Cape Light Compact
Cooperative Investigation Study

Phase I Results

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Executive Summary

INTRODUCTION

The Cape Light Compact (the "Compact") was formed in 1997 and consists of all twenty-one municipalities on Cape Cod and Martha's Vineyard (the "Cape and Vineyard") and Barnstable and Dukes counties. Since 1997, the Compact has implemented a variety of activities and programs to bring competitive market prices for electricity to the Cape and Vineyard, support regional energy efficiency and renewable power development, and offer energy education to Cape and Vineyard students. The Compact has been interested in considering long-term supply contracts and ownership of renewable power projects to advance those programs, but to date it has been precluded from doing so by barriers including liability exposure and lack of legal authority. To address these issues, the Compact is exploring the formation of an energy-related cooperative under a Massachusetts statute, G.L. c. 164, § 136. In late April 2006, the Compact commissioned a two-phase study to explore the feasibility of forming such an electric cooperative. For Phase I of the study, the Compact retained a team led by La Capra Associates that includes Sustainable Energy Advantage, LLC and Birch Tree Capital, LLC (the "Team").

The Compact asked that the Team identify business models for a Co-op best able to meet these objectives, and assess the organizational and financing issues likely to be encountered in establishing the Co-op. This report represents the results of Phase I of the study (the "Report"). Technical terms are defined in Section 2.3 of the Report.

The purposes of Phase I are (1) to identify a range of potential cooperative models and evaluation criteria for assessing their feasibility, especially with regard to financing, (2) to evaluate the models using those criteria, screening out those with fatal flaws, and (3) to recommend to the Compact and its Members the most promising cooperative models for further consideration.

The Compact and its Members have considered, from time to time, the possibility of participating in development of renewable energy projects or of entering into long-term contracts for power or RECs. However, doing so was found to require incurring debt or assuming other obligations, and the Compact and its Members have found themselves unable to do so because of practical concerns, fiduciary responsibilities, differences in their financial capabilities, or limitations on their authority under state law. So, the Compact also wishes this Study to determine whether the Co-op, as a discrete entity, might overcome such constraints and limit the credit exposure of the Compact and its Members.

METHODOLOGY AND APPROACH

Methodology. The Team started by considering the Compact's energy-related roles and objectives and by defining the possible Co-op offerings that could advance the Compact's desire to provide more stable pricing and "green" alternatives. The Team looked at power supply alternatives available to supply those retail offerings, including both renewable and non-renewable sources of supply.

The Team then identified and evaluated organizational structures that could make possible the supply procurement and the delivery of the retail offerings identified in the previous steps. The Team also identified the kinds of relationships between the Compact and the Co-op required by those different approaches. These structures centered on the formation, governance and membership of a cooperative. Finally, the Team assessed the feasibility of various sources of financing to support the Co-op.

The Team screened the various business models identified, rejecting those that appeared to conflict with the Compact's goals and objectives. At this point the various business models—combinations of different retail offerings, supply strategies, and organizational structures—were assembled and screened to identify those recommended for further consideration by the Compact in Phase II.

Evaluation Criteria. The Team developed evaluation criteria to screen potential Co-op business models; these criteria covered the suitability of the business structure, i.e., combinations of cooperative function, retail offerings, cooperative organization and membership, power supply, and financing. Some criteria were considered to be minimum requirements; failure to meet them was considered a fatal flaw. Examples include any need for special legislation or a risk that Compact Members might incur an income tax liability. Other highly desirable traits were used to rank models, such as flexibility for expansion or ability to issue tax-exempt debt. The final category of criteria measures how well a business model aligns with the Compact's objectives and strengths, or how strongly it conflicts with its constraints. Some criteria were measured in a qualitative or approximate manner, with more quantitative assessment reserved for more detailed study in Phase II of the study; others are identified here for potential application in Phase II. Not all criteria are applicable to every component or overall business model. These criteria are discussed further in Chapter 2 of the Report.

RETAIL OFFERING SCENARIOS

The Team created four Retail Offering scenarios through which the cooperative-arranged supply could be delivered to buyers. These scenarios were used to evaluate which organizational and membership structural alternatives could serve these recipients of Cooperative supply, as well as ways to match the amount and type of renewable energy or hedged supplies with the amount of load in each scenario. Three scenarios involve *alternative*, *voluntary* product offerings with different pricing, commitment term or resource mix than the Compact's basic opt-out aggregation offering.

The three Voluntary scenarios are referred to respectively as **Committed Government Account scenario** (available on a voluntary basis to the Compact's Government Accounts only), **Committed Government & Stable C&I Account scenario** (available on a voluntary basis to Government Accounts plus a limited number of the Compact's most stable and credit-worthy retail accounts), and an **Unrestricted scenario** (available to all or a substantial percentage of the Compact's load base). The fourth scenario—the **Opt-Out: Portfolio Enhancement scenario** – was viewed as an enhancement to the portfolio used by the Compact to serve its municipal aggregation customers and involved folding any Cooperative-arranged hedge or renewable energy supply into the Compact's basic Municipal Aggregation opt-out offerings. The purpose

of this last scenario would be to partially stabilize the price of the opt-out product, make that product "greener," or both. The implications of these scenarios are summarized in Section 4 of the Report.

POWER SUPPLY ISSUES

In Phase 1, the team explored issues that relate to how a cooperative purchasing[1] in the bulk power supply market might assist the Compact in advancing its goals, as well as how cooperative business models would affect power trading. The Team's results are discussed in Section 4 of the Report and summarized here.

Electricity market prices are driven, in large part, by prices of natural gas and oil, and increasing prices for these fuels have driven a corresponding upward trend in New England electricity prices during the past several years. Other factors (particularly the regional supply/demand balance of generating capacity) can also affect the long-term price trend and contribute to price volatility. Electricity market price uncertainty has significant implications for the potential Cooperative.

A Cooperative could use fixed price bilateral purchases of energy and capacity to increase the stability of retail electricity. In a bilateral contract, one party buys a certain amount of power from another party for a specific term, possibly at a fixed price. The purchases could still be passed on to the Compact's Retail Supplier and used to supply the Compact's Municipal Aggregation program. Alternatively, retail prices could be stabilized using either a financial hedge or a synthetic hedge. These methods, discussed in Section 4, in essence use financial instruments to stabilize the net price of power as with a fixed price purchase, but *may* be simpler or cheaper to implement. Or, the Co-op could pursue full participation in the ISO-NE electricity market, become an ISO-NE market participant and create full-requirements supply itself rather than through a Retail Supplier. To do this, the Co-op would have to play a much more intensive role in the wholesale electricity market on a daily and hourly basis.

Each approach has pros and cons. One of the biggest concerns would be credit requirements. Credit terms are a central part of power contract negotiation and power trading. In order to make fixed price bilateral purchases of significant duration, a buyer lacking strong financial standing (as the Cooperative would, initially) must be able to post substantial security. A full wholesale market participant with an ISO-NE settlement account would likely need to post additional collateral to cover net short purchases. The specific amount of security required would depend on the size and length of contracts negotiated, but a fixed-price purchase of 20 MW for three years could require security (e.g., letters of credit) in the $3 to $5 million range, while a fixed price hedging purchase for the entire Compact Aggregation program over this period could require security on the order of many tens of millions of dollars.[2]

[1] A cooperative's trading activities would consist primarily of purchases to meet its customers' needs; some sales (e.g., to balance fluctuations in customer electricity requirements) might also be appropriate.

[2] While the security requirements discussed here do not represent an expense – because they are ultimately returned to the buyer except in the event of an actual hedge contract default – they would preclude the use of an amount of capital or guarantee authority for other purposes during the power contract.

The feasibility of long-term fixed price power purchases or other hedging transactions for a Cooperative will depend to a large degree on the amount of performance assurance, i.e., collateral, required by wholesale suppliers, and the amount of capital or guarantees that Co-op or Compact Members are willing and able to provide.

THE RENEWABLE ENERGY MARKET

The Compact is especially interested in securing regional renewable energy as part of the supply to Compact load. Because the costs of renewable energy generators are largely fixed and independent from the fossil-fuel drivers of commodity electricity prices, renewables may provide an important tool for achieving the Compact's price stabilization objectives. For these reasons, Section 5 of this Report gives an the overview of aspects of the regional renewable energy landscape - the projects being developed, their economics and the motivations and needs of those developing them – which are important in shaping what the Co-op can strive to achieve.

Considerable renewable energy development activity is underway throughout New England, primarily wind and biomass (which includes landfill methane). While many projects in development may not reach commercial operation, certain conclusions can be reached. First, enough *local land-based* wind projects are likely to be available to serve a meaningful fraction of the Compact's Government Accounts within the next two to three years. Second, of renewable energy projects under development throughout the New England region as a whole, enough projects are likely to be completed within 5 years to serve much of the Compact's entire Municipal Aggregation load. More specifically, information on publicly-known projects in the region indicates that 2 to 5 MW of local community-scale wind projects under development may be completed for possible delivery by 2007, a figure increasing to 35 to 50 MW for delivery by 2010. In New England as a whole, wind projects under development amount to roughly an additional 460 MW onshore and over 750 MW offshore to be on-line by as early as 2010, with another 85 MW of biomass under development in a similar time frame. (See Section 5 for details.)

Renewable energy project costs, permitting situations, and financing requirements vary widely, depending on a variety of factors including: technology type; project scale; site-specific resource strength as well as access, construction and interconnection costs; availability of Federal (production tax credit) and state incentives, and the ownership structure. The "all-in" life-of-unit levelized cost of wholesale energy at the plant (not comparable to retail prices) varies among different types and scales of potential renewable energy projects in New England from roughly $60 per MWh to over $120/MWh (equal to 6 to 12 ¢/kWh). The products of renewable energy generators include energy, capacity, and RECs. The levelized costs of renewable energy technologies could exceed the cost of fixed price power contracts by up to 3.5 ¢/kWh in the near term. However, that differential could be offset through the sale of some or all RECs, and might then be less costly than conventional fixed price power contracts. Typically, a willingness to enter into a long-term contract for the output of a renewable energy generator in support of financing, or alternatively, direct project ownership, is necessary to access renewable energy supply reflective of these costs. However, this opportunity is likely limited to projects which have not yet arranged financing; an already-financed "merchant" renewable energy project will

have no reason to price differently from the bulk power commodity market. Furthermore, wind power generators have very low ongoing operating costs, so wind project ownership by the Co-op could, after capital costs are fully amortized, result in long-term costs below the market price of conventional power. Such low-cost power supply could mitigate future migration risk.

Finally, it is important to note that renewable energy projects are being developed for many different reasons by a variety of public and private sector entities. Long-term contracts for sale of power or RECs to the Co-op may not be attractive to some of these developers, but may be uniquely appealing to developers of some of the less conventional (and more modest scale) projects, particularly where the Co-op's participation can make a marginal project financially feasible.

FINANCING CONSIDERATIONS

Financing Structures and Co-op Bankability. Section 6 of the Report considers whether the Co-op could show sufficient financial strength or "bankability" to support potential power market hedging transactions and renewable power supply activities with little or no support from Compact Members. Bankability refers to the prospects of a company (including, but not limited to, the Co-op) or a project to obtain third party capital in support of some planned transaction or investment. The goal is for the Co-op to tap financing that is cheaper, easier to obtain, and present fewer risks to Compact Members than financing raised directly by the Compact Members.

Multiple capital sources may meet the needs of the Co-op in financing its own investment in a renewable power generation project, or may be tapped by a third party owner of such a project in connection with a long-term power purchase commitment by the Co-op on behalf of Compact Members. These include financing sources geared for projects involving public, private, and cooperative ownership and in the form of grants, guaranteed loans, conventional loans, and private equity. Potential financing options vary in the trade-off of costs, complexity, terms, and degree of support likely needed from Compact Members. Grant programs alone are unlikely to meet the needs of the Co-op.

It is important to note here, that in order to finance investments in renewable power projects, the Co-op instead will need to obtain equity from Compact Members, i.e., capital contributions, limited pledges of credit, or both, obtain debt and equity capital from third parties, or obtain some combination of financing from both Compact Members and third parties.

Long-term debt financing extended either on a corporate or project basis is typically used to finance renewable power projects. In corporate financings, the lender extends the loan based on comfort with the borrower's aggregate cash flow and resources. The loan amount may be for up to the full amount of the project costs and have a repayment period unrelated to the operational life of the project. The Team believes that it will be difficult at best for the Co-op to obtain such corporate-style financing for its initial operations. At its outset, the Co-op, as a start-up enterprise with no financial history or cash flows, is unlikely to be able to do so on its own. To borrow on a corporate basis, the Co-op will almost certainly need explicit credit guarantees by Compact Members or other credit-worthy entities. Letters of credit for fixed dollar amounts or

comparable partial guarantees are unlikely to be accepted by potential lenders as adequate substitutes for demonstrated and projected cash flow generation. The level of external credit support needed may lessen over time as the Co-op develops a satisfactory financial track record.

An alternate long-term debt financing option is project financing. Under this structure, the Co-op instead seeks to make the renewable power project itself bankable on a stand-alone, or project, basis. Financing for the project is on terms that provide sufficient comfort to lenders that the project itself yields sufficient ongoing cash flow to repay the debt. Under this structure, the lenders would not require direct loan guarantees by Compact Members. The Team believes that project-based financing structures supported by strong power purchase commitments may be the most effective means for the Co-op to attract long-term third party debt and equity financing.

The quality of the purchase commitments is vital under a project finance structure, since those commitments represent the source of the cash flow ultimately needed by the project to repay the debt financing. If Compact Members or other Government Accounts, acting through the Compact, want to purchase power and RECs from the project, they will need to be credit-worthy in the eyes of the project finance lenders (and project investors) and be willing to enter into fully binding purchase commitments lasting at least as long as the term of the debt financing. The details of the actual sales contracts will need to be worked out within the Compact Aggregation structure and the contract with the Compact's Retail Supplier. A project finance loan typically only covers roughly half of the cost of a power project. If the Co-op elects to invest directly in renewable power projects, the Co-op will need a source of equity capital for the balance of the capital costs. Lenders will look to have the Compact Members, as owners of the Co-op, provide adequate comfort that the Co-op will meet its equity and any other performance obligations.

These project financing criteria likely will arise even if the Co-op only seeks to enter into multi-year power or REC purchase commitments with third party project developers. The developer will face the same requirements from its own lenders and investors in obtaining term debt financing and equity capital to build the power plant. These lenders and investors will look to see that the Co-op's power and REC purchases are on terms deemed creditworthy for a project finance structure. They will need to be comfortable that the ultimate buyers of the power and RECs from the project, e.g., interested Compact Members, are creditworthy entities and are willing to make long-term purchase commitments.

Co-op Financing Options. Renewable power project developers undertake projects for various reasons. Recent wind projects in New England have been sponsored by diverse public, quasi-public, and private entities. Similarly, capital sources financing renewable power projects hold differing rationales, capabilities, and focus on certain types of financing transactions. The variety of power project developers and their varying financial strength will determine which financing sources are most feasible for any given project and will improve the ability of the Co-op to offer power purchase contract or investment terms that meet the needs of the project developers.

Renewable project developers are tapping a variety of financing sources to finance renewable power projects. These include several Federal and state grant and loan programs. The Compact's counsel considers that the organization of the Co-op under Massachusetts G.L. c. 164, § 136 should make the Co-op eligible to issue revenue bonds. Further evaluation by

legal counsel and bond underwriters likely will be needed to confirm the Co-op's ability to issue tax-exempt bonds. Several tax-oriented hybrid partnership structures have been developed in recent years to attract private sector equity financing in support of renewable power projects developed by entities unable to make efficient use of available Federal tax incentives, e.g., towns and smaller private developers. The Co-op may be able to employ such tax-oriented partnership structures to help finance its own renewable projects and/or those sponsored by other entities unable to use the tax incentives efficiently.

The diversity of financing sources and structures give comfort that the Co-op should be able to secure financing whether it opts to buy renewable power through long-term purchase contracts or make a direct investment in a renewable power project. Initial Phase I research indicates that bond financing backed directly by Compact Members, project-based financing with limited recourse to the Compact Members, as well as hybrid tax-oriented equity investment structures all appear to be feasible financing options. Specific contract or investment opportunities will involve devising a plan that works for the specific project. In general, however, creation of the Co-op should facilitate raising financing for such renewable power projects, if only by serving as a focal point in crafting the requisite contract and project structure and financing activities. These financing strategies and options could be implemented by a Co-op organized using the business models discussed in Section 8.

To improve the Co-op's prospects for closing on financing (or for assisting a third party developer to do so), such financing strategies will need to draw upon the Compact's and Co-op's multiple competitive strengths while minimizing their weaknesses. Such strengths include access to specialized financing sources and structures not readily available to other renewable power developers, as well as the unique Compact Aggregation framework. Constraints include the Co-op's initial lack of intrinsic financial strength or bankability and the fiduciary responsibilities of the Compact Members in negotiating contracts with private sector entities. Depending on the size and types of loads being served by a project, the nature of the credit and purchase commitments by the interested Compact Members also will be relevant.

Next Steps. The Team suggests that the Compact assess selected financing sources and strategies in more detail. This analysis could be done with respect to one or two types of likely near-term renewable power purchase contract or investment opportunities, e.g., the community wind project in the Town of Orleans. The intent would be to understand the detailed issues and tasks in securing a long-term power purchase contract or financing for an investment project. The detailed review would also work out the coordination details with the Compact Aggregation structure. In advance of such analyses, this Report outlines four hypothetical contracting and investment scenarios that might be encountered by the Co-op and suggests corresponding financing strategies. The scenarios illustrate the diversity of possible future renewable power development opportunities and available financing plans.

The Team also offers measures to manage the initial financial exposure of the Co-op while facilitating its power contracting and financing capabilities. These include an initial focus on community-scale projects not exceeding five megawatts in size and focusing initially on supporting projects developed by other parties. These measures will limit the dollar scale as well as simplify the Co-op's tasks of devising a financial plan and negotiating bankable power purchase contracts. At the same time, the Team suggests that the Co-op adopt a longer range

goal of becoming the "go-to" advisory, contract, and investment financing partner for Cape-based community-scale renewable power projects. This might be done by combining support from Compact Members with developing Co-op expertise to achieve successful closings on financing initial projects. The Team suggests that the Co-op work in advance with Compact Members and the Compact's Retail Supplier on the power contract template framework and likely terms and to familiarize selected potential investors and lenders with the template framework; such efforts will improve the Co-op's ability to respond effectively to specific power purchase contract or investment opportunities in a timely manner.

COOPERATIVE BUSINESS MODELS

In Section 7, the Team developed several structural models for a Co-op. In addition, the Team considered various business scopes and functional alternatives. Finally, options for cooperative structural organization and membership alternatives were evaluated. The Team then applied the evaluation criteria discussed earlier to eliminate unsuitable models from further consideration.

Alternative Business Organizational Structures. The Team considered whether alternative forms of business organization, e.g., a limited liability company, a for-profit C-Corporation or an S-Corporation, or a tax-exempt non-profit corporation, could meet the Compact's objectives. The Team concluded that while each alternative carries its own limitations, special state legislation would be needed for the Compact Members to establish any of the non-cooperative entities in a form that could own power projects or perform many of the other functions envisioned. In contrast, the Compact's legal counsel believes that G.L. c. 164, § 136 would enable the Compact Members to establish such a cooperative to perform all the various functions desired, including project ownership. As a result, the non-cooperative forms were not considered for further detailed study.

Alternative Business Scope and Functions. The Cooperative could, in principle, perform additional roles relating to the sale or delivery of electricity, beyond wholesale power supply. The Team considered three such additional functions the Cooperative could conceivably perform: ownership of distribution facilities (poles and wires), provision of retail generation services, and taking over the utility franchise for generation services. Our analysis concluded that both ownership of distribution facilities (poles and wires) and taking over the utility franchise for generation service would require multi-year, complex and contentious processes, diverting the Compact's attention and resources towards a function unnecessary to fulfill the Compact's stated objectives. As a result, neither was recommended for consideration as part of this Study. In contrast, provision of *retail generation services,* i.e., the Cooperative becoming the Retail Supplier procuring energy at wholesale and reselling it as full-requirements electric supply to end-use customers, was deemed a decision that should be set aside for possible consideration at a future date when, and if, an electric cooperative is established and operational.

Cooperative Organizational & Membership Alternatives. Section 7.4 discusses several inter-related issues that dictate the feasible alternatives to organizational and membership structures capable of meeting Co-op objectives. These include:

- Who are the members of the cooperative? This relates to balancing governance and the fiduciary responsibility associated with managing any pledge of public assets with the basic cooperative tenet of one member, one vote.
- Whether tax liabilities that would eat into the benefits of forming a cooperative can be avoided and certain considerations regarding preservation of access to tax-exempt financing.
- Can the Co-op be established as a tax-exempt entity? One way to do so is to structure the Cooperative as an instrumentality of its members, provided that its members themselves are all tax-exempt governmental entities; another structure requires compliance with Federal Internal Revenue Code 501(c)12 requirements.
- Can a model efficiently build reserves for working capital and business expansion from earnings?

In considering alternatives, the relationship between the Compact and the Co-op is also critical, as is the degree to which the Compact or its selected Retail Supplier is a buyer (patron) of what the Co-op sells.

Based on an assessment of these factors, the Team identified two primary organizational and membership structures for evaluation. These include: (1) the *Public Co-op*, whose members are all government entities, e.g. the towns and counties of the Cape and Vineyard, acting in the interests of their constituents, the citizens, businesses and institutions in their jurisdictions; and (2) the *All-Consumers Co-op* in which all retail customers could be members. In addition, two variations on the *Public Co-op* were identified. These are described further in section 7.5 of the Report.

The Public Co-op. This model relies on a representative form of governance with the membership comprised of government entities, e.g., interested Compact Members. Such a cooperative could enable retail offerings in two different ways, through sales to its members, or sales to the Compact. In either case, the Compact could bundle the Co-op's supply into a full-requirements retail supply either through resale to the Retail Supplier to Compact load, or potentially serving as a Retail Supplier itself. Under the "Sales to the Compact" option, the Co-op would make sales of blocks of energy, hedges or renewable energy output to the Compact. In turn, the Compact would either (a) bundle those sales into a voluntary retail offering for the benefit of the Compact's Committed Government Accounts or (b) bundle those resources into the Compact's opt-out product (to enable the *Opt-Out: Portfolio Enhancement* Retail Offering Scenario).

The *Public Co-op* structure appears feasible for at least some (if not all) of the Retail Offering scenarios, and has a number of advantages. It maintains a linkage between governance and fiduciary responsibility to manage pledges of public assets, and would allow for tractable and efficient governance. It would maintain tax exemption, not trigger any government tax liability, and would avoid erosion of benefits through income taxation at any level. It appears to allow for tax-exempt debt issuance, as well as retention of earnings to build capital reserves. It would be bankable to the extent of pledges of capital, credit and other commitments by the member government entities, as discussed in Section 6. In summary, this simple and straightforward alternative appears to be feasible and most suitable for further revaluation in Phase II.

The "All-Consumers" Co-op. Under this approach, the Co-op's bylaws could allow any retail customer within the Compact Aggregation to join, or a subset of customers meeting certain qualifications. In practice, it could initially be set up with membership of government entities, e.g. interested Compact Members, with other members joining at a later date under specified conditions. Because members would include non-government entities, this model cannot rely on being an instrumentality of tax-exempt entities, instead being formed and operated as a Federal I.R.C. 501(c)12 cooperative to maintain tax exemption.

The *All-Consumers Co-op* might seem attractive as it could arguably include the full range of non-government end-users while complying with the provisions of Federal I.R.C. 501(c)(12). However, it fares poorly with respect to several of the evaluation criteria. It could not be made credit worthy by relying on the public entities to pledge their taxing authority, for (consistent with the Massachusetts Constitution and General Laws) public entities cannot use their taxing authority for the benefit of private individuals. This model also cannot avoid taxation by virtue of being an instrumentality of tax-exempt members. Instead, Federal tax-exempt status would have to be maintained by compliance with I.R.C. 501(c)(12) provisions. However, sales of surplus RECs or energy to ISO-NE spot market, if significant in volume, would potentially violate certain 501(c)(12) provisions. As triggering tax liability would be considered a fatal flaw, the need to avoid this risk would severely limit a cooperative's ability to carry out the range of transactions envisioned, especially in comparison to the *Public Co-op* model. Uncertainty whether the model would allow for issuance of tax-exempt debt represents a further fatal flaw. Consequently it is severely limited and likely fatally flawed, and simpler alternatives appear available to address this desire under the Public Co-op approach.

CONSTRUCTING BUSINESS MODELS FOR PHASE II CONSIDERATION

In Section 8, the Team used the prior analysis to select cooperative organizational and membership options that warrant further consideration for the near term in Phase II, those which should be preserved for possible future use, and those which we suggest be rejected. We then screened the Retail Offering Scenarios and identified those to be considered for the near term in Phase II and those that should be preserved for possible future use. Next, the Team identified which Retail Offering Scenarios would appear to work best with the selected cooperative organizational and membership options. Using the groupings from the previous step, the Team developed business models for further consideration by the Compact in Phase II. Finally, we matched these business models with associated supply capabilities, strategies, tactics and limitations. We also identified some of their key characteristics including the impact on the Compact's existing opt-out Municipal Aggregation offering, the structure and options for relationships with entities such as Retail Suppliers, the implications for term of customer commitment, scale of hedging, and options for which entities could serve as Retail Supplier and the Load-Serving Entity ("LSE").

Recommendations: Cooperative Organizational & Membership Alternatives. Based on the Team's evaluation, we identified two combinations of cooperative organization and membership options that merit further study in Phase II: the Public Co-op with Sales to Members and the

Public Co-op with Sales to Compact. We screened from further consideration the All-Consumers Co-op and Supplier Co-op.

Aligning Organization & Membership Alternatives with Retail Offering Scenarios. Combining the results of the previous two sections, along with the characteristics of the organizational and membership structures provides a view of feasible and recommended combinations. These combinations, summarized in Table 7 in Section 8.3 of the Report, serve as the core of the business models recommended for further consideration in Phase II. The recommended model of the Public Co-op, with sales to the Compact, easily accommodates the Voluntary product offering to Committed Government Accounts and can support all of the other Retail Offerings scenarios as well.

Business Models Recommended for Further Study in Phase II. The business models suggested for further consideration in Phase II include a *Public Co-op* with:

- Government Accounts as members and patrons under voluntary long-term retail purchase agreements,

- Government Accounts as members and selling to the Compact in the first instance, but with the Compact arranging resale to Government Accounts under voluntary long-term retail purchase agreements via the Compact's Retail Supplier **[potentially expandable to other accounts in the future]** , and

- Compact Members as the members of the Co-op and selling to the Compact for blending into its Municipal Aggregation program's load.

These models are discussed in greater detail in Sections 7 and 8 of this Study.

The Public Co-op Selling to Government Accounts Model. The membership of the Co-op in this business model is open to public sector entities in the Compact's service territory, e.g., interested Compact Members. These members who voluntarily join help provide the Co-op with initial capital and limited credit support. The participating government accounts (the "Committed Government Accounts") buy the energy, hedge contracts or RECs from the Co-op and assign them in turn to the Retail Supplier to fold into retail full-requirements supply for their own ultimate consumption. The longer a period for which the Committed Government Accounts can commit to purchasing this product from the Co-op and to provide credit support to the Co-op, the more easily the Co-op will be able to secure long term power market transactions, including ownership and investments in renewable energy projects and bilateral wholesale forward market purchases.

The Public Co-op Selling to the Compact for Voluntary Offerings Model. The membership of the Co-op in this business model is, again, open to public sector entities in the Compact service territory who voluntarily join to help provide the cooperative with initial capital and limited credit support. As with the above model, the longer the Committed Government Accounts can commit to purchasing from the Co-op and providing requisite credit support, the more easily the Co-op can secure long term power market transactions, including ownership and investments in renewable energy projects and bilateral wholesale forward market purchases.

The primary difference between this model and the previous one is that the Committed Government Accounts who agree to take their generation service under the Voluntary Participation offering do not purchase products directly. Instead, the Co-op's Portfolio of generation, RECs and other products is sold to the Compact, which in turn assigns the portfolio to the Retail Supplier serving the Committed Government Accounts with full requirements retail generation service.

The Public Co-op Serving the Opt-Out Municipal Aggregation Model. The membership of the Co-op in this business model is the same as in the prior two models - interested government entities in the Compact service territory who voluntarily join and provide the Co-op with initial capital and credit support. As with the prior business models, the longer the Committed Government Accounts can commit to membership in the Co-op, the more easily the Co-op can secure longer term power market transactions, including ownership and investments in renewable energy projects and bilateral wholesale forward market purchases.

In this model, the Committed Government Accounts agree to take their generation service via the Compact's Municipal Aggregation offering. They do not purchase a share of the Co-op's Portfolio. Rather, the Portfolio is sold to the Compact, which in turn assigns it to the Retail Supplier serving the Municipal Aggregation.

CONCLUSIONS AND RECOMMENDATIONS

The Phase I research has led the Team to offer several conclusions for consideration by the Compact to assist the Compact and the Compact Members in determining whether and how to proceed with Phase II of this effort and ultimately in the formation of a cooperative. These are summarized here.

Cooperative Structure & Organization

- A Co-op formed under G.L. c. 164, § 136 appears more capable than other potential business structures to complement the Compact's operations from the perspective of governance compatibility, financing and maintaining non-taxable status.

- The Team recommends the Public Co-op model for further review. This model appears capable of providing hedging for power prices, while supporting the development of renewable generation in the region. Other identified models do not appear to be workable.

- The Team recommends the Voluntary: Committed Government Account retail offering scenario as the primary focus for Phase II of this study. The Team suggests the Compact further assess the optimal chain of title for the Co-op's sales of its power and RECs, i.e., the relative feasibility and benefits of the Co-op selling power and RECs to Compact Members and other Government Accounts who join the Co-op versus sales directly to the Compact where the Compact itself is in the chain of title. The Opt-Out Portfolio Enhancement Scenario has some issues and practical limitations on its effectiveness, but may have some utility in later stages of the operation of the Co-op.

- Choices concerning Co-op membership and governance are critical to a successful Co-op. Those choices will drive what the Co-op can do and whether it will be viable.

Hedging Power Price Volatility

- Participation by the Compact or the Co-op or the Compact Members in meaningful levels of power market hedging transactions will impose credit exposure on the participating entities during the life of the hedge contract. The required credit amounts may reach significant levels depending on the extent of hedging desired.

- Price volatility will be hard to hedge through conventional hedging contracts without the contract counterparty requiring significant security requirements.

- Power price volatility also could be hedged by entering into long-term renewable power purchase agreements or by undertaking direct investments in renewable power projects.

- There are enough viable renewable generation projects under development in the region to provide multiple opportunities for the Compact and the Co-op to enter into power purchase contracts or consider direct investments in pursuit of the objective of hedging against power supply price volatility for at least the Government Accounts load in the near term, and perhaps the overall Compact Aggregation portfolio in the long term.

- There are several ways to set up a Co-op to access renewable power generation supplies, including several that appear to be able to integrate the renewable power into power supply for some or all retail accounts on the Cape and Vineyard.

- The Compact will want to review in further detail integrating new power purchase contracts or investments with its existing Opt-Out offerings.

- The simplest way to incorporate Co-op-sponsored 'green' and 'hedged' supply resources is in separate Opt-In product offering(s), blended into Full Requirements Service by a Retail Supplier. This is likely the best fit with Government Accounts.

Securing Co-op Financing & Bankability

- Multiple sources and financing structures are available that are geared to financing projects involving public, private, and cooperative ownership.

- Financing Co-op renewable power purchase contracts or investments will need to take into account the Co-op's start-up status and initial lack of financial strength. Corporate-style financing likely only will be feasible to the extent that the Compact Members assume contingent payment obligations. Project-based financing supported by strong power purchase commitments by Compact Members may be the most effective means for securing financing at an acceptable trade-off amongst these aspects.

- The ability of the Co-op to issue tax free bond financing to finance its investments in renewable power projects will improve the economics of such projects by enabling lower-cost financing and, ultimately, a lower required price for the power. The Co-op

appears able to access such tax-exempt financing for certain projects, but further legal and bond underwriter analysis likely will be needed to resolve eligibility questions.

If the Compact undertakes further research, the Team recommends an early focus on certain questions, consideration, and tasks:

- Exactly how would a separate Voluntary Participation offering mesh with the Compact's existing Municipal Aggregation service?
- Legal research to confirm the Co-op's ability to issue tax-exempt bond financing, and to confirm that potential Co-op power or REC sales activity would not imperil either the tax-exempt status or the bond issuance capabilities.
- Focusing on one or more specific potential contract or investment opportunities so as to address detailed Co-op organizational, contract, and financing questions on a practical basis.
- Estimating the magnitude of bilateral power purchase transactions that would provide significant hedge value to the Compact's Members.
- Creating an indicative schedule of renewable energy project participation or investments to gauge concomitant financing requirements for the Co-op.
- Exploring the specific amounts of security that the Co-op would require in order to implement bilateral contracts for multi-year hedging.
- If engaging in financial hedging of power supply transactions to mirror the benefits of fixed-price power transactions is appealing, the Team suggests that Phase II research include investigating whether such pure financial hedging can reduce credit requirements.