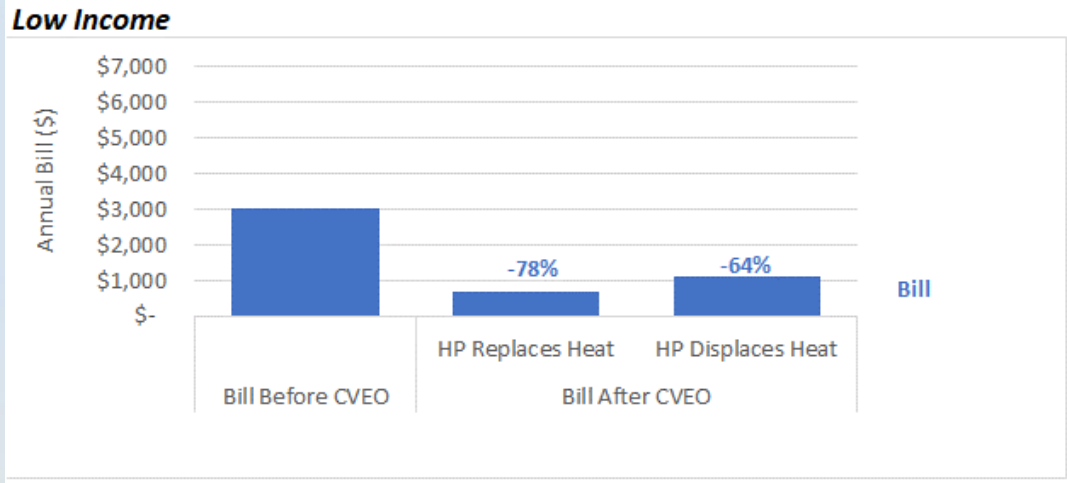
Participants' Perspective

- Low-Income: All three technologies installed at no cost
- Moderate-Income:
 - HPs installed at no cost
 - PV+BESS payment for 25% of system cost, \$5,000 cap
 - Likely option to spread payment over term of PPA
- Both
 - Reduced energy bills
 - Customer owns HPs, TPO owns PV+BESS until end of PPA term
 - PV+BESS maintenance at \$0 cost over PPA term
 - CLC will issue RFP for extended maintenance beyond PPA at customer's option and expense
 - No HP maintenance cost for 5-10 years
 - CLC will procure 5-10 year maintenance contract for CVEO participants



Customer Energy Cost Impact

Customer Uses Oil Heat Before CVEO



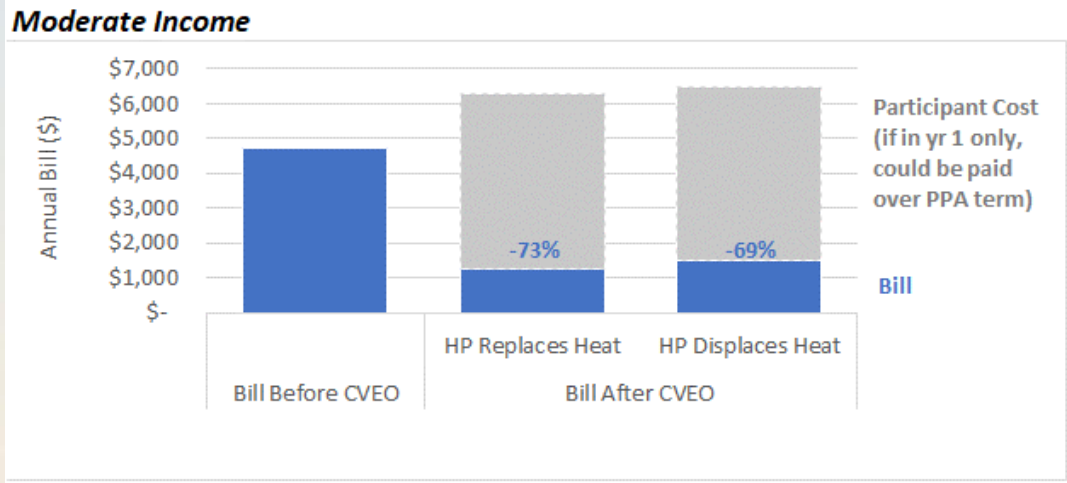
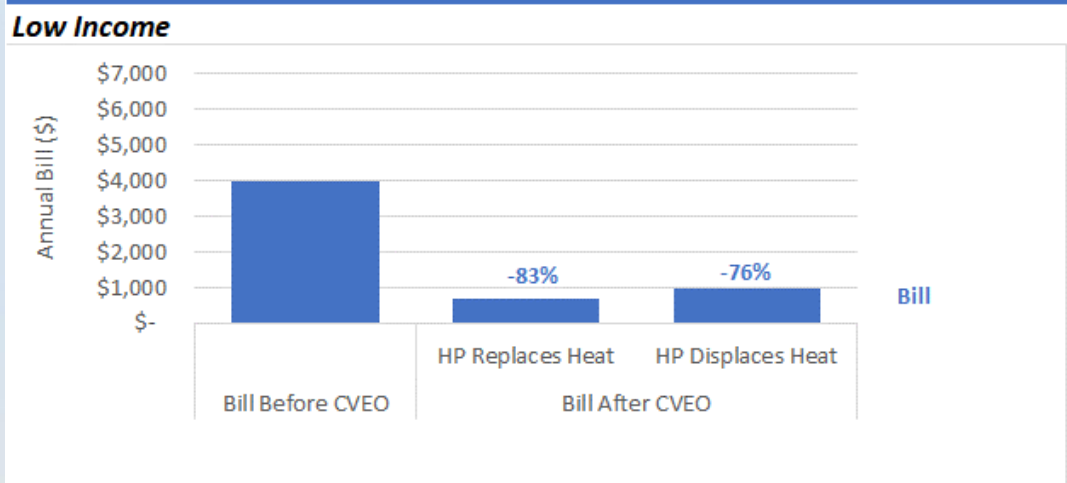
Package of measures is more beneficial to participant than installing any of the three alone

Gray bar shown is participant cost share for PV/BESS system. May be able to be spread over PPA term.



Customer Energy Cost Impact

Customer Uses Propane Heat Before CVEO



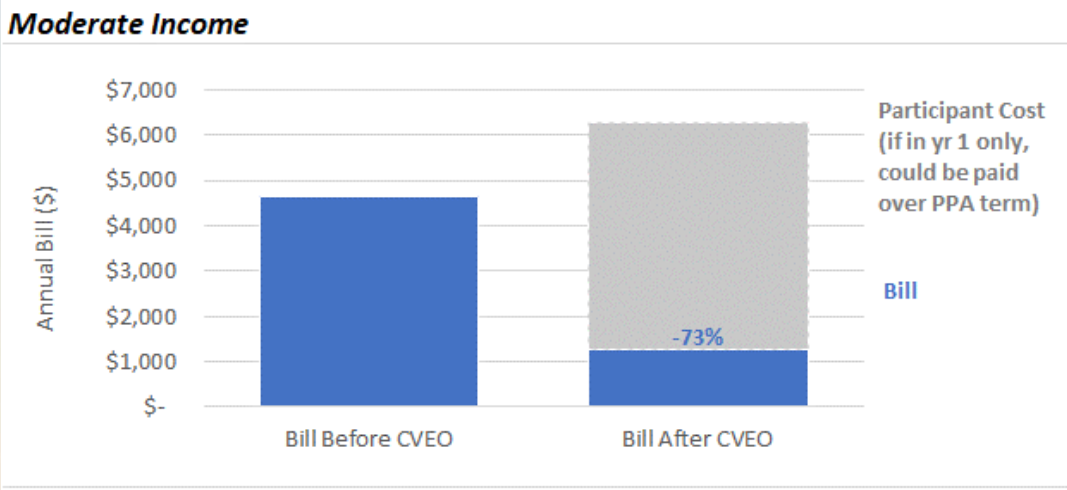
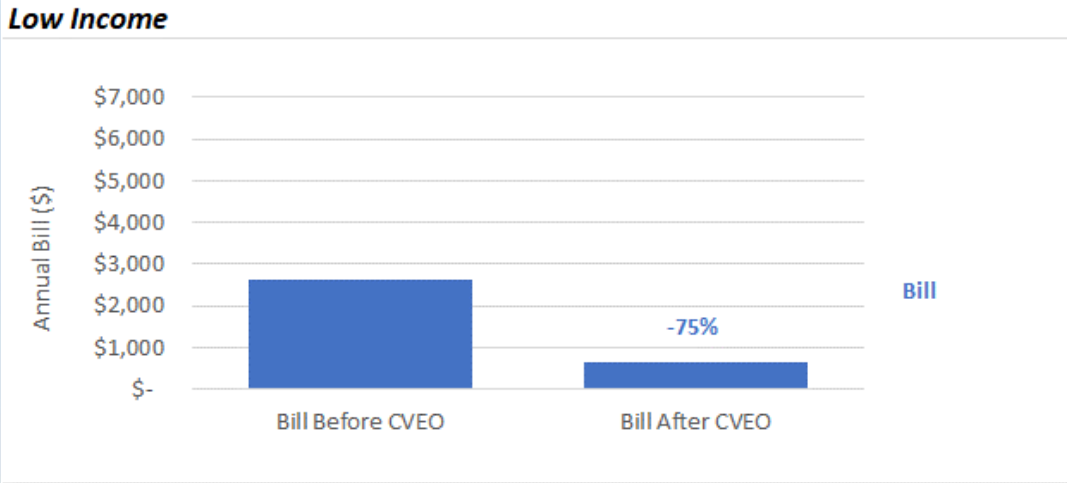
Package of measures is more beneficial to participant than installing any of the three alone

Gray bar shown is participant cost share for PV/BESS system. May be able to be spread over PPA term.



Customer Energy Cost Impact

Customer Uses Electric Baseboard Heat Before CVEO



Package of measures is more beneficial to participant than installing any of the three alone

Gray bar shown is participant cost share for PV/BESS system. May be able to be spread over PPA term.



Revised Budget

	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>Total</u>
Heat Pumps	\$3.4M	\$2.0M	\$0	\$5.4M
PV + Storage	\$3.7M	\$2.4M	\$0.5M	\$6.7M
Total	\$7.1M	\$4.4M	\$0.5M	\$12.0M

The Compact estimates CVEO will leverage over \$8M in non-energy efficiency funds.

In April 2020, the EEAC voted in support of a CVEO budget of \$10.4M for 2020-2021.



Bill Impacts

Residential (R-1)

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)
2021	\$0.02579	+	\$0.00250	x	516	=	\$14.60
2022	\$0.03879	+		x		=	\$21.31
2023	\$0.03926	+		x		=	\$21.55
2024	\$0.04000	+		x		=	\$21.93
2022-2024	\$0.03935	+		x		=	\$21.59

Low Income (R-2)

Years	EERF		Energy Conservation		Avg. Monthly Usage (kWh)		Total Cost (per month)
2021	\$0.00148	+	\$0.00250	x	488	=	\$1.94
2022	\$0.00396	+		x		=	\$3.15
2023	\$0.00418	+		x		=	\$3.26
2024	\$0.00333	+		x		=	\$2.85
2022-2024	\$0.00382	+		x		=	\$3.09



Savings and Cost-Effectiveness

	2022	2023	2024	2022-2024
Savings				
Participants	166	84		250
Annual MWh	983	355	(39)	1,299
Lifetime MWh	28,108	12,138	(39)	40,207
Annual MMBTU	16,963	8,135	(354)	24,744
Lifetime MMBTU	351,891	174,683	(354)	526,221
Summer kW	1,786	2,315	2,150	6,251
Winter kW	(138)	(84)	-	(221)
Annual CO2 Metric Tons	897	467	(6)	1,358
Cost-Effectiveness				
Benefits (\$M)	20.2	10.9	0.7	31.8
TRC Costs (\$M)	7.7	4.4	0.5	12.6
Net Benefits (\$M)	12.5	6.5	0.2	19.2
Benefit-Cost Ratio	2.6	2.5	1.4	2.5
CLC Budget (\$M)	7.1	4.5	0.5	12.0

CVEO measures only. In 2024, CVEO customer continue participating in ConnectedSolutions.

Next Steps

- CLC awaits DPU order in DPU 20-40
- CLC requests Energy Efficiency Advisory Council's support for CVEO in its July Resolution on the April Draft of the 2022-2024 Energy Efficiency Plan
- CLC expects to include CVEO in its October Plan filing to the DPU





MEETING MINUTES

Wednesday, July 14, 2021
Virtual Meeting via Zoom

Councilors Present: Greg Abbe (for Jennifer D Maddox), Jo Ann Bodemer (for Maura Healey), Amy Boyd, Tim Costa, Justin Davidson, Mary Downes (for Cindy Carroll), Maggie Downey, Michael Ferrante, Paul Gromer, Frank Gundal, Charlie Harak, Elliott Jacobson, Paul Johnson, Deirdre Manning, Cammy Peterson, Chris Porter, Robert Rio, Dennis Villanueva, Mary Wambui, Sharon Weber, Commissioner Patrick Woodcock

Councilors Absent: Cindy Arcate, Andrew Newman

Consultants Present: Eric Belliveau, Adrian Caesar, Margie Lynch

DOER Staff Present: Rachel Evans, Maggie McCarey, Ian Finlayson, Emily Webb

1. Call to Order

McCarey, as Chair, called the meeting to order at 1:05 PM.

2. Public Comment

Emily Jones (LISC)

Jones commented that 23 organizations with over 15,000 affordable housing units have expressed formal support a deep energy retrofit market transformation program. Jones urged the program administrators (PAs) to implement a deep energy retrofit program providing \$35,000 in incentives per unit, similar to the NYSEERDA program. Jones suggested that the PAs leverage federal funds, as a large investment will be needed to support market transformation and retrofit 50,000 homes per year in the Commonwealth. Jones recommended that the Council revisit the social value of greenhouse gas (GHG) emissions reductions in cost-effectiveness screening to find a viable path forward for deep energy retrofits.

Bill Stevens (NEGPA)

Stevens indicated that the exclusion of ground source heat pumps (GSHPs) from the April Draft Plan is inconsistent with the Climate Act, Department of Public Utilities (DPU) guidelines, and

Council recommendations. Stevens said the Climate Act requires the social cost of carbon to be included in cost-effectiveness screening, as well as benchmarks for GSHP adoption. Stevens added that the Council Roadmap Report concluded that GSHPs provide 300-600% higher efficiencies and greater peak load reductions than air source heat pumps (ASHPs). Stevens suggested the current technical reference manual (TRM) underestimates the GHG and cost benefits of GSHPs, especially as it relates to low- and moderate-income families that could benefit from low maintenance costs.

Sarah Dooling (Massachusetts Climate Action Network)

Dooling stressed the importance of deep energy retrofits in the multifamily housing sector and meeting 2030 GHG reduction targets. Dooling suggested a deep energy retrofit program to target 1-4 unit mixed- and low-income homes, modeled after the Passive House New Construction program. Dooling said the program should include Passive House Certification standards, heat pumps, energy recovery ventilation, electric domestic hot water, and materials that reduce embodied carbon. Dooling also said that solutions need to be replicable, affordable, and scalable, so financing options and incentives must be robust. Lastly, Dooling called for the program to establish tenant protections against rent increases for 7 years.

Yve Torrie (A Better City)

Torrie commented that the April Draft Plan Commercial budget and savings were misaligned with the Commonwealth's commitment to decarbonization. Torrie supported matching or exceeding the 2019-2021 Commercial budget, third-party program implementation pilots, deep energy retrofits, heat pumps, and variable refrigerant flow technology. Torrie indicated that third-party program administration would provide solutions-oriented approaches to deliver cost-effective savings where the PAs have struggled historically. Torrie also suggested the Council and proposed C&I Working Group would oversee such third-party pilot programs while communicating with C&I customers and utilities.

Sean Burke (New England Clean Energy Council)

Regarding the Connected Solutions program, Burke suggested that a milestone-based approach with corresponding funding allocations for developers would help the program to run more smoothly. Burke also suggested a transparent process around program rule changes to allow for industry feedback on changes that may impact program participation. Burke, like Torrie, stated that the C&I budget in the April Draft Plan was misaligned with the commitment to capture all cost-effective savings and work toward decarbonization. Burke also recommended a third-party program delivery pilot through competitive bids for deep energy retrofits, high efficiency heat pumps, and variable refrigerant flow systems in large buildings.

Hank Keating (Passive House Massachusetts)

Keating emphasized that a conservative 2022-2024 Plan will prevent achievement of 2030 climate goals. Keating said aggressive programs that support market transformation and serve 50,000 homes annually will be necessary. Keating recommended a Residential Coordinated Delivery (RCD) that mimicked the NYSERDA program, as providing \$5,000 per home as proposed in the April Plan Draft would be insufficient. Keating urged the Council to modify cost-effectiveness screening to comply with the Climate Act, and explain the screening calculation parameters in the Final Resolution on the 2022-2024 Plan. Keating said the existing Mass

Save Passive House incentive program has proven its effectiveness, Passive house certification needs to be considered as an improved alternative pathway for the LEAN program, RCD initiative, and Path to Zero program. Keating hoped the Council Resolution would put the 2022-2024 Plan on track to comply with the Climate Act.

Vincent Graziano (RISE)

Graziano stated that over 300 firms are involved in the delivery of Residential and Small Business program delivery, and that these firms provide customer services in their areas of proficiency. Graziano said the wide spectrum of service providers and expanding on custom technologies has been effective in driving market transformation. Graziano suggested that the current PA model is the most appropriate framework for program delivery. In addition, Graziano said the PA delivery model would undergo continuous refinement to meet evolving needs.

Ron Gillooly (LEIDOS)

Gillooly indicated the network of trade allies have worked closely with current PAs to support programs for many years. Gillooly said the Council Resolution indicates a tipping point into more custom and comprehensive offerings that will require high stakeholder involvement in measure delivery. Gillooly advocated for the existing PA model, supported by effective service providers, to continue.

Andrew Yarrows (Conservation Law Foundation)

Yarrows commented that the next Draft Plan needs to emphasize equity as a central priority, which could be achieved through increased targets, targeted investments, and robust data reporting that account for historic participation discrepancies. Yarrows also recommended methods through which the Plan could support heat pump adoptions consistent with the 2030 Clean Energy and Climate Plan (CECP), including ambitious heat pump targets, full heat pump barrier mitigation, no-cost incentives for heat pumps, and removing fossil fuel incentives. In addition, Yarrows expressed support for earlier comments regarding an improved C&I program and the creation of a C&I Working Group.

Michael Hogan (Paradigm)

Hogan commented that implementation firms adjust their market-driven framework led by PAs and lead vendors. Hogan said PAs and lead vendors provide program access and consistency, flexibility in service delivery, and ability to deliver replicable services. Hogan indicated that dozens of contractors are excited about the innovation that will come in the next fifteen years. Hogan warned that changes to, and diversion of resources away from, the current delivery model would be present a substantial risk to small businesses and clean energy jobs.

Heather Takle (Power Options)

Takle reiterated comments from Torrie and Burke regarding reductions in planned C&I savings and spending. Takle said a reduced budget would hinder nonprofits and public entities in their decarbonization. Takle acknowledged the challenge presented by lighting market saturation, but joint public comment viewed it as an opportunity to pilot innovative solutions. Takle also acknowledged vendor comments on providing innovative solutions, and responded that larger scale would be required to meet climate goals. Takle suggested a competitive bid for third-party administration within two underperforming PA programs would be a logical solution. Takle

recommended that the Council consider third-party program administration in the Plan Resolution.

Steve Cowell (E4TheFuture)

Cowell recommended revisiting cost-effectiveness screening to better align with the Climate Bill. Cowell said fuel switching for delivered fuel customers would be more cost-effective than for gas customers, which is a key consideration. Cowell noted that new Mass Save data system was the most thorough program data management system in the country, so the data needs to be used effectively to address equity and energy savings issues. Cowell placed particular emphasis on reaching underserved customers, and added that LEAN and PAs are looking to package services more effectively for renters and landlords.

3. Council Updates & Business

Virtual Meeting Procedure Review

McCarey reviewed the virtual EEAC meeting procedures, which included the following:

1. The Council meetings would be recorded.
2. All attendees except for Councilors and presenters would remain muted for the duration of the meeting.
3. Councilors would hold comments until the end of presentations, but Councilors and other participants should speak instead of using any chat functionality.
4. Councilors who disconnect from meetings need to announce when they rejoin.
5. All Council votes would be taken by a roll call for accuracy.

May Executive Committee Meeting Minutes – Vote

Abbe motioned to approve the minutes as submitted. Boyd seconded. All were in favor, with none opposed or abstaining. The minutes were approved, as submitted, by the Executive Committee.

May EEAC Meeting Minutes - Vote

Peterson clarified that the American Rescue Plan Act (ARPA) was being referenced during discussion of the April Draft Plan. Cowell also noted this was being referenced in his public comment. Villanueva motioned to approve the minutes as amended. Abbe seconded. All were in favor, with none opposed or abstaining. The minutes were approved, as amended, by the Council.

June Executive Committee Meeting Minutes - Vote

Abbe motioned to approve the minutes as submitted. Boyd seconded. All were in favor, with none opposed or abstaining. The minutes were approved, as submitted, by the Executive Committee.

June EEAC Meeting Minutes - Vote

Terach indicated she was present for June Council meeting. Villanueva motioned to approve the minutes as amended. Abbe seconded. All were in favor, with none opposed or abstaining. The minutes were approved, as amended, by the Council.

4. Program Administrator Updates

Chambers, Coen, and Downey, on behalf of the PAs, provided updates on topics with outstanding stakeholder questions including the discontinuation of Residential Lighting incentives, ground source heat pumps, solar domestic hot water, Cape and Vineyard Electrification Offering (CVEO), and greenhouse gas impacts of combined heat and power (CHP).

Council Discussion

Abbe asked for detail on the plan for Income Eligible lighting measures. Chambers indicated the PAs were still discussing Income Eligible lighting and would follow up once evaluation data becomes available. Abbe said the PAs deserve credit for successfully transforming and saturating the Residential lighting market. Harak similarly commended the PAs. McCarey noted a filing on lighting with detailed information was submitted to the Department of Public Utilities (DPU).

Johnson asked for the average cost of GSHPs, given they are incented at \$2,000 per ton with a \$15,000 incentive cap per system. Coen replied that they cost \$20,000-\$30,000 depending on system size. Johnson wondered how GSHPs were being marketed considering the high customer costs. Coen said contractor networks have received communications on GSHPs, and educational materials including an informational video are available on the Mass Save website.

Commissioner Woodcock asked if NEGPA and other advocates of geothermal heating systems have been contacted regarding GSHP marketing strategy, since public comment seemed to indicate remaining concerns. Coen responded that geothermal stakeholders were notified as soon as the GSHP offering launched. Coen said the PAs can follow up with NEGPA and others to address additional questions.

Peterson asked about efforts to increase awareness of solar domestic hot water, and whether these measures would screen as cost effective using the Social Cost of Carbon. Coen was unaware whether the PAs have directly contacted solar hot water developers and stakeholders. Coen also said that cost effectiveness screening for solar water heaters would require an update to include the Social Cost of Carbon.

Villanueva noted that GSHP projects can cost nearly \$2 million in the C&I sector, and urged the PAs to offer higher incentives to match climate goals. McCarey indicated the new offering and incentives were specific to the Residential sector. Bryant said Commercial GSHPs were uncommon due to high installation costs, but they were typically handled through the custom pathway. Bryant added that current GSHP offerings were being assessed to improve customer economics. Commissioner Woodcock suggested that federal tax credits and DPU proceedings related to treating GSHPs as gas measures might help.

Harak thanked Cape Light Compact staff for their persistence in supporting the Cape and Vineyard Electrification Offering (CVEO) for low- and moderate-income customers. Downey said a more detailed CVEO presentation was posted on the Mass Save website.

Abbe seconded Harak comments. Abbe asked if the drivers behind high benefit-cost ratios (BCRs) for CVEO in the first two years might apply to other programs. Downey indicated nothing unique was done in benefit-cost analysis for CVEO. Brandt said the combination of particular measures might be the biggest contributor to high BCRs.

Boyd suggested that the PAs implement more measure bundling strategies to combat the climate crisis and provide resources for underserved customers.

Jacobson indicated LEAN is supportive of CVEO and glad to see forward progress on it. Downey said the program may have been undergoing evaluation if not for the COVID-19 pandemic, but hoped it would get approval as a full program.

5. Draft Council Resolution on 2022-2024 Plan

McCarey and Peterson reviewed the structure, development process, and high-level priorities included in the Draft Resolution and Equity Working Group Draft Plan Comments. McCarey indicated that language was added to address the integration of stakeholder comments into the Resolution and Draft Plan review process. McCarey also thanked Bodemer, Boyd, and Washburn for their support in drafting the Resolution and Equity Working Group Comments.

GHG Reduction Goals

Commissioner Woodcock presented a summary of the GHG goal-setting process, as required by the Climate Act. Commissioner Woodcock emphasized the importance measures with good, but also persistent, GHG benefits. McCarey added that equity considerations were included in the GHG targets to prevent leaving customers behind in electrification and deep energy retrofits.

Wambui was supportive of the GHG goal, but cautioned against exacerbating current program inequities. Wambui hoped that DOER would be cognizant of rate and bill impacts that could harm energy burdened customers. Wambui also urged DOER to consider where GHG reductions would be attributed in order to prevent historically underserved customers from being left behind.

Villanueva agreed with Wambui's comments, and added that GHG reductions would benefit low-income communities even more, since they are disproportionately impacted by carbon emissions. Commissioner Woodcock responded that the Council priorities have paired equity and GHG reductions, and concurred that including equity considerations would lead to comprehensive decarbonization that includes all population groups.

Review and Council Feedback on Draft Resolution

Villanueva expressed support for Resolution, particularly the recommendations on maintaining 2019-2021 Term levels for the C&I sector budget and benefits. Villanueva suggested that creative solutions to drive energy efficiency and electrification could be achieved through a C&I Working Group and third-party program administration. Villanueva also supported eliminating fossil fuel incentives, but reiterated resiliency benefits from combined heat and power (CHP) that help some facilities.

Rio also supported the creation of a C&I Working Group since deeper savings opportunities are needed to compensate for lighting market saturation. Rio was open to suggestions on third-party administration if it would lower costs and improve programs delivery, but wanted to keep PAs informed throughout the process. In addition, Rio advocated for CHP incentives due to resiliency, cost, and marginal emissions benefits.

Johnson asked Peterson for examples of equity targets as described on Page 7 of the Draft Resolution. Peterson said these targets would be related to spending, participation, and workforce diversification targets particular to underserved populations like renters and moderate-income customers. McCarey added that the Equity Working Group was still discussing specific targets.

Wambui felt that weatherization was not emphasized enough as part of decarbonization efforts, given that heat pumps are not always suitable for certain buildings and weatherization is needed to right-size heat pumps. McCarey agreed, and suggested that weatherization could be highlighted in the GHG Emissions Reductions or Residential and Income Eligible sections of the Resolution.

Boyd noted that the final bullet on Page 4 of the Resolution addressed weatherization for Market Rate Residential sector, but should be included in other sections. Boyd said Income Eligible weatherization should be prioritized to since there are many homes that would benefit from weatherization and emissions reductions in this sector. McCarey said language around weatherization for Income Eligible and underserved customers could be strengthened.

Johnson doubted that an expanded workforce was necessary, and many contractors actually believe there is not enough work available. McCarey indicated the PAs recently conducted a workforce needs assessment.

Peterson recommended language saying the PAs should have GHG reduction goals in alignment with the Secretary's established targets, but also set forth a Plan that illustrates how those targets will be met.

Harak asked when highlighted placeholder numbers in the Resolution text would be available. McCarey said the Secretary should formally issue GHG targets tomorrow, so the placeholder numbers should be updated shortly after.

Wambui agreed with Peterson that the program Plan needs to show how the GHG targets would be met, but also show how they would be met equitably.

Weber noted the language on removing the social cost of carbon for fossil fuel efficiency was unclear. McCarey replied that in the April Draft Plan, the PAs reduced incentives for fossil fuel efficiency, but the language could be clarified.

Boyd indicated the reference to whole building conversions was unclear on whether weatherization was included. Boyd also wanted to see evidence in next Draft Plan that the GHG reduction target set by the Secretary would be reached. Boyd emphasized the need for rigorous

tracking, and remediation for being off-track progress toward goals given the urgency of the climate crisis.

Wambui said the equity section failed to respond to stakeholder feedback, address historical program inequities, and make equity a priority. Wambui commented that language urging the PAs to “continue to develop new innovative approaches” would lead to the continuation of inequitable program delivery. McCarey responded that Equity Working Group comments can be applied to improve the language.

Harak agreed with Boyd that the climate crisis is already an existential threat. Harak urged the PAs to phase out fossil fuel system incentives, but noted that this was still being discussed for the Income Eligible sector. McCarey indicated the fossil fuel incentive phase out approach was outlined in greater detail in each sector section, but there was broader, directional statement to shop opposition to fossil fuel incentives. Jacobson added that handling of fossil fuel incentives in Income Eligible homes was being discussed at the federal level.

Peterson said the language in the Resolution should capture the need to customer support for gas to electric fuel switching. Peterson suggested that end of life replacement is the best situation to fuel switch to prevent gas systems from being locked in place for longer time periods, and this needs to be included in the Resolution whenever discussing electrification.

Wambui noticed that concurrent delivery of electrification and weatherization services was difficult given the current workforce, but the customer experience could be improved if this was not the case.

Davidson said the cost implications of fuel switching should be included in Residential section’s first bullet. Davidson warned that requiring gas to electric fuel switching would be a cost burden. Boyd responded that including the social cost of carbon at end-of-life replacement results in comparable costs to acquiring a new gas system. Boyd recommended that programs provide incentives to support the cost differential. Commissioner Woodcock said that long-term decarbonization planning should account for all fuels.

Johnson suggested that a specific weatherization target at least higher than the 2019-2021 Plan term should be established. Lynch expressed confidence that the weatherization goal would increase in the next Draft Plan. Johnson recommended the weatherization goal increase twofold relative to the savings goal included in the April Draft Plan.

Review and Council Feedback on Equity Working Group Comments

Jacobson stated that a stagnant budget paired with more expensive measures and heat pumps would lead to serving less customers.

Harak said installation goals for Income Eligible active demand measures would be important, as well as an increased focus on multifamily buildings. Harak suggested it was important to look at households served relative to increased heat pump investments. Harak also highlighted the importance of reaching more multifamily buildings, as the Non-Participant Study identified the largest gap in 3-10-unit buildings. Harak noted the language on pursuing electrification where

energy burden would be reduced is important, and this language should be employed elsewhere in the Resolution.

Commissioner Woodcock commented that electrification should not diminish the number of Income Eligible customers served. Commissioner Woodcock pushed the integration of supplementary heating systems, as the current wording implies only full heating system replacements. Jacobson replied that supplementary heating systems are being installed in many LEAN heat pump programs.

Wambui supported Harak's suggestion to include energy burden reduction in the language on Income Eligible heating electrification.

Weber noted that in the Residential section, there was a bullet on integrating storage, electric vehicle charging, and solar, but this did not exist in the Income Eligible section. Weber supported offering these services to Income Eligible customers. McCarey responded that this language could be added in the Income Eligible section, but there was also language in the Active Demand section on increasing Income Eligible customer access to these measures. Jacobson reiterated that LEAN and the PAs are coordinating on bringing active demand and storage technologies to the Income Eligible sector.

Wambui seconded Weber's comments regarding Income Eligible access to active demand and storage technologies. Wambui said electric vehicle charging and storage are becoming increasingly critical to affordable housing developers.

Commercial and Industrial Section

Peterson felt it would be appropriate to provide clarity on the scope of the deep energy retrofit pilot or program that is explored. Regarding municipalities, Peterson proposed the language should reflect the remaining LED streetlight conversions, and also mention the importance of wireless controls integration during these conversions. Peterson also suggested a dedicated downstream program for public buildings in 2023 to emphasize envelope and HVAC measures based on the Cape and Vineyard Electrification Offering. Peterson said 100% incentives for such a program would be ideal, but recognized that may not be feasible.

Villanueva wondered if the exploration of third-party program administration should be included in C&I Working Group topics to explore, since there would be substantial discussion on alternative program administration models. Rio agreed that this would be a suitable place to add such language.

Villanueva cited personal experience with smaller business entities under Mass General Brigham, and suggested basing small businesses on their account sizes instead of entity names. Gundal indicated customer meters are aggregated in order to segment between large and small businesses, but considerations are made to avoid mislabeling customers. Gundal added that the Small Business program is meant to circumvent project management and administrative barriers faced by smaller entities. Gundal suggested that small, independent under Mass General Brigham would ideally be treated as small business customers. McCarey recommended including the definition of small businesses as a topic for the C&I Working Group.

Villanueva suggested modifying language on third-party program administration to incite immediate discussion and action. Gundal replied that the PAs would be happy to discuss opportunities, but noted that multiple implementers could result in high project costs due to unhealthy competition. Gundal emphasized that Mass Save Large C&I program is the most flexible in the country, where any project that passes cost-effectiveness screening is eligible for incentives. Gundal added that the program is open market, allowing for electricians, energy service companies, and all entities to participate. McCarey proposed updating the language to include third-party program administration for the C&I Working Group to explore and discuss further during the next Plan cycle.

Wambui was excited by third-party program administration, as other entities might be better suited to achieve equity goals than in the current implementation model. Wambui supported Villanueva and public comments related to third-party program administration.

Gromer commented that third-party implementation is interesting, but would require significant debate and disagreement. Gromer added that previous attempts at alternative delivery models were costly and not very successful.

Rio agreed that there would be substantial debate over third-party administration, but the language should elicit action from the Council to initiate discussion. Rio said public comment shows the Council needs to explore alternative program delivery models and determine the best path forward.

Commissioner Woodcock supported including third-party program administration in topics for the C&I Working Group to explore, but the Resolution should be focused on refining the Plan and Council recommendations. Commissioner Woodcock was cautious of thinking about new delivery methods at the same time of transformational program design. Villanueva replied that the large reduction in C&I benefits spurred discussion of alternative program delivery models.

Active Demand Section

Weber hoped electric vehicles would be mentioned in the Active Demand section. Weber suggested that home vehicle charging will continue to grow, so enrolling them in Active Demand programs will be critical. Weber also hoped the electric vehicle charging pilots would become full offerings at the start of 2022, and that language should be added.

Peterson supported Weber's comment, and added that the Council should expect the PAs to achieve Tier 4, fully integrated, programs. Peterson felt merely recommending the PAs to reach full integration between efficiency and active demand was insufficient language.

Performance Incentives Section

Wambui reiterated that the GHG goal should not conflict with serving underserved customers.

Abbe urged the PA evaluation teams to comb through all assumptions, non-energy impacts, and cost-effectiveness screening inputs to ensure all benefits are captured. Abbe cited dollar amounts for noise reduction and home durability, and suggested there might be other claimable benefits.

Peterson suggested the language on expanding active demand management goals should specifically reference Income Eligible customers. Wambui added that the same callout should be included for low-and moderate-income energy storage.

McCarey said the updated Resolution would be posted prior to the July 28th Special Meeting for Council feedback, but any additional comments could be submitted via email.

Commissioner Woodcock thanked the Councilors for their contributions to the Resolution, as well as the PAs for their work on the Draft Plan.

6. Adjournment

McCarey, as chair, adjourned the meeting at 4:24 PM.

Massachusetts Energy Efficiency Advisory Council Resolution Regarding the April 30th Draft of the 2022-2024 Energy Efficiency Plan

Adopted July 28, 2021

1. Introduction

The Energy Efficiency Advisory Council (EEAC or Council) is charged with reviewing the Massachusetts Program Administrators' (PAs) draft Statewide Electric and Gas Energy Efficiency Plan (the Draft Plan), submitted to the EEAC on April 30, 2021.¹ Having reviewed the Draft Plan, the Council provides the following comments to the PAs. The Council commends the PAs on their past energy efficiency achievements and specifically acknowledges the PAs' efforts to maintain Mass Save[®] Program activity during the COVID-19 pandemic, while implementing health and safety protocols for the protection of customers and contractors. The Council looks forward to building on the historic success of the Mass Save programs in the next plan. The Council is committed to supporting a transformational plan that meets the challenge of the greenhouse gas (GHG) emission reductions needed in the Commonwealth to combat the effects of climate change, and addresses historical inequitable program participation through significant changes in approach to planning, program design, and implementation.

In its March 24, 2021 Resolution (March Resolution), the Council put forth its priorities and recommendations for the 2022-2024 plan which were developed through an extensive stakeholder engagement process including nine public comment sessions, six Council workshops, and establishment of an Equity Working Group, convened to specifically address issues of equity in the delivery of energy efficiency programs. The March Resolution set an expectation of an innovative and forward-looking plan, with a focus on alignment with GHG emission reduction and electrification goals, equitable program delivery and participation, and workforce development investment. On March 26, 2021, Governor Baker signed legislation that codified the administration's commitment to achieve net zero emissions in 2050 and furthered the Commonwealth's nation-leading efforts to combat climate change and protect vulnerable communities. Chapter 8 of the Acts of 2021 - *An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy* (the Climate Act) establishes new mandates for economy-wide emissions reductions by 2030 and 2040, and significantly increases protections for Environmental Justice communities across Massachusetts. The Climate Act also directs the Secretary of Energy and Environmental Affairs (EEA) to set a GHG emissions-reduction goal for the Three-Year Energy Efficiency Plans, requires the social value of greenhouse gas emissions to be included in the cost-effectiveness calculations for all measures excluding fossil fuel heating and hot water systems, allows a mechanism to prioritize projects that reduce greenhouse gas emissions, expands the mandate of the Department of Public Utilities (Department) to prioritize equity and greenhouse gas emission reductions in its decisions, and directs the Program Administrators to transfer \$12 million annually to MassCEC for a clean energy equity workforce and market development program.

The Council's priorities for the 2022-2024 Energy Efficiency Plan are underscored by the provisions of the Climate Act. The Council is pleased that the PAs have adopted these priorities as pillars of the April Draft Plan. While the Draft Plan generally adopts these priorities, there is insufficient detail on program design to assess whether the programs will achieve these priorities. Further, the Council does not see all of these priorities reflected in the proposed budgets, savings goals, and measure-mix in the benefit-cost models. In general, savings goals are below the potential identified by the PA's potential studies, and

¹ G.L. c. 25, §21(c).

significant incentives remain focused on fossil fuel equipment. Detailed budgets and metrics supporting equity priorities were not included, except for moderate income.

The Council looks forward to continuing collaboration and exchange of information among the PAs, the EEAC, its Consultants, and interested stakeholders throughout the summer and fall. The Council respectfully requests the PAs to continue to work with the EEAC and its Consultants to refine and improve the Draft Plan, through timely interim updates that respond to this Resolution. The Council requests a Revised Plan with benefit-cost models no later than September 1st, leading to the Final Plan to be filed with the Department in October. In the spirit of collaboration, the Council provides the following comments on the Draft Plan in its role in shaping a Final Plan that merits the support of the EEAC.

Benefits, energy savings, greenhouse gas emissions reductions, equity targets, budgets

The Council expects the savings goals, benefits and budgets in the Final Plan to adequately reflect the opportunity that exists as Massachusetts pivots to the future of energy efficiency programs through electrification, existing building retrofits and decarbonization, weatherization, workforce development and enhancing support for historically underserved communities and customers. The Council appreciates that the Draft Plan adopts the strategic priorities recommended by the Council in its March Resolution for the next term. In order to fully reflect the Council priorities and meet the requirements of the Green Communities Act and the Climate Act, the Final Plan must include updated benefits, savings goals, and budgets. The updates should be designed to achieve aggressive goals for equitable program outcomes and deliver cost-effective energy savings that align with the Commonwealth’s GHG goals and comply with the GHG reduction goal set by Energy and Environmental Affairs (EEA) Secretary Theoharides on July 15th, 2021².

The Council expects the Final Plan to reflect the following:

- GHG reduction goals that comply with that set by EEA Secretary Theoharides including details on how the Plan will achieve the statewide goals and sector-specific breakdown set forth in the Secretary's letter and the table below. The EEAC expects the Final Plan to include specific commitments for greenhouse gas reductions attributable to low and moderate income.

	Electric Program 2030 Cumulative Annual Emissions Reduction (metric tons of CO2e)	Gas Program 2030 Cumulative Annual Emissions Reduction (metric tons of CO2e)
Residential (excluding Moderate Income)	296,000	142,000
Income Eligible & Moderate Income	55,000	49,000
Commercial & Industrial	153,000	150,000

- Specific, measurable targets to increase investments in and benefits delivered to historically underserved customer groups, including moderate income, renters, English-isolated customers, small businesses, and Environmental Justice communities.

² <https://www.mass.gov/doc/greenhouse-gas-emissions-reduction-goal-for-mass-save/download>

- A minimum of 120,000 cold-climate heat pumps installed in the 2022-2024 Plan, including retrofit and new construction. This should include at least 50,000 fuel switching heat pumps and 7,000 heat pumps for low income customers, and increasing targets year over year for whole-building conversions.
- Specific details and commitments of the PAs' to invest and transform the market for heat pump technologies.
- Reductions in fossil-fuel heating and hot water budgets included in the April Draft, including an estimated \$15 million shift of income-eligible fossil-fuel equipment budget to electrification, to support heat pump equipment where such equipment is technically feasible, will not cause a material increase to a customer's energy burden, and electrification for end-of-life gas equipment.
- A minimum of 4,100,000 MMBtu of delivered fuel displacement from C&I heat pumps, with at least 1,400 small C&I customer participants.
- Budget increases to support greater electrification efforts for space heating and hot water, including an additional \$150 million for the Residential sector and \$50 million for Income Eligible.
- 240 MW (150 MW from the C&I sector, 80 MW from Residential, and 10 MW from Income Eligible) of energy storage capacity enrolled in active demand management offerings and specific goals in the Final Plan for income-eligible storage by 2024.
- Increase investments in Commercial & Industrial electric and gas programs at or above the 2019-2021 plan levels, with a correlated increase in benefits. Re-allocate no less than 50% of the proposed C&I lighting spending (~\$133M of incentives) to longer-lived and more GHG impactful measures such as HVAC, envelope and fuel switching as identified in the PAs market potential studies.

Stakeholder Support

Throughout the 2022-2024 Plan process to date, the Council has prioritized stakeholder feedback and suggestions through nine public comment sessions and on-going opportunity to submit written comments.³ Public comments were carefully considered when developing the Council priorities for the 2022-2024 Plan. Additional stakeholder feedback regarding the Draft Plan has been incorporated into the Council's feedback in each topic area below. The public is calling for a transformative plan that addresses the need for substantial GHG emission reductions, while also targeting program offerings to better serve historically underserved populations.

The Council urges the PAs to incorporate stakeholder feedback into the Final Plan and particularly the public comment regarding the Council's priorities: Alignment with Massachusetts GHG reduction goals, Workforce Development and Equitable Program Delivery.⁴

2. Council Response to Priorities

In its March Resolution, the Council set specific priorities for the 2022-2024 Plan that support continued robust energy efficiency, while ensuring that goals are met equitably and cost effectively.⁵ The Council urged the PAs to develop a plan that includes aggressive GHG emission reductions to support the

³ To date, the Council has received over 300 written public comments.

⁴ <https://ma-eeac.org/public-comment/>

⁵ https://ma-eeac.org/wp-content/uploads/FINAL-EEAC-Priorities-Resolution_Adopted-3.24.2021.pdf

Commonwealth's goals through a strong focus on weatherization and electrification, with significant expansion of heat pump targets and an investment in market transformation and workforce development. The Council also indicated that the Final Plan should include a strong commitment and investment in equitable program delivery by increasing participation from renters/landlords, moderate income customers, language-isolated customers, Environmental Justice communities, and small businesses. To support the Final Plan, the Council requests that both the narrative and data support the three foundational principles of GHG emission-reductions, equitable program-delivery, and workforce development. The Council provides the following expectations on how these priorities must be addressed in the Final Plan:

Greenhouse Gas Emissions Reductions

Meeting the Climate Act's 2050 Net Zero limit and 2030 limit of at least 50% reduction from 1990 will require a significant increase in the scope and scale of building retrofits, through a focus on envelope improvements and efficient electrification. The Council expects that the 2022-2024 Plan will include a phase out of lighting and fossil fuel incentives as set forth in the March Resolution and below, and increased investments in insulation, electrification of existing buildings, all-electric new construction, and deeper custom building retrofits. As mandated by the Climate Act, the Council expects the Final Plan to maintain the current social value of GHG emissions reductions for all measures, and remove the social cost from calculations of cost effectiveness for conversions from fossil fuel heating and cooling to fossil fuel heating and cooling.

Equity

The 2022-2024 Plan must address equity in a deliberate and inclusive manner which addresses the historical under-participation of underserved customer groups. The PAs have proposed some solutions, and the Council urges the PAs to develop new innovative approaches that better serve customers, including substantial support for complementary efforts such as workforce development and partnerships. The Council expects the PAs to address equity in all areas of program design, implementation and evaluation. To ensure success, the Council expects that the Final Plan will incorporate details for targets and metrics that will be used to measure progress towards equity goals. This includes commitments to detailed tracking and frequent reporting of data related to equity goals.

The Council also expects that renters/landlords, moderate-income customers, and English-isolated customers, are included equitably in GHG reduction efforts in the 2022-2024 Plan. The Equity Working Group has reviewed the Draft Plan and provides its detailed comments on the Plan in Attachment A. The Council adopts the Equity Working Group comments in full and thanks the Equity Working Group for its ongoing commitment to ensuring program equity in the Final Plan.

Workforce Development

To achieve the transformative climate and equity goals in the 2022-2024 Plan, the Commonwealth will need an expanded and skilled workforce. The Council acknowledges and appreciates the increased Workforce Development budget and commitment to the Clean Energy Pathways program in the Draft Plan. In the Final Plan, the Council expects the following:

- Increased detail on how the planned budget will be utilized, including a detailed workforce development plan and budget needed to meet the state's electrification goals.
- More information, including tracking and reporting, on efforts to improve Disadvantaged Business Enterprise (DBE) participation in PA procurements.

- Ensure that workforce efforts align with Equity Working Group and Consultant recommendations provided in the March Resolution.
- More detail on the PA's plan to collaborate with the Massachusetts Clean Energy Center on its implementation of workforce programs pursuant to the Climate Act.

3. Topic Areas

Residential Sector

The Council requests that the Final Plan addresses all of the Residential Sector recommendations listed in Appendix A to the March Resolution. The Draft Plan shows progress in addressing the Council's priorities, particularly in emphasizing electrification and weatherization, but levels of investment in electrification are still insufficient to achieve the Commonwealth's GHG goals and the details regarding implementation strategies do not give the Council confidence its priorities will be achieved.

In order for the Council to support a Final Plan, the Council requests the following:

- Significant increases in the numerical goals for both space and water-heating heat pump installations to align with the Consultants' Assessment of Potential, with a ramp-up over the three-year term. The Council expects that existing electric, oil and propane space and water heating systems will be replaced with heat pumps wherever technically feasible. Customers should be supported with long-term planning considerations including the option to switch from gas to heat pumps at the end of equipment life. At a minimum, more robust incentives should be offered and marketed for cost-effective gas to heat pump measures.
- A framework for successful achievement of the heat pump numerical goals in the form of a comprehensive market transformation plan that includes customer education and support, long term planning to convert from fossil fuel systems, encompassing all levels of the supply chain and focusing strongly on education and customer cost management.
- Phase-out of incentives for fossil fuel equipment per the Council's March Resolution.
- Increase in the numerical goals for number of residences and businesses to be weatherized, to ensure that homes are "heat-pump ready" and to support the growing opportunity and need for electrification.
- Develop a whole-home, performance-based retrofit program modeled after DOER's Home MVP pilot, that goes beyond enhanced incentives to encourage an integrated program to deliver weatherization and heat pumps for space and water heating, as well as supporting customer entry through both the Residential Coordinated Delivery (RCD) and Retail Initiatives.
- Integration of home energy scorecards into home energy assessments and effectively leverage them to inform customers about potential impacts of fuel conversions.
- A fully formed all-electric new construction offer for the 1-4 unit market segment and commitment to cease incentives for fossil fuel heating or hot water in new construction by January 1, 2022.
- Dedicated reporting of multifamily participation, savings, and budgets within the RCD Initiative to provide enhanced access to service to this important segment.
- Seamless integration of Active Demand Management (ADM). Facilitate comprehensive electrification for residential customers including co-delivery of electric vehicle charging, storage, and Solar Photo Voltaic incentives.

- Building on the success of the Passive House offering introduced in the current Plan, develop a framework to facilitate deep retrofits at multifamily buildings (including affordable housing) utilizing a flexible, predictable approach that supports leveraging of outside resources and includes non-measure-specific incentives.

Income Eligible

The Council requests that the Final Plan respond to all of the Income Eligible recommendations listed in Appendix A to the March Resolution. To ensure that these priorities are met, and to prevent income-eligible residents from being “left behind” in the transition to a clean energy future, the Final Plan must demonstrate a significantly increased investment in electrification, weatherization/envelope measures, and technologies to support active demand management. This will require an increase in the income-eligible budget overall, and/or a re-allocation of resources to ensure funding consistent with the Council recommendations below. The Final Plan must also demonstrate an increased focus on multifamily buildings, including effective service to buildings with mixed-income residents, increased flexibility to support deep energy retrofits of subsidized housing, and targeting of smaller multifamily buildings, especially naturally occurring affordable housing. In addition, to ensure continually improving equitable and effective delivery of resources and services, the Final Plan must show a strengthened commitment to transparent and modernized data collection and reporting.

In order for the Council to support a Final Plan, the Council requests the following:

- A budget increase for the Income Eligible Sector to support a more costly measure mix that includes increased electrification, weatherization, and active demand measures as well as anticipated increases in the numbers of income eligible households served.
- Significantly increase the goals for heat pump installations for both space and water heating and ensure that such goals reflect a ramp-up over the Plan term.
 - The Council expects that existing space and water heating systems will be replaced with heat pumps wherever technically feasible and where energy burdens will not be increased. Weatherization measures should be implemented to enable electrification without causing a material increase to energy burden. Note that this will require an increase in the budget allocated to heat pumps and envelope. As a result, planned fossil fuel equipment numbers will be lower in the Final Plan, with associated budget funds reallocated to heat pumps and weatherization.
 - The Council also expects the Final Plan to include resources and strategies to remove or mitigate barriers to participation and installation, and to ensure customer awareness of, and satisfaction with, heat pump technologies. Such strategies include customer, contractor, and operator education, as well as other strategies outlined in the March Resolution.
- Increase the goals for weatherization and ensure co-delivery of heat pumps with weatherization.
- Significantly increase the goals for installation of wi-fi thermostats or other technologies to support active demand participation, and ensure that such goals reflect a ramp-up over the Plan term.
- Increase the budget for multifamily buildings to support an increase in installations of heat pumps (particularly for small multi-family buildings), envelope measures (including masonry

weatherization where appropriate), and wi-fi thermostats. Note that this may include a re-allocation of the lighting budget toward these measures, and/or a re-allocation of the single family budget toward multifamily.

- A clear strategy for phasing out lighting incentives by 2024. The Council expects that the lighting budget in the Final Plan will decrease for each year of the Plan to reflect a ramp-down of lighting installations overall.
- Include a strong commitment to metrics and reporting designed to increase transparency and accountability regarding planned investment and work performed in single family vs. multifamily buildings, and across PA and CAP agency territories.
- Include a commitment to develop and implement a statewide computerized audit tool by the date specified in the recommendations set forth in the March Resolution.
- Develop and implement strategies to increase participation of income-eligible renters living in “naturally occurring” or non-institutionally-assisted housing, including implementation of a mixed-income protocol that provides a streamlined, efficient process for customers.
- Capitalize on all opportunities to support electrification and deep energy retrofits, in the affordable housing sector by including programming and budget that provides flexible, non-measure-specific incentives modeled and incentivized at the building or project level delivered through an approach that supports bringing outside funding to projects.
- Include the Cape and Vineyard Electrification Offering (CVEO) recognizing its innovative approach to serving low- and moderate-income residents with a package of clean energy technologies to reduce GHG emissions through electrification.
- Seamless integration of Active Demand Management (ADM). Facilitate comprehensive electrification for residential customers including co-delivery of electric vehicle charging, storage, and Solar Photo Voltaic incentives.

Commercial & Industrial

The Council requests that the Final Plan respond to all the Commercial and Industrial (C&I) recommendations listed in Appendix A to the March Resolution. This is imperative as the Draft Plan’s goals are less than half of the electric savings identified in the PAs’ market potential studies. The Council expects significant increases in budget, savings goals, and benefits for the C&I programs to meet the statutory mandate of all cost-effective energy efficiency. Having successfully transformed the commercial lighting market to high-efficiency LED technologies, C&I programs must now shift to a more holistic treatment of total building energy use and specifically target heating, cooling, ventilation, and process loads. Strategies used to deliver significant lighting savings will be less applicable to more complex and interrelated end-uses, and the programs must adapt to help customers capture these substantial but more difficult opportunities. This will require an increase in the C&I budget overall, and a re-allocation of resources as described below.

To support a Final Plan, the Council requests the following:

- Create a dedicated stakeholder working group that includes C&I program participants to identify concrete ways to improve programmatic offerings and reduce barriers to participation.
- Develop a consistent definition of “small business” in order to better serve the sector.

- Invest in more engineering staff and/or technical assistance vendors to identify, develop, and review complex custom project scopes of work in a consistent and expedient manner.
- Launch a Deep Energy Retrofit program offering in 2022 that seeks to dramatically reduce C&I building loads and associated GHG emissions holistically.
- Increase spending and savings goals for commercial envelope measures and apply lessons learned from ongoing small commercial weatherization pilots.
- Reduce reliance on point-of-sale rebates for complex measures and end-uses such as HVAC systems and process, and instead prioritize custom retrofit measures that utilize existing conditions baselines.
- Significantly increase investment in commercial electrification and prioritize envelope measures that reduce overall thermal loads to begin with.
- Focus all remaining indoor lighting opportunities on controllable technologies. Starting in January 2022, cease incentives for all TLEDs through the midstream pathway. For the small business turnkey pathway, prioritize LED fixtures with controls and only install TLEDs paired with controls.
- Demonstrate strategy to convert remaining streetlights to LEDs within first 12-18 months of the Plan, incorporating wireless controls at the time of conversion.
- Develop and implement a dedicated downstream program for public buildings by start of 2023 that emphasizes HVAC and building envelope measures with enhanced incentives, using lessons from effective Cape Light Compact program.

Equity

The Council requests that the Final Plan commit to implement, through identifiable metrics, distinct budgets, and detailed descriptions of strategies, all of the Equity recommendations listed in Appendix B to the March Resolution. As noted above, the Council also adopts the EWG's comments in response to the April Draft (attachment A). The Council emphasizes the EWG's comments and expects a Final Plan to include specific equity targets, designated budget levels for identified customer types and environmental justice communities, more detailed and frequent data reporting, and specifics on programmatic enhancements and changes. The Council expects that the equity budgets, targets, and programs will be intentionally designed and calculated to redress past under-participation and enable underserved customer groups to realize savings and benefits and participate equitably in the transition to a low-carbon future.

Active Demand Management

The Council requests the Final Plan to respond to all the Active Demand Management (ADM) recommendations listed in Appendix A to the March Resolution. While the Program Administrators' Draft Plan demonstrates an expansion of core active demand offerings such as Residential Direct Load Control Wifi Thermostats and C&I Curtailment, it falls short of capturing all cost-effective potential demand savings identified in the PAs' potential studies. This is especially true for Residential Direct Load Control Wifi Thermostats where less than 5% of total Massachusetts households with central cooling are currently enrolled in the program as of 2020. The EEAC Consultant's Assessment of Potential also recommend significantly more active demand storage than proposed in the April draft plan. As noted in ACEEE's 2019 paper: *Integrated Energy Efficiency and Demand Response Programs*⁶ – Massachusetts'

⁶ <https://www.aceee.org/sites/default/files/publications/researchreports/u1906.pdf>

Connected Solutions program is only at Tier 2, Cross-Promotion, out of four levels. The Council recommends the PAs work to achieve Tier 4, Fully Integrated Programs, by integrating efficiency and demand savings offerings and incentives rather than just cross-promoting them. In addition, the Council expects more transparency and reporting on various active demand offerings.

In order to support a Final Plan, the Council requests the following:

- Increase the goals for Residential Direct Load Control Wifi Thermostats to reach at least 20% of centrally cooled homes in the Commonwealth by 2024.
- Further integrate ADM savings measures for control-based measures by offering higher energy efficiency incentives for demand response enabled technologies.
 - Example – provide a higher tier Energy Management System incentive for those that build load shedding protocols into their programming at the time of commissioning.
- Set specific numerical goals for Income-Eligible and Small Commercial Direct Load Control Wifi thermostats, and report these figures going forward in all regular ADM reporting.
- Phase out support for fossil fuel generator participation in active demand programs and report the amount of C&I demand savings from generators versus load curtailment until said phase out is complete.
- Expand goals for energy storage ADM in residential, commercial, and income eligible sectors.
- Transition EV charging pilot to a program offering by January 1, 2022.
- Provide more clarity on the long-term incentive levels for energy storage systems to give developers and customers the necessary information they need to finance storage projects.
- Strive to meet the vision of the U.S. Department of Energy's Grid Interactive Efficient Buildings⁷ concept in all new construction projects across all sectors.

4. Performance Incentive

As stated above, the Council emphasizes that the 2022-2024 Plan is a transformational plan which must meet the challenge of aggressive GHG emission reductions required by the Climate Act to combat the effects of climate change while also equitably serving Massachusetts ratepayers. The priorities of GHG emissions reduction and equitable program delivery must be considered in tandem to ensure that historically underserved communities are able to realize benefits from emissions reduction efforts. The Council expects the 2022-2024 Performance Incentive (PI) Mechanism to transition in support of these priorities. Specifically, the PI mechanism must be designed to incentivize the PAs to pursue benefits and energy savings in communities that have been historically underserved by the programs. The PI mechanism must also be foundationally based on rewarding the PAs for reaching the GHG reduction goal set by EEA Secretary Theoharides, through increasing implementation of measures and developing programs that will support the achievement and align with the Commonwealth's interim and long-term climate goals while also ensuring that underserved communities are prioritized. The Council expects the PI mechanism to be a change from past plans in order to achieve these outcomes.

⁷ <https://www.energy.gov/eere/buildings/grid-interactive-efficient-buildings>

Energy Efficiency Advisory Council's Equity Working Group's Comments on April Draft Plan 2022-2024

July 23, 2021

1. Introduction

The Energy Efficiency Advisory Council's Equity Working Group recognizes and commends the Mass Save® Program Administrators (PAs) for their work to include equity as a priority focus in the April Draft Plan.¹ The EWG reiterates support for the full list of recommendations² provided to the Council and Mass Save® PAs and included as a part of the EEAC resolution approved on March 24, 2021. The focus of the EWG's comments here are on the priorities and details the EWG deems most important for inclusion in the Final Plan submitted in October of this year.

The April Draft Plan presents a shift from prior statewide electric and gas energy efficiency plans. However, the EWG believes that the Final 2022-2024 Plan must go further than currently proposed in the April Draft Plan to ensure that transformative change happens. The April Draft Plan provides qualitative goals within its sections on strategic initiatives, and accompanying these goals are descriptions of barriers, example tactics, applicable incentives, and simplified timelines for implementation. Improving equitable outcomes in the statewide energy efficiency programs will take significant investments of time, effort, and resources in communities and customers that have been historically underserved. Achieving success with equity initiatives will also require investments in complementary initiatives such as partnerships and workforce development. The details included in the April Draft Plan provide important qualitative descriptions of initiatives that the PAs will undertake, but they do not provide the quantitative targets necessary to measure progress towards equity goals and lack some tactical detail necessary to assess whether program changes align with EWG recommendations from March 2021.

2. Focus on Equity - the Priorities

The PAs define equity in the context of energy efficiency as, "... the process of establishing more equal access to and participation in energy efficiency programs, particularly among those groups who have historically participated at lower rates, including renters/landlords, moderate-income customers, and English-isolated families."³ While access to and participation in energy efficiency programs is of primary importance, it is not the sole definition of equity and cannot be achieved without a broader view of and approach to equity.

Program participation provides one set of energy efficiency benefits. Other benefits that need to be more equitably distributed include 1) the geographic distribution of program investments and benefits

¹ Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan, (April 30, 2021), <https://ma-eeac.org/wp-content/uploads/Mass.-Statewide-Energy-Efficiency-Plan-Submitted-April-30-2021.pdf>

² Council Approved Equity Recommendations, (February 24, 2021) <https://ma-eeac.org/wp-content/uploads/FINAL-Equity-Recommendations-APPROVED-2.24.21.pdf>

³ Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan at 58, (April 30, 2021), <https://ma-eeac.org/wp-content/uploads/Mass.-Statewide-Energy-Efficiency-Plan-Submitted-April-30-2021.pdf>

and 2) the availability of and access to employment and procurement opportunities for individuals and businesses that are underrepresented in the clean energy economy. Furthermore, the Massachusetts legislature has explicitly called for equitable distribution of energy and environmental benefits and environmental burdens.⁴ The EWG feels strongly that the PAs continue developing and enhancing initiatives focused on equitable distribution of benefits.

The Commonwealth has established a goal of net-zero GHG emissions by 2050 and aims to do so equitably. In the April Draft Plan the PAs identified equity and electrification as two of their top priorities. The EWG firmly believes that any and all prioritization of electrification should be viewed with an equity lens as well. The EWG urges the PAs to ensure that the 2022-2024 Plan proactively paves the way to a just and clean energy transition. Over the next several years, hundreds of thousands of residences and businesses will need to be electrified to meet statewide GHG emissions reductions goals. The statewide energy efficiency programs present a significant opportunity to meet those goals equitably by centering equity and environmental justice in electrification policies from the start. This means that low- and moderate-income customers cannot be left behind in the clean energy transition. Designing policies and programs that do not actively promote electrification where economically feasible would force low- and moderate income customers to bear the financial burden of supporting fossil fuel infrastructure as the state transitions away from fossil fuels. The PAs and the Low-Income Energy Affordability Network (LEAN) should actively pursue electrification for low- and moderate-income customers using delivered fuels or inefficient electric heat, where energy burden will be reduced by converting to efficient electric heat pumps. While it may not be economically feasible for gas customers to convert now, the PAs and LEAN should have plans in place such that additional customers can be quickly and efficiently transitioned in the future.

With deliberate and inclusive actions, we can create a diverse set of solutions that bring us closer toward the Commonwealth's climate goals and at the same time further reduce social inequities related to energy.

3. Budgets, Benefits, and Participation

With increased focus on equity issues and equitable delivery of energy efficiency services, it is necessary to enhance transparency and understanding regarding the magnitude of PA financial investments and impacts in the 2022-2024 Plan. The EWG supports the increased investment that has been allocated for moderate-income customers. However, additional information is needed to adequately assess whether investments for the other equity priority areas are acceptably robust. Much of the information regarding equity-related budgets has been delivered to the EWG via its regular meetings; therefore the EWG strongly recommends that the PAs include a detailed budget for equity initiatives in the 2022-2024 Plan. These detailed budgets should include investment, planned number of participants served, and net lifetime MMBtu broken down by environmental justice communities, workforce development,

⁴ [An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy \(2021\)](#)

partnerships, moderate-income (including pre-wx barrier mitigation), renters and landlords (including income-eligible), language-isolated populations, and small business.⁵

4. Stakeholder Inclusion

Over the last year and a half the EEAC has implemented changes and process improvements to provide opportunities for more meaningful involvement in Three Year Planning. Much of the meaningful involvement has come through process improvements in the planning process, such as including stakeholder representatives as members of the Equity Working Group, inviting stakeholders to provide input during EWG hosted focus groups, and hosting virtual meetings and listening sessions which allowed for greater participation.

The EWG would like to highlight some of the key takeaways from comments received from stakeholders following the publication of the April 30th Draft Plan. In their comments, stakeholders have stressed the need for the following to be included in the final version of the 2022-2024 Plan.

- Additional quantitative and qualitative details, clarity, and transparency are needed throughout the plan to ease concerns about the achievability of the equity goals specified in the plan.
- Numerical targets and metrics are essential to assess progress on equity priorities throughout the plan. Relying on EM&V studies that are completed years later is insufficient for measuring progress in real time.
- Budgets should be clearly articulated for equity initiatives and commensurate with the needs of underserved customer groups such as moderate-income customers, renters and landlords, language-isolated populations, and small businesses.
- Enhanced communications are needed to ensure that customers, contractors, municipalities, and more are aware of the program offerings available and are able to effectively communicate those offerings to their peers.
- The climate benefits of electrification should be more accessible to all residences and businesses interested in participated in Mass Save[®]. This includes educating Mass Save[®] partners on electrification technologies and encouraging them to promote electrification opportunities among customers.

In effort to maintain informative stakeholder connections, the EWG recommends that the DOER, EEAC, and PAs continue with the successful stakeholder engagement practices identified during this planning process and that plans for maintaining continued engagement be included in the next version of the Plan.

5. Equity Targets and Metrics

The EWG firmly believes that committing to and making progress towards equity goals requires establishing targets and metrics. Without clearly defined numerical targets and metrics and timelines for

⁵ The PAs should indicate where there is overlap between priority areas (e.g. a moderate-income renter). For priority areas where the PAs cannot provide granular data, approximations should be made and detailed assumptions regarding those approximations should be shared as well.

implementation, the Council will be limited in its ability to track where progress has been made and where additional support is needed. In consultation with the PAs, the EWG has begun developing a framework for measuring equity in the areas of environmental justice communities,⁶ workforce development, partnerships, renters, moderate-income customers, language isolated populations, and small businesses. The framework uses metrics such as participation, benefits, and investment as means to track progress towards more equitable outcomes. Metrics are being carefully chosen based on available baseline data and feasibility for collecting new data. In addition, reporting requirements, including the frequency of reporting for each metric, are still under discussion. Examples of targets the EWG has discussed include, but are not limited to, the following:

- Environmental Justice Communities: Increase number of participants by PA in designated EJ communities Plan over Plan in selected EJ municipalities by a percent to be set for each PA individually.
- Workforce Development: At least 120 people will complete training and be placed in relevant industry positions through Clean Energy Pathways, with at least 75% being Women, Black, Indigenous, or People of Color, fluent in language(s) other than English, and/or from EJ block group at time of enrollment. PAs will report on 12-month retention, with a target of [XX] % of placed trainees retained.
- Moderate-Income: Increase the number of moderate-income weatherization jobs by [XX]% year over year (baseline to be established using 2021 actual data).

The EWG has been clear through this process that the framework is a first step in a longer journey, and that the targets and metrics framework will continue to be updated as needed. The EWG expects that the PAs will continue to work with the EWG to develop an Equity Targets Framework including details around reporting frequency and bring the framework to the Council for review in August 2021.

6. Data, Tracking, and Reporting Toward Equity Targets

The EWG views data, tracking, and reporting as a core component of making progress towards improved equity in the Mass Save® programs. The EWG recognizes the significant upgrades that have been made to increase access to Mass Save® Data including developing interactive data mapping tools and Customer Profile Dashboards for the Residential and Commercial and Industrial sectors.⁷ These new tools provide enhanced access that formal and informal Mass Save® partners can access to help develop targeted outreach strategies that will hopefully direct program resources to customers who need them most and customers that have been historically underserved. The EWG expects the PAs to continue to host outreach sessions on these new tools to increase awareness among interested stakeholders, improve these data tools and resources over time, and expand these tools to additional municipalities.

⁶ As defined by the Executive Office of Energy and Environmental Affairs *Environmental Justice Policy* (June 24, 2021) <https://www.mass.gov/doc/environmental-justice-policy6242021-update/download>

⁷ The Massachusetts Energy Efficiency Database, <https://www.masssavedata.com/public/home>, (last visited June 28, 2021)

In the recommendations provided to the Council earlier this year, the EWG recommended several reporting criteria for the PAs to consider.⁸ The EWG views reporting towards equity targets to be critical. More frequent and granular reporting of participation by underserved customer groups is necessary to ensure progress. By providing data more frequently, the EEAC and the PAs will be better equipped to review and act with necessary urgency, rather than waiting years for comprehensive evaluation studies to be completed. Furthermore, more detailed reporting would allow the EEAC and the PAs to understand how certain priority areas and customer segments within a sector are making progress towards equitable outcomes and reassess if there are changes that should be made to improve outcomes. The EWG understands that this process will take time and that it will require a serious overhaul of data tracking and reporting systems for some of the newer metrics. The EWG encourages the PAs to view this as a long-term investment in equity as reaching a more just and equitable future will require more time than the next plan term. The EWG recommends that all reporting systems for equity targets should be in place by the end of the second quarter of 2022.

7. Programmatic Priorities

The Three Year Plan and accompanying documents typically have been strategic —rather than tactical— documents. The EWG strongly suggests that additional tactical detail is needed to address adequately issues of inequity. There are two reasons : 1) to ensure that the extensive work that the EWG and stakeholders have made is utilized to implement the EEAC’s equity recommendations and 2) to see implementation strategies in sufficient detail to have confidence that equity targets will be met. In this next section, the EWG provides more detailed comments regarding areas where the EWG supports the PAs plans, where the EWG believes additional detail is needed to make a fair assessment, and changes the EWG expects to see in the Final Plan. In each of the below areas addressed in the Three-Year Plan, the EWG recommends that the PAs define critical points of review to ensure that new strategies and tactics are bringing about the desired results. Such review should include stakeholder participation for input and problem solving. Building into the Plan review and recalibration of programs will ensure the strong forward momentum on goals that the EWG, PAs, and stakeholders want to see in these areas.

Table 1. Equity Working Group Programmatic Priorities

	<i>The EWG Supports...</i>	<i>More Information Needed on...</i>	<i>Areas Where Changes Are Needed...</i>
Partnerships	<ul style="list-style-type: none"> Option for multi-year partnerships Increased focus on EJ communities for Municipal Partnership Program Municipal Partnership funding structure that is more guaranteed and predictable 	<ul style="list-style-type: none"> Budget for Municipal Partnership Program and partnerships more broadly Metrics that will be used to evaluate partnership performance 	<ul style="list-style-type: none"> Increase in the number of partnerships, including how those partnerships will be distributed throughout the Commonwealth Definition of partnerships

⁸ Council Approved Equity Recommendations, (February 24, 2021) <https://ma-eeac.org/wp-content/uploads/FINAL-Equity-Recommendations-APPROVED-2.24.21.pdf>

<p>Workforce Development</p>	<ul style="list-style-type: none"> • Increase in budget for WFD efforts • Creation of the Clean Energy Pathways program 	<ul style="list-style-type: none"> • PAs’ plan to collaborate with MassCEC on \$12 million/year for energy efficiency workforce development • Workforce development investments outside of the Hard To Measure budget • Efforts to improve Diverse Business Enterprise participation in PA procurements 	<ul style="list-style-type: none"> • Additional workforce efforts beyond Clean Energy Pathways in residential, income eligible, and C&I sectors
<p>Moderate-Income</p>	<ul style="list-style-type: none"> • Increase in funding for barrier mitigation and HVAC incentives which can be tracked at the measure-level • Commitment to improving and simplifying the income verification process 	<ul style="list-style-type: none"> • Implementation strategy for serving moderate income customers such as streamlining the income verification process and timeline for implementation • Barrier mitigation budget and tracking and reporting of barriers 	<ul style="list-style-type: none"> • Increase the value of HVAC incentives for heat pumps • Differentiate incentives for electric and fossil fuel heating systems such that heat pumps are competitive up-front • If Wx is included as a requirement for enhanced HVAC incentives, the PAs must develop a coordinated and streamlined delivery model that reduces the number of contacts for a customer
<p>Renters and Landlords</p>	<ul style="list-style-type: none"> • Continuation of enhanced incentive for residential 1-4 unit and attached low-rise individually metered buildings 	<ul style="list-style-type: none"> • Implementation strategies for directly engaging with residential and commercial landlords • Details on the Mixed-Income Protocol, including framework and timeline for implementation 	<ul style="list-style-type: none"> • Include more innovative approaches for reaching landlords • Develop participation goals by building size, particularly for smaller multifamily buildings with 3-9 units • Develop plans for serving rental C&I properties, particularly small- and micro-business • Include plans for integrated service delivery and one point of contact for landlords
<p>Language Isolated Populations</p>	<ul style="list-style-type: none"> • Commitment to improving access for 	<ul style="list-style-type: none"> • Details on how language assistance will be provided across PAs 	<ul style="list-style-type: none"> • Provide an implementation timeline for Language Access Plan, which should

	<p>Spanish and Portuguese-speaking households</p> <ul style="list-style-type: none"> • Commitment to developing a Language Access Plan 	<ul style="list-style-type: none"> • Details describing how comprehensive language access will be fully integrated through all aspects of the PA portfolio, including outreach, intake, assessment, installation, and quality assurance for residential, income eligible, and commercial and industrial customers • Details for how the PAs will serve small businesses where English is not the primary language spoken by the business owner 	<p>include details for language access for households with a primary language other than Spanish or Portuguese</p>
Small Business	<ul style="list-style-type: none"> • Allowing eligible customers to sign up online for turnkey small business audits 	<ul style="list-style-type: none"> • Details on outreach strategies for small business in addition to the Main Streets Program • Provide details on how Wx and HVAC installations are being scaled up from current levels • Address how the PAs will reach different industries within the small business sector such as non-profits 	<ul style="list-style-type: none"> • Define small business or adopt definition used in the C&I non-participant study • Develop participation goals for upstream and downstream initiatives specifically for Wx, HVAC, and non-lighting measures

8. Conclusion

The EWG is grateful for the opportunity to collaborate closely with the PAs on equity. It is the EWG’s goal to continue this close collaboration moving forward. Creating a Three Year Plan that not only prioritizes equity but leads to equitable outcomes is the ultimate goal of the working group. The non-participant studies and stakeholder feedback has shown that statewide energy efficiency programs have left customers underserved. This plan signals a change and a commitment to investing in those communities. Ensuring that underserved communities have equitable access to program benefits will require us to try and try again when we don’t succeed, but the goal will remain the same: to ensure more just and equitable access and outcomes.

Cape Light Compact JPE 2022-2024 Energy Efficiency Plan Enhanced Incentives

October 13, 2021

**Cape Light
Compact**



Working Together Toward A Smarter Energy Future

Context for Council Review



From the DPU Order on the Compact's 2019-2021 Plan:

*"To facilitate an efficient review of future proposals, the Compact shall include a supplement in its initial three-year plan filing that identifies all proposed Statewide Plan enhancements (both new and existing). The filing must include detailed testimony and exhibits (1) describing each proposed Statewide Plan enhancement, (2) explaining and supporting why each proposed enhancement is necessary and consistent with all requirements of the Green Communities Act, (3) **describing Council and stakeholder review of each proposal**, and (4) clearly identifying the incremental budget and projected savings, broken down by rate class and category, relative to the Statewide Plan." D.P.U. 18-116 at 132-33.*

CLC Board Priorities: C&I Enhancements



Up to 100% incentives for municipal customers, small non-profits, small businesses and micro businesses.

The Compact proposed and DPU approved these incentives in prior plans. The Compact intends to propose them for the 2022-2024 Plan as well.

Consistent with DPU directives from the 2019-2021 Plan Order, a statewide evaluation of several C&I enhanced incentives offered by the Compact is underway to determine if it is warranted for all PAs to offer these incentives (including the Compact). Results are forthcoming.

CLC Board Priorities: Income Eligible (IE)/Moderate Income (MI) Multi-Family New Construction Projects



Up to 100% incentives for IE and MI Residential Multifamily new construction projects. Requires a 25+ year deed restriction. Enhanced incentives for envelope, non-fossil fuel heating systems and engineering study.

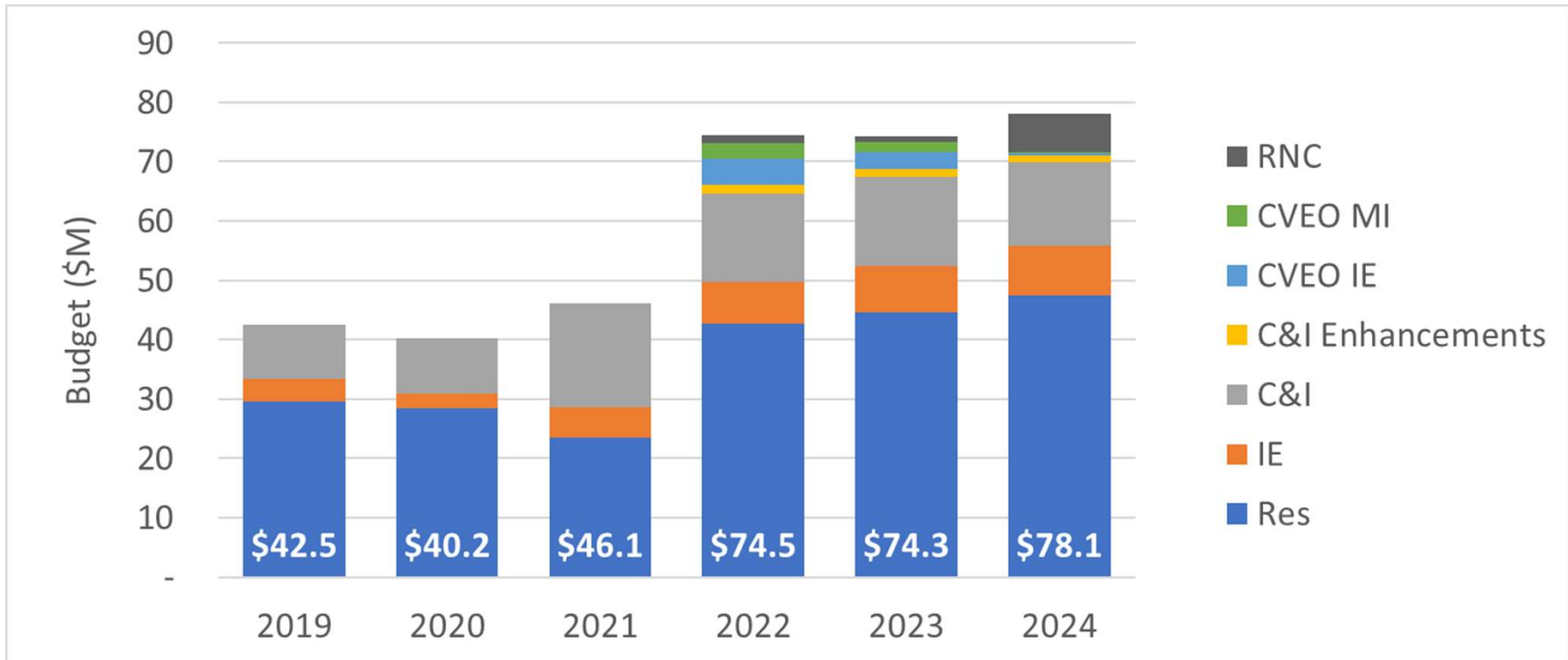
Level of Investment in Compact Board Priorities



CLC Board Priority (\$M)	2022	2023	2024	2022-2024
C&I Enhancements	1.48	1.40	1.22	4.10
CVEO IE	4.41	2.93	0.36	7.70
CVEO MI	2.72	1.62	0.24	4.58
RNC	1.32	1.05	6.41	8.78
Total	9.93	7.00	8.23	25.16

- *The Council reviewed the Compact’s Cape & Vineyard Electrification Offering (CVEO) in July and supported CVEO in the July 28, 2021 Resolution on the Draft Plan*

Proposed Budget Breakdown





MEETING MINUTES

Wednesday, October 13, 2021
Virtual Meeting via Zoom

Voting Councilors Present: Greg Abbe (for Jennifer D Maddox), Cindy Arcate, Jo Ann Bodemer (for Maura Healey), Amy Boyd, Justin Davidson, Elliott Jacobson, Paul Johnson, Deirdre Manning, Cammy Peterson, Robert Rio, Dennis Villanueva, Mary Wambui, Sharon Weber, Commissioner Patrick Woodcock

Voting Councilors Absent: Charlie Harak

Consultants Present: Eric Belliveau, Adrian Caesar, Adam Jacobs, Crystal Johnson, Griffith Keating, Margie Lynch

DOER Staff Present: Rachel Evans, Maggie McCarey, Emily Webb

1. Call to Order

McCarey, as Chair, called the meeting to order at 1:05 PM.

2. Council Updates & Business

Virtual Meeting Procedure Review

McCarey reviewed the virtual EEAC meeting procedures, which included the following:

1. The Council meetings would be recorded.
2. All attendees except for Councilors and presenters would remain muted for the duration of the meeting.
3. Councilors would hold comments until the end of presentations, but Councilors and other participants should speak instead of using any chat functionality.
4. Councilors who disconnect from meetings need to announce when they rejoin.
5. All Council votes would be taken by a roll call for accuracy.

Public Comment Listening Session and Contractor Letter

McCarey indicated public comment was provided during a listening session held one hour prior to the Council meeting. McCarey said comments regarding material price increases was

discussed in greater detail in the October 6th Executive Committee meeting, during which the program administrators (PAs) expressed willingness to adjust contractor prices. McCarey requested that the PAs immediately work with contractors to resolve the issue, and hoped to have a resolution at the October 20th Executive Committee special meeting.

3. Updated 2022-2024 Three-Year Plan

Program Administrator Presentation

Porter, Coen, Formica, Georges, Gibbons, and Song, on behalf of the PAs, provided updates on the 2022-2024 Plan. Coen, Georges, and Formica described Residential and Income Eligible sector highlights such as increased weatherization, emphasis on heat pump incentives, increased Income Eligible active demand participation, and Income Eligible Multifamily deep energy retrofits. Gibbons and Song noted that heating electrification for delivered fuel customers, improved HVAC delivery pathways, equitable delivery of services to small businesses, and deep energy retrofits are important Plan improvements for the C&I sector. Song added that the PAs anticipated extensive collaboration with all stakeholders to achieve statewide goals.

Consultant Team Presentation on Updated Savings Goals and Plan Narrative

Belliveau, Keating, Jacobs, Lynch, and Johnson, on behalf of the Consultant Team (C-Team), presented key findings for the updated 2022-2024 Plan related to GHG emissions reduction goals, electrification, equity, workforce development, and active demand management. Belliveau indicated that GHG emissions reductions, Income Eligible fossil fuel heating incentives, transitioning away from lighting measures, and equity targets were remaining Plan considerations for the Council and PAs.

Keating reviewed portfolio-level savings, spending, benefits, and GHG emissions reduction shifts between the April Draft Plan and September Draft Plan. Jacobs highlighted C&I sector adjustments in the September Draft Plan including increased budget and GHG emissions reductions in alignment with stakeholder input, and commitments to establish a C&I Working Group and deep energy retrofit offering. Lynch summarized differences in spending and savings between 2022-2024 Plan drafts across Residential programs and end uses, as well as focus areas like co-delivery of heat pumps and weatherization. Lynch also indicated there was a favorable increase in GHG emissions reductions resulting from Income Eligible electrification between the April and September Draft Plans, but investment in weatherization and heat pump water heaters was insufficient. Lynch and Johnson discussed customer segment-specific equity targets and delivery strategies, unmet Equity Working Group requests, and other key equity considerations for the 2022-2024 Plan.

Council Discussion – Commercial & Industrial Sector

Wambui questioned the underinvestment in retrocommissioning given the significant savings it can produce in large, existing buildings. Jacobs responded that there has been less emphasis on retrocommissioning relative to importance of the measure type, and the focus is optimizing building controls and systems. Jacobs indicated that all building controls incentives accounted for about \$12 million of the budget, but hoped to see higher investment in these measures since they have many energy and non-energy benefits. Jacobs recommended reallocating some of the \$265 million in lighting incentives to retrocommissioning.

Peterson suggested the greenhouse gas (GHG) reduction targets should be achieved for the electric portfolio. Peterson supported the reallocation of lighting incentive spending into retrocommissioning incentives since the lighting market is already transformed. Peterson urged the PAs to further reduce fossil fuel incentives, as fossil fuel incentives have remained largely stagnant with electrification investment layered on top. Peterson was excited for details on deep energy retrofit offerings, especially for municipal buildings, as they are critical to meeting 2030 GHG goals. Peterson indicated serving municipal, university, school, and hospital (MUSH) buildings would benefit the elderly and communities of color that are often hosted in these facilities. Peterson recommended more dedicated offerings for municipalities that include specific municipal baselines since public buildings differ from other C&I buildings.

Villanueva asked if there was a breakdown between New Construction and Retrofit for C&I electrification, because existing building electrification would be a challenge. Villanueva suggested that using marginal emissions instead of average emissions reductions would be more appropriate, but the Council needs to implement the most realistic and efficient calculation methodology. Villanueva said the shift to marginal emissions reductions might result in exceeding the GHG goal for the electric portfolio. Villanueva indicated that outdated pneumatic control systems are expensive to convert to direct digital control systems, which is a barrier to retrocommissioning that should be eliminated. Villanueva was also disappointed that the updated Draft Plan did not mention a C&I Working Group. McCarey responded that the Department of Energy Resources (DOER) and C-Team committed to co-managing a C&I Working Group with the PAs, so this commitment should be added to the Plan.

Johnson asked why the PAs invested so much in lighting measures relative to the small retrocommissioning investment. Johnson asked how methane emissions would be mitigated given their large environmental impact. Johnson asked what share of spending was for lighting controls. Johnson asked for more details on the standard weatherization plan for small businesses, and whether home performance contractors could serve these buildings. Jacobs indicated the Center for Eco Technology (CET) and PAs are collaborating to weatherize small businesses like doctor's offices and dentists. Song indicated that current weatherization projects for these customers are all custom, so the PAs are looking to standardize the successful pilot offering. Song indicated that qualified Residential contractors could participate as well, and anticipated weatherization project volumes would increase once the offer is standardized. McCarey added that the pilot is looking to establish tools for providing onsite recommendations and estimates to businesses to help conversion rates.

Rio was concerned about removing combined heat and power (CHP) incentives and the challenges for C&I electrification. Rio suggested that reduction in CHP incentives should be coordinated with the alternative portfolio standard. Rio doubted there would be many more CHP installations, and removing incentives might increase emissions in the short term if C&I customers continue to rely on gas heating. McCarey replied that the Plan includes a gradual phase out of CHP incentives, so some projects would still receive incentives. McCarey added that there are no emissions benefits for CHP, so incentivizing these projects is counter to the Climate Act.

Villanueva agreed conceptually with the CHP phase out as a means of reducing gas consumption, but agreed with Rio that only CHP projects with proven benefits should be incentivized. Villanueva opposed incentives for higher gas efficiency equipment, but supported delivered fuel to gas fuel switching that would yield benefits. Villanueva said fuel switching and CHP need to be treated practically, especially since resilience benefits of CHP benefit buildings like hospitals.

Council Discussion – Residential Sector

Wambui said equity should be embedded in sector-specific discussions. Wambui said language such as, “we are going to prioritize transitioning customers likely to experience reduced heating costs and seamless installations,” would lead to systemic exclusion and future inequity. Wambui indicted this happened in 2008 when the Commonwealth prioritized energy efficiency and abandoned many vulnerable customers. Wambui said equity issues cannot be solved by ratepayer funded programs alone, and asked the Office of the Attorney General to systematically address equity through utility rate structures or integrating technologies like solar.

Abbe asked if the dramatic increase in the Social Cost of Carbon resulted in gas to electric fuel switching becoming cost effective. Porter indicated these conversions are now cost effective and can now be funded under program rules, but added that customers could experience increased heating costs under today’s electric and gas rates. Abbe asked if there were efforts to push electrification in Residential Coordinated Delivery instead of gas equipment and relegate gas equipment to an upstream or rebate program. Porter said the scope of fossil fuel heating incentives is being reduced, but the PAs need to consider counterfactual where support for higher efficiency equipment is not provided and customers resort to lower efficiency equipment. Abbe recognized that getting rid of incentives based on program structure is unlikely, but wondered if heat pumps could be at the forefront of Residential programs. Porter said the general approach has been meeting customer needs and maximizing energy efficiency. Porter added that the PAs are explicitly moving toward an electrification focus in program delivery, particularly for delivered fuel displacements where savings opportunities are large, customer economics are better, and GHG reductions are highest.

Weber commented that the ambitious heating electrification goals across all sectors warrant rigorous tracking and monthly data reporting on heat pump installation progress. Weber’s personal experience with heat pump installation was challenging, so customer technical assistance and data tracking will be critical.

Peterson agreed with Weber, Abbe, and Wambui. Peterson said training, support, and incentives all impact customer decision making, and customers can be discouraged to participate in programs if they get confused. Peterson suggested changing program structure and capitalizing on the higher Social Cost of Carbon to support goals. Peterson was pleased by the 1-4-unit all electric Residential New Construction opportunities, but recommended more offerings since these buildings will last for decades. Peterson also supported a performance-based pathway to support weatherization and electrification codelivery, in addition to applying an approach similar to the Home MVP program.

Johnson agreed with Weber's request for monthly heating electrification reports. Johnson was glad the Plan included an HVAC specialist consultant. Johnson supported a performance-based approach to weatherization. Johnson said weatherization should be free for customers that install a heat pump. Johnson also recommended incentives for HVAC and weatherization contractors that promote weatherization and heat pumps.

Boyd urged the PAs to meet the GHG reduction goal specific to the electric portfolio, and to have robust reporting on codelivery of weatherization and heat pumps. Boyd also suggested close reporting of C&I heating electrification progress since the program delivery model will require continuous improvement. Boyd indicated that electrification can be a complicated process, so the customer journey needs to be optimized and supported by tools like the GHG calculator.

Jacobson suggested that an Income Eligible Best Practices Working Group would be helpful given the amount of information and effort required to electrify Income Eligible homes. Jacobson said there are a few key barriers to heat pump adoption which would be helpful to discuss with a stakeholder working group. Wambui reiterated that transparency and detailed data reporting are critical.

Abbe wondered if as PAs considered changing contractors incentives based on customer outcomes in order to support holistic upgrades as opposed to simple measure installations.

Council Discussion – Income Eligible Sector

Wambui asked when a resolution on mixed income protocols would be provided since it has been an issue for several years. Jacobson indicated that the PAs were evaluating a proposal from LEAN for a "quarterbacking" model, and agreed that mixed income protocols should be sorted out immediately. Porter said the PAs would provide an update at the next Executive Committee or Council meeting. Formica said the PAs are working to get market rate vendors contracted to work under this mixed income model, but would provide further updates in Q4. Wambui requested that the update is provided publicly. McCarey said the Council should be updated on the mixed income protocol and the start of its implementation.

Peterson was encouraged by the increased investment in electrification and weatherization. Peterson recommended additional investments in Income Eligible storage, electric vehicle charging, and water heating. Peterson was also supportive of the Multifamily Affordable Housing deep energy retrofit offering, and wanted to assess how aligned the details were with public comment offered by LISC and Passive House Massachusetts.

Commissioner Woodcock reinforced Peterson's comments. Commissioner Woodcock suggested that new delivered fuel equipment installations receive heavy scrutiny and are limited to emergencies only. Commissioner Woodcock said heat pumps need to be considered when making heating system upgrades and hoped the final Plan would reflect the need for substitutes to delivered fuel heating.

Johnson agreed with Peterson's suggestion to increase Income Eligible storage and water heating. Johnson said heat pump water heater installations need to increase at least tenfold given their high benefit-cost ratios and impacts on customer perception of heating electrification. Johnson added that the PAs need to describe a specific strategy for moderate income weatherization and identify how many renters would be targeted.

Abbe asked why there was significant underinvestment in Income Eligible weatherization and insulation relative to the market rate Residential sector. Jacobson noted that the data did not include HEARTWAP investments. Abbe recommended increased investment in Income Eligible weatherization.

Wambui hoped for frequent reporting on Income Eligible program performance in order to determine how well the increased investments were working and what program improvements are needed.

Council Discussion – Equity

Commissioner Woodcock highlighted a core component of plan, which is aligning program goals for equity and electrification with performance incentives. McCarey added that this would also help ensure equity targets are met. McCarey said stakeholders have identified 38 communities that meet the criteria for Environmental Justice Communities. McCarey said the performance incentive is being redesigned to ensure there is specific pool of funding for these target communities.

Jacobson noted that 82% of units LEAN serves are rental units. Jacobson advocated for implementing the Department of Housing and Urban Development standard for moderate income, which is 80% of state median income, in order to reach more customers.

Boyd asked whether the PAs committed to equity targets. McCarey said specific equity targets and budgets were still being determined. McCarey said the PAs have agreed to equity targets and reporting for groups like renters and moderate-income customers.

Wambui thanked the PAs for their cooperation in producing the investment for target customer segments. Wambui emphasized importance of transparency and data reporting. Wambui said current literature on carbon emissions and climate change suggest that even higher GHG reduction targets might be required. Wambui indicated the C-Team clearly described unmet Equity Working Group requests and requested that the PAs address them in the Final Plan. Wambui was grateful that Commissioner Woodcock mentioned performance incentives, and said the performance incentive needs to be transparent. Wambui noted that the underinvestment in serving renters is a concern, especially since Environmental Justice Communities have high concentrations of renters. Wambui urged the PAs to have an inclusive and intentional collaboration process with each municipal partner in the Community First Partnerships to address their unique needs. Wambui also noted that the PAs need to describe workforce development strategy coordination with the Clean Energy Center. Wambui said encouraging diverse business enterprises to participate in programs is not the same as implementing structural changes to procurement that have inhibited their participation.

Peterson thanked the PAs for their planning efforts, but agreed with Wambui that there were still required improvements including specific equity metrics and targets. Peterson stated that there were too few details on the income verification process, renter strategies, and codelivery of weatherization and heating measures. Peterson was disappointed that the requirement for weatherization prior to heat pump installation was in place without having details on delivery strategy. Peterson suggested that unchanged incentives would not encourage moderate-income participation given the marginal cost left for customers. Peterson said the level of investment in renters is not sufficient relative to the number of renters in the Commonwealth. Peterson supported the 100% weatherization incentive, but urged the PAs to incorporate more strategies. Peterson also concurred with Wambui regarding specific funding for environmental justice communities, underserved communities, and inclusive community partnership collaboration.

Johnson opposed investment in workforce development since the current workforce is dwindling. Johnson was thankful that the Executive Committee was working to address material and labor price increases. Johnson commented that virtual audits are insufficient and require additional scoping, which is costly for contractors. Johnson recommended an immediate 10% increase in contractor prices, and annual price increases based on data analysis. Johnson said training new workers will not yield benefits work if there are no contractor companies to employ them. McCarey said this subject would be discussed again at the next Executive Committee meeting. Peters indicated the PAs were meeting with contractors tomorrow to discuss current pricing, a short-term price increase, and an ongoing process to address contractor pricing.

Formica said the majority of Income Eligible and moderate-income customers are renters and hoped the new Residential Education Grant program and Community First Partnerships would support renters and Environmental Justice Communities. Formica added that targeted marketing for small Multifamily buildings, renters, and landlords would be supported by data analysis.

Wambui suggested that recommendations from the C-Team presentation and public comment listening session were worth exploring. Wambui also believed that there were missed energy efficiency opportunities at the time of home purchases. Wambui hoped to receive reports on Residential Education to keep track of outcomes.

Villanueva left the virtual meeting at 4:20 PM.

Council Discussion – Active Demand

Weber was pleased by the evaluation of charging based approaches to electric vehicle charging equipment included in the updated Plan narrative, as well as the intent to have statewide offering by the summer of 2022. Weber hoped existing electric vehicle charging offerings would remain in place until the new offering becomes available. Weber also said there was an indication that significant battery storage dispatch is coming from gas and diesel generators, which is counter to Council recommendation.

Johnson asked what share of the 20% of homes with smart thermostats were connected, and what the participant incentives are for direct load control and battery storage. Johnson seconded Song's comment that the Council and PAs are facing a big challenge, and recommended that the

PAs add new staff. Johnson opposed voting in favor of a Plan that did not include details on strategies for achieving program goals.

Boyd echoed Weber's comments, especially on eliminating fossil fuel incentives in active demand management programs.

Peterson agreed, and reiterated support for additional Income Eligible active demand participation.

Wambui and McCarey appreciated the PAs efforts in the planning process.

4. Cape Light Compact (CLC) Enhanced Incentives

Cape Light Compact Presentation

Downey, on behalf of Cape Light Compact (CLC), presented an overview of CLC's proposed enhanced incentives for the 2022-2024 Plan as required by the Department of Public Utilities. Downey indicated the CLC Board will discuss and vote on CLC's proposed enhanced incentives on October 14th.

Council Discussion

Peterson supported all enhanced incentives and thought it was useful to learn about CLC's work. Peterson felt their programs could be strong statewide, and was curious if the enhanced incentives would be proven effective by the evaluation study. Peterson wanted the results of the evaluation to be disseminated among the other PAs. Downey indicated that the study would not be completed before Plan filing, but the PAs could adjust incentive levels if there are favorable results from the evaluations.

5. Next Steps and Council Resolution on the 2022-2024 Three-Year Plan

McCarey noted that the Executive Committee would meet on October 20th and the Equity Working Group would meet on October 15th to refine Plan recommendations.

6. Unitil Mid-Term Modifications (MTMs)

Downes, on behalf of Unitil, described MTMs resulting from underspending for Unitil's electric C&I Retrofit program. Downes indicated Unitil would continue to implement projects through the end of the year, but would not reach the 80% required spending threshold.

Council Discussion and Vote

McCarey indicated there was additional data and C-Team recommendations included in the Council Resolution for the Unitil MTM included in the Council meeting materials.

Manning motioned to approve the Council Resolution on the Unitil MTM. Abbe second. All were in favor, with none opposed or abstaining. The Council Resolution on the Unitil MTM was approved, as submitted, by the Council.

7. Adjournment

McCarey, as chair, adjourned the meeting at 4:37 PM.

1 **Massachusetts Energy Efficiency Advisory Council**
2 **Resolution Regarding the 2022-2024 Massachusetts Joint Statewide**
3 **Three-Year Electric and Gas Energy Efficiency Investment Plans**
4

5 October 27, 2021

6 BE IT RESOLVED THAT:

7 Pursuant to G.L. c 25, §21, the Energy Efficiency Advisory Council (Council or EEAC) presents the
8 following comments to the Department of Public Utilities (DPU) regarding the 2022-2024 Massachusetts
9 Joint Statewide Three-Year Electric and Gas Energy Efficiency Investment Plans. The Green
10 Communities Act, as set forth in G.L. c 25, §21, directs the Council to review the draft 2022-2024
11 Massachusetts Joint Statewide Three-Year Electric and Gas Energy Efficiency Plans (Statewide Plans)
12 submitted to the Council on April 30th by the Program Administrators (PAs) (April Draft Plan). The PAs
13 are then directed to incorporate any changes or revisions to reflect the input of the Council into their
14 submittal of the Statewide Plans to the DPU on or before October 31, 2021.

15 On March 26, 2021, Governor Charlie Baker signed into law *An Act Creating a Next-Generation*
16 *Roadmap For Massachusetts Climate Policy* (the Climate Act) which codified the Baker-Polito
17 Administration's commitment to achieve Net Zero emissions by 2050 and furthers the Commonwealth's
18 nation-leading efforts to combat climate change and protect vulnerable communities. The Climate Act
19 made significant changes to the Green Communities Act and the Global Warming Solutions Act (the
20 GWSA) including requiring the Secretary of Energy and Environmental Affairs (EEA) to set a goal,
21 expressed in tons of carbon dioxide equivalent, every three years for the succeeding Statewide Plans'
22 necessary contribution to meeting each statewide greenhouse gas (GHG) limit and sublimit adopted under
23 the GWSA. On July 15, 2021, EEA Secretary Kathleen Theoharides submitted a letter to the PAs
24 detailing the GHG reduction goals for the 2022-2024 Statewide Plans.¹ Since these new GHG reduction
25 goals were issued after the April Draft Plan, the PAs revised the Statewide Plans to meet these new GHG
26 reduction goals (October Draft Plan).

27 In developing its input on the 2022-2024 Statewide Plans, the Council undertook a comprehensive
28 stakeholder engagement process, starting with six planning workshops as well as six public comment
29 sessions between October 7, 2020 and January 20, 2021. The planning workshops featured in-depth
30 discussion between the Council, PAs and the EEAC Consultants. In addition, the public comment
31 sessions highlighted stakeholder priorities for the 2022-2024 Statewide Plans. The Council also
32 established an Equity Working Group in early 2020, specifically to address issues of equity in the
33 delivery of energy efficiency programs. The workshops and public comment sessions informed the
34 Council's March 24, 2021 resolution² that set forth Council priorities and recommendations for the
35 Statewide Plans, with the highest priorities being electrification and GHG reductions, equity, and
36 workforce development. Lastly, three additional public comment sessions were held in June 2021 to
37 receive stakeholder feedback on the April Draft Plan.

38 The Council detailed its comments, including the Equity Working Group recommendations, on the April
39 Draft Plan in its July 28, 2021 EEAC resolution to the PAs.³ The Council was pleased the PAs adopted
40 electrification, equity, and workforce development as key priorities and themes of the narrative. However,
41 the Council noted, in part, that the April Draft Plan lacked detail on program design and evidence of the
42 Council priorities reflected in the proposed budgets, savings goals and benefit cost models. With regard to

¹ <https://ma-eeac.org/wp-content/uploads/2021-07-15-Mass-Save-GHG-Goal.pdf>

² https://ma-eeac.org/wp-content/uploads/FINAL-EEAC-Priorities-Resolution_Adopted-3.24.2021.pdf

³ https://ma-eeac.org/wp-content/uploads/FINAL-July-Resolution_Adopted-7.28.21.pdf

43 equity, the Council noted that the April Draft Plan lacked necessary programmatic details and specific
44 budget commitments.⁴

45 On September 17, 2021 the PAs submitted updated data tables and a presentation of program
46 enhancements that reflected changes to the April Draft Plan, and on October 6, 2021, the PAs submitted
47 an updated Plan narrative (collectively, October Draft Plan). The Council offers its comments based on
48 the October Draft Plan, with the expectation that the PAs will file final Statewide Plans with DPU on
49 November 1, 2021 that are fully consistent with the content of these materials provided to the Council
50 throughout October:

- 51 1. Draft joint statewide plans dated October 6, 2021;
- 52 2. Term Sheet dated October 25, 2021; and
- 53 3. Revised data tables dated October 25, 2021

54

55 **Overall Plan Comments**

56 The Council recognizes and appreciates the significant contributions of PA staff, the Council consultant
57 team, the Equity Working Group, Councilors, the Low-Income Energy Affordability Network (LEAN)
58 and stakeholders in preparing the energy efficiency plans. The development of the 2022-2024 Statewide
59 Plans represents a transformation of energy efficiency programs in Massachusetts to better align with the
60 Commonwealth's greenhouse gas and environmental justice goals. The Council commends the
61 prioritization of electrification, deeper building retrofits, increased weatherization goals and incentives,
62 workforce development and enhancing support for historically underserved communities and customers.
63 The Council also commends the PAs on their efforts between the April Draft and the October Draft Plan
64 to reorient and expand the Plans to achieve EEA Secretary Theoharides' GHG emissions reduction goals
65 for the 2022-2024 term. The development of the 2022-2024 Statewide Plans reflects significant
66 collaboration across PAs and among members of the Council, DOER, the AGO, and stakeholders. These
67 comments of the Council are based on its review of the October Draft Plan:

- 68 • The Council supports the proposed \$3.94 Billion investment to deliver \$13 Billion in benefits to
69 ratepayers.
- 70 • The Council supports the greenhouse gas and energy savings goals in alignment with the Term
71 Sheet. This includes achieving the aggregate electric and gas combined goals, with at least 94%
72 of the Secretary's electric goal. The remaining 6% of the electric goal will be met through
73 overachieving on the gas goal and, specifically through conversions of natural gas equipment to
74 highly efficient electric equipment.
- 75 • The Council commends the PAs on their collaboration with the EWG throughout the planning
76 process and supports the equity goals set forth in the October Draft Plan as a first step in the
77 equitable delivery of energy efficiency in the Commonwealth. The Council looks forward to
78 regular updates and reporting on the PA commitments to increase investments in EJ
79 municipalities and more equitably serve historically underserved populations. The Council
80 expects the PAs to continue to engage with the EWG during development of new initiatives and
81 design and implementation of EWG recommendations as well as Plan implementation, with a
82 focus in 2022 on strategic and innovative renter/landlord engagement and moderate-income
83 program design.
- 84 • The Council acknowledges the PAs proposed increase in workforce development investments for
85 the 2022-2024 Plan term and emphasizes the importance of equitably growing the workforce to
86 achieve the Commonwealth's climate goals, continuing to increase the PAs' equitable workforce
87 development investments, and coordinating with the Massachusetts Clean Energy Center to
88 maximize our collective interests.

⁴ https://ma-eeac.org/wp-content/uploads/FINAL-July-Resolution_Adopted-7.28.21.pdf

- 89 • Additional, non-ratepayer funding will be an essential tool in 2022-2024 to reduce or offset costs
90 to electric and gas customers. The Council agrees to support the PAs in identifying and seeking
91 out those additional funding sources.
- 92 • The Council expects that the individual PA Plans will remain fully consistent with the October
93 Draft Plan.
- 94 • The Council recognizes that performance incentives are an integral part of the planning and
95 implementation of the energy efficiency programs. The Council accepts, consistent with the
96 DPU's Energy Efficiency Guidelines at Section 3.6, the performance incentives set forth in the
97 October Draft Plan. The new performance incentive mechanism includes components and
98 individual thresholds for core energy efficiency, energy efficiency and electrification for EJ
99 municipalities, and electrification. The Council also accepts the removal of the value component
100 in the 2022-2024 Plan Term to ensure the PI mechanism is fully aligned with the EEAC's equity,
101 electrification, and workforce development priorities.
- 102 • The Council, Council consultants, and PAs will continue to work collaboratively and
103 transparently throughout the three-year roll-out of the individual Plans, in accordance with the
104 GCA, through continued quarterly reports, monthly data dashboards, and specific updates at
105 Council meetings that focus on topics requested by the Council. We expect the PAs to
106 consistently engage with the Council and its consultants proactively to analyze new lessons
107 learned (especially around equity, workforce development and electrification), develop
108 adjustments, and put them into practice. The Council also looks forward to engagement and
109 updates on the newly formed Commercial and Industrial Customer Working Group starting in
110 2022.

111 **Council Comment on Priorities**

112 In its March Resolution, the Council set specific priorities for the 2022-2024 Plan that support continued
113 robust energy efficiency and GHG mitigation, while ensuring that goals are met equitably and cost-
114 effectively.⁵ The Council urged the PAs to develop a plan that includes aggressive GHG emissions
115 reductions to support the Commonwealth's goals, through a strong focus on weatherization and
116 electrification, with significant expansion of heat pump targets, and investments in market transformation
117 and workforce development. The Council also indicated that the Final Plan should include a strong
118 commitment and investment in equitable program delivery by increasing participation from
119 renters/landlords, moderate-income customers, language-isolated customers, Environmental Justice (EJ)
120 municipalities, and small businesses. The Council requested that the Final Plans, both narrative and data,
121 support these three foundational principles of GHG emissions reductions, equitable program delivery, and
122 workforce development. The Council provides its comments on these priorities below.

123 **Greenhouse Gas Emissions Reductions**

124 Throughout the 2022-2024 Three-Year planning process, including ambitious GHG emissions reductions
125 has been a top priority of the Council. Specifically, the Council urged the PAs to align the Plan with the
126 Commonwealth's GHG reduction goals through a strong focus on weatherization and electrification, with
127 a significant expansion of the heat pump targets, focus on deep retrofits, reduction in incentives for fossil
128 fuel equipment, and an investment in market transformation and workforce development. This priority
129 was underscored by the Climate Act and formalized by Secretary Theoharides' letter setting GHG
130 reduction goals for the 2022-2024 Plan.

131 The Council acknowledges and appreciates the PAs' efforts to meet the Secretary's GHG goal to ensure
132 2022-2024 investments are aligned with the Commonwealth's GHG goals. The Council also recognizes
133 the increased commitment to electrification and weatherization in the October Draft Plan. Based on the
134
135
136

⁵ https://ma-eeac.org/wp-content/uploads/FINAL-EEAC-Priorities-Resolution_Adopted-3.24.2021.pdf

137 October data, and in alignment with the Term Sheet, the Council supports the PAs GHG goals and
138 commends the following commitments:

- 139 • Commitment to heat pump installations with:
 - 140 ○ Electric Plan: Approximately 54,000 planned in the Residential sector, 6,650 in the
 - 141 Income Eligible sector and 34.1 million square feet in Commercial & Industrial (C&I)
 - 142 sector.
 - 143 ○ Gas Plan: Approximately 1,700 planned in the residential sector and 18.5 million square
 - 144 feet in the C&I sector.
- 145 • Increase commitment to weatherization.
 - 146 ○ Residential Electric: \$257,216,800
 - 147 ○ Income Eligible Electric: \$39,816,337
 - 148 ○ Residential Gas: \$275,596,773
 - 149 ○ Income Eligible Gas: \$66,684,898
- 150 • Addition of an affordable housing multi-family decarbonization retrofit program and C&I deep
- 151 energy retrofit offering to be launched in 2022.
- 152 • Commitment to adding all-electric new construction offerings in both residential and C&I sectors.

153

154 *Equity*

155 Since the early stages of the planning process for the 2019-2021 term, it has been a priority of the Council
156 to increase participation by, and savings from, historically underserved populations. The Council chose
157 equity as a priority in an effort to respond to stakeholders and results of the non-participant study
158 completed in 2019. Two non-participant studies completed in 2020 analyzed existing data and collected
159 new data to evaluate participation levels and potential unaddressed barriers for residential customers.⁶
160 This effort was part of a special focus on renters, moderate income, and English-isolated customers. The
161 studies confirmed that certain identifiable populations participate at lower rates compared to other
162 populations. For the last year and a half, the EWG has worked to receive feedback and develop solutions
163 to the unique barriers that hinder moderate-income customers, renters and landlords, English-isolated
164 populations, and small businesses from fully participating in programs and accessing all program
165 benefits.⁷

166

167 Through its efforts, the EWG has worked collaboratively with the PAs and stakeholders representing
168 Environmental Justice (EJ) communities to develop comprehensive recommendations that seek to address
169 lower than average participation from these key customer groups. The EWG commends the progress that
170 the PAs have made since their April Draft Plan to include more of these recommendations. The EWG
171 would also like to recognize the effort the PAs have made to provide more detailed commitments
172 regarding the equity-specific investments they will be making over the next three years. Undergirding
173 these investments is the creation of a new performance incentive mechanism that focuses on accruing
174 greater program benefits in 38 cities and towns which have higher numbers of EJ populations and lower
175 energy efficiency program participation. With this new performance incentive mechanism, the PAs will
176 be incentivized to significantly increase investments in EJ municipalities and underserved populations.
177 The EWG expects investments in EJ municipalities to increase at a minimum 30% over current baselines.
178 The EWG agrees that greater benefits delivered to these communities and residents are necessary not only
179 to better reach those who have been historically underserved, but also to address inequities accrued over
180 many years. To track progress towards these goals and as further described below, the EWG has
181 collaborated with the PAs to develop equity-specific targets, with metrics for each of the underserved

⁶ https://ma-eeac.org/wp-content/uploads/MA19R04-A-NP-Nonpart-MarketBarriersStudy_Final.pdf and https://ma-eeac.org/wp-content/uploads/MA19X06-B-RESNONPART_Report_FINAL_v20200228.pdf

⁷ Separately a C&I non-participant study was conducted in 2020, which identified small businesses and micro-businesses as participating at lower than average rates compared to larger C&I customers (https://ma-eeac.org/wp-content/uploads/Final-MA19X11_B_SBNONPART-Report-20200415-1.pdf).

182 populations in addition to specific metrics focused on EJ Municipalities,⁸ community partnerships, and
183 workforce development.

184
185 While the EWG supports many of the changes to date, the EWG expects that the PAs will continue to
186 work cooperatively and proactively with the EWG throughout the implementation of the plan.

- 187 • The Council supports the PAs’ commitment to community partnerships, including \$6 million
188 dedicated to the Municipal and Community Partnerships program through which the PAs commit
189 to partner with at least 20 qualified Community-Based Organization (“CBO”) teams across at
190 least 30 municipalities to harness their expertise and knowledge of their communities. The
191 Council expects the PAs to engage with community organizations and community leaders in the
192 program design to ensure programs meet community-specific needs.
 - 193 ○ The Council appreciates the PAs additional commitment of \$1.5 million new “Open
194 Doors” offering to work with CBOs on residential education efforts for school-age
195 children. However, the Council and EWG expect these partnerships to be additional to
196 the partnership commitment above.
- 197 • The Council supports the PAs’ commitment to workforce development including their
198 comprehensive Clean Energy Pathways Program, designed to train and deploy a more diverse
199 workforce. While this effort is impressive, the Council would like to see this program focus on
200 the future of the industry, by training candidates primarily for electrification roles and emphasize
201 job retention and placement in the internship program, especially for people historically
202 underrepresented in the industry. The Council would also like to see a significant increase in
203 minority and women owned contractors in Mass Save programming. The Council recognizes that
204 the PAs will be collaborating extensively with the Massachusetts Clean Energy Center
205 (MassCEC) on other workforce development efforts and expects that the PAs will commit to full
206 transparency on these efforts including regular opportunities for input and updates to the Council.
- 207 • The Council expects a more robust and detailed strategy for serving renters and landlords, as well
208 as significantly higher levels of investment. The October Draft Plan lacks the detail and specific,
209 new strategies that will be deployed to engage landlords and retrofit rental units. The Council
210 appreciates the PAs’ commitment to develop a more detailed strategy for serving rental units.
211 Furthermore, the Council expects the PAs to coordinate and collaborate with the EWG and pilot,
212 starting in 2022, multiple renter-specific recommendations provided earlier this year by the EWG
213 and its stakeholders including, but not limited to, referrals, openers and closers, and other
214 innovative ideas.
- 215 • The Council commends the PAs’ \$136 million investment in and enhanced incentives for
216 moderate income customers.⁹ To ensure these ambitious increases in program participation are
217 met, the Council expects the PAs to work earnestly to reduce barriers to participation for
218 moderate-income customers.
 - 219 ○ More specifically the Council insists that the PAs commit to streamlining and simplifying
220 income verification. The PAs should actively and transparently involve the EWG in the
221 development and implementation of this process.
 - 222 ○ The Council expects the PAs to coordinate with the EWG during program delivery
223 design and implementation including sharing a draft program design of the

⁸ Communities selected for EJ Initiatives and the Equity Component of the Performance Incentive meet the following criteria. At least one census block group meets the income criteria and at least one additional criterion (e.g., minority or English isolation); Greater than 33% of the population resides in an environmental justice block group; Consumption weighted location participation rate from the Residential Non-Participant Customer Profile Study does not exceed 32%; Median household income is less than 100% of state median household income; and Municipalities not served by PAs for either electric or gas are excluded.

⁹ The PAs note that there will be some overlap of moderate-income, renter and landlord, and pre-weatherization incentives.

224 comprehensive delivery model and implementing as soon as possible and no later than
225 the end of Q2 2022. In addition, the Council expects the comprehensive delivery model
226 to be in place prior to imposing the weatherization requirement for moderate-income
227 customers to access enhanced heating incentives. Simplified access to the new moderate-
228 income offerings is needed not only to address equity issues, but to also meet the
229 ambitious goals of the Plan.

- 230 ○ A comprehensive delivery model can ensure that moderate-income customers are not
231 burdened with the additional responsibility of coordinating with multiple contractors to
232 complete weatherization prior to HVAC installation, which is a requirement not placed
233 on other residential customers. The EWG recognizes the benefits of a comprehensive
234 delivery model and urges the PAs to develop one, so that customers can benefit from
235 appropriately sized HVAC equipment.
- 236 ○ Moreover, the Council requests that the PAs continue to work with the EWG to refine
237 incentives for HVAC equipment. The moderate-income incentives should be designed to
238 provide a greater upfront economic advantage to advance electrification over fossil fuel
239 equipment.
- 240 ● The Council supports the PAs' commitment to addressing customer language barriers by
241 developing a Language Access Plan as expediently as possible. The Council encourages the PAs'
242 to continue developing language access supports for language-isolated populations that do not
243 speak the most commonly spoken non-English languages in Massachusetts—beyond Spanish,
244 Portuguese, and Mandarin.
- 245 ● The Council commends the PAs' commitment to 2,100 small business weatherization projects
246 throughout the Plan term. The Council requests that the PAs continue to work with the EWG on
247 implementation details to support streamlined participation by small businesses. The Council also
248 supports the PAs' targeted efforts to host Main Streets events in Environmental Justice
249 neighborhoods.

250
251

252 ***Workforce Development***

253 The Council recognizes the need for workforce development efforts to focus on cultivating a diverse and
254 highly skilled workforce to meet aggressive energy savings goals in the upcoming three-year term. The
255 PAs' initiatives are primarily focused on recruiting and training diverse new entrants to the field, while
256 also facilitating upskilling opportunities for existing workers. In addition to their own initiatives through
257 Mass Save®, the PAs will allocate an annual investment of \$12 million to the Massachusetts Clean
258 Energy Center (MassCEC) for their own workforce development initiatives as required by the Climate
259 Act. More specifically the Council supports the PA's commitment to the following:

- 260 ● Developing the Clean Energy Pathways (CEP) internship program which focuses on attracting,
261 training, and placing in clean energy jobs young adults who have been historically
262 underrepresented in the energy efficiency field including women, people of color, multi-lingual
263 speakers, and residents residing in EJ neighborhoods.
- 264 ● Diversifying the PA pool of business partners through commitments to increasing contracting and
265 subcontracting opportunities with minority-owned businesses, women-owned businesses, and
266 veteran-owned businesses (collectively referred to as diverse business enterprises).
- 267 ● Building electrification market capacity by developing heat pump specific trainings for HVAC
268 contractors and recruiting contractors to participate in a heat pump installer network.
- 269 ● Ongoing collaboration with MassCEC on workforce development efforts.

- 270 • Funding efforts that grow the field of qualified building automation system technicians and
271 commissioning specialists, and train customer building operators to ensure that investments made
272 in controls technologies in large, complex buildings deliver on their full savings potential.

273 To achieve the transformative climate and equity goals in the 2022-2024 Plan, the Council requests that
274 the PAs commit to the following over the coming term:

- 275 • Emphasize retention through ongoing support and mentorship and track retention of participating
276 individuals and contractors in the CEP program.
- 277 • Evaluate the performance of the CEP internship program and use the findings to help scale the
278 program over time to train and place more individuals through the program.
- 279 • Continue to establish robust workforce development efforts, with commensurate investment,
280 outside of the CEP internship program.
- 281 • Provide details regarding ongoing collaboration efforts and strategies with MassCEC to avoid
282 gaps and overlap in implementation of workforce programs.
- 283 • Grow commercial weatherization in the turnkey small business program, by providing contractor
284 training for qualified residential contractors to work on C&I buildings.
- 285 • Increase funding for Income-Eligible Sector-specific trainings to a level that is proportional to the
286 program investment in the Income-Eligible Sector.
- 287 • Set targets, measure progress, and evaluate the success of cross-sector workforce priorities.

288
289

290 **Topic Areas**

291

292 ***Residential Sector***

293 The October Draft Plan shows significant progress from April Draft Plan in addressing the Council's
294 priorities, particularly in emphasizing electrification and weatherization in the residential sector and will
295 help achieve the Commonwealth's GHG goals. To ensure that these ambitious and important goals are
296 met, the Council requests that the PAs focus on the following programmatic and implementation
297 strategies over the 2022-2024 Term:

- 298 • Develop a framework for successful achievement of the heat pump numerical goals, in the form
299 of a comprehensive market transformation plan that includes ground-source, cold-climate air
300 source and water heating heat pumps, customer education and support, near- and long-term
301 planning to convert from fossil fuel systems, encompassing all levels of the supply chain and
302 focusing strongly on education and customer cost management.
- 303 • As part of the expansion in weatherization, coordinate with contractors and update the Council on
304 insulation contractor pricing in light of variations in materials and labor costs.
- 305 • Implement additional methods for co-delivery of weatherization and heat pumps, including
306 creating a whole-home, performance-based retrofit program modeled after DOER's Home MVP
307 pilot, that goes beyond enhanced incentives to encourage an integrated program to deliver
308 weatherization and heat pumps for space and water heating, as well as supporting customer entry
309 through both the Residential Coordinated Delivery and Retail Initiatives.
- 310 • Integrate home energy scorecards into home energy assessments and effectively leverage them to
311 inform customers about potential impacts of fuel conversions.

- 312 • Implement a fully formed all-electric new construction offer for the 1-4 unit market segment,
313 with aggressive unit goals to capture higher share of new homes that would otherwise use fossil
314 fuels.
- 315 • Build on the PAs' success in 2019-2021 and maintain a robust incentive, technical support and
316 training infrastructure to promote the continued growth of Passivehouse in multi-family new
317 construction.
- 318 • Include the Cape Light Compact's enhanced incentives for income-eligible and moderate-income
319 new construction, recognizing that the incentives will support equitable service to low-and
320 moderate-income new construction projects on the Cape & Vineyard and promote strategic
321 electrification in new construction for these customers and serve to reduce greenhouse gas
322 emissions.

323 ***Income Eligible***

324 The Council strongly supports improvements that have been made in several key areas since the April
325 Draft Plan, including: 1) increases in the heat pump budget and installation goals for heat pumps (for both
326 space and water heating), wi-fi thermostats, and envelope measures; 2) reduction in the lighting budget
327 and installations; and 3) the PAs and LEAN commitments to developing a customized, flexible offering
328 for Affordable Multi-Family Deep-Energy Retrofits. The Council supports the Cape and Vineyard
329 Electrification Offering (CVEO) recognizing its innovate approach to serving low- and moderate-income
330 residents with a package of clean energy technologies to reduce GHG emissions through electrification.
331 The Council expects the Final Plan to ensure equitable decarbonization such that low-income residents
332 are not left behind, but rather supported, in the transition to electrification. Over the 2022-2024 term, the
333 Council expects the PAs and LEAN to prioritize electrification over fossil fuel systems and to limit
334 delivered fuel heating systems, commit to a timeline for phase out lighting incentives, support uptake of
335 active demand management measures in addition to wi-fi thermostats, and improve reporting to provide
336 greater transparency around electrification, comprehensiveness, and equity. More specifically, the
337 Council expects the PAs and LEAN to:

- 338 • Prioritize installation of heat pumps over fossil fuel HVAC and hot water systems, and to
339 develop and implement supporting strategies, including for heat pump water heaters. For
340 example, heat pump water heater installation guidelines should identify opportunities and achieve
341 successful outcomes, provide enhanced workforce training, and prepare and launch customer
342 education strategies.
- 343 • Prioritize installation of envelope measures in the gas program and reduce reliance on achieving
344 savings through installation of gas HVAC equipment.
- 345 • Integrate active demand strategies into the Income Eligible program. Increase participation of
346 income eligible customers in active demand offerings including increased battery storage and EV
347 charging.
- 348 • Provide more detail to the Council on the enhanced strategy for serving small multi-family
349 buildings, including “naturally occurring” low-income housing.
- 350 • Provide the Council with details and implement a mixed income protocol for multi-unit buildings,
351 as well as other strategies to ensure that customers living in small multifamily buildings are
352 equally and comprehensively served.
- 353 • Include a commitment to a new KPI that improves transparency by providing information on
354 comprehensiveness of service broken out by existing fuel and by CAP agency such that progress
355 can be easily monitored and to facilitate program improvements, such as consistent service across
356 CAP agency territories.
- 357 • Develop and implement a statewide computerized audit tool by the third quarter of 2022 that can
358 provide regular, timely, and consistent information to support identification of best practices and

359 needed continuous improvement as well as reporting to the Council and providing data for
360 EM&V.

361 ***Commercial and Industrial***

362 The Council supports the increased budget and GHG emissions reductions for the C&I sector from the
363 April Draft Plan. The Council commends the inclusion of an outline for a deep energy retrofit program
364 and commitment to launch in 2022. The Council emphasizes the need for a C&I stakeholder and customer
365 working group as the commercial programs transition and expand and is pleased to see commitment by
366 DOER and the PAs to co-lead a C&I stakeholder working group beginning in 2022. The Council looks
367 forward to regular updates on progress of the working group, feedback received, and solutions
368 implemented. The Council appreciates the reduction in the lighting budget since the April draft plan and
369 emphasizes the importance of phasing out support for these measures in 2022-2024.

370
371 The Council expects to continue working with the PAs in the following areas of the C&I programs:

- 372 • Coordinate closely with the Council and the C&I Working Group to provide greater detail on
373 implementation including strategy, budgets and incentives to achieve energy efficiency and
374 electrification goals, and opportunities to achieve goals at a lower cost. The Council expects
375 DOER and the PAs to consult with the Working Group once established to determine if meeting
376 more than once per quarter will be needed to ensure productive outcomes.
- 377 • Increase savings delivered through electric HVAC efficiency including retro-commissioning and
378 integrated controls as these are effective measures that result in significant savings for existing
379 buildings.
- 380 • Reduce fossil-fuel equipment incentives.
- 381 • Implement dedicated strategies for municipal building participation in deep energy retrofit
382 offering with an appropriate setting of a baseline since these buildings have unique uses and are
383 frequently repurposed.
- 384 • Include the Cape Light Compact's ("Compact") C&I enhancements of up to 100% for target
385 markets such as municipalities, non-profits, renters and small businesses (including
386 microbusinesses), recognizing that: (a) the Compact has offered these enhanced incentives as part
387 of its past program design as a municipal aggregator, which have been deemed reasonable and
388 appropriate by the DPU for the 2019-2021 Plan; and (b) a statewide evaluation is nearing
389 completion to provide additional analysis as to whether these incentive levels continue to be
390 warranted and whether they should be more widely adopted.

391

392 ***Active Demand Management***

393 The Council supports continuation of the successful Active Demand Management (ADM) programs while
394 increasing overall demand savings. The Council supports continued increase of storage incentives,
395 increased participation of direct load control programs, and is pleased to see the commitment to a
396 statewide offering for electric vehicle charging in Connected Solutions. The Council also expects the
397 following:

- 398 • Increase participation and reporting of low income ADM offerings.
- 399 • Co-deliver ADM with traditional energy efficiency programs to increase demand savings.
- 400 • Increase participation in direct load control and load curtailment offerings.
- 401 • The Council expects current electric-vehicle charging offerings to continue until the programs
402 shift to statewide offerings in 2022.
- 403 • PAs should work with ADM vendors on ongoing program changes, soliciting feedback from
404 industry prior to implementation changes.
- 405 • PAs should significantly increase enrollment of storage including continuation of the guaranteed
406 5-year performance term.

407

408 ***Reporting***

409 Transparency and reporting are critical components to assess progress toward the transformational
410 objectives of the 2022-2024 Plan. The Council supports and appreciates the reporting commitments in the
411 Term Sheet, including reporting on Equity Targets and Budgets (Term Sheet Attachments B and C) and
412 Bi-annual reporting on the performance incentive components. The Council looks forward to quarterly
413 updates on electrification market transformation including heat pump installations by sector, existing fuel
414 type, and installed system type and may seek additional reporting frequency and heat pump performance
415 metrics as necessary to ensure alignment with the goals of the Plan. The Council looks forward to
416 continuing to receive quarterly reporting on Key Performance Indicators (“KPIs”) and bi-annual reporting
417 metrics. Additionally, the Council supports and looks forward to coordinating on development of an
418 income-eligible specific KPI to begin reporting in Q1 2022.

419
420 Throughout the planning process, the importance of data transparency has been discussed by the Council
421 and stakeholders. The Council looks forward to coordinating with the PAs to track achievement
422 throughout the 2022-2024 Plan term and request regular updates on multi-family savings, participation,
423 and spending, and regular updates on new initiatives such as the residential and commercial deep energy
424 retrofit offerings.

425

426 **Council Decision on Draft Plan**

427 Based on its review described above, the Energy Efficiency Advisory Council respectfully requests the
428 Department of Public Utilities approve the 2022-2024 Massachusetts Joint Statewide Three-Year Electric
429 and Gas Energy Efficiency Investment Plans and the individual plans of the Program Administrators, to
430 the degree that the final filed plans are fully consistent with the Statewide Plans and to the degree that the
431 final filed plans are fully consistent with the information available to the Council at this time. We further
432 request that the DPU embrace and reflect the comments above.

FORM OF 2022-2024 EXECUTION VERSION**MEMORANDUM OF AGREEMENT**

WHEREAS, this Memorandum of Agreement is entered into by and between NSTAR Electric Company d/b/a Eversource Energy (“NSTAR Electric”) and Cape Light Compact JPE (the “Compact”) (individually, a “Party” and collectively, the “Parties”) to ensure that certain proposed active demand reduction offerings by the Compact through its energy efficiency program will not adversely impact the operation, safety, or reliability of the local distribution system;

WHEREAS, this Memorandum of Agreement shall govern the implementation, siting, and dispatch of any Dispatchable Assets developed by the Compact through its energy efficiency programs in the NSTAR Electric service territory. For purposes of this Memorandum of Agreement, a “Dispatchable Asset” or “Dispatchable Assets” means any asset that can either (1) reduce a customer’s load in response to a signal without requiring action on the part of the customer and/or (2) has the capability to export electricity to the electrical grid on demand. With the exception of the siting provisions in Section 1.1 (Siting), this Memorandum of Agreement governs any Dispatchable Asset or Dispatchable Assets installed independently by a third-party that are later included in the Compact’s energy efficiency programs. This Memorandum of Agreement excludes any load shedding or manual curtailment from commercial and industrial customers unless that load shedding or manual curtailment is done through a Dispatchable Asset that is dispatched through the Compact’s Dispatch Platform (as such term is defined herein) vendor;

WHEREAS, the Compact and NSTAR Electric share the goal of encouraging the development of energy efficiency technologies and peak demand reduction programs;

WHEREAS, the Compact and NSTAR Electric share the goals of equity and transparency for all customers and adherence to statutory and regulatory requirements;

WHEREAS, the Compact and NSTAR Electric share the goal of providing the benefits associated with the dispatch of the Dispatchable Assets to customers to the extent practicable;

WHEREAS, the Compact and NSTAR Electric agree that NSTAR Electric is the exclusive provider of transmission and distribution services within the NSTAR Electric service territory, including the Compact’s member communities, and NSTAR Electric has the sole responsibility to ensure safe and reliable distribution service to its distribution customers, regardless of whether the customer receives generation service through or energy efficiency services from the Compact;

WHEREAS, the Compact and NSTAR Electric share the goal of minimizing any potential adverse impacts on the operation and reliability of NSTAR Electric’s electric distribution system; and

WHEREAS, the Department of Public Utilities (the “Department”) has determined that the Compact and NSTAR Electric must agree on all aspects of coordination necessary for the Compact to implement active demand reduction offerings in the Compact’s service area and how any costs related to such coordination will be addressed.¹

NOW THEREFORE, in consideration of the exchange of promises and covenants herein contained, the legal sufficiency of which is hereby acknowledged, the Parties agree, as follows:

ARTICLE 1: TERMS OF AGREEMENT

1.1 SITING

1.1.1. The terms and conditions set forth in Section 1.1 shall only apply to Dispatchable Assets developed by the Compact through its energy efficiency programs in the NSTAR Electric

¹ See 2019-2021 Three-Year Plans Order at 139; Cape Light Compact Three-Year Plan Order, D.P.U. 18-116-A at 2.

service territory that have the potential to export electricity back to NSTAR Electric's Electric Power System ("NSTAR Electric EPS")² and for which the Compact has contracted for dispatch rights in advance of submitting applications to NSTAR Electric for interconnection review. For clarification purposes, the terms and conditions set forth in Section 1.1 shall not apply to Dispatchable Assets installed independently by a third-party that are later included in the Compact's energy efficiency programs.

- 1.1.2. The Compact will submit applications to NSTAR Electric for interconnection review for all Dispatchable Assets that have the potential to export electricity back to the grid in blocks of 100 kilowatts ("kW") or more. For purposes of determining the 100 kW blocks of capacity for interconnection review, the Compact shall include the nameplate capacity of the Dispatchable Asset or Dispatchable Assets as well as the nameplate capacity of any new generation resource, for example photovoltaic solar generation, that is being paired with the Dispatchable Asset or Dispatchable Assets. NSTAR Electric shall assess the potential impact of such Dispatchable Assets, and the paired generation resources (as applicable), on the operation, safety, and reliability of the NSTAR Electric EPS, pursuant to and consistent with NSTAR Electric's Standards for Interconnection of Distributed Generation. In the event that the Compact submits applications to NSTAR Electric for interconnection review of a block of Dispatchable Assets and paired generation resources (as applicable) that is less than 100 kW, the Compact shall provide NSTAR Electric with a written explanation of why the block was submitted with less than 100 kW.

² For purposes of this Memorandum of Agreement, the NSTAR Electric EPS means the electric power system owned, controlled or operated by NSTAR Electric used to provide distribution service to its distribution customers.

- 1.1.3. NSTAR Electric shall have the right to refuse for siting purposes, any specific Dispatchable Asset or blocks of Dispatchable Assets on the NSTAR Electric EPS where the installation of such block of Dispatchable Assets or Dispatchable Asset is likely to adversely impact the operation, safety, or reliability of the NSTAR Electric EPS. NSTAR Electric shall provide the Compact with a written explanation as to why a specific Dispatchable Asset or blocks of Dispatchable Assets was refused, including specifics on how the asset or block would likely adversely impact the operation and reliability of the NSTAR Electric EPS, as soon as practicable, and such explanation shall include whether the siting impact could be mitigated. NSTAR Electric will make best efforts to reject only the units within a block that pose safety and/or reliability issues rather than rejecting the entire block.
- 1.1.4. The Compact will provide NSTAR Electric with information specifying the demand response purpose for which the Dispatchable Asset or Dispatchable Assets will be used during the term of this Memorandum of Agreement. For example, if the Dispatchable Asset or Dispatchable Assets are to be used for the purpose of lowering the ISO-NE peak, then the Compact must specify that purpose in its submission to NSTAR Electric. The Compact will also provide NSTAR Electric with information regarding any proposed aggregation of multiple Dispatchable Assets for the purpose of the coordinated dispatch of such assets. In addition to providing NSTAR Electric with information regarding which specific customers are part of the portfolio aggregation, the Compact or its designee(s) will be responsible for submitting customer interconnection applications, in the same block size and manner specified in subsection 1.1.2 for review, so that NSTAR Electric's reviewing engineers can assess the total impact of any potential aggregation on the NSTAR Electric EPS.

1.1.5. Notwithstanding the subsections above, the Compact, and all Dispatchable Assets developed and implemented by the Compact, must comply with and are subject to the terms and conditions set forth in the NSTAR Electric Standards for Interconnection of Distributed Generation tariff and the terms and conditions set forth in any other NSTAR Electric tariffs that are applicable to all customers in NSTAR Electric's service area, including, but not limited to, the Terms and Conditions for Distribution Service tariff.

1.2 DISPATCH

1.2.1. On or before April 15 of each year during the Term, as defined in subsection 2.7 of this Memorandum of Agreement, NSTAR Electric shall provide the Compact with a written draft dispatch plan ("Dispatch Plan") for the Compact's review. The Compact shall provide written comments on the draft Dispatch Plan within 15 days of receipt and NSTAR Electric will, in good faith, consider and respond to the Compact's comments. NSTAR Electric will provide a final Dispatch Plan to the Compact on or before May 15. This Dispatch Plan shall apply equally to all Dispatchable Assets, developed and implemented pursuant to Massachusetts Energy Efficiency Plans approved by the Department. In particular, this Dispatch Plan will direct the manner in which the Compact shall dispatch all Dispatchable Assets subject to this Memorandum of Agreement over the next twelve-month period from June 1 of that year until May 31 of the following year. The Dispatch Plan shall include event trigger criteria, the maximum number of events, event hour windows, and event notice requirements. The Dispatch Plan shall dispatch all Dispatchable Assets in a manner consistent with the objectives of the Department-approved Massachusetts Energy Efficiency Plan then in effect.

- 1.2.2. Pursuant to the final Dispatch Plan, the Compact shall provide NSTAR Electric with advance notice prior to the dispatch of Dispatchable Assets developed and implemented by the Compact.
- 1.2.3. The Compact shall be responsible for developing and implementing a dispatch platform (“Dispatch Platform”) for the Dispatchable Assets and shall be responsible for all costs associated with development and implementation of such Dispatch Platform.
- 1.2.4. The Compact agrees to use to the same vendors as NSTAR Electric for the purposes of developing and implementing a Dispatch Platform. To the greatest extent practicable, the Parties shall endeavor to jointly procure a vendor for purposes of developing and implementing a Dispatch Platform.
- 1.2.5. NSTAR Electric shall be given access to the Compact’s Dispatch Platform to view real-time or near real-time data on the operational status and performance of all Dispatchable Assets developed and implemented by the Compact and to execute overrides of Compact dispatches as necessary. NSTAR Electric shall have the ability and authority to terminate a dispatch in real-time in case of an emergency, an off-schedule distribution system condition, or any other condition that may, in the reasonable opinion of NSTAR Electric, adversely impact the operation, safety, or reliability of the NSTAR Electric EPS. Within forty-eight (48) hours of a terminated dispatch, NSTAR Electric will provide a written explanation to the Compact as to why the dispatch was terminated.
- 1.2.6. The Compact shall be responsible for all vendor costs and fees associated with providing NSTAR Electric with access to the Compact’s Dispatch Platform.

- 1.2.7. Within the Dispatch Platform, the Compact shall be required to develop separate groups of assets by town, so that NSTAR Electric may terminate a dispatch in a specific area of the NSTAR Electric EPS if there is an emergency, off-schedule condition, or any other condition that may, in the reasonable opinion of NSTAR Electric, compromise safety and reliability, without terminating the entire Compact dispatch.
- 1.2.8. NSTAR Electric will have access to downloadable historical data related to any Compact Dispatchable Assets or dispatches through the Dispatch Platform.
- 1.2.9. The Dispatchable Assets may not be dispatched for reasons other than for the purposes described in the Dispatch Plan without prior written approval from NSTAR Electric, which shall not be unreasonably withheld.

1.3 PROGRAM IMPLEMENTATION

- 1.3.1. The Compact is responsible for customer outreach, acquisition, and paying of incentives for any Dispatchable Assets developed and implemented by the Compact through its energy efficiency programs.
- 1.3.2. The Compact is responsible for any incremental costs incurred by NSTAR Electric to monitor, and override as necessary, the dispatch of Dispatchable Assets developed and implemented by the Compact. NSTAR Electric shall provide a complete and detailed listing of the costs incurred by NSTAR Electric for these purposes and shall invoice the Compact for these costs on a quarterly basis. Payment shall be due within 45 days from receipt of the invoice.
 - a. Incremental costs may include, but are not limited to, additional labor costs, incidental costs, software fees, vendor costs, or incremental fees.

- 1.3.3. Either Party may request a meeting with the other Party to review best practices and lessons learned and consider adjustments to the current Dispatch Plan; provided, however, that the Parties shall not be obligated to meet more than two (2) times per year unless otherwise agreed to by the Parties.
- 1.3.4. The Compact shall enter into contracts with customers receiving Dispatchable Assets or funding for Dispatchable Assets through the Compact's energy efficiency programs that set forth the parameters, terms, and conditions applicable to the dispatch of such Dispatchable Assets ("Dispatch Contracts"). A Dispatch Contract template shall be submitted by the Compact to NSTAR Electric for review and prior approval, which shall not be unreasonably withheld, provided that such template includes the following terms:
- a. Customers receiving Dispatchable Assets developed and implemented by the Compact through its energy efficiency program cannot simultaneously enroll such assets in an additional program or programs including, but not limited to, a separate aggregation program.
 - b. The Dispatchable Asset shall be used for the purposes specified by the Compact to NSTAR Electric as set forth in subsection 1.1.4 and shall not be used for any other purpose during the term of the Dispatch Contract without the prior written approval of NSTAR Electric.
- 1.3.5. The Compact may bid a Dispatchable Asset developed and implemented by the Compact through its energy efficiency program into the wholesale market, at the Compact's sole discretion, subject to the terms of this Memorandum of Agreement and any applicable requirements, conditions, or restrictions set forth in the Dispatch Plan.

ARTICLE 2: GENERAL TERMS AND CONDITIONS

- 2.1. NSTAR Electric shall not be liable in contract, in tort (including negligence and M.G.L.c.93A), strict liability or otherwise for any special, indirect, or consequential damages whatsoever including, but not limited to, loss of profits or revenue, loss of use of equipment, real or personal property damage, cost of capital, cost of temporary equipment, overtime, business interruption, spoilage of goods, or other economic harm arising out of or in any way related to NSTAR Electric's performance under this Memorandum of Agreement.
- 2.2. This Memorandum of Agreement represents the Parties' resolution regarding the mitigation required to ensure that certain proposed active demand reduction offerings by the Compact through its energy efficiency programs will not adversely impact the safety, operation, or reliability of the distribution system.
- 2.3. The making of this Memorandum of Agreement establishes no principles and shall not be deemed to foreclose any Party from making any contention in any future proceeding or investigation, except as to those issues and proceedings that are stated in this Memorandum of Agreement as being specifically resolved and terminated by this Memorandum of Agreement.
- 2.4. This Memorandum of Agreement is the product of negotiations between the Parties. The Parties agree that the content of those negotiations (including any work papers or documents produced in connection with the negotiations) will be treated confidentially,

where possible³, that all offers of settlement are without prejudice to the position of any Party or participant presenting such offer or participating in such discussion, and, except to enforce rights related to this Memorandum of Agreement, that they will not use the content of those negotiations in any matter in these or other proceedings involving one or more of the parties to this Memorandum of Agreement, or otherwise.

- 2.5. The Parties agree that the Compact may submit this Memorandum of Agreement (or a form thereof) to the Department for review and approval.
- 2.6. This Memorandum of Agreement may be executed in two or more counterparts, which together shall be deemed to constitute one agreement, and delivery of the counterparts may be effected by means of facsimile or email transmission with the same effect as if original copies had been delivered.
- 2.7. This Memorandum of Agreement shall remain in force for the period beginning on the execution date of this Memorandum of Agreement and ending on December 31, 2024. The Parties agree to enter into good faith discussions regarding the need to extend this Memorandum of Agreement or to enter into a new Memorandum of Agreement prior to October 31, 2024, the date by which NSTAR Electric and the Compact must file their next three-year (2025-2027) energy efficiency plans pursuant to G.L. c. 25, § 21. NSTAR Electric reserves the right to withhold support of the Compact's 2025-2027 energy efficiency plan to the extent discussions pursuant to this subsection result in a course of

³ The Compact is a public entity, and thus it is subject to laws governing public documents. Additionally, the Compact will comply with any regulatory requirements from entities such as the Department of Public Utilities. While the Compact is subject to these requirements, the Compact will work with NSTAR Electric to ask for confidential treatment of any related documents.

action (i.e., no agreement, extended agreement or new agreement) that, in NSTAR Electric's sole opinion, adversely impacts the safety and reliability of its electric power system.

- 2.8. None of the Compact's rights or responsibilities under this Memorandum of Agreement shall be transferred or assigned, without the prior written consent of NSTAR Electric, which shall not be unreasonably withheld.

- 2.9. The Parties shall attempt to resolve, during the ordinary course of business, any dispute, controversy or claim arising out of or relating to this Memorandum of Agreement, or the breach, termination or validity hereof by negotiation between representatives who will have the authority to resolve the dispute. In the event said dispute, controversy or claim is not resolved, one Party may give the other Party written notice documenting the precise dispute, controversy, or claim. Within ten (10) days after delivery of such notice, the Parties shall make reasonable efforts to meet at a mutually acceptable time and place to resolve the dispute. If the Parties are unable to resolve the dispute within thirty (30) days of receipt of notice of the dispute, either Party may petition the Department for review of the issue, to the extent that the Department determines it has jurisdiction over the dispute. If the Department determines that it lacks jurisdiction, any action shall be filed in any court of competent jurisdiction located in Suffolk County in the Commonwealth of Massachusetts. Notwithstanding the foregoing, injunctive relief may be sought from either the Department or a court of competent jurisdiction as described herein, without first resorting to the alternative dispute resolution provisions, solely to prevent any irreparable harm that would be caused by a material breach of this Memorandum of Agreement.

- 2.10. This Memorandum of Agreement is governed by, and will be construed in accordance with, the laws of the Commonwealth of Massachusetts, exclusive of the conflicts of law rules of such Commonwealth.
- 2.11. This Memorandum of Agreement may not be altered, modified, revised or changed, nor may any Party be relieved of its liabilities or obligations hereunder, except by written instrument duly executed by the each of the Parties.
- 2.12. Any notice, payment, or communication required or permitted to be delivered or given under this Memorandum of Agreement shall be deemed to be effectively delivered or given (a) upon personal delivery; (b) upon one (1) business day following pickup by overnight courier and a receipt of such pickup is obtained; (c) three (3) business days following mailing by certified mail, postage prepaid, return receipt requested; or (d) by electronic mail, provided that any notice transmitted solely by electronic mail which is not confirmed as received by the receiving Party shall be followed up by personal delivery or overnight delivery within forty-eight (48) hours. Notice under this Memorandum of Agreement shall be provided as follows:

To NSTAR Electric: Tilak Subrahmanian
 Vice President, Energy Efficiency
 Eversource Energy
 247 Station Drive
 Westwood, MA 02090
 tilak.subrahmanian@eversource.com

With a Copy to: John K. Habib
 Keegan Werlin LLP
 99 High Street, 29th Floor
 Boston, MA 02110
 jhabib@keeganwerlin.com

To the Compact:

Margaret T. Downey
Administrator
Cape Light Compact JPE
261 Whites Path, Suite 4
S. Yarmouth, MA 02664
Email: mdowney@capelightcompact.org

With a Copy to:

Jeffrey M. Bernstein, Esq.
BCK Law, P.C.
1337 Massachusetts Avenue, Box 314
Arlington, MA 02476
Email: jbernstein@bck.com

2.13. NSTAR Electric understands that the Compact is a governmental entity, specifically a joint powers entity, and that all of its members are governmental units. NSTAR Electric understands and agrees that the Compact members assume no liability whatsoever for any of the debts and liabilities of the Compact, including, but not limited to, any obligations under this Memorandum of Agreement. NSTAR Electric further agrees and covenants that it will not sue or otherwise make any claim against any of the Compact's members for any obligations, debts or liabilities of the Compact that may exist or accrue as a result of its obligations under this Memorandum of Agreement, or any acts or omissions related to the performance of such obligations. NSTAR Electric further understands that as a governmental entity, certain legal privileges and defenses are available to the Compact at law. Nothing in this Memorandum of Agreement shall be construed to waive any of these privileges or defenses.

The signatories listed below represent that they are authorized on behalf of their principals to enter into this Memorandum of Agreement.

NSTAR ELECTRIC COMPANY

CAPE LIGHT COMPACT JPE

By: _____

By: _____

Name: Tilak Subrahmanian

Name: Margaret T. Downey

Title: Vice President, Energy Efficiency
Eversource Energy

Title: Cape Light Compact JPE
Administrator

Date: _____, 20__

**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES**

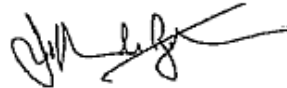
CAPE LIGHT COMPACT JPE

)
) D.P.U. 21-126

NOTICE OF APPEARANCE OF COUNSEL

The undersigned attorneys hereby give notice of their appearance as counsel for the Cape Light Compact JPE in the above-captioned case.

Respectfully submitted,



Jeffrey M. Bernstein, Esq. (jbernstein@bck.com)
Audrey Eidelman Kiernan, Esq. (akiernan@bck.com)
BCK LAW, P.C.
1337 Massachusetts Avenue, Box 314
Arlington, MA 02476
617-244-9500 (voice)
802-419-8283 (fax)

Dated: November 1, 2021

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

CAPE LIGHT COMPACT JPE

)
) D.P.U. 21-126

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing documents upon Secretary Mark D. Marini via electronic mail only addressed to dpu.efiling@mass.gov, upon all parties listed in the Hearing Officers' Prefiling Memorandum dated October 5, 2021 and in accordance with the requirements of 220 CMR 1.05(1) (Department's Rules of Practice and Procedure).

Dated this 1st day of November 2021.



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