

# **Observations and Recommendations of the Grid Modernization Advisory Council**

**Regarding the Electric Distribution Companies'  
Electric-Sector Modernization Plans**

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**November 20, 2023**

Pursuant to G.L. c. 164, §§ 92B-92C

# TABLE OF CONTENTS

- 1. INTRODUCTION .....1**
- 2. OBSERVATIONS OF THE GMAC .....6**
  - Overarching Observations..... 6
  - Missing Information..... 7
  - Requirements of the Climate Act..... 7
  - Stakeholder Engagement and Equity Goals..... 9
  - Load Forecasting (Short- and Long-Term)..... 10
  - Solution Sets (Short- and Long-term)..... 10
  - Infrastructure/Investment Proposals (Short- and Long-Term)..... 11
- 3. GMAC RECOMMENDATIONS TO THE EDCs .....13**
  - Overarching Recommendations..... 13
  - Section 2: Compliance with the Climate Act..... 16
  - Section 3: Stakeholder Engagement ..... 17
  - Section 4: Current State of the Distribution System ..... 18
  - Section 5: 5- and 10-Year Electric Demand Forecast..... 19
  - Section 6: 5- and 10-Year Planning Solutions ..... 19
  - Section 7: 5-Year Electric Sector Plan..... 22
  - Section 8: 2035–2050 Policy Drivers: Electric Demand Assessment..... 23
  - Section 9: 2035–2050 Solution Set – Building a Decarbonized Future..... 24
  - Section 10: Reliable and Resilient Distribution System ..... 24
  - Section 11: Integrated Gas-Electric Planning ..... 25
  - Section 12: Workforce, Economic, and Health Benefits ..... 25
  - Section 13: Conclusion ..... 26
- 4. EQUITY WORKING GROUP RECOMMENDATIONS.....28**
- 5. PROCESS FOR THE NEXT ESMPS .....30**
- APPENDIX A: MEMORANDUM OF THE GMAC EQUITY WORKING GROUP .....31
- APPENDIX B: PUBLIC COMMENTS RECEIVED BY THE GMAC .....47
- APPENDIX C: REQUIREMENTS OF THE CLIMATE ACT.....49

## Acknowledgements

The Grid Modernization Advisory Council’s (GMAC) formal review of the first generation of electric distribution companies’ (EDCs) Electric-Sector Modernization Plans (ESMPs) began on September 1, 2023, and was an intensive 80-day process. Many stakeholders supported the GMAC ESMP review process and deserve acknowledgement, including GMAC members and their designees, members of the public who attended meetings and provided public comment, staff of the EDCs who provided presentations and responded to questions, staff of the Department of Energy Resources (DOER), and the GMAC consultant team (Synapse Energy Economics, the Wired Group, and GreenerU).

The GMAC is comprised of the following 18 members:

**Commissioner Elizabeth Mahony**  
Massachusetts DOER

**Kyle Murray**  
Acadia Center

**Sarah Bresolin Silver**  
ENGIE North America

**JS Rancourt**  
DXS - Direct Expansion Solutions

**Kelly Caiazzo**  
Massachusetts Office of the Attorney General

**Jonathan Stout**  
Dana-Farber Cancer Institute

**Marybeth Campbell**  
Worcester Community Action Council

**Andy Sun**  
Massachusetts Institute of Technology

**Larry Chretien**  
Green Energy Consumers Alliance

**Alex Worsley**  
Enel North America

**Kathryn Cox-Arslan**  
New Leaf Energy

**Kathryn Wright**  
Barr Foundation

**Sarah Cullinan**  
Massachusetts Clean Energy Center

**Digaunto Chatterjee**  
Eversource Energy (non-voting)

**Julie Curti**  
Metropolitan Area Planning Council

**Carol Sedewitz**  
National Grid (non-voting)

**Amy McGuire**  
Highland Electric Fleets

**Kevin Sprague**  
Unitil (non-voting)

# 1. INTRODUCTION

## Background

Massachusetts continues its leadership in reducing greenhouse gas (GHG) emissions with the commitment to achieve Net Zero emissions in 2050. The Clean Energy and Climate Plan for 2050 states that Massachusetts' path to economy-wide decarbonization relies on an expanded role for the electric power system.<sup>1</sup> Thus, electric power sector planning is essential, and the Grid Modernization Advisory Council (GMAC) is an integral part of improving transparency and stakeholder engagement in the electric distribution system planning process in the Commonwealth.

Established by An Act Driving Clean Energy and Offshore Wind (the Climate Act),<sup>2</sup> the GMAC is charged with reviewing and providing recommendations to the state investor-owned electric distribution companies (EDCs) regarding their electric-sector modernization plans (ESMPs). These plans were submitted to the GMAC on September 1, 2023.

The ESMPs are comprehensive documents that describe the current state of the distribution grid,<sup>3</sup> the EDCs' current and proposed investments in the electric grid, projections regarding future reliability needs of the grid, a forecast of the Commonwealth's future electricity needs, strategies to support renewable energy resources, electric vehicles, building electrification, and more. The EDCs (Eversource,<sup>4</sup> National Grid,<sup>5</sup> and Unitil,<sup>6</sup>) each submitted their ESMP using a standardized outline that was developed by the EDCs and reviewed by the GMAC.

The ESMPs are required to set out how the EDCs will proactively “(i) improve grid reliability, communications, and resiliency; (ii) enable increased, timely adoption of renewable energy and distributed energy resources; (iii) promote energy storage and electrification technologies necessary to decarbonize the environment and economy; (iv) prepare for future climate-driven impacts on the transmission and distribution systems; (v) accommodate increased transportation electrification, increased building electrification and other potential future demands on distribution and, where applicable, transmission systems; and (vi) minimize or mitigate impacts

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<sup>1</sup> Executive Office of Energy and Environmental Affairs, Clean Energy and Climate Plan for 2050 at 30, available at <https://www.mass.gov/doc/2050-clean-energy-and-climate-plan/download> (Dec. 2022).

<sup>2</sup> St. 2022, c. 179, § 53, codified at G.L. c. 164, §§ 92B-92C.

<sup>3</sup> Unless otherwise specified, all references to the grid or the electric grid throughout this document refer to the distribution system.

<sup>4</sup> Eversource, Electric Sector Modernization Plan, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac> (Sep. 2023).

<sup>5</sup> National Grid, Future Grid Plan: Empowering Massachusetts by Building a Smarter, Stronger, Cleaner and More Equitable Energy Future, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac> (Sep. 2023).

<sup>6</sup> Unitil, Electric Sector Modernization Plan, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac> (Sep. 2023).

on the ratepayers of the Commonwealth, thereby helping the Commonwealth realize its statewide greenhouse gas emissions limits and sublimits under chapter 21N.”<sup>7</sup>

This document describes the GMAC’s observations and recommendations. The Climate Act directs the GMAC to provide recommendations to the EDCs following review of the ESMPs. In addition to these statutorily required recommendations, the GMAC also chose to provide additional observations regarding the ESMPs and the review process. In reviewing and providing recommendations on the ESMPs, the GMAC is mindful of its requirement to “seek to encourage least-cost investments in the electric distribution systems, alternatives to the investments or alternative approaches to financing investments that will facilitate the achievement of the statewide GHG emission limits and sub-limits under chapter 21N and increase transparency and stakeholder engagement in the grid planning process.”<sup>8</sup> The observations and recommendations below seek to further these objectives.

Importantly, in several key areas, the information provided by the EDCs in the ESMPs was inadequate to fully assess them as envisioned by the statute. Further discussion on this observation can be found in the *Missing Information* section of the *Observations of the GMAC*. It is important to note that this is the first time the Commonwealth of Massachusetts has gone through this process to create and review large electric-sector modernization plans. The Massachusetts EDCs’ and GMAC’s substantial effort on this undertaking is commendable and greatly contributed to this review.

## Process

After passage of the Climate Act in 2022, the GMAC convened for the first time in March 2023. Throughout the next five months, the GMAC hosted presentations from GMAC members, external experts, and EDC representatives on topics such as distributed energy resources (DER)<sup>9</sup>, interconnection key challenges, cost allocation and investment alternatives, stakeholder engagement, and relevant proceedings at the Department of Public Utilities (DPU). This time allowed for engagement with subject matters pertinent to the ESMPs for GMAC members to inform their ESMP review. The Executive Committee led much of the strategic planning for reviewing the draft ESMPs. The Executive Committee consists of six voting members and one non-voting EDC member. This subcommittee of the GMAC focused on strategizing the ESMP

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<sup>7</sup> G.L. c. 164, § 92B(a).

<sup>8</sup> G.L. c. 164, § 92C(b).

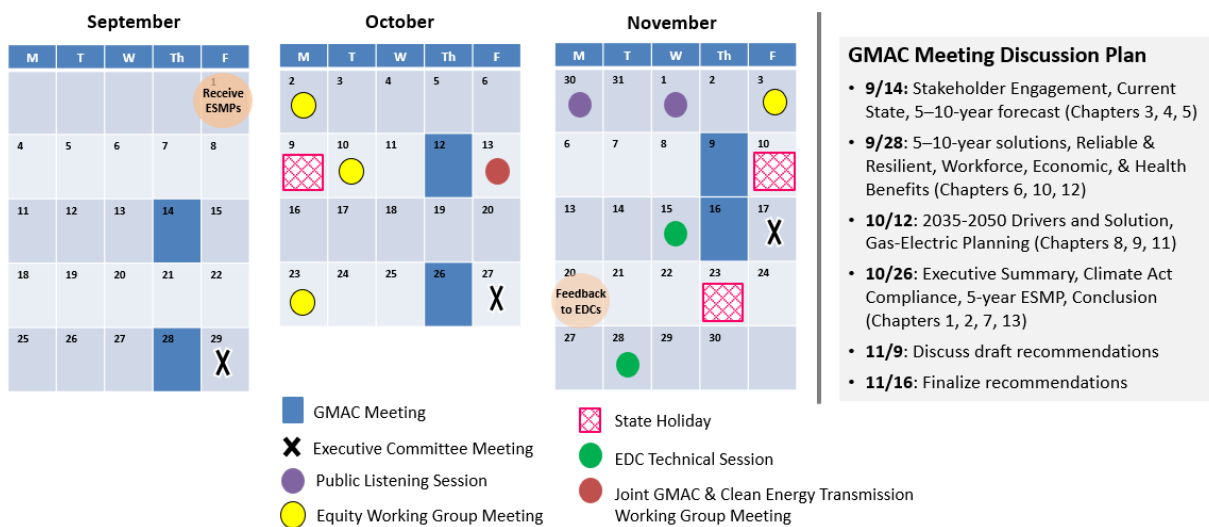
<sup>9</sup> For the purpose of this report, “distributed energy resource” is defined as small-scale power generation or storage technology, not greater than 20 megawatts, including, but not limited to, resources that are in front of or behind the customer meter, electric storage resources, intermittent generation, distributed generation, demand response, energy efficiency, thermal storage and electric vehicles and their supply equipment that may provide an alternative to, or an enhancement of, the traditional electric power system and are located on an electric utility’s distribution system or on a subsystem of the utility’s distribution system. This definition is consistent with An Act Driving Clean Energy and Offshore Wind (Climate Act), St. 2022, c. 179, § 52, codified at G.L. c. 164, § 1.

review, determining the frequency of GMAC meetings, and overseeing the role and responsibilities of the GMAC consultants.

### Timeline

After receiving the draft ESMPs on September 1, 2023, the GMAC met on a biweekly basis to perform a rigorous and comprehensive review of the draft plans. The Climate Act requires that the EDCs provide the GMAC at least 80 days to conduct its review of the draft ESMPs, and that the GMAC provide written feedback to the EDCs not later than 70 days before the EDCs file with the DPU in January 2024. Each GMAC meeting was structured to allow for consultant summary presentations and GMAC discussion on ESMP sections. Figure 1 illustrates the GMAC ESMP review process timeline, which also highlights additional meetings outside of the biweekly GMAC meeting schedule. The statutory deadline for the GMAC providing its recommendations to the EDCs is November 20, 2023.

**Figure 1.** GMAC ESMP review process: September–November 2023



### Aggregating Recommendations

As the GMAC reviewed the ESMP sections, council members and the GMAC consultants submitted questions, comments, and informal recommendations by EDC, section, and subsection in a standardized spreadsheet. These spreadsheets were aggregated by the DOER staff and consultant team and formed the basis of higher-level summary takeaways on each ESMP section. GMAC members had the opportunity to review the aggregated sheets and indicate strong agreement or disagreement with specific questions, comments, or recommendations. The EDCs also had the opportunity to submit responses. A newly aggregated spreadsheet consisting of

GMAC member and EDC reactions was published for each block of reviewed sections.<sup>10</sup> These spreadsheets can be found on the GMAC website. Overall, there were nearly 700 questions, comments, and informal recommendations developed over the GMAC ESMP review period, which informed the development of the observations and recommendations present in this report.

### *Additional Meetings of the GMAC*

As noted previously, an Executive Committee of the GMAC was established. This group held monthly meetings to provide direction for the GMAC review and develop processes to develop final recommendations to the EDCs. Information on the Executive Committee, including meeting presentation slides and minutes, can be found on the GMAC website.<sup>11</sup>

At the September 14, 2023, meeting, the GMAC approved an Equity Working Group charter<sup>12</sup> and membership.<sup>13</sup> This subcommittee of seven voting members and one non-voting EDC representative met four times over the course of the GMAC review period. The GMAC charged the Equity Working Group with the responsibility to:

- Provide input and feedback to the GMAC on how to consider equity through its review of the ESMPs and suggestions for addressing specific equity issues in the ESMPs;
- Provide feedback and specific suggestions on how to reduce impacts on low-income ratepayers;
- Provide feedback and recommendations relating to Environmental Justice Populations;
- Advise and assist the GMAC on equity matters; and
- Make recommendations and report to the GMAC on actions and activities of the Equity Working Group.<sup>14</sup>

The GMAC also convened a joint meeting with the Clean Energy Transmission Working Group (CETWG)<sup>15</sup> on October 13, 2023 to discuss related distribution and transmission challenges and strategies with grid modernization. This coordination was required by the statute.<sup>16</sup> GMAC

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<sup>10</sup> Due to the timing constraints of the review period, a second aggregated spreadsheet for GMAC member and EDC reactions was not completed for the final block of sections (Sections. 2, 7, and 13). Members were instead encouraged to provide their reactions during the final review meetings in November 2023.

<sup>11</sup> DOER, GMAC, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac#gmac-executive-committee-meeting-schedule>

<sup>12</sup> DOER, GMAC, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac>

<sup>13</sup> The Equity Working Group included the following members: Kathryn Wright, Barr Foundation; Julia Fox, Department of Energy Resources; Chris Modlish, Massachusetts Office of the Attorney General; Kyle Murray, Acadia Center; Larry Chretien, Green Energy Consumers Alliance; Mary Wambui, Planning Office for Urban Affairs; Vernon Walker, Clean Water Action & Clean Water Fund; and Erin Engstrom, Eversource.

<sup>14</sup> Massachusetts GMAC Equity Working Group Charter at 1, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac>.

<sup>15</sup> See CETWG, available at <https://www.mass.gov/info-details/clean-energy-transmission-working-group-cetwg>.

<sup>16</sup> G.L. c. 164, 92C(b).

members had the opportunity to submit transmission system related recommendations on their recommendations spreadsheets to provide the EDCs feedback on distribution impacts.

### *Stakeholder Engagement*

The GMAC's stakeholder engagement process consisted of multiple opportunities for the general public to provide oral or written feedback to the GMAC throughout its review of the ESMPs. From March through August, the GMAC reserved meeting time for public comment. Written public comment was accepted at any time to the GMAC email inbox, administered by DOER, and submitted comments were posted on the GMAC website. Emails with information on the GMAC review process and public comment opportunities were sent out to a listserv of 1,000+ interested stakeholders during the review period.

Additionally, the GMAC hosted two public listening sessions, the first on October 30, 2023, in the evening and the second on November 1, 2023, during the day. Members of the public were invited to address the GMAC with any comments or concerns on the ESMPs. A brief presentation on the GMAC process and overview of the ESMPs was provided at the listening sessions. Language interpretation services, for Spanish, Portuguese, Mandarin, Cape Verdean Creole, Haitian Creole, Vietnamese, and American Sign Language (ASL), were offered to stakeholders who requested these accommodations in advance. Over the course of the GMAC review period, the GMAC received 33 written and 20 oral public comments at GMAC meetings and listening sessions. All submitted written comments are available on the GMAC website and are referenced in Appendix B.

The GMAC website serves as a repository for all documents of the GMAC, including meeting agendas, presentations, minutes.<sup>17</sup> To improve meeting material accessibility, agendas and minutes from GMAC meetings, including Executive Committee and Equity Working Group meetings, were translated to Spanish and posted on the GMAC website.

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<sup>17</sup> See DOER, GMAC, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac>.



## 2. OBSERVATIONS OF THE GMAC

The GMAC reviewed the ESMPs during the legislatively mandated 80-day review period between September 1, 2023, and November 20, 2023. These observations are provided in addition to the formal recommendations below in order to provide context for the recommendations and to catalog specific feedback and deficiencies that were noted by the GMAC during their review. These observations are grouped by general topic area, including: overarching observations, missing information, requirements of the Climate Act, stakeholder engagement and equity goals, load forecasting, solution sets, and infrastructure/investment proposals.

### Overarching Observations

The following general observations apply to the ESMPs.

- O-1. The EDCs used the same outline across their ESMPs and coordinated some proposals, such as the Community Engagement Stakeholder Advisory Group (Section 3), the Joint Utility Planning Working Group (Section 11), and the Grid Service and Equitable Transaction Energy Studies (Section 6). Some sections were also coordinated across the EDCs, including Section 2: Compliance with the 2022 Climate Act, Section 3: Stakeholder Engagement, Section 11: Integrated Gas-Electric Planning, and Section 13: Conclusion; however, there is still a significant lack of standardization between the EDC ESMPs in terms of underlying forecasting methodologies, assumptions, terminology, and presentation that confounds clear comparison between these filings and makes it difficult for stakeholders to evaluate the plans.
- O-2. The ESMPs are detailed and contain a great deal of information; however, the ESMPs are difficult technical documents for stakeholders unfamiliar with distribution system planning processes to review, and the organization of these plans can make it difficult to digest what each EDC is proposing and whether each ESMP aligns with the requirements of the Climate Act. Some ESMPs do not include simple summary tables and/or do not clearly and transparently identify investments and infrastructure proposals being made, corresponding implementation plans, and/or timelines for proposed and existing investments or programs.
- O-3. The ESMPs do not clearly demonstrate a cogent strategic vision for modernizing the grid. The ESMPs do not clearly identify how the many investment and infrastructure proposals are coordinated, what investment and implementation timelines are, or how stakeholder engagement and working groups will support the distribution system planning process.
- O-4. The GMAC's review was hindered by a lack of clarity about which investments have been approved by the DPU, are pending before the DPU, or are newly proposed.

- O-5. The ESMPs do not include summaries or meeting timelines of existing stakeholder working groups that are relevant to distribution system planning, including, but not limited to, the Energy Storage Interconnection Review Group (ESIRG), the Technical Standards Review Group (TSRG), the Interconnection Implementation Review Group (IIRG), the advanced metering infrastructure stakeholder working group, or the CETWG.

## Missing Information

The GMAC makes the following observations on missing information. These observations are closely related to the GMAC’s observations in the following subsection, *Requirements of the Climate Act*.

- O-6. There is insufficient information for the GMAC to evaluate the net benefits of the proposed investments.
- O-7. The ESMPs do not present information regarding rate impacts or means of mitigating rate impacts, particularly for low-income customers.
- O-8. There is a general lack of detailed assessment of alternatives, including assessment of both alternative investments and alternatives to traditional infrastructure investment.
- O-9. The ESMPs lack consideration of alternative financing, such as alternative cost allocation arrangements between developers and ratepayers.
- O-10. The ESMPs lack critical information regarding gas-electric planning, which impedes the GMAC’s ability to provide meaningful comments.
- O-11. The EDCs’ reporting metrics lack detail, including how certain reporting metrics are defined, how they will be measured, and how they directly relate to EDC investments.

## Requirements of the Climate Act

The GMAC makes the following observations related to the extent to which the ESMPs are aligned with the objectives of and provide the information required by the Climate Act. These observations are most applicable to Section 2 of the EDC’s ESMPs.

The GMAC is not attempting to make a legal determination of compliance. Instead, the GMAC has used the Climate Act as a framework to support its review of the ESMPs by identifying key elements and concepts that should be addressed in the ESMPs.

Appendix C to this report includes a detailed list of the requirements of the Climate Act, with a high-level assessment of the information included or not included in the ESMPs relative to the

requirements of the Climate Act.<sup>18</sup> As indicated in Appendix C, the Climate Act contains multiple requirements, some of which are general objectives, while others are specific informational and methodological requirements.

- O-12. The requirement to propose relevant grid modernization investments is contained in the following subsections: G.L. c. 164, §§ 92B(b).i, 92B(b).iv, 92B(b).v, and 92B(b).vi. The ESMPs provide information relevant to these requirements.
- O-13. The requirement to consider alternatives and evaluate benefits is addressed in several subsections: G.L. c. 164, §§ 92B(b).viii, 92B(b).ix, 92B(c).ii, and 92B(e). The GMAC observes that there is a general lack of discussion about alternatives in the ESMPs. Moreover, to the extent that benefits are discussed, they are generally not quantified or monetized, and are not used as criteria for comparing and justifying the selected investment or investment alternative.

To the extent that alternatives are discussed, it is often in generalized terms. For instance, there are statements that alternatives were considered without any specific list, discussion, or analysis of the alternatives. The assertion that alternatives have been considered is not sufficient to demonstrate that the best and least-cost options have been selected and proposed. The GMAC observes that greater transparency and detail are required to meet this criterion.

Non-wires alternatives (NWAs)<sup>19</sup> are one form of alternative to more traditional EDC infrastructure. Until discusses a historical NWA project but does not seriously consider NWAs in its discussion of future needs in Section 9. National Grid and Eversource discuss NWAs in Section 6, but could be significantly more detailed regarding how and to what extent NWAs could specifically contribute to the solution set.

- O-14. The GMAC observes that Eversource has provided information on specific technologies (smart inverters, utility-owned energy storage, and advanced meters) as set forth in G.L. c. 164 in Sections 92B(b).ii and 92B(b).vii, whereas National Grid and Until do not appear to provide this information.
- O-15. The GMAC observes that each of the EDC's ESMPs lacks a thorough analysis of the potential *future* opportunities to deploy energy storage for various purposes, including distributed storage owned and operated by customers or third parties.
- O-16. The GMAC observes that the ESMPs have provided the load forecast information required by G.L. c. 164, Sections 92B(b).iii, and 92B(c).i; however, the GMAC

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<sup>18</sup> Appendix C was prepared by the GMAC consultants as a reference to support the GMAC's discussion of the requirements of the Climate Act.

<sup>19</sup> Non-wires alternatives (NWAs) include programs and initiatives to deploy DERs and programs to deploy technologies or technology platforms in geographically targeted areas to address a specific constraint on the electricity grid.

further observes that the EDCs could improve the quality, transparency, and integration of their respective load forecasts, as described throughout this report.

- O-17. The GMAC observes that the ESMPs do not provide the information necessary for its review of some of the criteria listed in G.L. c. 164, Section 92C(b). Specifically, the ESMPs do not provide sufficient information to determine whether the ESMPs (a) encourage least-cost investments in the electric distribution systems, alternatives to the investments, or alternative approaches to financing investments; (b) maximize net customer benefits; (c) minimize or mitigate impacts on ratepayers throughout the Commonwealth; and (d) reduce impacts on and provide benefits to low-income ratepayers throughout the Commonwealth.

A primary reason that the information was insufficient for the GMAC’s review is that the ESMPs do not provide a net benefits analysis or a rate or bill impact analysis. (Section 13 of each of the ESMPs notes that a net benefits analysis will be provided when the ESMPs are filed with the DPU in January 2024.) While the ESMPs assert that the proposals reflect least-cost solutions, this assertion is not substantiated. Further, the issue of benefits and rate impacts for low-income customers is not addressed in the ESMPs.

## **Stakeholder Engagement and Equity Goals**

The GMAC makes the following observations related to stakeholder engagement and equity goals. These observations are most applicable to Section 3: Stakeholder Engagement.

- O-18. The GMAC appreciates the EDCs’ joint effort to facilitate creation of a joint stakeholder group for community engagement and agrees that community engagement is critical to the success of the ESMPs. The GMAC has concerns, however, that the proposed Community Engagement Stakeholder Advisory Group (CESAG) may be duplicative with other efforts and contribute to the issue of “working group fatigue” that the Commonwealth is currently facing considering numerous energy- and environment-related working groups that have been convened to develop various aspects of the Clean Energy and Climate Plans (CECPs).
- O-19. The GMAC has concerns with the proposed CESAG relating to its governance, objectives, staffing, time constraints, and accountability. Further, the GMAC has concerns about the CESAG regarding measurement of success for the proposed group, how reporting metrics will be determined to measure benefits, and how those reporting metrics will be presented.
- O-20. The GMAC has concerns that engagement plans had limited discussion of relationships with certain key stakeholders such as developers/DER providers and municipalities.
- O-21. Communication with customers is challenging. There may be communication overload for customers with multiple consumer-facing engagement efforts happening simultaneously from state agencies, utilities, and third parties, among others. It is important that the technical content of these plans be translated into multiple non-

English languages; it is also important to translate the content of the plans into plain English for native speakers so that technical material is accessible for laypersons.

## **Load Forecasting (Short- and Long-Term)**

Transparency regarding forecasted load growth and DERs is fundamental for assessing the need for the EDCs' proposed investments. The GMAC makes the following observations related to load forecasting in the short and long term. These observations are most applicable to ESMP Section 5: 5- and 10-Year Electric Demand Forecast and Section 8: 2035-2050 Policy Drivers: Electric Demand Assessment.

- O-22. The ESMPs as presented do not provide informational transparency regarding data and assumptions behind the ESMPs' load forecasts and sensitivity analyses. Greater informational transparency is required regarding assumptions for future alternative fuel sources, technological advances, impacts of the adoption of new building codes, and impacts of DERs.
- O-23. The three ESMPs do not use consistent forecasting methods, baseline data, or scenarios, particularly when using benchmarks and scenarios set forth by the Clean Energy and Climate Plans.
- O-24. The 5- to 10-year forecasts are not connected to the long-term forecasts in a clear or logical manner.
- O-25. The ESMP investment proposals are determined through technical evaluations that involve circuit and substation level analysis. Generally, the ESMPs do not include any analysis of uncertainty in the 5- and 10-year demand forecasts.

## **Solution Sets (Short- and Long-term)**

The GMAC makes the following observations related to solution sets proposed and described in the ESMPs. These observations are most applicable to Section 6: 5- and 10-Year Planning Solutions: Building for the Future and Section 9: 2035-2050 Solution Set – Building a Decarbonized Future.

- O-26. The ESMPs do not clearly quantify the contribution of each component of the proposed solution sets on system capacity, hosting capacity, and reliability/resilience, and where and when those contributions are generally expected to be available.
- O-27. The ESMPs do not clearly distinguish which operating and capital costs are already incurred or already in the process of being incurred versus which are incremental (i.e., newly proposed in the ESMPs).
- O-28. The ESMPs submitted by National Grid and Eversource assume that currently pending Provisional System Program investment proposals in front of the DPU are approved. The proposed solutions in the Eversource ESMP depend on the continuation of the Provisional System Program. While not yet included in proposals to the DPU,

National Grid’s ESMP assumes in “the base case for the Future Grid Plan analysis” the proposed DER and system modifications for 18 completed or in progress group studies (in addition to the five Provisional System Program investment proposals pending before the DPU).<sup>20</sup>

- O-29. Under the ESMP proposals, DER interconnecting in identified Group Study/Capital Investment Project (CIP) areas would pay a \$/kW interconnection fee, but residential DER such as rooftop solar, and DER interconnecting in other areas in which major substation projects/capacity additions would increase DER hosting capacity, would not pay a corresponding fee.
- O-30. The ESMPs do not explicitly consider alternatives to traditional EDC capital spending, such as EDC investment in and support of incremental DERs.
- O-31. Given the magnitude of new investments proposed in the ESMPs, the GMAC observes that it does not have sufficient information to assess the affordability and equity of the proposed solutions. GMAC members expressed concerns about the impact of rate increases and some types of rate designs, particularly on low- to moderate-income households with poor weatherization. Rebate programs, low-income rates, and bill assistance programs should not be considered “silver bullets” to affordability and equity issues.
- O-32. The plans rely on natural gas and other fuels as a backup for heat pumps without explicitly considering the tradeoffs with the ongoing maintenance cost of gas pipelines or alternative fuel infrastructure and the GHG emissions of the fuel consumption. All hybrid systems have associated costs that do not appear to be considered or evaluated in the plans. There is a balance between the cost of gas pipeline or alternative fuel infrastructure maintenance and the increased cost of electric capacity required for full electrification of heating, particularly on the coldest days (which represent a disproportionate electric capacity expansion requirement).

## **Infrastructure/Investment Proposals (Short- and Long-Term)**

The GMAC makes the following observations related to infrastructure and investment proposals in the ESMPs. These observations are most applicable to Section 4: Current State of the Distribution System, and Section 7: 5-year Electric Sector Modernization Plan.

- O-33. The ESMPs do not present the capabilities and deficiencies of the current system in a clear and transparent manner. They do not include consistent methods across the EDCs for presenting the age and condition of existing infrastructure, capacity deficiencies, DER capacity, DER hosting capacity, and more. The ESMPs do not describe how DERs and NWAs are currently acting to reduce electricity demand. A

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<sup>20</sup> National Grid, Future Grid Plan: Empowering Massachusetts by Building a Smarter, Stronger, Cleaner and More Equitable Energy Future at 85, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac>. (Sep. 2023).

transparent assessment of current grid capabilities and the grid's ability to accommodate future load growth and DERs is critical to determining the investments required to advance the goals of the Commonwealth, and the required timing of those investments. Without such information, it is difficult to assess the need and timing for proposed investments.

- O-34. The ESMPs do not make clear how the incremental, newly proposed investments will result in net benefits to customers.
- O-35. The ESMPs do not quantify the incremental impact of the EDC's incremental, newly proposed investments on improving reliability or resilience, for example by indicating how reliability and resilience reporting metrics will change as a result of those incremental investments.
- O-36. The ESMPs do not present the incremental impacts of their proposals on workforce, jobs, GHG emissions, and health that would occur due to the proposed investments in the ESMPs.
- O-37. The ESMPs do not quantify the incremental impact of the EDCs' incremental investments on meeting the state's GHG emissions reductions targets.



### 3. GMAC RECOMMENDATIONS TO THE EDCs

The GMAC reviewed the ESMPs during the legislatively mandated 80-day review period between September 1, 2023, and November 20, 2023. Through the review process, each GMAC member submitted their individual feedback at various points, for review and discussion with the Council as a whole. Altogether, the GMAC compiled nearly 700 discrete, independent observations and recommendations. The GMAC consultants developed additional observations and recommendations for the GMAC’s consideration. These observations and recommendations, meeting materials, and meeting minutes can be reviewed on the GMAC website.<sup>21</sup> The following recommendations are a synthesis of these efforts. In accordance with the requirements of the Climate Act, the following list represents the GMAC recommendations to which the EDCs shall respond in their filings to the DPU. The GMAC requests that EDCs use a uniform format for their responses and that each response include: a detailed narrative explaining how the recommendation was considered internally at the EDC, actions that were taken to consider and implement the recommendation, citations to revisions made within the draft ESMP, and any additional actions that will be taken based on the recommendation in future iterations of ESMPs.

#### Overarching Recommendations

- R-1. The EDCs should include in their ESMPs more detail on whole-of-business strategic planning, program implementation and investment timelines, and plans for continued sector-specific stakeholder engagement through either existing or new working groups. The ESMPs should be the central distribution system planning document and any filing in which the EDCs have received or requested cost recovery should be clearly described and connected. The GMAC and ESMP process represents an opportunity to ensure that the EDC distribution system plans meet the objectives in the Climate Law, coordinate multiple investment streams, propose right-sized future investments, and ensure stakeholder engagement and input. At minimum, the EDCs should all provide summary figures that show the timelines for how their grid planning and operational practices will evolve over time to meet the Commonwealth’s policy goals and of different investments and program periods that impact their distribution systems, such as the Figure ES-1 “Key Progress and Plans” included in National Grid’s New York Distribution System Implementation Plan.<sup>22</sup>
- R-2. The ESMPs should be clear in identifying and describing which investments have been approved by the DPU, are pending before the DPU, or are newly proposed. For those investments that are not newly proposed, the ESMPs should identify which investments are already approved by the DPU, and which investments (and in what

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<sup>21</sup> DOER, GMAC, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac>.

<sup>22</sup> National Grid, Distributed System Implementation Plan Update of Niagara Mohawk Power Corporation d/b/a National Grid at 3, Figure ES-1, available at <https://jointutilitiesofny.org/sites/juny/files/National%20Grid%20DSIP.pdf>.



quantity) are under review in a current proceeding. Furthermore, the solutions listed in Section 6: 5- and 10-Year Planning Solutions should be clearly tied to the 5-year investment plans in Section 7, clearly identifying which regional projects are already funded (and if funded, which DPU Order has authorized the funding) and which are seeking to be funded through the ESMP proposal, if any. Across the three ESMPs, the EDCs should collaborate to streamline the terms they use to describe their investments and display the investments in a standardized manner.

- R-3. The ESMPs should propose a long-term proactive distribution system planning process for the interconnection of distributed generation (DG), utilizing the analysis process proposals and subsequent comments submitted in D.P.U. 20-75. Proactive distribution system investments are critical to ensuring that DERs, including DG, can interconnect to the grid at a reasonable cost and in an expeditious manner to meet the Commonwealth's goals and that such investments to enable DERs are cost-effective. The proactive planning process should be as uniform across all three EDCs as possible, ensuring coordination of overarching assumptions and DER stakeholder engagement. The proposed long-term proactive distribution system planning process for the interconnection of distributed generation should include factors that drive development of DG by enabling hosting capacity in locations that benefit the Commonwealth as a whole and further the state's clean energy objectives. Factors should include land use, siting near load, and coordination with infrastructure upgrades necessary to meet overarching clean energy goals. Proactive planning should account for existing group studies and queue, as well as creating hosting capacity to meet service territory and subregion pro rata shares of DER development needed to meet the Commonwealth's objectives. Planning should account for the lapse in time between enabling hosting capacity and achieving installed capacity.
- R-4. The ESMPs should propose a long-term cost allocation methodology for proactive infrastructure upgrades to enable the interconnection of DG to succeed the reactive investment approval process conducted through the Provisional System Planning Program. The ESMPs should contemplate both a cost allocation methodology for medium and large DG and for small residential DG facilities. If this is not possible before the January filing, the EDCs should submit a detailed proposal and timeline for a stakeholder process that will develop a long-term cost allocation methodology. This proposal should include how stakeholder engagement and discussion will occur in parallel to the ESMP proceedings and should propose a date by which the EDCs will file a long-term cost allocation proposal at the DPU.
- R-5. Extension of the Provisional System Planning Program as currently proposed in the ESMPs would require significant additional adjudicatory proceedings over the next five years and would not incorporate proactive system planning as required by the Climate Act. The EDCs should submit a detailed proposal for streamlining of the review of group studies over the next five years, including incorporation of group study solutions into long-term proactive system planning in advance of the next ESMP process. The proposal should include, at a minimum, batch review of existing group studies as well as application of the long-term proactive analysis process and cost allocation methodology in the interim between this and the next ESMP process. If an

EDC proposes an interim alternative cost allocation approach for one or more group studies, the EDC should explain why it believes the group study or group studies are eligible for such alternative cost allocation. Relevant factors to such an assessment should include, for example, the overall costs and benefits associated with a proposed group study solution; the overall impacts to the grid; and how, considering the EDC's other ongoing and proposed investments, a proposed group study solution advances and aligns with the Commonwealth's objectives.

- R-6. The EDCs should be more transparent about the short-term (5- to 10-year) load forecast and long-term (out to 2050) electric demand assessment in their ESMPs and better leverage the stakeholder community in Massachusetts to develop future forecasts and demand assessments. Current forecasts in the ESMPs are not clear in describing underlying assumptions. The short-term load forecasts do not include sensitivities or uncertainties. The ESMPs do not analyze the impact of the adoption of new building energy codes. The ESMPs lack an explanation of how the forecasts specifically translate to the investments proposed in the ESMP, and therefore how changes in the load forecast may mitigate particular investments. More comprehensive stakeholder engagement in the forecasting process for future ESMPs is necessary across multiple sectors, including the transportation sector, buildings sector, and DER sectors. Existing working groups across these sectors should be leveraged to provide additional information, diverse perspectives, and support in forecast assumptions, scenarios, and uncertainties. Where necessary, new working groups should also be established to support forecast development and understanding in advance of the next ESMP.
- R-7. The EDCs should include more discussion of investment alternatives and alternative approaches to financing investments, and clearly communicate these alternatives to stakeholders. The Climate Act requires the EDCs to discuss investment alternatives (including changes in rate design, load management, flexible demand, dispatchable demand response)<sup>23</sup> and alternative approaches to financing investments (including cost allocation between developers and ratepayers, and equitable allocation of costs across other states and populations).<sup>24</sup> Given advancing technologies and opportunities to use time-varying rates, as well as challenges in siting and constructing infrastructure, the ESMPs should explore and proactively plan for alternatives to traditional utility investment such as incremental DERs and NWAs and ensure that investments minimize or mitigate impacts on ratepayers.

The discussion of investment alternatives should include which technologies were considered, the assumptions used regarding those technologies, a benefit-cost analysis supporting the evaluation of alternatives considered, and a narrative of why the EDCs

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<sup>23</sup> For the purposes of this report, the term "demand response" is used to refer to any utility program or initiative or rate to incentivize customers to reduce or shift peak demands to optimize the efficiency of the grid. This can include the current demand response programs offered by the EDCs, as well as time-varying rates designed to optimize customer consumption patterns. Demand response programs can be specifically targeted to certain DERs, such as electric vehicles, or they can be applied to a customers' entire set of end-uses.

<sup>24</sup> G.L. c. 164, §§ 92B(b)(vii-ix), 92B(c)(ii), 92B(e).

chose their preferred solution. If an alternative investment was chosen, the EDCs should provide an explanation of the process and timeline by which that alternative investment will be sought. For technologies not considered, the EDCs should explain why.

- R-8. The EDCs should review and respond to the recommendations included in the Memorandum of the GMAC Equity Working Group. The Memorandum of the GMAC Equity Working Group is included as Appendix A of this document.
- R-9. The ESMPs should include a list of areas where effective state or local policy could help to direct more efficient or cost-effective development of the distribution system to further the Commonwealth’s clean energy objectives. For instance, policies that direct or incentivize the location of or criteria for electrification adoption or DER siting, and in so doing provide more certainty in locations needing significant investment or where alternatives may be particularly effective. The EDCs and the GMAC should consider pursuing these areas as the focus of future collaborative policy development before the next 5-year ESMPs.
- R-10. The ESMPs should describe in detail how alternative rate designs can be utilized, in both the short and long term, to manage load, mitigate peak demand, and reduce or delay the need for infrastructure investments. Additionally, the EDCs, the GMAC, and other stakeholders should remain engaged on rate design reform and on developing an approach to address rate design issues promptly and comprehensively. Such an approach should consider, among other things, AMI functionality, increased DER adoption, and increased transportation and building electrification. Further, alternative rate design proposals must: (1) be fair and equitable; (2) consider affordability; and (3) be informed by careful study of potential impacts on customers, including low- to moderate-income (LMI) customers and customers in environmental justice communities (EJCs) and disadvantaged communities. To provide additional guidance through examples of specific rate design concepts, the GMAC recommends that: (1) based on concerns that they would reduce customers’ ability to manage their bills and have disproportionate and adverse impacts on low-income ratepayers, alternative rate design proposals should avoid broadly imposing demand charges on residential customers; and (2) alternative rate design proposals should consider peak-time rebate programs that incentivize demand reduction.
- R-11. The EDCs should clearly define the terms “distributed generation” and “distributed energy resource” in their ESMPs and standardize across the three ESMPs. Where applicable, the EDCs should identify any difference between the term DER and the term DG as a defined term used by the DPU and subject to applicable DPU-approved tariffs, such as the Standards for Interconnection of Distributed Generation.

## **Section 2: Compliance with the Climate Act**

- R-12. The GMAC recommendations listed within this document regarding the other sections of the ESMPs should be adopted to make them fully aligned with the objectives of the Climate Act.

- R-13. Section 2 should be expanded to provide more detail about how the ESMPs provide the information required by and are aligned with the objectives of the Climate Act. Specifically:
- a. Instead of a simple reference to another section or subsection of the ESMP, Section 2 should include text explaining how the section or subsection is aligned with the Climate Act.
  - b. Section 2 should include a chart or table summarizing and mapping the requirements of the Climate Act with the specific location in the ESMP that demonstrates compliance with those requirements.

### **Section 3: Stakeholder Engagement**

- R-14. The EDCs in coordination with the CESAG should develop goals and clear reporting metrics of success by which to measure the efficacy of proposed stakeholder engagement, including:
- a. Clearly defined identification of stakeholder groups, historical concerns, and potential conflicts with other stakeholder groups' interests,
  - b. ESMP goals and outcomes for each stakeholder group,
  - c. Information stakeholders need to be well informed,
  - d. Information utility companies need to understand stakeholders' concerns,
  - e. Appropriate and diverse vehicles for meaningful dialogue, and
  - f. Methods for tracking, organizing, analyzing, and responding to stakeholder feedback in a way that provides transparency so that stakeholders know what input was incorporated and what input was not incorporated.
- R-15. To avoid duplication, the GMAC recommends having the CESAG within the GMAC structure, possibly within the Equity Working Group. The DPU should review the proposed CESAG framework before a working group is established.
- R-16. The GMAC recommends that the CESAG have a co-chair structure, where the group is led in part by EDCs and GMAC.
- R-17. To clarify the CESAG's focus and measure its success, the GMAC recommends that the CESAG:
- a. Develop consistent definitions of equity, inequity, and discrimination,
  - b. Include more specific definitions of equity,
  - c. Adopt quantifiable reporting metrics,

- d. Develop a detailed explanation of the stakeholder engagement process (timeline, stakeholder groups, potential trainings, desired outcomes), and
  - e. Define parameters/process for community benefits agreements.
- R-18. The ESMPs articulate the concerns and interests municipalities have with engaging with the decision-making process and supporting the siting of infrastructure; however, additional detail and structure is needed in the Municipal Outreach subsections with regards to how EDCs will effectively and proactively engage municipal officials and coordinate with municipalities on providing transparent information and supporting education and awareness around infrastructure improvements, particularly as the locations of needed infrastructure projects over the next 10 years are already well-established.

#### **Section 4: Current State of the Distribution System**

- R-19. The ESMPs should use consistent methods across EDCs for presenting the following information regarding the current system:
- a. The age and condition of existing infrastructure (substations, transformers, feeders, breakers, reclosers, and poles), including descriptions of the rationale that is used for determining when to replace each type of infrastructure,
  - b. Capacity deficiency for substation power transformers and feeders,
  - c. Existing DER capacity, including DERs online, in the queue, and current time to get through the queue, and broken out by type of DER: energy efficiency, demand response, heat pumps, DG, electric vehicles, and distributed storage,
  - d. DER hosting capacity, including estimates of excess capacity for substation power transformers and feeders, forecasted out for 10 years in the absence of new investments,
  - e. Reliability, including most relevant reliability reporting metrics and summary of outages by cause on blue-sky days,
  - f. Resilience, including all relevant “all-in” performance reporting metrics and summary of outages by cause on major event days, and
  - g. An assessment of the current distribution system hosting capacity of electrification and clean energy resources and a comparison of the corresponding 2025 interim Clean Energy and Climate Plan deployment targets for clean energy resources and electrification technologies.
- R-20. The ESMPs should present all relevant distribution system information in a clearer and more transparent manner using consistent definitions, tables, and graphics.
- R-21. In areas of system constraint, the ESMPs should discuss how NWA, DERs, and other technologies are currently acting to reduce load. Understanding the contribution of

NWAs and DERs to the current functionality of the system is important in this section on the current state of the system. The ESMPs should also give greater consideration to mechanisms for deferring or avoiding new transmission spending, including using DERs and NWAs.

- R-22. The EDCs should map the locations of their substations alongside projected sea level rise and floodplains for 2030 and 2050 to help readers better understand climate vulnerabilities and existing climate adaptations the EDCs have implemented for the current system.

## **Section 5: 5- and 10-Year Electric Demand Forecast**

- R-23. The ESMP load forecasts should include sensitivities that assume different levels of adoption of DERs and new building codes. A “high forecast” sensitivity should include assumptions about these technologies that would lead to higher loads than the base case forecast. Additionally, a “high load management” sensitivity should assume high levels of both passive and active load management. Each sensitivity should clearly identify the assumptions made for each resource type.
- R-24. The EDCs should provide a copy of their load forecasts, including a description of all inputs, assumptions, methods, results, and scenarios provided in a format that is reviewable. These should be in unlocked, fully functional, and linked Excel sheets.
- R-25. In their demand forecasts, the ESMPs should detail the methodology used, the assumptions made, and any applicable uncertainties. All assumptions should include links and citation to relevant sources. The ESMPs should also include descriptions of how different factors such as policy, mass transit, climate change impacts, load management, electric vehicle charging infrastructure, new building codes, building weatherization, etc., impact the demand forecasts.
- R-26. The ESMPs should describe how the forecasts of new DERs are derived, including whether and how they are consistent with Massachusetts goals described in the 2050 Clean Energy and Climate Plan.
- R-27. The three ESMPs should use consistent formatting and reporting resolution in their load forecasts.
- R-28. The three ESMPs should use consistent baseline data, assumptions, and methods for the long-term electric demand assessment, for instance using the same benchmarks and scenarios set forth by the Clean Energy and Climate Plans.
- R-29. The ESMPs should provide 10-year load forecasts in tabular form that separately quantify expected load impacts from new customers, and each type of DER.

## **Section 6: 5- and 10-Year Planning Solutions**

- R-30. The planning solutions should be documented using relevant reporting metrics, baselines, and targets, such as:



- a. System-wide increases in DER hosting capacity in MWs by year,
  - b. System-wide capacity increases in MWs by year, and
  - c. System-wide reliability/resilience improvements (interruption and duration, with and without major events) by year.
- R-31. The ESMPs should consider alternative options to incremental (i.e., newly proposed) capital spending, such as EDC investment in and support of incremental DERs. The ESMPs should present the costs of such alternative options and compare them with the costs of the incremental investments. The ESMPs should explain which alternatives were not adopted and why. The discussion of investment alternatives should include which technologies were considered, the assumptions used regarding those technologies, a benefit-cost analysis supporting the evaluation of alternatives considered, and a narrative of why the EDCs chose their preferred solution. If an alternative investment was chosen, the EDCs should provide an explanation of the process and timeline by which that alternative investment will be sought. For technologies not considered, the EDCs should explain why those technologies were not considered.
- R-32. The ESMPs should clarify and quantify how state decarbonization goals are accounted for and to what extent in each EDC territory, and demonstrate that across all service territories, the goals are accounted for in full.
- R-33. The ESMPs should include estimates of transmission level costs that are likely to be driven by distribution level investments.
- R-34. The ESMPs should explicitly discuss how incremental DERs can be used by the EDCs to alleviate grid issues.
- R-35. The EDCs should consider and discuss additional ways to optimize DER integration to minimize the costs associated with DER integration while maximizing system benefits. Maximizing the benefits of DER integration will likely include locational analysis and geographically targeted deployments of DER, utilization of grid services and capacity benefits from DG, and other approaches and considerations.
- R-36. The EDCs should identify the expected process and timelines for implementing the Grid Service Study and the Grid Compensation Fund, as well as the potential cost range for the fund and how the cost range was determined.
- R-37. The ESMPs should map alternative investment options more closely to projections and forecasts to show how the EDCs can help reduce capital investment or increase DER adoption.
- R-38. The ESMPs should identify how distribution system planning will evolve based on climate impacts and describe and integrate climate change impacts into the near-term planning solutions.

- R-39. With regards to time-varying rate (TVR) design, the ESMPs should provide the following:
- a. Consideration of default, opt-out TVR for basic service customers, as well as consideration of TVR options for all distribution customers, and a review of experiences in states that have implemented opt-out TVR for basic service.
  - b. A specific timeline for the implementation of TVR (excluded in Eversource's ESMP) and how the TVRs will maximize customers' opportunities to control as much of their energy bill as possible, including distribution, transmission, energy, and capacity.
- R-40. The ESMPs should discuss the implementation timeline for advanced metering infrastructure (AMI) and how the EDCs are working toward the development of a statewide uniform data access protocol and platform. Understanding when and how the data for AMI meters will be available to customers and their retail suppliers will be important and the ESMPs should provide information related to data sharing and meter access for AMI. At a minimum, the protocol should consider the granularity in which customer bills will be settled, how bulk transfers of AMI data will be completed, and how real-time access to data will be implemented to enable demand response participation.
- R-41. The ESMPs should provide a more complete description of their current and proposed NWA criteria and propose how the criteria will specifically enable the contribution of NWA to the investment solution sets. The ESMPs should describe how system peak demand and/or feeder or circuit-level peaks can be managed through NWAs. NWAs may be achieved through a variety of different DERs and interventions, including DG, demand response, managed charging, and rate design. NWAs may have either EDC or third-party ownership.
- R-42. The EDCs should provide a more complete assessment of their current and proposed NWA criteria and propose how the criteria will specifically enable the contribution of NWAs to the investment solution sets.
- R-43. The ESMPs should clarify how stakeholder engagement and community feedback will occur for all solutions presented.
- R-44. Investments in and load impacts on the distribution system unavoidably have an impact on the transmission system. The ESMPs should clarify whether there are any transmission system upgrades included in the plans and, if so, should include timelines and cost estimates for those investments. For any transmission system upgrades that require additional analysis to identify specific upgrades or cost estimates, the ESMPs should provide a description of the analysis that the EDCs will conduct, the process which the EDC or Transmission Owner will seek approval for such upgrades, and the timeline for the analysis through construction and approval process. The ESMPs should describe how the EDCs have coordinated with ISO-NE and Transmission Owners to identify transmission system upgrades associated with ESMP capital investments and propose a plan for future coordination. To maintain affordability, the



ESMPs should encourage greater coordination with ISO-NE and Transmission Owners to identify mechanisms for deferring or avoiding new transmission spending, including using strategically located distributed energy resources, demand response, and other ratemaking mechanisms.

- R-45. When discussing the benefits of the ESMPs and of specific investments, the ESMPs should make clear the extent to which the delivery of such benefits depends upon and/or assumes the construction of associated transmission upgrades.
- R-46. The EDCs should strive to use consistent terminology, methods, assumptions, and presentation formats across all three ESMPs.
- R-47. The ESMPs should clearly identify and describe which investments have been approved by the DPU, are pending before the DPU, or are newly proposed. For those investments that are not newly proposed, the ESMPs should identify which investments are already approved by the DPU, and which investments (and in what quantity) are either under review in a current proceeding, or about to be under review in a forthcoming proceeding.
- R-48. The ESMPs should propose a process to expand GMAC and general stakeholder participation to allow stakeholders to provide input before and during the development of the next ESMP, instead of providing input only after the ESMP is developed.

## **Section 7: 5-Year Electric Sector Plan**

- R-49. The EDCs should provide a direct mapping of the proposed investments to benefits and costs. The EDCs could consider including a table with columns on investment area, specified proposed investment/projects, costs of the projects, expected benefits, and a quantification of those benefits.
- R-50. The EDCs should standardize approaches across utilities for presenting key elements of the ESMPs, such as quantitative and monetary projections of benefits, projections of revenue requirements (customer cost), projections of GHG emissions and compliance with emission targets, and acceptable levels of risk underlying the incremental, newly proposed investments, etc.
- R-51. The ESMPs should provide additional detail and rigor regarding GHG emission reduction benefits, including:
  - a. The incremental GHG impacts (in tons, by year) of the incremental investments, and
  - b. How those incremental GHG impacts will help the EDCs meet the EDC's GHG emissions reduction targets (in tons, by year).
- R-52. The EDCs should propose a standardized process for solution prioritization, selection, and investment-deferral decisions. Further, the EDCs should develop and codify standardized processes for engaging with stakeholders throughout the investment decision-making process.

- R-53. The ESMPs should clearly distinguish between investments proposed for near-term needs (load growth, DER growth, reliability/resilience) and investments proposed in anticipation of future needs. The nearer term the need, the more specific the data an ESMP should include to substantiate the need (location-specific load forecasts, DER forecasts, or historical reliability reporting metrics, as examples).
- R-54. The EDCs should make updates to their investment summaries to improve clarity of and increase standardization across their investment proposals. The EDCs should clearly identify the investments in the 5-year plan that have been approved by the DPU, are pending before the DPU, or are newly proposed investments. For any investments that an EDC plans to seek cost recovery through a mechanism in an approved, pending, or forthcoming rate case, the EDC should clearly identify the mechanism through which the company plans to seek cost recovery. For any investments that an EDC plans to seek cost recovery through a mechanism in a pending or forthcoming proceeding other than a rate case or ESMP proceeding, the EDC should identify the proceeding and describe the mechanism.
- R-55. The ESMPs should clearly explain whether and how federal grant proposals and awarded federal funding will impact or offset proposed investments that would otherwise have been borne by ratepayers. The ESMPs should describe if the proposed federal funding projects are in addition or incremental to what would otherwise have been planned and/or needed through the ESMP.

## **Section 8: 2035–2050 Policy Drivers: Electric Demand Assessment**

- R-56. The three ESMPs should aim for standardization through use of consistent baseline data, assumptions, and methods for the long-term electric demand assessment, such as using the same benchmarks and scenarios set forth by the Clean Energy and Climate Plans.
- R-57. The ESMPs should directly integrate their 10-year and long-term forecasts and demonstrate a continuity between the two, or otherwise explain any discontinuity. Forecasts should reflect expectations for how the system will change without unrealistic step changes while still meeting the Commonwealth's climate goals.
- R-58. The ESMPs should include long-term demand assessment sensitivities, consistent with the sensitivities recommended above for the 5- and 10-year forecasts. All assumptions used in these sensitivities should be clearly explained, and scenarios with more ambitious levels of incremental DERs to mitigate load growth should be evaluated.
- R-59. The ESMPs should clarify and quantify how state decarbonization goals are accounted for in the long-term demand assessment and to what extent in each EDC territory and demonstrate that across all service territories the goals are accounted for in full. The ESMPs should explain how the EDCs will collaborate to achieve the Commonwealth's 2050 targets.
- R-60. The ESMPs should include information on winter peak load projections and how to consider them. Achieving the Commonwealth's emissions reduction goals once the

grid has shifted to a winter peak will require a granular look at our grid emissions on the coldest nights, when heat pumps are running the hardest, and at their lowest efficiency. The impacts of DERs could have more importance than otherwise expected when focusing on these winter cold peak events.

- R-61. The ESMPs should explicitly state the detailed steps and timeline to expand and develop demand management programs to reduce peak load.
- R-62. The ESMPs should clearly articulate how the long-term load forecasts inform the need for investments in both the short and long term.

## **Section 9: 2035–2050 Solution Set – Building a Decarbonized Future**

- R-63. Given that the EDCs predict that they will switch to winter peaking, the ESMPs should identify and emphasize DERs that are most effective at reducing winter peak demands on the coldest days.
- R-64. The ESMPs should consider alternative options to long-term capital spending similar to the consideration of options for the 5- and 10-year planning solutions. This should include EDC investment in and support of incremental DERs.

## **Section 10: Reliable and Resilient Distribution System**

- R-65. The EDCs should make their climate vulnerability assessments public. If the climate vulnerability assessments are not complete, the ESMPs should describe the expected timeline, date of completion, and method by which they will notify stakeholders of the finished assessments.
- R-66. The EDCs should standardize their climate change risk and planning tools, as well as forecasting windows and parameters.
- R-67. The ESMPs should include more details on their ongoing and proposed resilience priorities and climate adaptation measures, including the cost estimates of their resilience investments.
- R-68. The ESMPs should justify incremental, newly proposed reliability and resilience investments using quantitative data such as improvements to SAIDI/SAIFI, as well as using benefit-cost analyses.<sup>25</sup> The ESMPs should describe how the EDCs are coordinating their climate vulnerability assessments and their approaches for managing climate vulnerability.
- R-69. The EDCs should incorporate local and regional heat island modeling into the plans and use this to inform near- and long-term action.

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<sup>25</sup> System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) are standard reliability metrics used by the EDCs for quantifying the quality of service experienced by customers.

## **Section 11: Integrated Gas-Electric Planning**

- R-70. The ESMPs should detail how the transition from gas to electric will be coordinated, detail how and where the systems overlap, and identify recommendations for how the transition should occur, ideally down to the street-by-street level.
- R-71. The ESMPs should provide more details regarding how integrated energy planning will be undertaken in the future.
- R-72. The Joint Utility Planning Working Group should focus on short- and long-term capital investment plans for both electric and gas utilities.
- R-73. When estimating how proposed investments will impact rates, the ESMPs should account for the rate impacts on gas utility customers as well as electric customers, as gas utility impacts are inextricably linked to electric utility investments and rate impacts.
- R-74. When estimating net benefits from proposed investments, the ESMPs should account for the costs and benefits to gas utility customers.
- R-75. The ESMPs should provide more detail on how integrated energy planning will be used to comply with the Climate Act and align with the forecasts in the Clean Energy and Climate Plan.
- R-76. The ESMPs should describe how the proposed ESMP investments will affect the reduction of GHG emissions from both the electricity and gas industries, and how these emission levels will meet the requirements of the Climate Act.

## **Section 12: Workforce, Economic, and Health Benefits**

- R-77. The EDCs should specifically present the incremental impacts of their proposals on workforce, jobs, GHG emissions, and health, as well as how such investments will help the EDCs meet the state's GHG emissions reduction targets. This requires, at least, presenting one scenario with the proposed investments and one without.
- R-78. The ESMPs should better integrate the discussion of workforce benefits with the estimates of job creation in the macroeconomic analysis.
- R-79. The analysis of macroeconomic impacts in the ESMPs should be a net analysis that accounts for job losses as well as job gains. It should also account for the macroeconomic effects of changes to electric and gas utility rates.
- R-80. Regarding workforce benefits, the ESMPs should:
  - a. Include reporting metrics related to the training programs, ideally aligned with those produced by the Equity Working Group,
  - b. Identify specific strategies to address the lack of diversity in the energy sector,

- c. Specify which types of jobs are expected to grow because of the ESMP, as well as what existing workers will be supported to transition to new jobs,
- d. Establish a unified approach to a statewide workforce plan,
- e. Include a workforce organization chart in the ESMP, and
- f. Leverage existing resources and infrastructure to integrate clean tech education, curriculum, and opportunities.

## **Section 13: Conclusion**

- R-81. The ESMPs should include additional reporting metrics that are tied to the ESMP proposals, such as achievement dates, improvements to reliability reporting metrics such as SAIDI and SAIFI, increase in DER hosting capacity, GHG emissions reductions, power quality, smart inverter controls, and the use of distributed energy resource management systems (DERMS).
- R-82. The reporting metrics proposed in the ESMPs should include specific metrics and quantification methods for determining the incremental impact of proposed investments. For example, the ESMPs should explain in detail how resilience will be measured, how the EDCs will identify which customers benefit, and how GHG emission reductions will be determined.
- R-83. The reporting metrics proposed in the ESMPs should identify the incremental impacts of the proposed EDC investments, and should describe how the EDCs will measure those incremental impacts.
- R-84. The reporting metrics proposed in the ESMPs should include sufficient detail to enable review and implementation, including definitions. For example, the ESMPs should clearly define “major ESMP infrastructure projects,” including the categories in which such investments fall.
- R-85. As the EDCs are assessing net benefits for their filing with the DPU:
  - a. The types of costs and benefits to be included in the net benefits analysis (i.e., the cost-effectiveness “test”) should be identified up front. The EDCs should begin with the cost-effectiveness tests used in Massachusetts for energy efficiency, but should also include safety, security, reliability of service, affordability, equity, and reductions in GHG emissions.
  - b. All benefits and costs should be compared with a reference case that includes all the EDC investments that have already been installed or are in the process of being installed.
  - c. Alternative cases should be designed to evaluate the net benefits of incremental, newly proposed investment projects, relative to the reference case, and each incremental, newly proposed project should ideally be evaluated and justified on its own merits. These incremental projects should be compared against alternative

options, including incremental DERs and NWAs. If it is not practical to evaluate each incremental project, then some projects should be bundled into logical groupings of interrelated projects.

- d. The benefits should seek to identify the locational benefits of different siting options within each service territory.
  - e. Uncertainty can be addressed in benefit-cost analyses (BCAs) by applying sensitivities to those assumptions that are most uncertain and affect the results the most.
  - f. The ESMPs should identify a discount rate for calculating present-value dollars. The GMAC recommends using a low-risk discount rate, as used for energy efficiency programs in Massachusetts.
- R-86. The ESMPs should conduct a comprehensive rate-impact analysis to assess how the ESMPs will minimize or mitigate rate impacts. The rate-impact analysis should:
- a. Account for incremental costs of infrastructure investments, reduced sales from DERs that reduce electricity load, and increased sales from DERs that increase electricity load,
  - b. Follow the same structure as the BCA in terms of the definition of the reference case and alternative cases,
  - c. Follow the same structure of the BCA in terms of alternative cases and incremental investment projects, and
  - d. Inform decisions on which investments to make and when.
- R-87. The ESMPs should articulate how benefits will be experienced by LMI and EJC customers relative to other customers.
- R-88. The ESMPs should present all reporting metrics in an appendix, including all the equity reporting metrics and all the other ESMP reporting metrics.

## 4. EQUITY WORKING GROUP RECOMMENDATIONS

The GMAC charged the Equity Working Group (EWG) with providing input and feedback to the GMAC on how to consider equity throughout its review of the ESMPs, suggestions for addressing specific equity issues in the ESMPs, providing feedback and specific suggestions on how to reduce impacts on low-income ratepayers, and providing feedback and recommendations relating to Environmental Justice Populations.<sup>26</sup> Over the course of four meetings during the GMAC's ESMP review period, the EWG developed a memorandum (Memorandum) with observations and recommendations on the ESMPs. The EWG's Memorandum was voted on and approved by the full GMAC, and is provided in Appendix A.

In completing its review of the EDCs' ESMPs, the EWG expressed several significant concerns.

- The EDCs have not adequately facilitated meaningful stakeholder engagement opportunities for input prior to submitting the first draft ESMPs, resulting in a limited level of stakeholder involvement in the overall process. The next process should include collaborative stakeholder development of the 5-year electric-sector modernization plans.
- The ESMPs do not articulate clear goals related to equity and fail to provide a baseline description of current equity issues among EDC customers. While the ESMPs touch on equity in the context of stakeholder engagement, workforce development, energy efficiency, and electric vehicle infrastructure program incentives, they overlook critical impacts on affordability and reliability in disadvantaged and environmental justice communities. To address these shortcomings, future ESMPs should incorporate early stakeholder engagement to shape engagement plans and modeling assumptions.
- The ESMPs vary in the extent to which they define equity. In their Memorandum, the EWG provides justice-oriented equity definitions to appropriately and accurately target energy system inequities. These definitions should be standardized across the EDCs' ESMPs to ensure that customers are given the same consideration no matter where they reside in the Commonwealth.

Further, the EWG provides 12 distinct recommendations that address procedural, distribution, and recognition justice. In summary, the recommendations outline key principles for ensuring environmental justice and equity in grid modernization efforts. Metrics for assessing environmental justice should go beyond mere efforts and reflect the impact of the work. Public-

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<sup>26</sup> Massachusetts GMAC Equity Working Group Charter at 1, available at <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac>.



facing materials must prioritize clarity, transparency, and completeness, with a focus on plain language and effective visualizations. Stakeholder engagement is crucial from the early planning stages, addressing concerns related to rate impacts, service reliability, and disruptions. Community representation must be emphasized, both in leadership roles within working groups and in collaboration with local organizations to develop community benefits agreements. Tracking and publishing baseline equity-related data, workforce development plans, and clear communication of rates, incentives, and benefits are essential. Priority access to financing, technology, and energy-efficiency upgrades is recommended for disadvantaged communities, and efforts to rectify service quality differences, both existing and anticipated, are essential. The recommendations also call for the ESMPs to analyze the benefits and burdens to different types of customers through a distributional equity analysis as a supplement to benefit cost analyses. The overall goal is to align grid modernization with environmental justice and equity goals, considering historical impacts and promoting inclusive benefits across all communities.

Appended to the Memorandum is a table of proposed metrics that span categories including, but not limited to, accessibility, affordability, and resilience. The Equity Working Group seeks responses from the EDCs regarding the adoption of suggested metrics for the current ESMPs, potential metrics for future ESMPs, and alternative suggestions for metrics.

The ESMPs mark an initial stride toward modernizing the electric grid in alignment with the state's climate objectives. Subsequent cycles can witness enhancements in future planning, stakeholder engagement, accountability, and oversight over these ESMPs, provided that sufficient time is allocated. The EDCs should refer to the Memorandum of the GMAC Equity Working Group provided in Appendix A and provide responses to each of the recommendations and proposed metrics.



## 5. PROCESS FOR THE NEXT ESMPs

The above recommendations are a result of GMAC members, consultants, and stakeholders dedicating significant time and resources to prepare for the ESMP process, and to review, understand, and analyze the draft ESMPs. The ESMP process is new, however, and it is important to develop and iterate the process to learn from its execution and accommodate the realities of implementing such a comprehensive and voluminous undertaking. Both the GMAC and the EDCs faced challenges with the timing for this process. It is imperative that the DPU investigate and implement rules and procedures for future ESMPs to develop the ESMP process efficiently to best meet its intended purpose under law and the Commonwealth's clean energy objectives. The GMAC will discuss the initial ESMP process during its December meeting and develop suggestions for future iterations.

Examples of the types of suggestions that will be discussed by the GMAC in the future include:

- The EDCs should work together and with stakeholders and the DPU in advance of the next ESMP to standardize the ESMP analysis and plan process across all three EDCs to achieve as uniform a process as possible.
- The ESMP process should allow more time for stakeholders to better understand alternative financing and alternative resource options.
- The EDCs should provide deeper stakeholder education and engagement based on the current state of the grid and forecasting results for each region.
- Future ESMPs should include all the information required by the Climate Act, including a complete presentation of the net benefits analysis and results, the rate impact analysis and results, and the analysis of the impacts of proposed investments on low-income customers and those in EDCs.
- Future ESMPs should include a more detailed assessment of how the EDCs will coordinate their long-term planning efforts with gas utilities in Massachusetts to ensure that both industries will meet the Commonwealth's decarbonization goals in the most efficient and equitable manner.
- Future ESMPs should provide information on how to optimize the electricity transmission grid in conjunction with the changes proposed for the distribution grid.
- The EDCs should coordinate to bring distribution system planning and investment related issues to the DPU for resolution, including, but not limited to, improvements to the current cost recovery processes, improvements to the CIP process, and options for using TVR to encourage the most efficient use of DERs and the most efficient customer consumption patterns.

# APPENDIX A: MEMORANDUM OF THE GMAC EQUITY WORKING GROUP

## I. BACKGROUND

Pursuant to G.L. c. 164, §§ 92B-92C, the Grid Modernization Advisory Council (GMAC or the Council) is charged with reviewing and providing recommendations to the state’s investor-owned electric distribution companies’ (EDCs) electric-sector modernization plans (ESMPs). The Equity Working Group, a subcommittee of the GMAC, was established on September 14, 2023, to review the inclusion of equity in the ESMPs. The Council’s full Charter is located on the Grid Modernization Advisory Council’s website.<sup>27</sup>

The Equity Working Group is comprised of Grid Modernization Advisory Council members, two members external to the Council, and the Massachusetts Department of Energy Resources. The state’s EDCs have one non-voting representative.

The Equity Working Group consists of the following representatives:

Kathryn Wright, Chair	Barr Foundation
Chris Modlish	Attorney General’s Office
Julia Fox	Department of Energy Resources
Erin Engstrom (non-voting)	Eversource
Mary Wambui	Planning Office for Urban Affairs
Vernon Walker	Clean Water Action
Kyle Murray	Acadia Center
Larry Chretien	Green Energy Consumers Alliance

The Equity Working Group held four meetings over the course of the GMAC ESMP review period. Meetings consisted of GMAC consultant-led and EDC-led presentations, discussion amongst working group members, and an opportunity for public comment. Equity Working Group members provided initial comments, metrics, and recommendations and before deliberating over a final set of recommendations on November 3, 2023. The Equity Working Group presents this memorandum to the GMAC for adoption into its full set of recommendations.

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<sup>27</sup>See <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac>.

In this memorandum, the Equity Working Group presents justice-oriented equity definitions, a set of comments from the ESMP review, and recommendations for the EDCs' ESMPs. A table of proposed metrics is included at the end of this memorandum (see Appendix A1). The Equity Working Group proposes the following recommendations to revise the ESMPs first published in September 2023 by National Grid, Eversource, and Unitil.

## II. DEFINITIONS

The ESMPs have differing definitions of the term equity throughout the documents. The Equity Working Group encourages the EDCs to use consistent definitions to ensure that customers are given the same consideration no matter where they reside in the Commonwealth. We support the use and application of the below definitions from the energy and planning literature in the ESMPs and metrics.

In Massachusetts, an **environmental justice population (EJC)** is a neighborhood where one or more of the following criteria are true:

1. the annual median household income is 65 percent or less of the statewide annual median household income
2. minorities make up 40 percent or more of the population
3. 25 percent or more of households identify as speaking English less than "very well"
4. minorities make up 25 percent or more of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150 percent of the statewide annual median household income.<sup>28</sup>

Referencing the Pacific Northwest National Laboratory's definition of **energy equity**:

Energy equity recognizes that disadvantaged communities have been historically marginalized and overburdened by pollution, underinvestment in clean energy infrastructure, and lack of access to energy-efficient housing and transportation. An equitable energy system is one where the **economic, health, and social benefits of participation** extend to all levels of society, regardless of ability, race, or socioeconomic status. Achieving energy equity requires intentionally designing systems, technology, procedures, and policies that lead to the fair and just distribution of benefits in the energy system.

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<sup>28</sup> Massachusetts Executive Office of Energy and Environmental Affairs, Environmental Justice Populations in Massachusetts. From <https://www.mass.gov/info-details/environmental-justice-populations-in-massachusetts>, accessed October 31, 2023.

**Energy justice** is defined as “the goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those historically harmed by the energy system (‘frontline communities’).”<sup>29</sup>

Energy justice can be further defined by the following three-part framework:<sup>30</sup>

**Distributive** justice is focused on the injustices regarding the physical benefits and risks of energy systems such as the location of production facilities or the access of energy services.

**Procedural** justice calls for equal and fair procedures. Everyone regardless of social status, income, or race should be allowed to participate in decision-making processes.

**Recognition** justice is focused on identifying which part of society is affected by injustice, recognizing and addressing others’ needs.

It is also important to define disadvantaged communities alongside EJCs to ensure there is clarity around these demographic descriptions and appropriate targeting of responses to energy system inequities.

**Disadvantaged communities (DACs)** can be defined as follows:

“A census tract ranked in or above the 80<sup>th</sup> percentile of the cumulative sum of the 36 burden indicators [fossil dependence (2), energy burden (5), environmental and climate hazards (10), socio-economic vulnerabilities (19)] for its state and with at least 30% of households classified as low-income. This definition advances the operationalization of energy equity by providing a consistent and measurable sociodemographic overlay for evaluating disparities in energy system performance. At the same time, it is worth noting some limitations of this definition:

- Census tract data may not completely reflect customer-level inequities.
- Communities are not necessarily spatially contiguous, as community can also refer to dispersed groups of people that experience similar conditions.
- Not all communities that bear burdens of the energy system are DACs, and vice versa. These can be considered areas for further refinement in defining the target population or sociodemographic overlay for examining energy system inequities.”<sup>31</sup>

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<sup>29</sup> Initiative for Energy Justice (IEJ), *The Energy Justice Workbook* at 9. IEJ was founded by Shalanda H. Baker, Subin DeVar, and Shiva Prakash.

<sup>30</sup> Carnegie LaBelle, Michael, “In pursuit of energy justice,” *Energy Policy*, Vol. 107, August 2017: 615-620.

<sup>31</sup> Barlow, Jay, Rebecca Tapio, and Bethel Tarekegne. “Advancing the State of Energy Equity Metrics.” *The Electricity Journal* 35, no. 10 (December 1, 2022): 107208, p. 3-4. <https://doi.org/10.1016/j.tej.2022.107208>

A complementary definition can be referenced in recently introduced legislation by the Massachusetts Office of the Attorney General (AGO).<sup>32</sup>

### III. COMMENTS FROM REVIEW OF THE ESMPs

After reviewing the ESMPs, the Equity Working Group developed several high-level comments on the draft ESMPs.

The EWG has several high-level concerns. The EDCs failed to provide meaningful opportunities for stakeholder engagement for input prior to drafting the ESMPs, limiting the level of stakeholder input in this overall process from the outset. The ESMPs do not articulate clear goals related to equity, or even describe a baseline of current equity issues experienced among EDC customers. The ESMPs discuss equity primarily in the context of stakeholder engagement, workforce development, energy efficiency, and electric vehicle infrastructure program incentives. The ESMPs do not address key impacts in areas of affordability or reliability in disadvantaged communities and environmental justice communities. Future ESMPs must include early stakeholder engagement to inform the ESMP's engagement plans and modeling assumptions. In addition:

- Identification and definitions of customer base and locations of EDCs vary from plan to plan. These should be consistent across plans and presented via visualizations.
- The GMAC expressed concerns that the Community Engagement Stakeholder Advisory Council (CESAG) would contribute to “working group fatigue” and be potentially replicative of other efforts. The EWG agrees with the GMAC's concerns. The CESAG should not be utility-led and should include direct community leadership. Members and the organizations that have participating representatives should be compensated. Ideally, the CESAG could nest within an existing process rather than creating an entirely new body.
- All three ESMPs lack detail and explanation of customer benefits, particularly net benefits specific to environmental justice and disadvantaged communities. The ESMPs do not adequately account for the increasing energy burdens<sup>33</sup> associated with the ESMPs. There is very little quantification of benefits or rate impacts throughout the plan. It was not possible for the Equity Working Group to evaluate the ESMPs' impact on affordability and recognition justice without this data, which are top priorities for disadvantaged communities and EDCs.

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<sup>32</sup> The AGO recently introduced legislation employing and defining the term “disadvantaged community” as “a community in Massachusetts bearing disproportionate economic, health, or environmental burdens, including, but not limited to, poverty, high unemployment, air and water pollution, disproportionate heat exposure, lack of access to green space, and presence of hazardous and solid waste and material, as well as high incidence of cardiovascular and respiratory disease and high rates of mortality.” See <https://malegislature.gov/Bills/193/H4143>.

<sup>33</sup> Energy burden is “the share of a household's income that is spent on energy utilities.” M. A. Brown, et al., *High Energy Burden and Low-Income Energy Affordability: Conclusions from a Literature Review* (2020), at 3, 4.

- Grid modernization is likely to affect rate design, which may have a disproportionate impact on low- to moderate-income (LMI) ratepayers. The ESMPs do not offer details on how the EDCs will mitigate those impacts. We would encourage a broader conversation about rate reform and rate-design options with the Department of Public Utilities (DPU) and other advisory bodies such as the GMAC, where appropriate.
- The ESMPs, but in particular Until and National Grid's, lack specificity and detail about their hiring and training processes, efforts to target EJC and disadvantaged communities in workforce development, and employee retention. The ESMPs should articulate how the EDCs will complement and build on existing efforts to recruit underrepresented groups and discuss how the EDCs are working to not just train but retain new workers and offer additional specifics about the type of job growth and job transitions expected with electrification.
- The ESMPs described incentive and financing programs targeted for LMI customers. Equity requires a holistic approach. Beyond incentivizing the cost of equipment, the utilities need to engage LMI customers, disadvantaged communities, and EJCs to understand their current relationship with the electricity system; hear and respond to what customers want from the electric grid in the future; and work with community partners to target outreach about future distribution infrastructure and customer-facing opportunities to support the grid.
- Currently the ESMPs do not consistently report on the EJCs and/or disadvantaged communities within their service territories. In addition, there is a lack of EJC-specific data to illustrate climate impacts, investment impacts, integrated gas-electric planning, and long-term solutions planning. The Equity Working Group recommends that the EDCs improve and publish EJC data. This includes adopting uniform mapping, customer counts by type of EJC and by subregion, and reliability metrics (SAIDI/SAIFI/CKAIDI/CKAIFI) for EJCs versus the general territory.
- The ESMPs place a strong emphasis on constructing additional distribution infrastructure in both their five- and ten-year plans. The EDCs need to consider customer-sited solutions such as distributed energy resources and non-wires alternatives, including resources and alternatives administered and/or owned by third parties. The public needs to understand which solutions are most impactful from a reliability and affordability perspective. Infrastructure construction should be minimized where possible.

There is additional documentation beyond the ESMPs that the EDCs plan to file at the DPU that the GMAC and Equity Working Group were unable to review at the time of writing these recommendations. We highly encourage the Commonwealth to provide the DPU with appropriate staffing and resources to adequately review and respond to the ESMPs. The ESMP review also needs to weigh the ongoing work of the advisory committees on Clean Energy Transmission and Clean Energy Siting and Permitting, which have strong connections to this work, but could not be meaningfully integrated into our review and comments.

The ESMPs represent a first step in modernizing the electric grid in light of the state’s climate goals; future planning, stakeholder engagement, accountability, and oversight over these ESMPs can improve in subsequent cycles if adequate timing is provided.

#### IV. ESMP RECOMMENDATIONS

Below are the Equity Working Group’s recommendations to improve and enhance equity in the ESMPs. The Equity Working Group provides specific recommendations for metrics and ways to resolve gaps in the ESMPs by topic (see Appendix A1). The Equity Working Group requests responses from the EDCs on which of these suggested metrics will be pursued for this ESMP, which metrics could be tracked in a future ESMP, and suggestions for alternative metrics. At the time of writing, the suggested metrics on community engagement that the EDCs submitted are only responsive to procedural justice (see Appendix A2 for the EDCs’ proposed engagement metrics and Appendix A3 for the EDCs’ additional proposed metrics).

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##### PROCEDURAL

1. Environmental justice and equity metrics should reflect the impact of the work, not just efforts. For example, the utilities offered to track attendance and the number of community engagement meetings. Metrics should also include how the EDCs responded to customer concerns and which suggestions were implemented.
2. All public-facing materials should be reviewed for plainspoken language, visualizations, clarity, transparency, and completeness. Public-facing materials should be language accessible and translated into the top ten languages spoken in the Commonwealth of Massachusetts.
3. The EDCs should work to consolidate overlapping stakeholder engagement efforts to maximize the use of participants’ time.
4. Stakeholder engagement should begin at the very earliest planning stages for all project types that will have impacts on consumers, including, but not limited to, rate impacts, service reliability, construction, disruptions, etc. Specific stakeholder engagement requirements within the ESMP process, including but not limited to adequate community notification, community compensation, and awareness can be referenced in the Advanced Energy Group Grid Modernization Task Force Recommendations.<sup>34</sup>

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<sup>34</sup> See <https://www.mass.gov/doc/october-23-2023-gmac-equity-working-group-meeting-3-written-public-comment/download>.



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	<ul style="list-style-type: none"> <li>5. Community-based organizations and community leaders should have representation and leadership within working groups created by the ESMPs (e.g., CESAG).</li> <li>6. The EDCs should track and publish baseline equity-related data and continue to provide regular progress updates.<sup>35</sup></li> </ul>
RECOGNITION	<ul style="list-style-type: none"> <li>7. The ESMPs should provide detailed workforce development plans to recruit, hire, train, and retain people from disadvantaged communities and EJCs.</li> <li>8. The EDCs should publicize linkages between grid modernization planning and overall environmental burdens and benefits, particularly related to environmental impacts that have historically disproportionately affected EJCs and disadvantaged communities. Benefits of grid modernization should include reduced greenhouse gas emissions, improved air quality, improved health outcomes, and reduced excess mortality.</li> <li>9. The EDCs should work with local organizations in communities hosting distribution infrastructure to develop the community benefits agreements referenced in the ESMPs. Local collaboration can help ensure the agreements recognize and respond to community concerns.</li> </ul>
DISTRIBUTIVE	<ul style="list-style-type: none"> <li>10. Rates, incentives, and benefits associated with grid modernization should be clearly spelled out for consumers along with how to access assistance for customers in arrears. The benefits and requirements for programs which will provide an opportunity for consumers to participate on the grid must also be transparently explained. The ESMPs need to include the net benefits for customers after considering the anticipated costs of grid upgrades to help the GMAC, DPU, and other stakeholders determine what is fair and reasonable. The ESMPs should also include a distributional equity analysis to understand the impacts of investments and keep energy burdens at a manageable level for customers across all income groups, regardless of whether net benefits are provided.<sup>36</sup></li> <li>11. Disadvantaged communities, EJCs, and LMI customers should have priority access to innovative financing, technology, energy-</li> </ul>

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<sup>35</sup> See Appendix A1: GMAC Equity Working Group equity assessment table for detailed metrics.

<sup>36</sup> A framework is being explored by the [National Equity Screening Project](https://www.nationalenergyscreeningproject.org/resources/energy-equity-and-bca/). This resource was also recommended in the comments submitted by Advanced Energy Group Boston’s stakeholder taskforce. See <https://www.nationalenergyscreeningproject.org/resources/energy-equity-and-bca/> for more information.



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efficiency upgrades, building weatherization, and electrification adoption.

12. The EDCs should work to rectify any existing differences in service quality by working with disadvantaged communities and EJs. The EDCs should also work to rectify anticipated future differences in service quality in communities whose infrastructure is vulnerable to climate change impacts, as identified by the EDCs' climate vulnerability assessments.
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## APPENDIX A1: EQUITY WORKING GROUP’S PROPOSED METRICS

Table 1. —Equity Assessment

Category	Problem Statement	How ESMPs Propose to Address This	EWG’s Desired Outcomes from Final ESMPs	Metrics of Success
<b>1. Accessibility and community engagement</b>	a. Siting and grid modernization decisions have historically been made without significant stakeholder input	d. Written informational materials are produced in multiple languages	l. Plain language is used / layperson’s terms and translation of materials m. Utilities provide easy-to-interpret visualizations n. There are clear avenues for input early in planning processes o. Stakeholder input is used to inform data-driven decisions p. Stakeholder engagement exists beyond infrastructure siting and is integrated more broadly with grid modernization investments q. Utilities publicize the data they currently have on equity (disparities in program participation, % of customers with high energy burden, etc.), enabling stakeholders to participate with full information about the baseline	r. Fewer customer complaints
		e. Utility-led Community Engagement Stakeholder Advisory Group (CESAG)		s. Fewer infrastructure siting delays
		f. DPU-required joint stakeholder meetings in Fall 2023		t. Survey and other data indicate stakeholders’ demonstration of positive and improving experiences with EDCs over time
	b. Not all relevant information is shared with the public	g. Eversource states the urgency of near-term projects (2025–2029) may afford less engagement than later (2030 and after)		u. Participation is tracked and includes diverse demographics
		h. For projects, the utilities have stated they will engage impacted communities before submitting filings to the Energy Facilities Siting Board (however, it is unclear which specific projects this would apply to)		v. Documented responses to community comments presented in engagement and via the CESAG
		i. Utilities have discussed negotiating community benefit agreements for communities impacted by projects, but form of agreements unclear.		w. Inventory of documents available in multiple languages
	c. Information is overly technical and in many cases is not translated	j. National Grid plans for public engagement on multiple channels, including translation where needed and an initiative to engage Federally Recognized Tribes in New England		x. Number of executed community benefits agreements
		k. Eversource’s pending Grid Resiliency and Innovation Partnership (GRIP) program application included a community engagement plan designed to lead to a community benefit agreement		y. Increase in EJC community participation in utility surveys, events or other engagement venues
				z. Documentation of stakeholder partnerships and community leadership on working groups and committees

Category	Problem Statement	How ESMPs Propose to Address This	EWG’s Desired Outcomes from Final ESMPs	Metrics of Success
<b>2. Workforce and economic benefits</b>	a. There is a lack of economic opportunities for historically underserved populations. The energy sector has a lack of diversity, particularly in leadership or higher-wage roles <sup>37</sup>	c. Community Solar Resilience Program (Eversource) prioritizes workforce development for minority- and women-owned business enterprises (MWBEs)	g. Well-paid permanent jobs	p. Hours of work per employee at minimum wage
	b. Immigrants, workers of color, and women are disproportionately impacted by wage and hour violations <sup>38</sup>	d. National Grid identified temporary and permanent, union, non-union, and management roles needed, and using a “strategic workforce development” program to hire underrepresented people in their workforce e. Eversource has workforce development programs, Electric Power Utility Technology Program and Clean Energy Pathways, which aims to expand the energy efficiency workforce and increase access to individuals who are historically underrepresented f. Eversource applied to the U.S. Department of Energy Grid Resiliency and Innovation Partnership (GRIP) program which would create a pipeline for clean energy jobs with local partnerships	h. Full-time positions i. Jobs located within or near EJC’s <sup>39</sup> j. Jobs accommodating of different languages k. Workforce training for entry-level employees l. Opportunities for learning, development, and advancement m. Increased job safety n. Clear plans for recruitment, training, and retention for underserved populations o. Integration of EDCs’ efforts with existing training programs throughout Massachusetts	q. Number of additional jobs with livable wages r. Reduced hazardous occupational exposures resulting in injuries, deaths, and chronic disease s. Annual progress reports towards the additional ~38,000 workers to support grid modernization and to reach the Commonwealth’s clean energy goals t. Job placement rates for utility-proposed programs u. Post-training position retention rates for new employees v. Increases in local hire requirements or supplier diversity requirements w. All ESMPs need to be provide clarity on the incremental job impacts of the plan. Categories of anticipated job growth should be shared with public and educational partners. x. Job training programs by geographic service territories to address “training deserts”

<sup>37</sup> Massachusetts Clean Energy Center, “Powering the future: a Massachusetts clean energy workforce needs assessment,” July 2023, page 63. From [https://www.masscec.com/sites/default/files/documents/Powering%20the%20Future\\_A%20Massachusetts%20Clean%20Energy%20Workforce%20Needs%20Assessment\\_Final.pdf](https://www.masscec.com/sites/default/files/documents/Powering%20the%20Future_A%20Massachusetts%20Clean%20Energy%20Workforce%20Needs%20Assessment_Final.pdf), accessed October 19, 2023.

<sup>38</sup> Secretary Marty Walsh, U.S. Department of Labor, “How we’re addressing equity for underserved workers,” April 22, 2022. From <https://blog.dol.gov/2022/04/14/how-were-advancing-equity-for-underserved-workers>, accessed October 3, 2023.

<sup>39</sup> In Massachusetts, an EJC is defined as the residents of a U.S. Census block group that meet one or more of four criteria under the following categories: (1) the annual median household; (2) self-identified minority status; (3) English language proficiency; and (4) combination of median household income and minority status. Whenever reporting metrics related to EJC’s, the EDCs should break down the data according to the four EJC definition criteria.

Category	Problem Statement	How ESMPs Propose to Address This	EWG's Desired Outcomes from Final ESMPs	Metrics of Success
<b>3. Health benefits</b>	a. Emissions from burning natural gas	e. Eversource acknowledges inequities in health impacts from pollution/high GHG emissions plans to electrify transportation to mitigate impacts do not factor in equity	h. Less air pollution	n. Reduced statewide incidences of heart disease, bronchitis, and lung cancer from inhalable particulate matter (PM)
	b. Emissions from burning heating oil		i. Better indoor air quality	
	c. Emissions from grid electricity source mix	f. National Grid generally highlights that energy efficiency programs and electrification measures will improve health overall and that EJ/LMI customers are currently impacted the most	j. Improved cardiovascular, respiratory, kidney, and cerebrovascular health outcomes	o. Reduced statewide incidences of asthma, respiratory and lung diseases from nitrous oxide (NO <sub>x</sub> ) from fuel combustion
	d. While air emissions impact the entire state, recent studies have indicated impacts are higher in EJ communities <sup>40</sup>	g. Plans offer no quantification of health benefits	k. Reduced excess mortality	p. Reduced statewide incidences of respiratory infections and lung disease from sulfur dioxide (SO <sub>2</sub> ) released from fuel combustion
			l. Improved quality of life	q. Calculations in the ESMPs of the incremental impact of the grid modernization plan on health indicators
			m. Increased stakeholder education on climate-related health impacts	

<sup>40</sup> Boston College, MassCleanAir. From <https://www.bc.edu/bc-web/centers/schiller-institute/sites/masscleanair.html>, accessed October 19, 2023.

Category	Problem Statement	How ESMPs Propose to Address This	EWG’s Desired Outcomes from Final ESMPs	Metrics of Success	
<b>4. Financial benefits and incentives</b>	a. Renters, low-income, and non-English-speaking households are less likely to have used Mass Save energy efficiency incentives <sup>41</sup>	c. National Grid has incentives covering up to 100% of costs of EV charging equipment, energy efficiency upgrades, and weatherization for EJCs <sup>42</sup>	j. Access to innovative financing or tech	n. Increases in:	
		d. Eversource offers several EV charging equipment incentives for EJCs <sup>43</sup>	k. Installation of energy-efficiency upgrades	o. Community solar enrollment in EJCs	
		e. Until currently offers low-income residential customers 100% of the cost of improvements for energy efficiency and up to 100% of EVSE installation costs for multi-unit dwellings (MUDs) of up to four units and \$1,700 of capital costs <sup>44</sup>	l. Widespread updated weatherization to ready residential units for energy-efficiency upgrades	p. Residential solar enrollment in EJCs	
		f. Three programs—Eversource Community Solar Access Program (ECSAP), Community Solar Resilience Program, and Affordable Solar Access Program—are geared toward EJCs	m. Widespread adoption of electric vehicles	q. EVSE enrollment in EJCs	
		g. At present, additional net benefits such as health, economics, and greenhouse gas emissions are largely described qualitatively		r. Energy-efficiency upgrade enrollment in EJCs	
	b. Low to moderate income housing is more likely to have pre-weatherization barriers creating challenges for both energy efficiency and electrification	h. A public park atop an underground substation in Kendall Square in Cambridge is proposed (Eversource). It is proposed as a community benefit to the Kendall Square neighborhood and could serve as a model for other communities		s. Customer ownership of DERs within EJCs	t. Participation in all programs by renters
		i. EDCs identified customer benefits associated with investments and alternatives including safety, grid reliability and resilience, electrification of buildings and transportation, reduced GHG emissions and air pollutants, mitigation of impacts to the ratepayer, and more; to be filed with the DPU in January 2024		u. Pre-weatherization and electrical upgrade support	v. For community solar customers:
				w. Percent reduction (or increase) in energy rate (cents) per kWh after enrollment in community solar	x. Percent reduction (or increase) in overall bill amount after enrollment in community solar
				y. Comparison of EV/solar electrification adoption by zip code and by census block group to identify communities underserved by programs	z. Net economic, greenhouse gas emissions, and health benefits resulting from ESMPs (in aggregate and per capita)
				aa. Integration of tracking and metrics for renters from the EEAC process	bb. Tracking the offset of demand that non-wires solutions accomplish

<sup>41</sup> Massachusetts Clean Energy Center, EmPower program. From <https://www.masscec.com/program/empower-massachusetts>, accessed October 3, 2023.

<sup>42</sup> National Grid, Future Grid Plan, “Exhibit 6.3: Summary of EJC Incentives and Offerings,” September 2023: page 238.

<sup>43</sup> Eversource, Electric Sector Modernization Plan, “Table 42: Overview of EJC and low-income offerings,” September 2023: page 282.

<sup>44</sup> Until, ESMP 2025–2050, September 2023: page 66.

Category	Problem Statement	How ESMPs Propose to Address This	EWG’s Desired Outcomes from Final ESMPs	Metrics of Success
<b>5. Affordability</b>	a. Low-income Massachusetts households spend a disproportionately high percentage of their income on energy <sup>45</sup>	d. Advanced metering infrastructure (AMI) e. Demand response f. Improved customer communications g. Distributed energy resources (DER) h. Eversource proposes an Affordable Solar Access Program and plans to tackle on-bill financing	i. Access to utility incentives j. Future rates are designed fairly and with public participation k. Utility service charges are on an income-based sliding scale l. EDCs include plans for future performance incentive mechanisms that incentivize the EDCs to limit energy burden for customers at all income levels m. Access to customer-sited opportunities n. Utilities develop and enroll customers in arrear forgiveness programs o. Utility costs for the ESMP are publicly disclosed in a uniform digestible format	p. Percent reduction (or increase) in rates / residential energy rate (cents) per kWh q. Percent reduction (or increase) in bills r. Percent reduction in energy burden by customer income bracket s. Reduction in number of customers, by income bracket, with excess energy burden t. Reduction in number of customers in arrears u. Anticipated net cost per customer of ESMPs v. Rate reform recommendations and impacts of alternative rate structures for electrification customers, particularly in winter w. Percent and count of residential customers disconnected for non-payment, including by census block group <sup>46</sup> x. Percent and count of residential customers with accounts past due more than 60 days y. Potential bill impacts
	b. As electrification increases energy usage, current rate structures may increase affordability challenges.			
	c. Gas introduces significant volatility into the region’s energy prices			

<sup>45</sup> MassCEC Empower.

<sup>46</sup> In a 2022 Issue Brief, National Consumer Law Center notes that: “based on national survey data and credit and collection data available in other jurisdictions, household of color (even when adjusting for income) disproportionately experience energy insecurity – more frequent threats of termination or actual disconnection of utility service, higher energy burdens, and a greater likelihood that the household will have to forgo other basic necessities to pay an energy bill. While we do not have the zip code or census tract data necessary to assess this disparate impact in most states, including Massachusetts, the available data from a small number of states suggest that these disparities exist in most and must be addressed directly.” NCLC, *Issue Brief February 2022: Massachusetts Residential Utility Customers Still Owe Nearly \$100M More in Arrears Than at the Start of the Pandemic* (Feb. 2022), at 1 (footnotes omitted).

Category	Problem Statement	How ESMPs Propose to Address This	EWG's Desired Outcomes from Final ESMPs	Metrics of Success
<b>6. Resilience and reliability</b>	a. EJCs are receiving differing power quality and reliability than other customers <sup>47</sup>	c. Resilient Neighborhoods Program (National Grid) is designed to address climate-related power outages, prioritizing EJCs	i. Increased resilience against outages from infrastructure failures, storms, accidents, other	o. Fewer incidences and shorter durations of power outages
		d. Investments in vegetation management, hardening and undergrounding infrastructure across all plans	j. Reduced methane leaks	p. Increased deployment of distributed energy resources in EJ communities during outages
	b. Urban heat island impacts denser, less forested communities across Massachusetts, which tend to be EJ communities <sup>48</sup>	e. There are proposed new design and construction standards based on results of climate vulnerability study	k. Cleaner water for human consumption, recreation, and natural ecosystems	q. Shorter outage periods, particularly in EJC communities
		f. Joint-EDC Equitable Transactional Energy Study offering “a more dynamic locational value compensation framework” to offer options for consumers to participate in virtual power plants (VPPs) that offer a better representation of distributed energy resources in EJCs	l. Increased access to land for recreation, agriculture, and infrastructure; decreased erosion and ecosystem destruction	r. Targeted infrastructure investments based on climate vulnerability to flooding, heat and other anticipated impacts.
		g. Eversource plans to use their equity framework for construction of proposed new substations	m. Increased reliability against outages and/or brownouts	s. Decrease or elimination of disconnection during heat waves
		h. Plan lacks specific mention of EJCs and resiliency measures	n. Increased publication and access data to climate-related impacts on EJCs	

<sup>47</sup> Jill Collins, Conservation Law Foundation, “Not all electrical outages are experienced equally: utilities must act now to prevent further environmental injustice,” February 8, 2023.

From <https://www.clf.org/blog/not-all-electrical-outages-are-experienced-equally/>, accessed October 3, 2023.

<sup>48</sup> Walkey, John, and Paula Garcia, *Commonwealth Magazine*, “For environmental justice communities, tackling climate change can’t wait,” September 22, 2023. From <https://commonwealthmagazine.org/environment/for-environmental-justice-communities-tackling-climate-change-cant-wait/>, accessed October 3, 2023.



## APPENDIX A2: EDCS' PROPOSED STAKEHOLDER ENGAGEMENT METRICS

*Received by GMAC on October 5, 2023*

1. The number of outreach and involvement meetings **about the respective EDCs ESMP filing** with stakeholders, including EJCs, municipal leaders, community-based organizations, and customers (i.e., residential, commercial and industrial, and DER customers)
2. The number of outreach and involvement meetings **about specific ESMP infrastructure projects** with stakeholders, including EJCs, municipal leaders, community-based organizations, and customers (i.e., residential, commercial and industrial, and DER customers)
3. The number and category of **requests made as part of stakeholder feedback on specific ESMP infrastructure projects, classified into visual mitigation, access accommodations, work hours, right-of-way maintenance, informational accommodations, engineering accommodations, and damage prevention, as well as the EDCs' response to these requests** classified as under consideration, implemented, not accepted with reason, and other.\*

### \* Additional descriptions

- **Visual mitigation:** shrubs/tree planting or relocating objects out of a specific line of sight.
- **Access accommodations:** adjusting work zones to allow for continuity of access for school bus, elderly services, or regional transit.
- **Work hours:** adjusting work hours to accommodate traffic/pedestrian management or construction noise.
- **Right-of-way maintenance:** backfilling and repaving based on feedback from stakeholders, usually public way managers such as DPW or DOT.
- **Informational accommodations:** using local feedback to tailor outreach methods such as timing of meetings, translation of content into appropriate languages, and ADA access.
- **Engineering accommodations:** adjusting engineering design, to the extent practicable, to address stakeholder concerns.
- **Damage prevention:** identifying conditions prior to construction to ensure the integrity of adjacent utilities, businesses, residents, and structures.

## APPENDIX A3: ADDITIONAL EDC PROPOSED METRICS

*Received by GMAC on October 19, 2023*

In establishing new metrics proposed below, the EDCs follow the principles that a metric must be objective, measurable by the EDC, and within the control of the EDC. Consistent with these principles, the EDCs have achieved alignment in developing the following additional metrics applicable to the incremental investments proposed in their respective ESMPs:

1. Using commercially reasonable efforts, the achievement dates of ready for load (“RFL”) for major ESMP infrastructure projects which will be measured from the time the EDC

receives: (1) a final, non-appealable order from the Department of Public Utilities (“Department”) approving a cost recovery mechanism applicable to the project; and (2) all required permits and approvals for such projects through final, non-appealable state or federal orders and local permitting processes.

2. The percentage of customers covered by/benefiting from incremental resiliency investments outlined in the EDC’s ESMPs.
3. The increase in: (a) DER hosting capacity, and (b) load serving capacity by substation demonstrated by an increase in transformer rating installed. This metric will additionally include reporting information specific to environmental justice communities (“EJCs”), stating what percentage of benefits is located in an EJC. This metric will be measured from the time the EDC receives: (1) a final non-appealable order from the Department approving a cost recovery mechanism applicable to the substation project, and (2) for specific projects at the time when all required permits and approvals for such projects are received, including through final, non-appealable state or federal orders and local permitting processes.
4. A measure of the greenhouse gas reduction impact of investments enabled in alignment with statewide greenhouse gas reduction targets. This metric will be measured from the time the EDC receives (1) a final non-appealable order from the Department approving a cost recovery mechanism applicable to the investment, and (2) for specific projects at the time when all required permits and approvals for such investments are received, including through final, non-appealable state or federal orders and local permitting processes. The EDCs have contracted with an expert consultant to analyze the net benefits of each EDC’s incremental investments, which will include greenhouse gas reduction analyses. The EDCs welcome input from the GMAC regarding recommended approaches to analyzing and measuring greenhouse gas reduction benefits.
5. For the EDC’s distributed energy resources management system (“DERMS”), (a) the number of participating sites, (b) the amount (kW) of non-company owned dispatchable assets that the utility can control, and (c) number of instances sites are dispatched. The EDCs note that this metric is already under consideration by the Department as a proposal through 2025 in D.P.U. 21-80, D.P.U. 21-81, and D.P.U. 21-82. The EDCs propose that the metric would continue for incremental DERMS investments in 2026 and beyond.

Lastly, as the GMAC is aware, the EDCs are currently subject to a wide array of metrics associated with various aspects of investments that are currently being pursued outside of their ESMPs. Such metrics have been approved by the Department (or are pending review by the Department). A link to a spreadsheet describing these metrics is provided here, [Pre-existing Metrics for EDCs](#), for informational purposes, and to demonstrate the broad categories of metrics already tracked by the EDCs, or proposed to be tracked, supporting the goals and policies of the Commonwealth established in other proceedings.

## APPENDIX B: PUBLIC COMMENTS RECEIVED BY THE GMAC

GMAC meetings were held publicly and invited written and oral comments throughout the process. The GMAC also held two public listening sessions on October 30, 2023, and November 1, 2023, to provide an overview of the process to the public and to receive public comments. All written comments are available on the GMAC website.<sup>49</sup>

The GMAC received written comments from the following stakeholders over the review period:

- Department of Energy Resources
- Barr Foundation
- Acadia Center
- Nexamp, Inc.
- Coalition for Community Solar Access
- Green Energy Consumers Alliance
- Solar Energy Business Association of New England (SEBANE)
- New Leaf Energy
- Office of the Attorney General (AGO)
- Greg Hunt, ZPE Energy
- Rich Creegan, Anterix
- Cape Light Compact, submitted by Margaret Downey
- Advanced Energy United and Northeast Clean Energy Council (NECEC)
- Heather Deese, Senior Director of Policy & Regulatory Affairs for Dandelion Energy
- Undersecretary of Environmental Justice and Equity María Belén Power, Executive Office of Energy and Environmental Affairs
- Louise Amyot, Greenfield, MA Resident
- Craig Martin, Shutesbury, MA Resident
- Graham Turk, Massachusetts Institute of Technology graduate student
- Michael Savage, Vice President of Business Development of Vergent Power Solutions
- Advanced Energy Group's Grid Modernization Task Force
- Amaani Hamid, Senior Regulatory Affairs Manager at Leap
- Rachel Loeffler, Private Landowner in Eversource service territory
- Cathy Kristofferson, Pipe Line Awareness Network for the Northeast
- Joint comments from environmental and climate advocates in Massachusetts, submitted by Priya Gandbhir, Conservation Law Foundation
- Graham Turk, MIT Researcher and Eversource customer
- Leslie Zebrowitz, Co-Chair of Newton EV Task Force
- NRG Energy, Inc, submitted by Greg Geller, Stack Energy Consulting
- Chief Mariama White-Hammond Environment, Energy and Open Space, City of Boston

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<sup>49</sup> See <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac>.

- Silas Bauer, OnSite Renewables
- John Greene, Policy and Regulatory Affairs Manager of Piclo

The GMAC received oral comments from the following stakeholders at GMAC meetings and listening sessions:

- Bob Espindola, President of The Energy Consortium
- Valessa Souter-Kline, Northeast Regional Director of Solar Energy Industries Association
- Rich Creegan, Senior Vice President, Anterix
- Chris Derby Kilfoyle, Berkshire Photovoltaic Services
- Priya Gandbhir, Senior Attorney, Conservation Law Foundation
- Heather Deese, Senior Director of Policy & Regulatory Affairs for Dandelion Energy
- Undersecretary Maria Belen Power, Undersecretary of Equity and Environmental Justice
- Amaani Hamid, Senior Regulatory Affairs Manager at Leap
- Rachel Loeffler, Private Landowner in Eversource service territory
- Kate Warner, Energy Planner for Martha's Vineyard
- Claire Chang, Greenfield Solar Store
- Rosemary Wessel, Berkshire Environmental Action Team
- Sruthi Davuluri, AutoGrid
- Graham Turk, MIT Researcher and Eversource Customer
- Mariel Marchand, Cape Light Compact
- Cathy Kristofferson, Pipe Line Awareness Network for the Northeast, Inc.
- Doug Pope, Pope Energy
- Silas Bauer, OnSite Renewables
- Lisa Hoag, Wendell, Resident
- Pamela Paultre, Pattern Energy

## APPENDIX C: REQUIREMENTS OF THE CLIMATE ACT

The GMAC is not attempting to make a legal determination of compliance. Instead, the GMAC has reviewed the extent to which the ESMPs provide the information required by the Climate Act<sup>50</sup> in order to frame the expectations of the Climate Act and to assess how well the ESMPs align with the Climate Act.

The results of the GMAC assessment of the information in the ESMPs that will assist in determining how well the ESMPs align with the Climate Act are provided in the tables that follow. Within each table, relevant provisions of the Climate Act are listed, with each ESMP's citations to the relevant section(s) (provided in Section 2) noted alongside. The GMAC's assessment of the information provided in each of the EDC's ESMPs is indicated in separate columns.

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<sup>50</sup> An Act Driving Clean Energy and Offshore Wind, St. 2022, c. 179, § 53, codified at G.L. c. 164, §§ 92B-92C (Climate Act).

Section of General Laws Chapter 164	Language of General Laws Chapter 164	Eversource		National Grid		Unitil	
		Chapter 2 Cited Source	Information provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs
92B(a)	<i>The department shall direct each electric company to develop an electric-sector modernization plan to proactively upgrade the distribution and, where applicable, transmission systems to:</i>						
92B(a)(i)	Improve grid reliability, communications, and resiliency	4.3.9, 4.4.9, 4.5.9, 4.6.9, 10.0, 6.3	Yes	4.0, 6.0, 9.0, 10.0, 6.3, 9.8	Yes	4.0, 10.0, 6.3	Yes
92B(a)(ii)	Enable increased, timely adoption of renewable energy and distributed energy resources	6.1, 7.1	Yes	5.0, 6.0, 7.1, 8.0, 9.0	Yes	6, 7	Yes
92B(a)(iii)	Promote energy storage and electrification technologies necessary to decarbonize the environment and economy	7.1, 8.0, 9.0	Yes	5.0, 6.0, 7.0, 8.0, 9.0	Yes	7, 8, 9	Yes
92B(a)(iv)	Prepare for future climate-driven impacts on the transmission and distribution systems	10	Yes	10	Yes	10	Yes
92B(a)(v)	Accommodate increased transportation electrification, increased building electrification and other potential future demands on distribution and, where applicable, transmission systems	6.0, 8.0, 9.0	Yes	5.0, 6.0, 8.0, 9.0	Yes	6, 8, 9	Yes
92B(a)(vi)	Minimize or mitigate impacts on the ratepayers of the Commonwealth, thereby helping the Commonwealth realize its statewide greenhouse gas emissions limits and sublimits under chapter 21N	7.1, 9.0	Information not provided	7.1, 9.0	Information not provided	7, 9	Information not provided

Section of General Laws Chapter 164	Language of General Laws Chapter 164	Eversource		National Grid		Unitil	
		Chapter 2 Cited Source	Information provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs
92B(b)	<i>An electric-sector modernization plan developed pursuant to subsection (a) shall describe in detail each of the following elements:</i>						
92B(b)(i)	Improvements to the electric distribution system to increase reliability and strengthen system resiliency to address potential weather-related and disaster-related risks	4.3.9, 4.4.9, 4.5.9, 4.6.9, 10.0	Yes	4.0, 10.0	Yes	4, 10	Yes
92B(b)(ii)	The availability and suitability of new technologies including, but not limited to, smart inverters, advanced metering and telemetry and energy storage technology for meeting forecasted reliability and resiliency needs, as applicable	6.3, 9.0	Yes	6.11, 9.0	Partial	6, 9	Partial
92B(b)(iii)	Patterns and forecasts of distributed energy resource adoption in the company's territory and upgrades that might facilitate or inhibit increased adoption of such technologies	5.0, 8.0	Yes	5.0, 8.0	Yes	5, 8	Yes
92B(b)(iv)	Improvements to the distribution system that will enable customers to express preferences for access to renewable energy resources	9	Yes	9	Yes	9	Yes
92B(b)(v)	Improvements to the distribution system that will facilitate transportation or building electrification	7.1, 8.2, 8.3, 9.1.1, 9.1.2	Yes	5.0, 6.0, 8.0, 9.0	Yes	7, 8, 9	Yes
92B(b)(vi)	Improvements to the transmission or distribution system to facilitate achievement of the statewide greenhouse gas emissions limits under chapter 21N	7.1, 9.0	Yes	5.0, 6.0, 7.1, 8.0, 9.0	Yes	7, 9	Yes



Section of General Laws Chapter 164	Language of General Laws Chapter 164	Eversource		National Grid		Unitil	
		Chapter 2 Cited Source	Information provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs
92B(b)(vii)	Opportunities to deploy energy storage technologies to improve renewable energy utilization and avoid curtailment	4.3.5, 4.4.5, 4.5.5, 4.6.5, 5.1.6, 9.1.4, 9.5.2	Partial	4.3.5, 4.4.5, 4.5.5, 4.6.5, 4.7.5, 4.8.5, 5.2.5, 9.1.4, 9.6.2	Partial	4, 5, 9	No
92B(b)(viii)	Alternatives to proposed investments, including changes in rate design, load management and other methods for reducing demand, enabling flexible demand and supporting dispatchable demand response	7.1.1, 9.1, 9.5	Partial	7.1.1, 9.1, 9.5	Partial	7, 9	Partial
92B(b)(ix)	Alternative approaches to financing proposed investments, including, but not limited to, cost allocation arrangements between developers and ratepayers and, with respect to any proposed investments in transmission systems, cost allocation arrangements and methods that allow for the equitable allocation of costs to, and the equitable sharing of costs with, other states and populations and interests within other states that are likely to benefit from said investments	7.1.2, 9.5; 6.3.1, 7.1.3, 12.0	Partial	7.1.2, 9.6	Partial	7, 9	No

Section of General Laws Chapter 164	Language of General Laws Chapter 164	Eversource		National Grid		Unitil	
		Chapter 2 Cited Source	Information provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs
92B(b)(ix) (continued)	For all proposed investments and alternative approaches, each electric company shall identify customer benefits associated with the investments and alternatives including, but not limited to, safety, grid reliability and resiliency, facilitation of the electrification of buildings and transportation, integration of distributed energy resources, avoided renewable energy curtailment, reduced greenhouse gas emissions and air pollutants, avoided land use impacts and minimization or mitigation of impacts on the ratepayers of the Commonwealth.	7.1.2, 9.5; 6.3.1, 7.1.3, 12.0	Partial	6.3.1, 7.1.3, 12.0	Partial	7, 9	No

		Eversource		National Grid		Unitil	
Section of General Laws Chapter 164	Language of General Laws Chapter 164	Chapter 2 Cited Source	Information provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs
92B(c)	<i>In developing a plan pursuant to subsection (a), an electric company shall:</i>						
92B(c)(i)	Prepare and use three planning horizons for electric demand, including a 5-year forecast, a 10-year forecast and a demand assessment through 2050 to account for future trends, including, but not limited to, future trends in the adoption of renewable energy, distributed energy resources and energy storage and electrification technologies necessary to achieve the statewide greenhouse gas emission limits and sublimits under chapter 21N;	5.0, 8.0	Yes	5.0, 8.0	Yes	5, 8.0	Yes
92B(c)(i)	Prepare and use 3 planning horizons for electric demand, including a 5-year forecast, a 10-year forecast and a demand assessment through 2050 to account for future trends, including, but not limited to, future trends in the adoption of renewable energy, distributed energy resources and energy storage and electrification technologies necessary to achieve the statewide greenhouse gas emission limits and sublimits under chapter 21N;	5.0, 8.0	Yes	5.0, 8.0	Yes	5, 8.0	Yes
92B(c)(ii)	Consider and include a summary of all proposed and related investments, alternatives to these investments and alternative approaches to financing these investments that have been reviewed, are under consideration or have been approved by the department previously.	7.1, 7.1.1, 7.1.2	No	7.1, 7.1.1, 7.1.2	No	7	No

Section of General Laws Chapter 164	Language of General Laws Chapter 164	Eversource		National Grid		Unitil	
		Chapter 2 Cited Source	Information provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs
92B(c)(iii)	Solicit input, such as planning scenarios and modeling, from the Grid Modernization Advisory Council established in section 92C, respond to information and document requests from said council and conduct technical conferences and a minimum of 2 stakeholder meetings to inform the public, appropriate state and federal agencies and companies engaged in the development and installation of distributed generation, energy storage, vehicle electrification systems and building electrification systems.	3.0	Yes	3.0	Yes	3.0	Yes
92B(d)	In order to be approved, a plan shall provide net benefits for customers and meet the criteria enumerated in clauses (i) to (vi), inclusive, of subsection (a)	Not addressed	Information not provided	Not addressed	Information not provided	Not addressed	Information not provided
92B(e)	An electric-sector modernization plan developed by an electric company pursuant to subsection (a) shall propose discrete, specific, enumerated investments to the distribution and, where applicable, transmission systems, alternatives to such investments and alternative approaches to financing such investments, that facilitate grid modernization, greater reliability, communications and resiliency, increased enablement of distributed energy resources, increased transportation electrification, increased building electrification and the minimization or mitigation of ratepayer impacts, in order to meet the statewide greenhouse gas emissions limits and sublimits under chapter 21N.	Not addressed	No	Not addressed	No	Not addressed	No

Section of General Laws Chapter 164	Language of General Laws Chapter 164	Eversource		National Grid		Unitil	
		Chapter 2 Cited Source	Information provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs	Chapter 2 Cited Source	Information Provided in ESMPs
92C(b)	The council shall seek to encourage least-cost investments in the electric distribution systems, alternatives to the investments or alternative approaches to financing investments that will facilitate the achievement of the statewide greenhouse gas emission limits and sublimits under chapter 21N and increase transparency and stakeholder engagement in the grid planning process. The council shall review and provide recommendations on electric-sector modernization plans developed pursuant to subsection (a) of section 92B that maximize net customer benefits and demonstrate cost-effective investments in the distribution grid, including investments to enable interconnection of, and communication with, distributed energy resources and transmission-scale renewable energy resources, facilitate electrification of buildings, transportation and other sectors, improve grid reliability and resiliency, minimize or mitigate impacts on ratepayers throughout the commonwealth and reduce impacts on and provide benefits to low income ratepayers throughout the commonwealth. The council shall cooperate and coordinate with the clean energy transmission working group.	Not addressed	Information not provided	Not addressed	Information not provided	Not addressed	Information not provided