STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE 16-E-0060 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service.

CASE 16-G-0061 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Gas Service.

CASE 15-E-0050 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service.

CASE 16-E-0196 – Tariff filing by Consolidated Edison Company of New York, Inc. to revise General Rule 20 Standby Service contained in its electric tariff schedules, P.S.C. Nos. 10 and 12.

Comments Supporting Resolution of Outcome-based EAM Collaborative Issues

November 1, 2016

Consolidated Edison Company of New York, Inc., New York State Department of Public Service, Environmental Defense Fund, Association for Energy Affordability, Inc., Acadia Center, Pace Energy and Climate Center, and Natural Resources Defense Council

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1. Background

The regulatory policy of earning adjustment mechanisms ("EAMs") was introduced within the Reforming the Energy Vision ("REV") proceeding, and was formalized in the Track 2 Order.[1] The Track 2 Order specified that EAMs be implemented in utility rate filings.[2] The Joint Proposal recommends five energy efficiency and system efficiency EAMs for Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company").[3] Two of the five EAMs are program-achievement based. One of the program-achievement based EAMs incentivizes incremental gigawatt-hour ("GWh") savings and the other incentivizes incremental system peak megawatt ("MW") reductions.

The remaining three EAMs described in the Joint Proposal are not program-achievement based, but rather outcome-based. The outcome-based EAMs are Energy Intensity, Customer Load Factor, and Distributed Energy Resource ("DER") Utilization. The Signatory Parties broadly defined the goals of these outcome-based EAMs in the Joint Proposal and deferred the details of the outcome-based EAMs to a collaborative ("the Collaborative"). The Collaborative was tasked to commence in September 2016 and complete work on EAMs for Rate Year ("RY") 1 by November 1, 2016. If agreement on EAM metrics was reached by the Collaborative, the Collaborative participants would then prepare a consensus report describing the agreement of the outcome-based metrics and associated EAMs. It is the intent and expectation of the Signatory Parties to the Joint Proposal that the details of the EAMs for RY1, including incentive levels, as appropriate, will be considered by the Commission simultaneously with its consideration of the Joint Proposal.

The Track 2 Order states "EAMs will be evaluated for their effectiveness with opportunities to revise EAMs."[4] The Collaborative parties intend to reconvene at least three months prior to the start of RY2, and RY3 if necessary, to define the metric details and EAMs for RY2 and RY3. Under the Joint Proposal, the Collaborative parties will evaluate the three outcome-based EAMs defined herein, and recommend revised and updated metrics, targets, and EAMs as appropriate. Revisions and updates to the metrics and EAMs may include, but are not limited to, changes to the metrics, interim trends, analysis, and experience with implementation of the RY1 EAMs.

2. Summary of Outcome-based EAM Collaborative

On September 29, 2016, the Collaborative began the process of developing RY1 metrics, targets, and incentive levels for the DER Utilization, Customer Load Factor, and Energy Intensity outcome-based EAMs. The Collaborative proceeded with the goal of submitting this Consensus Report on November 1, 2016. All Con Edison 2016 Rate Case Parties were invited to join the Collaborative. Parties participating in all or some of the subsequent Collaborative meetings included Con Edison, New York State

[1] Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework (issued May 19, 2016) ("Track 2 Order").
[2] *Id*. p. 154.
[3] Case 16-E-0060, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service, Joint Proposal (filed September 20, 2016).
[4] Track 2 Order, p. 70.

Department of Public Service ("Staff"), Acadia Center, Association for Energy Affordability, Inc., City of New York, Consumer Power Advocates, Environmental Defense Fund, Natural Resources Defense Council, New York Energy Consumers Council, Pace Energy and Climate Center, Public Utility Law Project, and the County of Westchester. Parties that have indicated their affirmative support to the proposal outlined in this comments include Con Edison, New York State Department of Public Service, Environmental Defense Fund, Association for Energy Affordability, Inc., Acadia Center, Pace Energy and Climate Center, and Natural Resources Defense Council. Parties that stated they neither support nor oppose the proposal outlines in these comments include Consumer Power Advocates, the County of Westchester, and New York Energy Consumers Council.

Due to the tight timeframe to achieve the Collaborative goals, the Collaborative held ten sessions from September 29, 2016 through November 1, 2016. The Joint Proposal, Track 2 Order and the work of the Clean Energy Advisory Council's Energy Efficiency Procurement and Market Operations Working Group provided important background information for EAM development. The Collaborative began by agreeing on guiding principles and objectives, then developed metrics for each outcome-based EAM, and finished with defining targets and allocating incentives among the EAMs.

In this report, the Collaborative parties that support this proposal have developed recommendations for the metrics and targets of each outcome-based EAM for RY1. The Collaborative parties also noted the importance of potentially adjusting outcome-based EAMs for future RYs.

3. Outcome-based EAMs

a. DER Utilization

i. Discussion

The Joint Proposal broadly defines the DER Utilization EAM as:

> DER Utilization – this EAM is intended to encourage Con Edison to work with DER providers and expand the use of DER in its service territory both for the purposes of reducing customer reliance on grid-supplied electricity and for beneficial electrification.[5]

[5] Joint Proposal, p. 78.

For the purpose of RY1, DERs are defined in Table 1 below:

Table 1: DER Utilization technologies

Reducing customer reliance on grid-supplied electricity	Beneficial electrification
Solar photovoltaics (PV)	Thermal storage
Combined heat and power (CHP)	Heat pumps
Fuel cells	EV charging
Battery storage[6]	
Demand response (DR)	

DERs will be measured in terms of the annualized megawatt-hour ("MWh") produced, consumed, discharged, or reduced from incremental (new to the Rate Year) resources. MWh would be treated as positive values with the sum of produced and consumed energy determining achievement against a target; that is, 1 MWh produced is equivalent to 1 MWh consumed for the purpose of the metric. Because not all DERs are individually metered or measured, MWh produced or consumed by incremental DERs will be determined on an annualized basis using fixed assumptions, described below. The Company will validate metric MWh conversion assumptions against a sample of DER technologies. Those validations will inform future rate year assumptions related to DER Utilization. If and when DERs are individually measured and DERs' operational data becomes available, the DER Utilization metric will be updated to reflect measured data.

ii. Metric

The DER Utilization Metric will be the sum of the MWh produced, consumed, discharged, or reduced by the DERs in the table above and will be calculated as follows.

DER Utilization (MWh) = Community and Rooftop Solar PV MWh annualized production
+ Combined heat and power ("CHP") MWh annualized production
+ Fuel cell MWh annualized production
+ Battery storage MWh annualized discharge
+ Demand response MWh annualized reduction
+ Thermal storage MWh annualized consumption
+ Battery storage MWh annualized charging
+ Heat pump MWh annualized consumption
+ Electric Vehicle MWh annualized charging

[6] Battery storage has the unique characteristic of being both a DER reducing customer reliance on grid-supplied electricity, and a DER with beneficial electrification. Battery storage charges off peak, typically from low carbon-emitting sources, which is a beneficial electrification (consumption). Battery storage discharges on peak, reducing customer reliance on the grid. Additionally, battery storage often provides resiliency benefits.

iii. Measurement

Reductions in Customer Load

Community and Rooftop Photovoltaics

Annualized MWh produced by incremental Solar PV installations in the Con Edison service territory during RY1 will be calculated as:

[Megawatts Solar PV] * [8760 hours per year] * [13.4% annual capacity factor][7]

Megawatts Solar PV is defined as the end-of-rate-year incremental installed capacity of behind-the-meter Solar PV.

End-of-year incremental installed capacity will be tracked from interconnected Solar PV submitted through the New York State Standardized Interconnection Requirements ("NYS SIR") process. The Company intends to validate capacity factor assumptions using any available data from directly metered PV installations for the purpose of informing targets for future rate years.

Combined Heat and Power ("CHP")

CHP measurement will consider all new CHP installations in the Company's service territory during RY1. For installations less than or equal to 5 MW nameplate capacity, installation specifications will be obtained from the NYS SIR reporting process. For installations greater than 5 MW nameplate capacity, installation specifications will be obtained from the Electric Interconnection Contract ("EIC") process. To calculate annualized MWh from CHP installations, CHP nameplate capacity will be multiplied by 8,760 hours and a capacity factor of 75 percent.[8] The Company intends to validate capacity factor assumptions using any available data from metered CHP customers on Standby rates or on the Rider H tariff, for the purposes of informing targets for future rate years.

Fuel Cells

The fuel cell measurement will consider all new fuel cell installations in the Company's service territory during RY1. For installations less than or equal to 5 MW nameplate capacity, installation specifications will be obtained from the NYS SIR process. For installations greater than 5 MW nameplate capacity, installation specifications will be obtained from the EIC process. To calculate MWh, installation nameplate capacity will be multiplied by 8,760 hours and a capacity factor of 91 percent.[9] The Company intends to validate capacity factor assumptions using any information available from metered fuel cell installations, such as those installed as part of a Non-Wires Alternative ("NWA") project, for the purposes of informing targets for future rate years.

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[7] NYSERDA NY-Sun Initiative Program Manual, p. 10.
[8] NYSERDA Distributed Generation-Combined Heat and Power Impact Evaluation, March 2015, p. 12.
[9] *Id.* p. 12.

Batteries

Annualized MWh discharged (produced) by incremental behind-the-meter battery installations in the Con Edison service territory during RY1 will be calculated as:

[Daily battery inverter discharge rating (MWh)] * [365 days per year][10]

End-of-year incremental installed capacity will be tracked from interconnected battery storage submitted through the SIR process. The Company intends to validate capacity factor assumptions using any information available from metered battery installations, such as those installed as part of REV Demonstration projects, for the purposes of informing targets for future rate years.

Demand Response

The Demand Response ("DR") MWh measurement will consider all new entrants into the Con Edison Commercial DR programs (Commercial System Relief Program and Distribution Load Relief Program) and New York State Independent System Operator ("NYISO") Special Case Resources ("SCR") DR program during RY1. Con Edison is able to estimate the actual MWh attributable to its DR programs and most MWh attributable to the NYISO SCR program; given that not all NYISO participants have Con Edison billing interval meters. For any NYISO SCR program MWh not tracked by the Company, new entrant performance data will be retrieved from NYISO at the end of RY1 as NYISO DR participants submit data to the NYISO at year-end for settlement. For the purposes of measuring MWh for inclusion in the RY1 DER Utilization metric, the Company will multiply incremental new MW in each applicable DR program by (i) the total annual program event duration, in hours, during RY1 and (ii) the average annual performance, in percent, of DR in that program. A sum of all load relief, in MWh, from all the DR programs will then be included in the DER Utilization metric. Given that DR event activations are directly impacted by weather and operational needs that vary significantly, other methods of including DR will be considered for future rate years.

Beneficial Electrification

Batteries

Annualized MWh consumed by behind-the-meter battery installations charging in the Con Edison service territory during RY1 will be calculated as:

[Daily battery inverter discharge rating (MWh)] * [365 days per year] / [83% round trip efficiency]

End-of-year incremental installed capacity will be tracked from interconnected battery storage submitted through the SIR process. The Company intends to validate battery charging assumptions using

[10] Refer to Appendix B, Page B-12 of DOE/EPRI Electricity Storage Handbook

any information available from metered battery installations, such as those installed as part of REV Demonstration projects, for the purposes of informing targets for future rate years.

Thermal Energy Storage

The thermal energy storage beneficial load measurement will consider all new thermal energy storage, distinguished from chillers that do not utilize storage to shift load, installations in the Company's service territory during the measurement period. The Company will utilize each installation's specifications to determine tonnage capacity, hours per charge, and total annualized charges. The Company will then apply a 0.55 kW per ton factor to reach total kWh attributable to thermal energy storage.

$$(Installs)\ \mathrm{X}\left(\frac{0.55kW}{ton}\right)\ X\ \left(\frac{tons}{install}\right) X\ \left(\frac{hours}{charge}\right) X\ (total\ annualized\ charges)$$

Project specifications will be collected through the Company's system peak reduction program[11], which is expected to provide incentives for thermal energy storage projects. If a project is installed outside of the system peak reduction program, the Company will request the required information from the companies or customers involved. The Company intends to validate beneficial electrification assumptions using any information available from thermal storage installations, such as those installed as part of a system peak reduction program, for the purposes of informing targets for future rate years.

Heat Pumps

The heat pump beneficial load measurement will consider all new heat pump installations in the Company's service territory during the measurement period. To the extent that the Company is able to distinguish heat pumps that (i) previously used fossil fuels for heating purposes, (ii) used electric resistive heating for heating purposes and, (iii) installed heat pumps for cooling purposes, the Company will categorize accordingly to inform assumptions related to beneficial electrification to be used in future rate years. The Company currently offers heat pump installation incentives through its residential energy efficiency program, and tracks new installations and associated MWh. Heat pump MWh calculations are calculated using the measurement period's applicable version of the Technical Resource Manual.[12]

Electric Vehicles

The Electric Vehicle ("EV") beneficial load measurement will consider all new EV registrations; this will include Plug-In Electric Vehicles ("PHEVs") and Battery Electric Vehicles ("BEVs"). The Company currently tracks registrations in its service territory via New York State Department of Motor Vehicle

[11] The Company intends to develop a system peak reduction program, pursuant to approval of the Joint Proposal which provides additional information related to the program, which is expected to include thermal storage as an eligible technology.

[12] Refer to Residential and Commercial Heat Pump sections in New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs, effective January 1, 2017

data. The MWh associated with EVs is a result of multiplying the registered number of BEVs and PHEVs by their average daily energy consumption[13], as shown below:

$$(\#\ of\ \boldsymbol{BEVs})\ X\ \left(\frac{10.33kWh}{weekday}\right) X\ \left(\frac{weekdays}{year}\right) + (\#\ of\ \boldsymbol{PHEVs})\ X\ \left(\frac{7.0kWh}{weekday}\right) X\ \left(\frac{weekdays}{year}\right)$$

The Company intends to validate beneficial electrification assumptions using any information available based on measured samples, such as from those installed as part of a Company EV Program[14] which is expected to utilize data logging or similar technology to collect charging data, for the purposes of informing targets for future rate years.

b. Customer Load Factor

i. Discussion

In the Joint Proposal filed with the Public Service Commission ("PSC") on September 16, 2016, Customer Load Factor ("CLF") is identified as one of the three outcome-based EAMs that "incentivizes Con Edison to improve the load factor of poor load factor customers in a manner which is consistent with REV's three environmental goals."

The Collaborative identified the three environmental goals referred to in the Joint Proposal to be (i) 40 percent reduction in Greenhouse Gas ("GHG") emissions from 1990 levels, (ii) 23 percent decrease in energy consumption in buildings from 2012, and (iii) 50 percent generation of electricity generated from renewable energy sources[15] noting, however, that goals (i) and (ii) are not directly attributable to any PSC Orders or directives, to the knowledge of this Collaborative, while goal (iii) has been adopted through the *Order Adopting A Clean Energy Standard.*[16]

ii. Metric

The collaborative has defined CLF for RY1 to be customer-specific and calculated as a ratio of the average summer customer demand to the peak customer demand. In other words,

$$Customer\ Load\ Factor\ (CLF) = \frac{Customer\ Average\ Load\ (MW)}{Customer\ Peak\ Load\ (MW)}$$

[13] The average consumption for BEVs and PHEVs is based on the New York State Energy Research and Development Authority ("NYSERDA") funded study, *Electricity Pricing Strategies to Reduce Grid Impacts from Plug-in Electric Vehicle Charging in New York State*.

[14] The Company intends to develop an EV program, pursuant to approval of the Joint Proposal which provides additional information related to the program.

[15] The environmental goals were directly incorporated from the stated REV objectives as published on the New York Department of Public Service's website (retrieved on October 12, 2016) http://www3.dps.ny.gov/W/PSCWeb.nsf/All/CC4F2EFA3A23551585257DEA007DCFE2?OpenDocument.

[16] Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Order Adopting a Clean Energy Standard (issued August 1, 2016).

The parties to the Collaborative, who have indicated their support for the recommendations in this report, agreed that the CLF metric identified above will be investigated for appropriateness and continued use in RY2 or beyond.[17]

iii. RY1 Activities

In RY1, the Company will undertake to complete the following tasks to identify customers with low load factors:

- Develop a list of all customers who have utility interval meters that measure their energy consumption from the electric grid at, at minimum, 15-minute intervals and for whom sufficient amount of annual data is available.
- Further develop a list of a subset of customers from the previously identified set of customers whose peak electricity demand occurs at a time that is most coincident with time that the network or local load area electricity demand peaks. The Company will work in consultation with Staff to develop a methodology to measure coincidence of demand with local grid peaks. Further, in determining coincidence the Company will consider electricity usage during the summer period defined as May 1 through September 30 of RY1, the same seasonal period when the Con Edison system electricity demand peaks.[18] The Company will anonymize customer data prior to consultation with the Collaborative parties in order to protect confidentiality of customer information.
- From the subset identified above, develop, in consultation with the Collaborative parties, a set of criteria to divide the subset of customers into different "strata" and further develop final lists of customers from each stratum that are in the bottom quartile of their stratum. This list of customers would constitute the low load factor customers identified in RY1.[19]

For RY1, as identified above, the Company efforts, in collaboration with Staff, will be focused on (i) developing procedures to determine low load factors customers whose peak demand is coincident with

[17] CLF, as defined in this report, may not always align with the identified environmental goals. For example, CLF can worsen (decrease) with greater penetration of energy efficiency if the energy efficiency measures result in reducing the average load to a greater degree as compared to the peak load, even while such energy efficiency measures could have beneficial impacts on environmental goals. Similarly, other technologies may improve (or increase) CLF while negatively impacting environmental goals such as GHG emissions. To appropriately account for such impacts, suitability of the use of the metric and any appropriate adjustments to it will be evaluated before adoption of a CLF metric for RY2.

[18] To inform the RY2 CLF measurement period, the Company will provide anonymized data for identified low load factor customers from the May 1 through September 30 (the Company's Demand Response Program "summer") and June 1 through September 30 (the Company's Standby Rate "summer") measurement periods.

[19] Upon identification of the final list of customers that have low load factors, the Company will investigate programs and solutions that will improve the load factors for such customers even as environmental impacts of such programs and solutions are taken into consideration. This information will be considered as metric and targets are determined for RY2. Further, for RY2 and later years, any loss of identified low load factor customers, such as from relocations, from the Company territory will be considered when determining the CLF metric, targets and EAMs. Additionally, the customer identification process may also identify customers with little or no ability or willingness (e.g. for business reasons) to improve load factor and, for future rate years, exclusion of such customers from the CLF metric will be considered.

network or local load area demand, (ii) identifying low load factor customers belonging to a variety of different strata, (iii) conducting analysis to determine possible programs and solutions applicable to such customers, and (iv) developing an understanding of impacts of the CLF metric definition, and potential program and solutions on the environmental goals. These efforts will help inform development of the CLF metric for RY2. Given that additional analysis is necessary to meaningfully develop CLF, the Collaborative recommends that no targets or any associated incentives be allocated to CLF for RY1.

c. Energy Intensity

i. Discussion

The Energy Intensity outcome-based EAM is intended to incentivize efforts that will result in a decrease in energy intensity beyond recent trajectories. To the extent that the decline in energy intensity improves beyond the trend in energy intensity that has taken place since 2010, the Company will earn the Energy Intensity outcome-based EAM. To this end, Energy Intensity performance targets will be set such that the levels of residential kWh per customer and commercial kWh per employee at the end of RY1 will fall below the declining intensity trajectory.

ii. Metrics

The two Energy Intensity metrics will be defined as: (1) energy use per customer for Service Classification 1 ("SC1") and (2) energy use per employee for the combined Service Classification 2 ("SC2") and Service Classification 9 ("SC9").[20] The metrics will be calculated using monthly weather normalized sales data. The metrics in each month will be expressed as the 12-month rolling average of weather normalized kWh use per customer for SC1 and the 12-month rolling average of weather normalized kWh use per employee for the combined SC2 and SC9.

Metric Components

1. Numerator
    a. The kWh sales figures in the numerators for the residential and commercial energy intensity metrics will be the 12-month rolling weather normalized monthly sales. The 12-month rolling sales will be adjusted ex-post for incremental (new in RY1) beneficial usage, prorated by month of adoption.[21]

[20] New York Power Authority ("NYPA"), SC8, and SC12 were considered for inclusion in intensity metrics, but proved impractical to include in the metrics as defined in RY1. Additionally, SC8 and SC12 master-metered customers, while primarily residential consumption, may have varying sub-metered occupancy within a single master-metered customer, and would not be appropriate to include in the kWh/customer metric. The Collaborative parties supporting recommendations in this report recommend inclusion of NYPA, SC8, and SC12 in an Energy Intensity metric for future rate years.

[21] For future rate years, Collaborative parties supporting recommendations in this report, recommend adjustment of beneficial electrification beyond what exists in the trend line. Therefore, for future rate years, the energy intensity metrics would adjust out incremental beneficial electrification above and beyond the RY1 achievement.

b. Prior to normalization, sales will be adjusted for identified incremental beneficial usage, except for heat pumps in RY1.[22] The incremental beneficial usage, as included in the DER Utilization metric less heat pumps, will be attributed to an appropriate service classification. Attribution to service classification will be based on actual account-level participation. The 12-month rolling commercial sales will be adjusted for any identified incremental commercial beneficial usage and the 12-month rolling residential sales will be adjusted for any identified incremental residential beneficial usage. Adjustments of the battery storage charging beneficial use will only be the efficiency loss (i.e. charging kWh less discharging kWh).

2. Denominator
    a. The denominator of the SC1 Energy Intensity metric will be calculated using the average monthly number of active SC1 residential customer accounts in each monthly measurement period.
    b. The denominator of the combined SC2 and SC9 Energy Intensity metric will be average monthly total private employment[23] for the six counties in Con Edison's service territory, based on Quarterly Census of Employment and Wages, as defined by the US Bureau of Labor Statistics.

Normalization

Sales were normalized for weather by service classification using models developed by Staff. The dependent variables are sales per customer for the residential model and sales per employee for the commercial models, both in natural logarithm transformation. The independent variables in the models are billing cycle monthly Heating Degree Days ("HDD") and Cooling Degree Days ("CDD"), defined the same as used for the sales forecast in this rate case. All models are adjusted for billing days and include a linear time trend dummy variable representing the impact of energy efficiency programs. The models were estimated by the least square regression method using historical data from January 2010 through December 2015. Normal weather is defined as a 10-year average CDD and HDD for 2006-2015.

The weather coefficients and mathematical representation of the weather normalization models are included in Appendix A. These coefficients and 10-year average based normal weather figures will remain fixed for the calculation of weather normalized sales used to determine the Energy Intensity metric values at the end of RY1 (i.e., after December of 2017).

[22] Heat pump adoption for electric energy efficiency may result in a net decrease in electric consumption. Heat pump adoption for fuel-switching is a beneficial electrification. The Collaborative will incorporate, for future rate years, methods to adjust the energy intensity metrics for heat pump beneficial electrification.

[23] For future rate years, Collaborative parties supporting recommendations in this report, agree it is appropriate to consider total employment, i.e., public and private employment, upon inclusion of public energy sales (NYPA related sales) and, potentially, upon revisions to the intensity model to include total employment.

iii. Measurement

Target

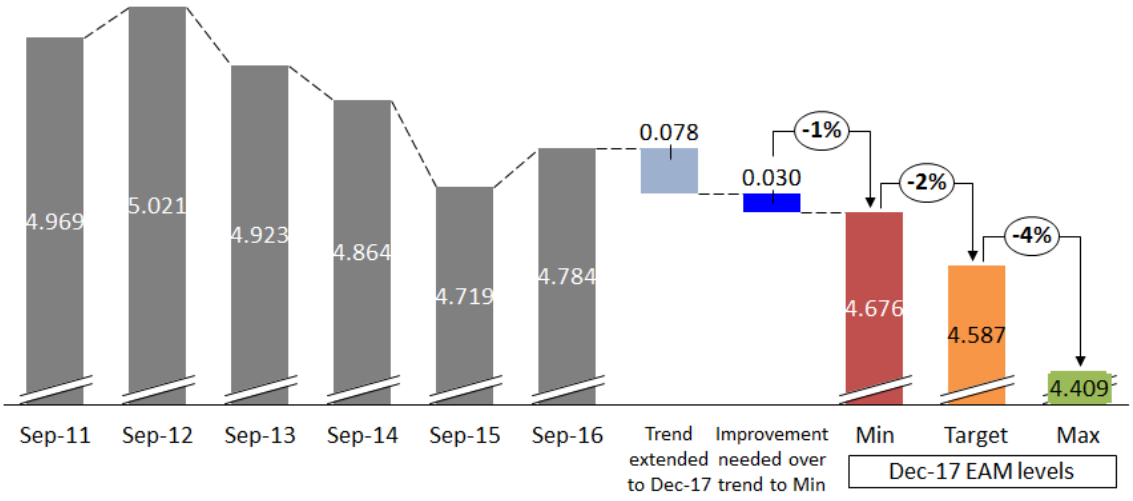
The weather normalized 12-month rolling December 2017 target for the residential SC1 Energy Intensity kWh per customer metric will be set at 4.676 minimum, 4.587 target and 4.409 maximum.

The weather normalized 12-month rolling December 2017 target for the commercial SC2 plus SC9 Energy Intensity kWh per employee metric will be set at 7.164 minimum, 6.931 target and 6.465 maximum.

These targets are intended to ensure improvement on projected December 2017 12-month weather adjusted rolling 4.706 kWh per residential (SC1) customer and 7.241 kWh per private sector employee (SC2 plus SC9) as of December 2017, which would occur if the recent intensity improvements continue at the same rate from the last observed point(s).

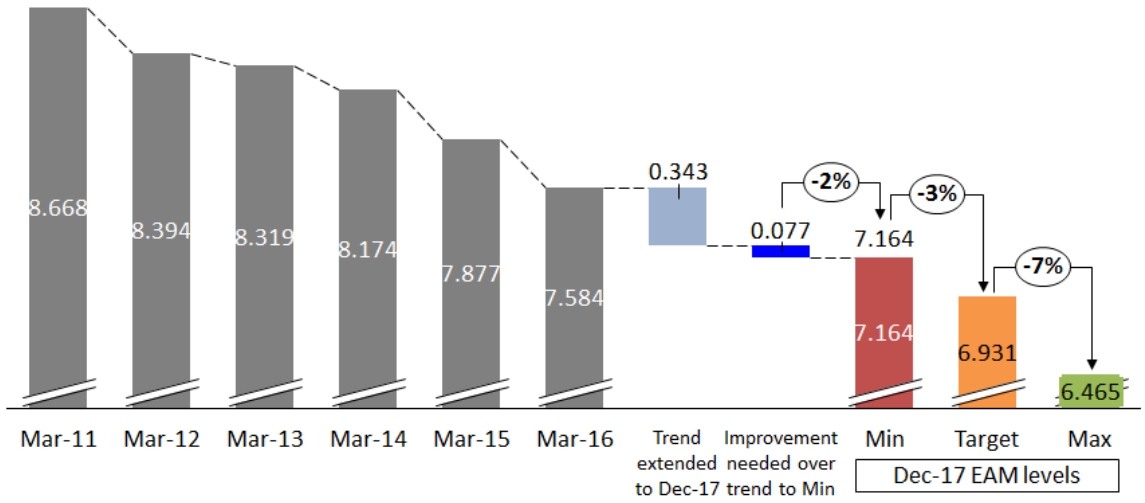
Residential energy intensity

Annual MWh per SC 1 customer



Commercial energy intensity

Annual MWh per employee



The target levels were determined as follows:

A simple linear trend was estimated on rolling 12-month weather normalized energy intensity figures covering the period of December 2010 through September 2016 for residential SC1 and covering the period of December 2010 through March 2016 for the combined commercial SC2 plus SC9. These estimation periods reflect all of the necessary actual sales, customer counts, employment and degree day information available to date. The equations for the estimated trend lines (along with coefficient estimates and standard errors) are shown in Appendix A. The estimated trend lines were shifted so as to continue off of the most recent 12-month rolling actual in each service classification. These trend lines were extended out to December 2017 at the same slope as the historical trend and represent the recent trajectory. The Energy Intensity metric targets reflect a reduction in the following amounts from the level of each shifted trend line in December 2017: the minimum level is set at 0.25 standard deviations below each December 2017 shifted trend line value; the target level is set at 1.00 standard deviations below each December 2017 shifted trend line value; and the maximum level is set at 2.5 standard deviations below each December 2017 shifted trend line value.

Linear Progression

The EAM incentives for the residential and commercial Energy Intensity metrics will be based on a straight line linear progression from the minimum to the maximum energy intensity levels (i.e., there is no inflection point at the target level).

4. Outcome-Based EAM Incentives

$Million	Min	Target	Max
DER Utilization	0.06	1.11	2.72
Residential Energy Intensity	0.11	0.39	0.95
Commercial Energy Intensity	0.20	0.72	1.76
TOTAL	**0.37**	**2.22**	**5.43**

Metric target	Min	Target	Max
DER Utilization (MWh)	150,000	244,500	360,000
Residential Energy Intensity	4.676	4.587	4.409
Commercial Energy Intensity	7.164	6.931	6.465

5. Reporting

The Joint Proposal includes a compliance filing on March 31, 2018 for reporting EAM achievements.[24] The Company intends to report the results of the outcome-based EAMs in the aforementioned compliance filing with cost recovery mechanisms similar to the program-achievement based EAMs.[25]

[24] Joint Proposal, p. 80.

[25] In the event achievement of an EAM cannot be determined due to reporting lag of external sources (e.g., Quarterly Census of Employment and Wages, NYS Department of Motor Vehicles registrations, etc.) the Company will report achievement of the EAM in a compliance filing submitted after the external data becomes available. Cost recovery for the achievement, if any, will commence 45 days following the compliance filing in a manner similar to other EAMs.

Appendix A: Energy Intensity Models

Weather Normalization Models

Residential Model

LOG((S1/BDA)/N1) = -8.026883 - (0.000968*TIME + 0.0001502*CDD + 0.000278*HDD)

Commercial Models

LOG((S2/BDA)/EMP) = -09.948050 - (0.002238*TIME + 0.000707*CDD + 0.00028*HDD)

LOG((S9/BDA)/EMP) = -7.350129 - (0.002062*TIME + 0.000638*CDD + 0.0000579*HDD)

Where LOG stands for natural logarithm transformation; S1, S2, S9 are sales for SCs 1, 2, and 9; BDA is billing days indexed to January 2010; N1 is # of SC 1 customers; EMP represents total private employment for the six counties in Con Edison service area (Bronx, Kings, New York, Queens, Richmond, and Westchester); TIME is 0 for January 2010, 1 for February 2010, … with monthly increment of 1; CDD is billing cycle cooling degree days (57.5 F based average of dry bulb and wet bulb) and HDD is billing cycle heating degree days (65 F based); historical data for 2010-2015 (24 data points) are used to estimate the models.

Linear Energy Intensity Trend Models

Residential Energy Intensity Trend Line

sc1_wn = 5.135264-(0.005234 x TIME)

S.E. of regression = 0.05274

Commercial Energy Intensity Trend Line

sc29_wn = 8.892231-(0.016351 x TIME)

S.E. of regression = 0.061836

Where sc1_wn stands for the monthly 12-month rolling SC1 residential sales per customer and sc29_wn stands for the monthly 12-month rolling combined SC1 and SC9 sales per employee in Con Edison service area; TIME is 0 for January 2010, 1 for February 2010, etc.

Appendix B: System Peak and Load Factor Report Card[26]

i. Historic normalized system peak (past 10 years) and current normalized system peak (non-coincident and coincident to the New York Control Area ("NYCA") peak).

Year	Con Edison System Peak (MW)	NYCA Coincident Peak (MW)
2006	13,350	13,257
2007	13,550	13,550
2008	13,700	13,690
2009	13,575	13,581
2010	13,150	13,150
2011	13,100	13,100
2012	13,100	13,127
2013	13,500	13,315
2014	13,600	13,401
2015	13,600	13,487
2016	*13,450*	*13,450*

ii. Historic normalized annual system load factor (past 10 years) and current normalized load factor.

Year	Con Edison System Load Factor (%)
2006	52.1%
2007	52.4%
2008	51.9%
2009	51.7%
2010	53.3%
2011	53.1%
2012	53.0%
2013	51.1%
2014	50.7%
2015	50.5%
*2016**	*51.0%*

**Sendout 2016 actual and forecasted from 2016 Rate Case Update*

[26] Pursuant to the Joint Proposal (p. 78), the Company is providing a report card showing historic and current normalized system peak along with historic and current annual system load factor.