

**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.

## 2017 Outcome-based EAM Collaborative Report

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August 23, 2017

**COLLABORATIVE PARTICIPANTS**

Acadia Center, Association for Energy Affordability, Inc., City of New York, Consolidated Edison Company of New York, Inc., Consumer Power Advocates, E Cubed, Environmental Defense Fund, New York State Department of Public Service, New York Energy Consumers Council, New York Metropolitan Transportation Authority, Pace Energy and Climate Center, Public Utility Law Project, Tesla, Utility Intervention Unit, and the County of Westchester

## Table of Contents

1. Background .....	2
2. Summary of 2017 Outcome-based EAM Collaborative .....	2
3. Outcome-based EAMs.....	3
a. DER Utilization.....	3
i. Discussion.....	3
ii. Measurement.....	5
b. Energy Intensity .....	9
i. Discussion.....	9
iii. Measurement .....	10
c. Customer Load Factor .....	12
i. Discussion.....	12
d. Greenhouse Gas Reduction .....	13
4. Outcome-Based EAM Incentives.....	14
5. Reporting.....	14
Appendix A: Energy Intensity Models.....	15

## **1. Background**

The Public Service Commission's ("Commission") *Order Approving Electric and Gas Rate Plans* ("Order") in these proceedings adopted energy efficiency and system efficiency earnings adjustment mechanisms ("EAMs") for Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company").<sup>1</sup> The EAM concept was introduced in the Reforming the Energy Vision ("REV") proceeding and formalized in the REV Track 2 Order.<sup>2</sup>

Two of the EAMs are program-achievement based, with one incentivizing incremental gigawatt-hour ("GWh") savings and the other incremental system peak megawatt ("MW") reductions. The remaining EAMs are outcome-based: Distributed Energy Resource ("DER") Utilization, Energy Intensity, and Customer Load Factor. 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 commenced in September 2016, filed its *Comments Supporting Resolution of Outcome-based EAM Collaborative Issues* ("Collaborative Report") on November 2, 2016,<sup>3</sup> and the Commission approved the Collaborative's recommendations in the Order.<sup>4</sup>

The Collaborative parties reconvened on June 22, 2017 to evaluate the outcome-based EAMs defined in the Collaborative Report, met in person or by phone on several occasions, and recommend the revised and updated metrics, targets, and incentive levels for RY2 EAMs summarized in this consensus document. The Collaborative parties intend to reconvene before or during the summer of 2018 to define the RY3 EAM metrics, targets, and incentive levels. Revisions and updates to the metrics and other details with regard to RY3 EAMs may include, but are not limited to, changes to the metrics including the relative weighting related to a metric or its associated incentives, appropriate incorporation of information from interim trends, analyses, and experience with implementation of the prior rate years' EAMs.<sup>5</sup>

## **2. Summary of 2017 Outcome-based EAM Collaborative**

On June 22, 2017, the Collaborative reconvened to discuss RY2 metrics, targets, and incentive levels for RY2 outcome-based EAMs. All Con Edison 2016 Rate Case Parties were invited to join the Collaborative. Parties participating in all or some of the 2017 Collaborative meetings included Acadia Center, Association for Energy Affordability, Inc., City of New York, Con Edison, Consumer Power Advocates, E Cubed, Environmental Defense Fund, New York State Department of Public Service ("Staff"), New York

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<sup>1</sup> 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, *Order Approving Electric and Gas Rate Plans* ("Order") (issued January 25, 2017), Appendix A – Joint Proposal.

<sup>2</sup> 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").

<sup>3</sup> 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, *Comments Supporting Resolution of Outcome-based EAM Collaborative Issues* ("Collaborative Report") (filed November 2, 2016).

<sup>4</sup> Order, p. 82.

<sup>5</sup> The Track 2 Order stated on pp. 70-71 "EAMs will be evaluated for their effectiveness with opportunities to revise EAMs and to retire or introduce new EAMs based on future system needs."

Energy Consumers Council, New York Metropolitan Transportation Authority, Tesla, Utility Intervention Unit, and the County of Westchester.

Parties that have indicated their affirmative support for the proposal outlined in this document include Acadia Center, Association for Energy Affordability, Inc., City of New York<sup>6</sup>, Con Edison, Consumer Power Advocates, E Cubed, Environmental Defense Fund, New York Energy Consumers Council, New York Metropolitan Transportation Authority, and New York State Department of Public Service (“Staff”). Parties that neither support nor oppose the proposal include Utility Intervention Unit and the County of Westchester. No parties oppose the proposal.

The Collaborative held eight sessions from June 22, 2017 through August 15, 2017. Parties participated either in person or by phone. The Collaborative began by reviewing the 2016 Collaborative guiding principles and objectives, then reviewed and developed metrics for the outcome-based EAMs, and finished with defining targets and allocating incentives among the EAMs.

The Collaborative parties supporting this proposal have developed recommendations for the metrics and targets of outcome-based EAMs for RY2. The Collaborative parties intend to reconvene before or during the summer of 2018 to define the RY3 EAM metrics, targets, and incentive levels. Revisions and updates to the metrics and other details with regard to RY3 EAMs may include, but are not limited to, institution or removal of one or more metrics, changes to the metrics including the relative weighting related to a metric or its associated incentives, appropriate incorporation of information from interim trends, analyses, and experience with implementation of the prior rate years’ EAMs.

### **3. Outcome-based EAMs**

#### **a. DER Utilization**

##### **i. Discussion**

The Order 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.<sup>7</sup>

For the purpose of RY1 and RY2, DERs are defined in Table 1 below:

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<sup>6</sup> Although the City generally supports the DER Utilization and Energy Intensity proposals for RY2, it believes that a third metric, related to reducing greenhouse gas emissions, should be added for RY2, at a minimum as a scorecard metric (as discussed later in the report). This preference is in large part to align with the City’s belief that there was a shared intention for three EAMs set forth in the Order.

<sup>7</sup> Order, Appendix A - Joint Proposal, p. 78.

**Table 1: DER Utilization technologies**

<b>Reducing customer reliance on grid-supplied electricity</b>	<b>Beneficial electrification</b>
Solar photovoltaics (PV)	Thermal storage
Combined heat and power (CHP)	Heat pumps
Fuel cells	EV charging
Battery storage <sup>8</sup>	
Demand response (DR)	

DERs will be measured in terms of their rated capacity, except for demand response (“DR”) for which the number of DR events and actual performance will be used. To standardize across technologies, all measurements will be in annualized megawatt-hours (“MWh”) using the formulae described in this section. For each DER type, Con Edison will determine MWh produced, consumed, discharged, or reduced from incremental<sup>9</sup> resources as follows:

$$\begin{aligned}
 \text{DER Utilization (MWh)} = & \text{Rooftop Solar PV MWh annualized production} \\
 & + \text{Community Solar PV MWh annualized production} \\
 & + \text{Combined heat and power (“CHP”) MWh annualized production} \\
 & + \text{Fuel cell MWh annualized production} \\
 & + \text{Battery storage MWh annualized discharge} \\
 & + \text{Demand response MWh annualized reduction} \\
 & + \text{Thermal storage MWh annualized consumption} \\
 & + \text{Battery storage MWh annualized charging} \\
 & + \text{Electric Vehicle MWh annualized charging}
 \end{aligned}$$

MWh are treated as positive values with the sum of produced, consumed, and reduced (in the case of DR), energy determining achievement against a target; that is, 1 MWh produced is equivalent to 1 MWh consumed or 1 MWh reduced in the case of DR 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 the formulae and assumptions described below.

The Company will continue to evaluate MWh conversion assumptions and present to the Collaborative reconvened for RY3 EAMs (“RY3 Collaborative”) any available relevant information, such as from information from Con Edison programs including those approved in the Joint Proposal, REV Demonstration projects, and projects pursued through non-wires solutions (“NWS”). In addition, during

<sup>8</sup> 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 greenhouse gas 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.

<sup>9</sup> For each technology categorized as a DER under the DER Utilization EAM metric, incremental resources, for the purposes of determining achievement under this EAM, are defined as all DERs belonging to the respective technology that becomes electrically connected to the Con Edison delivery system during the Rate Year.

RY2 the Company intends to work with the New York State Energy Research and Development Authority (“NYSERDA”), City of New York, County of Westchester, and other stakeholders on further evaluating heat pumps and municipal or fleet electric vehicles (“EV”) to improve the fidelity of their inclusion in this metric.

## ii. Measurement

### *Reductions in Customer Load*

#### **Rooftop Solar Photovoltaics**

The rooftop solar photovoltaics (“PV”)<sup>10</sup> measurement will include all incremental rooftop solar PV installations as summed at the end of the Rate Year (December 31, 2018). End-of-year incremental installed capacity will be tracked from interconnected rooftop solar PV submitted through the New York State Standardized Interconnection Requirements (“NYS SIR”) process. The Company will count these rooftop solar PV installations toward the DER Utilization metric when it has submitted a final interconnection letter to the customer noting that all interconnection work has been completed, which enables the rooftop solar installation to begin operating as part of the overall Con Edison delivery system.

Annualized MWh from rooftop solar PV installations will be calculated as:

$$[\text{Megawatts Solar PV}] * [8760 \text{ hours per year}] * [14.1\% \text{ annual capacity factor}]^{11}$$

#### **Community Solar Photovoltaics**

The community solar PV measurement will include all incremental community solar PV installations as summed at the end of the Rate Year.<sup>12</sup> End-of-year incremental installed capacity will be tracked from interconnected community solar PV submitted through the NYS SIR process. The Company will count those community solar PV installations toward the DER Utilization metric when the Company submits a final interconnection letter to the customer noting that all interconnection work has been completed, which enables the community solar installation to begin operating as part of the overall Con Edison delivery system.

Annualized MWh from community solar PV installations will be calculated as:

$$[\text{Megawatts Solar PV}] * [8760 \text{ hours per year}] * [15.5\% \text{ annual capacity factor}]^{13}$$

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<sup>10</sup> As used herein, “rooftop solar PV installations” include pad- and pedestal-mounted solar PV installations.

<sup>11</sup> Case 15-E-0751, In the Matter of the Value of Distributed Energy Resources, *Copy of Solar Simulations for DPS* (October 28, 2016).

<sup>12</sup> In August 2017 as the Collaborative process was underway, Con Edison received approval for a pilot shared solar low-to-moderate income (“LMI”) program with an implementation plan due for the Commission’s consideration on November 30, 2017. To the extent any installations are completed under this pilot program in 2018, the associated MWh will be counted towards the DER Utilization metric, and the minimum, target, and maximum levels will all be increased ex-post by the same MWh.

<sup>13</sup> Case 15-E-0751, In the Matter of the Value of Distributed Energy Resources, *Copy of Solar Simulations for DPS* (October 28, 2016).

### Combined Heat and Power

The Combined Heat and Power (“CHP”) measurement will include all incremental CHP installations as summed at the end of the Rate Year.<sup>14</sup> 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 Con Edison Large Distributed Generation (“DG”) Interconnection process. The Company will count those CHP installations toward the DER Utilization metric when the Company submits a final interconnection letter to the customer noting that all interconnection work has been completed, which enables the CHP installation to begin operating as part of the overall Con Edison delivery system.

Annualized MWh from CHP installations will be calculated by multiplying CHP installation nameplate capacity by 8,760 hours and a capacity factor of 75 percent.<sup>15</sup>

### Fuel Cells

The fuel cell measurement will include all incremental fuel cell installations as summed at the end of the Rate Year. 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 Con Edison Large DG Interconnection process. The Company will count those fuel cell installations toward the DER Utilization metric when the Company submits a final interconnection letter to the customer noting that all interconnection work has been completed, which enables the fuel cell installation to begin operating as part of the overall Con Edison delivery system.

Annualized MWh from fuel cells will be calculated by multiplying fuel cell installation nameplate capacity by 8,760 hours and a capacity factor of 91 percent.<sup>16</sup>

### Batteries

The batteries measurement will include all incremental battery installations as summed at the end of the Rate Year. End-of-year incremental installed capacity will be tracked from interconnected battery storage submitted through the NYS SIR process. The Company will count those battery installations toward the DER Utilization metric when the Company submits a final interconnection letter to the customer noting that all interconnection work has been completed, which enables the battery installation to begin operating as part of the overall Con Edison delivery system.

Annualized MWh discharged (produced) by batteries will be calculated as:

$$[\text{Daily battery inverter discharge rating (MWh)}] * [365 \text{ days per year}]^{17}$$

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<sup>14</sup> A very large CHP project is expected to come online toward the end of RY2 that would translate to a level of MWh representing more than 50 percent of the minimum target selected for DER Utilization. This project will be considered a RY3 installation even if it interconnects to the Con Edison delivery system in RY2.

<sup>15</sup> NYSERDA Distributed Generation-Combined Heat and Power Impact Evaluation, March 2015, p. 12.

<sup>16</sup> *Id.* p. 12.

<sup>17</sup> Refer to Appendix B, Page B-12 of DOE/EPRI Electricity Storage Handbook

## **Demand Response**

The DR MWh measurement will consider all incremental entrants into the Con Edison Commercial System Relief Program and Distribution Load Relief Program, and New York State Independent System Operator (“NYISO”) Special Case Resources (“SCR”) DR program during RY2. Con Edison is able to determine the actual MWh attributable to its DR programs and most MWh attributable to the NYISO SCR program.<sup>18</sup> For any NYISO SCR program MWh not tracked by the Company, new entrant performance data will be retrieved from NYISO at the end of RY2 as NYISO DR participants submit data to the NYISO at year-end for settlement. For the purposes of measuring MWh for inclusion in the RY2 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 RY2 and (ii) the average annual performance, in percent, of all DR participants 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**

The batteries beneficial electrification measurement will include all incremental battery installations as summed at the end of the Rate Year. End-of-year incremental installed capacity will be tracked from interconnected battery storage submitted through the NYS SIR process. The Company will count those battery installations toward the DER Utilization metric when the Company submits a final interconnection letter to the customer noting that all interconnection work has been completed, which enables the battery installation to begin operating as part of the overall Con Edison delivery system.

Annualized MWh consumed by batteries will be calculated as:

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

### **Thermal Energy Storage**

The thermal energy storage beneficial load measurement will consider all incremental thermal energy storage (i.e., excluding chillers that do not utilize storage to shift load) as summed at the end of the Rate Year. Project specifications will be collected through the Company’s Incremental System Peak MW Reduction and NWS programs, including the 2018 Demand Management Program. If a project is installed outside of the Incremental System Peak MW Reduction programs, the Company will request the required information from the companies or customers involved.

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<sup>18</sup> Some NYISO SCR program participants do not have billing interval meters, thereby requiring the Company to estimate the MWh attributable to such participants’ participation in that program.



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 MWh attributable to thermal energy storage.

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

### Heat Pumps

While heat pumps are not included in the RY2 DER Utilization metric, the Company will seek to develop relevant information and/or estimation methodologies related to heat pumps in order to include heat pump beneficial load measurement in the metric for RY3. 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 offers heat pump installation incentives through its residential energy efficiency program and tracks new installations and associated MWh. However, the Company does not yet have sufficient replacement information (e.g., heat pump replacing oil-fired heating system) to count heat pump beneficial electrification MWh for RY2.<sup>19</sup>

### Electric Vehicles

The EV beneficial load measurement will consider incremental Plug-In Electric Vehicle (“PHEV”) and Battery Electric Vehicle (“BEV”) registrations in the Company’s service territory in RY2. The Company tracks registrations in its service territory provided to it by NYSERDA which receives information from the New York State Department of Motor Vehicles. The MWh associated with EVs is calculated by multiplying the registered number of BEVs and PHEVs by their average daily energy consumption,<sup>20</sup> as shown below:

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

The Company intends to work with the City of New York, the New York Metropolitan Transportation Authority, and the County of Westchester in RY2 to gather additional fleet electric vehicle adoption forecasts and other information for consideration in RY3.

<sup>19</sup> The Company intends to assess the replacement information received through its residential heat pump incentive application form to inform future inclusion in the metric(s).

<sup>20</sup> The average consumption for BEVs and PHEVs is based on the NYSERDA-funded study, *Electricity Pricing Strategies to Reduce Grid Impacts from Plug-in Electric Vehicle Charging in New York State*.

## b. Energy Intensity

### i. Discussion

The Energy Intensity outcome-based EAM is intended to incentivize efforts that will result in a decrease in energy intensity or energy consumption beyond recent trajectories. To the extent that the decline in energy intensity or energy consumption improves beyond the trend in energy intensity or energy consumption that has taken place from January 2010 through December 2015 as further described below, the Company will earn the Energy Intensity outcome-based EAM. To this end, Energy Intensity performance targets are set such that the levels of residential MWh per customer (“RES”),<sup>21</sup> commercial MWh per private employee (“COM”),<sup>22</sup> and Multifamily and Public (“MFP”)<sup>23</sup> gigawatt-hour (“GWh”) sales, on a weather-normalized basis at the end of RY2, will fall below their respective declining intensity or GWh trajectory.<sup>24</sup>

### ii. Metric Components

#### **RES and COM**

##### 1. Numerator

- a. The sales figures in the numerators for RES and COM metrics will be the 12-month rolling weather normalized monthly sales. The 12-month rolling sales will be adjusted ex-post for incremental RY1 and RY2 beneficial usage, prorated by month of adoption.<sup>25</sup>
- b. Prior to normalization, sales will be adjusted for identified incremental beneficial usage, except for heat pumps.<sup>26</sup> The incremental beneficial usage, as included in the DER Utilization metric, 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 MWh less discharging MWh assuming 83 percent roundtrip efficiency).

##### 2. Denominator

- a. The denominator of the RES Energy Intensity metric will be calculated using the average monthly number of active SC1 residential customer accounts in each monthly measurement period.

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<sup>21</sup> For RES, energy consumption used in the numerator of the metric refers to energy sales attributable to customers belonging to Service Classification 1 (“SC1”).

<sup>22</sup> For COM, energy consumption used in the numerator of the metric refers to energy sales attributable to customers belonging to Service Classification 2 (“SC2”) and Service Classification 9 (“SC9”).

<sup>23</sup> For MFP, total energy consumption in the calculation of the metric refers to energy sales attributable to Service Classification 8 (“SC8”), Service Classification 12 (“SC12”) master metered multi-family buildings, and public facility loads, excluding subway traction.

<sup>24</sup> The MFP metric differs from the residential and commercial energy intensity metrics, as it is based on total energy consumption and not an intensity “ratio.”

<sup>25</sup> For RY3, the energy intensity metrics could adjust for incremental beneficial electrification above and beyond the RY1 and RY2 achievements.

<sup>26</sup> 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 intends to incorporate, for RY3, methods to adjust the energy intensity metrics for heat pump beneficial electrification.

- b. The denominator of the COM Energy Intensity metric will be average monthly total private employment for the six counties in Con Edison's service territory, based on Monthly Current Employment Statistics ("MCES"),<sup>27</sup> as defined by the US Bureau of Labor Statistics.

### **MFP**

The GWh sales figures for the MFP metric 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 and RY2) beneficial usage, prorated by month of adoption. Prior to normalization, sales will be adjusted for identified incremental beneficial usage, except for heat pumps in RY1 and RY2. The incremental beneficial usage, as included in the DER Utilization metric, will be attributed to an appropriate Service Classification. Attribution to Service Classification will be based on actual account-level participation. The 12-month rolling SC8, SC12, and Public sales will be adjusted for any identified incremental beneficial usage. Adjustments of the battery storage charging beneficial use will only be the efficiency loss (i.e. charging MWh less discharging MWh assuming 83% roundtrip efficiency). The MFP metric does not have a denominator.

### ***Normalization***

Sales were normalized for weather by Service Classification using models developed by Staff. The dependent variables are sales per customer for the RES model, sales per private employee for the COM model, and sales for the MFP model, each 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 RY2 (i.e., after December 31, 2018).

### **iii. Measurement**

#### ***Target***

The weather normalized 12-month rolling December 2018 target for the RES Energy Intensity kWh per customer metric is set at 4,688 minimum, 4,649 target, and 4,609 maximum.

The weather normalized 12-month rolling December 2018 target for the COM Energy Intensity kWh per employee metric is set at 6,710 minimum, 6,663 target, and 6,616 maximum.

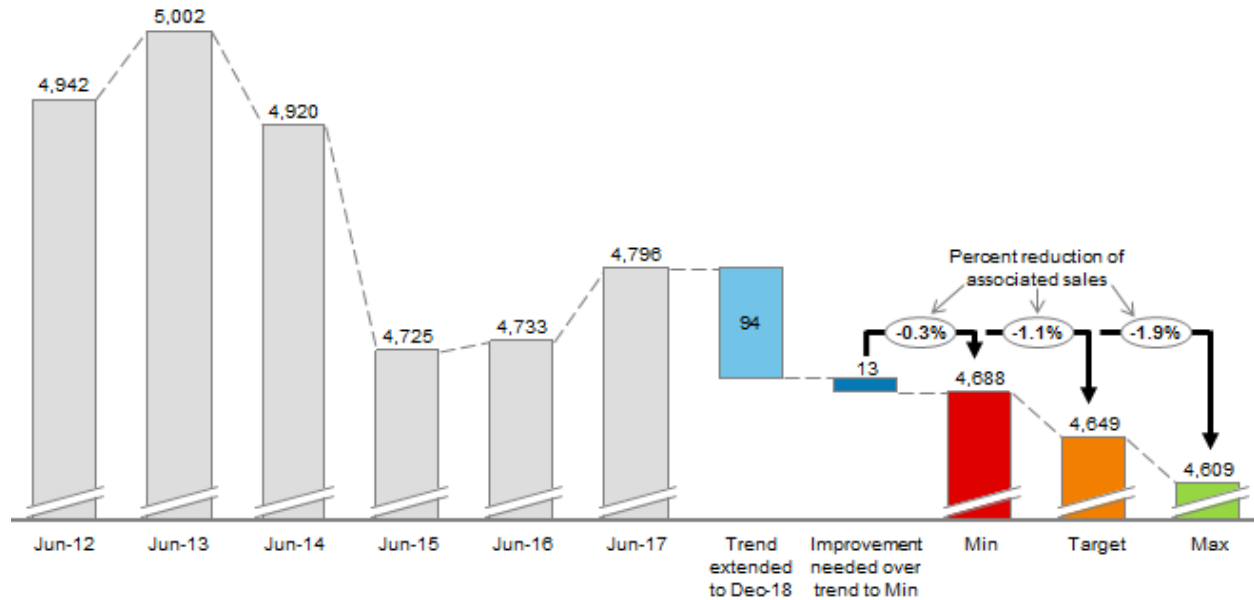
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<sup>27</sup> The COM metric will use the most recent private employment figures available for the six counties through the MCES at the time of development of the annual report summarizing the Company's EAM achievements for RY2 in March 2018.

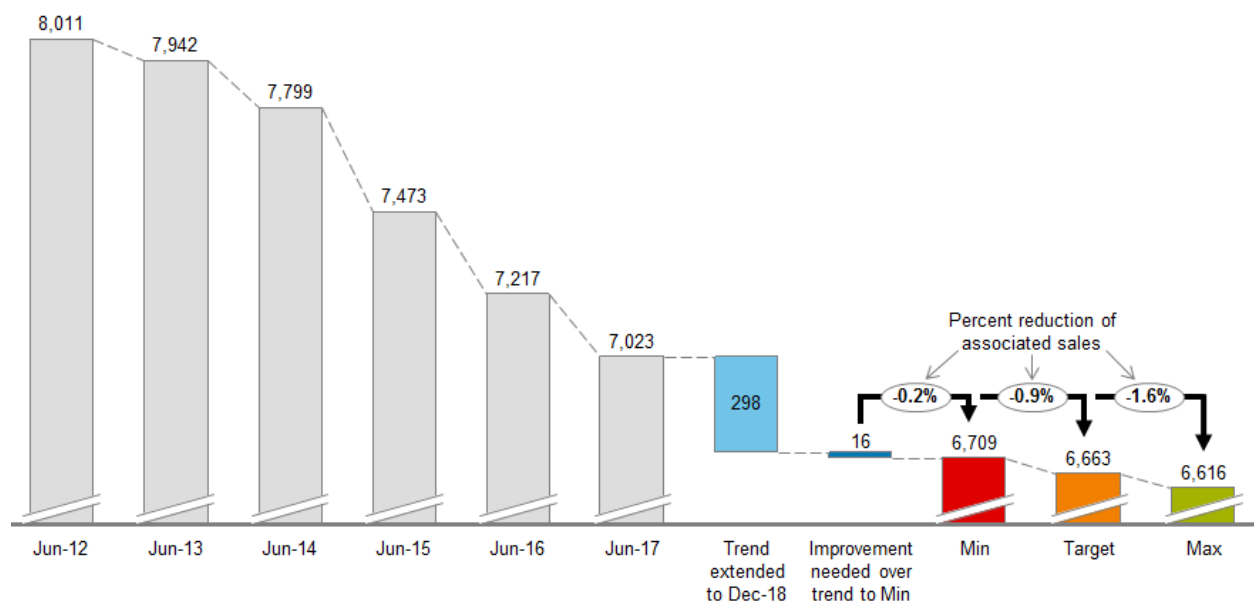
The weather normalized 12-month rolling December 2018 target for the MFP Energy Intensity GWh metric is set at 9,458 GWh minimum, 9,375 GWh target, and 9,292 GWh maximum.

These targets are intended to ensure improvement on projected December 2018 12-month weather adjusted rolling 4,701 kWh per residential (SC1) customer, 6,726 kWh per private sector employee (SC2 plus SC9), and 9,486 GWh for MFP as of December 2018, which would occur if the recent intensity improvements continue at the same rate from the last observed point(s).

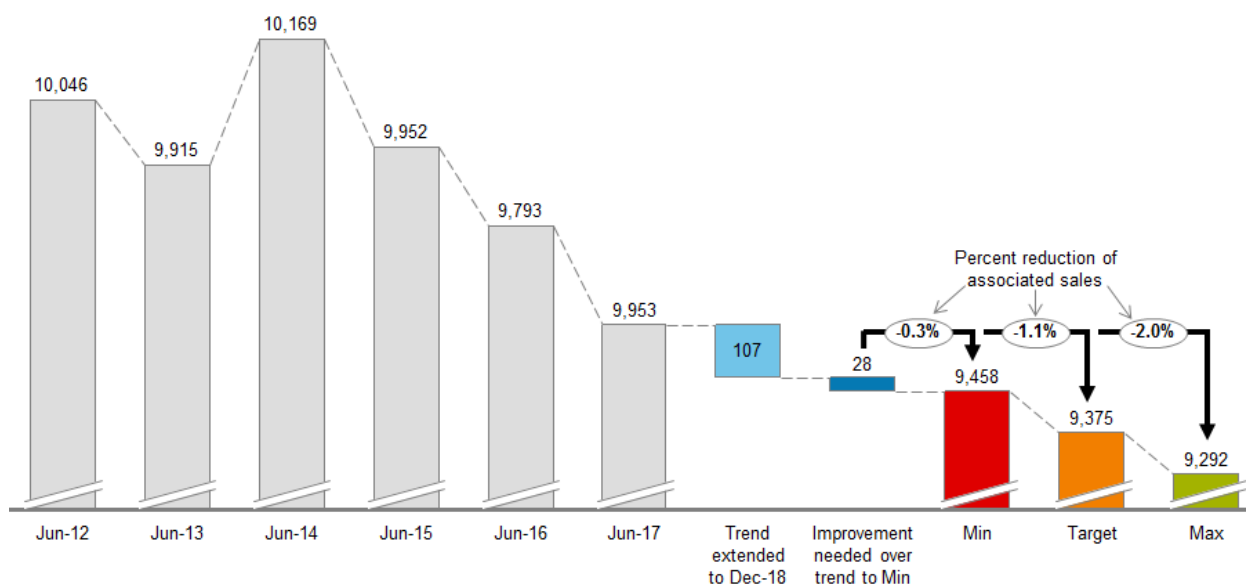
### Residential energy intensity Annual kWh per SC1 customer



### Commercial energy intensity Annual kWh per private employee



## MFP Energy Intensity metric Annual GWh



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, December 2010 through March 2016 for the combined commercial SC2 plus SC9, and December 2010 through December 2016 for MFP. 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 actuals for each metric (RES, COM, and MFP). These trend lines were extended out to December 2018 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 2018: the minimum level is set at 0.25 standard errors below each December 2018 shifted trend line value; the target level is set at 1.00 standard errors below each December 2018 shifted trend line value; and the maximum level is set at 1.75 standard errors below each December 2018 shifted trend line value.

### c. Customer Load Factor

#### i. Discussion

In the Order, Customer Load Factor (“CLF”) was identified as an 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.”<sup>28</sup>

<sup>28</sup> Order, Appendix A - Joint Proposal, p. 78.

The Collaborative identified the three REV environmental goals referred to in the Joint Proposal to be (i) 40 percent reduction in Greenhouse Gas (“GHG”) emissions from 1990 levels, (ii) 50 percent generation of electricity generated from renewable energy sources, and (iii) 23 percent decrease in energy consumption in buildings from 2012,<sup>29</sup> noting, however, that goal (iii) is not directly attributable to any PSC Orders or directives, to the knowledge of this Collaborative.<sup>30</sup>

The Collaborative in 2016 defined CLF to be customer-specific and calculated as a ratio of the average summer customer demand to the peak customer demand. In other words,

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

The Collaborative parties agreed that additional analysis regarding appropriateness of this metric is necessary. Consequently, the CLF metric will not be instituted for RY2, but it will continue to be investigated for appropriateness in RY3, including through a potential survey that could be undertaken to better understand customer knowledge of their load factor, methods to improve their load factor and related topics.<sup>31</sup>

#### **d. Greenhouse Gas Reduction**

Some Collaborative parties expressed interest in developing an outcome-based Greenhouse Gas (“GHG”) (or carbon dioxide equivalent [CO<sub>2</sub>e]) emissions reduction metric, which supports the State’s GHG related environmental goals, for consideration in RY2 or RY3. The Collaborative parties discussed that this metric could be designed to capture holistic GHG emissions reductions achieved in the Company’s service territory from measures of all types, including without limitation, energy efficiency, load shifting, distributed energy resources such as batteries and heat pumps, beneficial electrification of end uses, and behavioral changes.

In order to engage stakeholders to develop insights that can lead to an appropriate metric related to GHG emissions and emission impacts, the Company and the Collaborative parties agreed to commence discussions, starting in September 2017. The Company will facilitate these discussions to better understand GHG emissions and impacts in order to develop a scorecard for RY2 and to better inform the RY3 collaborative that will consider development of metrics, targets, and incentive levels for outcome based EAMs in RY3.

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<sup>29</sup> 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 August 1, 2017) <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/CC4F2EFA3A23551585257DEA007DCFE2?OpenDocument>.

<sup>30</sup> 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).

<sup>31</sup> CLF, as noted in the RY1 Collaborative 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 possible adoption of a CLF metric for RY3.

## 4. Outcome-Based EAM Incentives

Tables 2 and 3 below represent RY2 outcome-based EAM incentive and achievement levels, respectively. The Collaborative parties agreed that incentive levels for RY2 are to be allocated 50 percent to DER Utilization and 50 percent to Energy Intensity, consistent with RY1 allocation percentages approved by the Commission. Further, the Collaborative parties agreed to allocate no incentives to Customer Load Factor while also beginning discussions to develop a GHG emissions related scorecard for RY2 as outlined in Section 3.d. The Energy Intensity metric contains three metrics with incentive levels split by collective load share: COM - 55 percent, RES - 26 percent, and MFP - 19 percent.

**Table 2: RY2 Incentive Levels**

\$Million	Min	Target	Max
DER Utilization	2.085	4.170	8.335
RES Energy Intensity	0.546	1.092	2.184
COM Energy Intensity	1.149	2.298	4.593
MFP Energy Intensity	0.390	0.780	1.558
Customer Load Factor	0	0	0
<b>TOTAL</b>	<b>4.170</b>	<b>8.340</b>	<b>16.670</b>

**Table 3: RY2 Minimum, Target, and Maximum Achievement Levels**

Metric	Min	Target	Max
DER Utilization (MWh) <sup>32</sup>	87,600+X	100,000+X	116,600+X
RES Energy Intensity (kWh/customer)	4,688	4,649	4,609
COM Energy Intensity (kWh/private employee)	6,710	6,663	6,616
MFP Energy Intensity (GWh)	9,458	9,375	9,292
Customer Load Factor	N/A	N/A	N/A

The EAM incentives will be based on a straight line linear progression from the minimum to the target and from the target to the maximum metric levels.

## 5. Reporting

The Order requires a compliance filing on March 31, 2019 for reporting EAM achievements.<sup>33</sup> 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.<sup>34</sup>

<sup>32</sup> As discussed above, the "X" represents the associated MWh for the recently-approved pilot LMI solar program.

<sup>33</sup> Order, Appendix A - Joint Proposal, p. 82.

<sup>34</sup> In the event achievement of an EAM cannot be determined due to reporting lag of external sources (e.g., NYS Department of Motor Vehicles registrations) 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

#### RES Model

$$\text{LOG}((S1/BDA)/N1) = -8.026883 - 0.000968*\text{TIME} + 0.0001502*\text{CDD} + 0.000278*\text{HDD}$$

#### COM Models

$$\begin{aligned}\text{LOG}((S2/BDA)/\text{EMP}) &= 3.083149 - 0.002271*\text{TIME} + 0.000720*\text{CDD} + 0.000282*\text{HDD} \\ \text{LOG}((S9/BDA)/\text{EMP}) &= 0.485228 - 0.002094*\text{TIME} + 0.000651*\text{CDD} + 0.0000604*\text{HDD}\end{aligned}$$

#### MFP Models

$$\begin{aligned}\text{LOG}((S8,S12/BDA) &= 5.093813 - 0.001399*\text{TIME} + 0.001242*\text{CDD} + 0.000376*\text{HDD} \\ \text{LOG}((P/BDA) &= 20.172470 + 0.000599*\text{CDD} + 0.0000853*\text{HDD}\end{aligned}$$

Where LOG stands for natural logarithm transformation; S1, S2, S9, S8, S12, and P are sales for SCs 1, 2, 9, 8, 12, and Public; 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 (72 data points) are used to estimate the weather normalization models.

### Linear Energy Intensity Trend Models

#### RES Energy Intensity Trend Line

$$\begin{aligned}\text{sc1\_wn} &= 5.135264 - 0.005234 \times \text{TIME} \\ \text{S.E. of regression} &= 0.05274\end{aligned}$$

#### COM Energy Intensity Trend Line

$$\begin{aligned}\text{sc29\_wn} &= 8.560838 - 0.01654 \times \text{TIME} \\ \text{S.E. of regression} &= 0.062638\end{aligned}$$

#### MFP Energy Intensity Trend Line

$$\begin{aligned}\text{MFP\_wn} &= 10,276 - 5.928881 \times \text{TIME} \\ \text{S.E. of regression} &= 111.019588\end{aligned}$$

Where sc1\_wn stands for the monthly 12-month rolling SC1 residential sales per customer, sc29\_wn stands for the monthly 12-month rolling combined SC1 and SC9 sales per employee in Con Edison service area, and MFP\_wn stands for the monthly 12-month rolling combined SC8, SC12, and public facility sales, excluding subway traction; TIME is 0 for January 2010, 1 for February 2010, etc., historical data for January 2010 - September 2016 are used to estimate the energy intensity trend models.