



Intelometry, Inc.

**The Value of Retail Electric Choice to
Residential Customers in Massachusetts**

An Examination of Customer Savings

***Submitted on behalf of the
Retail Energy Supply Association (RESA)***



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Table of Contents

I. Executive Summary	3
A. Introduction	3
<i>Previous Estimations of Residential Customer Savings in the Commonwealth</i>	4
<i>Publicly available Data</i>	4
B. Approach	4
<i>Utilities Included</i>	4
<i>Analysis Period</i>	5
<i>Potential Savings Analyses</i>	5
C. Key Findings	6
II. Residential Customer Savings	7
A. Methodology Employed	7
<i>Massachusetts Price to Compare (“PTC”)</i>	7
<i>Competitive Electric Supplier Offers</i>	8
<i>Potential Savings Estimation</i>	9
<i>Potential Market Savings</i>	9
B. Savings Analysis & Results	10
<i>Apples-to-Apples Method</i>	10
<i>12-Month Fixed Method</i>	12
<i>Analysis Period Method</i>	14
III. Number of Offers Falling Below the PTC	16
IV. Competitive Offer Diversity	17
V. Conclusions	18
Appendix	19
A. Guy Sharfman Experience and Qualifications	19
B. Data Sources	25
C. Savings Analysis Detailed Results	26
D. Basic Service Price Movement 2018 through 2020	38
E. Average Number of Offers Falling Below the PTC	39

The Value of Retail Electric Choice to Residential Customers in Massachusetts

An Examination of Customer Savings

I. Executive Summary

A. Introduction

A central theme when debating the benefits of retail electric choice in the Commonwealth of Massachusetts has been the question of residential customer savings. Thus far, examination of savings has centered on whether existing residential customers opting for competitive electric supply have saved money over utility default service in select historical periods. Performing such analysis, however, requires the use of confidential and proprietary customer data which is not publicly available. As such, the analysis performed as part of this paper relied solely on publicly available data and aimed to:

- a) determine if residential customer savings with retail choice is possible, and
- b) estimate the potential for total market wide savings.

To do this, competitive offers posted on the Energy Switch Massachusetts website were compared to utility default service rates over the past three years (2018-2020) using assorted methods. Analysis results were then computed against residential class load data to determine market wide savings or loss. In summary, results indicated that residential customer class savings would have:

- Topped \$583 million assuming residential customers took service under the lowest 6-month competitive supply offer with a term coinciding with the start and end month of 6-month electric utility default service periods. This figure represents an approximate 11% savings over utility default rates for the period analyzed.
- Topped \$473 million assuming residential customers took advantage of the lowest 12-month competitive supply offer with a term coinciding with the start and end month of two back-to-back 6-month electric utility default service periods. This figure represents an approximate 10% savings over utility default rates for the period analyzed.
- Topped \$522 million if, for the entire 2018-2020 analysis period, residential customers took advantage of the lowest competitive supply offer, remained on that offer for the offer term, and kept switching to the new prevailing lowest offer at the end of each offer term. This figure represents an approximate 9% savings over utility default rates for the period analyzed.



The analysis further showed that offer prices falling below utility default rates weren't outliers, with many offers including fixed, variable, and green products, falling below their respective utility default rate.

Previous Estimations of Residential Customer Savings in the Commonwealth

The Office of the Massachusetts Attorney General (“AGO”) published two papers, one in March 2018 and the second in August 2019, claiming that few residential customers taking competitive supply service in the Commonwealth saved money over their respective utility default rate, while most lost money. However, the papers were found to analyze cherry picked time periods and relied on incomplete data. Further, an in-depth review of the 2018 paper identified numerous issues with the stated approach, analysis, assumptions, results, and conclusions presented¹, while the second paper addressed none of the issues identified in the first. More importantly, the AGO failed to provide the underlying data utilized in performing the stated analysis in each report, thereby preventing anyone from being able to audit results or perform an independent study using the same data.

Publicly available Data

To circumvent the need for confidential customer data, the analysis presented here relied solely on publicly available data from Energy Switch Massachusetts, the Mass.gov website, as well as data provided in utility websites. All sources used as well as detailed breakdowns of analysis results are provided in the [Appendix](#) section of this document.

B. Approach

The analysis performed as part of this paper attempted to gauge whether savings over the utility default rate could be realized by taking advantage of competitive supplier offers posted on the Energy Switch Massachusetts website.

Utilities Included

The study was conducted for the utilities listed in **Table 1A** below. Since Massachusetts utility default rates are the same for all utilities underneath a parent utility, analysis results presented are shown at the utility parent level.

¹ <https://www.resausa.org/sites/default/files/Comments-on-MA-AGO-Report.pdf>



Table 1A: Utilities Included

Parent Utility	Utility
Eversource East	NSTAR Boston Edison Co ("BECO")
	NSTAR Cambridge Electric ("CAMB")
	NSTAR Commonwealth Electric ("COMM")
Eversource West	Western Massachusetts Electric Company ("WMECO")
National Grid	Massachusetts Electric Company ("MECO")
	Nantucket Electric Co ("Nantucket")
Unitil	Fitchburg Gas and Electric ("FGE")

Analysis Period

Since January of 2018, Intelometry Inc. has been capturing at least one day of competitive electric supplier offers posted on the Energy Switch Massachusetts website each month on behalf of the Retail Energy Supply Association ("RESA"). As such, competitive offer data was available from the beginning of 2018 through 2020 and so this timeframe was selected as the period for which residential customer potential savings or loss would be measured.

Potential Savings Analyses

To measure whether savings over utility default rates was attainable, three analytical methods were employed. These included the following:

- **Apples-to-Apples Method:** A comparison of 6-month default service rates to 6-month competitive offers where the offer terms matched the start and end month of the default service rate terms.
- **12-Month Fixed Method:** A comparison of 6-month default service rates to 12-month competitive offers where the 12-month offer term straddled two 6-month default service rate terms.
- **Analysis Period Method:** A comparison of electric utility default service rates to the lowest prevailing competitive offer beginning in January 2018. It was then assumed that the customer remained on the lowest offer for the offer term and then switched to the new prevailing lowest offer at the end of the term. The customer would keep switching at the end of each offer term until a savings or loss by month was ascertained for the entire 3-year analysis period.



In addition to deriving a \$ per kWh savings or loss with competitive supply, savings were also calculated on a utility and class basis where the delta between utility default rates and competitive offers were multiplied against the total kWh of the residential class in each analysis period.

Apart from the savings analyses, a review of the number of competitive offers by product category that fell below the prevailing utility default rate in each month were captured. Product categories included fixed price products, variable priced products, and green products. Finally, other non-price related differences between competitive supplier offers and utility default services rates were also examined.

C. Key Findings

Analysis results indicated that contracting for competitive retail electric supply during the analysis period had the potential for residential customers to realize significant savings over utility default service rates. **Table 1B** below provides summary results of the market wide savings potential for all three analyses performed across utilities.

Table 1B: Market Wide Potential Savings Summary

Comprehensive Savings Analysis Results	Apples-to-Apples		12-Month Fixed		Analysis Period	
	Total Potential Residential Class Savings (in \$)	Total Potential Residential Class Savings (in %)	Total Potential Residential Class Savings (in \$)	Total Potential Residential Class Savings (in %)	Total Potential Residential Class Savings (in \$)	Total Potential Residential Class Savings (in %)
All Utilities	\$583,680,849	11%	\$473,877,398	10%	\$522,683,119	9%

In addition to analysis results substantiating that residential customer savings can be realized, findings also indicated that multiple competitive offers posted each month were priced below the applicable prevailing utility default rate across utilities and product categories. This indicated that the lowest competitive offers utilized in the savings analysis were not outliers. **Table 1C** below provides the average number of offers by utility and product type per month that fell below utility default service.

Table 1C: Average Monthly Number of Offers by Product Type

Average Number of Offers Falling Below the Utility Default Service Rate per Month								
Utility	Average Number of Offers Posted per Month	Average Number of Fixed Offers Posted per Month	Average Number of Variable Offers Posted per Month	Average Number of Green Offers Posted per Month	Average Number of Offers per Month Below the Utility Default Service Rate	Average Number of Fixed Offers per Month Below the Utility Default Service Rate	Average Number of Variable Offers per Month Below the Utility Default Service Rate	Average Number of Green Offers per Month Below the Utility Default Service Rate
Eversource East	169	28	71	70	67	13	33	21
Unitil	15	3	7	4	5	1	2	1
National Grid	70	12	30	28	29	5	14	10
Eversource West	48	8	20	20	11	2	6	4
All Utilities	302	51	128	123	112	21	55	36

The remainder of this document discusses the methodology employed, as well as provides more detailed breakdowns of analysis results.



II. Residential Customer Savings

To determine whether Massachusetts residential customers can realize savings with retail electric choice, utility default service rates were compared to applicable competitive electric supplier offers posted on the Energy Switch Massachusetts website² for the analysis period. Energy Switch Massachusetts can be freely accessed by residential customers in the Commonwealth and allows customers to review competitive offers as well as sign up for new service.

A. Methodology Employed

The portion of electric utility default service rates that competitive electric suppliers compete against is generally referred to in the industry as the price to compare (“PTC”). As such, the methodology entailed comparing the historical PTC rates published by Massachusetts electric utilities to posted competitive supplier offers. Comparisons were performed for varying terms within the 2018 through 2020 analysis period.

Massachusetts Price to Compare (“PTC”)

As previously stated, the PTC is a standard industry term in restructured electric markets. It refers to a given utility’s *bypassable* default service rate that competitive electric suppliers compete against to earn the business of their customers. The term “*bypassable*” refers to utility service rate charge(s) that customers avoid or bypass when opting for competitive electric service.

For electric utilities in the Commonwealth, the PTC consists of default service rate charges called Basic Service charges. Basic Service charges compensate Massachusetts electric utilities for electric generation related costs that utilities incur providing full service to their customers. Other electric service-related costs such as transmission and distribution (“delivery services”) are recovered by Massachusetts utilities through other non-bypassable tariff charges.

Residential customers in the Commonwealth can opt for one of two Basic Service rate options; fixed and variable. The fixed Basic Service rate option holds the per kWh Basic Service rate constant for 6-months at a time, with rates typically updated twice each year. Under the Variable Basic Service option, the per unit kWh Basic Service rate charged to customers changes each month.

For the purposes of the savings analysis presented here, fixed Basic Service rate charges were evaluated. The reason is that fixed Basic Service charges generally represent the default option for utility customers. Historical residential Basic Service charges were obtained from the **mass.gov** website for each month in the 3-year analysis period³.

² <https://energyswitchma.gov/#/>

³ <https://www.mass.gov/info-details/basic-service-information-and-rates#basic-service-costs->



Competitive Electric Supplier Offers

Competitive supply offers include fixed, variable, and green products options that enable electric customers to take electric generation service from numerous competitive suppliers operating in the Commonwealth. Competitive supply offers are posted on the Energy Switch Massachusetts website on an ongoing basis. Any residential customer in the Commonwealth with internet access can easily log on to the site and take advantage of these offers. One only needs to log on to <https://energyswitchma.gov/#/> and enter their zip code to begin reviewing offers. Customers can also sign up for new service directly from the site.

For purposes of the analysis, competitive supply offers were extrapolated from Energy Switch Massachusetts each month beginning with January 2018 and extending through December 2020. This exercise included collecting competitive offers posted in a \$ per kWh format as well as associated offer details provided with each offer price. Such additional details included offer term, percentage of green energy included, value added services, associated fees, and other related items.

Because Energy Switch Massachusetts does not enable access for historical offers, offer data was collected for one day each month in the analysis period. Collected offers were then used as a proxy for all offers posted in that month. It should be noted that since only offers posted in a single day in the month were analyzed, it may very well be the case that even lower offers were posted in other days. As such, it's highly likely that the savings analysis results presented in this document underreport the full savings potential available to Commonwealth customers opting for competitive supply.

Offers extrapolated for each utility were scrubbed so only '*clean*' offers were utilized in comparisons to the prevailing PTC. *Clean* offers were defined as those where the price per kWh was clearly defined in the offer literature and remained fixed for the full offer term. Offers where the fixed price per term was either not clearly defined or changed at any point throughout the term were excluded. Excluded offers comprised of the following:

- offers containing enrollment fees,
- offers containing monthly fees,
- offers with introductory rates that did not remain fixed for the full offer term,
- duplicate offers at the utility parent level, and
- customized offers requiring the customer to contact their utility.



Next, clean offers were bucketed into one of three categories including Fixed, Variable and Green offers:

- **Fixed Offers:** competitive supply offers where the offer price remained fixed for the term and contained a fixed price automatic renewal designation.
- **Variable Offers:** competitive supply offers where the offer price remained fixed for the term and contained a variable price automatic renewal designation.
- **Green Offers:** competitive supply offers where the offer price remained fixed for the term and included a green energy % higher than the state mandated minimum.

All offers were sorted into one of the three categories above without any offer straddling more than one category. For example, a fixed offer reflecting 100% green energy was placed in the Green Offers category and not the Fixed Offers or Variable Offers category. Offers in each category were further sorted by price and term. Finally, comparisons were run between clean offers and utility PTCs to determine savings potential.

Potential Savings Estimation

To estimate residential customer potential savings, the lowest competitive clean offers were compared to the PTC on a term basis. This meant that a foundational assumption of the analysis was that residential customers understood the terms of service and remained on the competitive offer for the full fixed price term of the product. For example, if an Eversource East customer took service under the lowest 12-month competitive offer posted in January 2018, that customer would remain on that offer for the full 12-month term. Since PTC rates for Eversource East are set in January and July of each year, potential customer savings (or loss) was derived by comparing the 12-month offer rate to the Eversource East PTC price valid from January through June 2018 and then to the new PTC rate valid from July through December 2018.

Table 2A: 12-Month Fixed Offer Savings Example

Eversource East			
PTC Period	PTC <i>(in \$ per kWh)</i>	Lowest 12-Month REP Offer <i>(in \$ per kWh)</i>	Available Savings <i>PTC minus REP Offer</i> <i>(in \$ per kWh)</i>
Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381
Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897

Potential Market Savings

In addition to \$ per of kWh savings, potential monthly and term savings for the entire residential class in each utility were also derived. Derivation of total potential savings incorporated estimations of residential customer counts and residential class kWh usage for each utility. Residential customer

counts and class load figures were obtained from the **Mass.gov** website⁴. Residential class load was defined as the sum of residential and low-income load taking service under utility default service as well as competitive supply. Since residential customer counts and load data figures are published with a lag, data for June through December of 2020 was not available at the time of this writing. As such, values for equivalent months in 2019 were used to populate the missing 2020 months.

To calculate total potential savings for the residential class in each utility the delta between the PTC and applicable competitive offers were calculated against the total class kWh for the period being assessed. Taking the Eversource East example in **Table 2A** above, the \$ per kWh Available Savings is multiplied against the total kWh for the Eversource East residential class spanning the analysis terms.

Table 2B: 12-Month Fixed Offer Market Savings Example

Eversource East					
PTC Price Period	PTC (in \$ per kWh)	Lowest 12-Month Competitive Offer (in \$ per kWh)	Available Savings PTC minus Competitive Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	3,128,600,958	\$74,491,989
Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	3,592,733,903	\$32,226,823

B. Savings Analysis & Results

Analysis results indicated the savings potential was significant with all three analysis-type runs, with the highest level of potential savings derived in the Apples-to-Apples analysis. This is significant since the Apples-to-Apples comparison represents the most direct comparison between the PTC and supplier offers. A summary of overall results is provided in the table below. More detailed illustrations of each analysis type and associated results are provided in the remainder of this section. Tables depicting analysis results by month are provided in the [Appendix](#) section.

Table 2C: Market Savings Summary

Comprehensive Savings Analysis Results	Apples-to-Apples		12-Month Fixed		Analysis Period	
	Total Potential Savings of Competitive Offers over the PTC for Residential Class (in \$)	Total Potential Savings of Competitive Offers over the PTC for Residential Class (in %)	Total Potential Savings of Competitive Offers over the PTC for Residential Class (in \$)	Total Potential Savings of Competitive Offers over the PTC for Residential Class (in %)	Total Potential Savings of Competitive Offers over the PTC for Residential Class (in \$)	Total Potential Savings of Competitive Offers over the PTC for Residential Class (in %)
All Utilities	\$583,680,849	11%	\$473,877,398	10%	\$522,683,119	9%

Apples-to-Apples Method

As previously noted, the residential PTC for Massachusetts utilities is defined as the Basic Service rate applicable to residential customers. This rate is updated twice a year on a set schedule specific to each utility. Once a new rate is published it generally remains fixed for a 6-month period. The table below provides the dates that each utility updates the residential Basic Service rate (and by extension the PTC) in any given year.

⁴ <https://www.mass.gov/service-details/electric-customer-choice-data>

Table 2D: Basic Service Rate Change Dates

Utility	Massachusetts Basic Service (PTC) By-Annual Effective Update
Eversource East	Jan 1 st & Jul 1 st
Unitil	Jun 1 st & Dec 1 st
National Grid	May 1 st & Nov 1 st
Eversource West	Jan 1 st & Jul 1 st

Since each Basic Service rate is set for a 6-month term, the Apples-to-Apples savings analysis entailed selecting the lowest price competitive offer with a 6-month term published in the first month of a new Basic Service rate taking effect and running the savings analysis for the entire Basic Service term. For example, Eversource East Basic Service rates change on January 1st and July 1st of each year. To run the Apples-to-Apple comparison, the lowest clean competitive 6-month offer for Eversource East that proxied a January 2018 start date was compared to the Eversource East Basic Service rate that took effect in the same month. When the Basic Service rate changed in July the lowest 6-month offer published in July 2018 was used and so on and so forth until the analysis was run for all Eversource East 6-month Basic Service periods occurring from January 2018 through 2020.

To calculate savings (or loss), the delta between applicable Basic Service charges and posted 6-month offers were multiplied against the total kWh of the residential class for each Basic Service term. Results indicate that in most periods the Basic Service rate was higher than the lowest 6-month offer that spanned the Basic Service term. The exception was the Unitil Basic Service rate which was lower than the competitive offer 3 out of the 5 Basic Service periods analyzed. In total, potential savings across all utilities for Basic Service periods analyzed from 2018 through 2020 was over \$583 million which represents an approximate 11% average savings over the Basic Service rate. **Table 2E** below provides Apples-to-Apples results by utility and Basic Service period. More detailed tables are provided in the [Appendix](#) section.

Table 2E: Apples-to-Apples Savings Summary

Eversource East					
PTC Price Period	PTC (in \$ per kWh)	Lowest 6-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jan '18 - Jun '18	\$0.12881	\$0.11000	\$0.01881	3,128,600,958	\$58,848,984
Jul '18 - Dec '18	\$0.11397	\$0.09250	\$0.02147	3,592,733,903	\$77,135,997
Jan '19 - Jun '19	\$0.13588	\$0.11890	\$0.01698	3,024,472,000	\$51,355,535
Jul '19 - Dec '19	\$0.10836	\$0.10100	\$0.00736	3,399,258,732	\$25,018,544
Jan '20 - Jun '20	\$0.12517	\$0.10990	\$0.01527	3,016,677,364	\$46,064,663
Jul '20 - Dec '20	\$0.09877	\$0.08720	\$0.01157	3,399,258,732	\$39,329,424
Total					\$297,753,147
Unitil					
PTC Price Period	PTC (in \$ per kWh)	Lowest 6-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jun '18 - Nov '18	\$0.10556	\$0.08000	\$0.02556	93,167,914	\$2,381,372
Dec '18 - May '19	\$0.12915	\$0.15400	(\$0.02485)	84,539,632	(\$2,100,810)
Jun '19 - Nov '19	\$0.09980	\$0.11170	(\$0.01190)	78,189,342	(\$930,453)
Dec '19 - May '20	\$0.12388	\$0.13200	(\$0.00812)	85,446,264	(\$693,824)
Jun '20 - Nov '20	\$0.09300	\$0.08570	\$0.00730	78,189,342	\$570,782
Total					(\$772,933)
National Grid					
PTC Price Period	PTC (in \$ per kWh)	Lowest 6-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
May '18 - Oct '18	\$0.10870	\$0.09250	\$0.01620	4,236,339,984	\$68,628,708
Nov '18 - Apr '19	\$0.13718	\$0.14200	(\$0.00482)	4,149,164,576	(\$19,998,973)
May '19 - Oct '19	\$0.10793	\$0.09390	\$0.01403	3,929,507,306	\$55,130,988
Nov '19 - Apr '20	\$0.13957	\$0.10990	\$0.02967	4,016,442,866	\$119,167,860
May '20 - Oct '20	\$0.09898	\$0.08680	\$0.01218	3,954,445,729	\$48,165,149
Total					\$271,093,731
Eversource West					
PTC Price Period	PTC (in \$ per kWh)	Lowest 6-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jan '18 - Jun '18	\$0.10486	\$0.10790	(\$0.00304)	677,336,888	(\$2,059,104)
Jul '18 - Dec '18	\$0.10003	\$0.09250	\$0.00753	707,762,551	\$5,329,452
Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	651,488,205	\$4,482,239
Jul '19 - Dec '19	\$0.09851	\$0.09990	(\$0.00139)	664,360,352	(\$923,461)
Jan '20 - Jun '20	\$0.11666	\$0.10990	\$0.00676	640,024,265	\$4,326,564
Jul '20 - Dec '20	\$0.09020	\$0.08350	\$0.00670	664,360,352	\$4,451,214
Total					\$15,606,904
Total Available Savings - All Utilities					\$583,680,849
Average % Savings over PTC					11%

12-Month Fixed Method

In addition to the Apples-to-Apples assessment, an analysis was performed as to whether longer term competitive offers that provide residential customers with longer term price stability than the 6-month Basic Service rate could also offer savings. This was done because Basic Service rates can change drastically from one price period to another exposing customers to rate shocks that may entice them to opt for longer term offers. In the 2018 through 2020 analysis period Basic Service rates changed on average anywhere from 16% to 24% every 6 months (see **Table 2F** below).

Table 2F: Average Basic Service Rate of Change

Utility	Average Basic Service Rate of Change (2018 - 2020)
Eversource East	18%
Unitil	22%
National Grid	24%
Eversource West	16%

Opting for a competitive offer that fixes prices for terms of one year or greater would enable customers to avoid these shocks. More detailed breakdowns of how much Basic Service rates change each period are provided in the [Appendix](#) section.

The 12-Month Fixed savings analysis entailed selecting the lowest competitive offer with a 12-month term published in the first month of a new Basic Service rate taking effect and running a comparison against two sets of Basic Service 6-month term prices. Taking the previous Eversource East example, the lowest 12-month offer for Eversource East that proxied January 2018 was compared to the Eversource East Basic Service rate effective for January through June 2018 and then to the Basic Service rate effective for July through December 2018.

To calculate savings (or loss) the delta between applicable Basic Service charges and posted 12-month offers were multiplied against the total kWh of the residential class for each Basic Service term. Results indicated that in most periods the Basic Service rate was higher than the lowest 12-month offer. In total, potential savings across all utilities for Basic Service periods analyzed in 2018 through 2020 was over \$473 million which represents an approximate 10% average savings over the Basic Service rate. **Table 2F** below provides 12-Month Fixed results by utility and Basic Service period. More detailed tables are provided in the [Appendix](#) section.



Table 2G: 12-Month Fixed Savings Summary

Eversource East					
PTC Price Period	PTC (in \$ per kWh)	Lowest 12-Month Competitive Offer (in \$ per kWh)	Available Savings PTC minus Competitive Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	3,128,600,958	\$74,491,989
Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	3,592,733,903	\$32,226,823
Jan '19 - Jun '19	\$0.13588	\$0.11200	\$0.02388	3,024,472,000	\$72,224,391
Jul '19 - Dec '19	\$0.10836	\$0.11200	(\$0.00364)	3,399,258,732	(\$12,373,302)
Jan '20 - Jun '20	\$0.12517	\$0.10480	\$0.02037	3,016,677,364	\$61,449,718
Jul '20 - Dec '20	\$0.09877	\$0.10480	(\$0.00603)	3,399,258,732	(\$20,497,530)
Total					\$207,522,089
Unitil					
PTC Price Period	PTC (in \$ per kWh)	Lowest 12-Month REP Offer (in \$ per kWh)	Available Savings PTC minus Competitive Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jun '18 - Nov '18	\$0.10556	\$0.10870	(\$0.00314)	93,167,914	(\$292,547)
Dec '18 - May '19	\$0.12915	\$0.10870	\$0.02045	84,539,632	\$1,728,835
Jun '19 - Nov '19	\$0.09980	\$0.11490	(\$0.01510)	78,189,342	(\$1,180,659)
Dec '19 - May '20	\$0.12388	\$0.11490	\$0.00898	85,446,264	\$767,307
Total					\$1,022,937
National Grid					
PTC Price Period	PTC (in \$ per kWh)	Lowest 12-Month REP Offer (in \$ per kWh)	Available Savings PTC minus Competitive Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
May '18 - Oct '18	\$0.10870	\$0.10700	\$0.00170	4,236,339,984	\$7,201,778
Nov '18 - Apr '19	\$0.13718	\$0.10700	\$0.03018	4,149,164,576	\$125,221,787
May '19 - Oct '19	\$0.10793	\$0.10760	\$0.00033	3,929,507,306	\$1,296,737
Nov '19 - Apr '20	\$0.13957	\$0.10760	\$0.03197	4,016,442,866	\$128,405,678
Total					\$262,125,981
Eversource West					
PTC Price Period	PTC (in \$ per kWh)	Lowest 12-Month REP Offer (in \$ per kWh)	Available Savings PTC minus Competitive Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	677,336,888	\$3,291,857
Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	707,762,551	\$21,233
Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	651,488,205	\$4,482,239
Jul '19 - Dec '19	\$0.09851	\$0.10990	(\$0.01139)	664,360,352	(\$7,567,064)
Jan '20 - Jun '20	\$0.11666	\$0.10090	\$0.01576	640,024,265	\$10,086,782
Jul '20 - Dec '20	\$0.09020	\$0.10090	(\$0.01070)	664,360,352	(\$7,108,656)
Total					\$3,206,391
Total Available Savings - All Utilities					\$473,877,398
Average % Savings over PTC					10%

Analysis Period Method

The final analysis entailed a comparison between the PTC and the lowest clean offer assuming a residential customer signed up for that lowest offer beginning in January 2018 and remained on that offer for the offer term. At the end of the term, the residential customer would sign up for the prevailing lowest priced offer and remain on that offer for the offer term and so on and so forth. In this fashion an analysis measured potential residential savings across the full 3-year analysis period for all four utilities.

Taking the Eversource East example, the lowest January 2018 clean offer was compared to the Eversource East Basic Service rate that took effect in the same month. When the competitive offer expired, the lowest prevailing clean offer was compared to the prevailing Basic Service rate for the remainder of the new offer term. The process continued until a full 3-year analysis was run for all four utilities.



To calculate savings (or loss), the delta between applicable Basic Service rates and the posted lowest offers were multiplied against the total kWh of the residential class for each price comparison period. Price comparison periods were defined as those where both the Basic Service rate and the competitive offer remained unchanged for the period. Results indicated that in most periods the Basic Service rate was higher than the lowest competitive offer. In total, potential savings across all utilities for price periods analyzed in 2018 through 2020 was over \$522 million which represents an approximate 9% average savings over the Basic Service rate. **Table 2H** below provides Analysis Period Method results by utility and Basic Service period. More detailed tables are provided in the [Appendix](#) section.

Table 2H: Analysis Period Savings Summary

Eversource East					
Price Comparison Period	PTC (in \$ per kWh)	Lowest REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	3,128,600,958	\$74,491,989
Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	3,592,733,903	\$32,226,823
Jan '19 - Jun '19	\$0.13588	\$0.11170	\$0.02418	3,024,472,000	\$73,131,733
Jul '19 - Oct '19	\$0.10836	\$0.11170	(\$0.00334)	2,390,554,148	(\$7,984,451)
Nov '19 - Dec '19	\$0.10836	\$0.10420	\$0.00416	1,008,704,584	\$4,196,211
Jan '20 - Jun '20	\$0.12517	\$0.10420	\$0.02097	3,016,677,364	\$63,259,724
Jul '20 - Oct '20	\$0.09877	\$0.10420	(\$0.00543)	2,390,554,148	(\$12,980,709)
Nov '20 - Dec '20	\$0.09877	\$0.09410	\$0.00467	1,008,704,584	\$4,710,650
Total					\$231,051,971
Unittel					
Price Comparison Period	PTC (in \$ per kWh)	Lowest REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jan '18 - May '18	\$0.12340	\$0.10790	\$0.01550	73,353,966	\$1,136,986
Jun '18 - Nov '18	\$0.10556	\$0.10790	(\$0.00234)	93,167,914	(\$218,013)
Dec '18 - May '19	\$0.12915	\$0.10790	\$0.02125	84,539,632	\$1,796,467
Jun '19 - Nov '19	\$0.09980	\$0.10790	(\$0.00810)	78,189,342	(\$633,334)
Dec '19 - May '20	\$0.12388	\$0.10790	\$0.01598	85,446,264	\$1,365,431
Jun '20 - Nov '20	\$0.09300	\$0.10870	(\$0.01570)	78,189,342	(\$1,227,573)
Dec '20	\$0.11400	\$0.10870	\$0.00530	15,207,777	\$80,601
Total					\$2,300,567
National Grid					
Price Comparison Period	PTC (in \$ per kWh)	Lowest REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jan '18 - Apr '18	\$0.12673	\$0.10790	\$0.01883	2,929,504,360	\$55,162,567
May '18 - Oct '18	\$0.10870	\$0.10790	\$0.00080	4,236,339,984	\$3,389,072
Nov '18 - Apr '19	\$0.13718	\$0.10790	\$0.02928	4,149,164,576	\$121,487,539
May '19 - Oct '19	\$0.10793	\$0.10790	\$0.00003	3,929,507,306	\$117,885
Nov '19 - Dec '19	\$0.13957	\$0.10790	\$0.03167	1,269,150,624	\$40,194,000
Jan '20 - Apr '20	\$0.13957	\$0.10880	\$0.03077	2,747,292,242	\$84,534,182
May '20 - Oct '20	\$0.09898	\$0.10880	(\$0.00982)	3,954,445,729	(\$38,832,657)
Nov '20 - Dec '20	\$0.12388	\$0.10880	\$0.01508	1,269,150,624	\$19,138,791
Total					\$285,191,380
Eversource West					
Price Comparison Period	PTC (in \$ per kWh)	Lowest REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in Total \$)
Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	677,336,888	\$3,291,857
Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	707,762,551	\$21,233
Jan '19 - Jun '19	\$0.11678	\$0.10670	\$0.01008	651,488,205	\$6,567,001
Jul '19 - Oct '19	\$0.09851	\$0.10670	(\$0.00819)	442,935,169	(\$3,627,639)
Nov '19 - Dec '19	\$0.09851	\$0.10389	(\$0.00538)	221,425,183	(\$1,191,267)
Jan '20 - Jun '20	\$0.11666	\$0.10389	\$0.01277	640,024,265	\$8,173,110
Jul '18 - Dec '20	\$0.09020	\$0.10389	(\$0.01369)	664,360,352	(\$9,095,093)
Total					\$4,139,201
Total Available Savings - All Utilities					\$522,683,119
Average % Savings over PTC					9%



III. Number of Offers Falling Below the PTC

In addition to calculating the level of potential savings associated with competitive electric supply, the number of offers falling below the PTC was also examined. This was done primarily to ascertain the number of competitive options available to residential customers that would offer savings above the prevailing PTC beyond the lowest offer posted. Offers falling below the PTC each month were also categorized by offer type (fixed, variable, or green).

Analysis results indicated that in most months multiple fixed, variable, and green offers fell below the PTC. This is significant since it demonstrates that the lowest offers utilized in the savings analysis discussed in the previous section are not outliers, and that customers shouldn't have to give up potential savings to take advantage of products offering price stability and other benefits the PTC does not provide. **Table 3A** below provides summary results by utility and year. Tables that breakdown results in more detail are provided in the [Appendix](#) section.

Table 3A: Number of Competitive Offers Falling Below the PTC

Eversource East								
Year	Average Number of Offers Posted per Month	Average Number of Fixed Offers Posted per Month	Average Number of Variable Offers Posted per Month	Average Number of Green Offers Posted per Month	Average Number of Offers per Month Below the PTC	Average Number of Fixed Offers per Month Below the PTC	Average Number of Variable Offers per Month Below the PTC	Average Number of Green Offers per Month Below the PTC
2018	188	41	79	68	65	18	32	15
2019	169	31	71	67	75	15	37	23
2020	150	13	61	75	62	5	30	27
Analysis Period	169	28	71	70	67	13	33	21
Unitil								
Year	Average Number of Offers Posted per Month	Average Number of Fixed Offers Posted per Month	Average Number of Variable Offers Posted per Month	Average Number of Green Offers Posted per Month	Average Number of Offers per Month Below the PTC	Average Number of Fixed Offers per Month Below the PTC	Average Number of Variable Offers per Month Below the PTC	Average Number of Green Offers per Month Below the PTC
2018	18	6	8	4	6	3	2	1
2019	14	3	7	4	4	1	3	1
2020	13	1	7	5	4	0	3	2
Analysis Period	15	3	7	4	5	1	2	1
National Grid								
Year	Average Number of Offers Posted per Month	Average Number of Fixed Offers Posted per Month	Average Number of Variable Offers Posted per Month	Average Number of Green Offers Posted per Month	Average Number of Offers per Month Below the PTC	Average Number of Fixed Offers per Month Below the PTC	Average Number of Variable Offers per Month Below the PTC	Average Number of Green Offers per Month Below the PTC
2018	78	16	35	27	25	6	12	7
2019	72	15	30	27	32	7	15	11
2020	61	5	26	30	29	2	14	13
Analysis Period	70	12	30	28	29	5	14	10
Eversource West								
Year	Average Number of Offers Posted per Month	Average Number of Fixed Offers Posted per Month	Average Number of Variable Offers Posted per Month	Average Number of Green Offers Posted per Month	Average Number of Offers per Month Below the PTC	Average Number of Fixed Offers per Month Below the PTC	Average Number of Variable Offers per Month Below the PTC	Average Number of Green Offers per Month Below the PTC
2018	49	12	19	18	4	1	3	1
2019	51	9	21	21	13	4	5	5
2020	44	3	19	21	16	1	10	6
Analysis Period	48	8	20	20	11	2	6	4



IV. Competitive Offer Diversity

Unlike Massachusetts Basic Service rates which offer barebones generation service for a 6-month term with no additional benefits, competitive supply products offer customers varying options to purchase electricity and related services. The significance of this is that residential customers can attain additional benefits above and beyond delivering savings with competitive supply. It also implies that customers shop for competitive electric service for reasons other than savings. For example, a customer seeking to avoid Basic Service rate shocks may opt for a 24-month competitive product to shield them from PTC rate fluctuations. Another may opt for a 100% green product because they are environmentally conscious. The point is that, while savings represents one aspect of why customers shop, it may not be the only reason. **Table 4A** below compares the options Basic Service rates to competitive supply rates.

Table 4A: Basic Service Options v Competitive Supply Options

Massachusetts Utility Basic Service Rates		
Product Type Options	Term of Service Options	Add On Services
Fixed	6 Months	None
Variable		
Massachusetts Competitive Offer Rates		
Product Type Options	Term of Service Options	Add On Services
Fixed	3 Months	Gift Cards
Variable	4 Months	Rewards Programs
Green	6 Months	Cash Back
	7 Months	Sponsored Promotions
	8 Months	Charitable Contributions
	9 Months	Carbon Offset
	10 Months	Energy Efficiency Services
	12 Months	Rebates
	13 Months	Smart Thermostat
	14 Months	National Park Passes
	15 Months	Amazon Echo Dot
	16 Months	
	17 Months	
	18 Months	
	20 Months	
21 Months		
22 Months		
24 Months		
25 Months		
30 Months		
33 Months		



V. Conclusions

The analysis presented in this paper makes clear that the competitive retail electricity market in the Commonwealth enables residential customers to save money over utility default service rates as well as take advantage of other benefits that utility default service does not provide. These benefits, including fixed price term options, green options and add on services, can be accessed by residential customers simply by logging on to Energy Switch Massachusetts and carefully reviewing available offers. Educating consumers about how to access Energy Switch Massachusetts and take advantage of competitive market benefits is something regulators, retail suppliers, utilities and consumer groups can all get behind to improve the market for all involved.



Appendix

A. Guy Sharfman Experience and Qualifications

Guy Sharfman
Vice President, Market Analytics

KEY QUALIFICATIONS

Guy Sharfman has over twenty years of operational and consulting experience in the energy industry and is a recognized industry expert in the retail and wholesale electricity arenas. Mr. Sharfman has held key leadership roles in risk management, structuring and pricing, hedging and position management, and wholesale and retail market development and expansion. In his present role Mr. Sharfman oversees Intelometry Inc.'s data services business which encompasses the development, collection, maintenance and distribution of retail energy data and market reports utilized by energy companies, brokers, governmental entities, consulting firms, trade associations and aggregators to support retail energy operations and analysis across U.S. markets. Mr. Sharfman also heads Intelometry's consulting business which specializes in retail energy market operations, solar credit forecasting, market strategy, regulation, and valuations.

Mr. Sharfman has testified in numerous cases before state utility commissions as well as the Massachusetts legislature. Mr. Sharfman's industry experience includes buying and selling power, creating hedging strategies to manage risks associated with term supply, developing physical delivery capabilities for companies to serve new markets, electricity product structuring and pricing, wholesale and retail contract negotiation, utility tariff modeling, power plant value assessment, supply and demand forecasting, benchmarking evaluations, and electric procurement analyses.

PREVIOUS INDUSTRY EXPERIENCE

Econ One Research, Inc. (2001 - 2004)

Director of Energy Strategy responsible for establishing a new business consulting practice centering on the power and natural gas industries in North America. Acquired and managed consulting projects for major energy companies, law firms and energy publications. Conducted studies and gave presentations on the future of energy markets to clients and associations.

Enron Wholesale Services (2001-2002)

Managed Enron's retail power positions and developed new markets in the Central region. Created and managed retail power forward curves into all major control areas in the ECAR, MAIN and MAPP regions. Structured financial and physical products for retail power customers in Illinois, Michigan, Ohio, and Virginia. Assisted Enron regulatory affairs group in various energy proceedings in front of FERC and State Commissions in Illinois, Ohio, and Michigan.



Nicor Energy, L.L.C. (2000-2001)

Manager of Electric Services responsible for structuring and pricing retail electricity in Illinois control areas. Trained and supervised Nicor Energy's power pricing desk. Negotiated electric supply agreements with wholesale companies to supply portions of Nicor Energy's retail load obligations. Developed retail electric service capabilities for Nicor Energy in Michigan and Ohio control areas. Developed a Green Power supply option for Nicor Energy in Illinois.

Analytical Support Network, Inc. (1998-2000)

Performed open access pricing for an alternative retail electric supplier. Constructed retail power pricing models for the Commonwealth Edison control area. Created indices that predicted a company's open access savings potential based on variables such as SIC codes to develop a target market. Conducted open access option assessment for various electric consumers. Performed all types of economic cost and efficiency analyses including contract assessment, price and demand forecasting, future revenue expectations and efficiency of operations assessments. Assessed expert testimony and prepared cross-examination questions for legal staff. Assisted in the testimony strategy of expert witnesses testifying in various electric deregulation proceedings before the Illinois Commerce Commission and the Public Utility Commission of Wisconsin.

SELECT CONSULTING EXPERIENCE

System Implementation for Various Retail Energy Companies

Engagement Director and Project Manager for the implementation of Intelometry's inRetail product suite for various national energy marketers. The product suite installation focused on processing and profiling historic customer load data, managing forward curve and market spot price data, pricing and structuring retail power deals for large and small consumers, load forecasting, settlements, position management and integrating to existing legacy systems.

Market Monitoring Services and Support

Directs the creation, service, and support of Intelometry's inMonitor service, which assesses the headroom between electric utility tariff costs and the cost to serve typical retail customers in deregulated markets across the country. This service includes the building and maintenance of a library of utility tariffs in conjunction with the estimation of retail supply costs that include forward energy, capacity, ancillary services, risks, and other retail uplift costs incurred in supplying retail customers.

Structured Supply Assessment

Managed team to assist clients in finding Midwest counterparties for wholesale supply to back their retail load obligations, develop portfolio management strategies, and determine alternate methods of procurement.

Market Segmentation

Researched and developed an individual market profile for each of nineteen utilities across five states for the one-to-fifteen-megawatt customer segment. Constructed tables for each utility depicting the number of existing commercial and industrial customers falling in each of seven demand class categories contained within the one-to-fifteen-megawatt segment. Developed an



expected annual kWh consumption range by utility for each demand class category for both commercial as well as industrial customer groups.

Michigan Market Entry and Operations Strategy

Managed team to perform a comprehensive market assessment to advise clients of entry strategy into the Michigan retail natural gas and power market. Assessment included a full review of wholesale supply options, regulatory issues, transactional issues, value proposition assessment, and recommendations on product structures and risks.

Transition Charge Forecast

Conducted a forecast of Illinois transition charges for the ComEd control area for the entire transition (the end of the Illinois retail electricity deregulation transition period). Assessed how changes in the current forward market and proposed changes in ComEd distribution rates would affect transition charges over time. Analyzed how changes in transition charges would affect the viability of the retail electric market in Illinois.

Electricity Rate Analysis

Conducted rate audits and analysis for CBS facilities in New York City to determine if CBS was overcharged for electric service. Facilitated negotiations between CBS and opposing parties to settle outstanding disputes over energy bills. Assessed whether previous charges allowed under current lease agreements.

Market Value Calculation Audit

Conducted an audit of market setting “Market Value Energy” numbers put forth by Commonwealth Edison Company (“ComEd”) on an annualized basis. Used snapshots of the Cinergy peak forward market, historical PJM hourly price shapes and into ComEd historical off-peak prices to recreate ComEd’s output and assess how changes in the wholesale market have affected the viability of the Illinois retail market since the numbers have been put forth.

TESTIFYING EXPERIENCE

The Massachusetts Legislature

Provided testimony before the Joint Committee on Telecommunications, Utilities and Energy regarding the Office of the Massachusetts General study that claimed retail suppliers are overcharging customers in Massachusetts. Illustrated the flaws inherent in the study and demonstrated that retail suppliers do save customers money in Massachusetts as well as provide other benefits.

New York Public Service Commission

Provided testimony before the New York Public Service Commission (“NY PSC”) in the Matter of Eligibility Criteria for Energy Service Companies (ESCOs). Prepared analysis and related testimony and exhibits that demonstrated the benefits of ESCO supply to mass market customers.

New York Public Service Commission

Submitted an expert report to the New York Public Service Commission (“NY PSC”) commenting on a reference price proposal put forth by the NY PSC staff that presented a methodology to cap ESCO



electric and natural gas mass market price offers in the State of New York. Prepared detailed analyses using historical market and utility data illustrating issues with the proposed reference price and demonstrating that the reference price proposal did not meet its stated goals.

Illinois Commerce Commission

Provided testimony before the Illinois Commerce Commission (“ICC”) in a docket to determine distribution rate increases and related riders for Commonwealth Edison Company (“ComEd”). Prepared analysis and related testimony and exhibits illustrating historical and forecasted distribution and bundled rate costs paid by ComEd customer classes.

Massachusetts Department of Public Utilities

Provided an expert report and testimony before the Massachusetts Department of Public Utilities (“Department”) regarding NSTAR Electric’s filed request to enter into two proposed purchased power agreements (“PPA”) for wind generation. The report and related testimony assessed the value of the wind PPAs to NSTAR customers and measured the impacts of the PPAs on existing default rates.

Connecticut Department of Public Utility Control

Provided an expert report to the Connecticut Department of Public Utility Control (“Department”) regarding historical cost differentials between CL&P regulated and market prices. Participated in a round-table style hearing before the Department to determine the benefits and detriments of allowing Connecticut utilities to engage in portfolio management.

Public Service Commission of Maryland

Testified on behalf of a prominent energy company in a case before the Public Service Commission of Maryland (“PSCM”) regarding historical cost differentials between BG&E regulated tariff prices and PJM market prices. Cross examination was conducted in front of the five Maryland Commissioners, who were interested in understanding the impacts of default price volatility that would be associated with a decrease in default rate price levels.

Pennsylvania Public Utilities Commission

Testified on behalf of a coalition of energy companies in a case before the Pennsylvania Public Utilities Commission (“PPUC”) regarding historical cost differentials between Duquesne Light regulated tariff prices and PJM market prices. Testimony analyzed the savings that residential and small commercial customers would have attained had they procured their electric requirements directly from the market, as opposed to Duquesne Light tariffs.

Public Utilities Commission of Ohio

Testified on behalf of a coalition of energy companies and a manufacturer’s association in a case before the Public Utilities Commission of Ohio (PUCO) on the market impacts of a rate stabilization plan proposed by First Energy Corporation. Testimony analyzed the impacts that the proposed plan would exert on regional energy markets and provided the PUCO with alternative options to the plan including a wholesale Provider of Last Resort (POLR) auction.



Illinois Commerce Commission

Testified in a hearing before the Illinois Commerce Commission to determine how energy values that set alternative electricity rates for all investor-owned Illinois electric utilities should be calculated. Used the Retail Power Index (“RPI”), which I constructed and published in Platts Megawatt Daily and Power Markets Week, in testimony to demonstrate the inadequacies of the current energy value calculation. Testified as to which remedies to the current calculation would improve market efficiency.

Illinois Commerce Commission

Testified in a proceeding before the Illinois Commerce Commission to set an electricity default rate for Commonwealth Edison Company (“ComEd”). In testimony, presented an alternative tariff design to the one proposed by ComEd that offered greater transparency and allowed for more adequate cost recovery. The final negotiated design incorporated many of the revisions that I proposed.

ADDITIONAL EXPERT ENGAGEMENTS

Honorarium to discuss agent-based modeling of electricity markets at Argon National Laboratory, Chicago, Illinois

Attended an honorarium for power marketers to assist Argon National Laboratory in building an electricity market modeling system that will allow regulators to anticipate market gaming behavior on the part of generators and power marketers in the event of market rule changes. Discussed the differences in market structures between current independent system operators and how energy companies use these different structures to create arbitrage opportunities. Offered insights into trading behavior in different NERC regions across the United States in real time, day ahead and term wholesale and retail markets.

Illinois Commerce Commission Electric Market Roundtable, Chicago, Illinois

Participated in the annual electric market roundtable discussions at the Illinois Commerce Commission. The Chairman of the Illinois Commerce Commission hosts the roundtable discussions. Participants include CEOs and CFOs of energy firms, leaders of commercial and industrial consumer groups as well as selected industry experts. The topics center around the development of competition in the electricity markets in Illinois both on a wholesale and retail level and what can be done to further foster competition’s development.

Operational Task Force for the Midwest Independent System Operator, Indianapolis, Indiana

Attended an operational task force composed of representatives from transmission owners and market participants to resolve operational issues for the Midwest Independent System Operator. Discussed issues involving methods of interaction and settlement between the transmission owners participating in the Midwest Independent System operator, independent marketers serving or planning to serve retail load, and municipalities.

PRESENTATIONS AND PUBLISHED WORKS

“What happened to Enron? (And other issues in the energy industry)”, presentation before the Rotary Club of Chicago Financial District.



“After Enron, Will Power Competition Survive?” Natural Gas - The Monthly Journal for Producers, Marketers, Pipelines, Distributors, and End-Users, Wiley Periodicals, Inc.

“The Impacts of The Enron Bankruptcy and the California Crisis on The Future of Wholesale and Retail Power Markets” Presentation to the International Association for Energy Economics.

The Retail Power Index (“RPI”) published previously in Platts Megawatt Daily and Power Markets Week.

EDUCATION

MA Economics, DePaul University at Chicago, IL, 1998

BA Economics, University of Illinois at Champaign/Urbana, IL, 1994

B. Data Sources

Table AA: Data Sources Used

Data Sources		
Data	Source	Link
Competitive Electric Offers	Energy Switch Massachusetts	http://energyswitchma.gov
Residential Class kWh & Customer Counts	Mass.gov	https://www.mass.gov/service-details/electric-customer-migration-data
Massachusetts Utilities Basic Service Prices	Mass.gov	https://www.mass.gov/info-details/basic-service-information-and-rates#basic-service-costs



C. Savings Analysis Detailed Results

Table AB: Apples-to-Apples Analysis Results – Eversource East

Eversource East						
Month	PTC Period	PTC (in \$ per kWh)	Lowest 6-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
1/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.11000	\$0.01881	708,646,130	\$13,329,634
2/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.11000	\$0.01881	552,205,830	\$10,386,992
3/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.11000	\$0.01881	522,128,959	\$9,821,246
4/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.11000	\$0.01881	453,348,664	\$8,527,488
5/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.11000	\$0.01881	421,923,237	\$7,936,376
6/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.11000	\$0.01881	470,348,138	\$8,847,248
7/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.09250	\$0.02147	652,200,104	\$14,002,736
8/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.09250	\$0.02147	751,496,396	\$16,134,628
9/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.09250	\$0.02147	681,922,282	\$14,640,871
10/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.09250	\$0.02147	472,048,512	\$10,134,882
11/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.09250	\$0.02147	487,913,204	\$10,475,496
12/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.09250	\$0.02147	547,153,405	\$11,747,384
1/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11890	\$0.01698	614,623,521	\$10,436,307
2/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11890	\$0.01698	568,231,907	\$9,648,578
3/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11890	\$0.01698	547,240,061	\$9,292,136
4/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11890	\$0.01698	443,410,807	\$7,529,116
5/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11890	\$0.01698	413,015,867	\$7,013,009
6/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11890	\$0.01698	437,949,837	\$7,436,388
7/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.10100	\$0.00736	655,361,213	\$4,823,459
8/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.10100	\$0.00736	721,090,170	\$5,307,224
9/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.10100	\$0.00736	563,691,104	\$4,148,767
10/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.10100	\$0.00736	450,411,661	\$3,315,030
11/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.10100	\$0.00736	464,713,033	\$3,420,288
12/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.10100	\$0.00736	543,991,551	\$4,003,778
1/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10990	\$0.01527	596,736,131	\$9,112,161
2/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10990	\$0.01527	534,044,405	\$8,154,858
3/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10990	\$0.01527	484,868,818	\$7,403,947
4/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10990	\$0.01527	493,818,271	\$7,540,605
5/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10990	\$0.01527	469,259,902	\$7,165,599
6/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10990	\$0.01527	437,949,837	\$6,687,494
7/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.08720	\$0.01157	655,361,213	\$7,582,529
8/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.08720	\$0.01157	721,090,170	\$8,343,013
9/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.08720	\$0.01157	563,691,104	\$6,521,906
10/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.08720	\$0.01157	450,411,661	\$5,211,263
11/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.08720	\$0.01157	464,713,033	\$5,376,730
12/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.08720	\$0.01157	543,991,551	\$6,293,982
Total						\$297,753,147



Table AC: Apples-to-Apples Analysis Results – Unutil

Unutil						
Month	PTC Period	PTC (in \$ per kWh)	Lowest 6-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
6/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.08000	\$0.02556	12,507,366	\$319,688
7/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.08000	\$0.02556	15,483,305	\$395,753
8/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.08000	\$0.02556	17,496,167	\$447,202
9/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.08000	\$0.02556	15,110,110	\$386,214
10/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.08000	\$0.02556	12,054,116	\$308,103
11/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.08000	\$0.02556	20,516,850	\$524,411
12/1/2018	Dec '18 - May '19	\$0.12915	\$0.15400	(\$0.02485)	16,080,443	(\$399,599)
1/1/2019	Dec '18 - May '19	\$0.12915	\$0.15400	(\$0.02485)	16,879,416	(\$419,453)
2/1/2019	Dec '18 - May '19	\$0.12915	\$0.15400	(\$0.02485)	13,291,470	(\$330,293)
3/1/2019	Dec '18 - May '19	\$0.12915	\$0.15400	(\$0.02485)	14,504,124	(\$360,427)
4/1/2019	Dec '18 - May '19	\$0.12915	\$0.15400	(\$0.02485)	12,547,629	(\$311,809)
5/1/2019	Dec '18 - May '19	\$0.12915	\$0.15400	(\$0.02485)	11,236,550	(\$279,228)
6/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11170	(\$0.01190)	10,649,234	(\$126,726)
7/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11170	(\$0.01190)	16,073,587	(\$191,276)
8/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11170	(\$0.01190)	16,219,019	(\$193,006)
9/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11170	(\$0.01190)	11,787,152	(\$140,267)
10/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11170	(\$0.01190)	11,743,756	(\$139,751)
11/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11170	(\$0.01190)	11,716,594	(\$139,427)
12/1/2019	Dec '19 - May '20	\$0.12388	\$0.13200	(\$0.00812)	15,207,777	(\$123,487)
1/1/2020	Dec '19 - May '20	\$0.12388	\$0.13200	(\$0.00812)	16,673,348	(\$135,388)
2/1/2020	Dec '19 - May '20	\$0.12388	\$0.13200	(\$0.00812)	15,066,422	(\$122,339)
3/1/2020	Dec '19 - May '20	\$0.12388	\$0.13200	(\$0.00812)	14,202,287	(\$115,323)
4/1/2020	Dec '19 - May '20	\$0.12388	\$0.13200	(\$0.00812)	12,581,483	(\$102,162)
5/1/2020	Dec '19 - May '20	\$0.12388	\$0.13200	(\$0.00812)	11,714,947	(\$95,125)
6/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.08570	\$0.00730	10,649,234	\$77,739
7/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.08570	\$0.00730	16,073,587	\$117,337
8/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.08570	\$0.00730	16,219,019	\$118,399
9/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.08570	\$0.00730	11,787,152	\$86,046
10/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.08570	\$0.00730	11,743,756	\$85,729
11/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.08570	\$0.00730	11,716,594	\$85,531
Total						(\$772,933)



Table AD: Apples-to-Apples Analysis Results – National Grid

National Grid						
Month	PTC Period	PTC (in \$ per kWh)	Lowest 6-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
5/1/2018	May '18 - Oct '18	\$0.10870	\$0.09250	\$0.01620	554,508,598	\$8,983,039
6/1/2018	May '18 - Oct '18	\$0.10870	\$0.09250	\$0.01620	595,800,262	\$9,651,964
7/1/2018	May '18 - Oct '18	\$0.10870	\$0.09250	\$0.01620	777,864,306	\$12,601,402
8/1/2018	May '18 - Oct '18	\$0.10870	\$0.09250	\$0.01620	876,002,848	\$14,191,246
9/1/2018	May '18 - Oct '18	\$0.10870	\$0.09250	\$0.01620	854,640,299	\$13,845,173
10/1/2018	May '18 - Oct '18	\$0.10870	\$0.09250	\$0.01620	577,523,671	\$9,355,883
11/1/2018	Nov '18 - Apr '19	\$0.13718	\$0.14200	(\$0.00482)	584,785,531	(\$2,818,666)
12/1/2018	Nov '18 - Apr '19	\$0.13718	\$0.14200	(\$0.00482)	744,094,743	(\$3,586,537)
1/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.14200	(\$0.00482)	786,799,900	(\$3,792,376)
2/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.14200	(\$0.00482)	724,617,021	(\$3,492,654)
3/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.14200	(\$0.00482)	729,284,125	(\$3,515,149)
4/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.14200	(\$0.00482)	579,583,256	(\$2,793,591)
5/1/2019	May '19 - Oct '19	\$0.10793	\$0.09390	\$0.01403	533,916,112	\$7,490,843
6/1/2019	May '19 - Oct '19	\$0.10793	\$0.09390	\$0.01403	546,602,553	\$7,668,834
7/1/2019	May '19 - Oct '19	\$0.10793	\$0.09390	\$0.01403	772,169,262	\$10,833,535
8/1/2019	May '19 - Oct '19	\$0.10793	\$0.09390	\$0.01403	894,092,688	\$12,544,120
9/1/2019	May '19 - Oct '19	\$0.10793	\$0.09390	\$0.01403	671,208,835	\$9,417,060
10/1/2019	May '19 - Oct '19	\$0.10793	\$0.09390	\$0.01403	511,517,856	\$7,176,596
11/1/2019	Nov '19 - Apr '20	\$0.13957	\$0.10990	\$0.02967	557,319,217	\$16,535,661
12/1/2019	Nov '19 - Apr '20	\$0.13957	\$0.10990	\$0.02967	711,831,407	\$21,120,038
1/1/2020	Nov '19 - Apr '20	\$0.13957	\$0.10990	\$0.02967	800,290,404	\$23,744,616
2/1/2020	Nov '19 - Apr '20	\$0.13957	\$0.10990	\$0.02967	673,961,805	\$19,996,447
3/1/2020	Nov '19 - Apr '20	\$0.13957	\$0.10990	\$0.02967	633,916,939	\$18,808,316
4/1/2020	Nov '19 - Apr '20	\$0.13957	\$0.10990	\$0.02967	639,123,094	\$18,962,782
5/1/2020	May '20 - Oct '20	\$0.09898	\$0.08680	\$0.01218	558,854,535	\$6,806,848
6/1/2020	May '20 - Oct '20	\$0.09898	\$0.08680	\$0.01218	546,602,553	\$6,657,619
7/1/2020	May '20 - Oct '20	\$0.09898	\$0.08680	\$0.01218	772,169,262	\$9,405,022
8/1/2020	May '20 - Oct '20	\$0.09898	\$0.08680	\$0.01218	894,092,688	\$10,890,049
9/1/2020	May '20 - Oct '20	\$0.09898	\$0.08680	\$0.01218	671,208,835	\$8,175,324
10/1/2020	May '20 - Oct '20	\$0.09898	\$0.08680	\$0.01218	511,517,856	\$6,230,287
Total						\$271,093,731



Table AE: Apples-to-Apples Analysis Results – Eversource West

Eversource West						
Month	PTC Period	PTC (in \$ per kWh)	Lowest 6-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
1/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10790	(\$0.00304)	151,614,887	(\$460,909)
2/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10790	(\$0.00304)	124,342,348	(\$378,001)
3/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10790	(\$0.00304)	112,906,442	(\$343,236)
4/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10790	(\$0.00304)	108,429,143	(\$329,625)
5/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10790	(\$0.00304)	85,071,278	(\$258,617)
6/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10790	(\$0.00304)	94,972,790	(\$288,717)
7/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.09250	\$0.00753	128,961,645	\$971,081
8/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.09250	\$0.00753	139,019,832	\$1,046,819
9/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.09250	\$0.00753	123,759,472	\$931,909
10/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.09250	\$0.00753	90,451,699	\$681,101
11/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.09250	\$0.00753	100,784,960	\$758,911
12/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.09250	\$0.00753	124,784,942	\$939,631
1/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	132,026,990	\$908,346
2/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	128,771,073	\$885,945
3/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	113,351,209	\$779,856
4/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	100,104,670	\$688,720
5/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	88,805,638	\$610,983
6/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	88,428,625	\$608,389
7/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.09990	(\$0.00139)	124,581,804	(\$173,169)
8/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.09990	(\$0.00139)	133,206,157	(\$185,157)
9/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.09990	(\$0.00139)	102,116,557	(\$141,942)
10/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.09990	(\$0.00139)	83,030,651	(\$115,413)
11/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.09990	(\$0.00139)	93,558,374	(\$130,046)
12/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.09990	(\$0.00139)	127,866,809	(\$177,735)
1/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10990	\$0.00676	128,092,099	\$865,903
2/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10990	\$0.00676	116,958,094	\$790,637
3/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10990	\$0.00676	103,282,198	\$698,188
4/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10990	\$0.00676	105,404,333	\$712,533
5/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10990	\$0.00676	97,858,915	\$661,526
6/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10990	\$0.00676	88,428,625	\$597,778
7/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.08350	\$0.00670	124,581,804	\$834,698
8/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.08350	\$0.00670	133,206,157	\$892,481
9/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.08350	\$0.00670	102,116,557	\$684,181
10/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.08350	\$0.00670	83,030,651	\$556,305
11/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.08350	\$0.00670	93,558,374	\$626,841
12/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.08350	\$0.00670	127,866,809	\$856,708
Total						\$15,606,904



Table AF: 12-Month Fixed Analysis Results – Eversource East

Eversource East						
Month	PTC Period	PTC (in \$ per kWh)	Lowest 12-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
1/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	708,646,130	\$16,872,864
2/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	552,205,830	\$13,148,021
3/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	522,128,959	\$12,431,891
4/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	453,348,664	\$10,794,232
5/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	421,923,237	\$10,045,992
6/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	470,348,138	\$11,198,989
7/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	652,200,104	\$5,850,235
8/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	751,496,396	\$6,740,923
9/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	681,922,282	\$6,116,843
10/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	472,048,512	\$4,234,275
11/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	487,913,204	\$4,376,581
12/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	547,153,405	\$4,907,966
1/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11200	\$0.02388	614,623,521	\$14,677,210
2/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11200	\$0.02388	568,231,907	\$13,569,378
3/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11200	\$0.02388	547,240,061	\$13,068,093
4/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11200	\$0.02388	443,410,807	\$10,588,650
5/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11200	\$0.02388	413,015,867	\$9,862,819
6/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11200	\$0.02388	437,949,837	\$10,458,242
7/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.11200	(\$0.00364)	655,361,213	(\$2,385,515)
8/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.11200	(\$0.00364)	721,090,170	(\$2,624,768)
9/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.11200	(\$0.00364)	563,691,104	(\$2,051,836)
10/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.11200	(\$0.00364)	450,411,661	(\$1,639,498)
11/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.11200	(\$0.00364)	464,713,033	(\$1,691,555)
12/1/2019	Jul '19 - Dec '19	\$0.10836	\$0.11200	(\$0.00364)	543,991,551	(\$1,980,129)
1/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10480	\$0.02037	596,736,131	\$12,155,515
2/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10480	\$0.02037	534,044,405	\$10,878,485
3/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10480	\$0.02037	484,868,818	\$9,876,778
4/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10480	\$0.02037	493,818,271	\$10,059,078
5/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10480	\$0.02037	469,259,902	\$9,558,824
6/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10480	\$0.02037	437,949,837	\$8,921,038
7/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.10480	(\$0.00603)	655,361,213	(\$3,951,828)
8/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.10480	(\$0.00603)	721,090,170	(\$4,348,174)
9/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.10480	(\$0.00603)	563,691,104	(\$3,399,057)
10/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.10480	(\$0.00603)	450,411,661	(\$2,715,982)
11/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.10480	(\$0.00603)	464,713,033	(\$2,802,220)
12/1/2020	Jul '20 - Dec '20	\$0.09877	\$0.10480	(\$0.00603)	543,991,551	(\$3,280,269)
Total						\$207,522,089



Table AG:12-Month Fixed Analysis Results – Unutil

Unutil						
Month	PTC Period	PTC (in \$ per kWh)	Lowest 12-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
6/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10870	(\$0.00314)	12,507,366	(\$39,273)
7/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10870	(\$0.00314)	15,483,305	(\$48,618)
8/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10870	(\$0.00314)	17,496,167	(\$54,938)
9/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10870	(\$0.00314)	15,110,110	(\$47,446)
10/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10870	(\$0.00314)	12,054,116	(\$37,850)
11/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10870	(\$0.00314)	20,516,850	(\$64,423)
12/1/2018	Dec '18 - May '19	\$0.12915	\$0.10870	\$0.02045	16,080,443	\$328,845
1/1/2019	Dec '18 - May '19	\$0.12915	\$0.10870	\$0.02045	16,879,416	\$345,184
2/1/2019	Dec '18 - May '19	\$0.12915	\$0.10870	\$0.02045	13,291,470	\$271,811
3/1/2019	Dec '18 - May '19	\$0.12915	\$0.10870	\$0.02045	14,504,124	\$296,609
4/1/2019	Dec '18 - May '19	\$0.12915	\$0.10870	\$0.02045	12,547,629	\$256,599
5/1/2019	Dec '18 - May '19	\$0.12915	\$0.10870	\$0.02045	11,236,550	\$229,787
6/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11490	(\$0.01510)	10,649,234	(\$160,803)
7/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11490	(\$0.01510)	16,073,587	(\$242,711)
8/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11490	(\$0.01510)	16,219,019	(\$244,907)
9/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11490	(\$0.01510)	11,787,152	(\$177,986)
10/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11490	(\$0.01510)	11,743,756	(\$177,331)
11/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.11490	(\$0.01510)	11,716,594	(\$176,921)
12/1/2019	Dec '19 - May '20	\$0.12388	\$0.11490	\$0.00898	15,207,777	\$136,566
1/1/2020	Dec '19 - May '20	\$0.12388	\$0.11490	\$0.00898	16,673,348	\$149,727
2/1/2020	Dec '19 - May '20	\$0.12388	\$0.11490	\$0.00898	15,066,422	\$135,296
3/1/2020	Dec '19 - May '20	\$0.12388	\$0.11490	\$0.00898	14,202,287	\$127,537
4/1/2020	Dec '19 - May '20	\$0.12388	\$0.11490	\$0.00898	12,581,483	\$112,982
5/1/2020	Dec '19 - May '20	\$0.12388	\$0.11490	\$0.00898	11,714,947	\$105,200
Total						\$1,022,937



Table AH: 12-Month Fixed Analysis Results – National Grid

National Grid						
Month	PTC Period	PTC (in \$ per kWh)	Lowest 12-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
5/1/2018	May '18 - Oct '18	\$0.10870	\$0.10700	\$0.00170	554,508,598	\$942,665
6/1/2018	May '18 - Oct '18	\$0.10870	\$0.10700	\$0.00170	595,800,262	\$1,012,860
7/1/2018	May '18 - Oct '18	\$0.10870	\$0.10700	\$0.00170	777,864,306	\$1,322,369
8/1/2018	May '18 - Oct '18	\$0.10870	\$0.10700	\$0.00170	876,002,848	\$1,489,205
9/1/2018	May '18 - Oct '18	\$0.10870	\$0.10700	\$0.00170	854,640,299	\$1,452,889
10/1/2018	May '18 - Oct '18	\$0.10870	\$0.10700	\$0.00170	577,523,671	\$981,790
11/1/2018	Nov '18 - Apr '19	\$0.13718	\$0.10700	\$0.03018	584,785,531	\$17,648,827
12/1/2018	Nov '18 - Apr '19	\$0.13718	\$0.10700	\$0.03018	744,094,743	\$22,456,779
1/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.10700	\$0.03018	786,799,900	\$23,745,621
2/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.10700	\$0.03018	724,617,021	\$21,868,942
3/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.10700	\$0.03018	729,284,125	\$22,009,795
4/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.10700	\$0.03018	579,583,256	\$17,491,823
5/1/2019	May '19 - Oct '19	\$0.10793	\$0.10760	\$0.00033	533,916,112	\$176,192
6/1/2019	May '19 - Oct '19	\$0.10793	\$0.10760	\$0.00033	546,602,553	\$180,379
7/1/2019	May '19 - Oct '19	\$0.10793	\$0.10760	\$0.00033	772,169,262	\$254,816
8/1/2019	May '19 - Oct '19	\$0.10793	\$0.10760	\$0.00033	894,092,688	\$295,051
9/1/2019	May '19 - Oct '19	\$0.10793	\$0.10760	\$0.00033	671,208,835	\$221,499
10/1/2019	May '19 - Oct '19	\$0.10793	\$0.10760	\$0.00033	511,517,856	\$168,801
11/1/2019	Nov '19 - Apr '20	\$0.13957	\$0.10760	\$0.03197	557,319,217	\$17,817,495
12/1/2019	Nov '19 - Apr '20	\$0.13957	\$0.10760	\$0.03197	711,831,407	\$22,757,250
1/1/2020	Nov '19 - Apr '20	\$0.13957	\$0.10760	\$0.03197	800,290,404	\$25,585,284
2/1/2020	Nov '19 - Apr '20	\$0.13957	\$0.10760	\$0.03197	673,961,805	\$21,546,559
3/1/2020	Nov '19 - Apr '20	\$0.13957	\$0.10760	\$0.03197	633,916,939	\$20,266,325
4/1/2020	Nov '19 - Apr '20	\$0.13957	\$0.10760	\$0.03197	639,123,094	\$20,432,765
Total						\$262,125,981



Table AI: 12-Month Fixed Analysis Results – Eversource West

Eversource West						
Month	PTC Period	PTC (in \$ per kWh)	Lowest 12-Month REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
1/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	151,614,887	\$736,848
2/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	124,342,348	\$604,304
3/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	112,906,442	\$548,725
4/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	108,429,143	\$526,966
5/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	85,071,278	\$413,446
6/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	94,972,790	\$461,568
7/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	128,961,645	\$3,869
8/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	139,019,832	\$4,171
9/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	123,759,472	\$3,713
10/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	90,451,699	\$2,714
11/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	100,784,960	\$3,024
12/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	124,784,942	\$3,744
1/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	132,026,990	\$908,346
2/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	128,771,073	\$885,945
3/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	113,351,209	\$779,856
4/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	100,104,670	\$688,720
5/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	88,805,638	\$610,983
6/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10990	\$0.00688	88,428,625	\$608,389
7/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.10990	(\$0.01139)	124,581,804	(\$1,418,987)
8/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.10990	(\$0.01139)	133,206,157	(\$1,517,218)
9/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.10990	(\$0.01139)	102,116,557	(\$1,163,108)
10/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.10990	(\$0.01139)	83,030,651	(\$945,719)
11/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.10990	(\$0.01139)	93,558,374	(\$1,065,630)
12/1/2019	Jul '19 - Dec '19	\$0.09851	\$0.10990	(\$0.01139)	127,866,809	(\$1,456,403)
1/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10090	\$0.01576	128,092,099	\$2,018,731
2/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10090	\$0.01576	116,958,094	\$1,843,260
3/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10090	\$0.01576	103,282,198	\$1,627,727
4/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10090	\$0.01576	105,404,333	\$1,661,172
5/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10090	\$0.01576	97,858,915	\$1,542,257
6/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10090	\$0.01576	88,428,625	\$1,393,635
7/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.10090	(\$0.01070)	124,581,804	(\$1,333,025)
8/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.10090	(\$0.01070)	133,206,157	(\$1,425,306)
9/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.10090	(\$0.01070)	102,116,557	(\$1,092,647)
10/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.10090	(\$0.01070)	83,030,651	(\$888,428)
11/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.10090	(\$0.01070)	93,558,374	(\$1,001,075)
12/1/2020	Jul '20 - Dec '20	\$0.09020	\$0.10090	(\$0.01070)	127,866,809	(\$1,368,175)
Total						\$3,206,391



Table AJ: Analysis Period Analysis Results – Eversource East

Eversource East						
Month	Price Comparison Period	PTC (in \$ per kWh)	Lowest REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
1/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	708,646,130	\$16,872,864
2/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	552,205,830	\$13,148,021
3/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	522,128,959	\$12,431,891
4/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	453,348,664	\$10,794,232
5/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	421,923,237	\$10,045,992
6/1/2018	Jan '18 - Jun '18	\$0.12881	\$0.10500	\$0.02381	470,348,138	\$11,198,989
7/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	652,200,104	\$5,850,235
8/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	751,496,396	\$6,740,923
9/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	681,922,282	\$6,116,843
10/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	472,048,512	\$4,234,275
11/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	487,913,204	\$4,376,581
12/1/2018	Jul '18 - Dec '18	\$0.11397	\$0.10500	\$0.00897	547,153,405	\$4,907,966
1/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11170	\$0.02418	614,623,521	\$14,861,597
2/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11170	\$0.02418	568,231,907	\$13,739,848
3/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11170	\$0.02418	547,240,061	\$13,232,265
4/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11170	\$0.02418	443,410,807	\$10,721,673
5/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11170	\$0.02418	413,015,867	\$9,986,724
6/1/2019	Jan '19 - Jun '19	\$0.13588	\$0.11170	\$0.02418	437,949,837	\$10,589,627
7/1/2019	Jul '19 - Oct '19	\$0.10836	\$0.11170	(\$0.00334)	655,361,213	(\$2,188,906)
8/1/2019	Jul '19 - Oct '19	\$0.10836	\$0.11170	(\$0.00334)	721,090,170	(\$2,408,441)
9/1/2019	Jul '19 - Oct '19	\$0.10836	\$0.11170	(\$0.00334)	563,691,104	(\$1,882,728)
10/1/2019	Jul '19 - Oct '19	\$0.10836	\$0.11170	(\$0.00334)	450,411,661	(\$1,504,375)
11/1/2019	Nov '19 - Dec '19	\$0.10836	\$0.10420	\$0.00416	464,713,033	\$1,933,206
12/1/2019	Nov '19 - Dec '19	\$0.10836	\$0.10420	\$0.00416	543,991,551	\$2,263,005
1/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10420	\$0.02097	596,736,131	\$12,513,557
2/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10420	\$0.02097	534,044,405	\$11,198,911
3/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10420	\$0.02097	484,868,818	\$10,167,699
4/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10420	\$0.02097	493,818,271	\$10,355,369
5/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10420	\$0.02097	469,259,902	\$9,840,380
6/1/2020	Jan '20 - Jun '20	\$0.12517	\$0.10420	\$0.02097	437,949,837	\$9,183,808
7/1/2020	Jul '20 - Oct '20	\$0.09877	\$0.10420	(\$0.00543)	655,361,213	(\$3,558,611)
8/1/2020	Jul '20 - Oct '20	\$0.09877	\$0.10420	(\$0.00543)	721,090,170	(\$3,915,520)
9/1/2020	Jul '20 - Oct '20	\$0.09877	\$0.10420	(\$0.00543)	563,691,104	(\$3,060,843)
10/1/2020	Jul '20 - Oct '20	\$0.09877	\$0.10420	(\$0.00543)	450,411,661	(\$2,445,735)
11/1/2020	Nov '20 - Dec '20	\$0.09877	\$0.09410	\$0.00467	464,713,033	\$2,170,210
12/1/2020	Nov '20 - Dec '20	\$0.09877	\$0.09410	\$0.00467	543,991,551	\$2,540,441
Total						\$231,051,971



Table AG: Analysis Period Analysis Results – Unutil

Unutil						
Month	Price Comparison Period	PTC (in \$ per kWh)	Lowest REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
1/1/2018	Jan '18 - May '18	\$0.12340	\$0.10790	\$0.01550	19,741,864	\$305,999
2/1/2018	Jan '18 - May '18	\$0.12340	\$0.10790	\$0.01550	15,246,939	\$236,328
3/1/2018	Jan '18 - May '18	\$0.12340	\$0.10790	\$0.01550	14,140,206	\$219,173
4/1/2018	Jan '18 - May '18	\$0.12340	\$0.10790	\$0.01550	12,775,121	\$198,014
5/1/2018	Jan '18 - May '18	\$0.12340	\$0.10790	\$0.01550	11,449,836	\$177,472
6/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10790	(\$0.00234)	12,507,366	(\$29,267)
7/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10790	(\$0.00234)	15,483,305	(\$36,231)
8/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10790	(\$0.00234)	17,496,167	(\$40,941)
9/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10790	(\$0.00234)	15,110,110	(\$35,358)
10/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10790	(\$0.00234)	12,054,116	(\$28,207)
11/1/2018	Jun '18 - Nov '18	\$0.10556	\$0.10790	(\$0.00234)	20,516,850	(\$48,009)
12/1/2018	Dec '18 - May '19	\$0.12915	\$0.10790	\$0.02125	16,080,443	\$341,709
1/1/2019	Dec '18 - May '19	\$0.12915	\$0.10790	\$0.02125	16,879,416	\$358,688
2/1/2019	Dec '18 - May '19	\$0.12915	\$0.10790	\$0.02125	13,291,470	\$282,444
3/1/2019	Dec '18 - May '19	\$0.12915	\$0.10790	\$0.02125	14,504,124	\$308,213
4/1/2019	Dec '18 - May '19	\$0.12915	\$0.10790	\$0.02125	12,547,629	\$266,637
5/1/2019	Dec '18 - May '19	\$0.12915	\$0.10790	\$0.02125	11,236,550	\$238,777
6/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.10790	(\$0.00810)	10,649,234	(\$86,259)
7/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.10790	(\$0.00810)	16,073,587	(\$130,196)
8/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.10790	(\$0.00810)	16,219,019	(\$131,374)
9/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.10790	(\$0.00810)	11,787,152	(\$95,476)
10/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.10790	(\$0.00810)	11,743,756	(\$95,124)
11/1/2019	Jun '19 - Nov '19	\$0.09980	\$0.10790	(\$0.00810)	11,716,594	(\$94,904)
12/1/2019	Dec '19 - May '20	\$0.12388	\$0.10790	\$0.01598	15,207,777	\$243,020
1/1/2020	Dec '19 - May '20	\$0.12388	\$0.10870	\$0.01518	16,673,348	\$253,101
2/1/2020	Dec '19 - May '20	\$0.12388	\$0.10870	\$0.01518	15,066,422	\$228,708
3/1/2020	Dec '19 - May '20	\$0.12388	\$0.10870	\$0.01518	14,202,287	\$215,591
4/1/2020	Dec '19 - May '20	\$0.12388	\$0.10870	\$0.01518	12,581,483	\$190,987
5/1/2020	Dec '19 - May '20	\$0.12388	\$0.10870	\$0.01518	11,714,947	\$177,833
6/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.10870	(\$0.01570)	10,649,234	(\$167,193)
7/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.10870	(\$0.01570)	16,073,587	(\$252,355)
8/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.10870	(\$0.01570)	16,219,019	(\$254,639)
9/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.10870	(\$0.01570)	11,787,152	(\$185,058)
10/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.10870	(\$0.01570)	11,743,756	(\$184,377)
11/1/2020	Jun '20 - Nov '20	\$0.09300	\$0.10870	(\$0.01570)	11,716,594	(\$183,951)
12/1/2020	Dec '20	\$0.11400	\$0.10870	\$0.00530	15,207,777	\$80,601
Total						\$2,244,376



Table AH: Analysis Period Analysis Results – National Grid

National Grid						
Month	Price Comparison Period	PTC (in \$ per kWh)	Lowest REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
1/1/2018	Jan '18 - Apr '18	\$0.12673	\$0.10790	\$0.01883	926,715,878	\$17,450,060
2/1/2018	Jan '18 - Apr '18	\$0.12673	\$0.10790	\$0.01883	717,373,651	\$13,508,146
3/1/2018	Jan '18 - Apr '18	\$0.12673	\$0.10790	\$0.01883	666,219,492	\$12,544,913
4/1/2018	Jan '18 - Apr '18	\$0.12673	\$0.10790	\$0.01883	619,195,339	\$11,659,448
5/1/2018	May '18 - Oct '18	\$0.10870	\$0.10790	\$0.00080	554,508,598	\$443,607
6/1/2018	May '18 - Oct '18	\$0.10870	\$0.10790	\$0.00080	595,800,262	\$476,640
7/1/2018	May '18 - Oct '18	\$0.10870	\$0.10790	\$0.00080	777,864,306	\$622,291
8/1/2018	May '18 - Oct '18	\$0.10870	\$0.10790	\$0.00080	876,002,848	\$700,802
9/1/2018	May '18 - Oct '18	\$0.10870	\$0.10790	\$0.00080	854,640,299	\$683,712
10/1/2018	May '18 - Oct '18	\$0.10870	\$0.10790	\$0.00080	577,523,671	\$462,019
11/1/2018	Nov '18 - Apr '19	\$0.13718	\$0.10790	\$0.02928	584,785,531	\$17,122,520
12/1/2018	Nov '18 - Apr '19	\$0.13718	\$0.10790	\$0.02928	744,094,743	\$21,787,094
1/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.10790	\$0.02928	786,799,900	\$23,037,501
2/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.10790	\$0.02928	724,617,021	\$21,216,786
3/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.10790	\$0.02928	729,284,125	\$21,353,439
4/1/2019	Nov '18 - Apr '19	\$0.13718	\$0.10790	\$0.02928	579,583,256	\$16,970,198
5/1/2019	May '19 - Oct '19	\$0.10793	\$0.10790	\$0.00003	533,916,112	\$16,017
6/1/2019	May '19 - Oct '19	\$0.10793	\$0.10790	\$0.00003	546,602,553	\$16,398
7/1/2019	May '19 - Oct '19	\$0.10793	\$0.10790	\$0.00003	772,169,262	\$23,165
8/1/2019	May '19 - Oct '19	\$0.10793	\$0.10790	\$0.00003	894,092,688	\$26,823
9/1/2019	May '19 - Oct '19	\$0.10793	\$0.10790	\$0.00003	671,208,835	\$20,136
10/1/2019	May '19 - Oct '19	\$0.10793	\$0.10790	\$0.00003	511,517,856	\$15,346
11/1/2019	Nov '19 - Dec '19	\$0.13957	\$0.10790	\$0.03167	557,319,217	\$17,650,300
12/1/2019	Nov '19 - Dec '19	\$0.13957	\$0.10790	\$0.03167	711,831,407	\$22,543,701
1/1/2020	Jan '20 - Apr '20	\$0.13957	\$0.10880	\$0.03077	800,290,404	\$24,624,936
2/1/2020	Jan '20 - Apr '20	\$0.13957	\$0.10880	\$0.03077	673,961,805	\$20,737,805
3/1/2020	Jan '20 - Apr '20	\$0.13957	\$0.10880	\$0.03077	633,916,939	\$19,505,624
4/1/2020	Jan '20 - Apr '20	\$0.13957	\$0.10880	\$0.03077	639,123,094	\$19,665,818
5/1/2020	May '20 - Oct '20	\$0.09898	\$0.10880	(\$0.00982)	558,854,535	(\$5,487,952)
6/1/2020	May '20 - Oct '20	\$0.09898	\$0.10880	(\$0.00982)	546,602,553	(\$5,367,637)
7/1/2020	May '20 - Oct '20	\$0.09898	\$0.10880	(\$0.00982)	772,169,262	(\$7,582,702)
8/1/2020	May '20 - Oct '20	\$0.09898	\$0.10880	(\$0.00982)	894,092,688	(\$8,779,990)
9/1/2020	May '20 - Oct '20	\$0.09898	\$0.10880	(\$0.00982)	671,208,835	(\$6,591,271)
10/1/2020	May '20 - Oct '20	\$0.09898	\$0.10880	(\$0.00982)	511,517,856	(\$5,023,105)
11/1/2020	Nov '20 - Dec '20	\$0.12388	\$0.10880	\$0.01508	557,319,217	\$8,404,374
12/1/2020	Nov '20 - Dec '20	\$0.12388	\$0.10880	\$0.01508	711,831,407	\$10,734,418
Total						\$285,191,380



Table AI: Analysis Period Analysis Results – Eversource West

Eversource West						
Month	Price Comparison Period	PTC (in \$ per kWh)	Lowest REP Offer (in \$ per kWh)	Available Savings PTC minus REP Offer (in \$ per kWh)	Total kWh for the Residential Class	Available Savings for the Residential Class (in \$ per kWh)
1/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	151,614,887	\$736,848
2/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	124,342,348	\$604,304
3/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	112,906,442	\$548,725
4/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	108,429,143	\$526,966
5/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	85,071,278	\$413,446
6/1/2018	Jan '18 - Jun '18	\$0.10486	\$0.10000	\$0.00486	94,972,790	\$461,568
7/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	128,961,645	\$3,869
8/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	139,019,832	\$4,171
9/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	123,759,472	\$3,713
10/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	90,451,699	\$2,714
11/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	100,784,960	\$3,024
12/1/2018	Jul '18 - Dec '18	\$0.10003	\$0.10000	\$0.00003	124,784,942	\$3,744
1/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10670	\$0.01008	132,026,990	\$1,330,832
2/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10670	\$0.01008	128,771,073	\$1,298,012
3/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10670	\$0.01008	113,351,209	\$1,142,580
4/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10670	\$0.01008	100,104,670	\$1,009,055
5/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10670	\$0.01008	88,805,638	\$895,161
6/1/2019	Jan '19 - Jun '19	\$0.11678	\$0.10670	\$0.01008	88,428,625	\$891,361
7/1/2019	Jul '19 - Oct '19	\$0.09851	\$0.10670	(\$0.00819)	124,581,804	(\$1,020,325)
8/1/2019	Jul '19 - Oct '19	\$0.09851	\$0.10670	(\$0.00819)	133,206,157	(\$1,090,958)
9/1/2019	Jul '19 - Oct '19	\$0.09851	\$0.10670	(\$0.00819)	102,116,557	(\$836,335)
10/1/2019	Jul '19 - Oct '19	\$0.09851	\$0.10670	(\$0.00819)	83,030,651	(\$680,021)
11/1/2019	Nov '19 - Dec '19	\$0.09851	\$0.10389	(\$0.00538)	93,558,374	(\$503,344)
12/1/2019	Nov '19 - Dec '19	\$0.09851	\$0.10389	(\$0.00538)	127,866,809	(\$687,923)
1/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10389	\$0.01277	128,092,099	\$1,635,736
2/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10389	\$0.01277	116,958,094	\$1,493,555
3/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10389	\$0.01277	103,282,198	\$1,318,914
4/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10389	\$0.01277	105,404,333	\$1,346,013
5/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10389	\$0.01277	97,858,915	\$1,249,658
6/1/2020	Jan '20 - Jun '20	\$0.11666	\$0.10389	\$0.01277	88,428,625	\$1,129,234
7/1/2020	Jul '18 - Dec '20	\$0.09020	\$0.10389	(\$0.01369)	124,581,804	(\$1,705,525)
8/1/2020	Jul '18 - Dec '20	\$0.09020	\$0.10389	(\$0.01369)	133,206,157	(\$1,823,592)
9/1/2020	Jul '18 - Dec '20	\$0.09020	\$0.10389	(\$0.01369)	102,116,557	(\$1,397,976)
10/1/2020	Jul '18 - Dec '20	\$0.09020	\$0.10389	(\$0.01369)	83,030,651	(\$1,136,690)
11/1/2020	Jul '18 - Dec '20	\$0.09020	\$0.10389	(\$0.01369)	93,558,374	(\$1,280,814)
12/1/2020	Jul '18 - Dec '20	\$0.09020	\$0.10389	(\$0.01369)	127,866,809	(\$1,750,497)
Total						\$4,139,201



D. Basic Service Price Movement 2018 through 2020

Table AJ: Basic Service Rates and % Movement

Eversource East		
Basic Service Change Month	Basic Service Price (in \$ per kWh)	Absolute Value of Basic Service Price Movement (in %)
1/1/2018	\$0.12881	
7/1/2018	\$0.11397	12%
1/1/2019	\$0.13588	19%
7/1/2019	\$0.10836	20%
1/1/2020	\$0.12517	16%
7/1/2020	\$0.09877	21%
Average		18%

Unitil		
Basic Service Change Month	Basic Service Price (in \$ per kWh)	Absolute Value of Basic Service Price Movement (in %)
1/1/2018	\$0.12340	
6/1/2018	\$0.10556	14%
12/1/2018	\$0.12915	22%
6/1/2019	\$0.09980	23%
12/1/2019	\$0.12388	24%
6/1/2020	\$0.09300	25%
12/1/2020	\$0.11400	23%
Average		22%

National Grid		
Basic Service Change Month	Basic Service Price (in \$ per kWh)	Absolute Value of Basic Service Price Movement (in %)
1/1/2018	\$0.12673	
5/1/2018	\$0.10870	14%
11/1/2018	\$0.13718	26%
5/1/2019	\$0.10793	21%
11/1/2019	\$0.13957	29%
5/1/2020	\$0.09898	29%
11/1/2020	\$0.12388	25%
Average		24%

Eversource West		
Basic Service Change Month	Basic Service Price (in \$ per kWh)	Absolute Value of Basic Service Price Movement (in %)
1/1/2018	\$0.10486	
7/1/2018	\$0.10003	5%
1/1/2019	\$0.11678	17%
7/1/2019	\$0.09851	16%
1/1/2020	\$0.11666	18%
7/1/2020	\$0.09020	23%
Average		16%



E. Average Number of Offers Falling Below the PTC

Table A1: Average Number of Offers Falling Below the PTC by Utility and Year

Eversource East								
Year	Average Number of Offers Posted per Month	Average Number of Fixed Offers Posted per Month	Average Number of Variable Offers Posted per Month	Average Number of Green Offers Posted per Month	Average Number of Offers per Month Below the PTC	Average Number of Fixed Offers per Month Below the PTC	Average Number of Variable Offers per Month Below the PTC	Average Number of Green Offers per Month Below the PTC
2018	188	41	79	68	65	18	32	15
2019	169	31	71	67	75	15	37	23
2020	150	13	61	75	62	5	30	27
Analysis Period	169	28	71	70	67	13	33	21
Unitil								
Year	Average Number of Offers Posted per Month	Average Number of Fixed Offers Posted per Month	Average Number of Variable Offers Posted per Month	Average Number of Green Offers Posted per Month	Average Number of Offers per Month Below the PTC	Average Number of Fixed Offers per Month Below the PTC	Average Number of Variable Offers per Month Below the PTC	Average Number of Green Offers per Month Below the PTC
2018	18	6	8	4	6	3	2	1
2019	14	3	7	4	4	1	3	1
2020	13	1	7	5	4	0	3	2
Analysis Period	15	3	7	4	5	1	2	1
National Grid								
Year	Average Number of Offers Posted per Month	Average Number of Fixed Offers Posted per Month	Average Number of Variable Offers Posted per Month	Average Number of Green Offers Posted per Month	Average Number of Offers per Month Below the PTC	Average Number of Fixed Offers per Month Below the PTC	Average Number of Variable Offers per Month Below the PTC	Average Number of Green Offers per Month Below the PTC
2018	78	16	35	27	25	6	12	7
2019	72	15	30	27	32	7	15	11
2020	61	5	26	30	29	2	14	13
Analysis Period	70	12	30	28	29	5	14	10
Eversource West								
Year	Average Number of Offers Posted per Month	Average Number of Fixed Offers Posted per Month	Average Number of Variable Offers Posted per Month	Average Number of Green Offers Posted per Month	Average Number of Offers per Month Below the PTC	Average Number of Fixed Offers per Month Below the PTC	Average Number of Variable Offers per Month Below the PTC	Average Number of Green Offers per Month Below the PTC
2018	49	12	19	18	4	1	3	1
2019	51	9	21	21	13	4	5	5
2020	44	3	19	21	16	1	10	6
Analysis Period	48	8	20	20	11	2	6	4
All Utilities	302	51	128	123	112	21	55	36