Observations and Recommendations of the Grid Modernization Advisory Council

Regarding Electric-Sector Modernization Plans

November 15, 2023

Pursuant to G.L. c. 164, §§ 92B-92C

**Draft**

Contents

1. Introduction 3

Background 3

Process …………………………………………………………………………………………………………………………………….4

2. Observations of the GMAC 8

Overarching Observations 8

Missing Information 9

Compliance with the Climate Act 9

Stakeholder engagement and equity goals 11

Load forecasting (short- and long-term) 12

Solution sets (short- and long-term) 12

Infrastructure/investment proposals (short- and long-term) 13

3. GMAC Recommendations to the EDCs 14

Overarching Recommendations 14

Section 2: Compliance with the Climate Act 16

Section 3: Stakeholder Engagement and Equity goals 16

Section 4: Current State of the Distribution System 17

Section 5: 5- and 10-Year Electric Demand Forecast 18

Section 6: 5- and 10-Year Planning Solutions 19

Section 7: 5-Year Electric Sector Plan 20

Section 8: 2035 – 2050 Policy Drivers: Electric Demand Assessment 21

Section 9: 2035 – 2050 Solution Set – Building a Decarbonized Future 21

Section 10: Reliable and Resilient Distribution System 22

Section 11: Integrated Gas-Electric Planning 22

Section 12: Workforce, Economic, and Health Benefits 23

Section 13: Conclusion 23

4. Process for the Next ESMPs 25

Appendix: ESMP Compliance with the Climate Act 26

## 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 members:

|  |  |  |  |
| --- | --- | --- | --- |
| GMAC Member | Affiliation | Representing | Voting Status |
| Commissioner Elizabeth Mahony | Massachusetts DOER  | Massachusetts DOER  | GMAC Chair;Voting |
| Kelly Caiazzo | Massachusetts Office of the Attorney General  | Massachusetts Office of the Attorney General  | Voting |
| Sarah Cullinan | Massachusetts Clean Energy Center  | Massachusetts Clean Energy Center  | Voting |
| Larry Chretien | Green Energy Consumers Alliance | Low- and middle-income residential consumers | Voting |
| Marybeth Campbell | Worcester Community Action Council | A local agency administering the low-income weatherization program | Voting |
| Kyle Murray | Acadia Center | The environmental advocacy community | Voting |
| Kathryn Wright | Barr Foundation | The environmental justice community | Voting |
| Alex Worsley | Enel North America | The transmission-scale renewable energy industry | Voting |
| Kathryn Cox-Arslan | New Leaf Energy | The distributed generation renewable energy industry | Voting |
| Sarah Bresolin Silver | ENGIE North America | The energy storage industry | Voting |
| Amy McGuire | Highland Electric Fleets | The electric vehicle industry | Voting |
| JS Rancourt | DXS - Direct Expansion Solutions | The building electrification industry | Voting |
| Andy Sun | Massachusetts Institute of Technology | Representing engineering expertise in interconnecting clean energy | Voting |
| Julie Curti | Metropolitan Area Planning Council | Municipal or regional interests | Voting |
| Jonathan Stout | Dana-Farber Cancer Institute | Large commercial and industrial end-use customers | Voting |
| Digaunto Chatterjee | Eversource Energy | Massachusetts EDCs | Non-Voting |
| Carol Sedewitz | National Grid | Massachusetts EDCs | Non-Voting |
| Kevin Sprague | Unitil | Massachusetts EDCs | Non-Voting |

# Glossary

These definitions are presented here for the purposes of this report only.

**Newly proposed investment.** Those EDC projects, investments, or costs that have not been proposed to the DPU in any docket or forum such as rate cases, grid mod dockets, CIP dockets, or others

**Distributed energy resource (DER).** “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.”[[1]](#footnote-2)

**Business-as-usual DERs**. Those DERs that are implemented or somehow supported by the EDCs under current policies and practices. It also includes those naturally occurring DERs that are adopted by electricity and gas customers without utility support.

**Incremental DERs.** Those DERs that the EDCs could invest in or otherwise support that are above and beyond business-as-usual DERs.

**Demand response.** Any utility program or initiative 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 EVs, or they can be applied to a customers’ entire set of end-uses.

**Non-wires alternative (NWA).** Includes programs and initiatives to deploy DERs in geographically targeted areas to address a specific constraint on the electricity grid.

# 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.[[2]](#footnote-3) 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),[[3]](#footnote-4) 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,[[4]](#footnote-5) 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](https://www.mass.gov/doc/gmacesmp-drafteversource/download?_gl=1%2Ako8zfs%2A_ga%2ANzUwNDI5MDE3LjE2NTA5ODEyMjQ.%2A_ga_SW2TVH2WBY%2AMTY5MzkyMDE2OS4zNi4xLjE2OTM5MjM1NzQuMC4wLjA.),[[5]](#footnote-6) [National Grid](https://www.mass.gov/doc/gmacesmp-draftnational-grid/download?_gl=1%2Adfgptb%2A_ga%2ANzUwNDI5MDE3LjE2NTA5ODEyMjQ.%2A_ga_SW2TVH2WBY%2AMTY5MzkyMDE2OS4zNi4xLjE2OTM5MjM1OTcuMC4wLjA.),[[6]](#footnote-7) and [Unitil](https://www.mass.gov/doc/gmacesmp-draftunitil/download?_gl=1%2A3rigaj%2A_ga%2ANzUwNDI5MDE3LjE2NTA5ODEyMjQ.%2A_ga_SW2TVH2WBY%2AMTY5MzkyMDE2OS4zNi4xLjE2OTM5MjM2MTQuMC4wLjA.),[[7]](#footnote-8)) each submitted their ESMP utilizing 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 improve grid reliability, communications and resiliency; enable increased, timely adoption of renewable energy and distributed energy resources (DERs); promote energy storage and electrification technologies necessary to decarbonize the environment and economy; prepare for future climate-driven impacts on the transmission and distribution systems; accommodate increased transportation electrification, increased building electrification and other potential future demands on distribution and, where applicable, transmission systems; and 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.[[8]](#footnote-9)

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 chose to also 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 greenhouse gas emission limits and sub-limits under chapter 21N and increase transparency and stakeholder engagement in the grid planning process.”[[9]](#footnote-10) The observations and recommendations below seek to further these objectives.

Importantly, we note that 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 and integrated distribution system planning. The Massachusetts EDCs’ and GMAC’s substantial effort on this undertaking is commendable and greatly contributed to this review.

## Process

After the passing 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), 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 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, shown below, illustrates the GMAC ESMP review process timeline, which also highlights additional meetings outside of the biweekly GMAC meeting schedule. The statutory deadline for GMAC 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.[[10]](#footnote-11) 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.[[11]](#footnote-12)

At the September 14, 2023 meeting, the GMAC approved an Equity Working Group Charter[[12]](#footnote-13) and Equity Working Group membership.[[13]](#footnote-14) 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.[[14]](#footnote-15)

The GMAC also convened a joint meeting with the Clean Energy Transmission Working Group (CETWG)[[15]](#footnote-16) on October 13, 2023 to discuss related distribution and transmission challenges and strategies with grid modernization. This coordination was required by the statute.[[16]](#footnote-17) GMAC 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 public comments, and 20 oral public comments at GMAC meetings. All submitted written comments are available on the GMAC website. The GMAC website serves as a repository for all documents of the GMAC, including meeting agendas, presentations, minutes.[[17]](#footnote-18) 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.

# 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, compliance with 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.

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.
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 has met statutory requirements. Some ESMPs do not include simple summary tables and/or do not clearly and transparently identify which investments and infrastructure proposals are being made, the corresponding implementation plans, and timelines for proposed and existing investments or programs.
3. 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 clean energy transmission working group (CETWG).
4. The ESMPs lack a cogent strategic vision that identifies 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.
5. The GMAC’s review was hindered by a lack of clarity about which grid mod investments are already underway or approved by the DPU versus those that are newly proposed in the ESMPs.[[18]](#footnote-19) The review was also hindered by a lack of clarity about how the newly proposed investments would be reviewed by the DPU for cost recovery.

## 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 on *Requirements of the Climate Act*.

1. There is insufficient information for the GMAC to evaluate the net benefits of the proposed investments.
2. The ESMPs do not present information regarding rate impacts or means of mitigating rate impacts, particularly for low-income customers.
3. There is a general lack of detailed assessment of alternatives, including assessment of both alternative investments and alternatives to traditional infrastructure investment.
4. The ESMPs lack consideration of alternative financing, such as alternative cost allocation arrangements between developers and ratepayers.
5. The ESMPs lack critical information regarding gas-electric planning, which impedes the GMAC’s ability to provide meaningful comments.
6. 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 with the Climate Act. These observations are most applicable to Section 2: Compliance with the EDC Requirements Outlined in the 2022 Climate Act.

The GMAC is not attempting to make a legal determination of compliance for the purpose of deciding whether the ESMPS should be approved, approved with modifications, or rejected. Instead, the GMAC has reviewed compliance in order to frame the expectations of the Climate Act and to support its review of the ESMPs by identifying key elements and concepts that should be addressed in the ESMPs.

Appendix A 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. As indicated in Appendix A, the Climate Act contains multiple requirements, some of which are general objectives, while others are specific informational and methodological requirements. In order to summarize the GMAC observations regarding compliance with the Climate Act, the multiple requirements in the Act are summarized into five general categories. The following subsections describe these categories and present the GMAC’s observations about compliance with each category.

1. ~~The requirement to propose relevant grid mod 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.~~
2. 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) are one form of alternative to more traditional EDC infrastructure. Unitil 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.

1. The GMAC observes that Eversource has addressed the specific technologies noted by the Climate Act in Sections 92B(b).ii and 92B(b).vii (smart inverters, utility-owned energy storage, and advanced meters), whereas National Grid and Unitil do not appear to address smart inverters.
2. The GMAC observes that each of the EDCs lack 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.
3. ~~The GMAC observes that the ESMPs have provided the load forecast information required by Sections 92B(b).iii, and 92B(c).i. However, the GMAC further observes that the EDCs could improve the quality, transparency, and integration of their respective load forecasts, as described throughout this report.~~
4. The GMAC observes that the ESMPs do not provide the information necessary for its review of some of the criteria listed in 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.

1. 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.
2. 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.
3. The GMAC has concerns that engagement plans had limited discussion of relationships with certain key stakeholders such as developers/DER providers and cities/towns
4. Communication with customers is challenging. There may be communication overload for customers with multiple consumer-facing engagement efforts happening simultaneously from state agencies, utilities, 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: Five- and Ten-Year Electric Demand Forecast and Section 8: 2035-2050 Policy Drivers: Electric Demand Assessment.

1. The ESMPs as presented to 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 business-as-usual DERs.
2. 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.
3. The 5- to 10-year forecasts are not connected to the long-term forecasts in a clear or logical manner.
4. ~~The ESMPs do not use consistent methods for evaluating forecasts.~~
5. 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: Five- and Ten-Year Planning Solutions: Building for the Future and Section 9: 2035-2050 Solution Set – Building a Decarbonized Future.

1. 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.
2. 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, newly proposed costs.
3. 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).
4. 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.
5. The ESMPs do not explicitly consider alternatives to traditional EDC capital spending, such as EDC investment in and support of incremental DERs, i.e., those that are not part of the business-as-usual DERs.[[19]](#footnote-20)
6. 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.
	1. 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.
	2. ~~Lower-cost alternatives to help defer capacity expansion capital spending should be considered to help address affordability and equity issues.~~
	3. To maintain affordability the ESMPs should give greater consideration to mechanisms for deferring or avoiding new transmission spending, including using strategically located distributed energy resources, demand response and Time-Varying Rates. This detail was lacking in the ESMP and is critical given the high cost of new transmission spending and that transmission has been as high as 35% of the total customer bill in recent months and most customers cannot manage the cost.
7. The plans rely on natural gas as a backup for heat pumps without explicitly considering the tradeoffs with the ongoing maintenance cost of gas pipelines and the GHG emissions of the natural gas 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 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: Five-year Electric Sector Modernization Plan.

1. 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 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.
2. The ESMPs do not make clear how the newly proposed investments will result in net benefits to customers.
3. The ESMPs do not quantify the incremental impact of the EDC’s 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 newly proposed investments.
4. The ESMPs do not present the incremental impacts of their proposals on workforce, jobs, greenhouse gas emissions, and health that would occur due to the proposed investments in the ESMPs.
5. The ESMPs do not quantify the incremental impact of the EDCs’ newly proposed investments on meeting the state’s greenhouse gas emissions reductions targets.

# 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.[[20]](#footnote-21) 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

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 represent 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.[[21]](#footnote-22)
2. The ESMPs should be clear in identifying and describing which investments are newly proposed in the ESMPs, and how the EDCs plan to obtain DPU review and approval of these investments. 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. 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.
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 DER 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 distributed generation 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.
4. The ESMPs should propose a long-term cost allocation methodology for proactive infrastructure upgrades to enable the interconnection of distributed generation 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, then 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 the 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.
5. Extension of the Provisional System Planning Program as currently proposed in the ESMPs would require significant additional adjudicatory proceedings over the next 5 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 5 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.

~~Proactive distribution system investments are critical to ensuring DERs can interconnect to the grid at a reasonable cost and expeditious manner to meet the Commonwealth’s goals. The ESMPs should propose a long-term distribution system planning process and cost allocation methodology that enables hosting capacity in a proactive manner, ahead of when it is needed, as a successor program to the Provisional System Program.[[22]](#footnote-23) The EDC’s strategies for enabling hosting capacity should identify areas where siting DERs is both feasible in terms of siting, and where it is efficient in terms of efficient use of distribution system infrastructure. If this is not possible before the January filing, then the EDCs should submit a detailed proposal and timeline for a stakeholder process that will develop a long-term, proactive distribution system planning process and long-term cost allocation methodology as a successor to the Provisional System Program. This proposal should include how the 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.~~

1. 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.
2. 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) and alternative approaches to financing investments (including cost allocation between developers and ratepayers, and equitable allocation of costs across other states and populations).[[23]](#footnote-24) 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 EDCs should be able to demonstrate that they have explicitly considered each alternative, its potential to impact otherwise forecasted distribution system need, and that it has leveraged each alternative to the maximum extent feasible before arriving at final investment proposals.

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 EDC’s 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.

1. 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 X of this document.
2. 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.
3. 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 promptly and comprehensively address rate design issues. 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 LMI customers and customers in 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 incent demand reduction.
4. The EDCs should clearly define the terms “DG” and “DER” 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 MA DPU and subject to applicable MA DPU approved tariffs, such as the Standards for Interconnection of DG.

## Section 2: Compliance with the Climate Act

1. 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.
2. 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:
	1. 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.
	2. 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 and Equity goals

1. 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:​
	1. Clearly defined identification of stakeholder groups, historical concerns, and potential conflicts with other stakeholder groups' interests​,
	2. ESMP goals and outcomes for each stakeholder group​,
	3. Information stakeholders need to be well informed​,
	4. Information utility companies need to understand stakeholders’ concerns​,
	5. Appropriate and diverse vehicles for meaningful dialogue​, and
	6. 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.
2. 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.
3. The GMAC recommends that the CESAG have a co-chair structure, where the group is led in part by EDCs and GMAC.
4. To clarify the CESAG’s focus and measure its success, the GMAC recommends that the CESAG:
	1. Develop consistent definitions of equity, inequity, and discrimination,
	2. Include more specific definitions of equity,
	3. Adopt quantifiable reporting metrics, and
	4. Develop a detailed explanation of the stakeholder engagement process (timeline, stakeholder groups, potential trainings, desired outcomes)​.
	5. Define parameters/process for community benefits agreements.
5. 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

1. The ESMPs should use consistent methods across EDCs for presenting the following information regarding the current system:​
	1. 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. ​
	2. Capacity deficiency for substation power transformers and feeders​.
	3. 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, distributed generation, electric vehicles, and distributed storage.​
	4. 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​.
	5. Reliability, including most relevant reliability reporting metrics and summary of outages by cause on blue-sky days​.
	6. Resilience, including all relevant “all-in” performance reporting metrics and summary of outages by cause on major event days.
	7. Annual GHG emissions and how they compare with GHG emission requirements in the Climate Act.
2. The ESMPs should use consistent tables and charts across the three EDCs to depict information in readily accessible formats.
3. ~~The ESMPs should include data and metrics on power quality, new metrics for environmental justice communities and for electrification growth reporting, benefits of smart inverter controls, and estimates for peak demand reduction.~~
4. In areas of system constraint, the ESMPs should discuss how NWAs, 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.
5. The ~~ESMPs should explicitly connect content to the Commonwealth’s goals and suggest more technical and policy solutions​.~~
6. 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

1. 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.
2. The EDCs should provide a copy of their load forecasting models in their ESMPs. At a minimum, a clear description of and copies of all inputs, results, and scenarios should be provided in a format that is reviewable and widely accessible, including in unlocked and fully functional, linked Excel sheets. ​
3. 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 like policy, mass transit, climate change impacts, load management, EV charging infrastructure, new building codes, building weatherization, etc. impact the demand forecasts​.
4. 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.
5. ~~The EDCs should consider the impact of new building codes and building weatherization on their ESMP forecasts.~~
6. The three ESMPs should use consistent formatting and reporting resolution in their load forecasts.
7. 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
8. 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.
9. The ESMPs should provide additional detail and rigor regarding greenhouse gas emission reduction benefits, including:
	1. The incremental greenhouse gas impacts (in tons, by year) of the newly proposed investments.
	2. How those incremental greenhouse gas impacts will help the EDCs meet the EDC’s greenhouse gas emissions reduction targets (in tons, by year).​
10. The ESMPs should present the capabilities and deficiencies of the current system in a clearer and more transparent manner using consistent definitions, tables, and graphics.

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

1. The planning solutions should be documented using relevant reporting metrics, baselines, and targets, such as:
	1. System-wide increases in DER hosting capacity in MWs by year
	2. System-wide capacity increases in MWs by year
	3. System-wide reliability/resilience improvements (interruption and duration, with and without major events) by year.
2. The ESMPs should consider alternative options to newly proposed capital spending, such as EDC investment in and support of incremental DERs, i.e., those that are not part of the business-as-usual DERs. The ESMPs should present the costs of such alternative options and compare them with the costs of the newly proposed investments. The ESMPs should explain which alternatives were not adopted and why.
3. 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.​
4. The ESMPs should provide more detail regarding cost estimates:
5. The ESMPs should include estimates of transmission level costs that are likely to be driven by distribution level investments​.
6. ~~Comparisons between business-as-usual operating and capital costs vs. incremental costs should be added throughout the ESMPs​.~~
7. The ESMPs should explicitly discuss how incremental DERs can be used by the EDCs to alleviate grid issues.​
8. The EDCs should consider and discuss additional ways in which they can promote optimized DER integration.
9. 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.
10. 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.​
11. 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​.
12. ~~The ESMPs should explicitly discuss rate design and rate reform (i.e., differentiated rates for different customers).​~~

With regards to time-varying rate design the ESMPs should provide the following:

* 1. Consideration of default, opt-out TVR for basic service customers and a review of experiences in states that have implemented opt-out TVR for basic service
	2. A specific timeline for the implementation of TVR (excluded in Eversource’s ESMP) and how the TVRs will maximize customer’s opportunity to control as much of their energy bill as possible, including distribution, transmission, energy, and capacity.

The ESMPs should discuss how Advanced Metering Infrastructure and the corresponding data repositories will inform rate design and an explicit timeline for implementation. Understanding when and how the data for AMI meters will be available to customers and their retail suppliers will be essential in developing rate design. In particular, the ESMPs should provide information related to data sharing and meter access for Advanced Metering Infrastructure (“AMI”), including:

1. A description of a statewide uniform data access protocol and the immediate timeline for providing customers and their retail supplier/aggregator access to AMI data, including individual, building, and aggregated data sets
2. A description of how AMI data will be used to settle customer bills in a granular fashion, rather than continuing to use load profiles for settlement
3. A description of how the EDCs will enable the bulk transfer of expanded customer usage data available through AMI (e.g. municipal aggregations served by competitive suppliers)
4. A description of the statewide data repository the EDCs will deploy (similar to NH) and the data categories (usage and rate information) the repository will contain
5. A description of the mechanism for providing customers and their retail supplier/aggregator access to data directly from the meter in near real-time to enable participation in demand response programs (Sarah Bresolin)
6. 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 peak demand can be managed through NWAs.
7. 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.
8. The ESMPs should clarify how stakeholder engagement and community feedback will occur for all solutions presented.​
9. 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 upgrade, and the timeline for the analysis through construction and approval process.
10. 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/assumes the construction of associated transmission upgrades.
11. The EDCs strive to use consistent terminology, methods, assumptions, and presentation formats across all three EDCs.
12. The ESMPs should clearly identify and describe which investments are newly proposed in the ESMPs, and how the EDCs plan to obtain DPU review and approval of these investments. 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.
13. The ESMPs should 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

1. The EDCs should provide a direct mapping of the proposed investments to benefits and costs. The EDCs could consider including a table that has columns on investment area, specified proposed investment/projects, costs of the projects, expected benefits, and a quantification of those benefits.
2. 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, , acceptable levels of risk underlying the newly proposed investments, etc.
3. The EDCs should develop explicit decision-making processes and criteria for solution prioritization, selection, and investment deferral decisions.
4. 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.)
5. 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 are considered to be base/ongoing investments; investments for which an EDC has already received DPU approval (identifying the docket in which the investment was approved and showing an itemization and quantification of the approved investment); investments for which an EDC has a specific proposal or proposals pending before the DPU (identifying the docket in which the investment was proposed and showing and itemization and quantification of the proposed investment); and newly proposed investments (with itemization and quantification).). 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.
6. 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 to /incremental to what would otherwise have been planned/needed through the ESMP.

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

1. 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.
2. The ESMPs should directly integrate their 10-year and long-term forecasts and demonstrate a continuity between the two, or otherwise explain any discontinuity. Forecast should reflect expectations for how the system will change without unrealistic step changes, while still meeting the Commonwealth's climate goals.
3. 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.
4. The ESMPs should provide greater standardization across the demand assessments, including which 2050 Roadmap scenario the EDCs adopt for their demand assessments and why, including how the scenario details are translated into modeling parameters.​
5. The ESMPs should evaluate scenarios with more ambitious levels of incremental DERs to mitigate load growth.
6. 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​.
7. The ESMPs should include information on winter peak load projections and how to consider them. Achieving our emissions 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 DR and of DERs (including energy storage) could have more importance than otherwise expected when focusing on these winter cold peak events.
8. The ESMPs should discuss rate reform to improve affordability in light of the extensive new investments proposed in the ESMPs.
9. The ESMPs should explicitly state the detailed steps and timeline to expand and develop demand management programs to reduce peak load​.
10. 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

1. The ESMPs should prioritize energy efficiency and electric heating programs that will reduce demand on coldest days by providing incentives that favor ground-source heat pumps over air-source heat pumps where cost effective.
2. ~~In terms of rate designs, the EDCs should:~~
3. ~~Avoid residential demand charges, particularly for environmental justice communities (EJC) and low- to moderate-income (LMI) customers. At a minimum, careful study and appropriate EJC/LMI accommodations are required.~~
4. ~~Include plans for peak-time rebate programs available to all residential distribution grid customers (with a smart meter) regardless of energy supplier. ​~~
5. 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.
6. .

## Section 10: Reliable and Resilient Distribution System

1. The EDCs should make their climate vulnerability assessments public. If the climate vulnerability assessments are not complete, the ESMPs should describe the expected date of completion and method by which they will notify stakeholders of the finished assessments.
2. ​~~The ESMPs should include the expected timelines for completing relevant resilience frameworks and assessments.​~~
3. The EDCs should standardize their climate change risk and planning tools, as well as forecasting windows and parameters.​
4. The EDCs should clarify the timeline for the climate vulnerability assessment framework.
5. The ESMPs should include resilience priorities and the cost estimates of resilience investments​.
6. The ESMPs should contain more details regarding the climate adaptation measures that the EDCs propose to take.​
7. The ESMPs should justify newly proposed reliability and resilience investments using quantitative data such as improvements to SAIDI/SAIFI, as well as using benefit-cost analyses. The ESMPs should describe how the EDCs are coordinating their climate vulnerability assessments and their approaches for managing climate vulnerability.​
8. The EDCs should incorporate local and regional modeling of heat islands into the plans and use this information to inform near- and long-term actions.

## Section 11: Integrated Gas-Electric Planning

1. The ESMPs should detail how the transition from gas to electric will be coordinated, how and where the systems overlap, and identify recommendations for how the transition should occur, ideally down to the street-by-street level
2. The ESMPs should provide more details regarding how integrated energy planning will be undertaken in the future. ​
3. The Joint Utility Planning Working Group should focus on short- and long-term capital investment plans for both electric and gas utilities.
4. 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. ​
5. The ESMPs should provide more detail on how the integrated energy planning will be used to comply with the Climate Act and align with the forecasts in the Clean Energy and Climate Plan. ​
6. When estimating net benefits from proposed investments, the ESMPs should account for the costs and benefits to gas utility customers. ​
7. The ESMPs should describe how the proposed ESMP investments will affect the reduction of greenhouse gas 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

1. The EDCs should specifically present the incremental impacts of their proposals on workforce, jobs, GHG emissions, and health and how such investments will help the EDCs meet the state’s greenhouse gas emissions reduction targets. This requires, at least, presenting one scenario with the proposed investments and one without.​
2. The ESMPs should better integrate the discussion of workforce benefits with the estimates of job creation in the macroeconomic analysis.​
3. 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.
4. Regarding workforce benefits, the ESMPs should:
	1. Include reporting metrics related to the training programs, ideally aligned with those produced by the Equity Working Group;
	2. Identify specific strategies to address the lack of diversity in the energy sector;
	3. 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;
	4. Establish a unified approach to a statewide workforce plan;
	5. Include a workforce organization chart in the ESMP; and
	6. Leverage existing resources and infrastructure to integrate clean tech education, curriculum, and opportunities.​

## Section 13: Conclusion

1. 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).
2. 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 incremental impacts of greenhouse gas emissions will be determined.
3. 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.
4. 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 such investments fall in.
5. As the EDCs are assessing net benefits for their filing with the DPU:
	1. 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 greenhouse gas emissions.
	2. 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. In other words, the reference case should exclude all newly proposed investments. .
	3. 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.
	4. The benefits should seek to identify the locational benefits of different siting options within each service territory.
	5. Uncertainty can be addressed in BCA by applying sensitivities to those assumptions that are most uncertain and affect the results the most.
	6. The discount rate for calculating present value dollars should be identified. The GMAC recommends using a low-risk discount rate, as used for energy efficiency programs in Massachusetts.
6. The ESMPs should conduct a comprehensive rate impact analysis. The rate impact analysis should be able to be used to assess how the ESMPs will minimize or mitigate rate impacts.
	1. The rate impact analysis should account for incremental costs of infrastructure investments, reduced sales from DERs that reduce electricity load, and increased sales from DERs that increase electricity load.
	2. The rate impact analysis should follow the same structure as the BCA in terms of the definition of the reference case and alternative cases. .
	3. The rate impact analysis should follow the same structure of the BCA in terms of alternative cases and incremental investment projects.
	4. Decisions on which investments to make and when should be informed by the rate impact analysis.
7. The ESMPs should articulate how benefits will be experienced by LMI and EJC customers relative to other customers.
8. The ESMPs should present all reporting metrics in an appendix, including all the equity reporting metrics and all the other ESMP reporting metrics.

#  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.[[24]](#footnote-25) Over the course of four meetings during the GMAC’s ESMP review period, the EWG developed a 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 X.

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 twelve 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. Firstly, metrics for assessing environmental justice should go beyond mere efforts and reflect the impact of the work. Public-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 ESMP, potential metrics for future ESMPs, and alternative metric suggestions.

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 X and provide responses to each of the recommendations and proposed metrics.

# 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. However, the ESMP process is new, 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 efficiently develop the ESMP process 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.

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.

**Discussion points on process:**

* **Kathryn Wright, Barr Foundation:** I also wonder if we might suggest some process improvements now, in this document as opposed to submitting them to the DPU at a later date. 1) collaborative forecasting and model development 2) time to better understand alternative financing and alternative projects and 3) deeper public education and engagement based on the current grid state and forecasting results for each region. We also still don’t have final costs and benefits for the ESMPs and a future GMAC shouldn’t be in that position.
* **Sarah Cullinan, MassCEC:** Regarding section 4. “Process for the Next EMSPs,” the sentence “It is imperative that the DPU investigate and implement rules and procedures for future ESMPs to efficiently develop the ESMP process to best meet its intended purpose under law and to meet the Commonwealth’s clean energy policies and objectives.” – I propose discussing what the GMAC might recommend here more specifically. I think providing a starting point proposal would lead to the best outcome and be more expeditious for the DPU process.

# Appendix: Requirements of the Climate Act

The GMAC is not attempting to make a legal determination of compliance for the purpose of deciding whether the ESMPS should be approved, approved with modifications, or rejected. Instead, the GMAC has reviewed the extent to which the ESMPs provide the information required by the Climate Act in order to frame the expectations of the Climate Act and to assess how well the ESMPs align with the Climate Act.

This appendix provides an assessment of the extent to which the ESMPs address the objectives and provide the information required by the Climate Act. While the GMAC has attempted to make an objective assessment of compliance, the exercise of judgement was necessary in some situations. As an example, Section 92B(b) requires that the ESMPs “describe in detail” several discrete elements. Gauging compliance with this subsection of the Climate Act necessarily involves the application of discretion in determining what constitutes a sufficiently detailed description.

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 for each ESMP. The GMAC’s assessment of the information provided in each of the EDC’s ESMPs is indicated in separate columns.

The criteria enumerated in Section 92B(a) do not represent discrete informational requirements but rather objectives for the ESMPs in their entirety. However, these criteria are restated in Section 92B(b) as specific informational requirements, wherein the Climate Act directs that the ESMPs should “describe in detail” those investments necessary to achieve the objectives in Section 92B(a). As such, the GMAC has assessed compliance with the criteria in Section 92B(a) based upon whether the ESMPs have fulfilled the associated informational requirements in Section 92B(b).

Section 92B(a).vi, requiring the minimization or mitigation of ratepayer impacts, does not directly map to any of the requirements in Section 92B(b). However, the GMAC observes that the ESMPs do not include sufficient information to demonstrate that ratepayer impacts have been minimized or mitigated because ratepayer impacts are not quantified in any of the plans.

While Section 92C(b) concerns the responsibilities of the GMAC in reviewing the ESMPs, the criteria and considerations that are to inform this review create implicit informational requirements for the ESMPs. Specifically, the GMAC is tasked with encouraging investments or alternatives that least-cost, maximize net benefits, minimize or mitigate impacts on ratepayers, and reduce impacts on and provide benefits to low-income ratepayers. If the ESMPs do not include the necessary relevant information, then it is not possible for the GMAC to evaluate the ESMPs as directed.

The tables below do not include those subsections of Section 92B and 92C Climate Act that do not articulate a specific requirement for the EDCs. To this end, Sections 92C(a) and 92C(c) have been excluded. Section 92B(c)iii describes responsibilities for each EDC following submission of its ESMP; it has been included below but deemed “not applicable” (N/A) for purposes of assessing ESMP compliance with the Climate Act.

|  | **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(a) | ***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:*** |  |
| 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 |
| 92B(b) | ***An electric-sector modernization plan developed pursuant to subsection (a) shall describe in detail each of the following elements:*** |  |
| 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 |
| 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 |
| 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 |
|  |  |  |  |  |  |  |  |
| 2B(c) | ***In developing a plan pursuant to subsection (a), an electric company shall:*** |  |  |  |  |  |  |
| 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 |
| 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 |
| 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 |

1. Quoted from Section 52 of the Climate Act. [↑](#footnote-ref-2)
2. 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). [↑](#footnote-ref-3)
3. St. 2022, c. 179, § 53, codified at G.L. c. 164, §§ 92B-92C. [↑](#footnote-ref-4)
4. Unless otherwise specified, all references to the grid or the electric grid throughout this document refer to the distribution system. [↑](#footnote-ref-5)
5. Eversource, Electric Sector Modernization Plan, available at <https://www.mass.gov/doc/gmacesmp-drafteversource/download?_gl=1%2Ako8zfs%2A_ga%2ANzUwNDI5MDE3LjE2NTA5ODEyMjQ.%2A_ga_SW2TVH2WBY%2AMTY5MzkyMDE2OS4zNi4xLjE2OTM5MjM1NzQuMC4wLjA> (Sep. 2023). [↑](#footnote-ref-6)
6. National Grid, Future Grid Plan: Empowering Massachusetts by Building a Smarter, Stronger, Cleaner and More Equitable Energy Future, available at <https://www.mass.gov/doc/gmacesmp-draftnational> grid/download?\_gl=1%2Adfgptb%2A\_ga%2ANzUwNDI5MDE3LjE2NTA5ODEyMjQ.%2A\_ga\_SW2TVH2WBY%2AMTY5MzkyMDE OS4zNi4xLjE2OTM5MjM1OTcuMC4wLjA (Sep. 2023). [↑](#footnote-ref-7)
7. Unitil, Electric Sector Modernization Plan, available at <https://www.mass.gov/doc/gmacesmp-draftunitil/download?_gl=1%2A3rigaj%2A_ga%2ANzUwNDI5MDE3LjE2NTA5ODEyMjQ.%2A_ga_SW2TVH2WBY%2AMTY5MzkyMDE2OS4zNi4xLjE2OTM5MjM2MTQuMC4wLjA> (Sep. 2023). [↑](#footnote-ref-8)
8. G.L. c. 164, § 92B(a). [↑](#footnote-ref-9)
9. G.L. c. 164, § 92C(b). [↑](#footnote-ref-10)
10. 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. [↑](#footnote-ref-11)
11. <https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac#gmac-executive-committee-meeting-schedule-> [↑](#footnote-ref-12)
12. <https://www.mass.gov/doc/gmac-equity-working-group-charter/download?_gl=1%2A1f6n54i%2A_ga%2ANzUwNDI5MDE3LjE2NTA5ODEyMjQ.%2A_ga_SW2TVH2WBY%2AMTY5NTE2MjU4Mi42NC4xLjE2OTUxNjU5NjQuMC4wLjA>. [↑](#footnote-ref-13)
13. 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. [↑](#footnote-ref-14)
14. Massachusetts GMAC Equity Working Group Charter at 1, available at https://www.mass.gov/doc/gmac-equity-working-group-charter/download?\_gl=1%2A1f6n54i%2A\_ga%2ANzUwNDI5MDE3LjE2NTA5ODEyMjQ.%2A\_ga\_SW2TVH2WBY%2AMTY5NTE2MjU4Mi42NC4xLjE2OTUxNjU5NjQuMC4wLjA. [↑](#footnote-ref-15)
15. *See* CETWG, available at https://www.mass.gov/info-details/clean-energy-transmission-working-group-cetwg. [↑](#footnote-ref-16)
16. G.L. c. 164, 92C(b). [↑](#footnote-ref-17)
17. *See* DOER, GMAC, available at https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac. [↑](#footnote-ref-18)
18. For the purpose of this report, the term “newly proposed” refers to those EDC projects, investments, or costs that have not been proposed to the DPU in any docket or forum such as rate cases, grid mod dockets, CIP dockets, or others. [↑](#footnote-ref-19)
19. The term “business-as-usual” DERs is used in this report to refer to those DERs that are implemented or somehow supported by the EDCs under current policies and practices. It also includes those naturally occurring DERs that are adopted by electricity and gas customers without utility support. [↑](#footnote-ref-20)
20. DOER, GMAC, available at https://www.mass.gov/info-details/grid-modernization-advisory-council-gmac. [↑](#footnote-ref-21)
21. 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>. [↑](#footnote-ref-22)
22. Per D.P.U. 20-75-B, the Provision System Program was intended to address a defined set of group study projects while a long-term solution was developed. D.P.U. 20-75-B at 35. [↑](#footnote-ref-23)
23. G.L. c. 164, § 92B(b)(vii-ix), 92B(c)(ii), 92B(e) [↑](#footnote-ref-24)
24. Massachusetts GMAC Equity Working Group Charter at 1, available at https://www.mass.gov/doc/gmac-equity-working-group-charter/download?\_gl=1%2A1f6n54i%2A\_ga%2ANzUwNDI5MDE3LjE2NTA5ODEyMjQ.%2A\_ga\_SW2TVH2WBY%2AMTY5NTE2MjU4Mi42NC4xLjE2OTUxNjU5NjQuMC4wLjA. [↑](#footnote-ref-25)