Community Choice Aggregation (CCA) in Massachusetts

Gabrielle R. Lichtenstein

Indiana Reid-Shaw

University of New Hampshire Sustainability Institute | 131 Main St, Durham, NH 03824
Acknowledgements

This report was made possible by the University of New Hampshire Sustainability Institute, and the guidance of advisors Dr. Dovev Levine, Dr. Cameron Wake, and Ms. Jennifer Andrews from the University of New Hampshire. The authors also gratefully acknowledge the generous support of Ms. Josephine A. Lamprey. The lead author, Gabrielle Lichtenstein, was responsible for writing the report and conducting research, which included qualitative research interviews with twelve individuals. Indiana Reid-Shaw read drafts of the report and contributed substantially to the research process. The researchers extend their sincere gratitude to all interviewees who participated in this project.
Table of Contents

Acknowledgements ........................................................................................................................................... 2
Table of Contents ............................................................................................................................................... 3
Introduction ...................................................................................................................................................... 4
Acronyms .......................................................................................................................................................... 5
Background ...................................................................................................................................................... 6  
   Aggregation in New England .......................................................................................................................... 7
Methodology ..................................................................................................................................................... 9
Case Study Profiles ......................................................................................................................................... 10
Findings ............................................................................................................................................................. 12
   I. Using Renewable Energy Certificates (RECs) for CCA ........................................................................ 12
      The Voluntary REC Market ......................................................................................................................... 12
      A Strategy for New England Renewables ..................................................................................................... 13
      The Need for Localized Renewable Development .................................................................................... 15
      Cambridge’s Journey to Solar Renewable Energy Certificates (SRECs) ......................................................... 15
      Meeting Additionality with RECs .................................................................................................................. 16
      The Cape Light Compact’s Approach to Renewable Energy ......................................................................... 16
      Purchasing Renewables Responsibly .......................................................................................................... 17
   II. CCAs Come in Many Sizes ..................................................................................................................... 19
      Single vs. Multi-Community CCA ................................................................................................................. 19
      CCA and Energy Efficiency .......................................................................................................................... 20
      Consultants and Staffing Costs ...................................................................................................................... 20
   III. The “Choice” in Community Choice Aggregation .................................................................................. 21
      Activist-Led Democracy ............................................................................................................................... 21
      Opposition to CCA ...................................................................................................................................... 22
      Outreach that Educates and Builds Trust ....................................................................................................... 22
      The Decision to Suspend a CCA .................................................................................................................... 23
      Consumer Protection ................................................................................................................................... 23
Discussion ......................................................................................................................................................... 25
   CCA for Local Renewable Energy Development ........................................................................................ 25
   Lessons from Marin Clean Energy ............................................................................................................... 26
   Real-Time Pricing Pilot in Lebanon, New Hampshire .................................................................................... 27
   Community Engagement .............................................................................................................................. 29
   Conclusion ..................................................................................................................................................... 29

References .......................................................................................................................................................... 30
Introduction

Community Choice Aggregation (CCA) is a method of purchasing electricity that gives municipalities more influence over where their supply comes from. In recent years, communities in Massachusetts have begun to recognize CCA as a tool for increasing renewable energy in their electricity supply without raising prices, mostly by purchasing Renewable Energy Certificates (RECs) in New England and nationwide. However, CCA is ultimately about choice — both for municipal leaders and their residents. Using CCA, communities can choose to support local renewable development and give residents more options for purchasing electricity. In harnessing the power of CCAs more effectively, communities can catalyze the transition toward a renewable electricity supply.

The purpose of this report is to provide case studies and communicate an assessment of green CCA in Massachusetts to help guide decision-making at the local and regional level, specifically for members of the New England Municipal Sustainability Network (NEMS Network). Municipal sustainability professionals in this nearly 30-member regional network expressed interest in CCA due to its potential to reduce the emissions that result from electricity generation and to increase the development of renewable energy in the region.

In 1997, when the first CCA law was passed in Massachusetts, it was primarily used as a strategy for communities to acquire electricity at a lower cost than utility basic service. More recently, communities are taking advantage of its potential to increase the renewable energy content in their electricity supply — typically without increasing prices for residents. In addition, CCA programs can be implemented at no upfront cost to the municipality. In states with deregulated electricity markets, aggregation is a powerful tool with which municipalities can simultaneously add renewable energy to their electricity supplies, keep prices stable, and empower residents.

Of the six New England states, only Massachusetts has enacted community-wide CCAs, meaning aggregations that include residential and commercial loads. The other states either lack CCA laws or have passed laws that present significant barriers to implementation. As a result of this limitation, Massachusetts is the focus of this report.

This report provides a condensed overview of CCA in Massachusetts with reference to the national CCA landscape. It examines several municipal aggregation efforts in detail, including the municipalities Cambridge, Somerville, and Melrose, as well as the Cape Light Compact. Information was collected through semi-structured interviews with municipal leaders and industry stakeholders. The Findings section comprises the bulk of this report, and illuminates the main takeaways from the interviews. Based on this analysis, recommendations are provided for communities interested in starting or improving their CCA programs and for states to which CCA can expand. The report ends with a look towards the future, exploring opportunities for further research and technological advancements that have significant potential for CCA.
Acronyms

ACP — Alternative Compliance Payment
CCA — Community Choice Aggregation
CVEC — Cape and Vineyard Electric Cooperative
DER — Distributed Energy Resources
DOER — Department of Energy Resources
IOU — Investor-Owned Utility
kWh — Kilowatt Hour
LEAN — Local Energy Aggregation Network
MAPC — Metropolitan Area Planning Council
MWh — Megawatt Hour
NEMA — Northeast Massachusetts
NEMS Network — New England Municipal Sustainability Network
NERC — North American Electric Reliability Corporation
PPA — Power Purchase Agreement
REAP — Rhode Island Energy Aggregation Program
REC — Renewable Energy Certificate
RFP — Request for Proposal
RPS — Renewable Portfolio Standard
SREC — Solar Renewable Energy Certificate
SRPEDD — Southeastern Regional Planning and Economic Development District
UNHSI — University of New Hampshire Sustainability Institute
Background

Community Choice Aggregation (CCA) is a strategy for purchasing electricity in which a single municipality or county, or group of these entities, combines the electricity demands of participating residents within their jurisdiction. This bulk purchasing power can be harnessed to both decrease costs and to stimulate growth in the renewable electricity market. At its core, CCA gives communities greater control over how they source and price their electricity. It is also called Municipal Electricity Aggregation, Community Electricity Aggregation, Community Choice Energy, Government Energy Aggregation, among several other similar variations. For consistency in this report, the acronym CCA will be used going forward.

Transmission, distribution, billing, and other customer services are maintained by the incumbent utility, while the municipality purchases the power. For this reason, CCA can be thought of as an intermediate hybrid between traditional investor-owned utilities (IOUs) and non-profit municipal utilities (Munis) — systems in which either the IOU or municipality controls all stages of electricity supply and delivery. Below, Figure 1 visually conveys the most basic structural differences between these three systems.

Figure 1. Source: LEAN Energy U.S.

Most successful CCAs are opt-out, meaning residents are automatically enrolled in the program after an affirmative vote at the community level, unless they have selected their own electricity supplier. In Massachusetts, this process can begin after a majority vote of town meeting or town council, or in a city, after a majority vote by the city council and approval by the mayor. Residents are informed about the CCA by mail and other outreach, and given a period of time to opt-out preceding its launch. Afterwards, they are still able to opt-out at no charge whenever they choose.

Opt-out is the preferred method of CCA because it maximizes the number of participants and achieves the market scale that makes aggregation effective. While voluntary, the opt-out approach helps support very high participation rates. The opt-in approach requires residents to enroll themselves in the program following public outreach, and this method typically does not achieve high enough participation rates to be economically viable.

---

In Massachusetts, CCA was written into the Utility Restructuring Act of 1997, which created a competitive electricity market. Traditional electric utilities, such as National Grid and Eversource (formerly NSTAR), were forced to sell their power generation infrastructure, but still act as distribution companies that maintain power lines and provide customer service. Utilities now purchase electricity from competitive electricity suppliers, which deliver 'basic service' to consumers who do not choose their own competitive supplier.

The provision concerning CCA enabled municipal or county governments to aggregate electric demand and, essentially, to negotiate their own contracts with competitive power suppliers. The municipality can establish its goals and desired services in its Request for Proposal (RFP). The Massachusetts Department of Public Utilities lists 115 municipalities with approved aggregation plans, though this has not been updated to include Somerville or Brookline.

Aggregation in New England

As of August 2017, seven states had passed opt-out CCA laws: Massachusetts, Ohio, California, Rhode Island, New Jersey, Illinois, and New York. Because restructuring created the competitive electric supply market, all states with opt-out CCA other than California have a restructured, or deregulated, electricity sector. The remainder of this section looks at forms of aggregation in the New England states outside of Massachusetts, all of which except Vermont are restructured.

Rhode Island enabled CCA as part of the Utility Restructuring Act of 1996, which also allowed residents to choose their own electricity suppliers. The Rhode Island League of Cities and Towns began the Rhode Island Energy Aggregation Program (REAP) in 1999, which negotiates electricity supply for municipal operations in 36 of the state's 39 municipalities. In 2002, the Restructuring Act was amended to allow municipalities to set up "opt-out" programs for residential and business customers, though none have done so due to several procedural obstacles. Efforts are underway in the state to address these barriers, and a new municipal aggregation bill passed the House floor in June 2017, but did not make it to a Senate vote that session. The non-profit People's Power & Light has been leading this endeavor. Its sister organization, Mass Energy Consumers Alliance, provides education and programs for using Class 1 Renewable Energy Certificates to support local energy systems.
renewable energy. Given the possibility of passage, Rhode Island municipalities may want to begin considering how they would implement CCA.

Other New England states have laws that enable only opt-in aggregation, including Connecticut, Maine, and New Hampshire. Because of the low participation rates in communities that have tried opt-in aggregation, this strategy does not generate the same purchasing power that would entice competitive suppliers to offer low prices. Opt-in aggregation is often discounted, and indeed the general discourse surrounding aggregation tends to avoid mentioning these states, as this type of aggregation is not thought to be effective. Also, the aforementioned states have not yet tried to implement CCA programs. It is possible that the latter condition precludes awareness.

In New Hampshire, a law called Aggregation of Electric Customers by Municipalities and Counties passed in 1996 — notably, even before the first CCA law passed in Massachusetts. However, it enables only opt-in aggregation due to Section 53-E:7, which says, "No retail electric customer shall be included in the program unless the customer affirmatively responds to the notification or requests in writing to be included in the program." Clifton Below, City Councilor and Chair of the Lebanon Energy Advisory Committee, is leading efforts to develop an aggregation program in Lebanon, New Hampshire. If the opt-in procedure proves to be too limiting, this section of the law would seem ripe for attempts at amending.

This could also hold true for Maine and Connecticut, should they wish to pursue opt-out aggregation. The Maine Public Utilities Commission issued a report in 2002 recommending that opt-out aggregation not be authorized in Maine due to the uncertainty of cost savings. The report did not acknowledge CCA as a tool for renewable development. Troy Moon, the Sustainability Coordinator for Portland, ME, Moon said he believes several communities in Southern Maine would be interested in CCA for its renewable potential. However, he did not expect the law to change in the near future because no modifications are currently under consideration. In Connecticut, a bill was introduced in 2013 to allow the establishment of a pilot opt-out aggregation program, but it died in chamber. Vermont is unlike the other New England states because it did not restructure or deregulate its electricity sector. Consequently, aggregation may not be worth pursuing in the state. Only California could serve as a model for Vermont, as its deregulation was suspended after the electricity crisis of 2001, and CCA was adapted to fit its unique needs.

---

16 Troy Moon (Sustainability Coordinator for Portland, Maine) in discussion with the author, July 2017.
19 Paul Fenn (author of original CCA bill in MA and founder of Local Power, Inc.) in discussion with the author, July 2017.
Methodology

Massachusetts was selected as the focus of this report because it is the only state in the NEMS Network with a law that facilitates community-wide aggregations. Moreover, it has been extremely successful in doing so, and interest in CCA as a method to increase the renewable content of electricity is growing in the state.

Four CCAs in Massachusetts were selected as case studies: the cities of Cambridge, Somerville, and Melrose, as well as the Cape Light Compact, which serves the 21 communities of Cape Cod and Martha's Vineyard. Since one priority of this report is to evaluate CCA as a tool for increasing green energy in the electricity sector, all were chosen in part for their emphasis on renewable energy. Preference was given to municipalities with aggregations that are part of the New England Municipal Sustainability Network.

Both Cambridge and Somerville are members, and the Cape Light Compact serves Provincetown, MA, which is another municipality in the network. In addition, the Compact was chosen because it is the first and oldest CCA in the nation, and is distinctive in both scope and scale. Melrose was selected because it was among the pioneers of green CCA in 2016 that focused specifically on supporting renewable energy development in New England. It was also of interest because its aggregation has been temporarily discontinued, which positioned Melrose to provide unique insight for other municipalities.

The main source of data collection for this report was interviews with municipal, public agency, industry, and thought leaders involved in electricity aggregation. The intent was to interview key stakeholders from the various sectors that engage with CCAs. Most interviewees were directly involved in the planning or management of the four CCAs identified as case studies. In total, twelve individuals were interviewed. The conversations were then transcribed and analyzed for themes. The names of interviewees have been disclosed only with their explicit consent.

The recommendations in this report are potentially limited due to the focus on Massachusetts, as energy policy differs between states. Attempts were made to acknowledge these discrepancies, as well as to provide information that is useful to the entire region. The fundamental goals of this research were to evaluate CCA as a tool for municipalities to increase renewable energy development, and to determine if it is worth pursuing in other states. In this regard, the particularities of state energy policies were considered in our conclusions.
Case Study Profiles

1. **Name of Case:** The Cape Light Compact  
   **Location:** 21 communities of Cape Cod and Martha's Vineyard  
   **Launch Year:** 1998  
   **Consultant/Broker:** N/A  
   **Supplier:** NextEra Energy  
   **Utility:** Eversource  
   **Website:** [http://www.capelightcompact.org/](http://www.capelightcompact.org/)  
   **Interviewees:** Maggie Downey, Administrator; Austin Brandt, Power Supply Planner

   **Project Description:** The Cape Light Compact was the first CCA to launch in the nation, and now serves roughly 200,000 customers on Cape Cod and Martha’s Vineyard. Unlike other CCAs in Massachusetts, the Compact also administers energy efficiency programs. The Compact has long offered option renewable energy products for a higher premium, but these had low participation rates. In 2016, the Compact board decided to incorporate more renewable energy into its default power supply product, and rolled its residential customers over to NextEra Energy.  

2. **Name of Case:** Cambridge Community Electricity  
   **Location:** Cambridge, MA  
   **Launch Year:** 2017  
   **Consultant/Broker:** Peregrine Energy Group  
   **Supplier:** Agera Energy  
   **Utility:** Eversource  
   **Website:** [http://masspowerchoice.com/cambridge](http://masspowerchoice.com/cambridge)  
   **Interviewees:** Meghan Shaw, Outreach Director, Cambridge Energy Alliance; Paul Gromer, CEO, Peregrine Energy Group

   **Project Description:** The City of Cambridge entered into an 18-month contract — July 2017 to January 2019 — with supplier Agera Energy after a competitive bidding process that took place in spring 2017. Together, consultant Peregrine Energy Group and the City of Cambridge selected Agera Energy due to its ability to provide electricity at a cost no higher than Eversource Basic Service, with a level of renewable energy higher than the RPS. Cambridge decided to focus on supporting solar energy through its aggregation program, and aims to spur solar generation in the city.

3. **Name of Case:** Melrose Community Energy Aggregation  
   **Location:** Melrose, MA  
   **Launch Year:** 2016 (suspended for 2017-2018)  
   **Consultant/Broker:** Good Energy  
   **Supplier:** Constellation

---

21 Maggie Downey (Administrator) and Austin Brandt (Power Supply Planner) in discussion with the author, July 2017.  
22 Meghan Shaw (Outreach Director, Cambridge Energy Alliance) in discussion with the author, July 2017.
Utility: National Grid
Website: https://melrose-cca.com/
Interviewees: Martha Grover, Energy Efficiency Manager, City of Melrose; Philip Carr, New England Regional Director, Good Energy; Patrick Roche, Energy Coordinator, Metropolitan Area Planning Council (MAPC)

Project Description: Melrose worked with the Metropolitan Area Planning Council (MAPC), a regional planning agency, to develop an aggregation program that supports renewable energy projects in New England through Massachusetts Class 1 Renewable Energy Certificates (RECs). Together, Melrose and MAPC selected Good Energy as a consultant, or energy broker, for the program. Good Energy manages aggregation programs in five states, but this was the first for which it developed a program with this emphasis on regional renewable energy. The first year of the aggregation was a success, saving the city $200,000 and purchasing RECs that translate to an additional 2,900 megawatt hours of renewable energy. Due to increased capacity costs in the region, the CCA has been temporarily suspended, but plans to pick back up in the future.

4. Name of Case: Somerville Community Choice Electricity Aggregation
Location: Somerville, MA
Launch Year: 2017
Consultant/Broker: Good Energy
Supplier: Dynegy
Utility: Eversource
Website: https://somervillecca.com/
Interviewees: Oliver Sellers-Garcia, Director, Office of Sustainability and Environment; Philip Carr, New England Regional Director, Good Energy; Patrick Roche, Energy Coordinator, Metropolitan Area Planning Council (MAPC)

Project Description: Following Melrose’s lead, the City of Somerville joined MAPC’s Community Electricity Aggregation PLUS program. Somerville worked with MAPC and the Towns of Arlington and Sudbury to select Good Energy as the consultant eligible to work with any MAPC-member community. Somerville’s aggregation program launched in 2017, and also focuses on supporting renewable energy projects in New England while stabilizing rates. Eight communities in total are already enrolled in MAPC’s program: Arlington, Brookline, Gloucester, Hamilton, Millis, Somerville, Sudbury, and Winchester. Bedford, Rockland, and Stoneham have signed up and are developing their plans.

23 Martha Grover (Energy Efficiency Manager for the City of Melrose) in discussion with the author, July 2017.
25 Oliver Sellers-Garcia (Director of the Somerville Office of Sustainability and Environment) in discussion with the author, June 2017.
Findings

I. Using Renewable Energy Certificates (RECs) for CCA

With no indigenous fossil fuels, Massachusetts has added incentive to develop renewable energy that does not require out of state importation. CCA has been recognized as a tool to do this. Most communities in Massachusetts are purchasing Renewable Energy Certificates (RECs) to support renewable electricity without raising prices for residents. This section briefly describes the REC market, comparing Massachusetts Class 1 RECs with less impactful RECs, and then explains why this regional market does not do enough to support renewable development within communities. More localized production is worth striving for.

Across the United States, RECs are certificates of proof that 1 megawatt hour (MWh) of electricity was generated by a qualified renewable energy system. One REC is allocated for each MWh produced, and is typically sold separately from the delivered electricity product. According to the United States EPA, a REC is “a market-based instrument that represents the property rights to the environmental, social and other non-power attributes of renewable electricity generation.”27 The owner of the REC can legally claim to have purchased renewable energy, but it essentially offsets energy usage with renewables generated elsewhere. The sale of a REC acts as a subsidy for the generator. This system is widely accepted as the mechanism for tracking renewable energy generation and use, in part because the physical energy on the grid does not indicate its origin.

In Massachusetts, all electricity is tracked on the New England Power Pool Generation Information System (NEPOOL GIS).28 This includes renewable generation, which is coded and traded as RECs. As of 2017, The Massachusetts Renewable Portfolio Standard (RPS) required all electricity suppliers, including utilities, to source 12% of their electricity from renewable generators by purchasing Class 1 RECs.28 The RPS increases by 1% each year, so left unchanged, it would reach 100% by 2105. Class 1 RECs come from New England sources built after 1997, and are part of a compliance market that ensures more renewables come online to comply with the RPS mandate.29 If suppliers do not meet their obligation to the RPS mandate, they make an Alternative Compliance Payment (ACP), which acts as a price ceiling for RECs and a penalty payment for those who do not purchase enough certificates.28

The Voluntary REC Market

Anything above the RPS mandate is part of the voluntary REC market, and these do not have to be Class 1. Other RECs, such as those from wind farms in Texas, can be as little as 1/100th of the price of Class 1 RECs.29 But they are not necessarily needed for project feasibility, so buying them is not guaranteed to promote new renewable development. Instead, this money goes toward generator profits.

Similarly, RECs from New England projects built before 1997, like old hydropower plants, do not receive Class I designation. These projects have already been financed, and are not included in the state mandate that ensures new projects are built. Some RECs simply increase generator profits, but can still be purchased by entities that wish to advertise their electricity as renewable.

The Mass Energy Consumers Alliance explains these distinctions and why it believes Class 1 RECs are "the only way to make the switch" to renewable electricity. There are communities that promote default services they call 100% green, but rely on buying these cheaper, less regulated RECs from outside of New England. Since “green” is a term that lacks a clear definition, it can be used to suggest environmentally-friendly electricity without directly telling residents where it comes from. Some consider this to be greenwashing. Because is not yet possible to offer 100% Mass Class 1 RECs without increasing the cost of service significantly, there is much debate over how RECs are marketed.

**A Strategy for New England Renewables**

Martha Grover, Energy Efficiency Manager for the City of Melrose, was among the pioneers of a new CCA strategy designed to promote new renewable development in the New England region. Working with the Metropolitan Area Planning Council (MAPC) and consultant Good Energy, Melrose launched an aggregation in 2016 that included 5% more Class 1 RECs in its default service than the state mandated. Good Energy was selected because of its interest in the renewable energy component of the plan. It put out supply request bids to suppliers in the area and helped Melrose analyze rates.

![Figure 2. Source: Mass Energy Consumers Alliance](http://blog.massenergy.org/blog/municipal-aggregation-an-opportunity-for-local-renewable-energy)
Above, Figure 2 demonstrates how this model works. The majority of residents are enrolled by default into the program and receive a product with 5% additional Class 1 RECs. A small percentage will opt in to the premium option with 100% Class 1 RECs, while another small percentage will opt for the cheaper option offered by the city with the minimum RECs required by the state. Others who opt out will choose utility basic service or a different competitive supplier. Still, others who had already contracted with competitive suppliers will not be enrolled in the program, but are welcome to join the after their preexisting contracts end.

Generally, CCAs with increased renewable energy content provide modest savings to residents. In its first year of operation, the CCA saved Melrose households an average of $23 per household, or $200,000 city-wide. Also, 99% of 8,577 households in the program stayed with Melrose Local Green, the default option with 5% more Class 1 RECs. Participants could also choose Melrose Premium Green, a more expensive plan that consisted of 100% Class 1 RECs, or Melrose Basic, which was cheaper but included only the minimum RECs required by the state. The RECs purchased translate to an additional 2,900 MWh of renewable energy, or the equivalent power of a new one-megawatt turbine.

Figure 3, below, compares the electricity rates of the aggregation with National Grid basic service. While the latter fluctuated significantly between winter and summer months, the aggregation rates remained stable throughout the service period, and the default service provided overall savings.

![Table: Melrose Aggregation Rates](image)

<table>
<thead>
<tr>
<th>Plan</th>
<th>Option</th>
<th>Class 1 RECs</th>
<th>Rate (kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melrose Local Green</td>
<td>Default</td>
<td>16%</td>
<td>$0.096/kWh</td>
</tr>
<tr>
<td>Melrose Premium Local Green</td>
<td>Opt-In</td>
<td>100%</td>
<td>$0.132/kWh</td>
</tr>
<tr>
<td>Melrose Basic</td>
<td>Opt-out</td>
<td>11%</td>
<td>$0.094/kWh</td>
</tr>
<tr>
<td>National Grid Basic Service</td>
<td></td>
<td>11%</td>
<td>$0.130 at time of aggregation</td>
</tr>
</tbody>
</table>

Figure 3. Source: MAPC "Greening Our Grid"

The Need for Localized Renewable Development

Even though Melrose purchased 2,900 MWh of additional renewable energy, this is not the same as actually building a new turbine in or around the city. The power that Melrose purchased already existed. Ideally, the money used to buy RECs would instead be directed to support local renewable development — like wind turbines or solar panels — within the community. According to Patrick Roche, Energy Coordinator for MAPC, there is interest in leveraging the power of CCA to actually construct more renewable projects locally. But unlike in California, where CCAs act as "mini utilities" with the ability to engage in long-term contracts or Power Purchase Agreements (PPAs) with new projects, Massachusetts CCAs enter short-term contracts with competitive energy suppliers. Due in part to legislative barriers, MAPC and Melrose decided to move forward with the REC system. And since Melrose's success, many other communities have worked with MAPC and Good Energy to implement this strategy, including Somerville.

This is not to say that localization is not possible, even under current law. Indeed, a new bill has been introduced in Massachusetts that is specifically designed to enable municipalities, following a democratic process similar to aggregation, to engage in long-term contracts with renewable energy developers. An excerpt from the Act for Community Empowerment is below:

"(2) A municipality may, on behalf of the electricity customers within the municipality, enter into a community empowerment contract with a company that proposes to construct a renewable energy project. A municipality may enter into more than one (1) community empowerment contract and may enter into new contracts at any time."

As of August 2017, it had been referred to the Joint Committee on Telecommunications, Utilities, and Energy. More information on the bill and its supporters is provided on the Community Empowerment website developed by the non-profit Vineyard Power Cooperative.

Cambridge's Journey to Solar Renewable Energy Certificates (SRECs)

The City of Cambridge also wanted to harness the power of CCA to construct local projects, and launched the Cambridge Community Electricity program in 2017. In its inaugural year, identifying local projects to support through its purchases may be difficult, and will be an ongoing process. Currently, the CCA’s default electric plan provides 25% more solar energy than what the state requires — but this does not mean 25% more renewable energy in total. The Solar Carveout in the Massachusetts RPS is 2.8626% for 2017, and Cambridge is buying 25% more than that number, which brings the total to 3.5785%. It has been difficult for Megan Shaw, the Outreach Director for the Cambridge Energy Alliance, to explain to residents that the city is not purchasing an overall 25% more renewable energy. Due to the emphasis on solar, the actual number is much smaller.

Cambridge has strong motives for prioritizing local solar energy. Solar Renewable Energy Certificates (SRECs), are significantly more expensive than other types of RECs, like wind and hydropower. But given Cambridge's space constraints and strong desire to use aggregation to fund new, local solar projects in and around the city limits, solar was the logical choice. Shaw said, “We

34 Marlana Patton (Director of Communications, Peregrine Energy Group) e-mail message to author, July 2017.
also chose to prioritize SRECs because solar is one of the only renewable energy systems that...is really viable in the city.”

**Meeting Additionality with RECs**

The decision to meet Cambridge's additionality goals through SRECs was not a simple or fast one. The city wanted money spent on renewable energy to be additionality-causing, which to Shaw means "but for our investment in renewable energy, it wouldn't have happened.” Shaw explained that the REC market, in Cambridge's opinion, doesn't meet the additionality clause because RECs are typically purchased from existing projects. The idea is that increasing the demand for RECs spurs new renewable growth, and if the RECs are purchased from New England, this will stimulate the regional market.

But this means that communities are unlikely to ever see the projects its purchased RECs are supporting, which perpetuates the disconnect between residents and their electricity. The City considered collecting money in a fund, through a small kWh charge incurred by residents but paid by the supplier, to support brand new renewable energy projects in Cambridge. Unfortunately, its law department felt that violated the Massachusetts Anti-Aid Amendment, which limits how public funds can be spent.

The City settled on purchasing SRECs, and in future years, plans to identify local projects that do not yet have financing and support them through SREC purchases. The city believes it can creatively use the REC system to stimulate solar growth in certain sectors in Cambridge — like multi-family buildings, which can have a harder time installing solar panels due to the larger number of decision-makers involved. Cambridge benefits from having staff at the Cambridge Energy Alliance dedicated to creating these strategies, which certainly not all communities do.

**The Cape Light Compact’s Approach to Renewable Energy**

The Cape Light Compact is the first and oldest CCA in the nation, serving the 21 communities of Cape Cod and Martha’s Vineyard. It launched in 1998 — the year after the Utility Restructuring Act of 1997 passed in Massachusetts — and is the only aggregation in the state to administer energy efficiency services in addition to power supply. In fact, energy efficiency is a larger part of its operations monetarily. The Cape Light Compact decided in 2016 to incorporate more renewable energy into its default power supply product. It previously had offered two optional products with 50% and 100% renewable energy, but these yielded low participation rates. To launch its new program, the Compact rolled residential customers over to supplier NextEra Energy Services.

The Compact and NextEra have devised their own unique strategy for renewable energy procurement. NextEra procures 1% additional Class 1 RECs above what is required by the state, which it purchases from a local landfill gas facility and small solar projects installed by a local electric cooperative. It also procures EarthEra™ RECs, from projects NextEra owns across the country, equal to 100% of Compact customers’ energy usage.

---

35 Paul Gromer (CEO and Founder of the Peregrine Group) in discussion with the author, July 2017.
36 Austin Brandt (Power Supply Planner for the Cape Light Compact) in discussion with the author, July 2017.
The premium paid for these voluntary RECs goes into the EarthEra Renewable Energy Trust, a third-party administered trust, that funds future renewable projects built by NextEra. The company agreed to make commercially reasonable efforts to build projects in the Northeast, and are reimbursed by the trust only after submitting documentation that shows all funds were spent building the renewable energy project. In addition, NextEra will divert supplier and retail fees into the trust, which is more than the premium paid by customers for voluntary RECs, for a total of up to $6 million over two years to be invested in renewable energy projects.

Collecting money in a trust and using it to fund future projects is a noteworthy approach to renewable development. It is evident that the Compact took care in making sure that its REC purchases would support new projects. Regrettably, when Cambridge pitched the idea of a renewable energy fund of its own, its law department did not allow it.

But the Compact, which benefits from its age and unique structure, also has other programs dedicated to supporting local renewable energy. Its Low-Income Solar Revolving Grant Program covers 100% of the equipment and installation cost of solar photovoltaic systems on eligible affordable housing properties. The program is funded by a grant from the Massachusetts Clean Energy Center and revenue from former Cape Light Compact Green37 power supply customers37.

Once the system is installed, homeowners will benefit from the zero-cost electricity it produces, and the Compact will get to sell its RECs. By making panels accessible to those who could otherwise not afford them, this initiative can help provide long-term financial relief to people most strained by their energy bills. Proceeds from the REC sales will be reinvested into the Revolving Grant Fund for future photovoltaic systems38.

The Compact also supports the Cape and Vineyard Electric Cooperative (CVEC), whose members include nearly all towns in the region. The Compact invested $3.4 million over a seven-year period in the cooperative, aiding in the installation of 28 megawatts of local solar facilitates39.

**Purchasing Renewables Responsibly**

The key is to be as thoughtful as possible in deciding how you invest in renewable energy. Put simply, not all RECs are equal. If a community claims to buy 100% renewable energy, but this energy is in fact produced somewhere else in the country, this can mislead residents into thinking that the power that keeps their lights on comes from wind turbines or solar power. Moreover, 100% gives the illusion that the most ambitious goal has been attained. This may in turn foster complacency among residents. What impetus is there to strive for more renewable energy in your community if you are told that your electricity is already fully renewable?

Of course, the structure of our electric grid makes it impossible to dictate that power will come from one source rather than another, unless the energy is generated on-site. It can be purchased from a renewable source, but that electricity still enters a pool that flows through a shared grid. Paul Gromer, CEO of the Peregrine Energy Group, explains with a simple analogy36:

---


“Electricity is sort of like a reservoir. And the power plants are like the streams that are putting water in the reservoir. And you as a customer, you might want water from that stream over there, which is really clean, rather than that stream over there, which is dirty. But you can't ever *track* the drops of water in here that come out of your faucet to that stream or that. So the system divides it up, and so...the streams are all selling water — the kilowatt hours — and they're selling where that water came from, and they're selling it separately. So you can buy the where it came from — that's your REC — and then you're still getting the water out of the faucet.”

The goal must then be to depollute all reservoirs. Buying RECs from afar does not necessarily promote renewable energy at home. A community touting 100% renewable energy suggests a fully clean reservoir, while a community advertising 17% renewable energy through Massachusetts Class 1 RECs, like Somerville, more accurately conveys the magnitude of work that needs to be done locally. Moreover, buying Class 1 RECs is a much-needed investment in the regional market for renewable energy. But there is still more that can be done to support local renewable development.

The REC platform, much like cap-and-trade, is based on a complex system of transactions that create demand in the market. Additional steps should be taken to ensure that revenue supports new renewable energy projects, and does more than increase profits for existing project owners. It is critical to scrutinize the impact of purchasing RECs from wholesale suppliers, rather than accepting this exchange as the status quo. Communities can instead envision ways to use CCA to invest in renewables at home, thereby localizing the economic and public health benefits of clean energy. The Discussion section of this report will address the concept of localized renewables in more detail.
II. CCAs Come in Many Sizes

CCA has been colloquially called the "Costco approach" because it uses bulk purchasing power and economies of scale to reduce rates. One might then logically conclude that bigger aggregation programs are better, or at least receive cheaper rates. Paul Gromer, CEO of the Peregrine Energy Group, says this isn’t necessarily true. Peregrine serves as the consultant for 16 aggregation programs in Massachusetts, including three NEMS Network communities: Cambridge, Greenfield, and Salem.

Gromer said that in his experience, individual towns have achieved better pricing than a group of towns entering into one contract. A variety of factors impact electricity costs in a given municipality, including their mix between residential and commercial customers, the time of day these customers use electricity, and a "capacity cost" that varies by region. Gromer added depth to the Costco analogy during our conversation to explain why bigger isn't always better:

"If you're one town doing an aggregation, you're already at Costco. Going with your friend doesn't help — you don't get better prices. But if you do go with your friend, and what you do is, you say, 'Okay, we're going to get even better prices, you have your cart I have my cart, we're going to put them together in a big cart and go through the checkout.' That's what happens when a lot of towns get together for aggregation."

He explained that if one person was buying television sets and another was buying paper towels, putting them in the same cart would result in a price that's 50% television sets and 50% paper towels — so one person would have great savings, but the other would pay significantly more than before. A similar phenomenon can happen when towns with differing electricity costs aggregate. Gromer reasoned that it’s important to reach what he calls a "critical mass," or a demand large enough to attract competitive suppliers and consultants. Small communities may therefore gain from banding together, but after the critical mass is reached, expansion won't necessarily help. The important takeaway is that benefits often do not increase proportionately with size.

Single vs. Multi-Community CCA

In addition to price considerations, a single community aggregation can be branded as a town program. Peregrine puts the town logo on all materials that are sent to residents, not the consultant's logo. Other details in the CCA plan can be customized to meet the needs of the specific town, as Gromer expressed, "so it really feels like a town initiative, not something the town bought off the shelf." Cambridge, Somerville, Melrose, and most others in Massachusetts are single community aggregations.

There are two notable exceptions: the 23 communities of the Southeastern Regional Planning and Economic Development District (SRPEDD) and the 21 communities of the Cape Light Compact. SRPEDD is a regional planning agency, whose member towns each have their own aggregation plans but go out to bid as a single buying group, with the help of consultant Good Energy. The Cape Light Compact, which serves 200,000 customers on Cape Cod and Martha's Vineyard, is the first and oldest CCA in the nation. The Compact is structured as an intergovernmental agreement.

---

and its Governing Board includes one representative appointed from each of the 21 towns and two counties. As a result, it has many distinctive traits, which we discussed with Administrator Maggie Downey and Power Supply Planner Austin Brandt.

CCA and Energy Efficiency

A larger aggregation can present unique opportunities. The Utility Restructuring Act of 1997 included language that allows municipalities offering power supply programs to also administer energy efficiency programs. In fact, the Cape Light Compact began with the latter goal in mind. When Barnstable County completed an Energy Management Plan in 1994, it found that the county wanted control over the energy efficiency funds that collected from the charge everyone paid on their electric bill, as opposed to that money going into a utility pool to be used throughout a larger service territory. The Compact launched first as an aggregator in 1998. Its energy efficiency program, which began in 2001, has saved the region more than $485 million.

Downey and Brandt did not think it would be feasible or cost effective for smaller CCAs to manage their own energy efficiency programs. Given the administrative and overhead costs of these programs, they believe cities and towns would have to band together to take advantage of this opportunity. When asked directly about his thoughts on a single versus multi-community approach, Brandt said, "Smaller cities and towns, if they want to implement energy efficiency programs — it makes sense to do it in concert with surrounding towns."

Consultants and Staffing Costs

CCAs that deal solely with power supply have very little costs aside from staff time devoted to the program. It can be an affordable undertaking for communities of all sizes. In Massachusetts, most enlist help from the Peregrine Energy Group, Good Energy, or Colonial Power Group. These companies, called consultants or energy brokers, aid primarily in the procurement of energy supply. They often provide customer services and online resources.

Therefore, if a municipality wants to procure more renewable energy, it is essential to pick a consultant that is willing to work toward that goal. One interviewee said that Colonial Power Group, despite maintaining the most aggregations in Massachusetts, was not receptive to increasing renewable energy in supply.

Consultants are paid by the power supplier a small percentage for each kWh sold, but only after the program begins and residents start purchasing supply. The planning process can last for years without any direct costs to the municipality. The Cape Light Compact, however, does not work with a consultant because it maintains full-time staff members. There is no obligation to hire a consultant, and towns with energy committees or sufficient staff may see value in developing their plans independently.

---

III. The "Choice" in Community Choice Aggregation

The name Community Choice Aggregation begs the questions: who gets to choose how the electricity is sourced? How much influence do community members have during the formation of a CCA? Is aggregation democratic? Responses to these questions are multiple and diverse, and indeed, vary between communities. But first it is useful to consider the motives for passing the law. Paul Fenn, author of the original CCA bill in Massachusetts, says that he created it as a democratic response to the restructuring of the electric industry.

In 2003, the Massachusetts Department of Energy Resources (DOER) published a *Guide to Municipal Electric Aggregation in Massachusetts*. This guide also spoke of the democratic advantages that advocates contend CCA can bring. The excerpt below describes these potential benefits:

"Advocates argue that aggregation fulfills a public interest and/or equity role, ensuring that the benefits of group efficiencies and purchasing power of retail electric competition reach all customers, including low-usage customers. Others point to advantages for municipal aggregators deriving from the attributes of local government – that it is non-profit, nondiscriminatory, subject to ethics and open-bidding laws, and under local consumer control. Municipal officials can identify constituent preferences in an open democratic arena. Further, because participants are geographically concentrated, power procurement costs may be less. The provision of certain advanced metering technologies may also be more efficient given the concentration of customers. Advanced metering may allow consumers a greater choice of rate options and other services. Options that use communications technologies could provide access to lower prices and other services. Lower electricity costs through municipal aggregation may possibly enhance economic development efforts by attracting businesses to the community."

It is important to note the inclusion of equity in this passage. Because CCA encompasses all residents formerly on utility basic service, including renters and low-income residents, everyone who does not opt out can benefit from rate reductions and stability. Even if savings are not great, protection from price volatility can be valuable — especially when compared to winter price spikes. In addition, all residents can contribute to a greener electricity supply just by participating. Other personal actions that reduce emissions, such as installing rooftop solar panels, can be income-restrictive or limited to homeowners.

**Activist-Led Democracy**

When asked about democracy in CCA and how much influence community members have on their development, Fenn said:

"It's one of the main questions about the potential for CCA...the potential power, and the power exercised by many activist groups in forming CCAs is enormous. Most CCAs, certainly in California, are formed because of activists."

He continued to describe the importance of activist groups in CCA formation, citing specific examples in California, where he currently works. But in Massachusetts, too, activists can play a major role. In Cambridge, activist group Mothers Out Front pushed the city to strive for a greener aggregation, and CCA opened the door for the group to actively engage with city officials. Paul Gromer from the Peregrine Energy Group said that the CCA in Lexington, MA was driven wholly
by Sustainable Lexington, a town committee appointed by the Board of Selectmen. The town does not have a sustainability official, proving that this is not a prerequisite to implementing CCA.

**Opposition to CCA**

Meghan Shaw noted that people may not think of CCA as inherently more democratic, and some people express frustration over the government choosing their electricity supplier for them. This is a common sentiment among people opposed to CCA, who feel it is a manifestation of government control.

But in truth, Shaw said, the government is simply adding more choices. CCA gives residents the choice to buy from a supplier that has been well-vetted by the city, but they maintain the option to return to utility basic service or select a competitive supplier independently. Prior to aggregation, the supplier was chosen by the utility — though the average resident is likely unaware of this. In fact, if a resident had individually entered a contract with a competitive supplier, they would not be automatically included in the aggregation.

Also, Martha Grover pointed out that aggregation should appeal to people who value competition and choice. CCA helps secure a better price and product for residents who otherwise weren’t participating in the competitive electricity supply market. It uses economies of scale to leverage the buying power of communities. If a resident still doesn’t like the notion of municipal government serving in this role, he or she can easily opt out of the program.

**Outreach that Educates and Builds Trust**

Awareness and understanding of the electric industry may be one of the strongest public benefits of CCA. Martha Grover has repeatedly cited this as an unexpected but positive outcome of all of the public outreach she conducted for the aggregation program. She told MAPC:

> “One of the biggest benefits of our aggregation program has been the impact of our public education efforts and the increased awareness among residents about where their energy comes from and understanding their electric bills better. Information is empowerment.”

Grover spent months doing outreach in advance of the CCA launch. These methods include 10 information sessions at different venues, a series of newspaper articles, Facebook, cable television, and blog posts. Even the mayor was interviewed about the program. In addition, she sent a postcard out to each household before they received the official letter with the city seal that simplified the information and told residents not to throw out the letter. Because the state requires a lot of complex information to be included in the official letter, it can be confusing for residents, so Grover thought it would be wise to send a simplified postcard in advance.

As a result of this work, residents expressed trust in the city. Grover said she repeatedly heard that residents felt confident in the city’s program, and were happy the government was going to such great lengths to save them a little money. They were appreciative of the education and transparency.

Oliver Sellers-Garcia, Director of the Somerville Office of Sustainability and Environment, strongly recommended involving elected officials in CCA planning. Above just voting for it, he explained that it is valuable for them to know enough to defend it. In Somerville, Mayor Curtatone created a Community Choice Aggregation Taskforce to assess the practice. Sellers-Garcia said this gave the
city more time to be deliberative about their actions and to involve knowledgeable community members. Regarding outreach efforts, Sellers-Garcia has appeared on television, and the city produced CCA brochures in four languages.

The Decision to Suspend a CCA

For 2017, Melrose temporarily paused its CCA program because of something called a "capacity cost," which is a charge that helps guarantee sufficient electricity supply on the hottest and coldest days of the year\(^\text{42}\). The capacity cost is paid to electric generators to help ensure they can provide enough supply to meet peak demand. Many power plants in New England have retired or are on the verge of retirement, and new infrastructure has not kept up. The capacity cost incentivizes new generation and helps keep older, less economically viable plants alive in the meantime\(^\text{43}\).

Melrose is located in the Northeast Massachusetts (NEMA) load zone, where capacity cost is expected to more than double in price for at least the next year. The city’s utility, National Grid, serves other regions in the state and can average its costs together, which offsets the high capacity cost in the NEMA region. As a result, the competitive suppliers that put out bids to Melrose could not offer as low of a rate as National Grid for the upcoming year. Grover explained in a *Wicked Local* article:

"When procuring supply bids for the Melrose CEA Program, bidding suppliers offer rates based on the NEMA load zone Melrose is in. By contrast, National Grid is able to provide an average of supply rates from across the state and can blend the 7 cent/kWh rate in Western Central MA (WCMA), the 9 cent/kWh rate in Southeast MA (SEMA), and the 11 cent/kWh rate in NEMA.\(^\text{45}\)"

Not wanting to raise costs for residents, Grover declined the bids put forth by suppliers and returned CCA customers to National Grid. Once the capacity cost spike is over, all of the pieces are in place for Melrose to pick up its CCA program again. Grover did not want to abuse the trust she had built with city residents through the program by raising prices.

Since most people still do not pay much attention to their electric rates, she felt charging a higher price without their explicit consent would be unethical, even if National Grid’s service supplied only the minimum renewable energy content required by the state. In the meantime, Grover is promoting energy efficiency incentives so residents can continue to reduce emissions and lower their electricity bills — especially in the face of the anticipated high capacity costs.

Consumer Protection

Proactive CCA education also helps protect residents from deceitful suppliers that use aggressive marketing tactics to encourage residents to enter into bad contracts. These suppliers often charge hefty exit fees and increase prices after the first couple of months. The door-to-door marketing of these suppliers was mentioned by both Grover and Shaw as a problem in their cities. All four of the


programs examined in this report include warnings on their website to protect residents from predatory suppliers. The website for the Cambridge Community Choice Electricity program includes the following passage on its home page:\footnote{44 “Welcome!,” Cambridge Community Electricity Program, accessed August 2017, http://www.masspowerchoice.com/cambridge.}:

“If You Receive a Personal Call or a Visit about Your Electricity

That person does not represent the City of Cambridge or the Cambridge Community Electricity Program. The City is not knocking on doors or making individual sales phone calls. The City recently sent a letter to residents and businesses eligible for automatic enrollment with detailed program information.

If you receive a call or a visit from someone who wants to discuss your electricity, here are three things to keep in mind:

- The person you are speaking with is not associated with the City of Cambridge or the Cambridge Community Electricity program.
- You should treat your Eversource account number like you treat your credit card information. Do not give it out unless you want to purchase your electricity from someone else.
- You do have the right to select an electricity supplier of your choice. If you choose to explore this option, please check the terms of the agreement carefully. Things to check for include: minimum bill amounts, contract length requirements, early termination fees, low introductory rates that change after the introductory period ends, and rates that vary.”

Shaw said competitive suppliers took advantage of the attention given to electricity supply leading up to Cambridge’s program launch by marketing their own supply products\footnote{22}. Since some feigned an affiliation with the city, this generated a lot of confusion from residents who had just received an official letter from the city. This in turn led some residents to complain and opt out of the city’s program.
Discussion

CCA is a valuable tool for communities in Massachusetts, and opt-out CCA should be further pursued in states where it does not yet exist — so long as they have restructured electricity sectors. Aggregation in Massachusetts is beginning to support renewable development while keeping rates stable, but there is much room for improvement in the state and larger New England region.

CCA for Local Renewable Energy Development

There is growing interest in Distributed Energy Resources (DER), or local, decentralized power generation in North America. The North American Electric Reliability Corporation (NERC) reports that “Both new and conventional stakeholders are building or planning to build distributed solar photovoltaic systems, energy management systems, micro-grids, demand services, aggregated generation behind the retail meter, and many other types of distributed generation.” DER is more compatible with renewable energy resources and local energy production, and can make for a more resilient electric grid. Moreover, it can greatly reduce electric prices and stimulate local economies.

The power of aggregation should be leveraged to support DER. Local Power, Inc. forcefully makes this argument in its 2016 report, “Community Choice Aggregation 2.0: Strategies for Distributed Energy Resources in CCA Environments.” Paul Fenn is the founder and CEO of Local Power. A sizable excerpt is below, for it succinctly describes the importance of DER and how it can be applied to CCA:

“The next five years will see more change in the energy industry than has occurred in the previous fifty years. As Distributed Energy Resource (DER) technologies and practices become the norm, legacy infrastructure (transmission lines and large fossil fuel burning power plants) built to serve the old centralized energy grid will become dramatically less competitive compared to local DER that is designed and operated to both reduce customer power needs and to reform the community’s aggregate peak power demands— a primary cause of higher rates. The differences in reliability, power quality and local economic development are profound. Most importantly, DER provides long-term rate reduction and reduced price exposure to volatile fossil fuel prices through profound physical load reform, and can bring about greater and deeper and more enduring greenhouse gas reductions than centralized or renewable credit-based approaches to green power.

Community Choice Aggregation (CCA) is uniquely poised to augment this evolution. Unlike municipalization, CCAs do not purchase utility assets such as power plants, fuel supplies, and transmission and transportation infrastructures. CCA is the only policy in the United States which allows a truly comprehensive approach to creating a new energy business model, by allowing an integration of energy demand and supply from an objective financial perspective unencumbered by utility legacy infrastructure considerations.

To date, CCAs have mostly pursued traditional procurement strategies: buying wholesale power and entering into power purchase agreements with large-scale remote renewable power plants, or worse, purchasing unbundled Renewable Energy Credits (RECs) from afar to “green up” their supply portfolios on a year-to-year, “rented” basis. In order to achieve more enduring results, CCAs must achieve horizontal integration of DER, by building virtual power plants composed of new local generation and demand dispatch resources, sited at not just government facilities but residential and commercial customer premises, whether financed by local government revenue bonds, commercial investment/credit, and using shared renewables and targeted efficiency products to open up participation to all customers.”

This model, which Local Power calls CCA 2.0, has guided CCA development in California. As Fenn explained, localization must be included "in the DNA" of aggregation plans, and it is important to set clear goals from the start. The California CCAs of Marin, Sonoma, and Lancaster Counties can be looked to for guidance. New York, whose CCA law passed in 2014, is also working for the CCA 2.0 model.

Local projects have the benefit of giving residents tangible rewards for participating in CCA, and can lead to increased public education and engagement with energy. Through aggregation, communities can be leaders in the DER movement. One of our interviewees suggested that if the state raised the RPS mandate, efforts by municipalities to buy more RECs would not matter. But raising the RPS alone would not induce renewable development directly in and around communities. If localization is the goal, CCA should be used to achieve it.

Lessons from Marin Clean Energy

Marin Clean Energy, or MCE, became the first municipal aggregation in California in May 2010. MCE includes the Counties of Marin and Napa, as well as the Cities of Richmond, Benicia, El Cerrito, San Pablo, Walnut Creek, and Lafayette. From the outset, local installations of renewable energy has been a priority, and MCE and its partners have committed over $1.6 billion to the development of in-state and local renewable energy projects. Its website states that MCE customers have eliminated 185,751 metric tons of greenhouse gas emissions over four years.

MCE also procures RECs, but in 2016, committed to restrict its usage of unbundled RECs to a maximum of 3% of its energy portfolio. Already, MCE has 19 megawatts of local renewable energy projects online, under construction, or nearly under construction. Completed projects include the One Solar Megawatt at Novato Cooley Quarry, Freethy Industrial Park, Cost Plus Plaza Larkspur, Solar Shade Structure at Buck Institute for Research on Aging, San Rafael Airport Solar.

A waste-to-energy project at the Redwood landfill is under construction, as is MCE Solar One, which is expected to be the first MCE-owned project and the Bay Area’s largest publicly owned solar project. Set to come online in the fourth quarter of 2017, this massive project is a 60-acre, 10.5-megawatt solar farm in Richmond, California. More information about this project and others are available on MCE’s website.

---

MCE also has a Feed-In Tariff (FIT) program, which has been used to build several of the projects that MCE now sources electricity from. MCE’s FIT encourages the development of small-scale renewable energy projects within its service area. Using a standardized, 20-year term and fixed price per kWh generated, a FIT can offer projects financial stability by providing the basis more accurate revenue calculations, which can also aid in securing project funding. The 20-year contracts deliver long-term support and remove the need for frequent contract negotiations. The FIT is a policy mechanism to incentivize renewable development that has been very successful in Germany and many other countries globally.

Real-Time Pricing Pilot in Lebanon, New Hampshire

Clifton Below of Lebanon, New Hampshire, City Councilor and Chair of the Lebanon Energy Advisory Committee, is working to begin a CCA program in conjunction with a real-time pricing pilot. As of July 2017, he was given a green light by the Public Utilities Commission to move forward with the aggregation project. He does not seem deterred by the opt-in provision of Section 53-E:7, because he expects to achieve sufficient savings through the real-time pricing venture.

Unlike the fixed price model that CCAs have historically used to protect residents from winter price spikes, Below’s plan requires the development of a new pricing structure that accesses the real-time price of energy. The current system provides a forward fixed rate based on price hedging and predictions for the future. Below explains that real-time pricing is an opportunity for customer savings by eliminating hedging costs and risk premiums associated with fixed rates. It also allows customers to respond to price signals and shift energy usage to times when the price is cheaper — for example, running the dishwasher overnight instead of at a peak price time. Smart-metering and energy storage can make his vision possible.

Real-time pricing helps unlock the temporal value of solar, storage, and flexible demand. Figure 4 illustrates the electric rates in Hanover, New Hampshire during an experimentation with real-time pricing.

50 Clifton Below (City Councilor and Chair of the Lebanon Energy Advisory Committee) in discussion with the author, July 2017.
Compared with the fixed and default rates in neighboring Lebanon, the savings in Hanover were quite substantial. The proposed aggregation would work with the local utility Liberty Utilities to install meters that gives access to real-time pricing data or allow Below and others working on the project to install the meters themselves. In theory, the utility could make the shift to real-time pricing on its own, but Below believes the Lebanon Energy Advisory Committee has more motivation to pursue this innovative idea. Only customers that opt in to the program would receive these lower rates. While traditional CCAs rely on bulk purchasing to decrease rates, Below expects the savings from this pricing model to be substantial enough on their own. He also believes it will attract larger energy consumers like schools and businesses.

Communities should continue to watch the evolution of the real-time pricing and aggregation pilot in Lebanon. Using demand response rates and smart metering, this plan has the potential for significant cost savings. In addition, the pricing method is more compatible with intermittent renewable energy sources like wind and solar, and can be best used in connection with their

---

development. More information is available in Clifton Below’s testimony before the New Hampshire Public Utilities Commission.

Community Engagement

Community engagement is a critical component of CCA. Evidence suggests that public education is a major benefit of outreach programs. Comprehensive outreach programs on all platforms — direct mail, social media, cable television, etc. — can inform and protect consumers from the aggressive marketing tactics of some competitive suppliers. A better understanding of electric bills and electric generation can also produce support for more ambitious renewable energy programs. The case studies illustrate that support from a public figure, like the mayor, promotes trust in the city’s CCA.

More outreach can be done to encourage residents to take advantage of premium, greener options, which do not usually have high rates of participation. These higher rates are affordable for some customers, but seldom taken advantage of. That said, the default price should be kept below utility basic service whenever possible. Where the default service has raised prices, such as in Brookline, MA, there has been blowback. Three interviewees recommended keeping default prices below basic service. Moreover, it is not ethical to raise the prices of such a large body of residents without their explicit consent, as no matter how much outreach is conducted, many will not be aware of the shift. Giving them the option to enroll in a premium program with more renewable energy is a better approach.

In the spirit of democracy, activists and other residents should be invited to participate in the planning process as much as possible. Communication will both establish the priorities of the community in a democratic arena and engender more support for the program.

Moreover, a smaller aggregation would allow municipal leaders to engage more directly with their residents. These can be branded as town programs, A bigger aggregation isn’t necessarily better, and unless the goal is to administer efficiency services like the Cape Light Compact or a town has a very low population, evidence indicates that single-community CCAs are effective.

Conclusion

CCA is a powerful tool for to support renewable energy development, decrease electricity prices, and empower residents with choice. Opportunities for future research include the DER plans in the California CCAs, the benefits of real-time pricing as described in Clifton Below's testimony, the progression of the Community Empowerment bill in Massachusetts, and the feasibility of opt-out amendments to current CCA laws in Maine, Connecticut, and New Hampshire. In Massachusetts, CCA is already working to stimulate renewable energy, but there is untapped potential in the state and larger New England region.


References


Austin Brandt (Power Supply Planner for the Cape Light Compact) in discussion with the author, July 2017.


Clifton Below (City Councilor and Chair of the Lebanon Energy Advisory Committee) in discussion with the author, July 2017.


Maggie Downey (Administrator) and Austin Brandt (Power Supply Planner) in discussion with the author, July 2017.


Marlana Patton (Director of Communications, Peregrine Energy Group) e-mail message to author, July 2017.

Martha Grover (Energy Efficiency Manager for the City of Melrose) in discussion with the author, July 2017.


Meghan Shaw (Outreach Director, Cambridge Energy Alliance) in discussion with the author, July 2017.


Oliver Sellers-Garcia (Director of the Somerville Office of Sustainability and Environment) in discussion with the author, June 2017.

Patrick Roche (Energy Coordinator, Metropolitan Area Planning Council) in discussion with the author, July 2017.

Paul Fenn (author of original CCA bill in MA and founder of Local Power, Inc.) in discussion with the author, July 2017.

Paul Gromer (CEO and Founder of the Peregrine Group) in discussion with the author, July 2017.


“Rhode Island Energy Aggregation Program,” Rhode Island League of Cities and Towns, accessed


Troy Moon (Sustainability Coordinator for Portland, Maine) in discussion with the author, July 2017.

