

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

ADVANCED METERING INFRASTRUCTURE PANEL
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1 Q. Please state your names.

2 A. Thomas Magee, James Prettitore, Christopher Grant and
3 Michael Murphy.

4 Q. Have you previously submitted testimony in this
5 proceeding?

6 A. Yes. We submitted initial testimony in this
7 proceeding as the Company's Advanced Metering (AMI)
8 Infrastructure Panel.

9 Q. What is the purpose of the Panel's rebuttal testimony?

10 A. We are responding to the testimony of the following
11 parties:

- 12 • Department of Public Service Staff AMI
- 13 Panel("Staff");
- 14 • UIU Electric Rate Panel Department of Public Service
- 15 • Pace Witness Rabago
- 16 • EDF Witness Badtke-Berow
- 17 • County of Westchester
- 18 • Solar City Witness Teumin
- 19 • EDF
- 20 • CPA Witness Luthin

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1 **Creation of AMI Categories and Caps**

2 Q. Have you reviewed Staff's proposal to implement three
3 separate categories of AMI deployment and impose a cap
4 on each category?

5 A. Yes.

6 Q. Do you agree with Staff's recommendation to establish
7 separate caps for each of three AMI components?

8 A. No, we do not.

9 Q. What reason does Staff provide for establishing
10 separate caps for these AMI components?

11 A. Staff states that "Since Con Edison has separate net
12 plant reconciliations for its gas and electric
13 business units, establishing separate caps for each
14 business unit is necessary to enable net plant
15 reconciliation."

16 Q. Do you agree with that assessment?

17 A. No we do not, for several reasons.

18 First, past Commission decisions in Con Edison
19 electric and gas rate proceedings demonstrate that it
20 is not necessary to establish separate net plant
21 reconciliation mechanisms in order to implement a

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1 significant capital project applicable to both the
2 Electric and Gas businesses. Specifically, in March
3 2010, the Commission adopted a joint proposal for the
4 Company's Electric business that implemented net plant
5 reconciliation for the electric department's share of
6 the Enterprise Resource Project (i.e., \$125 million
7 out of the total project cost capped at \$160 million).
8 When the Commission adopted a joint proposal for the
9 Company's Gas business in September 2010,
10 approximately six months later, there was no separate
11 net plant reconciliation established for the Gas
12 business's share of such costs.
13 Second, nothing in the AMI order approving this
14 project suggested that its implementation should or
15 would necessitate the establishment of caps for
16 individual components of this undertaking, which is
17 the largest capital project ever established for the
18 Company's systems. Nor should the AMI Order be read
19 to entertain such a proposal.
20 Q. Please explain why.

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1 A. The AMI project is an integrated Electric and Gas
2 project and the benefit-cost analysis for this
3 integrated project was not conducted separately for
4 the Electric and Gas businesses. It was conducted on
5 an overall Con Edison system basis. Consistent with
6 that analysis, the AMI project should not be viewed as
7 having three separate components. For example, the
8 planning and installation of meters for electric and
9 gas customers are integrated and not designed on
10 separate Electric and Gas bases. So while the costs
11 of this project must necessarily be allocated between
12 electric and gas customers (e.g., electric meters to
13 electric customers, gas meters to gas customers, and
14 the AMI backbone system and other common costs 83% to
15 Electric and 17% to Gas), there is no reasonable basis
16 for establishing net plant reconciliation "silos"
17 within the overall AMI cost cap.

18 Q. Why is it unreasonable to establish the silos
19 recommended by Staff?

20 A. Where the Commission has established separate silos
21 for Con Edison net plant reconciliation (e.g., one for

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1 T&D and one for Shared Services/Electric Production),
2 an inherent feature is the flexibility to offset
3 higher expenditures on one project with lower
4 expenditures for another project within that same
5 silo. This flexibility is provided because each of
6 the Company's rate plans adopted by the Commission
7 necessarily recognizes that the Company must have the
8 flexibility over the term of a rate plan to modify the
9 list, priority, nature and scope of its capital
10 projects.

11 The Company should not be denied similar flexibility
12 within the context of a single project, in this case
13 the AMI project, by potentially subjecting the Company
14 to making refunds to one class of customers for under-
15 expenditures for one component of the AMI project
16 while absorbing the costs for higher expenditures
17 associated with another AMI project component,
18 notwithstanding that the Company brings the overall
19 project in at or below the overall cap established by
20 the AMI order.

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1 Accordingly, Staff has not demonstrated that separate
2 net plant reconciliation mechanisms are necessary for
3 the Commission to determine whether the Company meets
4 the challenge of the AMI order by keeping aggregate
5 program expenditures over the course of this six-year
6 project within the overall \$1.285 billion cap
7 established by the AMI order.

8 **Meter Readers**

9 Q. Have you reviewed what Staff and other parties
10 proposed regarding the Company's plans for meter
11 readers as a result of AMI deployment?

12 A. Yes.

13 Q. Please summarize what Staff and other parties have
14 proposed regarding the Company's plans for meter
15 readers as a result of AMI deployment.

16 A. Staff and other parties recommend that Con Edison be
17 required to present a draft plan on its approach to
18 meter readers whose current activities will no longer
19 be needed as a result of the full deployment of AMI.
20 Staff specifically recommends that the Company be
21 required to present the draft plan to the parties of

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1 the AMI collaborative and allow for further discussion
2 of this plan in one of the AMI collaborative meetings
3 on its customer engagement plan so that the Company
4 can fine-tune the meter reader plan, if needed, based
5 on comments received.

6 Q. What is the Company's position on this proposal?

7 A. It is inappropriate for the Company to make a proposal
8 related to meter readers as part of the stakeholder
9 engagement sessions related to the Company's AMI
10 Customer Engagement Plan. These meetings are focused
11 on obtaining input from interested stakeholders for
12 the development of the Company's Customer Engagement
13 Plan to be filed with the Commission by July 29, 2016.
14 The AMI Order did not require the Company to include a
15 proposal related to transition plans for meter readers
16 in its Customer Engagement Plan.

17 A transition plan for affected meter readers is an
18 internal staffing/re-deployment decision and it is the
19 Company's intention to work with Local 1-2 pursuant to
20 the Company's normal practices regarding training and
21 other work-related matters.

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1 **Earnings Adjustment Mechanisms**

2 Q. Have you reviewed Staff's proposals for Earnings
3 Adjustment Mechanisms (EAMs) related to AMI?

4 A. Yes, Staff proposes two EAMs related to AMI: one
5 related to customer engagement and another related to
6 AMI deployment.

7 Q. Does the Panel have any response to Staff's proposal
8 for an EAM regarding customer engagement?

9 A. The Company generally supports Staff's proposal for an
10 EAM that would measure improvements in AMI awareness,
11 as demonstrated in semi-annual customer surveys, as a
12 replacement for the EAM on Green Button Connect (GBC)
13 implementation proposed by the Customer Operations
14 Panel in its initial testimony.

15 This measure was proposed by the Company as a
16 formal metric in its Supplemental AMI Testimony, and
17 we support adopting it as an EAM with some
18 modification to Staff's proposal.

19 First, we propose that the initial survey that
20 will be used to set initial target levels be completed
21 in March 2017, rather than in July 2017. The Company's

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1 education plan will begin around April 2017 for the
2 Staten Island meter roll-out. Using results from a
3 survey conducted in March 2017 will provide a
4 benchmark that reflects customer awareness before
5 deployment of the Company's education strategy, rather
6 than after the robust campaign that will precede the
7 Staten Island meter roll-out. In addition, we propose
8 that the survey be administered to a sample that is
9 representative of the Company's service territory and
10 that the results of the territory-wide survey provide
11 the initial target level for each region, rather than
12 adopting region-specific initial targets. Since no
13 significant differences across regions are expected
14 prior to the initiation of the Company's education
15 plan, there is no need to adopt regional-specific
16 initial targets.

17 Second, we do agree that the Company's progress
18 for increasing awareness of AMI should be measured
19 against the initial targets at the regional level, in
20 conjunction with AMI deployment. This will provide

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1 for a measure of the effectiveness of the Company's
2 AMI education plan.

3 Q. Do you agree with Staff's recommendation that the
4 Company perform a series of AMI focus groups, starting
5 in 2017, and prior to AMI deployment?

6 A. Yes. As Staff notes, the focus groups will be useful
7 in providing insights on customers' knowledge,
8 opinions and attitudes towards AMI. Although the
9 insights gained in focus groups will help the Company
10 develop additional customer engagement as needed, the
11 information obtained in focus groups does not measure
12 awareness. Accordingly, the focus groups should not
13 be a component of the customer awareness metric.

14 Q. Do you agree with Staff's recommendation that the
15 Company begin education on AMI in 2016 before any AMI
16 meters are installed?

17 A. The Company agrees that AMI education should begin
18 before any AMI meters are installed. Starting in
19 2016, the Company will begin AMI education in the
20 community via meetings and events, which will provide

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1 information on the rollout and AMI benefits to local
2 leaders and community.

3 The Company, however, does not agree that
4 **customer** education should begin in 2016. The
5 Company's plan is to begin AMI education of customers,
6 via direct customer outreach, around April 2017,
7 approximately three months prior to the start of the
8 roll-out in July 2017. This will provide an ample
9 period for the Company's education efforts and
10 customer awareness, while at the same time providing
11 education to customers closer to the roll-out date at
12 a time when this information will be of more interest
13 and value to customers.

14 Q. Please summarize Staff's proposal for an EAM on AMI
15 Deployment.

16 A. Noting that the Commission stated in its Track Two
17 Order in the REV Proceeding that EAMs "must both
18 encourage achievement of new policy objectives and
19 counter the implicit negative incentives that the
20 current ratemaking model provides against REV
21 objectives," Staff recommends an AMI Deployment EAM

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1 designed to encourage faster deployment of AMI
2 throughout Con Edison's service territory.
3 Recognizing that the faster the AMI deployment is
4 completed, the sooner the resulting cost reductions
5 and benefits can be realized, the AMI Deployment EAM
6 provides that for every quarter that Con Edison
7 exceeds its AMI rollout plan, as shown in the BCA to
8 be filed on August 1, 2016, Con Edison would receive
9 additional revenue equal to a 60% share of the amount
10 of additional annual savings estimated for cost
11 reduction from the acceleration of the rollout plan.
12 The earnings will be determined during the second
13 quarter of each year and would be based on Con
14 Edison's performance in the previous calendar year.
15 Q. Does the Panel have any comments on Staff's proposal
16 for an EAM on AMI Deployment?
17 A. The Company supports Staff's proposal for an EAM on
18 AMI Deployment. The Company would note that it
19 reserves the right to propose, at some point in the
20 future, that the 60% of cost savings subject to this
21 EAM include some, if not all, of the Company/customer

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1 benefits, such as those to be realized from CVO, in
2 addition to the Company's cost reductions.

3 **AMI Customer Engagement Plan**

4 Q. What does Staff recommend related to the Company's
5 Customer Engagement Plan that must be filed by July
6 29, 2016 pursuant to the AMI Order?
7 A. Staff has a variety of recommendations related to the
8 Company's Customer Engagement Plan. The Company is
9 already doing many of the things that Staff
10 recommended. For instance, the Company has already
11 begun the engagement process and has included Staff,
12 DERs, ESCOs, and other interested stakeholders. Staff
13 also recommends that the Company circulate for comment
14 a draft of the Customer Engagement Plan so that
15 interested parties can comment and then review the
16 Company's responses to those comments.

17 Q. Does the Company agree with Staff's suggestion that
18 the Company should share a draft of the Customer
19 Engagement Plan?

20 A. The AMI Order does not require the Company to share a
21 draft of its Customer Engagement Plan. While the

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1 Company is making efforts as part of its stakeholder
2 engagement to detail its plans, obtain input from
3 interested parties, and attempt to incorporate that
4 input, it may not be possible to share a draft of its
5 Customer Engagement Plan and allow for comments and
6 responses given the short timeframe allotted by the
7 AMI Order to complete the plan. There are a
8 significant number of requirements that must be
9 included in the Customer Engagement Plan due July 29,
10 and the Company is working diligently to address each
11 of those requirements and to provide an opportunity
12 for interested stakeholders to provide input.
13 Additionally, the Company expects that when its Plan
14 is filed with the Commission stakeholders will have an
15 additional opportunity to offer written comments.

16 Q. Does the Company agree with Staff's recommendation
17 that the customer engagement plan should be executed
18 within three months prior to, and during, the
19 deployment for each New York City borough and
20 Westchester County?

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1 A. The Company's AMI Customer Engagement Plan will
2 encompass all of the Company's plans to prepare our
3 service territory for the AMI roll-out. One part of
4 this plan is the **customer education** plan, which
5 involves outreach directly to customers. The Company
6 concurs that the **customer education** plan component of
7 the AMI Customer Engagement Plan should be initiated
8 within three months prior to the deployment of each
9 New York City borough and Westchester County.

10 **AMI Metrics/Scorecard**

11 Q. Have you reviewed the proposals of Staff, Pace and EDF
12 regarding AMI metrics/scorecard?

13 A. Yes. Parties made recommendations related to the
14 metrics proposed by the Company in its Supplemental
15 AMI testimony in this proceeding as required by the
16 AMI Order, as well as new proposed metrics. Staff
17 characterizes the metrics as a 'scorecard.' In this
18 testimony, the Company will refer to each proposal
19 made by parties as a metric. The metrics can be
20 grouped in the following areas, consistent with this
21 Panel's Supplemental AMI testimony: customer

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1 engagement, billing, outage management, systems
2 operations and environmental benefits, equipment
3 failures, and distributed generation integration.

4 Q. Have you reviewed Pace's generic recommendations as to
5 the frequency of reporting data on proposed metrics?

6 A. Yes. Pace recommends that the Company report on all
7 AMI customer engagement metrics on a monthly basis,
8 and that AMI data should be kept indefinitely to allow
9 for historical comparisons. Pace suggests that the
10 amount and types of data recorded should be as large
11 as possible, even if data sharing specifics for third
12 parties have not yet been fully evaluated.

13 Q. Does the Panel agree with Pace's recommendation
14 related to monthly reporting?

15 A. The Panel disagrees that monthly reporting is
16 necessary for the Commission to monitor the success of
17 the AMI program for three reasons.

18 First, Pace does not provide any justification
19 for why monthly reporting is necessary or otherwise
20 advantageous to the Commission, Staff, the Company or
21 stakeholders.

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1 Second, the Company's proposed reporting
2 timelines reflect the operational and systems
3 realities we face in gathering and refining data on a
4 wide range of topics. As stated in the AMI Panel's
5 Supplemental Testimony, "for some metrics, it is
6 anticipated that it will take six to eight weeks
7 following the end of each period to analyze the data
8 and prepare a report." An example of such a metric
9 that is not conducive to monthly reporting is the
10 extensive CVO analysis that is to be translated into a
11 report.

12 Third, compiling and refining data for the
13 Company's proposed AMI metrics is not as simple as
14 running a handful of reports once a month. In many
15 cases, the source data will come from multiple systems
16 and additional analysis by Company employees will be
17 necessary in order to present the metrics. Reporting
18 on all metrics on a monthly basis would be unduly
19 burdensome and an inefficient use of Company
20 resources. For the foregoing reasons, the Panel
21 rejects this portion of Pace's recommendation.

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1 Q. Does the Panel agree with Pace's recommendation that
2 the Company indefinitely store all of the data related
3 to any adopted metrics?

4 A. No. Pace's suggestion to indefinitely store the large
5 quantities of data that will be produced by AMI meters
6 is an unreasonable proposition and should be rejected.
7 As an example, to store all records of kilowatt-hour
8 (kWh) usage recorded by AMI meters would require that
9 the Company store at least four 15-minute intervals an
10 hour, for each hour of the day, for each day of the
11 year, for an indefinite number of years. For a single
12 meter, that amounts to 35,040 data points per year.
13 Multiplied by approximately 3.5 million electric
14 meters, that amounts to approximately 123 billion data
15 points per year - and kWh is only one of a handful of
16 data points collected by AMI meters. Storing this
17 volume of data indefinitely would require a tremendous
18 investment in servers, computer storage, and
19 associated software, which would translate into costs
20 and rate impacts that the Company is not
21 contemplating.

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1 Finally, the Company notes its agreement with
2 Pace that privacy and protection of customer data is
3 paramount. Please see the Customer Operations Panel's
4 rebuttal testimony in response to CPA Witness Luthin
5 for further information on steps the Company is taking
6 to keep customer data secure.

7 **Customer Engagement Metrics**

8 Q. Please summarize Staff's proposals for new metrics
9 related to AMI customer engagement.

10 A. Staff recommends that the Company develop a GBC metric
11 that will track the number of customers who use GBC to
12 share their energy usage information with third
13 parties. In addition, Staff recommends that the
14 metric track how frequently third parties access
15 this information and that the Company should begin
16 reporting on a semiannual basis starting on April 30,
17 2018.

18 Q. Does the Company support Staff's proposed GBC metric?

19 A. The Company agrees with Staff to establish a metric
20 related to GBC as opposed to the EAM related to GBC
21 implementation that was proposed by the Customer

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1 Operations Panel in its initial testimony. (See the
2 Customer Operations Rebuttal Testimony for further
3 information.) The Company believes it will be
4 valuable to track and report how many customers
5 utilize the GBC feature to share their data with third
6 parties. However, it is important to note that the
7 number of customers that take advantage of the GBC
8 option is beyond the Company's control; in fact, the
9 likelihood of customers sharing their data with third
10 parties is largely dependent on the quality of the
11 service offerings available in the marketplace.
12 Because the Company does not - and should not - have
13 any direct control over the energy products and
14 services offered, or the communications strategies of
15 third parties, we can only accept this metric with
16 modifications.

17 First, the metric must be limited solely as it
18 relates to Staff's proposed AMI Scorecard, and only if
19 the metric is used exclusively for tracking purposes
20 (i.e., not subject to any positive or negative revenue
21 adjustments).

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1 Second, Staff's proposal to track how frequently
2 third parties "access" GBC information should not be
3 included for technical reasons. Third parties will
4 interact with the Company when they complete a formal
5 registration and testing process in order to be
6 eligible to receive customer data using
7 representational state transfer application program
8 interfaces (REST APIs). This registration and testing
9 process is, for all intents and purposes, the only
10 time an authorized third party needs to visit the
11 utility's website, barring unforeseen circumstances
12 such as an information system outage. Under the GBC
13 protocols, our customers will select parties to
14 receive their information, and dictate what
15 information is shared, how often, and for how long.
16 Once these selections are made, the transfer of data
17 is an automated machine-to-machine process that
18 requires no action from the third party or the
19 customer, unless the customer wants to change its data
20 sharing selections for a given vendor. Accordingly,
21 we believe that it is not meaningful for the

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1 Commission to track how often third parties 'access'
2 GBC information.

3 In sum, the Company supports a GBC metric related
4 to the number of customers that utilize the GBC
5 feature to share their data with third parties, but
6 does not support a metric to track how often third
7 parties access GBC information.

8 Q. Do other parties recommend new metrics related to
9 customer engagement?

10 A. Yes. PACE and EDF recommend that the Company adopt
11 metrics to measure the number of customers who adopt a
12 time-of-use (TOU) or time-variant pricing (TVP)
13 tariff.

14 Q. Do you agree with this proposed metric?

15 A. The Company would not be opposed to such a metric,
16 provided it is limited exclusively to tracking
17 purposes and not subject to any positive or negative
18 revenue adjustments. Such a metric would provide
19 information on customer adoption rates of TVP plans
20 and will help to gauge customer interest in these
21 programs.

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1 The Company is committed to evaluating and
2 developing new and innovative rates and providing
3 education and outreach that will help customers make
4 informed choices with respect to their rates. Such
5 activities will expand customer awareness and
6 understanding of these offerings and may influence
7 customer adoption or non-adoption of TVP plans. The
8 use of a metric to measure the number of customers who
9 adopt TOU or TVP plans will help to evaluate customer
10 willingness to participate in TVP programs, but
11 customer willingness to participate in these programs
12 should not be used as a measurement of Company
13 performance.

14 Q. Have you reviewed Pace and EDF's additional
15 recommendations for new metrics related to customer
16 engagement?

17 A. Yes. EDF recommends metrics to: 1) track the number
18 of escalated customer complaints and inquiries related
19 to functioning and installation of advanced meters, 2)
20 HAN device registration, and 3) third-party data
21 sharing via GBC. The Company opposes these metrics for

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1 the following reasons. For customer complaints, the
2 Company already tracks the complaints it receives
3 through the Commission's QRS and SRS processes, and
4 the Commission monitors the effectiveness of the
5 Company's customer service as it relates to complaints
6 in the Customer Service Performance Mechanism (see
7 testimony of the Customer Operations Panel for further
8 details). Additionally, HAN device registration will
9 not be among the services initially offered. All of
10 Con Edison's AMI meters are equipped with HAN
11 communications capabilities. However, Con Edison does
12 not currently have any programs or services which will
13 enable HAN communications to the customers and has
14 chosen, as an alternative, to enable 15-minute near-
15 real time data availability to all customers.
16 Therefore, the suggested metric to track HAN device
17 registration is not applicable for Con Edison's
18 initial services rollout. Finally, the Company
19 opposes a metric for third parties' accessing of GBC
20 data for the technical reasons discussed above in
21 response to Staff's proposal for a GBC metric.

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1 Q. Did you review Pace's metric recommendation to track
2 the number and percentage of AMI supporting home area
3 network and building area network devices?

4 A. Yes.

5 Q. Does the Panel have any comments regarding this metric
6 proposal?

7 A. Yes. Typically, utilities implementing AMI do not
8 offer services and programs leveraging the HAN until
9 the AMI solution is fully rolled out, as HAN
10 communications can be unreliable due to lack of
11 proximity of in home devices to the low powered
12 communications from the meter and requires significant
13 customer interaction as well as a constructed demand
14 response or customer engagement program. For Con
15 Edison's customer base, with the significant number of
16 multi-tenant high rise buildings, the challenge of HAN
17 communications will be more pronounced than those
18 encountered by other utilities. Nevertheless, Con
19 Edison does plan to consider providing such services
20 to the end customers using HAN devices in the future.
21 Once these programs and services are designed and

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1 tested, Con Edison will be able to offer HAN
2 communications to the customers and report on the
3 adoption rate of this feature.

4 Q. Have you reviewed EDF's recommended metric that the
5 Company track attendance at the planned customer
6 engagement events and how many surveys are actually
7 collected at the proposed awareness and education
8 events?

9 A. Yes. The Company is opposed to these metrics. First,
10 the value of the Company's presence at community
11 events and meetings cannot be correlated to the number
12 of attendees at these events. In many instances,
13 small events may be attended by community leaders that
14 subsequently provide outreach to large numbers of
15 customers in their communities. With respect to
16 tracking the number of surveys collected at events, it
17 is not the Company's intention to survey participants
18 at events. Surveys and focus groups will be conducted
19 outside of these events.

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1 **Online Portal Metric**

2 Q. Have you reviewed Staff's proposed modifications to
3 the customer engagement metrics on use of the online
4 portal that will be developed as part of the Digital
5 Customer Experience (DCX) program, submitted by the
6 Company in its Supplemental AMI testimony?

7 A. Yes. Related to the Company's proposed metric on
8 customers using the DCX AMI Portal, Staff recommends
9 that in the first 12 months after initial AMI meter
10 deployment, a benchmark be established to track how
11 many customers have logged into the portal to view
12 their energy usage. Staff further recommends that
13 benchmarks for each borough be established within the
14 following 12 months of initial AMI deployment and,
15 subsequently, be factored into an updated target level
16 on a calendar year basis. Staff requested reporting
17 specifically on the identified number of mass market
18 customers using the portal and also the frequency of
19 returning customer hits in the first year to assess
20 the overall effectiveness of the online portal. Staff
21 stated that the metric report should provide

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1 sufficient detail to include the duration of time
2 since AMI installation and that Con Edison should
3 begin reporting to the Commission on this metric on
4 April 30, 2018.

5 Q. Does the Company agree with Staff's recommendations
6 related to this metric?

7 A. While the Company agrees that a metric should be
8 established to track the number of customers using the
9 online portal to view their energy usage, we recommend
10 that Staff's proposal be modified. First, the DCX
11 project is currently in progress, and will result in
12 substantial changes to the My Account section of the
13 website. As such, a customer's energy use will be
14 displayed in multiple areas at different levels of
15 granularity. We propose that measurement of the
16 online portal metric be based on the area of the
17 website that is devoted to usage and analytics.
18 Second, we propose that measurement of the returning
19 customer hits be based on the number of customers
20 viewing the portion of the website that is devoted to
21 usage and analytics on a calendar year basis.

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1 Q. Have you reviewed EDF and Pace's recommendation to
2 track the number of customers that register or create
3 an account to use the online portal?

4 A. Yes. EDF and Pace recommend that the Company track
5 the number of customers that have registered or
6 created accounts to use the online portal. We
7 disagree with Pace and EDF that creation of online
8 accounts is a metric needed to measure the progress
9 and benefits of the AMI program. The new digital
10 services platforms being developed under the DCX
11 program will have a single sign-on process for a wide
12 variety of services, only one of which is access to
13 AMI data and associated analytics. Some customers
14 will create online accounts because they want to pay
15 their bills, report outages, or other reasons
16 unrelated to the AMI program. Tracking creation of
17 accounts without any insight into why the account is
18 being created is not a useful metric in the AMI
19 context. We suggest that the Company's existing
20 proposal to track how many customers log on to view

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1 their usage is a more precise measure of the outcome
2 that Pace and EDF appear to be most interested in.

3 Q. Do you agree with EDF's proposal for the Company to
4 provide usage statistics to track the number and
5 percentage of customers choosing particular service
6 offerings such as disaggregation, graphical data
7 presentment of energy usage data, and automatic bill
8 payment?

9 A. No. First, the graphical display of data will be
10 available for all customers that log on to view their
11 AMI usage data. The Company has already proposed an
12 AMI metric related to customers' use of the online
13 portal, so we find EDF's recommendation to be
14 redundant. Second, the Company disagrees that
15 tracking the number of customers logging on to enroll
16 in the Direct Payment Plan (i.e., automatic bill
17 payment) has any bearing on the progress or benefits
18 of the AMI program.

19 Q. Do you agree with the Pace and EDF proposals to
20 develop a methodology to track the impact of the
21 online portal on changes in customer behavior?

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1 A. Absolutely not. The parties appear to suggest that
2 the Company conduct a complex, costly study to
3 determine whether there is any correlation between
4 customers' activity on the online portal and their
5 behavior. We take issue with this for two reasons.
6 First, the parties do not provide sufficient
7 justification for why the Company needs this type of
8 information in order to determine whether the AMI
9 program is providing the benefits described in the AMI
10 Business Plan. Second, the validity of the results of
11 such a study would be difficult to confirm due to the
12 wide range of reasons that a customer's behavior may
13 change, and the variety of motivations that lead a
14 customer to visit the Company's website or other
15 digital platforms. The Company shares these parties'
16 interest in using analytics to gain insights into
17 customer usage and to inform decision-making, but
18 believe that the effort and cost that would be
19 required to scope, conduct and refine such a study
20 would significantly outweigh the value of the
21 information that would be produced.

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1 Q. Pace recommends that the Company measure and report
2 not only the absolute number of customers who log on
3 to the online portal, but also the frequency of their
4 usage (e.g., a histogram of how many customers log on
5 weekly, monthly, quarterly, etc.). Pace recommends
6 the Company report such information monthly. Do you
7 agree with Pace's recommendation?

8 A. No. As stated above, the Panel disagrees with the
9 notion that customers establishing an online account
10 with the Company is a meaningful way to track the
11 benefits of the AMI program. Additionally, there are
12 many reasons why customers may log on to view their
13 account information on the Company's website. We
14 believe that the Company's proposed metric to capture
15 the number of customers logging on to view webpages
16 dedicated to energy usage information is a more
17 precise means of measuring the relationship between
18 AMI installation and customers' engagement with AMI
19 data.

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1 Q. Do you agree with EDF's recommendation to separately
2 track the number of low and moderate income customers
3 that use the online portal?

4 A. The Company opposes such a metric as proposed by EDF.
5 The Company does not maintain income data in its
6 customer records. The Company can identify and track
7 the use of DCX platforms by customers enrolled its
8 Electric or Gas Low Income programs. However, the
9 Company has no way of identifying "moderate income"
10 customers, and therefore cannot support a metric that
11 requires such information. The Company would not be
12 opposed to a metric separately tracking low income
13 customer's use of the online portal to view their
14 energy usage.

15 **Targeted Energy Savings Messaging Metrics**

16 Q. What does Staff propose with respect to the metrics
17 proposed by the Company in its Supplemental AMI
18 testimony related to: 1) tracking the number of
19 customers that the Company targets with energy-savings
20 messaging, and 2) tracking the number of identifiable

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1 low income that the Company specifically targeted with
2 energy-savings messaging?

3 A. Staff proposes, and we agree, that the two metrics be
4 combined to represent targeted messaging efforts for
5 all residential customers since they will be
6 recipients of the same messaging and personalized
7 usage information.

8 Q. Does Staff make any additional proposals related to
9 Targeted Energy Savings Messaging metrics?

10 A. Yes, Staff also recommends that the Company track the
11 number of customers who use the online portal once
12 they receive their targeted messages for energy
13 savings to identify customer energy usage; the type of
14 energy program and energy information; and the
15 communication venue used, such as website, mobile
16 application, or text.

17 Q. Does the Company agree with this Staff proposal?

18 A. The Company will review the feasibility of tracking
19 the information as suggested by Staff. As described in
20 the Customer Operations Panel's initial testimony, one
21 work stream in the DCX program is to develop analytics

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1 dashboards and algorithms to track customer web and
2 mobile activity and identify key areas for improvement
3 in customer transactions. This work necessarily lags
4 behind efforts to build new digital platforms from the
5 ground up, and implement technology needed to operate
6 the new digital assets. The Company does not
7 anticipate turning to the analytics dashboards until
8 2018, and therefore is not in a position to state
9 whether or not Staff's proposal is technically
10 feasible. However, to the extent that the kind of
11 information Staff recommends can be tracked, the
12 Company is open to considering it further.

13 Q. Do you agree with Staff's recommendation that the
14 Company begin reporting on this metric, on a
15 semiannual basis, starting on April 30, 2018?

16 A. The Company agrees with this proposal as it relates to
17 the number of customers that receive targeted energy
18 savings messaging. The additional downstream
19 analytics proposed by Staff must be reconsidered at a
20 later date, for the reasons explained in our response
21 above.

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1 **Near Real-time Data Metric**

2 Q. Do you agree with Staff's recommendation that the
3 Company begin reporting on this metric on April 30,
4 2018?

5 A. No, we do not agree with Staff's recommendation. We
6 would suggest that reporting begin in December 2018
7 since the Company will not be implementing near real
8 time data until the second phase of the AMI project
9 (third quarter of 2018).

10 Q. Pace recommends that customers have online access to
11 real-time data about their energy usage and costs as
12 soon as practicable after the meters are installed and
13 operational (i.e., with the delay, if any, measured in
14 days, and not weeks or months) and that customers
15 should have access to their interval meter data on a
16 real-time basis. In addition to providing access to
17 this data through the Online Portal, such access
18 should also be made available and programmed to be
19 rendered (at the same time the AMI meters are
20 installed) on all common web-enabled devices:
21 computers, tablets, and smart phones. Additionally,

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1 such data should be easily and readily accessible to
2 third-party DER providers as they will represent the
3 bulk of DER-provided resources allowed under the
4 Reforming the Energy Vision ("REV") proceeding. Do you
5 agree with Pace's proposals?

6 A. In part. The Company plans to provide AMI usage data
7 through the DCX AMI portal when a customer receives
8 its AMI meter. AMI-enabled customers will have access
9 to their interval usage data on the online portal, and
10 across all of the Company's digital channels (i.e.,
11 web, mobile web, and apps optimized for both smart
12 phones and tablets).

13 Regarding how frequently the AMI usage intervals
14 will be made available to customers, the Company's
15 current plans are to provide bill-quality interval
16 data on a 24-hour lag for all customers during Phase
17 One of the AMI implementation. Partially validated,
18 near real-time data will become available across all
19 digital channels during Phase Two of the AMI
20 implementation.

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1 Regarding DERs' access to customer usage data,
2 please refer to the Customer Operations Panel's
3 testimony regarding GBC.

4 **Targeted Energy Presentations and Events**

5 Q. Staff recommends combining the Company's proposed
6 metric related to the number of targeted energy
7 presentations to customer groups with its proposed
8 metric related to the number of community outreach
9 events where AMI is discussed. Staff also recommends
10 increasing the number of events the Company
11 participates in and sponsors such that the Company
12 should participate in a total of nineteen outreach
13 events (i.e., complete four presentations and attend
14 15 organizational events) prior to and following each
15 borough deployment. Do you agree with these
16 recommendations?

17 A. We do not agree with these recommendations. The
18 Company's proposed metric for the number of community
19 outreach events where AMI is discussed is an annual
20 target that is not related to regional deployment
21 timelines. Staff's proposed regional target of 19

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1 events for each borough and Westchester is excessive.
2 The Company's plan is to work with communities to
3 identify key organizations and events in each
4 deployment area and ensure outreach presence. The
5 Company's proposed metric represents a baseline that
6 will be maintained on an annual basis; however, the
7 Company may exceed this baseline depending on the
8 deployment region.

9 Q. Do you agree with Staff that the Company should begin
10 reporting on this metric starting April 30, 2018?

11 A. We have no objection to beginning to report on this
12 metric starting April 2018.

13 **Outage Management**

14 Q. Please summarize Staff's modifications and expansions
15 as it relates to AMI metrics for Outage Management.

16 A. Staff proposed the following recommendations:

17 • Emergency Response Labor Reduction, Proactive
18 Power Quality Issue Identification, and False
19 Outage Reduction: Staff recommended that these
20 metrics be combined under one metric and have a
21 cost savings target. The target would be the

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1 combined cost savings of all three proposed
2 metrics and equal to the annual cost savings for
3 Outage Management metric specified in Con
4 Edison's AMI BCA to be filed by August 1, 2016.
5 Annually, Con Edison is to estimate the cost
6 savings under each of the three metrics with a
7 description of how the estimated cost savings
8 were derived. The target should begin in 2018
9 when cost savings are estimated to begin, and
10 Staff requested that the Panel's first report be
11 submitted by April 30, 2018, based on its 2017
12 performance.

13 Q. Does the Panel agree with Staff's proposals?

14 A. No. We do not agree with Staff's recommendation to
15 combine Emergency Response Labor Reduction with
16 Proactive Power Quality Issue Identification and False
17 Outage Reduction and use an aggregated cost savings as
18 specified in Con Edison's AMI BCA. First, AMI
19 integration into the Outage Management System is
20 currently scheduled to begin in mid- 2018, but will
21 not be fully integrated across our service territory

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1 until all meters are installed by the end of the AMI
2 implementation in 2022. Moreover, while annual
3 average cost reductions as a result of, for example,
4 our ability to reduce mutual aid staffing more quickly
5 during a major storm can be estimated using multi-year
6 historical data, actual annual cost reductions will
7 vary from year to year based on many variables, such
8 the number and severity of storms in any particular
9 year, requiring that it be measured over a longer
10 period of time, such as five years. The Company
11 believes that the metric and goal for Outage
12 Management set forth in the supplemental testimony
13 filed with the Commission on April 21, 2016 is more
14 appropriate.

15 **System Operation and Environmental Benefits**

16 Q. Please summarize Staff's modifications and expansions
17 to AMI Metrics regarding System Operation and
18 Environmental Benefits.

19 A. Staff proposed the following modifications:

- 20 • Networks with Conservation Voltage Optimization
21 (CVO): Staff proposes that this metric be

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1 removed from the Scorecard at this time since
2 the benefits from CVO will not begin until the
3 Company completes AMI deployment in 2022.

4 • Meter Reading Cost Reduction, Vehicle Fuel and
5 Emission Reduction, CVO Savings, CVO
6 Environmental Benefits: Staff proposes that
7 targets for these metrics be set at the annual
8 cost reduction and benefits level determined in
9 Con Edison's BCA that will be filed by August
10 1, 2016. Staff further proposes that Con Edison
11 should begin reporting on these metrics by
12 April 30, 2018, and continue reporting this
13 information to the Commission on an annual
14 basis. The items under this category are
15 measured on an annual basis; therefore, the
16 reporting should also be annual.

17 Q. Does the Panel agree with Staff's recommendations with
18 respect to CVO?

19 A. No. We do not agree with the removal of the metric
20 regarding Networks with Conservation Voltage
21 Optimization (CVO). While Staff is correct that CVO

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1 will not be completed until 2022, the Company will
2 begin phasing it in sooner, and anticipates that kWh
3 reductions attributable to CVO can begin to be
4 reported in mid-2019. We believe that the metrics and
5 goals associated with CVO as set forth in the
6 supplemental testimony filed with the PSC on April 21,
7 2016 is appropriate.

8 **DG Integration**

9 Q. Has the Panel reviewed the proposals by Pace and EDF
10 for the expansion of AMI metrics with regard to DG
11 Integration?

12 A. Yes, we have reviewed the proposals put forth by Pace
13 and EDF and disagree with those proposals in their
14 entirety.

15 Q. Please briefly summarize the Pace and EDF proposals.

16 A. Pace proposes a variety of metrics related to AMI's
17 support of utilization, compensation and
18 interconnection for DERs. EDF proposes similar metrics
19 to those proposed by Pace as well as additional
20 metrics regarding load impact and detailed information
21 on individual DERs connected to the Company's system.

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1 Q. Please explain why the Company disagrees with the
2 recommendations put forth by Pace and EDF.

3 A. First, some of the Pace and EDF recommendations are
4 premature as AMI has not yet been rolled out nor will
5 it be completely rolled out for several years.
6 Second, a survey for the impact of AMI on DER
7 penetration would make more sense when we actually
8 have some AMI deployed and customers have had a chance
9 to use it for their DER selection. Similarly, with
10 respect to the other issues raised, such as enabling
11 hosting capacity, dispatchability and control and
12 monitoring of DER, the recommendations would make more
13 sense when have the meters or methodology in place.
14 We would, however, note that the Supplemental DSIP,
15 ongoing stakeholder engagement (in which both Pace and
16 EDF already participate) and future individual DSIP's
17 will, to increasingly larger extents, provide the
18 framework for implementing many of these proposals.
19 Finally, the Company prefers to focus efforts on
20 quantifying up-front DG-related savings. Accordingly,
21 the Company proposed to track improvements to DG

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1 integration beginning in the second quarter of 2018
2 derived, for example, from eliminating the need to
3 "roll" a truck with two employees to install a net
4 meter for solar installations.

5 **Newly Proposed Metrics**

6 Q. Please summarize Staff's additional proposals
7 regarding AMI Meter Deployment.

8 A. Staff recommends that the Company report the number of
9 AMI meters installed for residential and commercial
10 customers separately. The target should be 1.2
11 million meter installations per 12 month period (5,000
12 meters x 5 days x 4 weeks x 12 months = 1.2 million).
13 Con Edison should begin reporting on this metric by
14 April 30, 2018, and continue reporting this
15 information to the Commission on a semiannual basis.

16 Q. Does the Panel agree with Staff's proposal?

17 A. No. Daily meter installations will vary, and
18 only at the peak of installations, where multiple
19 boroughs are in deployment, will there be 5,000 meter
20 installations per day. For example, during the
21 initial phase of deployment, daily AMI installation

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1 will be approximately 500 meters. Please refer to the
2 AMI Business Plan submitted to the Commission on
3 November 16, 2015 for the Deployment Plan Schedule,
4 which clearly shows the gradual ramping up to more
5 than 5,000 daily meter installation and then ramping
6 down when installations in boroughs are completed.

7 Q. Please summarize EDF's additional AMI metric
8 proposals.

9 A. EDF recommends calculating reductions in GHG emissions
10 associated with AMI enabled technologies. EDF notes
11 that these metrics will further allow the Company to
12 assess the environmental impact from grid
13 modernization efforts, as well as the programs and
14 technologies they enable, including energy efficiency,
15 peak demand reduction, demand response and integration
16 of clean energy resources.

17 Q. Do you agree with the stipulations addressed in EDF's
18 proposal on GHG emissions tracking?

19 A. The Company will be tracking CVO environmental
20 benefits, which will track the total fuel consumption
21 savings and corresponding emissions reductions. The

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1 Company will also track environmental benefits
2 resulting from less vehicle usage due to reduction in
3 manual meter reading costs, reduction in false
4 outages, and reduction in the number of field visits
5 during outages (Please refer to the metric section:
6 System Operation and Environmental Benefits). The
7 Company does not intend to expand this metric beyond
8 the environmental benefits that are attributed to the
9 AMI deployment and specified in the November 16, 2015
10 Business Plan.

11 **Gas-Specific Proposals**

12 Q. Has the panel reviewed Staff's suggestion that the
13 Company should master-meter all cooking gas customers
14 and thus reduce the installation of AMI gas modules?

15 A. Yes.

16 Q. Do you agree with Staff's recommendation to implement
17 master metering of gas cooking only customers?

18 A. No, we do not.

19 Q. What reason does Staff provide for this
20 recommendation?

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1 A. Staff states that the implementation of the master
2 metering plan would reduce the number of modules
3 installed, and successful coordination of this
4 modification would correspondingly reduce capital and
5 O&M expenses.

6 Q. Do you agree with that assessment?

7 A. No. As explained in more detail by the Company's Gas
8 Infrastructure and Operations Panel, we do not agree
9 that Staff's proposal will reduce capital and O&M
10 expenses. Furthermore, we believe that the capital
11 cost to master meter will be significantly higher than
12 the cost to replace tin case meters with new meters
13 with AMI modules. In addition to installing AMI master
14 meters, the estimate for the master meter alternative
15 would also need to include removing the 177,000 meters
16 in the apartments.

17 **Depreciation Issues**

18 Q. Have you reviewed the proposals of Staff and Solar
19 City Witness Teumin with regard to depreciation rates
20 and service life for AMI meters and rate base

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1 treatment of undepreciated meters that will be
2 replaced?

3 A. Yes. Please see the Company's Depreciation and
4 Accounting Rebuttal Panels for responses to those
5 proposals.

6 . Q. Has the panel reviewed testimony by Solar City Witness
7 Teumin that a substantial portion of the AMI
8 investment could be obsolete well before the proposed
9 20-year payback is complete?

10 A. Yes and we do not agree. The Company has procured the
11 most advanced technology available in the market, and
12 the meters and modules, which account for a
13 significant portion of the AMI capital expenditure,
14 have an expected lifetime of 20 years. Meter and
15 module firmware updates can be upgraded remotely via
16 wireless communications.

17 **Research and Development (R&D)**

18 Q. Have you reviewed Staff's proposal that the Company's
19 annual R&D filing should include updated analysis on
20 advancement of carbon monoxide and corrosion detection
21 sensors?

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1 A. Yes. This will be addressed by the Shared Services
2 Panel.

3 **Rate Design Issues**

4 Q. Has the panel reviewed the proposal of Pace Witness
5 Rabago that suggests the Company should be required to
6 test new rate designs made possible by AMI?

7 A. As part of the Customer Engagement Collaborative
8 required by the March 17, 2016 AMI Order, a pricing
9 pilot will be utilized to test new rate designs. The
10 Company plans to comply with the requirements of the
11 Customer Engagement Collaborative.

12 Q. Have you reviewed the proposal of the UIU Electric
13 Panel which suggests that the costs of AMI should be
14 allocated based on energy usage (as a proxy for AMI
15 benefit) in the current rate case?

16 A. Yes and we do not agree. The proper methodology of
17 allocating costs to customer classes should be based
18 on the underlying factors causing the Company to incur
19 costs on behalf of its customers, not on the benefits
20 these investments will provide in the future, and
21 certainly not on energy usage. In addition, AMI will

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1 enable customers to respond to more accurate price
2 signals. This response will be captured in the load
3 shapes used in the Demand Analysis and in the billing
4 determinants used in the Demand Analysis, Cost of
5 Service Study and Rate Design. This aspect of AMI
6 benefits will therefore be captured by the Company's
7 existing processes.

8 Q. Have you reviewed Staff's suggestion that AMI backbone
9 costs that vary by meter should be allocated
10 accordingly, and that other backbone costs be
11 allocated based on delivery revenues?

12 A. Yes and we partially agree. While the principle of
13 cost causation dictates that costs that vary by meter
14 be allocated to service classes based on the number of
15 meters, other backbone costs that support the
16 Company's AMI program should follow the same
17 allocation methodology (i.e., be allocated based on
18 the number of meters). Delivery revenues should not
19 be used as the basis for cost allocation because
20 revenues in general do not cause the Company to incur
21 costs on behalf of its customers.

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1 Q. Has the panel reviewed the proposal of CPA Witness
2 Luthin to add an AMI metric for the elimination of
3 class average estimates for determination of LSE load
4 requirements and bill settlements?

5 A. Yes and we do not agree. Con Edison's new
6 Transmission Owner Data Reporting System (TODRS) was
7 already designed to use AMI interval data as it is
8 deployed within the Company's service territory to
9 replace the class average estimated load shaping
10 process. This data will be used for NYISO energy and
11 capacity settlements. Although TODRS and/or the
12 future MDMS will perform less estimations of hourly
13 customers' demand, estimation will be still required
14 for missing hourly data that can result from, for
15 example, a failed meter.

16 **Miscellaneous**

17 Q. Has the panel reviewed the proposal of Solar City
18 Witness Teumin that suggests a collaborative should be
19 established to explore whether the Company's tariffs
20 should be adjusted to allow for an alternative to the
21 Company's AMI proposal?

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1 A. Yes and we do not agree. The Company's AMI proposal
2 was approved as part of the March 17, 2016 AMI Order.
3 Thus, a collaborative to examine an alternative to the
4 ongoing AMI deployment is unnecessary.

5 Costs/Benefits of AMI

6 Q. Have you reviewed the testimony of Westchester County
7 which suggests that the AMI implementation plan places
8 high costs on customers in a short time period, with
9 O&M expenses over three years exceeding O&M cost
10 savings?

11 A. We do not understand the basis for that assertion.
12 Over the course of the AMI deployment there will
13 clearly be an overall reduction in O&M expenses as we
14 automate manual functions and utilize the AMI system
15 to improve operational performance. Westchester's
16 comments with respect to the first three years are
17 irrelevant, even if correct. In the first three
18 years, O&M costs in Westchester and Staten Island,
19 where the majority of the meter installations will be
20 performed, may not be fully offset by meter reading
21 savings, because Westchester and Staten Island have

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1 fewer manual meter reading O&M expenses than the other
2 boroughs. However, other benefits will accrue in
3 Westchester and Staten Island in the first three
4 years, as explained in the Company's November 16, 2015
5 AMI Business Plan.

6 Q. Have you also reviewed the proposal of Westchester
7 County that the Company should credit the cost of
8 installing AMR meters, as well as carrying costs of
9 those facilities, for 2011-2016?

10 A. We have reviewed the proposal and do not agree. The
11 AMR meters installed in Westchester provided discrete
12 benefits to customers and cannot be integrated into
13 the AMI communications network being deployed.
14 Moreover, as explained in the rebuttal testimony of
15 the Depreciation Panel, the Commission determined that
16 the Company is entitled to full recovery of existing
17 meter costs. If Westchester is suggesting that the
18 AMR meters should not be replaced, we would note that
19 the residents in Westchester would be deprived of AMI-
20 related operational benefits, such as improved outage
21 management and near real time data, as well as all of

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1 the other benefits that AMI provides. In addition, in
2 certain locations in Westchester, battery-powered AMR
3 gas modules are nearing the end of their useful life
4 and require replacement.

5 Q. Does this conclude your rebuttal testimony?

6 A. Yes it does.