COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

Petition of NSTAR Electric Company d/b/a Eversource Energy for Approval of its 2022 to 2025 Grid Modernization Plan	)	D.P.U. 21-80
Petition of Massachusetts Electric Company and Nantucket Electric Company each d/b/a National Grid for Approval of its 2022 to 2025 Grid Modernization Plan	)	D.P.U. 21-81
Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil for Approval of its 2022 to 2025 Grid Modernization Plan	)	D.P.U. 21-82

JOINT COMMENTS OF MASSACHUSETTS ELECTRIC COMPANY AND NANTUCKET ELECTRIC COMPANY each d/b/a NATIONAL GRID, NSTAR ELECTRIC COMPANY D/B/A EVERSOURCE ENERGY, AND FITCHBURG GAS AND ELECTRIC LIGHT COMPANY D/B/A UNITIL ON METRICS, AND NEW METRICS PROPOSALS

On October 7, 2022 and November 30, 2022, the Department of Public Utilities issued orders approving the continuing and new grid modernization investments, including its Advanced Metering Infrastructure ("AMI") proposals, filed by Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid's ("National Grid"), NSTAR Electric Company d/b/a Eversource Energy ("Eversource"), and Fitchburg Gas and Electric Light Company d/b/a Unitil ("Unitil") (National Grid, Eversource, and Unitil may hereinafter be referred to jointly as

the "EDCs" or the "Companies"). D.P.U. 21-80-A/21-81-A/21-82-A (2022) ("Track 1 Order"); D.P.U. 21-80-B/21-81-B/21-82-B (2022) ("Track 2 Order").[1]

The Department declined to approve proposed new grid-facing and AMI performance metrics at that time, and instead found that additional work was needed "in collaboration with the parties to develop performance metrics that appropriately track the quantitative benefits associated with grid-facing and customer-facing investments, and progress toward grid modernization objectives." D.P.U. 21-80-B/21-81-B/21-82-B, at 324.

On January 27, 2023, the Department issued a Hearing Officer Memorandum in the above-captioned dockets initiating this further process on metrics for the EDCs' Grid Modernization and AMI plans (the "Memorandum"). The Department set a March 22, 2023 deadline for (1) comments on the existing grid-facing metrics and proposed revisions and additions to the grid-facing metrics, and (2) proposals for new customer-facing metrics and metrics related to low-income customers and environmental justice ("EJ") communities. The EDCs filed a joint motion for an extension of time on March 17, 2023 that was granted by the Department on March 21, 2023; accordingly, the deadline for these comments was moved to April 5, 2023.

The Companies herein provides their comments on existing metrics, and new metrics proposals, as directed by the Memorandum.

[1] The Track 1 Order approved the Companies' continuing grid modernization investments and the Track 2 Order approved the Companies' new grid modernization investments, including AMI.

I. Grid-Facing Metrics

A. Continuing Investments

i. VVO Metrics

The Department seeks comments on the Companies' proposed revisions to VVO metrics and National Grid's proposed VVO smart capacitor investment metric (as submitted on November 7, 2022, and January 5, 2023, respectively) (Memorandum at 2-3.)

1. Proposed Statewide VVO Metrics

The Companies proposed a number of changes to the VVO existing metrics, based on their experiences with implementing their GMPs since 2018. The Companies continue to believe that these changes will help to better measure their VVO programs and how VVO is helping to achieve the Department's objectives for grid modernization. The Companies will address any specific feedback regarding the statewide VVO metrics in their reply comments.

2. National Grid Proposed VVO Smart Capacitor Investment Metric

National Grid proposed a metric entitled "Replacing Fixed Capacitors With Advanced Distribution Management System ('ADMS') Controlled Smart Capacitors." D.P.U. 21-80, National Grid Compliance Filing (January 5, 2023). As stated in National Grid's compliance filing, "[t]his metric is designed to demonstrate that the operation of smart capacitors through an ADMS will result in fewer voltage violations than traditional fixed capacitors, especially on circuits with high DG penetration, thereby helping to mitigate the impact of DG on voltage." Id. National Grid continues to support this metric and will respond to any stakeholder feedback in its reply comments.

ii. Case Study Approach

The Companies continue to support a case study approach as effective in evaluating the impacts of continuing investments on reliability improvements. The Companies have proposed to use the case study approach to evaluate reliability improvements where it would otherwise be difficult to evaluate impacts. Specifically, the case study approach is highly effective where a comparison to a baseline or target does not tell the complete story. By using the case study approach, the Companies have the opportunity to tell this complete story and thoroughly explain any nuances that would not be apparent through data alone. An example of difficult to evaluate impacts are "avoided outages;" some of the reliability investments implemented by the EDCs are designed to avoid outages altogether. Therefore, it is impossible to accurately identify all of the benefits associated with these investments (i.e., it is impossible to prove something that did not occur).

The case study approach also allows the Companies to evaluate the expected benefits of a particular investment for a specific event. With respect to an investment that is designed to avoid outages, for example, the Companies can dissect individual outage events and estimate the savings realized. This is a manual process for individual events that would not be scalable because the performance of each individual circuit is different. In addition, for instances where the Companies do not regularly gather the level of detail required to make an evaluation, the case study is the best approach because it is currently the only way to demonstrate benefits. For example, when reclosers are deployed they are incorporated into the outage management system. However, reliability data for each of the individual reclosers is not tracked and the Companies would not have pre-deployment data to use as a comparison. Instead, the company can use the case study approach to

track a specific recloser and its performance during a particular event to determine whether deployment of the recloser had a reliability benefit.

In addition to these challenges related to the technologies, reliability is a difficult metric to track because reliability is impacted by many different variables. A metric that attempts to compare reliability performance from year-to-year would need to account for these other variables (storms, impacts of multiple investments, circuit reconfigurations, trimming cycles, motor vehicle accidents, etc. in addition to reliability improvement projects implemented outside of grid modernization). A metric that cannot account for these variables would not be meaningful and therefore could not be used to determine benefits associated with any one type of investment. At a minimum, the case study approach should supplement any metrics for purposes of completeness.

The Companies are not currently proposing to perform additional case studies; however, the Companies will review stakeholder feedback and address such feedback in their reply comments. The Companies also acknowledge that case studies can be highly technical and difficult to understand; the Companies will work with Guidehouse Inc. (the entity responsible for developing the case studies) to evaluate whether there are ways that case studies can be made more user friendly (e.g., inclusion of a high level summary or detailed cover page).

iii. Storm-Related and Non-Storm Related Outages

The Department also seeks comment on: (1) whether storm-related outages and non-storm-related outages should be tracked separately to evaluate the effectiveness of grid modernization investments; and (2) if so, the potential method(s) for tracking non-storm-related outages, separately from tracking storm-related outages, to assess circuit-level system average interruption duration index ("SAIDI") and system average interruption frequency index ("SAIFI"), and (3) the advantages and disadvantages of each method (Memorandum at 3).

The Companies agree that storm-related outages and non-storm related outages should not be tracked and reported in the same metrics. Grid modernization investments will have benefits to both storm-related and non-storm related outages; however, storm events continue to represent circumstances beyond the Companies' control. The Companies continue to plan for a level of weather conditions that occur with relative frequency in New England and their respective service territories; however, there are still events that the distribution system cannot reasonably withstand and that can cause significant impacts to SAIFI/SAIDI performance in any given year (e.g., microbursts, tornados, thunderstorms, coastal storms, and Nor'easters). These types of storms are intense, destructive, localized, and outside of normal operating conditions for the Companies but are also not the type of events that would typically qualify as an Excludable Major Event.

Further, mitigating the impacts of outages caused by storm events is a measure of the distribution system's resiliency. SAIDI and SAIFI are not measures of resiliency; these are measures of reliability. Therefore, including storm events in metrics addressing outages would not provide any useful data related to the impacts of grid modernization on reliability. Reliability metrics are most effective to identify an improving or worsening trend over time. Comparing one circuit to another circuit or one circuit year over year results in an "apples to oranges" comparison. The Department has acknowledged this through its adoption of a baseline reliability performance that is the average of a three-year period. This trend over time is useful to minimize the potentially large fluctuations in weather from year to year.

iv. Baseline for Evaluating Continuing Investments

The Department seeks comments on whether the baseline for evaluating continuing investments should be based on 2019-2021 data, and why or why not (Memorandum at 4). The Companies do not agree that 2019-2021 data is the appropriate baseline. Instead, the baseline

should remain 2015-2017. The goal of the metrics is to identify "measurable progress toward grid modernization objectives." D.P.U. 12-76-B, at 9, 15. The Department is measuring this, in part, through reliability performance. The Companies submitted 10-year plans in 2015. To truly evaluate the impact of the EDCs' grid modernization investments, the comparison must be reliability before implementation of any grid modernization project. Moving the baseline will not allow for this comparison. Moving the baseline will also cause confusion because there will be different baselines for different circuits and investments depending on when those investments were implemented.

v. Additional Performance Metrics

The Department also seeks comments on "the need for additional performance metrics to evaluate the effectiveness of grid modernization investments due to (i) significant re-configuration of circuits, (ii) additional load that requires transformer or substation upgrades, and (iii) distributed generation interconnection that requires transformer or substation upgrades, and what these additional performance metrics should be" (Memorandum at 4). The Companies are not proposing any separate performance metrics relate to this category of investments because these investments will be captured through the grid modernization metrics already proposed. While the Companies do combine base capital projects with deployment of grid modernization projects to leverage efficiencies, there is no need for a second set of metrics because the impacts of the investments will not change based on why the investments were deployed. It is also important to note that the Department receives reliability reporting on the Company's capital project investments through other non-grid modernization reporting including service quality and annual reliability reports.

vi. Other Factors or Considerations

Finally, the Department seeks comments on "other factors or considerations, including alternative or additional performance metrics proposals that may assist in evaluating reliability benefits attributable to continuing grid modernization investments" (Memorandum at 4). The Companies are not proposing any additional performance metrics related to reliability benefits but will address any feedback from stakeholders in reply comments.

B. New Investments

1. Metrics for New Investments

The Department seeks comments on the Companies' proposed state-wide and company-specific metrics for new investments (Memorandum at 4). As the Memorandum noted, for their new grid-facing investments, the Companies jointly proposed a statewide metric for distributed energy resource management systems ("DERMS") investments. Track 2 Order at 315. Specifically, the Companies proposed a statewide DERMS Software performance metric to "track and monitor the execution of DERMS through the number of sites with DER that are managed by DERMS and the quantity of dispatchable kilowatts ("kW") that the utility can dispatch." Id.

Additionally, the Companies each submitted proposed company-specific metrics. Track 2 Order at 316-317. Specifically, Eversource proposed a load forecasting milestone completion performance metric; National Grid proposed a metric to track progress and milestones in its DERMS investigation, as well as a separate metric that measures the increase in feeders with advanced short-term load forecasting capabilities; and Unitil submitted a proposed metric for its distributed energy resource ("DER") mitigation investment. Track 2 Order at 316-317.

The Companies continue to support these metrics, as proposed, and are not proposing any new metrics for the grid-facing new investments. The Companies will respond to any feedback from stakeholders in reply comments. Consistent with the Companies' recommendation above

regarding baselines, the Companies do not agree that the baseline should be 2019-2021 but that the 2015-2017 baseline established in D.P.U. 15-120/121/122 should be maintained.

II. EDC Proposed Customer-Facing Metrics and Metrics Related to Low-Income Customers and EJ Communities

The Department directed the Companies to work jointly to propose statewide and company-specific customer-facing performance metrics related to both deployment and benefits for comment and input (Memorandum at 5). The Department noted that it expected that a majority of proposed metrics will apply to all of the Companies, but there may be some instances in which a metric may not be appliable to a particular company; in any such instances an explanation for why a proposed metric does not apply should be provided (id.). The Department also directed the EDCs to propose performance metrics that would demonstrate whether and how their Track 1 and 2 grid modernization investments are providing benefits to low-income customers and environmental justice ("EJ") communities (id. at 6).

As discussed in the Memorandum, Unitil proposed three customer-facing performance metrics as part of its initial filing: (1) an AMI meter replacement metric that would quantify the number of meters deployed with the ability to provide interval metering; (2) a customer engagement metric that would measure the number of customers that have enrolled in the company's customer engagement system; and (3) a data sharing platform metric that would measure the number of customers that have enrolled in the company's data sharing program (Memorandum at 5 citing Track 2 Order at 318). National Grid identified during discovery the following potential metrics: (1) operational and program metrics related to (i) deployment, (ii) billing accuracy, (iii) outage management, and (iv) system operation and environmental benefits; and (2) customer metrics related to (i) awareness, (ii) enablement and empowerment, and (iii) Green Button Connect My Data (id. citing Track 2 Order at 318). Eversource did not propose

customer-facing performance metrics, stating that the identification of such metrics requires further discussion with the Department and stakeholders (Memorandum at 4-5 citing Track 2 Order at 317-318).

The Companies have met and conferred regarding additional customer-facing metrics.[2] As part of their discussions, the Companies considered the metrics identified by intervenors (Memorandum at 5 citing Track 2 Order at 319-322). The Companies have carefully considered the intervenors' identified metrics and propose adoption of the metrics that align with the deployment of the approved grid modernization plans (i.e., metrics that will be able to demonstrate the "success" of AMI deployment). While some of the proposed metrics are not currently appropriate (e.g., average systemwide demand response in MW) because they would not produce data that measures the success of AMI deployments, these metrics may become relevant in the future. The Companies expect the deployment of AMI to be a first step in the grid modernization process that will allow for new initiatives including additional demand response programs, time varying rate ("TVR") implementation,[3] etc. Metrics not adopted as part of this proceeding could be revisited in the future if there is alignment with the specific goals of future grid modernization plans.

The following table summarizes the metrics proposed by intervenors and the Companies' response to same:

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[2] The EDCs are presenting a joint metric proposal that would be applicable to all three Companies.

[3] Implementation of TVR will be subject to a Department investigation and approval. D.P.U. 21-80-B/21-81-B/21-82-B, at 327, fn. 136 (stating that the Department will address TVR for basic service, as well as potential TVR for transmission and distribution, in a separate investigation).

Table 1: Summary of Metrics Identified by Intervenors[4]

Metric	Intervenor(s) Proposing	Companies Response	Reasoning (if not adopted)
Increase in DER hosting capacity (in KW)	AGO	Not adopted.	DER hosting capacity depends on different factors that are not within the control of the Companies, such as the operational schedules of DER. It is also highly intertwined with other dockets such as DPU 20-75, Electric Sector Modernization Plans and rate cases. It also may require advance and time-consuming studies.
System-wide SAIDI and SAIFI	AGO	Adopted, in part.	As explained above, SAIFI and SAIDI data should be reported with storm outage data excluded. Storm outages remain outside of the Companies' control and are not reflective of the success of grid modernization investments.
Count of Residential Customers Registered to Receive High Bill Alerts	AGO/GECA	Adopted.	
Count of Residential Customers who Viewed or Downloaded Detailed Energy Data	AGO/GECA	Adopted.	
Count of Customers Authorizing Third-Party Access to Data	AGO/Cape Light Compact	Not Adopted.	This is outside of the Companies' control. The Companies could track this as a reporting only metric.
Count of Residential Customers Billed on a	AGO/Cape Light Compact/GECA	Not Adopted	The Companies do not currently have TVR rates; this metric is premature pending the Department proceeding to implement TVR.

[4] The intervenor metric proposals adopted by the EDCs have been incorporated into the EDC metric proposals set forth in Table 2. Therefore, targets, baselines and tracking methods are addressed in Table 2.

Metric	Intervenor(s) Proposing	Companies Response	Reasoning (if not adopted)
time-varying rate			
Success in meeting AMI deployment timelines	Acadia Center	Adopted.	
System Performance Improvements as a Result of AMI	Acadia Center	Not Adopted.	This metric is too vague for the Companies to agree to. The Companies will review stakeholder comments and provide additional feedback, as applicable.
Customer Usage of Online Portals	Acadia Center	Adopted.	
Customer AMI Opt-out Rates	Acadia Center	Not adopted.	Customer opt-outs are outside of the Companies' control but the Companies could track this as a reporting metric.
Number of third-parties who successfully access customer data	Acadia Center	Not Adopted.	Third-party data access is outside of the Companies' control; the Companies could track this as a reporting only metric.
Materialization of AMI Benefits to Customers	Acadia Center/Conservation Law Foundation	Not Adopted.	This metric is too vague for the Companies to agree to. The Companies will review stakeholder comments and provide additional feedback, as applicable.
Advancement of Clean Energy Goals while minimizing Costs and Bill Impact	Department of Energy Resources	Not adopted.	This metric is too vague for the Companies to agree to. The Companies will review stakeholder comments and provide additional feedback, as applicable.
Average system-wide demand response per event (per event) by residential customer	GECA	Not adopted.	The Companies are not proposing additional demand response programs at this time. AMI deployment will serve as a foundation for future demand response programs.

Metric	Intervenor(s) Proposing	Companies Response	Reasoning (if not adopted)
Number of residential customers that received disaggregated load data and shave the peak type alerts	GECA	Not adopted.	The Companies have not proposed a "shave the peak" type program. AMI deployment will serve as a foundation for future demand response programs.
Average system-wide demand response per event (MW) attributable to shave the peak type alerts	GECA	Not adopted.	The Companies have not proposed a "shave the peak" program. AMI deployment will serve as a foundation for future demand response programs.

The metrics presented below include the Companies' agreement to adopt the intervenor measures identified above and include metrics related to low-income customers and environmental justice communities:

Table 2: EDC Proposed Metrics

Proposed Metric	Target[5]	Baseline	Tracking Method
% of meters installed	TBD	0	Annual as compared to plan
% of AMI network communications devices installed	TBD	0	Annual as compared to plan
Percent of customers who engage in the company portal that provides usage data and alerts.	N/A[6]	N/A-reporting only	

[5] For the first two metrics (percent of meters installed and percent of AMI network communications), the Companies cannot yet provide a target. The Companies will provide an update on a proposed target as the implementation process moves ahead.

[6] No target is recommended, as this is a customer decision outside of EDC control.

Proposed Metric	Target[5]	Baseline	Tracking Method
Number of feeders with both AMI meters and VVO control schemes	N/A	N/A-reporting only	
Targeted community outreach through in-person or virtual forums (EJ Metric)	40% of outreach performed in EJ communities	0	% compared to the total number of outreach events
Percent of customers on low-income rate that have signed up for usage alerts (Low-income customer metric)	N/A[7]	N/A-reporting only	
Percent of EJ and low-income customers impacted by discrete (i.e., non-statewide) investments[8]	N/A	N/A-Reporting Only	

The first two metrics are designed to measure the Companies' success in deployment of AMI across their systems in a timely manner and in a manner that begins to provide customer benefits. This is consistent with the recommendations of stakeholders (e.g., Acadia Center recommended a metric to measure timely deployment of AMI). As noted above, AMI deployment will serve as a building block for future grid modernization initiatives, and therefore the Companies recognize that its timely and successful deployment are critical measures.

The Companies' Grid Modernization Plans are intended to provide benefits across their respective service territories and across all customer rate classes. For this reason, benefits to low-income customers and EJ communities will be similar to those of all other customers. However,

7 No target is recommended, as this is a customer decision outside of EDC control.

8 This metric refers to grid-facing investments.

the Companies do understand the value in ensuring that all customers are aware of and able to take advantage of these benefits, including the most vulnerable customers. For this reason, the Companies have focused on metrics that measure education and access to the benefits associated with their grid modernization plans.

With respect to EJ communities, the Companies have focused on ensuring that the robust education plans developed related to grid modernization investment deployment (AMI meters in particular) are conducted directly in EJ communities and in ways that EJ communities expect and desire (i.e., by working with community partners, ensuring that there are translation services, etc.).[9] The Companies have also focused on metrics that will measure their success in reaching these customers (low-income and EJ) because the grid modernization plans approved by the Department in these proceedings are underway and any significant deviation from those plans would be difficult. However, the Companies will review all stakeholder comments including suggestions for additional customer-facing investment metrics. These comments will be particularly helpful with respect to low-income customers and EJ communities, and the Companies expect this feedback to inform the evolution of their grid modernization plans, including metrics.

In addition, with respect to grid-facing investments, the EDCs propose reporting the percent of low-income and EJ community customers impacted by discrete circuit-level or substation-level investments. Some investments such as ADMS are made at a system level and will benefit all customers, including low-income customers and customers living within EJ communities. However, other grid-facing investments such as ADA and VVO/CVR are made at the circuit or substation level, and therefore benefit a sub-set of customers. Reporting on these

[9] The Companies education and engagement plans will utilize a vast array of communication methods; however, it is the Companies experience that in-person meetings and engagement with community partners is the most effective for EJ communities. For this reason, the proposed metrics focus on these methods. The metrics are not intended to measure the effectiveness of all points of customer engagement.

discrete investments will provide additional insight into how EJ communities and low-income customers are benefiting from grid modernization. However, since the EDCs are already deploying grid-facing investments based on the approved second term Grid Modernization Plans, this metric is proposed as reporting only.[10]

It is the Companies' expectation that one of the greatest benefits to low-income customers will be the ability to reduce usage in response to real-time alerts. Thus, the Companies have proposed the percent of customers on low-income rates signed up for usage alerts as a metric for low-income customers. These alerts will allow all customers to reduce usage to avoid unexpected high bills and/or to reduce usage during peak times (once time varying rates have been approved by the Department). The Companies expect the benefits of these high-bill alerts to be immediate once deployed.

Finally, the Department directed the Companies to propose a common template for the reporting of data for each metric (Memorandum at 5). The Companies anticipate that metric reporting will occur in a format similar to how metrics have been reported on in the grid modernization annual reports as Appendix A. The format of the template, however, is dependent on the metrics adopted by the Department. The Companies will also review any proposals from stakeholders in initial comments and include a proposed template with their reply comments.

III. Conclusion

As described above, the Companies have carefully considered the feedback of stakeholders in this proceeding with respect to metrics. The Companies understand the need for metrics that hold the EDCs accountable for successful deployment of their grid modernization plans, including

[10] Future grid-facing investments will likely include in the upcoming Electric Sector Modernization Plans and are an appropriate forum to develop additional low-income customer and EJ community metrics with the benefit of input from the Grid Modernization Advisory Council (which will include advocates for low-income and EJ community customers).

AMI, and ensure that the benefits associated with these investments accrue to customers. However, it is important that any metrics adopted align with the goals of the grid modernization plans and are based on measures that are within the EDCs' control. The EDCs look forward to additional feedback and the opportunity to respond to this stakeholder feedback in their reply comments.