Posted 3/30/15 @ 10:00 a.m.

Cape Light Compact
Governing Board Meeting

DATE: Wednesday, April 1, 2015

LOCATION: Rooms 11&12, Superior Courthouse, Barnstable

TIME: 2:00 – 4:30 p.m.

AGENDA

2:00 Public Comment

2:10 Presentation: Cape Light Compact Energy Efficiency Potential & Program Opportunities Study, Representatives from Opinion Dynamics Corporation and Dunsky Energy Consulting

CLC POTENTIAL & PROGRAM OPPORTUNITIES STUDY

Board Meeting

4/1/2015

Opinion Dynamics

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Agenda

- Study Background
  - The Project Team
  - Study Objective
  - Regulatory Requirements and Goals
- Study Approach
  - Study Overview
  - Primary Data Collection
  - Deliverables
- Questions and Answers

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Study Background

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The Project Team

- Opinion Dynamics Corporation
  - Headquartered in Waltham, Massachusetts
  - One of the leading energy efficiency research and evaluation companies
  - Extensive local experience (and local presence)
- Dunsky Energy Consulting
  - Provides research, analysis, and strategic counsel in support of clients' energy efficiency and renewable energy goals
  - Strong experience in developing potential estimates and user-friendly modeling tools
- Mad Dash Inc.
  - Field data collection

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Study Objective

- Conduct comprehensive Penetration, Potential and Program Opportunity Study
  - Detailed information about CLC's residential and non-residential customer base, based on primary data collection
    - What energy-using equipment is installed in homes and businesses?
    - What is the efficiency level of the installed equipment?
    - How likely are customers to adopt energy efficient equipment in the future?
    - What are customer characteristics and occupancy patterns?
  - CLC electric energy efficiency potential, by sector/segment and year, for 2016-2021
  - Adjustable CLC-specific electric potential model
- Provide program design support for commercial/industrial programs

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Regulatory Requirements and Goals

- Comply with DPU requirement to document the penetration of energy efficiency within its service territory and develop estimates of remaining savings potential (D.P.U. 12-107, dated 1/31/2013).

> *"The Program Administrators with an aggregate three-year savings goal of greater than 20 percent below the statewide three-year aggregate goal will conduct a study, either jointly or individually, during the upcoming three-year term to document the penetration of energy efficiency within its service territory and the remaining cost-effective energy efficiency opportunities available."*

- Collect wealth of CLC-specific information
- Inform the next three-year energy efficiency plan
- Support design enhancements to non-residential programs

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Study Approach

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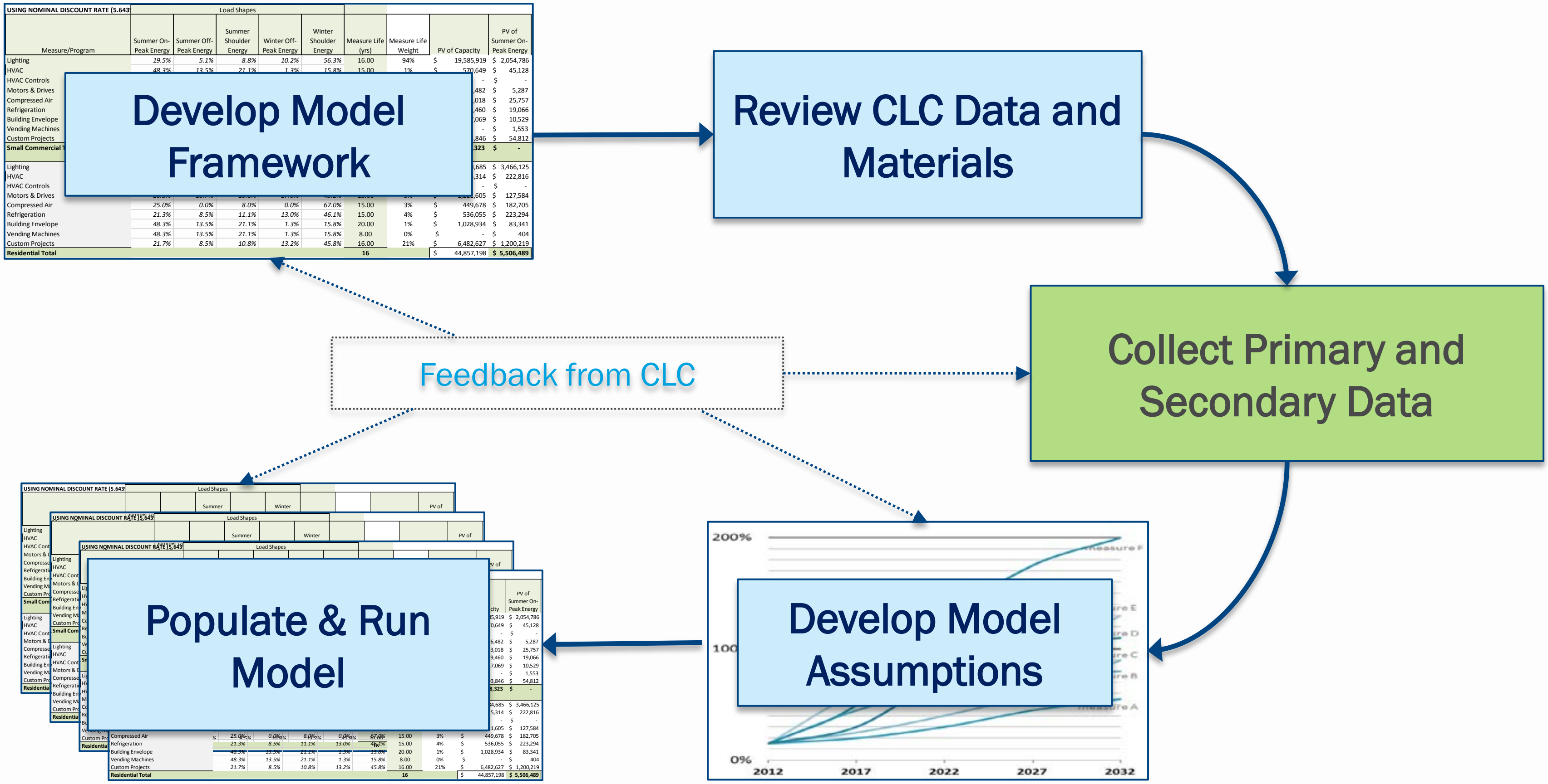
Study Overview



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Primary Data Collection – Residential & Low Income

- Mail Survey (June 2014)
  - Sent to a random sample of 12,000 customers
  - Quota by segments: Residential non-seasonal, residential seasonal, low income
  - Target of 1,750 completes; achieved 2,785 completes! (24% response rate)
  - Collected information on equipment penetration & saturation, occupancy patterns, demographics
- On-site Verification (August/September 2014)
  - Completed on-site verification in 169 homes (nested sample)
  - Collected same information as in mail survey, plus additional technical data
- Phone Survey (October/November 2014)
  - Completed interviews with 144 customers
  - Collected information on barriers to energy efficiency/program participation

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Primary Data Collection – Commercial

- Phone Survey (August - November 2014)
  - Completed interviews with 448 customers
  - Collected high-level equipment penetration information as well as information on occupancy patterns and barriers to energy efficiency/program participation
- On-site Verification (September - November 2014)
  - Completed on-site verification in 150 establishments (nested sample)
  - Collected same equipment information as in phone survey, plus additional detail and technical data

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Primary Data Collection – Analysis

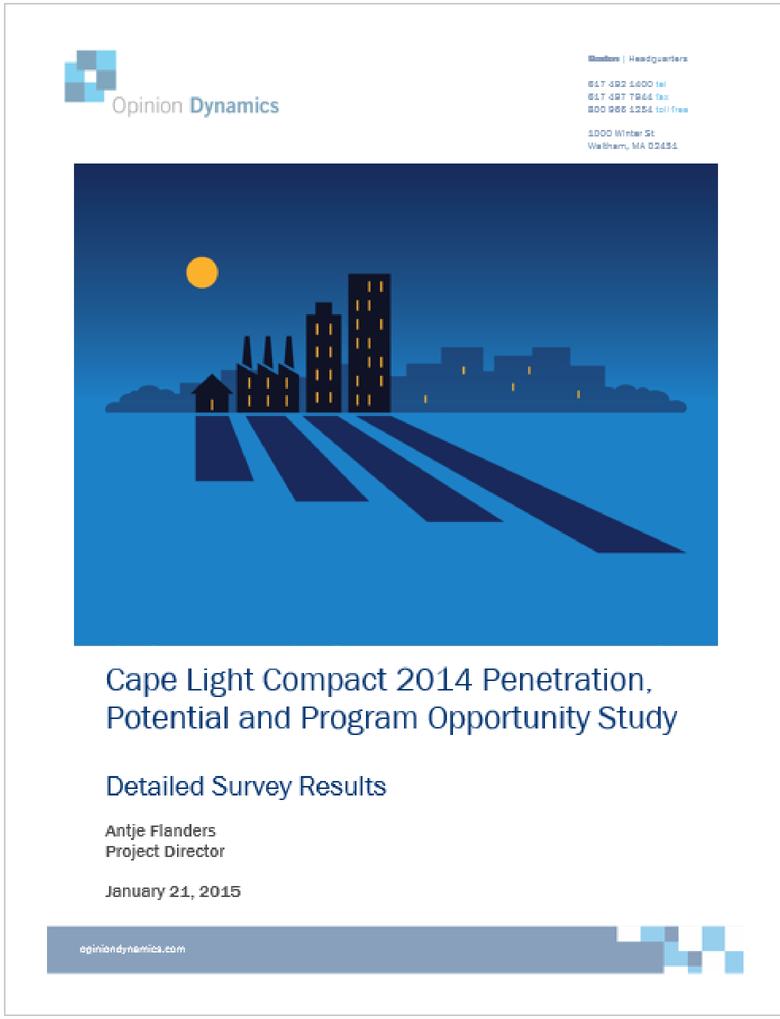
- Developed detailed penetration and saturation results
  - By sector: Residential, Low Income, and Commercial & Industrial
  - By segment: e.g., seasonal, non-seasonal; small retail, office, lodging
- Developed energy efficiency adoption rates
- Results from primary data collection:
  - Are key inputs into the potential model
  - Were used to customize MA-wide assumptions that do not well represent CLC customers, e.g., hours of use
  - Provide a wealth of information to CLC about their customers, which can be used for program design/planning, segment-based customer targeting, etc.

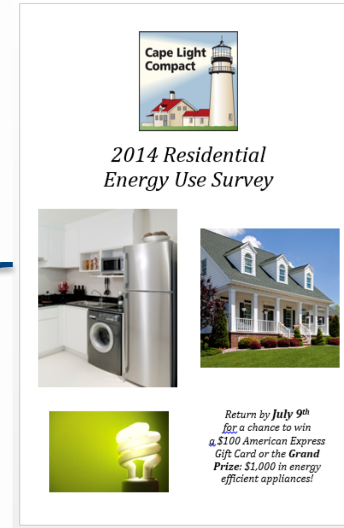
Primary Data Collection – Residential/LI Outputs

- Penetration and saturation data, by segment

	Penetration			Saturation		
	Res - S	Res - NS	LI	Res - S	Res - NS	LI
Lighting						
Incandescent	100%	100%	96%	27.5	30.0	16.1
CFL	83%	96%	93%	17.0	18.1	14.8
Fluorescent tube lighting	57%	76%	69%	2.9	6.1	3.3
Halogen	35%	44%	19%	1.3	2.4	1.5
LED	21%	49%	8%	1.5	5.1	0.5

Primary Data Collection – Detailed Residential/LI Survey Report





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Detailed Residential/LI Survey Report – Contents

Table of Contents

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Detailed Residential/LI Survey Report – Window AC

Section C: Window Air Conditioning

C1 Do you use window or wall unit air conditioning in your home?
(These could be placed in a window, through a wall, or be portable/on wheels.)
☐ Yes ☐ No *(Go to D1.)*

C2 How many window or wall units do you use in the summer?
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 or more

C3 Approximately, how much of your living space do you cool with window or wall units during the summer?
☐ All ☐ Most ☐ About half ☐ Some ☐ None

C4 Please tell us the characteristics of each window or wall unit in the table below.
(If you have more than three units, please answer for the three units that you use most often.)

	Unit 1	Unit 2	Unit 3
A. Is the unit ENERGY STAR rated?			
Yes	☐	☐	☐
No	☐	☐	☐
Don't Know	☐	☐	☐
B. How old is the unit?			
Less than 1 year	☐	☐	☐
1-4 years	☐	☐	☐
5-9 years	☐	☐	☐
10-14 years	☐	☐	☐
15-19 years	☐	☐	☐
C. How often is the unit turned on during the summer months?			
Not used at all	☐	☐	☐
Turned on a few times each summer	☐	☐	☐
Turned on quite a bit	☐	☐	☐
Turned on just about all summer	☐	☐	☐

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Detailed Residential/LI Survey Report – Window AC, cont.

Question C1: Do you use window or wall unit air conditioning in your home?

	Sector		Residential						Low Income			
			Segment		Primary Fuel Type				Primary Fuel Type			
	Residential	Low Income	Non-Seasonal	Seasonal	Natural Gas	Electric	Oil	Propane	Natural Gas	Electric	Oil	Propane
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
Yes	774	776	577	197	419	76	210	36	336	91	267	34
	50.3%	68.5%	55.5%	39.4%	49.5%	54.1%	53.1%	41.6%	64.8%	68.7%	74.2%	64.5%
		A	D								I	
No	766	357	462	304	427	65	186	50	182	41	93	19
	49.7%	31.5%	44.5%	60.6%	50.5%	45.9%	46.9%	58.4%	35.2%	31.3%	25.8%	35.5%
	B			C					K			
TOTAL VALID RESPONSES	1540	1133	1039	502	847	141	396	86	518	133	360	52
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
TOTAL VALID RESPONSES (UNWEIGHTED)	1536	1121	771	765	830	141	378	94	521	113	367	53
Missing responses	69	43	54	15	17	3	10	3	6	3	9	2
	4.3%	3.7%	4.9%	2.9%	1.9%	1.9%	2.4%	3.6%	1.2%	2.2%	2.3%	2.9%
TOTAL RESPONSES	1609	1176	1092	517	863	143	406	89	524	136	368	54

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Detailed Residential/LI Survey Report – Window AC, cont.

Question C1: Do you use window or wall unit air conditioning in your ho

Overall, 50.3% of Residential households use window air conditioning.

Overall, 68.5% of Low Income households use window air conditioning.

Low Income customers are significantly more likely (at a 95% level of significance) to use window air conditioning than Residential customers.

	Sector		Segment		
	Residential	Low Income	Non-Seasonal	Seasonal	Natural Gas
	(A)	(B)	(C)	(D)	(E)
Yes	774 50.3%	776 68.5% A	577 55.5% D	197 39.4%	[illegible]
No	766 49.7% B	357 31.5%	462 44.5%	304 60.6% C	[illegible]
TOTAL VALID RESPONSES	1540 100.0%	1133 100.0%	1039 100.0%	502 100.0%	847 100.0%
TOTAL VALID RESPONSES (UNWEIGHTED)	1536	1121	771	765	830
Missing responses	69 4.3%	43 3.7%	54 4.9%	15 2.9%	17 1.9%
TOTAL RESPONSES	1609 100.0%	1176 100.0%	1092 100.0%	517 100.0%	863 100.0%

	Propane
	(L)
Yes	34 64.5%
No	19 35.5%
TOTAL	52 100.0%
TOTAL (UNWEI	53
Missin	2 2.9%
TOTAL	54

4.3% of Residential customers did not respond to this question.

1,536 Residential customers responded to this question.

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Primary Data Collection– Interesting Residential Results

- Overall Findings
  - Penetration of efficient equipment (CFL and LED bulbs, boiler reset controls, programmable thermostats) is generally higher for Residential Non-Seasonal than for Residential Seasonal or Low Income customers
- Home Characteristics
  - The majority of homes on Cape Cod in both the Residential and Low Income sectors were built in 1970 or later
  - Most homes are under 2,000 square feet
  - The majority of homes have all or mostly double pane windows installed

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Primary Data Collection– Interesting Residential Results

- Lighting
  - LED penetration and saturation is overall very high, driven by the Residential sector, in particular Non-Seasonal customers
  - CFL penetration is substantially higher for Non-Seasonal and Low Income customers than it is for Non-Seasonal customers
- Heating
  - The majority of homes on Cape Cod are heated with natural gas (56% Residential and 48% Low Income); oil heating is also prevalent
  - 29% of Residential customers and 36% of Low Income customers have electric heating as either primary or secondary heating in their home
- Refrigeration
  - 37% of Residential Non-Seasonal homes have a secondary refrigerator, compared to 28% of Seasonal homes and 20% of Low Income homes
  - 26% of Residential Non-Seasonal homes have a stand-alone freezer, compared to 4% of Seasonal homes and 23% of Low Income homes

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Primary Data Collection – Commercial Outputs

- Extensive amount of penetration and saturation data available

Table Metric	C&I Total	Less than 125 MWh/year	125-1000 MWh/year	More than 1000 MWh/year	Small Retail	Office	Restaurant	Government or Education	Lodging/Hospitality	Health Services	Grocery, Convenience or Large Retail	Automotive, Warehouse/ Distribution or Industrial	Other Commercial	Year Round	Seasonal
Number of Phone Surveys	448	384	50	14	81	65	46	40	51	21	16	78	50	390	56
Number of Site Visits	150	112	27	11	21	17	15	20	21	9	10	25	12	133	16
Mean Number of Light Fixtures in Business	113.1	93.8	339.4	2110.3	110.1	53.8	60.2	169.3	209.9	148.5	64.5	55.3	108.4	102.79	172.10
Percentage of Customers that Have Linear Fluorescent Lights in Business	89%	88%	100%	100%	90%	100%	100%	92%	63%	100%	80%	100%	90%	93%	64%
Percentage of Customers that Have CFLs in Business	70%	70%	74%	95%	84%	69%	64%	69%	85%	82%	89%	30%	79%	68%	85%
Percentage of Customers that Have Incandescent Bulbs in Business	72%	71%	83%	82%	65%	80%	71%	59%	75%	64%	98%	66%	79%	74%	58%
Percentage of Customers that Have HID Bulbs in Business	37%	36%	48%	70%	31%	6%	31%	49%	10%	9%	64%	75%	77%	39%	21%
Percentage of Customers that Have Halogen Bulbs in Business	26%	25%	31%	29%	26%	18%	40%	16%	34%	53%	20%	10%	33%	22%	46%
Percentage of Customers that Have LED Lights in Business	38%	36%	67%	90%	60%	25%	47%	22%	54%	5%	32%	24%	28%	35%	55%
Percentage of Customers that Have T12 Linear Fluorescent Lights in Business	54%	54%	53%	74%	65%	43%	69%	50%	51%	24%	73%	52%	59%	53%	61%
Percentage of Customers that Have T10 Linear Fluorescent Lights in Business	8%	8%	0%	0%	10%	12%	0%	0%	6%	18%	0%	14%	0%	8%	7%
Percentage of Customers that Have T8 Linear Fluorescent Lights in Business	65%	63%	89%	90%	65%	75%	73%	77%	31%	81%	76%	72%	79%	70%	32%
Percentage of Customers that Have T5 Linear Fluorescent Lights in Business	4%	3%	13%	48%	0%	6%	0%	10%	2%	1%	1%	11%	0%	4%	0%
Percentage of Customers that Have T5HO Linear Fluorescent Lights in Business	2%	2%	0%	18%	5%	0%	0%	0%	0%	1%	0%	5%	0%	2%	0%
Mean Number of Linear Fluorescent Fixtures per Business	39.7	30.1	149.3	1110.0	45.5	27.9	17.6	115.1	13.2	95.5	36.4	39.6	48.3	42.99	13.68
Mean Number of CFL Fixtures per Business	36.5	32.6	72.6	606.7	39.4	7.6	12.8	21.4	114.4	39.1	5.0	1.4	13.5	26.06	101.95
Mean Number of Incandescent Bulb Fixtures per Business	19.0	17.1	44.8	159.6	6.2	14.1	13.5	21.0	44.0	9.4	4.4	5.3	27.5	18.51	22.30
Mean Number of HID Bulb Fixtures per Business	2.5	2.1	8.9	18.2	0.8	0.1	2.2	4.4	1.0	1.2	6.5	4.1	7.5	2.65	1.77
Mean Number of Halogen Bulb Fixtures per Business	2.4	2.1	7.2	13.2	1.1	1.5	6.6	3.1	4.7	1.2	1.2	1.3	1.5	1.66	7.24
Mean Number of LED Light Fixtures per Business	12.2	9.7	46.1	201.0	16.7	2.2	7.5	4.3	32.7	1.9	11.1	3.6	6.3	10.16	25.17
Mean Number of T12 Linear Fluorescent Light Fixtures per Business	8.9	8.0	19.8	69.9	12.2	4.9	6.6	10.1	5.1	20.3	7.0	10.0	11.3	8.86	8.22
Mean Number of T10 Linear Fluorescent Light Fixtures per Business	1.1	1.2	0.0	0.0	0.5	0.2	0.0	0.0	0.1	0.7	0.0	5.6	0.0	1.22	0.39
Mean Number of T8 Linear Fluorescent Light Fixtures per Business	28.4	20.4	115.4	971.6	32.4	22.7	11.0	101.1	7.6	73.4	24.9	19.0	37.0	31.40	5.07
Mean Number of T5 Linear Fluorescent Light Fixtures per Business	1.1	0.2	14.1	67.1	0.0	0.1	0.0	3.8	0.4	1.0	4.5	4.3	0.0	1.27	0.00
Mean Number of T5HO Linear Fluorescent Light Fixtures per Business	0.2	0.2	0.0	1.5	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.0	0.24	0.00
Percentage of Customers without Advanced Lighting Controls	23%	24%	7%	0%	30%	31%	47%	16%	12%	36%	24%	15%	21%	23%	23%
Percentage of Customers with Manual-only and Advanced Lighting Controls	73%	72%	90%	95%	70%	63%	53%	82%	75%	64%	74%	81%	79%	73%	68%
Percentage of Customers with no Manual-only Lighting Controls	4%	4%	2%	5%	0%	6%	0%	2%	12%	0%	1%	5%	0%	4%	9%
Percentage of Customers with Energy Management System Controlling Lighting	0%	0%	0%	26%	0%	0%	0%	1%	0%	0%	2%	0%	0%	0%	0%

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Primary Data Collection – Commercial Outputs, cont.

- Overall Lighting Penetration and Saturation

Table Metric	C&I Total
Number of Phone Surveys	448
Number of Site Visits	150
Mean Number of Light Fixtures in Business	113.1
Percentage of Customers that Have Linear Fluorescent Lights in Business	89%
Percentage of Customers that Have CFLs in Business	70%
Percentage of Customers that Have Incandescent Bulbs in Business	72%
Percentage of Customers that Have HID Bulbs in Business	37%
Percentage of Customers that Have Halogen Bulbs in Business	26%
Percentage of Customers that Have LED Lights in Business	38%
Percentage of Customers that Have T12 Linear Fluorescent Lights in Business	54%
Percentage of Customers that Have T10 Linear Fluorescent Lights in Business	8%
Percentage of Customers that Have T8 Linear Fluorescent Lights in Business	65%
Percentage of Customers that Have T5 Linear Fluorescent Lights in Business	4%
Percentage of Customers that Have T5HO Linear Fluorescent Lights in Business	2%

Table Metric	Seasonal
Number of Phone Surveys	56
Number of Site Visits	16
Mean Number of Light Fixtures in Business	172.10
Percentage of Customers that Have Linear Fluorescent Lights in	64%
Percentage of Customers that Have CFLs in Business	85%
Percentage of Customers that Have Incandescent Bulbs in Busi	58%
Percentage of Customers that Have HID Bulbs in Business	21%
Percentage of Customers that Have Halogen Bulbs in Business	46%
Percentage of Customers that Have LED Lights in Business	55%
Percentage of Customers that Have T12 Linear Fluorescent Ligh	61%
Percentage of Customers that Have T10 Linear Fluorescent Ligh	7%
Percentage of Customers that Have T8 Linear Fluorescent Lights	32%
Percentage of Customers that Have T5 Linear Fluorescent Lights	0%
Percentage of Customers that Have T5HO Linear Fluorescent Li	0%
Mean Number of Linear Fluorescent Fixtures per Business	13.68
Mean Number of CFL Fixtures per Business	101.95
Mean Number of Incandescent Bulb Fixtures per Business	22.30
Mean Number of HID Bulb Fixtures per Business	1.77
Mean Number of Halogen Bulb Fixtures per Business	7.24
Mean Number of LED Light Fixtures per Business	25.17
Mean Number of T12 Linear Fluorescent Light Fixtures per Busi	8.22
Mean Number of T10 Linear Fluorescent Light Fixtures per Busi	0.39
Mean Number of T8 Linear Fluorescent Light Fixtures per Busin	5.07
Mean Number of T5 Linear Fluorescent Light Fixtures per Busin	0.00
Mean Number of T5HO Linear Fluorescent Light Fixtures per Bu	0.00
Percentage of Customers without Advanced Lighting Controls	23%
Percentage of Customers with Manual-only and Advanced Ligh	68%
Percentage of Customers with no Manual-only Lighting Control	9%
Percentage of Customers with Energy Management System Con	0%

Opinion Dynamics

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Primary Data Collection – Commercial Outputs, cont.

- Results by Segment

Table Metric	Small Retail	Office	Restaurant	Government or Education	Lodging/Hospitality	Health Services	Grocery, Convenience or Large Retail	Automotive, Warehouse/ Distribution or Industrial	Other Commercial
Number of Phone Surveys	81	65	46	40	51	21	16	78	50
Number of Site Visits	21	17	15	20	21	9	10	25	12
Mean Number of Light Fixtures in Business	110.1	53.8	60.2	169.3	209.9	148.5	64.5	55.3	108.4
Percentage of Customers that Have Linear Fluorescent Lights in Business	90%	100%	100%	92%	63%	100%	80%	100%	90%
Percentage of Customers that Have CFLs in Business	84%	69%	64%	69%	85%	82%	89%	30%	79%
Percentage of Customers that Have Incandescent Bulbs in Business	65%	80%	71%	59%	75%	64%	98%	66%	79%
Percentage of Customers that Have HID Bulbs in Business	31%	6%	31%	49%	10%	9%	64%	75%	77%
Percentage of Customers that Have High Pressure Sodium Bulbs in Business	16%	6%	0%	10%	3%	4%	20%	28%	26%
Percentage of Customers that Have Mercury Bulbs in Business	5%	0%	0%	8%	0%	0%	20%	18%	3%
Percentage of Customers that Have Metal Halide Bulbs in Business	11%	0%	31%	40%	6%	4%	24%	48%	54%
Percentage of Customers that Have Halogen Bulbs in Business	26%	18%	40%	16%	34%	53%	20%	10%	33%
Percentage of Customers that Have LED Lights in Business	60%	25%	47%	22%	54%	5%	32%	24%	28%
Percentage of Customers that Have Neon (Cold Cathode) Lights in Business	0%	0%	2%	0%	0%	0%	0%	0%	0%
Percentage of Customers that Have T12 Linear Fluorescent Lights in Business	65%	43%	69%	50%	51%	24%	73%	52%	59%
Percentage of Customers that Have T10 Linear Fluorescent Lights in Business	10%	12%	0%	0%	6%	18%	0%	14%	0%
Percentage of Customers that Have T8 Linear Fluorescent Lights in Business	65%	75%	73%	77%	31%	81%	76%	72%	79%
Percentage of Customers that Have T5 Linear Fluorescent Lights in Business	0%	6%	0%	10%	2%	1%	1%	11%	0%
Percentage of Customers that Have T5HO Linear Fluorescent Lights in Business	5%	0%	0%	0%	0%	1%	0%	5%	0%

Mean Number of T5HO Linear Fluorescent Light Fixtures per Business	0.2	0.2	0.0	1.5	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.0	0.24	0.00
Percentage of Customers without Advanced Lighting Controls	23%	24%	7%	0%	30%	31%	47%	16%	12%	36%	24%	15%	21%	23%	23%
Percentage of Customers with Manual-only and Advanced Lighting Controls	73%	72%	90%	95%	70%	63%	53%	82%	75%	64%	74%	81%	79%	73%	68%
Percentage of Customers with no Manual-only Lighting Controls	4%	4%	2%	5%	0%	6%	0%	2%	12%	0%	1%	5%	0%	4%	9%
Percentage of Customers with Energy Management System Controlling Lighting	0%	0%	0%	26%	0%	0%	0%	1%	0%	0%	2%	0%	0%	0%	0%

Opinion Dynamics

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Primary Data Collection – Commercial Outputs, cont.

- Results by Usage and Seasonality

Table Metric	Less than 125 MWh/year	125-1000 MWh/year	More than 1000 MWh/year	Year Round	Seasonal
Number of Phone Surveys	384	50	14	390	56
Number of Site Visits	112	27	11	133	16
Mean Number of Light Fixtures in Business	93.8	339.4	2110.3	102.79	172.10
Percentage of Customers that Have Linear Fluorescent Lights in Business	88%	100%	100%	93%	64%
Percentage of Customers that Have CFLs in Business	70%	74%	95%	68%	85%
Percentage of Customers that Have Incandescent Bulbs in Business	71%	83%	82%	74%	58%
Percentage of Customers that Have HID Bulbs in Business	36%	48%	70%	39%	21%
Percentage of Customers that Have High Pressure Sodium Bulbs in Business	12%	35%	33%	15%	2%
Percentage of Customers that Have Mercury Bulbs in Business	5%	6%	0%	6%	0%
Percentage of Customers that Have Metal Halide Bulbs in Business	23%	27%	46%	24%	19%
Percentage of Customers that Have Halogen Bulbs in Business	25%	31%	29%	22%	46%
Percentage of Customers that Have LED Lights in Business	36%	67%	90%	35%	55%
Percentage of Customers that Have Neon (Cold Cathode) Lights in Business	0%	2%	0%	0%	0%
Percentage of Customers that Have T12 Linear Fluorescent Lights in Business	54%	53%	74%	53%	61%
Percentage of Customers that Have T10 Linear Fluorescent Lights in Business	8%	0%	0%	8%	7%
Percentage of Customers that Have T8 Linear Fluorescent Lights in Business	63%	89%	90%	70%	32%
Percentage of Customers that Have T5 Linear Fluorescent Lights in Business	3%	13%	48%	4%	0%
Percentage of Customers that Have T5HO Linear Fluorescent Lights in Business	2%	0%	18%	2%	0%

	Seasonal
Number of Phone S	56
Number of Site Visi	16
Mean Number of Li	172.10
Percentage of Cust	64%
Percentage of Cust	85%
Percentage of Cust	58%
Percentage of Cust	21%
Percentage of Cust	46%
Percentage of Cust	55%
Percentage of Cust	61%
Percentage of Cust	7%
Percentage of Cust	32%
Percentage of Cust	0%
Percentage of Cust	0%
Mean Number of Li	13.68
Mean Number of C	101.95
Mean Number of In	22.30
Mean Number of H	1.77
Mean Number of H	7.24
Mean Number of LE	25.17
Mean Number of T1	8.22
Mean Number of T1	0.39
Mean Number of T8	5.07
Mean Number of T5	0.00
Mean Number of T5	0.00
Percentage of Cust	23%
Percentage of Cust	68%
Percentage of Cust	9%
Percentage of Cust	0%

Opinion Dynamics

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Primary Data Collection – Interesting C&I Results

- Business Characteristics
  - Average age of buildings is 61 years; 47% are more than 50 years old
  - Average size is ~6,300 sq ft; 67% are less than 2,500 sq ft
    - Highest usage stratum has an average area of 143,600 sq ft
  - 67% of businesses have fewer than 10 employees
  - 28% of businesses have participated in an EE program since 2011
    - 25% of lowest usage stratum; 92% of highest usage stratum
  - 86% of businesses have year-round operation, but a large portion decrease their hours in the off-season

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Primary Data Collection – Interesting C&I Results

- Lighting
  - The vast majority (89%) of businesses have linear fluorescent lighting and this type makes up 35% of fixtures per business
    - Inefficient T12 fixtures represent 22% of linear fluorescent fixtures per business; efficient T8s make up 72% of linear fluorescent fixtures
  - More than one-third of businesses have LEDs, but they account for only 11% of fixtures per business
- Cooling
  - 62% of businesses have central cooling; 100% of highest usage stratum
  - 67% of businesses with cooling are controlled by manual thermostats
  - Only 1% of all businesses have an Energy Management System in use; 60% of highest usage stratum

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Primary Data Collection – Interesting C&I Results

- Heating
  - Nearly all (98%) of businesses have heated spaces but only 84% of seasonal businesses have heat
  - 19% of businesses have electric heat as either their primary (16%) or secondary (3%) heating fuel
  - Only 7% of businesses have heat pumps, but 23% of highest of businesses in the highest usage stratum have this equipment
- Motors
  - 29% of motors are practical for variable speed drive installation, but only 5% have VSDs
- Water Heating
  - Only 37% of businesses with electric water heating have faucet aerators

Opinion Dynamics

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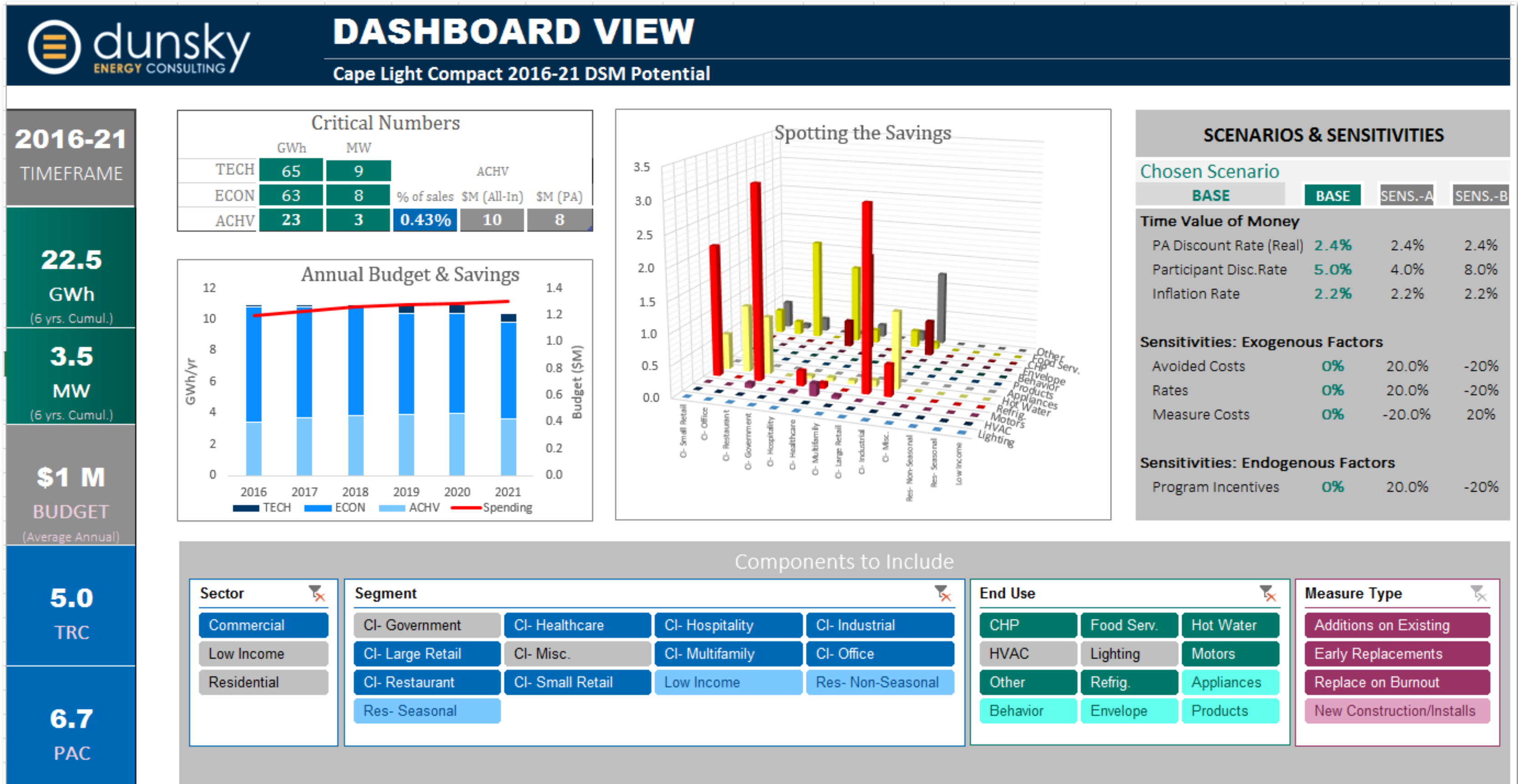
Potential Model – Example of Dashboard



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Deliverables

- Comprehensive report
  - Methodology
  - Summary of penetration and saturation results
  - Remaining cost-effective opportunity scenarios, by sector and segment
  - Commercial program opportunities
- Data sets
  - Respondent-level mail/phone survey and on-site data
  - Penetration and saturation tables (by sector, segment)
- Consolidated presentation of findings
- Adjustable, transparent potential model
  - Training for key CLC staff

We are currently refining our results with the most current and up-to-date information

Opinion **Dynamics**

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Questions & Answers

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