

A Survey of Municipal Aggregation Performance in Massachusetts

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Executive Summary

This report provides a performance survey of existing municipal aggregations in the state of Massachusetts, with a focus on electricity pricing, contract lengths, and renewable energy content. The purpose of this analysis was to survey the extent to which existing municipal aggregations are meeting stated goals of the aggregation, including electricity price reductions for consumers, electricity price stability, and increased renewable energy content in the electricity supply.

Our analysis included data from all municipal aggregations existing in Massachusetts at the time this survey was conducted. As of March 2018, the state had 136 cities and towns with approved aggregation plans. This number included 116 municipalities with active aggregations, nine pending aggregations, and at least four suspended aggregations. Most towns and cities we surveyed chose to use a market aggregation process – they worked with a commercial energy consultant who aided in the application process and contract negotiation for electricity from competitive suppliers. The Cape Light Compact, the only public aggregation in Massachusetts in 2018, supplied power to 21 towns on Cape Cod and Martha’s Vineyard.

We compared Basic Service fixed rate prices for electricity offered by utilities with prices offered by municipal aggregations for residential, commercial, and industrial customers. We found that statewide, municipal aggregations do on average save residential customers a small amount (less than \$5 per month) compared to National Grid, Eversource, and Unitil Basic Service rates. In addition, municipal aggregations often negotiate price contract periods longer than the 6-month rates offered by the utilities, leading to greater price stability. For residential customers, commercially-administered aggregations averaged price fluctuations on a quarterly basis only 10-20% those of National Grid or Eversource. The public aggregation known as the Cape Light Compact averaged quarterly price fluctuations 80% that of Eversource.

Commercially-administered municipal aggregations also provided some savings to small commercial customers, providing an average rate savings of \$0.00150-\$0.00775 per kWh, depending on the utility. However, the non-profit Cape Light Compact was, on average, more expensive for small commercial customers, costing an average additional \$0.00199 per kWh. Rates available from municipal aggregations were not a good economic choice for large commercial and industrial customers; compared to fixed rates available from the utilities they cost these customers on average \$0.00070 -\$0.00730 per kWh.

Among active municipal aggregations, 33 (28%) municipalities had a “green” program which purchased National RECs to augment the 13% New England Class I RECs required under Massachusetts law. Forty-four towns and cities (38%) had at least one green option which purchased additional Class I RECs from the New England region above the required minimum. For the 21 towns of the Cape Light Compact, an additional 1% Class I RECs was the default option; eight municipalities had a default option which purchased 5% additional Class I RECs, and three municipalities had a default program which purchased 25% additional RECs. There were also communities with optional 20%, 50% or 100% Class I RECs programs.

Municipalities contemplating aggregation purely for economic reasons should weigh whether greater price stability and modest rate savings are worth the significant investment of time and resources necessary on the part of town administrators, elected officials, and volunteers in order to form and administer an aggregation. Aggregation may provide a clearer value to municipalities looking beyond standard electricity programs which meet Massachusetts standards for renewable energy content to programs which include “greener” energy options. We found that the modest savings available through aggregation programs were often sufficient to support additional renewable energy content for residential ratepayers while still providing rates lower than utility



Basic Service offerings. In May 2018, municipal aggregation programs offering 1%, 5%, 20% and 25% additional Class I RECs above the Massachusetts RPS requirements were all providing rates below the Basic Service rates. Of the programs which offered 50% or 100% Class I REC “green-up” options in May 2018, approximately half were offering a lower rate than Basic Service.

1. Background

1.1 Municipal Aggregation in Massachusetts

Municipal aggregation, also referred to as *community choice aggregation (CCA)*, is a process via which towns and cities purchase electricity supply in bulk on behalf of residential and business customers within the municipality. Customers utilizing the Basic Service electricity supply option provided by the local utility at the time of aggregation are typically enrolled in the aggregation program automatically, but all customers have the opportunity to opt out of the program, either continuing with the Basic Service electricity supply option or choosing a competitive electricity supplier. Electricity transmission and distribution services and billing continue to be handled by the utility company or companies operating in the municipality. Municipal aggregation is an option available to all Massachusetts towns and cities that are not served by a municipal power plant providing electricity, under M.G.L. c. 164 § 134.

Mass Energy reported in March 2018 that approximately 145 towns and cities in Massachusetts either have approved aggregations or are in the process of developing aggregation plans. As of March 2018, MA DOER listed 136 municipalities with approved aggregation plans. This number included 116 municipalities with active aggregations, nine pending aggregations, and at least four suspended aggregations. Three of the four towns identified as having suspended aggregations were in the Northeast Massachusetts (NEMA) load zone; according to their aggregation websites; these towns suspended activity due to high capacity costs. The towns temporarily reverted customers to the utility Basic Service rate.

1.2 The Aggregation Process

The process of creating a municipal aggregation is outlined in the Massachusetts Department of Energy Resources (MA DOER) [Guide to Municipal Aggregation](#). In order to form an aggregation, municipalities must vote to initiate the aggregation process, prepare an aggregation plan, allow the opportunity for citizen review, and submit the plan to the Department of Public Utilities (DPU) for review and approval. Most towns and cities choose to use a “market aggregation” process – they work with a commercial energy consultant who aids in the application process and contract negotiation for electricity purchase from competitive suppliers. The commercial energy broker charges a consultant fee, typically about 1 mill (\$0.001) per kWh, for its services. This fee is incorporated into the published electricity supply price available to the customer.

As of May 2018, three energy brokers provided the large majority of commercial energy consulting services to municipal aggregations in Massachusetts: Good Energy, Peregrine Consulting, and Colonial Power Group administered aggregation programs for 94 municipalities with active aggregations in the state. One active aggregation was served by Dynegy, and one pending aggregation was set to be administered by Gridsmart Energy.

As an alternative to market aggregation, municipalities can also form what is known as a “public aggregation.” The Cape Light Compact is a non-profit organization which aggregates electricity for 21 towns on Cape Cod and Martha’s Vineyard. As a public aggregation, the Cape Light Compact is able to access funds derived from the energy efficiency system benefit charge paid by all ratepayers. Revenue from this charge typically flows through the utilities to the MassSAVE program, which carries out energy efficiency programs throughout the state. The

Cape Light Compact has a plan approved by DPU which allows it to use these funds for local energy efficiency projects.

1.3 Goals of Municipal Aggregation

The traditional focus of municipal aggregation has been on obtaining electricity price reductions and electricity price stability for customers through bulk purchasing. However, some aggregations also have been developed out of an interest in encouraging local energy efficiency projects and increasing the renewable energy content of the electricity supply. Municipal aggregations can take advantage of the fact that aggregation electricity rates are often lower than Basic Service rates offered by utilities, and procure additional renewable energy content from suppliers while still offering electricity customers price savings relative to the Basic Service rate. In California, some public municipal aggregations are beginning to be used as a means of procuring additional local renewable energy content, and promoting development of local renewable energy projects. In Massachusetts, the only operating public aggregation in 2018 was the Cape Light Compact; this entity focused its efforts on local energy efficiency projects rather than renewable energy development. [Western Mass Community Choice Energy \(WMAcce\)](#) is a community group exploring the opportunity for the towns of Amherst, Northampton, and Pelham to form a public municipal aggregation focused on supporting the local green economy with targeted energy efficiency and renewable energy projects.

1.4 Objectives of This Analysis

The purpose of this analysis was two-fold to survey the extent to which existing municipal aggregations are meeting stated goals of the aggregation, including electricity price reductions for consumers, electricity price stability, and increased renewable energy content in the electricity supply.

2. Methodology

2.1 Utility and Municipal Aggregation Rates

The large majority of electricity transmission and delivery in Massachusetts is overseen by the two major utilities operating in the state, Eversource and National Grid. Both entities operate in all three load zones in the state, Northeastern Massachusetts (NEMA), Southeastern Massachusetts (SEMA), and Western/Central Massachusetts (WCMA) (Figure 1). In addition, Unitil (Fitchburg Gas & Electric) provides electricity to a relatively small number of towns in north-central Massachusetts. In their respective service territories, these electric utility companies offer a Basic Service rate for electricity, which is the default for customers who do not opt to purchase electricity from a commercial supplier.



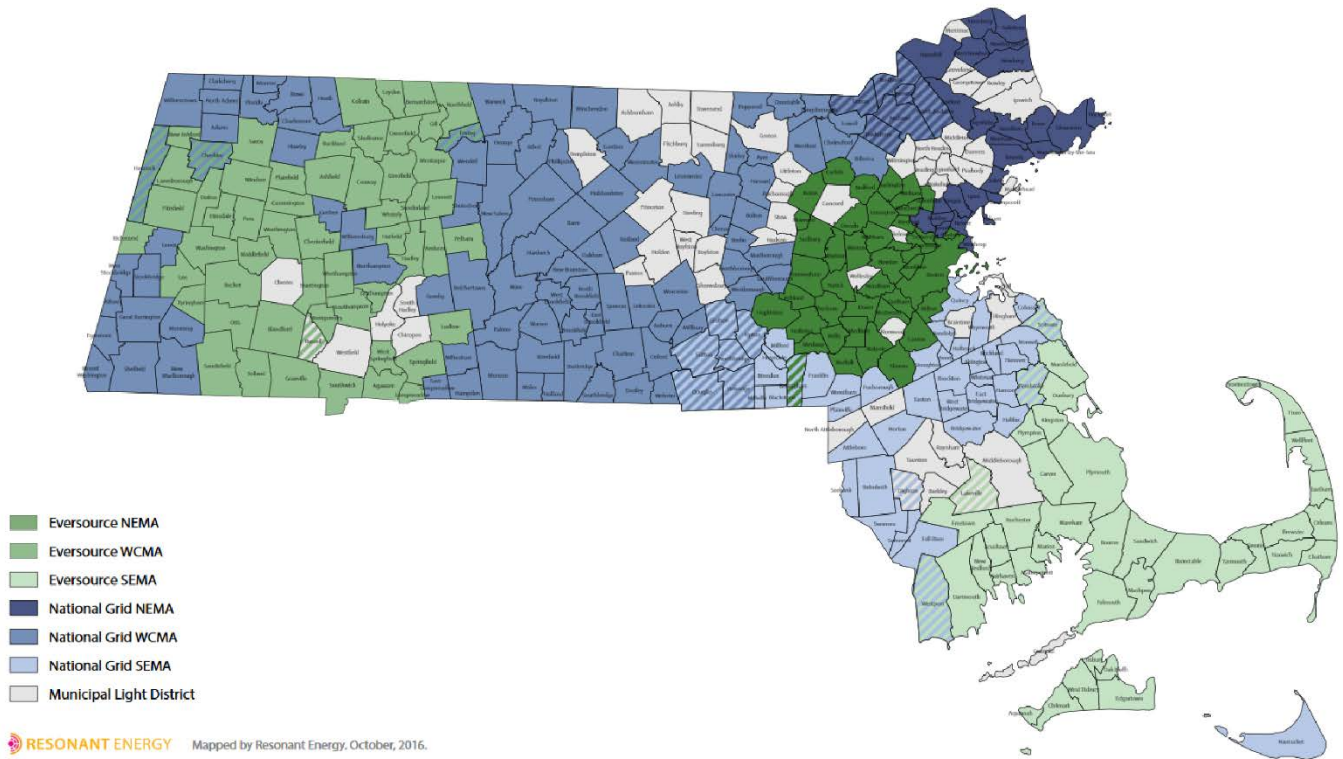


Figure 1: Massachusetts electric utility load zones (credit: Resonant Energy)

All three utilities offer both fixed and variable Basic Service pricing options. Variable pricing rates change monthly. Fixed pricing rates typically change every 6 months for residential and small commercial customers served by Eversource, National Grid, and Unitil. Eversource and National Grid also offer fixed pricing options for large commercial and industrial customers, which typically change every 3 months. Unitil offers a fixed pricing option, which changes every 6 months for medium-size commercial and industrial customers, but no fixed price for large commercial and industrial customers. Because municipal aggregations typically provide electricity at a fixed rate, we compared municipal aggregation rates with Basic Service fixed rates. It is important to note that while most residential customers utilize fixed rates, large commercial and industrial customers may opt for variable rates, and analysis of fixed rates may be less relevant in understanding electricity supply decision-making by these customers.

We obtained data on current utility Basic Service fixed rates from utility websites, and [historic Basic Service rate data](#) from MA DOER.

For the purposes of comparison, we selected the default rate available in each rate class from municipal aggregations, regardless of the renewable energy content of that option. Current municipal aggregation rates and contract lengths were obtained by following town links on the [MA DOER Municipal Aggregation website](#) to the respective municipal aggregation pages maintained by municipalities or their commercial energy consultants. Historic rates were often available on these sites; we also obtained historic rates from [annual aggregation reports](#) filed with DPU and available from MA DOER. For towns in the Cape Light Compact, we also obtained historic rates from [Annual Reports to Communities](#), available on their website. For recently formed aggregations, we were able to obtain data for all rate periods the aggregation was active, through May 2018. For the Cape Light Compact, we

compiled data back to 2013, with a brief gap in coverage for part of 2017, since the 2018 report indicating the previous year's rates was not yet available.

For towns within National Grid territory, we split rate data by 3-month period to accommodate quarterly changes in large commercial and industrial Basic Service rates. For Eversource, we also split data by 3-month period to accommodate quarterly changes in large commercial and industrial customer rates. In addition, we separated the January rate period, since customers were charged a different rate for electricity in January 2018 than in February and March of that year. It is not clear from the utility website if this pattern will continue in future years. For towns in Unitol territory, we split rate data by 6-month period. Municipal aggregation contract periods did not always perfectly overlap utility rate periods, in some cases they started one month prior or one month after utility rate periods. In these situations, we compared the 3-month utility rate with the municipal aggregation rate that overlapped with two of the three months. In the case of Unitol, the municipal aggregation rates used overlapped with five of the six months the Unitol rate was in effect.

National Grid charges a consistent residential and small commercial and industrial rate across the state, but Basic Service rates differ for commercial and industrial customers in the three load zones (NEMA, SEMA, WCMA). We incorporated these differences in our data analysis, but excluded from analysis large commercial and industrial rate comparisons for municipalities which were served by two load zones. Eversource charges different residential and small industrial and commercial rates between eastern and western/central Massachusetts (NEMA and SEMA versus WCMA), and charges a different large commercial and industrial rate in each load zone (NEMA, SEMA, WCMA). We included these differences in our analysis. It did not appear that there were any towns with overlapping load zones served by Eversource. There were several towns served by both Eversource and National Grid. We included each of these towns separately in the Eversource and National Grid analyses.

Most municipal aggregation rates were the same across all classes of ratepayer – that is, residential, commercial, and industrial customers were all charged the same fixed rate. The towns in the Cape Light Compact were an exception to this tendency, as were several other towns (e.g., Greenfield). If current municipal aggregation rates were the same across all ratepayer classes in May 2018, we assumed the same was true in previous contract periods.

In order to compare rates between municipal aggregations and utilities, we averaged rate differences in two ways for each rate class. First, we took a raw average, counting each 3-month period in a municipality as a separate unit (“town-quarter”) and averaging the difference between the municipal aggregation and the Basic Service rates across all units, by utility. Second, we averaged by rate period. We took the average differences for all municipalities within each 3-month period, and then averaged across all rate periods, by utility. In order to compare price stability for residential customers between municipal aggregations and Basic Service rates, we calculated the absolute value of rate change between each subsequent 3-month pair of rate periods, and compared the average changes in rate for utilities and aggregations.

2.2 Green-Up Programs and Municipal Information

We compiled municipal aggregation start dates based on text included on aggregation program websites, or the first available municipal aggregation rate data we could find. We obtained current contract length information from the aggregation program websites. We obtained information on current program option offerings and renewable energy content of aggregation program options from municipal aggregation websites, and the Cape Light Compact Annual Report to Communities. We did not attempt to assess alternatives to the default option for all years, but inventoried both standard program options which met minimum Massachusetts Renewable



Portfolio Standards and options which included additional green energy content through the purchase of National RECs or New England RECs which met Massachusetts Class I standards.

2.3 Other Municipal Data

We obtained aggregate electricity consumption data for residential, commercial and industrial customers in Massachusetts municipalities from [MassSAVE](#). We obtained population size data for municipalities from the U.S. Census Bureau via the [UMass Donahue Institute](#).

3. Analysis

3.1 Price Savings

We found that municipal aggregations do, on average, save residential electricity customers at least a nominal sum. Looking across 3-month utility rate periods by municipality (town-quarter), municipal aggregations administered by a commercial energy consultant beat the utility rate 65% of the time for National Grid customers, 75% of the time for Eversource customers, and 100% of the time for Unitil customers (**Table 1**). The Cape Light Compact rate was lower than the utility rate 55% of the time between 2013 and the present. The average Massachusetts household, with an electricity consumption of 600 kWh/month, would save an average of \$4.66/month in National Grid territory through a commercially-administered municipal aggregation, \$4.16/month in Eversource territory, and \$3.79/month in Unitil territory, based on raw averages (**Table 1**). Through the Cape Light Compact, the average household would save \$0.36/month, averaging across all rate periods since 2013.

Average price savings differed by load zone, with residential customers in the west (WCMA) saving less under a commercially-administered municipal aggregation than in the east (NEMA, SEMA). National Grid customers saved only \$3.37 per month on average in WCMA, and Eversource customers in the WCMA load zone lost \$2.14 per month through aggregation, compared to Basic Service.

Table 1: Average rate differences between CCA rates and utility Basic Service fixed rates for residential customers. *N* indicates the sample size; unit of comparison is a town-quarter – a 3-month rate period in one municipality. Average household savings is based on an electricity consumption of 600 kWh/month.

	Lower than Utility (%)	Raw Average		Averaged by Rate Period	
		Average Rate Difference (\$/kWh)	Average Household Savings/Loss (\$/month)	Average Rate Difference (\$/kWh)	Average Household Savings/Loss (\$/month)
Brokered CCAs vs. National Grid (<i>N</i> =426)	65%	0.00776	\$4.66	0.00700	\$4.20
Brokered CCAs vs. Eversource (<i>N</i> =212)	75%	0.00693	\$4.16	0.00438	\$2.36
Cape Light Compact vs. Eversource (<i>N</i> =462)	55%	0.00060	\$0.36	0.00060	\$0.36
Brokered CCAs vs. Unitil (<i>N</i> =6)	100%	0.00631	\$3.79	0.00631	\$3.79
Brokered CCAs vs. National Grid (WCMA) (<i>N</i> =213)	64%	0.00561	\$3.37	0.00457	\$2.74
Brokered CCAs vs. Eversource (WCMA) (<i>N</i> =53)	50%	(0.00357)	(\$2.14)	(0.00734)	(\$4.40)

Comparisons of commercial rates across the state provided a more mixed picture, as shown in **Table 2** below. The rates available for small commercial customers through municipal aggregations in National Grid territory were lower than the utility Basic Service rate only 44% of the time, although, on average aggregations still saved these customers money (\$0.00150/kWh). For Eversource customers, small commercial rates were lower 78% of the time under commercially-administered municipal aggregations, and 23% of the time under the Cape Light Compact. Municipal aggregation rates were always lower than Unitil Basic Service rates in its service territory. For large commercial and industrial customers, commercially-administered municipal aggregations provided lower rates only 30% of the time in National Grid territory and 49% of the time in Eversource territory. The Cape



Light Compact rate for this class of customers beat the Eversource Basic Service rate 36% of the time. Unitil offers no fixed rate for large commercial customers; its medium commercial rate was only undercut by the municipal aggregation rate 17% of the time.

Table 2: Average rate differences between CCA rates and utility Basic Service fixed rates for commercial and industrial customers. *N* indicates the sample size; unit of comparison is a town-quarter – a 3-month rate period in one municipality.

	Small Commercial		
	CCA Rate Lower than Utility (%)	Rate Difference - Raw Average (\$/kWh)	Rate Difference - Average by Rate Period (\$/kWh)
Brokered CCAs vs. National Grid (<i>N</i> =426)	44%	0.00150	0.00107
Brokered CCAs vs. Eversource (<i>N</i> =212)	78%	0.00774	0.00439
Cape Light Compact vs. Eversource (<i>N</i> =462)	23%	(0.00199)	(0.00199)
Brokered CCAs vs. Unitil (<i>N</i> =6)	100%	0.00631	0.00631
	Large Commercial and Industrial		
	CCA Rate Lower than Utility (%)	Rate Difference - Raw Average (\$/kWh)	Average by Rate Period (\$/kWh)
Brokered CCAs vs. National Grid (<i>N</i> =368)	30%	(0.00730)	(0.00892)
Brokered CCAs vs. Eversource (<i>N</i> =212)	49%	(0.00070)	(0.00566)
Cape Light Compact vs. Eversource (<i>N</i> =441)	36%	(0.00257)	(0.00257)
Brokered CCAs vs. Unitil (<i>N</i> =6)	17%	(0.00589)	(0.00589)

3.2 Price Stability

While not all municipal aggregations provide electricity price contracts longer than the 6-month residential rate offered by utilities, the majority do. A survey of current contract lengths found that the residential rate period in May 2018 was 6-months in 35 towns, including the 21 towns of the Cape Light Compact. Thirteen towns had a 1-year contract, 11 had 18-month contracts, 13 had 2-year contracts, and 44 were in the midst of 3-year contracts. Under most municipal aggregations, commercial and industrial rate contract lengths were the same as for residential customers, although the Cape Light Compact had an industrial rate which changed quarterly.

Overall, longer contract periods did appear to provide residential customers with greater price stability. In National Grid territory, the average quarterly change in price was \$0.01160 with Basic Service, but only \$0.00108 for municipal aggregations. In Eversource territory, the average quarterly change in price was \$0.01385, but only \$0.00261 with a commercially-administered municipal aggregation. While the Cape Light Compact typically had 6-month residential rate periods comparable to the local utility, rate changes were still about 20% lower averaged over a quarterly basis - \$0.01006 for Eversource between 2013 and the present, compared to \$0.00811 for the Cape Light Compact.

3.3 Renewable Energy Supply & Green-Up Programs

Aggregations providing electricity in Massachusetts are required to contract for an electricity supply that meets minimum Massachusetts Renewable Portfolio Standards. Among other requirements, power purchased must include a specified amount of Class I RECs. For 2018, the minimum requirement was 13% Class I RECs, and this

percentage currently increases by 1% per year. Of 116 municipalities with active aggregations, 41 (35%) as of May 2018 had a single option in each ratepayer class, which met minimum standards but did not include additional green energy content (Table 3). The remaining 75 towns had some type of green-up program, which could take a variety of forms. Thirty-three towns and cities (28%) had a green-up program that met minimum standards for New England Class I RECs, but purchased National RECs, equivalent to 100% renewable energy content, most often from wind energy facilities located outside the region. In 29 of these towns, this National REC program was the default option under the aggregation. In the remaining four, the National REC green-up program cost an additional \$0.00048-0.00067 per kWh. These programs likely do not contribute substantially to the build-out of additional renewable energy content within the New England electricity grid.

Forty-four towns and cities (38%), including two with a National REC green program option, had at least one green-up option which purchased additional Class I RECs from the New England region above the required minimum for Massachusetts. The 21 towns of the Cape Light Compact had a relatively new (beginning 2017) green-up program which purchased 1% additional Class I RECs above MA standards, and purchased additional National RECs to meet 100% of electricity consumption for the aggregation. This was the default and only option available through the Cape Light aggregation in May 2018, although standard, 50% Class I REC, and 100% Class I REC options were available in earlier years. Outside of the Cape Light Compact, eight towns had a default green-up program which purchased 5% additional Class I RECs, and three towns had a default program which purchased 25% additional Class I RECs. One town had an optional 20% more Class I RECs program, two towns had an optional 50% Class I RECs option, and 11 had an optional 100% Class I RECs option.

Table 3: Current (May 2018) standard and green program options for renewable energy content available through municipal aggregations in Massachusetts.

Program Type	Total Renewable Content (%)	New England Class I RECs Content (%)	# of Municipalities with Option	# of Municipalities where Program is Default Option	# of Municipalities where Program Beats Utility Rate
Standard	13	13	64	55	49 (77%)
"Green"	100	13	24	22	24 (100%)
Cape Light Compact	100	14	21	21	21 (100%)
5% Class I RECs	18	18	7	7	7 (100%)
5% Class I RECs	100	18	1	1	1 (100%)
20% Class I RECs	100	33	9	0	9 (100%)
25% Class I RECs	38	38	3	3	3 (100%)
50% Class I RECs	50	50	2	0	1 (50%)
100% Class I RECs	100	100	11	0	5 (45%)

4. Conclusions

We found that on average, municipal aggregation does provide price savings to residential and small commercial customers. However, these price savings are moderate – on average less than \$0.008/kWh (less than \$60/year) for residential ratepayers, and less than \$0.008/kWh for small commercial customers. Municipal aggregation also appears to provide price stability for residential customers compared to utility Basic Service Rates, particularly under commercially-administered (market) aggregations. Municipalities contemplating aggregation purely for economic reasons should weigh whether greater price stability and modest rate savings are worth the significant investment of time and resources necessary on the part of town administrators, elected officials, and volunteers in order to form and administer an aggregation.

Aggregation may provide a clearer value to municipalities looking beyond standard electricity programs which meet minimum Massachusetts standards for renewable energy content to include “greener” energy options.

We found that the modest savings available through aggregation programs were often sufficient to support additional renewable energy content for residential ratepayers while still providing rates lower than Basic Service offerings. Current municipal aggregation programs offering 1%, 5%, 20% and 25% additional Class I RECs above the Massachusetts RPS requirements were all providing rates below the Basic Service Rates. Of the programs which offered 50% or 100% Class I REC “green-up” options in May 2018, approximately half were offering a lower rate than Basic Service.

5. Sources

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