STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE 22-E-0222 - Proceeding on Motion of the Commission Concerning Electric Utility Climate Vulnerability Studies and Plans.

ORDER REGARDING ELECTRIC UTILITY CLIMATE CHANGE RESILIENCE PLANS

Issued and Effective: December 19, 2024

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STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of Albany on December 19, 2024

COMMISSIONERS PRESENT:

Rory M. Christian, Chair
James S. Alesi
John B. Maggiore
Uchenna S. Bright
Denise M. Sheehan
Radina R. Valova

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BY THE COMMISSION:

INTRODUCTION

In the order initiating this proceeding, the Commission directed Central Hudson Gas & Electric Corporation (Central Hudson), Consolidated Edison Company of New York, Inc. (Con Edison), Niagara Mohawk Power Corporation d/b/a National Grid (National Grid), New York State Electric & Gas Corporation (NYSEG), Orange and Rockland Utilities, Inc. (O&R), and Rochester Gas and Electric Corporation (RG&E) (collectively, the Utilities) to each submit a Climate Change Vulnerability Study (Study or collectively, Studies) and associated Climate Change Resilience Plan (Plan) as required pursuant to Public Service

Law (PSL) §66(29)(a).[1] From September 22 to 25, 2023, each of the Utilities submitted Studies that evaluated its electric system's vulnerability to climate-driven risks. As required by PSL §66(29)(b), on November 21, 2023, each of the Utilities subsequently filed Plans to address the findings of the Studies.

In this Order, the Commission considers the content of each of the Plans and whether the Plans comply with the requirements of PSL §66(29), and comments filed in response to the Plans and, with respect to some of the Utilities, identifies shortcomings that need to be addressed in the current Plans and the next iterations of the Plans, which the Utilities must file at least every five years. More specifically, the Commission finds that:

> (1) the Plans filed by Con Edison, O&R, and National Grid generally satisfy the requirements of PSL §66(29), although we find that some of the projects identified in these utilities' Plans are improperly classified as pertaining to climate change driven resiliency and thus direct these utilities to modify their Plans related to the classification of some projects as resiliency projects to remove such projects and file revised Plans. Further, the cost, timing, and priority of all climate change resilience plan investments will be addressed in ongoing and future rate proceedings;
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> (2) the Plan filed by Central Hudson generally satisfies the requirements of PSL §66(29) and the cost, timing, and priority of all climate change resilience plan investments will be addressed in ongoing and future rate case proceedings; and
>
> (3) the Plans filed by NYSEG and RG&E fail to address all the requirements of PSL §66(29) and direct these utilities to file revised plans, within 90 days of the issuance of this Order in accordance with instructions discussed in the body of this Order.

[1] Case 22-E-0222, Order Initiating Proceeding (issued June 16, 2022) (Initiating Order).

BACKGROUND

Over the past twenty years, severe storm events have adversely impacted the State, including Super-Storm Sandy, the two March 2018 Nor'easters,[2] Tropical Storm Isaias,[3] Hurricane Ida, the December 2022 Winter Storm,[4] a microburst event in O&R's service territory,[5] and the more recent storms in July 2024.[6] In an effort to make electric utility systems more resilient to such storm events, the Legislature passed and Governor Hochul signed into law a statute that added a new subdivision 29 to PSL §66.[7]

As relevant here, PSL §66(29)(a) requires the Utilities to submit a Study within 18 months from the law's effective date of March 22, 2022. The Study must evaluate the utility's infrastructure, design specifications, and procedures "to better understand the electric system's vulnerability to

[2] Case 19-M-0285, In the Matter of Utility Preparation and Response to Power Outages During March 2018 Winter and Spring Storms, Report on 2018 Winter and Spring Storms Investigation (filed April 18, 2019).

[3] Case 20-E-0586, Commission Investigation into Utility Preparation for and Response to the August 2020 Tropical Storm Isaias, Isaias Storm Report (filed November 19, 2020).

[4] Matter 23-00209, In the Matter of Utility Preparation and Response to Power Outages During the December 23-28, 2022 Winter Storm, New York State Department of Public Service Investigation Report on Niagara Mohawk Corporation d/b/a National Grid's December 23rd 2022 Winter Storm Event and Restoration Performance (filed October 30, 2023).

[5] Matter 24-01173, In the Matter of Utility Preparation and Response to Power Outages During the May 23, 2024 Severe Thunderstorm Event.

[6] Matter 24-01655, In the Matter of Utility Preparation and Response to Power Outages During the July 16th, 2024 Severe Weather Event.

[7] Chapter 45 of the Laws of 2022.

climate-driven risks."[8] Additionally, PSL §66(29)(b) and (d) require each Utility to file – within 60 days after submission of the Study – a Plan that, among other things, is to include the following:

- "…proposed storm hardening and resiliency measures for the next 10 years and 20 years" focused on "mitigating the impacts of climate change to utility infrastructure, reducing restoration costs and outage times associated with extreme weather events, and enhancing reliability…" during extreme weather events;
- incorporation of "…the impacts of climate change" into the utility's "…planning, design, operations, and emergency response", as well as the utility's "existing processes and practices," and to "propose adjustments to … how the corporation plans and designs infrastructure" to withstand the impacts of climate change;
- the extent to which the Plan is expected to mitigate the impacts of climate change, reduce restoration costs and outage times…and enhance reliability… including whether the plan examines areas of lower reliability performance";
- "the extent to which storm protection and hardening of transmission and distribution infrastructure is feasible, reasonable, or practical in certain areas of the corporations service territory, including, but not limited to coastal areas, flood zones, and rural areas";
- "an estimate of the costs and benefits of the improvements proposed in the Plan", especially regarding "undergrounding electric transmission and distribution lines";
- an "implementation schedule for each of the storm hardening and resiliency measures", and "major performance benchmarks to measure the effectiveness of the implementation plan";
- "estimated rate impact[s] resulting from implementation of the plan"[9];
- a "multi-pronged strategy" tailored to address the impacts of climate change which includes, but is not limited to, "vegetation management, improvement to system practices, undergrounding …, replacement of obsolete cables, wires, and poles, automation and circuit reconfiguration,"

[8] PSL §66(29) applies to the electric side of "combined gas and electric corporations;" i.e., each of the Utilities.

[9] The Commission interprets this provision to mean the incremental revenue requirement related to the Plans on an overall delivery and total revenue basis.

infrastructure investments, deploying "distributed energy resources, and fortifying critical facilities"; and
- identification of opportunities for "third-party coordination," with municipalities, customer advocate groups, other utility and telecommunication service providers, and the climate change resilience working group.

PSL §66(29)(h) specifies that each Utility is to establish a climate resilience working group to advise and make recommendations regarding the development and implementation of the Utility's Plan. PSL §66(29)(e) requires the Commission to approve or modify the Plans. PSL §66(29)(k) provides that, after the second full year of Plan implementation and biennially thereafter, each Utility is to file a report with the Commission detailing its activities to comply with its Plan. PSL §66(29)(f) requires the Utilities to file an updated Plan for Commission consideration at least every five years.

With respect to cost recovery, the statute provides that the Commission may allow each utility to recover the prudent costs of implementing the Plan, as approved or modified by the Commission, in each utility's subsequent rate proceeding.[10] For capital projects placed into service and for additional unrecovered costs incurred prior to base rates being reset in a rate case, the costs are to be recovered through a climate resiliency cost recovery surcharge. Any unrecovered costs associated with the surcharge may be rolled into base rates when the utility's base rates are next reset by the Commission. When approving or modifying a utility's rate plan, the Commission is required to identify the resiliency and storm hardening component of the revenue requirement on a cost and/or percentage basis.[11]

[10] PSL §66(29)(g).

[11] Id.

In the Initiating Order, the Commission reviewed the directives of PSL §66(29) and solicited comments on elements to be considered in addition to those required by PSL §66(29). The Initiating Order also solicited stakeholder feedback on the Plans as a whole, and to help define the screening criteria to be considered while evaluating the Plans.[12] The intent of the screening criteria is to assist the Commission in prioritizing projects and programs to ensure the work is needed to mitigate a climate vulnerability and improve resilience.

NOTICE OF PROPOSED RULE MAKING AND PUBLIC COMMENTS

Pursuant to the State Administrative Procedure Act (SAPA) §202(1), Notice of Proposed Rulemaking (Notices) was published regarding the Commission's action on the Plans of each of the Utilities in the State Register on May 22, 2024 [SAPA Nos. 22-E-0222SP1, 22-E-0222SP2, 22-E-0222SP3, 22-E-0222SP4, 22-E-0222SP5, and 22-E-0222SP6]. The time for submission of comments pursuant to the Notices expired on July 21, 2024.

On June 17, 2024, the Secretary to the Commission (Secretary) issued a Notice Requesting Comments and Announcing Public Statement Hearings (Secretary's Notice) providing the locations, dates and times for in-person public statement hearings as well as providing additional time for written comments beyond the SAPA comment periods to August 30, 2024. Between July and August 2024, ten in-person public statement hearings were held at locations in each utility service

[12] Initiating Order, p. 9.

territory before Administrative Law Judges (ALJs) Anthony Belsito, Tara Kersey, and Dakin Lecakes.[13]

Of note, several commenters provided statements during the in-person public statement hearing for NYSEG.[14] Regarding NYSEG's Plan, commenters generally stated their opposition to the Plan for various reasons including, the proposed Plan's estimated costs, NYSEG's alleged lack of communication with customers and impacted municipalities, and alleged inadequacies of the proposed Plan on the grounds that it fails to meet the requirements of PSL §66(29). For example, some commenters state that NYSEG's Plan fails to address vegetation management, transmission undergrounding, microgrids, and battery storage, which they assert is required to be addressed under the statute. Several commenters also asserted that NYSEG's Plan inappropriately excluded consideration of future load growth due to a projected increase of electrification. Some commenters pointed out that NYSEG's Plan does not address the company's greenhouse gas emissions as a root cause of climate change, which they claim renders NYSEG's Plan futile. Most commenters

[13] Public Statement Hearings for: Con Edison were held on July 23 and 24, 2024; O&R on July 30, 2024; Central Hudson on July 31, 2024; National Grid on August 6, 7, and 20, 2024; RG&E on August 6, 2024; and NYSEG on August 13 and 14, 2024. Notably, statements were only made at the public statement hearing regarding Con Edison on July 24, 2024, and the public statement hearing regarding NYSEG on August 14, 2024. Statements were made by Senator Shelly B. Mayer and a member of the public at the hearing regarding Con Edison. The NYSEG public statement hearing is discussed, in depth, below. No statements were made at the any of the other hearings.

[14] Statements were received from, among others the New York State Safe Utility Meter Association, Climate Change Working Group participants, the Director of Sustainability for the City of Ithaca, the Energy and Climate Change Team at Cornell Cooperative Extension, and the Tompkins County Climate Change and Sustainable Energy Council.

stated that NYSEG's Plan would exacerbate electric rate impacts from associated with recently approved rate increases.

Nine written comments in total were submitted on the Utility's Plans, a summary of which is contained in Appendix A hereto and are otherwise addressed in the body of the Order. One commenter requested the Commission extend the comment deadline, which the Commission rejects on the grounds that PSL §66(29)(e) requires the Commission to take action relatively swiftly; i.e., within 11 months of the utility filing a Plan that contains all the elements required by PSL §66(29). Granting this request would have delayed issuance of this Order.

LEGAL AUTHORITY

PSL §66(29) provides the Commission with specific authority to, among other things, require and approve or modify the Utilities' Climate Resilience Plans. PSL §66(29)(a) requires each electric corporation subject to PSL §25-a to submit a climate change vulnerability study to the Commission, which the Commission shall provide to the Governor and Legislature. PSL §66(29)(b) requires each electric corporation subject to PSL §25-a to submit a climate change resilience plan to the Commission to review and approve of. PSL §66(29)(d) authorizes the Commission to consider: the Plan's ability to mitigate impacts of climate change, reduce restoration costs and outage times, and enhance reliability; the extent to which storm hardening is feasible, reasonable, or practicable; the costs and benefits to customers; an implementation schedule; performance benchmarks; the extent to which the Plan considers a multi-pronged strategy; the extent to which the Plan coordinates with municipalities; and the recommendations of the working group.[15]

[15] PSL §66(29)(d)(i)-(ix).

PSL §66(29)(e) further requires the Commission to determine whether it is in the public interest to approve or modify a Plan, after a public hearing on the Plan, which shall include a public forum at a physical location, attended by Commission members or their designees to take in written or oral comment.[16] The Commission otherwise has broad general authority under PSL §§5, 65, and 66 to establish standards and requirements for electric corporations, including those related to resiliency, as well as utility rates, charges, services and practices related to the same.

DISCUSSION

PSL §66(29) requires each of the Utilities to file both a "climate change vulnerability study" and a "climate resilience plan," only the latter of which is subject to Commission review, modification, and/or approval.[17] The purpose of each Study is to provide the Utility with an understanding of its "vulnerability to climate-driven risks" as the basis to prepare a Plan to address those risks.[18] As noted above, PSL §66(29)(d) establishes several criteria against which the Commission is to review and evaluate each of the Utilities' Plans, including the extent to which the "[P]lan is expected to mitigate the impacts of climate change, reduce restoration costs and outage times ..., and enhance reliability," "the estimated costs and benefits ... of making the improvements" proposed in the Plans, and the potential rate impacts resulting from implementation of the Plans. Based on the statutory language, we do not see our evaluation here as being much different from

[16] PSL §66(29)(e).

[17] See PSL §66(29)(b), (e).

[18] PSL §66(29)(a).

the Commission's traditional obligation under PSL §65(1) to ensure that the utilities are providing "safe and adequate" service at "just and reasonable" rates, except here the focus is on measures intended to address storm hardening.

In this respect, we note that the Utilities have long considered the resilience of their electric systems as part of the rate case process, given the importance of resiliency in providing safe and adequate service. For example, prior to enactment of the new PSL §66(29), Con Edison engaged in substantial efforts to undertake and implement a resiliency evaluation and review with input from stakeholders, including Department of Public Service staff (Staff), customers and representatives from the academic community.[19] We note that in the 2013 electric, gas, and steam rate plans for Con Edison, the Commission established a process to address the impacts of Superstorm Sandy and to ensure that the appropriate climate science was used to address current and future needs for resiliency and hardening through a collaborative process with stakeholders.[20] In 2015, the Commission reviewed and approved a "phase two" report with modifications that addressed the hardening and resiliency of Con Edison's energy delivery systems.[21] Similarly, the Commission has authorized resilience projects in recent rate plans, including: a selective undergrounding program for Con Edison; a substation flood

[19] Case 22-E-0222, Joint Utilities' Comments on Commission Inquiries Regarding Climate Vulnerability Studies and Plans (filed August 15, 2022), p. 4.

[20] Case 13-E-0030 et al., Con Edison – Electric Rates, Order Adopting Joint Proposal and Establishing Electric and Gas Rate Plans with Additional Requirements (issued July 20, 2023) (2013 Con Edison Rate Plan).

[21] Case 13-E-0030 et al., supra, Order Adopting Storm Hardening and Resiliency Collaborative Phase Two Report Subject to Modifications (issued February 5, 2015) (Phase Two Order).

mitigation program for National Grid; and resiliency and storm hardening projects for O&R, NYSEG, and RG&E.[22]

The Commission gleans from these efforts that storm hardening the State's electric system must remain a priority that would take place through an iterative process that will require many years to accomplish. Maintaining this iterative approach makes practical sense because climate science is continually evolving and as such the need to mitigate utility vulnerabilities will change over time. Indeed, PSL §66(29) presumes the focused and long-term nature of storm hardening by requiring each of the Utilities' Plans to "propose storm hardening and resiliency measures for the next ten years and twenty years," and the Commission to undertake a reanalysis of the Plans "[a]t least every five years ... or more frequently."[23] By pursuing the Plans required under the statute, the Utilities would be demonstrably better prepared to respond to and recover from future extreme weather events.

In this Order, we evaluate each of the Utilities' Plans against this basic background, and also address as a whole the Utilities' Third-Party Coordination, address the lack of analysis of the benefits and costs associated with the Plans, performance benchmarking, and present an analysis of whether our

[22] Case 22-E-0064 et al., Con Edison – Electric Rates, Order Adopting Joint Proposal and Establishing Electric and Gas Rate Plans with Additional Requirements (issued July 20, 2023) (2023 Con Edison Rate Plan); Case 20-E-0380 et al., National Grid - Electric Rates, Order Adopting Terms of Joint Proposal, Establishing Rate Plans and Reporting Requirements (issued January 20, 2022); Case 21-E-0074 et al., O&R – Electric Rates, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans with Additional Requirements (issued April 14, 2022); Case 22-E-0317 and 22-E-0319 et al., NYSEG and RG&E – Electric Rates, Order Adopting Joint Proposal (issued October 12, 2023).

[23] PSL §66(29)(b)(i) and (f).

approval of these plans would disproportionately burden Disadvantaged Communities. Of note, the Commission's evaluations of Plans filed by sister companies (Con Edison/Orange and Rockland and NYSEG/RG&E) are addressed together given their similar construct.

Overall, the Utilities' Plans proposed storm resiliency measures that will generally improve the resilience of their systems. However, the Utilities appear to have had difficulty in complying with some of the criteria specified under PSL §66(29) on the grounds the industry lacks standards and practices regarding the application of these criteria. The iterative process to be utilized moving forward and the requirement in the statute for the Utilities to periodically update their Plans will hopefully allow the standards to catch up to the criteria and thus result in the Utilities basing future plans on quantitative project benefit cost ratio analyses. The Commission's review of the Plans here presumes the lack of industry standards and practices regarding some of the statutory criteria and provides guidance regarding how future plans can address the criteria. Even considering this low bar for approval, as already noted and discussed further below, we nevertheless found the Plans submitted by NYSEG and RG&E to be wholly inadequate.

A. Con Edison and O&R

We find that the Plans filed by Con Edison and O&R generally satisfy the requirements of PSL §66(29). In their Plans, Con Edison and O&R propose many projects and programs to address the climate hazards identified by the companies in their Study. The proposed investments include undergrounding aerial cables, installing smart devices and submersible equipment, building facilities, developing technologies, and upgrading

communication systems. For each project, the companies estimated costs, developed an implementation schedule, considered alternative options, and estimated rate impacts resulting from implementation of the Plans during the first five years. However, as discussed below, we direct Con Edison and O&R to modify and refile their Plans to reclassify certain projects as non-resiliency projects. We also direct Con Edison and O&R to remove the proposed Climate Change Resiliency Center from their Plans.

(1) Reductions in Restoration Costs and Outage Times

The Con Edison and O&R Plans provide statistics on reduced outage frequency and duration for some of their proposed resilience measures. For example, for Con Edison's proposed Selective Undergrounding program, the company states that the conversion of 70 miles of overhead lines would possibly avert approximately 15,000 outages annually.[24] Our review of Con Edison's response to an information request (IR) on this subject found that the company relied on many baseless assumptions to arrive at this outage value.[25] Specifically, Con Edison states that outage avoidance for undergrounding ranged from over 1,300 to 3,800 customer outages per mile using a data set consisted of outage events occurring from January 2017 through August 2022, and that Con Edison used 1,450 customer outages per mile in the calculations of avoided outages. However, Con Edison neither provided an explanation to justify why it chose to use the 1,450 customer outages per mile, nor the reason for selecting a data set from this particular period. Con Edison did not conduct a circuit or project specific analysis.

[24] Con Edison Plan, p. 138.

[25] Con Edison response to DPS-40, question 8.

The Commission finds that Con Edison and O&R made a good faith attempt to examine the potential reductions in restoration costs and outage times associated with their proposed resilience projects. We nevertheless note the importance of using a quantitative approach to showing how proposed resilience measures would harden a utility's system as a whole and how the benefits of such measures outweigh the costs. While the Commission generally agrees that many of the resilience measures proposed by Con Edison and O&R could reduce both outage frequency and duration, a forward-looking evaluation on how the implementation of such programs or projects could provide these reductions is needed to ensure investments are appropriate.

The Commission also notes that it could not precisely analyze the extent to which the investments proposed by Con Edison and O&R would reduce restoration costs and outage times associated with extreme weather events because the Plans do not include a discussion or analysis that explicitly details how each proposed program or project would reduce storm restoration costs, outage duration, or outage frequency.[26] Specially, these Plans provide some projections of reduced outages and costs associated with undergrounding facilities, upgrading aerial cables and equipment, and accelerating the installation of distribution automation devices. However, for most of the proposed investments, the Plans generally state that the implementation of resilience measures would reduce storm restoration costs and outage times but do not provide specific quantitative data or examples illustrating these forecasted

[26] Neither Con Edison nor O&R provided adequate responses to information requests seeking more precise information. Staff provided IRs DPS-69 (Con Edison) and DPS-72 (O&R) to the companies to try to obtain details on the estimated costs and benefits of making the improvements identified in their Plans.

resilience improvements or cost efficiencies. It is our expectation that, in Con Edison's and O&R's subsequent Plans, explicit and detailed analyses quantifying forecasted reduced outage frequency and duration will be provided for each proposed project and program, and particularly in their individual rate cases where the costs, timing, and priority of these resiliency projects will be reviewed.

(2) Feasibility and Reasonableness of Storm Protection and Hardening

The Commission finds that the Plans filed by Con Edison and O&R generally contain adequate design standard changes to internal specifications and/or design guidelines that reflect future projections for temperature increase and sea level rise. In this respect, the companies' Plans generally state that their systems would be able to withstand the forecasted weather projections. Regarding operations and processes, Con Edison's and O&R's Plans include general changes, which include incorporating climate change projections into processes for emergency response, load forecasting, load relief and facility energy system planning, as well as accounting for worker safety protocols. However, the Plans did not include some important information that should be addressed in the future, including projections of potential system-wide changes necessary to address impacts of wind and ice accumulation on aerial cables and equipment, nor how processes will be changed to consider the climate change projections identified in the companies' Studies.

Accordingly, we expect that in future updates to their Plans, Con Edison and O&R will provide more defined and explicit processes, planning, and design changes with respect to climate change projections and the basis for such changes. Con Edison and O&R are directed to continue working with their climate resilience working groups to better define and revise procedures

and process strategies to reflect in their next Plans an all-compassing approach to utility-wide climate change adaptation.

(3) Implementation Schedule

The Commission finds that the Plans submitted by Con Edison and O&R appropriately contain implementation schedules for each resiliency measure on a five-year, 10-year, or 20-year timeframe, as applicable, and thus comply with PSL §66(29)(b). Each measure will address at least one of the climate hazards identified by the utilities in their respective Studies. Appendix B and Appendix G to this Order present summaries of Con Edison's Plan and O&R's Plans, respectively.

(4) Estimated Revenue Requirement Impacts

The Commission finds that O&R and Con Edison's Plans appropriately provide the first five years of impacts for the estimated implementation costs associated with each utility's Plan in compliance with PSL §66(29)(d)(vi). As filed, the incremental revenue requirement impact of O&R's Plan for its 2029 calendar year, compared to its base year, calendar year 2025 excluding the Plan's costs, is estimated to increase delivery revenues by 15.0 percent and total revenues by 8.9 percent. The incremental revenue requirement of Con Edison's Plan for its 2029 calendar year, compared to its base year, calendar year 2025 excluding its Plans cost, is estimated to increase delivery revenues by 0.8 percent and total revenues by 0.6 percent. Appendix H includes a summary of O&R and Con Edison's delivery and total revenue requirement impacts by year.[27] These impacts compare the incremental revenue requirement associated with the filed Plan to each companies' base year estimated revenue requirement. The cost, timing, and

[27] Summary based on O&R and Con Edison's responses to DPS-86 and DPS-85, respectively.

priority of the resiliency projects in the Plans will be reviewed by the Commission in rate cases for each company.

That stated, in Cases 22-E-0060 and 22-G-0061 Orange and Rockland's CCRP projects are addressed in a joint proposal filed on November 8, 2024, which proposes three-year electric and gas rate plans. The Commission has not yet taken action on the joint proposal. Therefore, it is premature to address the rate impacts for the first three years, as the Commission expects them to be addressed in the future rate order.[28]

The Commission nevertheless notes a concern regarding the estimated rate impacts for Con Edison; in particular, Con Edison's analysis and request for incremental program activities in 2025, its classification of certain resilience investments that we find inappropriate, and a general lack of detail as to how the proposed investments would reduce restoration costs and outage times associated with extreme weather events driven by climate change.

Con Edison requested a climate resiliency surcharge for incremental program activities that it claims will be completed and go into service before its rates are next reset.[29] This incremental request of approximately $93 million in 2025 is in addition to the resiliency work in the capital budgets already approved and authorized in its current electric rate plan.[30] Additionally, in its comments, Con Edison argues that the surcharge is required by statute by directing utilities to recover the costs of approved resilience projects through a surcharge after they are placed into service and until the Commission resets base rates.

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[28] Case 24-E-0060 and 24-G-0061, Orange and Rockland – Electric and Gas Rates.

[29] Con Edison Resilience Plan, pp. 8 and 33.

[30] 2023 Con Edison Rate Plan.

After reviewing Con Edison's Plan and additional information provided by Con Edison in response to Staff IRs, we find Con Edison's proposal for incremental program activities in 2025 to be unjustified and deny its request. Con Edison has been addressing climate change and resiliency needs of its energy delivery systems since Superstorm Sandy, which struck New York City on October 29, 2012. Since Hurricane Sandy, Con Edison has fortified its system with over $1 billion in capital spending to fund storm hardening.[31] The Commission has required Con Edison to incorporate climate change and resiliency measures in it planning for its energy delivery systems since 2014.[32]

Con Edison did not provide adequate justification as to why it requires additional funding in 2025 for programs that are included in the current rate plan. While Con Edison did identify assets that will be impacted by increases in temperature, sea level rise, combined wind and ice, and frequency or intensity of extreme events, it did not provide an analysis as to what immediate vulnerabilities prompted the need for incremental program activities in 2025. For many of the programs, Con Edison did not propose specific work activities, nor could it provide finalized lists of specific assets to be addressed in 2025, such as circuits and substations. In response to Staff IRs, Con Edison states that it determines workplans and in-scope projects annually and has not determined them for 2025 for the Selective Undergrounding, Primary Feeder Resiliency, Non-Network Resiliency, and Critical Facilities

[31] Con Edison Resilience Plan, p. 1.

[32] Case 13-E-0030 et al., supra, Order Adopting Electric, Gas and Steam Rate Plans in Accord with Joint Proposal (issued February 21, 2014), p. 33, Joint Proposal, p. 51, and Phase Two Order.

programs.[33] The 2023 Rate Plan includes capital funding for all four of these programs, with funding for 2025.

Additionally, many of the forecasted vulnerabilities would arise beyond 2030, so the Commission finds that Con Edison has not provided a basis for determining that there is an immediate need for these programs in 2025. Even for projects that may require long-lead times to obtain equipment, Con Edison would have ample time to begin addressing these vulnerabilities with funding provided at the conclusion of Con Edison's next electric rate proceeding. Therefore, Con Edison's request for incremental funding in 2025 and a surcharge for these resiliency projects is rejected; however, Con Edison may seek funding for these programs and projects in its next rate case if these additional program activities could be necessary in 2026 or beyond.

(5) Multi-Pronged Strategy

Con Edison's and O&R's Plans consider multi-pronged strategies that appropriately address the impacts of climate change and consider infrastructure reliability.[34] Con Edison and O&R framed their strategies using a "Prevent, Mitigate, and Respond" approach. Preventive strategies encompass proactive measures to reduce climate change risks and enhance reliability and resiliency of the system and reduce restoration costs. Mitigation includes strategies to reduce the impact of climate events when they do ultimately occur, and responsive strategies refer to improvements that can be made to reduce recovery times. One of the commenters – New York State Senator Shelley B. Mayer – suggests that the Commission add a fourth strategy to Con

[33] Con Edison responses to: DPS-40, question 7; DPS-15, question 6; DPS-39, question 5; and DPS-48, question 5.

[34] PSL §66(29)(d)(vii).

Edison's Plan to mitigate rate impacts on customers.[35] Creating a fourth strategy is unnecessary at this time because, as discussed above, we are not authorizing a surcharge and Con Edison's requests for funding of proposed resilience investments will be addressed in future rate cases.

In its Plan, Con Edison relies on data from the Federal Emergency Management Administration (FEMA) and utilizes a 50th percentile forecast for sea level rise projections. The City of New York (the City) argues in its comments that Con Edison should be required to revise its projections and recommends using 90th percentile forecasts.[36] The City also believes it is more sensible to use forecasts that are conservative, encompass potential future scenarios, and therefore, have higher confidence levels. In its reply comments, Con Edison states that its decision to use a 50th percentile forecast is based on guidance from Columbia University's review of sea level rise projections for the New York City Panel on Climate Change.[37] Con Edison also states that it plans to continue to consult with other agencies and internal engineering experts to determine if there should be any changes to the company's approaches to risk tolerance and resilience planning. As this is an iterative process, the Commission finds Con Edison's approach to be reasonable and sufficient at this time. This climate pathway was determined as part of Con Edison's Study and will be reassessed in the next five years.

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[35] Case 22-E-0222, Comments of Senator Shelley B. Mayer Submitted to the Public Service Commission Concerning 22-E-0222 (filed July 24, 2024).

[36] Case 22-E-0222, Comments of the City of New York on Con Edison's Climate Change Resilience Plan (filed July 22, 2024).

[37] Case 22-E-0222, Reply Comments of Consolidate Edison Company of New York, Inc. to Comments Received on its Climate Change Resilience Plan (filed August 30, 2024).

(6) Storm Hardening and Resiliency Measures

While most of the components of the companies' Plans are intended to mitigate the impacts of climate change, there are some proposed projects and programs that are not, in our view, in the nature of resiliency. These proposed items are not appropriately classified as climate change resilience investments, and instead fall under existing capital program categories. For Con Edison, the programs we find misclassified are those associated with Green Infrastructure and Rewilding, Living Shorelines and Nature-Based Solutions, Heat Mitigation for Worker Safety, Emergency Outage Communications Upgrades, Storm Response Technology Advancements, Micronet Weather Station Expansion, Substation Loss Contingency, and the Storm Resilience Center. For O&R, the misclassified projects are the Line 705 project, the Transmission Overhead Structure Replacement Program, the Micronet Weather Station Program, the Storm Material Management Program, and the Emergency Response and Control Facility Program.

The programs that are misclassified fall under one of three categories, the first of which is equipment or asset replacement focused programs that are not resiliency-based but instead have the objective of either purchasing or accelerating other business-as-usual asset replacement programs. This category of programs includes the proposed Substation Loss Contingency, Line 705, Transmission Overhead Structure Replacement, and Storm Material Management. The second category includes programs or projects focused on improving or upgrading existing facilities. Programs that generally fall within this category have as their objective providing training facilities for mutual assistance crews and increasing data collection capabilities. The programs in this category are Green Infrastructure and Rewilding, Living Shorelines and Nature-Based

Solutions, Emergency Response and Control Facility, and the Storm Resilience Center. We find them misclassified as resiliency programs because they do not address a specific change to the companies' design standards or operating processes to mitigate identified climate hazards.

The third category includes programs related to Heat Mitigation for Worker Safety, Storm Response Technology Advancements, Micronet Weather Station Expansion, and Emergency Outage Communications Upgrades. Because these programs are not directly related to either mitigating an identified climate variable or hazard or reducing outage frequencies or durations due to the impacts of more frequent, extreme weather events, we do not view them as having a resiliency purpose. Furthermore, Con Edison and O&R did not adequately support these proposed programs through either a showing of forecasted benefits of implementation, detailed project schedules, or by a comparison of programs to other potentially more economical alternatives. To be clear, Con Edison and O&R may seek funding for these programs in their individual rate case proceedings but they have not supported them as resiliency-based here.

In so finding, the Commission rejects several of the assertions made by Con Edison and O&R specified in their Plans. For example, Con Edison and O&R seek approval as a resiliency project for a Storm Resilience Center (Center), the overall cost of which is estimated to be $177 million, with Con Edison incurring approximately 93 percent of the costs and O&R incurring the remaining seven percent. The companies are planning an in-service date of 2030 for Center. According to the companies, the proposed Center is a storm response facility that would be used by both utilities and would serve as a centralized staging areas for crews, including mutual aid, during recovery from extreme weather events. The Center would

house up to 500 mutual aid crew members and would eventually become the year-round home for more than 250 bucket trucks that the companies maintain for fly-in mutual aid crews.

In its comments on Con Edison's Plan, however, the City states that, the Center would need to provide services to both of the utilities' services areas, which encompass Orange County, Rockland County, Westchester County, and New York City.[38] The City notes that, based on the Plans submitted by Con Edison and O&R, it is very unlikely that the Center would be located within Con Edison's service territory, which in the City's view risks Con Edison obtaining its goal of providing efficient and timely responses to New York City. Specifically, the City argues that it would be risky and inefficient for the Center to act as a staging area for a storm event resulting in outages across New York City.

As an alternative, the City recommends that Con Edison construct several smaller storm resilience centers sited at critical locations throughout the utility's service territory, asserting that such an approach would allow for quicker response times, less risk of crews not being able to reach areas where they are needed, and local opportunities for training exercises with municipal partners. The City also argues that such centers dispersed throughout Con Edison's New York City service territory would present less of a risk than a single hub, given that a significant weather event could render the proposed Center unable to operate. Senator Mayer expresses similar

[38] Case 22-E-0222, Comments of the City of New York on Con Edison's Climate Change Resilience Plan (filed July 22, 2024).

sentiments regarding a single staging area and recommends the use of several localized response centers.[39]

Con Edison argued in its reply to the City's comments that the Center is only one part of its multi-pronged and systematic approach for storm response and recovery. For example, Con Edison claims that local resources are usually exhausted and additional resources needed, which the Center would help to address. In addition, according to Con Edison, storm damage may result in its traditional staging areas being unavailable, and the Center could reduce unforeseen challenges, house crews, allow for pre-staging and training, and provide central maintenance for the fleet and space for storing equipment.

Based on our review of the proposed Center, and in consideration of the comments summarized above, we reject Con Edison's proposal to include the Center as a resiliency project here because, in our view, it neither relates to hardening the companies' electric systems to mitigate a specific climate vulnerability, nor would it increase system reliability. Although Con Edison and O&R claim that the Center would reduce outage restoration costs and outage times, this statement appears to be based on a high-level analysis of a single restoration event for a storm located in Westchester County.[40]

Given the substantial capital investment needed for the Center, the lack of support from stakeholders, and the questionable benefits that this project would provide to both utilities' customers, the Commission hereby modifies the Plans submitted by Con Edison and O&R to remove the Center. This is

[39] Case 22-E-0222, Comments of Senator Shelley B. Mayer Submitted to the Public Service Commission Concerning 22-E-0222 (filed July 24, 2024).

[40] Con Edison and O&R responses to DPS-19, question 5.

without prejudice to provide a more substantial basis in a future filing. Additionally, Con Edison and O&R are directed to remove the projects and programs discussed above that were not appropriately classified as resilience investments. The companies shall file amended Plans within 60 days of issuance of this Order.

B. Central Hudson

We find that Central Hudson's Plan also generally satisfies the requirements and criteria specified under PSL §66(29). However, as discussed below, we direct Central Hudson to include, in its next Plan, implementation- and outcome-based performance benchmarks for all proposed resilience measures; incorporate adaptations to climate change into internal processes, procedures, and design guidelines or standards; and provide more defined and explicit processes, planning, and design changes with respect to climate change projections.

(1) Reduction in Restoration Costs and Outage Times

The Commission finds that Central Hudson made a good-faith attempt at considering how each proposed project and program would reduce restoration costs and outage times. For example, Central Hudson's Study considers the flood risk to substations and uses the 100-year floodplain as established by the Final Flood Insurance Maps published by the FEMA, plus at least three feet of protective construction in anticipation of future flooding risk (FEMA +3). This is in accordance with our prior determination, where we found that FEMA's flood plain maps are appropriate to use in assessing and addressing flood risk plus at least an additional three feet of protection along the

horizontal plane.[41] The Commission expects Central Hudson to continue to stay apprised of changes to FEMA floodplain maps as they are updated and to consider modifying its Plan accordingly. Additionally, Central Hudson's Plan is laudable as it considers as part of its resilience framework evaluation the number of customers in project areas, outage duration and frequency impacts, and reduction of operation and maintenance costs.

Nevertheless, Central Hudson needs to refine this aspect of the analysis in its next Plan. While Central Hudson's Plan generally states that the implementation of resilience measures would reduce storm restoration costs and outage times, it does not provide specific data or examples illustrating these forecasted resilience improvements or cost efficiencies and the Commission otherwise could not analyze the extent to which the investments proposed by Central Hudson would reduce restoration costs and outage times associated with extreme weather events. Simply stated, Central Hudson needs to do a better job of analyzing and explaining explicitly how each proposed program or project would reduce storm restoration costs, outage duration, or outage frequency.[42]

It is important that resilience measures harden a utility's system as a whole and the benefits outweigh the costs. While the Commission generally agrees that many of the resilience measures proposed by Central Hudson could reduce both outage frequency and duration, a forward-looking evaluation on how the implementation of such programs or projects would provide these reductions is needed to ensure investments are

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[41] Phase Two Order, p. 22. In some instances, for example, Con Edison uses FEMA +5, due to the flooding risk where the asset it seeks to protect is situated.

[42] In DPS-68, Staff asked Central Hudson for additional details on the estimated costs and benefits to Central Hudson and its customers for making the improvements identified in the Plans.

appropriate. It is our expectation that, in Central's subsequent Plan, more explicit and detailed analyses quantifying forecasted reduced outage frequency and duration would be provided for applicable projects and programs and particularly in the utility's rate cases where the costs, timing, and priority of these resiliency projects will be reviewed.

The Ulster County Executive states in her comments that Central Hudson's Plan contains limited innovative solutions and fails to identify and prioritize critical infrastructure in the Utility's proposed investments. The Ulster County Executive believes Central Hudson should use the American Society of Civil Engineers guidance for critical infrastructure as it relates to flood design cases and suggests the consideration of residential energy storage programs to protect residents from power outages.[43] We encourage Central Hudson to address critical infrastructure and flood design issues during climate change working group meetings and include Ulster County in these discussions. Similarly, regarding the Ulster County Executive's comments on Central Hudson's plans for undergrounding and other capital projects, the Commission encourages Central Hudson to improve its communication and outreach with Ulster County going forward.

(2) Feasibility and Reasonableness of Storm Protection and Hardening

The Commission finds that Central Hudson partially incorporates potential climate change impacts into its design guidelines, standards, and operations in accordance with PSL §66(29)(b)(ii). First, Central Hudson's Plan includes design guideline changes to reflect future projections for inland flooding. These changes range from including floodplain

[43] Case 22-E-0222, Comments of the Ulster County Executive (filed August 28, 2024).

considerations in capital budget project submittal forms to updating transmission design guidelines for transmission structure replacements in flood zones.[44] Second, Central Hudson proposes a transmission line project to mitigate against extreme heat but it does not identify a specific design change to reflect the forecasted temperature increase identified in its Study. Further, Central Hudson's Study identifies uncertainty regarding climate induced changes to wind and icing and does not quantify a significant change in wind or ice projections to warrant any design standard changes in the Plan.[45]

Third, Central Hudson proposes process-focused resiliency measures, which include installing wraps for new poles within floodplains and inspecting vulnerable substations following significant rain events. However, Central Hudson neither explicitly states how it has changed processes such as load forecasting and energy planning, nor how it would incorporate climate projections into these processes. Further, Central Hudson's Plan does not address the integration of climate change impacts into its emergency response processes.

To best prepare its electric system for forecasted climate impacts, in the next iteration of its Plan, Central Hudson must take a more comprehensive approach in evaluating the effects of climate change. It is not enough to only propose projects and programs to strengthen its respective systems; Central Hudson must incorporate adaptations to climate change into its internal processes, procedures, and design guidelines. We expect that in future updates to its Plan, Central Hudson will provide more defined and explicit processes, planning, and

[44] Case 22-E-0222, Central Hudson Climate Change Resilience Plan (filed November 21, 2023), p. 26.

[45] Case 22-E-0222, Central Hudson Climate Change Vulnerability Study (filed September 25, 2023), p. 10.

design changes with respect to climate change projections and the basis for such changes. Central Hudson is directed to continue working with its climate resilience working group to better define and revise procedures and process strategies to reflect in the next Plan an all-compassing approach to utility-wide climate change adaptation.

The only comments received on this topic were from the Ulster County Executive, who asserted that Central Hudson's Plan does not take into consideration local and municipal storm protection initiatives.[46] Similarly, the Ulster County Executive believes Central Hudson should work with local governments to establish resilience hubs, which are described as community-based centers that support residents and coordinate resource distribution and service during emergency events.[47]

We agree that Central Hudson's Plan lacks sufficient consideration of local and municipal storm protection initiatives, however, coordination of resource distribution and service during emergency events is more appropriately considered in Central Hudson's Emergency Response Plan (ERP). In this respect, Central Hudson's ERP documents the essential processes and procedures needed to prepare for and respond to a wide array of outage events, and it is submitted to the Commission by December 15 of each year for annual review and approval by the Commission.

(3) Implementation Schedule

Central Hudson's Plan complies with PSL §66(29)(b) by including implementation schedules for each resiliency measure on a five-year, 10-year, or 20-year timeframe, as applicable, with each measure addressing at least one of the climate hazards

[46] Case 22-E-0222, Comments of the Ulster County Executive (filed August 28, 2024).

[47] Id.

identified by the utility in its Study. A summary of Central Hudson's Plan is provided in Appendix E.

(4) Estimated Revenue Requirement Impacts

Central Hudson's Plan generally satisfies the requirements of PSL §66(29)(d)(vi) by including the estimated annual rate impact for the first five years after the Plan goes into effect. Specifically, Central Hudson's Plan provides the first five years of impacts for the estimated implementation costs associated with the utility's Plan. As filed, the incremental revenue requirement impact of Central Hudson's Plan for its 2030 calendar year, compared to its base year, calendar year 2026 excluding the Plans cost, is estimated to increase delivery revenues by 0.7 percent and total revenues by 0.3 percent. A summary of Central Hudson's delivery and total revenue requirement impacts by year are included in Appendix H.[48] These impacts compare the incremental revenue requirement associated with the filed Plan to Central Hudson's base year estimated revenue requirement. The cost, timing, and priority of the resiliency projects in the company's Plan will be reviewed by the Commission in rate cases for the company.

(5) Multi-Pronged Strategy

Central Hudson's Plan adopts a resilience framework focused on four objectives. The first objective is to explore measures to provide physical strength to assets to withstand extreme weather events. The next objective focuses on resilience measures to absorb and reduce impacts to the electric system should an asset fail, regardless of physical strengthening. The third objective focuses on activities and procedures designed to respond, recover, and restore service as quickly as possible following climate events. The final

[48] Summary based on Central Hudson's response to DPS-87.

objective addresses the continuously changing climate hazard landscape and the need for improvement in resilience by adapting the system as needed to address the particularities of the utility's service territory and system vulnerabilities. The Commission finds that these objectives appropriately address the impacts of climate change and consider infrastructure reliability.[49]

(6) Storm Hardening and Resiliency Measures

Central Hudson's Plan proposes asset-focused and process-focused investments based on the company's resilience framework, and these investments are intended to mitigate the impact of climate change. Rebuilding distribution circuits, tree trimming, undergrounding facilities, installing protective barriers for poles in floodplains, and raising substation equipment are examples of proposed investments. For Central Hudson, we did not find investments that are not in the nature of resiliency or items that are not appropriately classified as climate change resilience investments. As previously stated, the cost, timing, and priority of these investments will be reviewed by the Commission in rate cases for the company.

C. National Grid

We find that the Plan filed by National Grid generally satisfies the requirements of PSL §66(29). However, as discussed below, we direct National Grid to modify its Plan to reclassify the Spare Transmission Line Structures Program as a non-resiliency investment and remove it from the Plan. We also direct National Grid to include, in its next Plan, implementation- and outcome-based performance benchmarks for all proposed resilience measures; incorporate adaptations to climate change into internal processes, procedures, and design

[49] Case 22-E-0222, Central Hudson Plan, pp. 11-13.

guidelines or standards; and provide more defined and explicit processes, planning, and design changes with respect to climate change projections.

(1) Reductions in Restoration Cost and Outage Time

The Commission finds that National Grid made a good-faith attempt at examining whether its proposed projects and programs would reduce restoration costs and outage times. For example, the Plan generally states that the implementation of resilience measures will reduce storm restoration costs and outage times. Specifically, National Grid's Plan states that its "Anticipate and Absorb" resilience measures will "reduce impacts to electric service should an asset fail," and "limit the level or propagation of the service disruption that may occur."[50] However, the project information included in the Plan is not accompanied by an analysis to support National Grid's assumptions and statements.[51]

As already noted, it is important that resilience measures harden a utility's system as a whole and the benefits outweigh the costs. While the Commission generally agrees that many of the resilience measures proposed by National Grid could reduce both outage frequency and duration, a forward-looking evaluation on how the implementation of such programs or projects would provide these reductions is needed to ensure investments are appropriate. Accordingly, it is our expectation that, in National Grid's subsequent Plans, explicit and detailed analyses quantifying forecasted reduced outage frequency and duration will be provided for each proposed project and program, and particularly in the utility's rate cases where the costs,

[50] Case 22-E-0222, National Grid Climate Change Resilience Plan (filed September 25, 2023), p. 20.

[51] Id., pp. 53-71.

timing, and priority of these resiliency projects will be reviewed.

(2) Feasibility and Reasonableness of Storm Protection and Hardening

The Commission finds that National Grid partially incorporates climate change into its design guidelines and standards. Specifically, National Grid's Plan incorporates climate change into forecasted temperature and wind increases. To account for forecasted temperature increases, National Grid updates temperature design considerations for substation transformers from 32 degrees Celsius (°C) to 35°C. For forecasted wind increases, National Grid proposes to update design standards for transmission structures from 95 miles per hour (mph) to 120 mph wind gusts. Additionally, National Grid states in its Plan that it will incorporate climate projections into its Distribution and Transmission Planning and Design software to apply wind gust and ice loading projections at local infrastructure levels.[52] However, National Grid's Plan does not explicitly state how design guidelines or standards have been or not been changed for flooding elevation design standards.

In its Study, National Grid identifies many operating functions that could be impacted by climate change, including emergency response, reliability planning, capacity planning, and load forecasting.[53] However, National Grid's Plan only includes general changes to internal processes and operations. For example, National Grid broadly discusses its current emergency processes and that climate conditions will be incorporated in emergency response drills. The Plan does not explicitly discuss

[52] Case 22-E-0222, National Grid Climate Change Resilience Plan (filed September 25, 2023), p. 22.

[53] Case 22-E-0222, National Grid Climate Change Vulnerability Study (filed September 25, 2023), p. 9.

how all operating functions identified in the Study have been changed, nor how climate change projections will be incorporated in these operating functions.

National Grid must take a comprehensive approach in evaluating the effects of climate change. We expect that in future updates to its Plan, National Grid will provide more defined and explicit processes, planning, and design changes with respect to climate change projections and the basis for such changes. National Grid is directed to continue working with its climate resilience working group to better define and revise procedures and process strategies to reflect in the next Plan an all-compassing approach to utility-wide climate change adaptation.

(3) Implementation Schedule

National Grid's Plan complies with PSL §66(29)(b) by including implementation schedules for each resiliency measure on a five-year, 10-year, or 20-year timeframe, as applicable, and addresses at least one of the climate hazards identified by the utility in its Study. A summary of National Grid's Plan is provided in Appendix C.

(4) Estimated Revenue Requirement Impacts

The Commission finds that National Grid's Plan complies with PSL §66(29)(d)(vi) by including an estimated annual impact for the first five years after its Plan goes into effect. As filed, the incremental revenue requirement impact of National Grid's Plan for its 2030 fiscal year,[54] compared to its base year, fiscal year 2026 excluding the Plans cost, is estimated to increase delivery revenues by 0.8 percent and total revenues by 0.7 percent. A summary of National Grid's delivery and total revenue requirement impacts by year are included in

[54] National Grid's fiscal year ends March 31.

Appendix H.[55] These impacts compare the incremental revenue requirement associated with the filed Plan to National Grid's base year estimated revenue requirement. The cost, timing, and priority of the resiliency projects in the company's Plan will be reviewed by the Commission in rate cases for the company.

(5) Multi-Pronged Strategy

National Grid adopts a resilience framework focused on four objectives: withstand, absorb, recover, and adapt. The "withstand" objective includes exploring measures that provide physical strength to assets to withstand structural loads that may occur during extreme weather events. The "absorb" objective considers measures that reduce impacts to electrical service should an asset fail. The "recover" objective explores procedures designed to restore the service to normal levels in the after math of a climate hazard event. The "adapt" objective addresses the changing climate hazard landscape and the need for improvement in resilience. The Commission finds that these objectives appropriately address the impacts of climate change and consider infrastructure reliability.[56]

(6) Storm Hardening and Resiliency Measures

National Grid's Plan proposes programs based on the company's resilience framework. These programs include upgrading facilities, undergrounding of cables, installing flood protection walls at substations, purchasing spare equipment, and upgrading transformer specifications.

While the Commission finds that most of the components of National Grid's Plan are intended to mitigate the impacts of climate change and thus are approvable, it finds that its proposed Spare Transmission Line Structures Program is

[55] Summary based on National Grid's response to DPS-88.

[56] Case 22-E-0222, National Grid Climate Change Resilience Plan (filed September 25, 2023), p. 12.

misclassified as a resiliency program. In our view, the primary objective of this program is to purchase equipment, which is a business-as-usual asset replacement activity. Therefore, this program is not appropriately classified as a climate change resilience investment and must be removed from National Grid's Plan.

D. NYSEG and RG&E

We find that the Plans filed by NYSEG and RG&E fail to address the minimum requirements of PSL §66(29), and direct the companies to file revised plans, within 90 days of the issuance of this Order in accordance with the discussion below.

(1) Reductions in Restoration Costs and Outage Times

The Commission could not analyze the extent to which the investments proposed by NYSEG and RG&E would reduce restoration costs and outage times associated with extreme weather events because the Plans did not include a sufficient discussion or analysis detailing how each proposed program or project would reduce storm restorations costs, outage frequency, or outage duration. The Plans generally state that the implementation of resilience measures would reduce storm restoration costs and outages times, but do not provide specific data or examples illustrating these improvements or efficiencies.

Commenters raised similar concerns. For example, Tompkins County Climate and Sustainable Energy Advisory Board (CaSE) commented that the Plans filed by NYSEG and RG&E lack a discussion of any strategies for load shedding, load reduction, battery storage, microgrids, virtual power-plants, circuit configurations and other local solutions that can help prevent outages. CaSE notes that the absence of these strategies is particularly surprising given a NYSERDA funded study in the

Ithaca area – located within NYSEG's service area. CaSe also asserts that NYSEG's Plan fails to give serious consideration to undergrounding wires and further states that although the Plan makes general mention of undergrounding wires, a complete benefit cost analysis was not provided by NYSEG for areas where such investment might be considered.

We concur with CaSE that strategies for circuit configurations and other local solutions must be explicitly discussed, where appropriate, in NYSEG's revised Plan. While we agree with the sentiment that strategies for load shedding, load reduction, battery storage, and virtual power-plants can improve electric reliability and provide resilience benefits, the Commission believes that these strategies are more appropriately considered in overall load forecasting and distribution system planning. We do not agree that these strategies should be included in NYSEG's Plan as they are considered and addressed by the Commission in rate cases and proceedings for its electric business.

In a written comment, a member of the public raised concerns that NYSEG's Plan did not explicitly plan for worker safety during extreme heat events. Several commenters at the NYSEG August 18 public statement hearing asserted that NYSEG's vegetation management is insufficient to protect against occurrences that may cause outages. These commenters also criticized NYSEG's six-year vegetation management cycle, asserting that it has been insufficient for some time. We do not agree with the comments related to NYSEG's routine vegetation management program, as NYSEG now has a robust distribution vegetation management program with a budget of approximately $68 million in rate year two of its current rate

plan.[57] This level of funding provides the utility with the means to address circuits that are out of cycle, keep trimmed areas in cycle and mitigate risks from trees outside of the right of way with its hazard tree program. At this time, NYSEG should prioritize its current distribution vegetation management program before seeking additional funding through a climate change resilience plan. Regarding worker safety, we encourage the Utilities to be more transparent with stakeholders on measures taken to protect workers during extreme heat events.

In sum, the Commission finds that the Plans submitted by NYSEG and RG&E fail to adequately show how the resiliency projects and programs proposed in the Plans are tied to reductions in restoration costs and outage times. The Commission thus directs NYSEG and RG&E to consider and address this finding in their revised Plans, and include more explicit and detailed analyses quantifying forecasted reductions in outage frequency and duration associated with their proposed resiliency programs and projects, and to otherwise address the issues identified in this section.

(2) Feasibility and Reasonableness of Storm Protection and Hardening

The Study filed by NYSEG and RG&E evaluated potential climate risks associated with many of the companies' operations and processes, including emergency response, asset management, reliability planning, and load forecasting. However, the Plans filed by NYSEG and RG&E include overly broad or limited proposed changes to processes and operations to address these risks. While the Plans include proposed process changes that would integrate some of the findings of the companies' Study into

[57] Case 22-E-0317 and 22-E-0319, NYSEG and RG&E – Electric Rates, Order Adopting Joint Proposal (issued October 12, 2023), p. 107.

their modeling and forecasting software, the Plans did not include detailed changes to all of the processes identified in the Study. Specifically, detailed changes to emergency response processes or procedures are not discussed in the Plans.

To account for forecasted temperature increases, NYSEG and RG&E propose to update substation transformer design specifications from 30°C to 35°C, which would allow newly installed transformers to withstand higher ambient temperatures. For wind and icing conditions, both companies generally state that their systems would be able to withstand the forecasted projections and, for this reason, neither of the companies' Plans quantify or propose any design standard changes. Considering the uncertainties with wind and icing condition projections, NYSEG and RG&E are directed to continue working with their climate resilience working groups to better define and revise procedures and process strategies to reflect in their next Plans an all-compassing approach to utility-wide climate change adaptation. In future iterations of the Plans, we expect more defined and explicit processes, planning, and design changes with respect to climate change projections and the basis for such changes.

Regarding NYSEG's Plan, CaSE asserts that NYSEG's proposed change to its transformer ambient temperature loading specification failed to account climate-related studies showing periods covering nighttime are warming at a quicker rate compared to daytime periods.[58] CaSE also asserts that there are inconsistencies between the predicted temperatures and temperature tolerances discussed by NYSEG for its equipment. CaSE otherwise claims that NYSEG did not provide any analysis concerning the coincident effects of high loading and increased

[58] Case 22-E-0222, Comments of the Tompkins County Climate and Sustainable Energy Advisory Board (filed August 30, 2024).

ambient temperatures, although it acknowledges that NYSEG's Plan mentions adapting to such scenarios.

The Commission agrees with CaSE that NYSEG's Plan failed to appropriately analyze the effects on its existing equipment during periods of high electric load and increased ambient temperatures. Accordingly, NYSEG is directed to address these issues and comments when it files its revised plan and to continue to work with its climate resilience working group on these issues in the future.

(3) Implementation Schedule

The Plans submitted by NYSEG and RG&E generally do not provide implementation schedules for their proposed projects, as required by PSL §66(29)(iv). Specifically, the companies' proposed project to update transformer temperature specifications identifies incremental capital cost increases for the first five years of the Plans; however, the companies' Plans provided little if any information regarding when they intend to implement virtually any other proposed measures. For example, the companies' Plans propose to implement ongoing flood mitigation projects and provide associated conceptual cost estimates for forecasted projects but lack any indication regarding whether a forecasted project would be performed in the 10-year, 15-year or 20-year timeframe. As for their proposed programs to update transmission lines, the companies' Plans fail to specify forecasted investments.

CaSE raised similar concerns in its comments. For example, NYSEG's Plan only provided forecasted investments for 2027 through 2029 and investments for 2025 and 2026 are already included in their current rate plans.[59] CaSE asserts that NYSEG's Plan lacks information regarding the costs and timeline

[59] NYSEG Plan, pp. 27-47; RG&E Plan, pp. 27-43.

for implementation of the resiliency measures.[60] In responses to Staff IRs, NYSEG and RG&E provided additional cost information for their Distribution Resiliency Projects but this information lacked a detailed forward-looking projection of the other potential investments.[61]

Given the lack of specificity with NYSEG's and RG&E's future resiliency investment plans, the companies are directed to include in their revised plans forward looking projections and cost implementation timelines for each potential or proposed resiliency measure for the next five-year, 10-year, and 20-year periods.[62]

(4) Estimated Revenue Requirement Impacts

NYSEG and RG&E's Plans do not provide the first five years of impacts or the estimated implementation costs associated with their Plans as required by PSL §66(29)(d)(vi). NYSEG and RG&E simply state in their Plans that the rate impacts of their proposed projects are immaterial over the five-year period. The Commission finds this to be implausible based on the resiliency projects and programs proposed in the companies' Plans. Indeed, the lack of rate impact analysis may be due, in part, to lack of cost and timeline information noted in a prior section. Accordingly, NYSEG and RG&E are directed to provide in their revised Plans appropriate estimates of the rate impacts for the first five-years and in a format similar to that provided by the other utilities in their Plans.

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[60] Case 22-E-0222, Comments of the Tompkins County Climate and Sustainable Energy Advisory Board (filed August 30, 2024).

[61] NYSEG response to DPS-34, questions 1-5; RG&E response to DPS-36, questions 1-5.

[62] For consistency with filed Plans, information for five-year, 10-year, and 20-year timeframes is to be from 2025 to 2029, 2030 to 2034, and 2035 to 2044.

(5) Multi-Pronged Strategy

NYSEG and RG&E's Plans propose to adopt a framework focused on achieving four objectives. The first objective is to explore measures to provide physical strength to assets to withstand extreme weather events. The second objective focuses on resilience measures to absorb and reduce impacts to the electric system should an asset fail, regardless of physical strengthening. The third objective focuses on activities and procedures designed to respond, recover, and restore service as quickly as possible following climate events. The fourth objective addresses the continuously changing climate hazard landscape and the need for improvement in resilience by adapting the system as needed to address the particularities of each company's service territory and system vulnerabilities. While these objectives are similar to those proposed by other utilities, we can not analyze whether NYSEG's and RG&E's future resiliency investments would achieve these objectives because of the lack of specificity regarding project cost and timeline information in their Plans.

(6) Storm Hardening and Resiliency Measures

As discussed in their Plans, the companies have ongoing programs and projects for their current business-as-usual activities that address many of the vulnerabilities identified in their Study. These programs and projects involve upgrading transmission lines, improving distribution circuits, and protecting substations from flooding impacts. Additionally, the companies' Plans include, as noted above, measures to address the companies' updated substation transformer temperature specifications. We generally agree that that these measures could provide resiliency benefits, but we will assess the adequacy of resilience investments when the companies file their revised Plans.

E. Third Party Coordination

The Commission finds that, through engagement with the other electric utilities in New York State and the formation of their climate resilience working groups, all of the Utilities subject to this case generally satisfied the requirement in PSL §66(29)(h) to engage with third parties. The law required the Utilities to meet with their working group at least twice annually, which was satisfied by all of the Utilities.[63]

Only one set of comments focused on the requirement of third-party coordination. Specifically, at the NYSEG public statement hearing, several commenters asserted that NYSEG's coordination and cooperation with its working group and municipalities was deficient. We disagree. NYSEG held five working group meetings and has a section on its website specifically dedicated to its Plan, which we find satisfied the third-party coordination requirement specified under PSL §66(29)(h)(viii) and (ix).[64]

Although the Utilities generally provided for adequate third-party engagement, we note that none of their Plans address coordination opportunities with telecommunication service providers, as required by PSL §66(29)(d)(viii). We expect the Utilities moving forward to include telecommunication service providers in their climate resilience working groups. In the next iteration of their Plans, all the Utilities must define their engagement strategies for proposed resilience measures

[63] NYSEG and RG&E held five meetings with their working groups, Con Edison met with its working group eight times, O&R held six meetings with its working group, National Grid met with its working group three times, and Central Hudson held six meetings with its working group.

[64] https://www.nyseg.com/w/new-york-climate-resiliency-plan.

that could impact telecommunication providers, and offer opportunities for coordination with these providers.

F. Analysis of Benefits and Costs

Public Service Law §66(29)(d)(iii) requires the Commission to consider the estimated benefits and costs of making the improvements proposed in each Plan, with particular attention paid to the benefits and costs in undergrounding transmission and distribution lines.[65] In the Initiating Order, the Commission sought input from stakeholders on the development of uniform and consistent screening criteria for the Commission's consideration of the projects and programs in the Plans. Specifically, the Commission sought feedback on whether specific information on avoidable adverse impacts to the economy, to consumers, and to municipal governments could be evaluated regarding the benefits of proposed projects and programs in the Plans.

Several comments were filed with the Commission regarding this aspect of the case. For its part, the City recommends that activities with the greatest long-term benefits should be prioritized and the Utilities should each be required to perform a benefit-cost analysis (BCA) to identify the most beneficial projects. In contrast, however, the Utilities assert that their Plans are related to complex matters that go beyond elements that traditionally have been considered in capital investment planning analyses and the Commission thus should not mandate a specific BCA framework for resilience investments until tools and methods for estimating the customer benefits associated with such investments have been adequately reviewed and validated.

[65] PSL §66(29)(d)(iii).

As discussed, each of the Utilities generally provided cost estimates with respect to projects in their Plans based on historical costs or high-level benchmarking research. However, none of the Utilities provided a traditional BCA with respect to the measures identified in the Plans.[66] Instead, the Utilities generally provided only a qualitative discussion associated with the benefits of the proposed measures and did not quantify the benefits via a net present value to compare them with the net present value of the identified costs.[67] In meetings and through information requests, Staff probed whether studies or metrics exist to conduct a BCA for the types of measures at issue here. The Utilities generally responded that general guidance and other background information is lacking with respect to undertaking a quantitative BCA at this time. The general reasons offered by the Utilities include the lack of available information to reasonably evaluate the benefits to New York customers of avoiding climate change related outages. For example, they point to the current version of the Department of Energy's Interruption Cost Estimate Calculator as lacking information on the impacts of long duration outages and note that the general information in the Interruption Cost Estimate

[66] Case 14-M-0101, Reforming the Energy Vision, Order Establishing the Benefit Cost Analysis Framework (issued January 21, 2016). The BCA Framework Order specifies the BCA analysis to be used by the utilities when screening REV-related initiatives and investments, including non-wires alternatives to traditional infrastructure investments. The BCA Framework Order designates the Societal Cost Test as the primary cost-effectiveness test for screening Distributed Energy Resources and adopted foundational principles for performing the test.

[67] Such qualitative assessments were operationalized in alternative screening frameworks such as National Grid's and NYSEG's and RGE's similarly named Business Case Justification Frameworks or Central Hudson's Multi-Criteria Decision Analysis methodology.

database is not representative of customer impacts in New York.[68] The Utilities also state that, although Department of Public Service (DPS) and the New York State Energy Research and Development Authority (NYSERDA) recently undertook a statewide study and cost estimate to underground all transmission and distribution facilities in the State[69] the study utilized a macro-view of such a program that was irrelevant to the selective undergrounding projects the Utilities examined as part of their Plans.

The Commission agrees that there is a lack of guidance to provide a BCA associated with resiliency-related projects. We note that a great deal of research is currently being performed on this subject and direct the Utilities to keep abreast of ongoing studies, such as the second iteration of the Department of Energy's Interruption Cost Estimate Calculator or the Pacific Northwest National Laboratory's efforts to study emerging best practices for planning with climate variability.[70] Nevertheless, we expect that the Utilities will address this issue with more specificity in the next iteration of their Plans.

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[68] For example, the current version of the Department of Energy's Interruption Cost Estimate Calculator does not include information on the impacts of long duration outages and is not representative of customer impacts in all U.S. regions such as New York.

[69] Industrial Economics, Incorporated, The Benefits, Costs, and Economic Impacts of Undergrounding New York's Electric Grid (dated June 27, 2023). https://dps.ny.gov/system/files/documents/2023/09/final-report-ny-undergrounding-2023-06-27.pdf.

[70] See generally, Pacific Northwest National Laboratory, Emerging Best Practices for Electric Utility Planning with Climate Variability: A Resource for Utilities and Regulators (May 2023).

G. General Rate Impact Issues

PSL §66(29)(d)(vi) requires the recovery of "prudently" incurred approved incremental costs for resilience or storm hardening projects that enter service prior to the inclusion in a Utility's rate case proceeding via a climate resiliency cost surcharge.[71] As noted above, Con Edison is the only company seeking to use a surcharge mechanism. However, it did not provide a methodology for the surcharge, which PSL §66(29)(g) requires.

In its comments, the City notes its opposition to the establishment of a surcharge for Con Edison, arguing that Con Edison already includes reliability and resiliency planning associated with climate change in its project planning processes that are typically included in rate cases. The City suggests that allowing Con Edison to establish a climate resiliency cost recovery surcharge would unduly burden its customers and would more equitably be addressed through the company's approved capital budgets in rate case proceedings. Similarly, in her comments, Senator Mayer states her opposition to Con Edison's proposed establishment of a surcharge, noting that Con Edison has already received a significant rate increase in its last rate case, and to impose an additional surcharge would unduly burden ratepayers.

In its comments, Multiple Intervenors (MI) states its general opposition to the use of a volumetric, or energy-based surcharge, arguing that cost allocation and recovery should be treated in the same manner as other reliability-based infrastructure investments. Specifically, MI suggests that, if the Commission were to establish a surcharge mechanism, the cost allocation of any approved projects should be based on cost of

[71] PSL §66(29)(g).

service principals, and the cost collection be based on a per kilowatt (kW) basis for demand metered service classes. MI states that deviating from the typical manner of allocating and recovering these types of costs would be inequitable to high load factor customers.[72] Additionally, MI asks the Commission to consider the Plans in conjunction with other financial burdens placed on consumers due recently approved rate cases and proposed rate increases in pending rate cases.

The Commission finds it is premature to address MI's comments given that we are not authorizing the use of a surcharge in this Order. MI is of course free to raise this concern in the context of rate proceedings presuming that the utility includes the projects at issue here in its proposed capital budget.

Due to the timing of the proposed capital investments and the fact that they are either already included in the utility's rate plan capital budgets or are being addressed in ongoing rate proceedings for Orange and Rockland, Central Hudson, and National Grid, or future rate proceedings, there is no need to develop such a surcharge mechanism for the Utilities at this time. Furthermore, the statute states that "[t]he costs to be recovered through such a surcharge shall be detailed in a filing to the Commission, and each corporation shall propose a method of allocating costs to customer classes in said filing."[73] Con Edison is the only utility to propose in this proceeding the use of a surcharge for the capital expenditures it plans in 2025. However, in the Commission's view, Con Edison failed to satisfy this provision of the law as it did not provide the details of such surcharge. Con Edison did not propose any means

[72] Case 22-E-0222, Comments of Multiple Intervenors (filed July 22, 2024).

[73] Id.

of allocating the costs, nor a method of recovery as required by PSL §66(29)(g). As previously discussed above, the Commission rejects the immediate need for Con Edison's incremental resiliency projects in 2025 as the Commission determined herein those projects are not necessary in 2025. Therefore, there no need to establish a surcharge. The determination is without prejudice, and Con Edison may include the projects at issue here in the capital budgets associated with its next rate case.

H. Performance Benchmarks

PSL §66(29)(d)(v) requires the Commission to also consider the extent to which a utility's Plan includes major performance benchmarks that measure the effectiveness of a proposed resiliency measure. With respect to this issue, the Utilities each state in their Plans that there are no standardized sets of performance metrics to gauge the effectiveness of resiliency-based upgrades to the electric system. The Utilities thus propose varying methods to assess and address the effectiveness of each of their proposed resiliency projects and programs that can generally be categorized into two groups – implementation-based and outcome-based.

Implementation-based benchmarks track program progress over time and assess performance using a traditional project management approach. For example, the Plans include tracking the equipment replaced with submersible equipment, providing updates on project completion, tracking the number of transformers with updated specifications, and providing updates on the number of circuit miles completed or converted as part of undergrounding or overhead resiliency programs.

Outcome-based benchmarks assess effectiveness based on the goals and anticipated benefits of a program and would

evaluate specific performances before and after program implementation or execution. For example, the Plans propose measuring outage frequency or duration on circuits both pre- and post-enhancements, evaluating the number of microgrid operations and associated number of customers that are not interrupted due to successful microgrid operations post enhancements, and assessing the number of assets affected and outages avoided post flood mitigation improvements.

We consider implementation-based benchmarks to be necessary to the successful implementation of any project but they are not capable of gauging the effectiveness of resilience projects. These benchmarks track how a project progresses over time but are not adequate metrics to evaluate performances before and after project completion. For example, tracking the number of devices upgraded or replaced on a circuit would provide information on project completion but would not give any indication of circuit improvements. In its comments, CaSE asserts that NYSEG's Plan lacks major performance benchmarks that would measure effectiveness of the resiliency efforts. We agree with CaSE, as NYSEG and RG&E's Plans only include implementation-based benchmarks. Given the absence in the industry of standardized utility resilience performance metrics, the outcome-based performance benchmarks proposed by Central Hudson, Con Edison, National Grid, and O&R are acceptable to the Commission at this time. However, the Utilities must refine the outcome-based performance benchmarks in future iterations of their Plans.

PSL §66(29)(h) requires each utility to hold meetings at least twice annually with its climate resilience working group and, after the second full year of a Plan's implementation, report to the Commission on its activities to

comply with the Plan.[74] The Utilities are directed to continue to work with industry groups, their individual climate resilience working groups, and further expand and improve their outcome-based benchmarks as standardized utility resilience performance metrics or proposals are further considered and developed by the industry and stakeholders. All proposed resilience measures must have associated implementation- and outcome-based performance benchmarks, and it is essential to iterate and improve upon these benchmarks as standards are developed to ensure the effectiveness of the Plans. In future updates to the Plans and upcoming progress reports to be filed with the Commission, the Utilities must include implementation- and outcome-based performance benchmarks for all proposed resilience measures and a detailed discussion on efforts to refine and standardize resilience metrics.

I. Disadvantaged Communities

The Climate Leadership and Community Protection Act (CLCPA) requires all State agencies, when considering and issuing permits, licenses, and other administrative approvals and decisions, to not disproportionately burden Disadvantaged Communities.[75] Therefore, in approving the Plans, the Commission is taking an action that falls under CLCPA §7(3) and must consider whether this action would disproportionately burden Disadvantaged Communities.

The Ulster County Executive noted that Central Hudson's Plan states that its analysis considered benefits to Disadvantaged Communities but does not explain how its Plan will support these communities. The Ulster County Executive believes Central Hudson should use the Center for Disease Control, Agency

[74] PSL §66(29)(h); PSL §66(29)(k).

[75] Chapter 106 of the Laws of 2019, §7(3).

for Toxic Substances and Disease Registry Social Vulnerability Index to better capture vulnerable populations in its service territory.

Another commenter calls for the Utilities to support equitable outcomes for customers that are from a disadvantaged background even if they are not located in a designated disadvantaged community, because they rely on United State census boundaries which allegedly limit many eligible communities from being included.

The CLCPA created and directed the Climate Justice Working Group to establish criteria to identify Disadvantaged Communities.[76] Therefore, Commission cannot, as suggested by the comments, expand on the criteria and communities identified by the Climate Justice Working Group, and cannot expand the requirements of CLCPA §7(3).

In our review of the Plans of Con Edison, O&R, Central Hudson, and National Grid, we find no disproportionate burden will accrue to Disadvantaged Communities as a result of our approval of those plans, as modified by this Order. In this Order we are considering and approving the proposed hardening of the electric system as a whole against climate change vulnerabilities. The Plans target hardening efforts where they are most needed and are not doing so in a way which intentionally burdens disadvantaged communities. For example, the Plans approved herein do not include hardening measures which place burdensome infrastructure in Disadvantaged Communities.

[76] Environmental Conservation Law §75-0111; https://climate.ny.gov/Resources/Disadvantaged-Communities-Criteria.

CONCLUSION

The Commission finds that the Plans filed by NYSEG and RG&E fail to address all the requirements of PSL §66(29) and directs NYSEG and RG&E to file revised plans within 90 days of issuance of this Order. The Commission approves with modifications, the Plans of Con Edison, O&R, Central Hudson, and National Grid, and directs Con Edison, O&R, and National Grid to file revised plans within 60 days of issuance of this Order, addressing the modifications and directives in the body of this Order. The costs, timing, and priority of the Utilities' forecasted climate change resilience investments associated with proposed resilience projects and programs are being, or will be, assessed as part of ongoing, or future, individual rate case proceedings. As discussed herein, future updates to the Plans and upcoming progress reports must incorporate adaptations to climate change into internal processes, procedures, and design guidelines. In doing so, such filings must provide more defined and explicit processes, planning, and design changes with respect to climate change projections. Further such filings shall define engagement strategies for proposed resilience measures that could impact telecommunication service providers and discuss opportunities for coordination with these service providers. Finally, such filings must include implementation- and outcome-based performance benchmarks for all proposed resilience measures; and build on their efforts to refine and standardize resilience metrics.

The Commission orders:

1. As discussed in the body of this Order, the Climate Change Vulnerability Plans of New York State Electric & Gas Corporation and Rochester Gas and Electric Corporation are not

approved and New York State Electric & Gas Corporation and Rochester Gas and Electric Corporation shall file revised Climate Change Vulnerability Plans within 90 days of the issuance of this Order that address all the requirements of PSL §66(29), including clearly provide forward looking projections and cost implementation timelines for each potential or proposed investment measure for the next five, 10, and 20-year periods.

2. New York State Electric & Gas Corporation and Rochester Gas and Electric Corporation are directed to provide estimated five-year rate impacts in a similar format as provided by the other Utilities in their revised Climate Change Vulnerability Plans required in Ordering Clause 1.

3. The Climate Change Vulnerability Plans of Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. are approved as modified in the body of this Order and Ordering Clause 4, except for the cost, timing, and priority of all proposed resilience investments, which must be addressed in ongoing and future rate case proceedings.

4. As discussed in the body of this Order, in its revised Climate Change Vulnerability Plan, Consolidated Edison Company of New York, Inc. shall remove the Green Infrastructure and Rewilding, Living Shorelines and Nature-Based Solutions, Heat Mitigation for Worker Safety, Emergency Outage Communications Upgrades, Storm Response Technology Advancements, Micronet Weather Station Expansion, and Substation Loss Contingency projects and programs from its Climate Change Resilience Plan. Orange and Rockland Utilities, Inc. shall remove the Line 705 project, the Transmission Overhead Structure Replacement Program, the Micronet Weather Station Program, the Storm Material Management Program, and the Emergency Response and Control Facility Program from its Climate Change Resilience Plan. Consolidated Edison Company of New York, Inc. and Orange

and Rockland Utilities, Inc. shall remove the Storm Resilience Center project from their Climate Change Resilience Plans. Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall file revised Climate Change Resilience Plans addressing the directives in the body of this Order within 60 days of the issuance of this Order.

5. The Climate Change Vulnerability Plan of Niagara Mohawk Power Corporation d/b/a National Grid is approved subject to the modifications in the body of this Order and Ordering Clause 5, except for the cost, timing, and priority of all proposed resilience investments, which must be addressed in ongoing and future rate case proceedings.

6. Within 60 days of issuance of this Order, Niagara Mohawk Power Corporation d/b/a National Grid shall file a revised Climate Change Resilience Plan removing the Spare Transmission Line Structures Program in accordance with the directives in the body of this Order.

7. The Climate Change Vulnerability Plan of Central Hudson Gas & Electric Corporation is approved, except for the cost, timing, and priority of all proposed resilience investments, which must be addressed in ongoing and future rate case proceedings.

8. The request of Consolidated Edison Company of New York, Inc. for incremental program activities and a surcharge for 2025 is denied.

9. Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation shall file updated Plans for Commission consideration by November 21, 2028.

10. Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation are directed to include the costs, timing, and priority of all proposed resilience investments in ongoing and future rate case proceedings.

11. As discussed in the body of this Order, Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation shall incorporate adaptations to climate change into their internal processes, procedures, and design guidelines and, shall provide more defined and explicit processes, planning, and design changes with respect to climate change projections in subsequent Climate Change Vulnerability Plans.

12. Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation shall define their engagement strategies for proposed resilience measures that could impact telecommunication service providers and discuss opportunities for coordination with these service providers in subsequent resilience progress reports and future updates to their Climate Change Vulnerability Plans.

13. Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation shall include

implementation- and outcome-based performance benchmarks for all proposed resilience measures and a detailed discussion on efforts to refine and standardize resilience metrics in future updates to their Climate Change Vulnerability Plans and upcoming progress reports to be filed with the Commission.

14. In the Secretary's sole discretion, the deadlines set forth in this Order may be extended. Any request for an extension must be in writing, must include a justification for the extension, and must be filed at least three days prior to the affected deadline.

15. This proceeding is continued.

By the Commission,

(SIGNED) MICHELLE L. PHILLIPS
Secretary

Appendix A – Summary of Comments

Summary of Comments in Case 22-E-0222

On July 8, 2022, the Commission solicited comments on 1) the substance and analyses that should be included in each utility's climate change vulnerability studies (Studies) evaluating each corporation's infrastructure, design specifications, and procedures to better understand their vulnerability to climate-driven risks (required under PSL §66(2) to be submitted by September 22, 2023); (2) the development of uniform and consistent screening criteria for the Commission's consideration; and (3) specific questions set forth in the Commission's June 16, 2022 order initiating this proceeding (Initiating Order). Several comments were filed in response to these questions, as summarized below.

Public Utility Project of New York (PULP)

PULP proposes including purely climate-based elements, such as temperature, precipitation, and wind, in the Studies. PULP suggests using Hurricane Sandy as a baseline for the study, while also analyzing the potential for higher storm surges and flood levels, as well as incorporating consideration of extreme cold weather events.

PULP believes the Utilities[1] should be required to use a consistent approach to forecast the effects of climate change on their respective service territories, however, each utility should be allowed to argue for certain added forecast information and/or approaches based on unique factors of their service areas. PULP believes this flexibility is particularly

1 The Utilities are Consolidated Edison Company of New York, Inc. (Con Edison), Orange & Rockland Utilities, Inc. (O&R), Niagara Mohawk Power Corporation d/b/a National Grid, Central Hudson Gas & Electric Corporation, New York State Gas & Electric Corporation (NYSEG), and Rochester Gas & Electric Corporation (RG&E).

important for utilities in urban areas with known or suspected "heat island" effects.

PULP believes responses to forecasted climate change impacts should not be rendered in an "either-or" format, but instead believes in providing a continuum of criteria for requiring hardening and resiliency measures. PULP proposes presenting hardening and resiliency measures on a spectrum of most to least capital-intensive measures, providing at least three options and explanations for their cost.

PULP proposes the stakeholder working group engagement process be organized using the low-income arrears resolution/Energy Assistance Program workgroup process as a model. Invitations to participate in the working group should be sent to consumer groups, ratepayer groups, state and local environmental groups, other community-based organizations, with particular focus given to environmental justice, disadvantaged communities, disability issues, and small and micro business issues.

PULP believes local storm protection initiatives should be included in determining where and when to make investments. However, they should not preempt priorities for investments identified by the utilities and/or the Department of Public Service (DPS). PULP recommends limiting investments to a 0.5% impact on rates per service territory per year. Utilities should be able to have the ability to petition for larger investments capped at 1% per year. However, PULP holds there must be strict requirements in place to protect consumers in cases where the utility petitions for a larger investment. In these instances, the utility should have to demonstrate to DPS that the investment is necessary and complete compelling/vital interest filings annually.

The City of New York (City)

The City notes the efforts made by Consolidated Edison Company of New York, Inc. (Con Edison) after Superstorm Sandy, as Con Edison worked with the City to complete studies and an implementation plan. The City believes Con Edison's study and plan could be used as a model for other utilities.

The City notes that New York is not homogenous, and therefore, cautions against a uniform approach across the whole state due to significant regional differences. The City recognizes a region by region analysis and approach to resilience is needed. However, one commonality is that climate resilience should be incorporated into each part of the utility's planning and design process, construction methods, and operations, recognizing regional variability in the effects of climate change. The City also believes that there should be a uniform methodology in the approaches to ensure consistency of data.

The City believes the Studies should include the same elements as Con Edison's study. The City does not believe that there are any particular elements which should be excluded from the Studies because it is important to consider all variables, especially those which are specific to certain regions.

In responding to forecasted climate change impacts on their system, the City believes utilities should take diligent, proactive action. The City believes Con Edison's approach in its Study is the appropriate method for selecting climate change impacts that require hardening and/or resiliency measures.

The City recognizes that shared socio-economic pathways and representative concentration pathways are complementary. However, at a minimum, the City believes that the Utilities should use Con Edison's representative concentration pathway approach.

The City believes the working group should consist of significant stakeholder representation beyond just the Utilities. Representation from all regions of the Utilities service should be included, as well as environmental justice organizations and municipalities to ensure socio-economic and public health issues are properly addressed. Unions should also be represented because the workers who will implement the resilience measures are directly affected. Further, stakeholders should include individuals and entities with expertise in climate science to offer different perspective and insights.

To prioritize projects, Utilities should use a probabilistic or proactive disruption management approach, where consequences of each climate impact are examined in conjunction with probability of occurrence. Utilities should then use a metric or scoring system to calculate risk, which would allow the Utilities to narrow down a plan and determine which climate hazards/impacts should be prioritized. However, the City cautions that the lowest probability impacts cannot be ignored because they often have the highest consequence.

The City proposes using Con Edison's benefit-cost analysis to calculate the strategic value of each project to determine which projects would have the greatest long-term benefits and prioritizing those projects. Con Edison's benefit-cost analysis includes consideration of societal cost, which accounts for the monetization of air pollution and carbon dioxide using a 20-year forecast for energy prices, the cost of regulatory compliance, and the price paid for renewable energy credits. In addition, the City also proposes introducing a statewide metric under which each impact, positive or negative, would be given a numerical score which is then multiplied by the feasibility of the activity. Feasibility is based on financial,

policy, and/or societal considerations. Under this metric, the projects with the greatest feasibility and greatest impact would be prioritized.

To determine priority of service areas, the City recommends utilizing Con Edison's probabilistic approach, noted above. The City does not, however, support a purely formulaic approach for determining service area priority as a purely formulaic approach would not properly consider all factors and some judgment would remain necessary. Prioritization should consider factors such as community composition and criteria which is being developed by the climate justice working group. However, where resilience needs in different areas of a Utility's service territory are comparable, but one area is a frontline community, priority should be given to the frontline community.

The City believes conjunction between local storm initiatives and utility resilience investments is imperative because it ensures coordination and can avoid wasteful and duplicate spending. Additionally, the City notes that there are co-dependencies between Utility and local infrastructure and coordination can result in economies of scale and greater efficiencies.

The City proffers that resilience projects be treated as any other capital and maintenance project. The needs and probability assessment noted above should govern the spending level. However, the City proposes some general parameters to avoid highly volatile rates and burdensome rate increases. The City reaffirms the need for resilience spending to be considered along with other capital and maintenance spending instead of separately because of the risk of duplicate, unnecessary, and wasteful spending. Additionally, the City opines that if resilience spending is incorporated in overall spending, its

more efficient for the Commission to examine the reasonableness of the spending all together. To determine reasonableness, the City suggests that the Commission use a combination of historical analysis and projections based on climate science by looking to the New York Independent System Operator, Inc.'s Climate Change Impact and Resiliency Study. Incorporating resilience considerations also allows Utilities to manage a single budget so they can prioritize all projects based on cost effectiveness and need.

The City believes that metrics will be problematic because it can be difficult to ascertain how discreet components perform. Additionally, the effects of climate change occur gradually, meaning some benefits may take time to accrue. Major weather events also do not occur every year, therefore, measuring the value of resilience investments may not be possible each year. The City notes that performance metrics are valuable, but annual metrics do not accurately measure long term resilience. Due to this, the City has been unable to develop meaningful metrics. The City proposes setting a baseline which measures current performance which considers factors such as the number of outages, critical asset functions, time to restore service, and utility personnel actions taken.

In setting screening criteria, the City urges the Commission to adopt a general framework and adapt the criteria for each utility based on each service territory's specific climate hazards. The Commission should also set an overall revenue requirement for capital investments and maintenance and let each utility manage their own budget and operation.

In estimating the benefits to customers of making the improvements proposed in each plan, the City believes the Utilities should consider a combination of the cost impacts on New York State's economy, the interruption of service to

residential customers, and outages to municipal governments. The City believes each factor is interconnected, and therefore, should be evaluated together. However, priority in sustaining service should be given to fire stations, hospitals, public works, and emergency refuges, as well as nursing homes.

The City does not believe avoidable costs to municipal governments should be measured by incremental labor costs. While labor costs are an important measure, they are not the only measure of avoidable costs. According to the City, a comprehensive assessment of the total loses is needed, not just incremental labor costs.

Grid Assurance

Grid Assurance submits that one critical step which can be taken by the Commission is to reconsider how the New York transmission owners currently plan and secure spare equipment for storm-driven outages and other significant interruptions to major system infrastructure service. Grid Assurance advocates for the use of outside vendors to procure and store equipment for rapid deployment in the event of catastrophe.

Grid Assurance suggests structuring the stakeholder working group broadly by opening participation up to all interested parties to allow for a wide variety of viewpoints. Grid Assurance suggests including industry market participants, entities in the climate space more broadly, environmental organizations, and consumers.

Grid Assurance asserts that adding or procuring infrastructure to hold in stock will result in an overbuilt system and a high price tag for consumers. Grid Assurance believes the Utilities having access to resources with larger portfolios offers a solution to this problem. Grid Assurance suggests directing the New York transmission owners to secure a subscription service from a vendor with a national base of

Utilities because it would pool risk and ensure infrastructure is able to be replaced while concurrently working on resiliency studies and plans.

Grid Assurance suggests that the Commission define the parameters that must be available from the service subscribed. Considerations should include cost effective inventory pooling and the sufficiency of the economies of the subscription services to allow the transmission owners to obtain fair prices, which prevents the incurrence of additional fees for customers.

Additionally, transmission owners will need to safely store equipment in strategically located facilities. The stored equipment also must be periodically tested and maintained. The logistics for delivery of equipment must be managed to ensure expeditious replacement, which must include consideration of intermodal transport.

Grid Assurance notes that the Resiliency Act calls for the need for third party coordination. By utilizing the pooling arrangements offered by third parties, system resiliency can be enhanced in a way that will have a high benefit to cost ratio.

Joint Utilities

The Joint Utilities plan to prepare their own utility specific Studies, but seek to harmonize their approaches to the greatest extent possible. In doing so, the Joint Utilities plan to use similar formats, organizational structures, and tables of contents to facilitate review by the Commission and DPS. The Joint Utilities seek to recover costs for the Studies and plans by means of surcharges and base rates, which the law directs the Commission to authorize. The Joint Utilities note that the Commission allowed Con Edison to recover costs via surcharges, subject to a cap, while conducting studies due to the uncertain nature of costs because of the evolving scope of the study and implementation plan. The Joint Utilities request approval of a

similar surcharge reimbursement due to the similar nature of their evolving Study and implementation plans. The Joint Utilities are seeking expeditious approval by the Commission for cost recovery mechanisms due to the need for consultants and the costs incurred in coordinating working groups and developing their plans.

The Joint Utilities have organized a Joint Utility Technical Working Group where each Utility sends their own technical subject matter expert (SME) to participate. The focus of the working group is to allow for the SMEs to reach a shared understanding of New York State Energy Research and Development Authority (NYSERDA) data to inform each Utility's Study and plan.

The Joint Utilities propose that each Study generally include a description of the climate data reviewed and the methodology behind the review, sections on each climate vulnerability topic, potential impacts on the service territory, forecasted 10- and 20-year impacts of climate variables, vulnerable assets, and pathway selections. The Joint Utilities intend to include in their plans write ups for each program or project, including a description of work, need, equity considerations, the alternatives considered, proposed schedule, and estimated costs for the next five years. The plans will also include 10- and 20- year forecasts of each program, 10- and 20- year outlooks for anticipated programs, the estimated annual rate impact for the first five years of the plan, and the plan's alignment with capital plans, forecasts, and corporate programs.

In their Studies, the Joint Utilities plan to consider all elements NYSERDA uses in collection of their data, including temperature, precipitation, heating and cooling degree days, heat index, relative humidity, surface air temperature, and sea level rise. However, the Joint Utilities recognize that there

are gaps in NYSERDA's data, and therefore, plan to supplement NYSERDA data with historical data, qualitative information, and additional climate projection data. At this time, the Joint Utilities have not identified specific elements that should be excluded from consideration in their Study.

The Joint Utilities intend to work from the same source information whenever practical, typically relying on NYSERDA data. However, if NYSERDA data is insufficient, each Utility will attempt to align supplemental data with NYSERDA data.

Factors the Joint Utilities plan to include in the investment decisions include costs and benefits of investment, rate impacts, local equity, and projected future conditions. Priority decisions would be made through a complex process of both qualitative and quantitative factors, and therefore, it is difficult to state what areas or activities should be prioritized at this time.

The Joint Utilities recommend basing their Studies and plans on the pathways selected by NYSERDA (i.e., shared socio-economic pathway 2-4.5 and 8.5). However, they note each Utility is different, and therefore, each Utility must choose the most appropriate pathway for them.

The Joint Utilities propose that the stakeholder working group should include DPS Staff, municipalities, customer advocacy groups, energy organizations, and environmental groups. Each utility would also consider historical interactions with other groups, recognizing that stakeholders that may have an interest in studies and plans may not have been traditional intervenors in rate cases. Meetings would convene a minimum of twice annually.

The Joint Utilities note that they already work and coordinate with local, municipal, and county leaders as part of

their emergency response programs and work closely with them during storm events. The Joint Utilities intend to continue to engage with them as part of their stakeholder outreach efforts.

The Joint Utilities believe minimum or maximum investment levels should be determined by the Utility's individual circumstances and not pre-set levels. This is because storm hardening investments are conducted over multi-year periods and involve a mix of investment, process, and technology solutions which do not focus solely on capital expenditures.

The Joint Utilities note that there are currently no widely accepted metrics or key performance indicators in the industry to assess resiliency, and therefore, it is premature to develop or apply a metric to evaluate effectiveness. The Joint Utilities propose that the Commission assess performance based on the extent to which the Utility reasonably implements the plan approved by the Commission.

The Joint Utilities maintain that the Studies will determine the climate-related risks, and would identify whether investments should be proactive or reactive. They caution that predetermined restrictions could hinder development of the plans. The Joint Utilities will consider avoidable adverse impacts on New York State's economy, avoidable cost of the interruption of service to residential customers, and the avoidable cost of outages to municipal governments as part of the stakeholder process to develop the study and plan.

Because of the complexity, the Joint Utilities believe that it is necessary to establish a separate and distinct longer-term workstream to address these matters fully. The Joint Utilities assert that existing tools and methods for estimating customer benefits of investments can be considered. While avoided costs could aid in determining whether to proceed

with a resiliency investment, there is no widely recognized methodology for comparing investments to avoided costs. The Joint Utilities do not recommend that the Commission require use of any particular tool for current Studies and plans.

On June 17, 2024, the Commission issued a notice soliciting comments on the climate change resilience plans submitted by the Utilities. Several comments were filed in response to the notice, as summarized below.

Senator Shelley B. Mayer

Senator Mayer urges the Commission to minimize rate increases to customers resulting from resilience planning investments, and instead fund resilience planning projects from shareholder profits and executive compensation. Furthermore, Senator Mayer opposes a surcharge, as the utilities received generous rate increases in their rate case and any surcharge would unduly burden ratepayers. Senator Mayer believes Con Edison's single proposed Storm Resilience Center insufficient for effectively serving the entire service territory, and instead urges the Commission to require Con Edison to follow its previous model of local staging in more locations throughout the service territory. Finally, Senator Mayer suggests the Commission add a fourth strategy to Con Edison's resilience plan to mitigate financial impact on consumers.

Jen Metzger, Ulster County Executive

The Ulster County Executive Jen Metzger recommends that the Public Service Commission (Commission) integrate residential energy storage into utility climate resilience and reliability planning. Using the Vermont's Green Mountain Power as an example, the County Executive recommends Central Hudson pursue a resilience planning strategy that uses residential battery storage to protect residents from power outages. Outside of climate emergencies, the Ulster County Executive notes that residential battery storage can also be used for load balancing, support grid reliability, and reduce operational costs. The

Ulster County Executive further suggests Central Hudson revise its plan to include a working map indicating where the utility plans to underground lines to provide transparency in their resilience planning.

She notes that Central Hudson's plan lacks emergency management. The Commission's order initiating this proceeding required the utilities to coordinate with municipalities, which the County Executive points out was not included in Central Hudson's plan. Further, she notes that Central Hudson's plan does not consider critical infrastructure or emergency communication systems. Additionally, Central Hudson's plan states that its analysis considered benefits to Disadvantaged Communities but does not explain how its plan will support these communities. The Ulster County Executive believes the utility should use the Center for Disease Control Agency for Toxic Substances and Disease Registry Social Vulnerability Index to better capture vulnerable populations in its service territory.

The Ulster County Executive believes Central Hudson should work with local governments to establish Resilience Hubs. According to Ms. Metzger, Resilience Hubs are community-based centers that support residents as well as coordinates source distribution and service during emergency events. Resilience Hubs can play an important role in protecting health and safety and can be designed to include renewable energy production and battery storage. Finally, the County Executive believes Central Hudson should use the American Society of Civil Engineers guidance for critical infrastructure as it related to flooding design cases, because their plan currently uses historical data which is not the design standard for this type of infrastructure.

Tompkins County Climate and Sustainable Energy Advisory Board (CaSE)

CaSE believes the intent behind the law requiring the resilience plans dictates that the plans should focus on ensuring the resilience of essential services for human health, not just equipment. CaSE believes there should be clear and explicit focus on minimizing risks and better prevention of outages, while ensuring rapid restoration of power and services to Disadvantaged Communities and vulnerable populations. Additionally, CaSE notes that the law requires the Commission to consider the utilities' engagement with the public on the plans, which CaSE states is lacking in NYSEG's plan.

CaSE notes that the resilience projects authorized by the Commission in NYSEG's most recent rate proceeding are only vaguely referenced in the resilience plan. CaSE believes the spirit of the law requires details of what costs have been approved in the rate proceeding and urges the Commission to require NYSEG to provide these details. Additionally, CaSE claims NYSEG's plan for heat tolerance is not plausible, and notes that NYSEG has exceeded its target for outage frequency for the past five years. CaSE also states that NYSEG's resilience plan does not mean the urgency outlined in its vulnerability study and that NYSEG's plan does not give adequate attention to additional load that will occur during extreme heat events and it does not analyze the impacts of combined hazards.

CaSE is concerned that the heat tolerances for transformers and circuit breakers are inadequate because the 24-hour average temperatures are likely to be higher than NYSEG predicts. Additionally, CaSE states there are inconsistencies between the predicted temperatures and the equipment tolerances NYSEG reported as adequate. CaSE further states that the study

mentions adapting to coincidental effects, but the plan does not analyze these effects.

CaSE believes that NYSEG's plan lacks variety and innovation, as required under PSL §66(29) to be considered by the Commission and is troubled by this omission because there is a study funded by NYSERDA addressing these issues. According to CaSE, the law further instructs the Commission to consider undergrounding as an option, which NYSEG's plan does not thoroughly consider as an option. Finally, the law requires the Commission to consider performance benchmarks and measurements, which NYSEG's plan also lacks.

Multiple Intervenors

Multiple Intervenors (MI) supports system hardening to combat the effects of climate change but asks the Commission to look at the plans in conjunction with other financial burdens placed on consumers due to other rate cases, programs, and projects. Additionally, Multiple Intervenors asks the Commission to restrict or lower spending by the Utilities in other areas. Multiple Intervenors suggest that the Commission evaluate plans based on whether each project is necessary and prudent at this time for resilience purposes and whether it is an efficient use of customer funds. Further, Multiple Intervenors believe the Commission should assess the total or aggregate financial burden placed on customers currently and in the future.

Multiple Intervenors requests that resilience costs be allocated equitably across service classes. If these investments are approved, the costs should be allocated to the various service classes in the same manner as other, reliability-based infrastructure investments. MI states that just because the law allows for the use of a surcharge, it does

not justify altering how costs would normally be allocated. Multiple Intervenors believes each utility should allocate costs in a manner consistent with how their cost-of-service studies usually allocate costs. Thereafter, costs should be recovered within individual service classes on a per kilovolt (kV) basis for demand-metered classes and per kilowatt-hour (kWh) for non-demand metered classes. Multiple Intervenors opposes the use of volumetric energy-based methodology because it would be unfair to large, energy-intensive customers and inconsistent with causation principles. If the Commission does approve a surcharge, MI recommends that a cost allocation methodology should be adopted that ensures that costs are allocated in accordance with demand-based allocation factors, consistent with causation principles.

The City of New York

The City opposes Con Edison using a surcharge for their resilience plan. Con Edison's last rate case was developed in recognition of the vulnerability study and the Commission approved revenue requirements which reflect the vulnerability study. Because the approved revenue requirements are sufficient to address Con Edison's resilience needs, the addition of a surcharge is not necessary and would unduly and unjustly burden customers. Further, because of resilience actions already taken by Con Edison, it should not be given incremental funding like other utilities. Additionally, Con Edison seeks new rate approximately every three years and these future rate cases could provide appropriate opportunities to consider changes to the Con Edison's plans and funding. Because most of the spending used to address resilience is in the form of capital investments, addressing expenditures via Con Edison's capital

budgets and providing for recovery over the lifetime of the assets is more equitable than recovering costs via surcharge.

Additionally, rates for Con Edison's electric, gas, and steam service have all increased and Con Edison's customers are subject to several surcharges. One in six customers have energy costs which exceed 6% of their household incomes, which surpasses the target level. An additional surcharge will cause more customers to exceed the target level. The City believes the Commission properly balanced costs and benefits in the last rate case, to add a surcharge now would disrupt this balance.

The City does not support Con Edison's storm resilience center as proposed. The City is concerned that housing most or all of the mutual aid crews plus the vehicles they would use in one location creates its own risks and is unlikely to achieve the Company's intended purpose of efficient and timely response to localized extreme events. Depending on the location selected, it could take crews hours to reach parts of the City. Con Edison should construct several smaller storm resilience centers sited at critical operating points throughout its service territory. Several smaller centers would reduce response times, reduce the risk of being unable to reach a location due to storm damage, allow the Company to engage in training exercises with municipal partners, and reduce the risk of vandalism or of an unexpected event that results in damage to most or all of the vehicle fleet.

The City believes Con Edison should revise its sea level rise projections. While Con Edison reasonably relied on the Federal Emergency Management Administration's data, the maps are not updated frequently. Therefore, Con Edison should take a conservative approach with respect to the possible extent of sea level rise over time and the associated areas that could be subject to flooding and designated for flooding protection.

Further, the plan is premised on the use of median projections of sea level rise, which is not reasonable. The City recommends using 90th percentile forecasts. The City believes it is more prudent to use forecasts that are conservative, encompass more potential future scenarios, and therefore, have higher confidence levels.

Reply Comments of Con Edison

Con Edison argues that a climate resilience cost recovery surcharge is required by the statute. Con Edison argues that the law directs utilities to recover the costs of approved resilience projects through a surcharge after they are placed into service and until the Commission resets the base rates. Additionally, the law requires utilities to submit a resilience plan and further requires the Commission to conduct a review of the resiliency plans "separate and apart from a corporation's rate proceeding." Further, the Company argues that its ,resilience plan reflects new science since its last rate cases, therefore do not reflect the Company's latest resilience needs. The Company claims the City's opposition is to the law and not to its resiliency plan.

The Company argues that it should not be treated differently than other utilities just because it has already done climate resilience work and urges the Commission to reject the City's approach. Additionally, the Company states that the overall cumulative electric delivery impact for the next five years would be 2.1% and total bill impact would be 1.4%. Further, any approved resilience projects would be included in electric base rates in Con Edison's next rate filing, which is expected to be filed in 2025. Therefore, the surcharge is only for projects that go in-service and for other authorized costs in 2025.

Con Edison stresses that the proposed storm resilience center is only one part of its multi-pronged and systematic approach for storm response and recovery. A single center, with the primary purpose of storing emergency response vehicles for use by emergency response workers flown in from other areas and providing a layover area for materials, does not equate to a single storm response process. Additionally, the Company claims that local resources are usually exhausted or additional resources are needed and therefore, flying in mutual aid is crucial to restoring power in a timely manner. Further, large impact storms make its traditional staging areas unavailable. Con Edison claims that the center will always be available and can reduce unforeseen challenges. The center can also house crew, allow for additional pre-staging and training, provide central maintenance for the fleet, and space for storage of equipment with the main objective of reducing restoration times and costs. Finally, as a Con Edison facility, the center will be under its control, be self-sustaining, have flood protections and canopies for vehicles to minimize the risk of unexpected events.

Regarding the City's concerns about the sea level data used by the company, Con Edison states it determined its pathway with guidance from Columbia University's review of sea level rise projections for the New York City Panel on Climate Change, which used the 50th percentile. These projections align with the *NYC Climate Resiliency Design Guidelines*. To the extent that the *Guidelines* are updated in the future, the Company will continue to consult with other agencies and internal engineering experts to determine if there should be any changes to the Company's risk tolerance and resilience planning approaches.

Public Comments

Several comments were received from members of the public, which generally opposed the Plans for various reasons including the insufficiencies of the Plans and the lack of need for the Plans.

One commenter believes that there is no "climate vulnerability." Citing the opinions of meteorologists they have spoken with, they state the cause for planet warming is water vapor and greenhouse gases which are natural in origin, not CO2. They believe the prudent course of action is to allow time for objective science to determine what is actually causing warming of the atmosphere.

Another commenter believes vegetation management is important for reducing outages. While utilities' plans include vegetation management, they believe information of how climate change will affect plant species, tree physiology, and species range are valuable for future planning. Further, they believe utilities should all use the United State Environmental Protection Agency's "ensemble" for planning, so the utilities are working from the most recent information and to standardize the source of information between utilities. Additionally, worker safety should be addressed in the plans by using the New York State and the United State Department of Labor's extreme heat rules plans to plan for impacts to utility workers. The commenter has concerns regarding the utilities' different approaches to extreme heat, particularly because of National Grid and NYSEG's overlapping territory. They are concerned that there will not be a comprehensive climate plan, causing some communities to be at a higher risk of outages because of these inconsistencies.

The commenter calls for the utilities to coordinate with watershed management organizations when developing floodwalls. While floodwalls can increase resiliency for particular

substations, floodwalls can decrease resilience of an entire waterway. Further, the commenter calls for the utilities to support equitable outcomes for customers that are from a disadvantaged background even if they are not located in a Disadvantaged Community. The Disadvantaged Community plans rely on US census boundaries, which limits many environmental justice communities from being included. Additionally, they believe real time outage maps should include load shedding. Finally, states an overall concern with the lack of public engagement in this proceeding.

Another commenter requested that the Commission extend the comment deadline because they believe not enough people were aware of the comment period due to the timeline. They advise the Commission in approving the Resilience Plans to not repeat the same mistakes it made approving the deployment of smart meters. Further, they do not believe utilities should raise rates to pay for resiliency equipment that has not been tested for customer and environmental safety. They request the Commission properly vet the equipment before approving the projects. Finally, they believe Con Edison's resilience plan should place wildfires at a higher priority because wildfires are becoming more comment as wind, lightening, and temperatures become more extreme.

Appendix B – Summary of Consolidated Edison Company of New York, Inc.’s Climate Change Resilience Plan

Summary of Con Edison's Climate Change Resilience Plan
Case 22-E-0222

Climate Change Vulnerability Study and Findings

As required by PSL §66 (29), Consolidated Edison Company of New York, Inc. (Con Edison or the Company) prepared a climate change vulnerability study (Study) to assess how climate change impacts the Company's electric system and to inform the development of the Company's climate change resilience plan (Plan). The forecasted impacts to the climate variables assessed by the Company are summarized below in Table 1.

Climate Variable(s)	Forecasted Impact by 2050
Temperature and Temperature Variable (Tv)*	• Projected 32 days with a daily average temperature exceeding 95°, compared to a current baseline of four days. • Projected nine heat waves per year, compared to a current baseline of two.
Sea Level Rise and Deluge Rain (Flooding)	• Projected five days per year with precipitation exceeding 2 inches, compared to a baseline of three. • Projected sea level rise of 16 inches.
Wind and Ice	• Forecasted higher wind gusts and greater potential for severe radial icing events
Extreme Events	• Increased frequency and intensity of extreme weather events.
*Tv is an index that Con Edison used to evaluate system load. It is similar to heat index but considers the persistence of heat and humidity over three days.	

Table 1: Summary of findings on climate variables assessed.

Using the findings of its Study, the Company analyzed the vulnerability that each climate change variable and forecasted climate change impact would have on its assets, operations, and customers. This analysis considered both the degree to which assets may be exposed, as well as the potential

impacts of exposure, defined by infrastructure sensitivity. For temperature and temperature variable, the Company's overhead transmission, substation and underground distribution assets were primary vulnerabilities. For flooding, substation assets were primary vulnerabilities. For wind and ice, overhead distribution assets were primary vulnerabilities.

Engagement with Outside Stakeholders and the Climate Resilience Working Group

Throughout the development of the Study and Plan, Con Edison engaged and coordinated with the other electric utilities in New York State. Con Edison formed a climate resilience working group to share best practices with stakeholders including the New York City Mayor's Office of Climate and Environmental Justice, labor groups, advocacy groups, universities, and other public officials. In total, Con Edison met eight times with its working group between August 8, 2022, and October 30, 2023. The Company solicited feedback from the working group at various stages throughout the planning process and incorporated concerns from the group into the Study and Plan.

Resilience Strategy and Prioritization

To execute its resilience plan, Con Edison developed a multi-value resilience framework that is focused on three strategies. The first strategy is to prevent by implementing proactive measures to both reduce climate change risks and enhance the reliability and resiliency of the Company's electric system. For example, elevating substation equipment that would be vulnerable to flooding due to increased precipitation. The second strategy is to mitigate by implementing processes to reduce the impacts of climate events when they do happen. Since

Con Edison cannot feasibly predict and harden its system to every climate event, it must make its system stronger to tolerate all types of events the system might be exposed to. An example action includes further deploying automating devices to limit an outage's impact when a system failure occurs. The third strategy is to respond by making improvements to facilitate faster event response and restoration times. An example is using smart metering in order to locate outage sources quicker and more efficiently.

The Company also developed a prioritization process. Con Edison's prioritization process, or screening criteria, was based on the Company's Selective Undergrounding Pilot Program, included in the Company's 2022 Rate Case.[1] The screening criteria is a step-by-step process, which starts with identifying where investments would avoid the largest number of outages. Next, the Company would identify where investments would have the greatest impact for critical facilities, such as hospitals and fire stations. Then, the Company would identify Disadvantaged Communities using the NYS Disadvantaged Communities Map. Finally, the assets are prioritized for investment.

Forecasted Costs and Bill Impacts

Company subject matter experts developed a set of preferred adaptation strategies for each primary and secondary climate hazard identified. The resulting package of proposed investments would require approximately $903 million in capital

[1] Case 22-E-0064, Proceeding on Motion of the Commission as to the Rates, Charges, Rules, and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service, Order Adopting Joint Proposal and Establishing Electric and Gas Rate Plans with Additional Requirements (issued July 20, 2023) (2023 Rate Plan).

expenditures and $19 million for operations and maintenance for the first five years of implementation. Based on estimated in-service dates, the Company estimates that the investments would result in a revenue requirement of $173 million over that same period, requiring a five-year cumulative electric delivery impact of 2.1% and five-year cumulative total bill impact of 1.4%. A summary of the capital investments, revenue requirement, total bill change, and other financial markers are summarized in Table 2.

Year	Capital Requested ($000s)	Rate Base ($000s)	Revenue Requirement ($000s)	O&M ($000s)	Delivery (%change)	Total Bill (%change)
2025	91,000	16,000	6,000	2,000	0.1%	0.0%
2026	139,000	66,000	16,000	3,000	0.2%	0.1%
2027	193,000	153,000	31,000	4,000	0.4%	0.3%
2028	222,000	261,000	50,000	4,000	0.6%	0.4%
2029	239,000	371,000	70,000	6,000	0.8%	0.6%

Table 2: Summary of Annual Company capital request, rate base, revenue requirement, operations and maintenance costs, delivery bill impact and total bill impact.

Proposed Investments

Con Edison's Plan proposes a total of 17 projects and programs, or investments. Each addresses at least one of the four climate hazards identified by the Company in its Study and uses at least one of the three strategies proposed by the Company in its Plan. For each of the proposed investments, Con Edison provided project information that contains implementation schedules, estimated costs and qualitative benefits, and a feasibility analysis describing other options that the Company considered. A summary of the proposed investments over the 2025-2029, 2030-2034 and 2035-2044 timeframes is in Table 3.

Program	2025-2029 ($000s)	2030-2034 ($000s)	2035-2044 ($000s)	2025-2044 ($000s)
Primary Feeder Resiliency	113,000	262,100	786,400	1,161,500
Heat Mitigation for Worker Safety	1,000	1,000	2,000	4,000
Micronet Weather Station Expansion	270	-	-	-
Substation Operations Storm Hardening	25,300	470,600	570,200	1,066,100
Submersible Equipment	45,900	24,400	-	70,300
Erosion Protection and Drainage Upgrade	21,800	31,000	77,600	130,400
Green Infrastructure and Rewilding	6,000	6,000	12,000	24,000
Living Shorelines and Nature-Based Solutions	3,300	6,300	600	10,200
Selective Undergrounding	333,000	563,500	1,410,200	2,306,700
Non-Network Resiliency	60,600	78,300	128,200	267,100
Non-Network Resiliency Cutout Upgrade	12,400	4,900	-	17,300
Critical Facilities	39,000	57,000	146,800	242,800
Substation Loss Contingency	25,743	167	415	26,325
Substation Enclosure Upgrades	5,700	8,100	10,200	24,000
Storm Resilience Center	170,000	14,500	36,000	220,600

Storm Response Technology Advancements	21,900	8,200	20,500	50,600
Emergency Outage Communications	20,600	27,000	69,000	119,600
TOTAL	**903,000**	**1,500,000**	**3,286,000**	**5,600,000**

Table 3: Summary of Company program requests in millions of dollars. Figures include both capital and operations and maintenance costs.

Heat

Con Edison proposed three programs that are primarily intended to mitigate the forecasted increase in temperature and temperature variable. These increases can impact Con Edison is several different ways, including accelerated asset degradation and decreased asset capacity.

The first program is the Primary Feeder Resiliency Program. Work performed as part of this program includes bifurcating existing feeders that are prone to failure during heat waves and installing recloser switches that can trip and limit the impact of feeder faults. Con Edison proposes approximately $113 million for this program over the 2025-2029 period and would be an ongoing program with no currently planned ending date.

The next program is Heat Mitigation for Worker Safety. This program pilots several research projects including cooling/reflective hardhat alternatives, heat wicking base-layer garments and emerging portable cooling equipment. According to the Company's Plan, each of these pilots would assist in the comprehensive approach to mitigate heat illness and heat stress of employees due to the exposure of forecasted prolonged heat waves and overall higher temperatures. Con Edison proposes $1 million in capital funding for this program over the 2025-2029 time period.

The third program is the Micronet Weather Station Expansion. Through this program, Con Edison would install an additional two weather stations in its Westchester service territory. According to the Company's Plan, these additional weather stations would allow the Company to collect more data to better understand the impacts of climate change across the service territory. This program has a total capital cost of $244 thousand in the 2025-2029 timeframe.

Flooding

There are five programs in Con Edison's Plan intended to reduce the impact of flooding due to rising sea levels, coastal storms, and increasingly intense precipitation. The potential impacts of flooding and water intrusion include equipment damage and corrosion, as well as limited equipment accessibility to perform maintenance or repairs.

The first program proposed is the Substation Operations Storm Hardening Program. This program builds on the initial substation storm hardening work performed after the impacts of Hurricane Sandy and includes solutions such as the installation of flood walls, sump pumps, and moats, and the elevation of control centers or other critical relays or panels. This program would bring 23 of Con Edison's area and transmission stations to a FEMA+5 feet standard by 2040. The total proposed cost of this program from 2025 to 2044 is approximately $1 billion.

The next program is the Submersible Equipment Program. This program aims to protect underground distribution assets vulnerable to flooding by replacing transformers and network protectors with submersible equipment. The Company's current plan for this program is to replace all equipment identified as

vulnerable according to the FEMA+5 feet flooding standard by the end of 2033 at a total cost of approximately $70 million.

Another program Con Edison proposed is the Erosion Protection and Drainage Upgrade Program. This program would install reinforcements and drainage systems at select substations to protect Company assets from erosion, deluge rain events, or larger storms. According to the Company's Plan, these upgrades would mitigate the risk for equipment damage and failures at area and transmission substations due to prolonged rain events and flooding. The Company has initially identified six substations in scope for upgrades, but this program is an on-going program with no currently planned ending date. The proposed cost for this program from 2025 to 2044 is approximately $130 million.

The final two flooding programs are the Green Infrastructure and Rewilding Program and the Living Shorelines and Nature-Based Solutions Program. According to the Company's Plan, green infrastructure would mitigate the impacts of increased precipitation using rain gardens, bioswales, and other installations, while rewilding would help reduce runoff and erosion by restoring native vegetation. The proposed funding for this program is $1.2 million annually, from 2025 to 2029, and the Company would reevaluate this program in the future to determine funding. As stated in the Company's Plan, the Living Shorelines and Nature-Based Solutions Program would use natural materials to stabilize the shoreline, reduce erosion, and protect against rising sea levels. Con Edison plans to being this program in 2025, requesting $1.5 million in 2025 and 2026 to install approximately 500 feet of living shoreline.

Wind and Ice

Included in the Company's Plan are three programs to address increases in maximum wind gusts and increases in freezing rain frequency and ice accumulation. The potential impacts of these increases include wind or ice loading that exceed National Electric Safety Rule 250B standards for combined wind and ice loading, which the Company's system is built to, as well as increased tree and limb contacts that would cause customers to lose service.

The first program is the Selective Undergrounding Program, an expansion of the pilot program currently authorized as part of the Company's rates. This program would convert overhead electrical lines to underground systems to increase resilience against wind and ice storms. As indicated in the Company's Plan, this program would reduce customer outages and long-term repair costs by focusing on the most at-risk circuits. The Company is requesting $10 million for 2025, in addition to what was already approved by the Commission for this program in the current rate plan, and approximately $320 million between 2026 to 2029 to underground up to 20 miles per year beginning in 2028. This program would continue through 2044.

The next program is the Non-Network Resiliency Program, which builds on the Company's current Non-Network Reliability Program. According to the Company's Plan, this program would both prevent outages and mitigate the extent to which outages do occur by replacing open wire conductor with aerial cable. The Company also plans to install Automatic Transfer Switches and diversify primary sources to the 4 kilovolt system to limit the number of customers experiencing outages from a single fault. The Company does not have a known scope of work to be completed by the end of the 2025-2044 period but intends to ramp up the volume of work performed annually over the first few years of this period, remain level for 10 years, and ramp down the final

seven years. The proposed funding for this program over the 2025-2029 period is $61 million, and over the 2025-2044 period is $267 million.

The third program to combat Wind and Ice projections is the Non-Network Resiliency Cutout Upgrade Program. This program targets the installation of devices with reclosing abilities to mintage outages and limit the impact of climate change on customers by reducing outages caused by temporary faults, such as tree contacts. The Company has identified over 250 priority circuits for installation of approximately 267 reclosing devices. Con Edison's current high-level plan is installing all devices by the end of 2033 with a total program cost of approximately $15 million.

Extreme Events

Although not an explicit climate variable tracked by Con Edison, the Company that there is high confidence that the probability of coincident extreme events, such as hurricanes, extreme heatwaves, deluge rainfall, and Nor'easters, would continue to increase in both frequency and intensity. Accordingly, Con Edison has developed several programs to address the increased risk of infrastructure damage and failure and prolonged customers outages posed by the wide variety of hazard types that may take the form of extreme events.

The first program proposed by the Company is the Critical Facilities Program. According to the Company's Plan, this program would strengthen the distribution system serving vital community facilities to aid in recovery from increasingly frequent and severe weather events. The Company would use one, or more, of several strategies, including undergrounding cables, replacing open wire with aerial cables, redundancy of power source feeders, and configuring circuits for rapid deployment of

emergency backup generation. This builds on the current Con Edison program, of the same name, that has no defined timeframe for completion. The Company is requesting approximately $39 million for this program over the 2025-2029 timeframe and $243 million over the 2025-2044 timeframe.

The next program is the Substation Loss Contingency Program. According to the Company's Plan, this is a continuation of the existing program, of the same name, which would allow for the purchase of additional equipment that can be deployed to facilitate rapid recovery from the loss of a substation. Con Edison is requesting approximately $30 million for this program in capital funding and anticipates completion by the end of 2027.

Another program proposed by the Company is the Substation Enclosure Upgrades Program. This program would upgrade selected outdoor substation enclosures throughout the system by providing weatherproof enclosures for switchgear cubicles and relay cabinets. This is a continuation of the existing Con Edison program, of the same name, with an installation target of two enclosures each year. The Company does not have specific work plans for each substation and would be developing work plans for each region annually. Con Edison is proposing $1.4 million for this program each year, for 2025 through 2029, and plans to continue the program through the 2044 timeframe with annual inflationary cost escalation.

To combat the effects of extreme weather events due to the identified climate change projections, Con Edison and Orange and Rockland are both proposing a Storm Resilience Center. The Center would serve as a central hub for crews, equipment, and emergency response coordination during extreme weather events for both companies. The Center would be specially designed to host up to 500 mutual aid crew members and would eventually be

the year-round home for the forecasted 250+ bucket trucks that the Companies would maintain for fly-in mutual aid crews. As indicated in the Con Edison's Plan, the Storm Resilience Center would reduce outage duration times and costs for customers as it would reduce the time needed to engage mutual aid resources and for them to travel to the territory. The total capital cost share of the project for Con Edison over the 2025-2029 timeframe is approximately $170 million, with Orange and Rockland incurring the remaining cost.

The next program proposed by Con Edison is the Storm Response Technology Advancements Program. This program would fund several pilots and measures such as a dynamic distribution system event simulator, the use of unmanned aerial vehicles to assess damage, self-service kiosks, GPS devices for non-company owned mutual aid field crew vehicles, a mobile application to connect supply vehicles and restoration crews requiring equipment in the field, and other technologies to expedite mutual aid onboarding. The total capital request for this program over the 2025-2027 timeframe is approximately $18 million, with an additional $7 million request between 2030 and 2044.

The final program requested by Con Edison is the Emergency Outage Communications Program. This program would fund the purchasing of extra telecommunication bandwidth to allow the Company to message its entire customer base at once. The capital funding requested for this program is approximately $11 million over the 2025-2029 timeframe, which would cover the infrastructure needed for the increased bandwidth. This includes dedicated ports for contracted telecommunications providers, load balancers to evenly distributed incoming and outgoing data traffic, and the applications needed to send the desire large batches of messages.

Performance Measures

Con Edison's Plan proposed performance measures to track the effectiveness and implementation of programs and projects. As discussed in the Plan, there are no standardized sets of performance measures to gauge the resiliency or improvements in resiliency to the electric system. However, the Company would measure progress, incorporate lessons learned, and improve future iterations of the Plan. Con Edison would track two kinds of performance measures – outcome-based and implementation-based.

According to the Company's Plan, outcome-based measures would assess overall effectiveness of the proposed programs and projects, gauging specific performance measures before and after program implementation or execution. Examples of the outcome-based performance measures proposed by the Company include tracking the impact of major storms, using the Company's Network Resiliency Index to measure resilience of the network distribution system, and measuring outage frequency on non-network circuits both pre- and post-enhancements.

The Company would also track and assess implementation-based measures. These measures would track program progress over time and assess the Company's performance using a traditional project management approach. Performance measures proposed by the Company to track progress include the percentage of plan or project milestones met for various programs, the number of substations identified and completed as part of the Substation Operations Storm Hardening Program, and the number of equipment identified and replaced with submersible equipment as part of the Submersible Equipment Program.

Appendix C – Summary of Niagara Mohawk Power Corporation d/b/a National Grid's Climate Change Resilience Plan

Summary of National Grid's Climate Change Resilience Plan
Case 22-E-0222

Climate Change Vulnerability Study and Findings

As required by PSL §66 (29), Niagara Mohawk Power Corporation d/b/a National Grid (National Grid or the Company) undertook a climate change vulnerability study (Study) to assess how climate change impacts the Company's electric system and to inform the development of the Company's climate change resilience plan (Plan). The forecasted impacts to the climate variables assessed by the Company are summarized below in Table 1.

Climate Variable(s)	Forecasted Impact
High Temperature	• Projected six days with a daily average temperature exceeding 89°F by 2080, compared to a current baseline of less than one day. • Projected maximum summer temperature range from 95°F to 102°F by 2050, compared to a current baseline range from 89°F to 97°F.
Inland Flooding	• Projected to increase as precipitation becomes more variable and high-precipitation events become more frequent and intense.
Wind and Ice	• Forecasted higher wind gusts and greater potential for severe radial icing events.

Table 1: Summary of findings on climate variables assessed.

Using the findings of its Study, the Company analyzed the vulnerability that each climate change variable and forecasted climate change impact would have on its assets, operations and, customers. This analysis considered the degree

to which assets may be exposed, as well as the potential impacts of exposure, defined by infrastructure sensitivity. For temperature, the Company's overhead transmission, substation, and overhead distribution assets were primary vulnerabilities. For flooding, substation assets were primary vulnerabilities. For wind and ice, overhead transmission and overhead distribution assets were primary vulnerabilities.

Engagement with Outside Stakeholders and the Climate Resilience Working Group

Throughout the development of the Study and Plan, National Grid engaged and coordinated with the other electric utilities in New York State. National Grid convened a climate resilience working group to share best practices with stakeholders including labor groups, consumer advocacy groups, universities, and public officials. In total, National Grid met three times with the climate resilience working group between February 13, 2023, and November 21, 2023. The Company solicited feedback from the working group at various stages throughout the planning process and incorporated concerns from the group into its vulnerability study and resilience plan.

Resilience Strategy and Prioritization

National Grid developed a multi-pronged resilience framework that is focused on four objectives. The first objective is to withstand, by exploring measures that provide physical strength to assets to withstand structural loads that may occur during extreme weather events. An example would be to install substation flood walls that would withstand flooding due to increased precipitation. The second objective is to absorb, by considering measures that reduce impacts to electrical

service should an asset fail. An example action includes strengthening the overhead system with higher class poles (e.g., Class 3 to Class 1). The third objective is to recover, by exploring procedures designed to restore the service to normal levels in the aftermath of a climate hazard event. An example includes having spare transmission structures available for repairs. The fourth objective is to adapt, by addressing a continuously changing climate hazard landscape and the need for perpetual improvement in resilience. An example would be updating distribution design software modeling tools with the latest wind gust and icing climate data.

The Company also developed a prioritization process, the National Grid Business Case Justification (BCJ). The BCL framework is a scoring metric based on three considerations. The first is system reliability, and its score provides insight into whether a resilience measure being proposed is in an area with historically lower reliability relative to others in the service territory. The second is "criticality", which is based on how many critical facilities the substation serves, such as hospitals, police stations, water treatment plants, and shelters. The third is community resilience, and it provides insight on the extent and likelihood of commercial and residential activity loss in the region due to an electrical outage. It is based on the outage duration, the amount of critical facilities and the population they serve, the number of customers served, and likelihood of exposure to a climate hazard.

Forecasted Costs and Bill Impacts

National Grid developed a set of adaptation strategies and proposed investments that would require approximately $244

million in capital expenditures and $13 million in operational expenditures for implementation of its Plan over the first five years. Based on estimated in-service dates, the Company estimates that the investments would result in a revenue requirement of $23 million over that same period, requiring a five-year cumulative electric delivery impact of 0.81% and five-year cumulative total bill impact of 0.66%. A summary of the capital investments requested, revenue requirement, total bill change, and other financial markers are summarized below in Table 2.

Year	Capital Requested ($000s)	Revenue Requirement ($000s)	O&M ($000s)	Delivery (%change)	Total Bill (%change)
FY26	22,700	782	0	0.03%	0.02%
FY27	37,100	3,078	0	0.11%	0.09%
FY28	63,000	11,697	4,300	0.41%	0.34%
FY29	60,100	17,432	4,300	0.61%	0.50%
FY30	58,800	22,967	4,300	0.81%	0.66%

Table 2: Summary of Annual Company capital request, rate base, revenue requirement, operations and maintenance costs, delivery bill impact and total bill impact.

Proposed Investments

National Grid proposes six programs in its Plan. For each of the proposed programs, National Grid provided program data sheets which contained implementation schedules, estimated costs, and qualitative benefits. A summary of the proposed investments over the 5-year, 10-year, and 20-year timeframes is shown below in Table 3.

Program	5-Year FY26-FY30 ($ Millions)	10-Year FY26-FY35 ($ Millions)	20-Year FY26-FY45 ($Millions)
Overhead Distribution and Sub-Transmission Line Design Upgrades	$133	$328	$879

Overhead Transmission Line Design Upgrades	$33	$59	$109
Distribution Targeted Undergrounding	$51	$138	$348
Spare Transmission Line Structures	$2	$2	$2
Substation Flood Wall	$19	$28	$28
Distribution and Transmission Substation Transformer Specification Upgrades	$7	$14	$25
TOTAL	**$244**	**$567**	**$1,390**

Table 3: Summary of Company program funding requests in millions of dollars.

Overhead Distribution and Sub-Transmission Line Design Upgrades

The Overhead Distribution and Sub-Transmission Line Design Upgrades Program upgrades the distribution and sub-transmission line design standard to withstand more than the weather loading of 0.5 inches of icing and 40 mph wind gusts required by the National Electric Safety Code. For distribution lines, this means that future pole additions or replacements would utilize larger Class 1 poles (rather than Class 3 poles typically used) for 3-phase mainline areas as well as for poles carrying significant equipment such as regulators, capacitor banks, and ratio transformers. For sub-transmission lines, future pole additions or replacements would use larger Class 1 poles for single circuit structures, Class H1 for double circuit structures, and Class H2 for double circuit structures with distribution underbuilt or with multiple third-party attachments. It is anticipated that approximately 8,000 distribution poles, and 900 sub-transmission poles per year would be impacted by design standard upgrades from Fiscal Year (FY) 2026 to FY 2030 at an estimated cost of $133 million.

Overhead Transmission Line Design Upgrades

The Overhead Transmission Line Design Upgrades Program upgrades the transmission line design standard to withstand up to 120 mph wind gusts in areas of projected high winds, an increase from the 95 mph required by the current National Electric Safety Code standard. This means that future transmission line upgrades and rebuilds in high wind areas would use thicker steel, base plates, foundations, cross bracing, and other equipment as needed to withstand higher wind gusts. It is anticipated that approximately 360 transmission structures per year would be impacted by design standard upgrades from FY 2026 to FY 2030 at an estimated cost of $33 million.

Distribution Targeted Undergrounding

The Distribution Targeted Undergrounding Program would underground portions of the overhead distribution system in areas with projected wind gusts over 50 miles per hour and icing events resulting in over 0.75 inches of radial icing. The Company plans to target 3-phase mainline sections of distribution circuits and would give priority to circuits that have been identified as a "worst performing circuit" in the past five calendar years and circuits with higher outage frequency impacts from tree and wind events in the last five calendar years. Approximately one to two miles of overhead distribution feeders would be replaced with underground construction each year, from FY 2026 to FY 2030, at estimated cost of $51 million.

Spare Transmission Line Structures

The Spare Transmission Line Structures Program would purchase 10 spare 115 kilovolt transmission structures for each division (east, west, and central). These structures would be

designed to withstand 120 mph wind gusts during future events. According to the Company's Plan, having spare structures would speed up restoration for structure failures that may occur prior to upgrades and would allow those replaced structures to withstand the projected higher wind gusts. This program has a total capital cost of $2 million in the FY 2026 to FY 2030 timeframe.

Substation Flood Wall

The Substation Flood Wall Program would install flood walls around the perimeter of substations that were identified as being at increased risk of flooding based on their FEMA flood risk designation, as well as considering an area's future flood risk based on the Company's Climate Change Risk Tool. Flood walls are designed to prevent damage to critical assets and allow substations to stay in service during flooding events. A total of approximately 17,000 linear feet of flood walls would be installed or supplemented, from FY 2026 through FY 2030, at 8 distribution and 10 transmission substations. The total proposed cost of this program from FY 2026 to FY 2030 is approximately $19 million.

Distribution and Transmission Substation Transformer Specification Upgrades

The Distribution and Transmission Substation Transformer Specification Upgrades Program would upgrade transformer design specifications for peak average ambient temperature of 35°C (95°F), an increase from the current 32°C (90°F). The increase in design temperature would allow transformers to operate at the higher temperatures projected for 2050 and beyond, while maintaining their capacity ratings and

reducing damage or loss of life due to high temperatures. These changes would impact currently planned and all future projects. Upgrading transformer specifications would reduce the potential that the load capacity of transformers would be reduced during extreme heat events and would allow National Grid to continue to serve customers while experiencing high temperatures. According to the Company's Plan, without this investment, substation transformers can experience accelerated degradation or risk customer outages due to failures or load shedding to avoid equipment damage. It is anticipated that approximately 66 transmission and distribution transformers would be impacted by design standard upgrades from FY26 to FY30 at an estimated cost of $7 million.

Performance Measures

National Grid's Plan proposes performance measures to track the effectiveness and implementation of programs. National Grid plans to track project status and gauge specific performance measures before and after program implementation or execution. The Company would track program progress over time and assess the Company's performance using a traditional project management approach. Examples of program status measures to track progress include the percentage of plan or project milestones met and the planned cost or cost to date for each of the programs. Examples of the performance metrics proposed by the Company to gauge program performance include measuring outage frequency and number of outages on circuits pre- and post-enhancements.

Appendix D – Summary of New York State Electric and Gas Corporation's Climate Change Resilience Plan

Summary of New York State Electric and Gas (NYSEG) Climate Change Resilience Plan
Case 22-E-0222

Climate Change Vulnerability Study and Findings

As required by PSL §66 (29), New York State Electric and Gas Corporation (NYSEG or the Company), in partnership with Rochester Gas and Electric Corporation RG&E), performed a climate change vulnerability study (Study) to update its understanding of the climate risks associated with its electric system and to inform the development of the Company's climate change resilience plan (Plan). The forecasted impacts to the climate variables assessed by the Company are summarized below in Table 1.

Climate Variable(s)	Forecasted Impact by 2050
High Temperature	• 11 days projected daily maximum temperatures exceeding 95°, compared to a current baseline of one.
Flooding	• Projections show an average increase of two inches of increased flood depth for substations that are in the FEMA 100-year floodplain.
Wind	• Extreme wind speeds and gusts are projected to increase in both frequency and intensity by mid- through late century.
Wind and Ice	• Decreased frequency and increase of intensity of ice storm events.

Table 1: Summary of findings on climate variables assessed.

Using the findings of its Study, the Company analyzed the vulnerability that each climate change variable and forecasted climate change impact would have on its system. This analysis considered both the degree to which assets may be

exposed and the potential impacts of exposure. For high temperature and flooding, the Company's substation assets were primary vulnerabilities. For wind, transmission and distribution assets were primary vulnerabilities. For wind and ice, all assets were identified as being vulnerable.

Stakeholder/Working Group Engagement

NYSEG coordinated with the other electric utilities in New York State during the development of the Study and Plan. In partnership with RG&E, NYSEG formed a climate resilience working group to discuss climate resilience topics with interested stakeholders. Involvement in this working group was open to the public. In total, NYSEG met five times with interested stakeholders between September 22, 2022, and September 28, 2023. The Company solicited feedback form the working group at various stages throughout the planning process and incorporated comments and concerns from the group into its Study and Plan.

Resilience Strategy and Prioritization

NYSEG developed a multi-pronged resilience strategy that is focused on four objectives. The first objective is to strengthen and withstand against the impacts of climate change by implementing proactive measures to reduce climate change risks and enhance the reliability and resiliency of the Company's electric system. An example would be to upgrade transmission assets to withstand extreme wind and the combined effects of wind and ice events. The second objective is to anticipate and absorb impacts by reinforcing assets to reduce impacts to electrical service in the event of an asset failure. An example would be to raise equipment at a substation to mitigate against potential flood damage. The third objective is

to respond and recover. The primary focus of this objective is to improve the system to reduce recovery and outage times. The fourth objective is to advance and adapt to impacts, and it aims to use data from previous experiences and incorporate it into future planning, design, and operation practices. An example would be to relocate an asset to limit the exposure to a climate-driven risk. Additionally, the Company developed a Business Case Justification framework to prioritize projects.

Forecasted Costs and Bill Impacts

As stated in NYSEG's Plan, the Company has ongoing programs and projects in current business-as-usual activities that address many of the vulnerabilities identified in its Study. These programs and projects are included in the Company's current rate plan and their forecasted implementation schedules are not explicitly discussed in the Plan. Alternatively, NYSEG identified substation transformer ambient temperature specification updates that would result in an incremental funding of approximately $164,000 per year during the first five years of Plan implementation. The incremental rate impact resulting from substation transformer upgrades is not significant, and therefore, the Company plans to defer the associated costs for recovery until its next rate case.

Proposed Investments

In NYSEG's Plan, four categories of projects are discussed: Substation Transformer Temperature Specification Update, Substation Flood Protection, Transmission Line Upgrades and Distribution Resiliency Projects. For each climate hazard identified in the Study, NYSEG discussed current activities and discussed future measures that could address the hazards

identified. For Substation Transformer Temperature Specification Updates, NYSEG identified incremental cost increases for the first five years of Plan implementation. For Substation Flood Protection, the Company provided conceptual cost estimates for projects that could be performed in the 10-year or 20-year timeframe. NYSEG did not identify future investments for Transmission Line Upgrades. Regarding the Distribution Resiliency Projects, investments for 2025 and 2026 are already in the current rate plan, and the Company only provided forecasted investments for 2027 to 2029. Additional information for all four categories of projects was provided in response to a Department Staff interrogatory, and this information was used to develop the summary of the Company's forecasted investments shown below in Table 2.[1]

Program	**2025-2029 ($000s)**	**2030-2035 ($000s)**	**2035-2040 ($000s)**	**2040-2045 ($000s)**
Substation Transformer Temperature Specification Update[2]	820	NA	NA	NA
Distribution Resiliency Projects	104,500	175,000	175,000	175,000
Substation Flood Protection[3]	Rate Plan	60,000		

[1] Response to DPS-34 NYSEG.

[2] According to the response to DPS-34, future filings will not include incremental funding if the Substation Transformer Temperature Specification Update costs can be captured in future base rates.

[3] According to response to DPS-34, Substation Flood Mitigation projects are anticipated to occur in the 10-year and 20-year periods, and these projects will undergo complete solution alternative and engineering analysis prior to being implemented.

Transmission Line Upgrades	Any additional needs for upgrades would be identified as part of business-as-usual activities[4]

Table 2: Summary of forecasted investments for 2025 through 2045. Figures include both capital and operations and maintenance costs.

Substation Transformer Temperature Specification Update

The cost of updating the Substation Transformer Temperature Specifications include incremental costs for purchasing substation transformers with increased ambient temperature standard. According to NYSEG's Plan, this specification update would allow newly installed substation transformers to better withstand future extreme temperatures and increase the size and cost of transformers. This new program has planned end date and would cost approximately $0.82 million in the first five years (2025-2029) of Plan implementation.

Substation Flood Protection

NYSEG identified four substations for flood mitigation work. According to the Company's Plan, these four substations are being considered for rebuild due to their age, asset condition issues, and floodplain locations. Each location would be reviewed and analyzed prior to selecting it for rebuild or an alternative solution, such as installing floodwalls and elevating equipment. The total conceptual cost of rebuilding these substations between 2030 to 2045 is $60 million.

Transmission Line Upgrades and *Distribution Resiliency Projects*

The Company plans to make enhancements to its transmission and distribution systems to reduce the potential impact of wind and combination effects of wind and ice on

[4] Response to DPS-34 NYSEG.

overhead equipment. Upgrading transmission lines is a continuation of existing activities that address asset conditions to limit transmission line failures and improve reliability. No additional funding is included in the Plan for transmission line upgrades, and NYSEG would continue to perform these activities as part of existing programs and projects.

The Distribution Resiliency Project category includes infrastructure hardening, distribution automation, and vegetation management. Examples of work activities performed within this category include replacement of defective poles, undergrounding, installation of switches, and tree trimming. As previously stated, investments for 2025 and 2026 are already in the current rate plan, and the Company forecasts a total investment of approximately $36.3 million for 2027 to 2029.

Performance Measures

NYSEG proposed performance measures to track the effectiveness of the incremental project proposals included in its Plan. For Substation Transformer Temperature Specification Updates, the Company plans to track the number of transformers that meet the latest temperature specification. For Substation Flood Protection, flood damage experienced at locations with completed flood mitigation protection would be tracked. For Distribution Resiliency Projects, NYSEG plans to track the frequency of outages on hardened circuits post-resiliency implementation activities and compare that to the frequency of outages prior to harden respective circuits as part of the Distribution Resiliency Project category.

Appendix E – Summary of Central Hudson Gas and Electric Corporation's Climate Change Resilience Plan

Summary of Central Hudson's Climate Change Resilience Plan
Case 22-E-0222

Climate Change Vulnerability Study and Findings

As required by PSL §66 (29), Central Hudson Gas and Electric Corporation (Central Hudson or the Company) undertook a climate change vulnerability study (Study) to assess how climate change impacts the Company's electric system and to inform the development of the Company's climate change resilience plan (Plan). The forecasted impacts of the climate variables assessed by the Company are summarized below in Table 1.

Climate Variable(s)	**Forecasted Impact by 2050**
Extreme Heat (Transmission & Substation)	• Under high-end SSP5-8.5 90th percentile scenario,[1] transmission assets are projected to be exposed to 13 to 23 days each year with daily average temperatures above 86°F, compared to a baseline of less than one day each year. Under low-end SSP2-4.5 50th percentile scenario, the exposure is projected to be 1 to 3 days each year. • Substation Assets – high-end Scenario: could be exposed to two to seven days each year with temperatures exceeding 104°F, compared to a baseline of zero day each year. Under low-end SSP2-4.5 50th percentile scenario, the exposure is projected to be less than 0.1 days each year.
Extreme Cold	• Overall asset exposure is projected to be low.

[1] Shared Socioeconomic Pathways represent a range of future climate change scenarios *and development pathways* that encompass various trajectories of global greenhouse gas emissions.

Flooding (Distribution & Substation)	• 100-year floodplain: Small portion of assets could be exposed to both inland and coastal flooding. • Inland flooding: 3 substations (3% of assets); 10,371 distribution poles (4%) and 675 transmission structures (8%). Coastal Flooding: 2 substations (2%); 1,153 distribution poles (less than 1%) and 15 transmission structures (less than 1%).
Extreme Precipitation	• Increased intensity of extreme weather events but frequency to be in line with present day.
Extreme Wind	• Increased intensity of low probability wind gusts

Table 1: Summary of findings on climate variables assessed.

Central Hudson's Study analyzed the vulnerability of distribution, transmission, and substation assets against five climate hazards: extreme heat, extreme cold, flooding, extreme precipitation, and wind. The analysis considered both the degree to which assets may be exposed, as well as the potential impacts of exposure, defined by infrastructure sensitivity. The Study found that the Company's distribution assets are most vulnerable to wind and flooding. Transmission assets are most vulnerable to extreme wind, extreme heat, and precipitation. Finally, Substation assets are most vulnerable to extreme heat and flooding.

Engagement with the Climate Resilience Working Group

During the development of the Study and Plan, Central Hudson established a climate resilience working group to engage with stakeholders and community representatives. The working group includes government officials, first responders, and consumer and environmental advocates. Central Hudson met six times with stakeholders between September 21, 2022 and November

2, 2023. The Company solicited feedback form the working group at various stages throughout the development of the Study and Plan and incorporated comments and concerns from stakeholders into the Study and Plan.

Resilience Strategy and Prioritization

Central Hudson adopted a multi-pronged resilience strategy to develop and execute its Plan. This strategy is based on four key components of the Company's resilience framework. The first component is to withstand or strengthen assets to resist adverse climate impacts. The second component is to absorb or increase the system's ability to anticipate climate hazards. The third component looks to improve the system's ability to respond to and recover from climate hazards. The final component of the resilience framework is to adapt the Company's system to the continuously changing climate vulnerabilities. As provided in PSL §66 (29), this is an iterative process, and the Company will continue to update its Plan on a five-year cycle going forward. This will address gradual changes in climate variables.

The prioritization of resilience projects involves many steps, Central Hudson developed a project prioritization process. The process identifies preliminary measures, screens and refines these measures, assesses the measures using a specific analysis, and ranks these measures. Following the development of the resilience framework, Central Hudson conducted a Multi-Criteria Decision Analysis (MCDA) to assess projects that need to be implemented to make the Company's system less vulnerable to climate hazards. The MCDA considers many factors and evaluation criteria, such as: the effectiveness of a measure to the electric service, the measure's ability to address a component of the Company's resilience framework, the

measure's potential cost impact, and the extent to which the measure addresses community resilience (i.e., Disadvantage Communities, critical facilities).

Forecasted Costs and Bill Impacts

The proposed programs and projects that Central Hudson identified in its Plan would result in implementation costs of approximately $23 million in capital expenditures and $5.4 million for operations and maintenance (O&M) during the first five years (2025 through 2029) of the implementation of the Plan. Based on estimated in-service dates of the proposed projects, the Company estimated that the investments would result in an average annual increase of 0.14 percent in the electric delivery portion of a customer bill and an average annual total bill increase of 0.06 percent. A summary of the capital and O&M investments requested, revenue requirement, total bill, and delivery changes for 2025 through 2029 are summarized below in Table 2. The projected expenditures over the next 10 years (2025 through 2034) is estimated to be 67.3 million in capital expenditures and $11.5 million for O&M. Over the next 20 years (2025 through 2044), the implementation of the Company's resilience programs and projects will result in investments of approximately $143.9 million in capital expenditures and $25.5 million in O&M.

Year	Capital Requested ($000s)	Revenue Requirement ($000s)	O&M ($000s)	Delivery (%change)	Total Bill (%change)
2025	4,610	1,097	1,170	0.25%	0.1%
2026	4,560	486	1,050	0.11%	0.05%
2027	5,350	485	1,050	0.11%	0.05%
2028	4,390	479	1,050	0.11%	0.05%
2029	4,330	469	1,050	0.11%	0.04%

Table 2: Summary of annual Company capital request, revenue requirement, operations and maintenance costs, delivery bill impact and total bill impact.

Proposed Investments

Central Hudson proposes 13 asset-focused and four process-focused measures for implementation within the next 20 years. Examples of asset-focused measures include programs such as strategic undergrounding and lateral line rebuilds, which are intended to harden or protect the Company's assets against climate hazards. Alternatively, process-focused measures would modify certain processes to better protect the Company's electric distribution and transmission systems. Incremental inspections of substations following climate hazard events and installation of protective physical barriers at the base of poles in flood zones are two examples of process-focused measures. According to Central Hudson's Plan, each asset-focused or process-focused measure will address at least one of the climate hazards identified by the Company in its Study. A summary of the proposed investments over the 2025-2029, 2030-2034, and 2035-2044 timeframes is shown below in Table 3.

Program	**2025-2029 ($000s)**	**2030-2034 ($000s)**	**2035-2044 ($000s)**
High Temperature Low Sag (HTLS) conductor for the 69kV HG Transmission Line	605	-	-
Converse Street Substation – Raise Switchgear	1,000	-	-
Forgebrook Substation – Raise Switchgear	-	4,000	-
Hurley Avenue Substation – Raise Switchgear	-	4,000	-

Strategic Undergrounding Program	10,000	15,000	40,000
Targeted Ground-to-sky Trimming Program	5,250	6,125	14,000
Lateral Line Rebuilds Using Composite Poles Program	11,250	12,188	26,250
3078 Circuit - Microgrid Cragsmoor	-	4,550	-
3078 Circuit - Microgrid Spring Glen	-	4,550	-
2387 Circuit Microgrid Lanesville	-	-	4,550
7081 Circuit Microgrid Millerton	-	-	5,800
SR Transmission Line Hazard Tree Removals	30	-	-
HG Transmission Line Hazard Tree Removals	90	-	-
Pole Wrap Installation for New Poles within Floodplains	388	TBD	TBD
TOTAL	**28,600**	**50,400**	**90,600**

Table 3: Summary of Central Hudson's proposed investment plan. Figures include both capital and operations and maintenance costs.

Extreme Heat

In the Plan, Central Hudson proposes to use High Temperature Low Sag (HTLS) conductors for the 69kV HG Transmission Line rebuild project. Using HTLS as opposed to a conventional conductor will mitigate transmission cable sagging into vegetation during periods of sustained high temperatures.

Central Hudson proposes approximately $605,000 for this project for 2025 through 2028. The HG Line rebuild is already included in the Company's capital plan, and the proposed funding represents incremental cost associated with using HTLS conductor over approximately 16 miles of the HG Line.

Extreme Precipitation and Flooding

There are three asset-focused projects and four process changes in the Plan that address extreme precipitation and flooding. The first asset-focused project is the Converse Street Substation – Raise Switchgear. This project aims to protect switchgear equipment at the Converse Street Substation, which is located within the Federal Emergency Management Agency (FEMA) 100-year floodplain. The Company proposed approximately $1 million total for 2026 and 2027 for the work associated with raising the equipment three feet from ground level to mitigate against flooding.[2] The next two projects are the Forgebrook Substation – Raise Switchgear and the Hurley Avenue Substation – Raise Switchgear. Similar to the Converse Street Substation, the Company proposed to raise switchgear equipment at the Forgebrook Substation and the Hurley Avenue Substation. Each of these two projects is budgeted at approximately $4 million, and work is forecasted to be performed between 2030 and 2035.

Regarding the four process changes that address extreme precipitation and flooding, Central Hudson proposed to install wraps for poles within floodplains, add floodplain considerations in capital budget project submittal forms, inspect vulnerable substations following significant rain and flooding events, and modify transmission design guidelines to consider the use of alternate structure design when replacing a

[2] Response to DPS-002 CH.

structure within the 100-year floodplain. To install wraps for poles located in flood zones, the Company proposed $387,750 total funding for 2025 through 2029 but did not propose any incremental funding to implement the other three process changes. According to the Company's Plan, using pole wraps would protect poles from water damage and increase their lifespan. By adding floodplain considerations in submittal forms for new construction projects, the Company aims to mitigate flood impacts to distribution and substation assets. Lastly, by inspecting substations following events and modifying transmission guidelines, Central Hudson seeks to minimize flood-related damage and ensure that the Company's system is prepared to absorb and recover from flood impacts.

Extreme Wind

There are three programs in Central Hudson's Plan that aim to mitigate wind impact on the Company's overhead distribution system. The three programs will be performed on 37 distribution circuits that the Company identified as priority assets in its Plan. The primary goals of the programs are to address areas with a historically high frequency of circuit outages due to tree contact on electric distribution infrastructure. The first program is the Strategic Undergrounding Program. The Company proposed $10 million for 2025 through 2029 and $55 million for 2030 through 2044 to relocate electric distribution infrastructure from overhead to underground. Central Hudson plans to complete, on average, one mile of undergrounding each year for the first five years of the program. The next program is the Targeted Ground-to-sky Trimming Program. Work performed as part of this program includes tree trimming and tree removals within the Company's

distribution right-of-way.[3] The Company proposed approximately $5.3 million for 2025 through 2029 and $20 million for 2030 through 2044. The third and final program is the Lateral Line Rebuilds Using Composite Poles Program. As part of this program, Central Hudson will use tree wires, spacer cables and composite poles to rebuild primarily single-phase lines that are in remote areas and at the edges of the Company's service territory. On average, six miles of lateral lines are forecasted to be rebuilt for the first five years of this program. The Company proposed approximately $11.3 million for 2025 through 2029 and $38.4 million for 2030 through 2044.

In addition to the three programs, Central Hudson includes six projects in its Plan to address wind impact on specific distribution and transmission circuits. The projects that address distribution circuits are: 3078 Circuit Microgrid Cragsmoor, 3078 Circuit Microgrid Spring Glen, 2387 Circuit Microgrid Lanesville and 7081 Circuit Microgrid Millerton. Each project on Circuit 3078 is forecasted to be performed between 2030 and 2034 at an estimated cost of $4.6 million. The other two projects are expected to be performed between 2035 and 2044 at estimated costs of $4.6 million and $5.8 million for Circuit 2387 and Circuit 7081, respectively. According to the Company, each of these four projects will provide automated redundancy to customers when there is a circuit interruption, will be performed on circuits with historically poor reliability performances, and will be performed on circuit sections located at the edges of Central Hudson's service territory.[4] Regarding the transmission system, Central Hudson proposed two hazard tree removal projects: SR Transmission Line Hazard Tree Removals and

[3] Response to DPS-003 CH.

[4] Responses to DPS-022 CH; DPS-024 CH; DPS-026 CH; and DPS-029 CH.

HG Transmission Line Hazard Tree Removals. For both transmission lines, the Company plans to perform hazard tree removal work on portions of the lines that have been susceptible to tree-related outages in recent years. The forecasted costs are $30,000 and $90,000 for the work to be completed on the 0.6-mile portion of the SR Line and the 2-mile portion of the HG line, respectively.

Performance Measures

As discussed in Central Hudson's Plan, the Company intends to track the effectiveness of proposed programs and projects based on the goals and anticipated benefits of each program or project. Performance measures will rely on pre-event and post-event data to link performance issues to extreme weather events. Examples of performance measures proposed by the Company include evaluating tree-related outage frequency based on a comparison of three-year pre-implementation and three years of post-implementation data, tracking the number of transmission circuit interruptions in areas where mitigation work has been performed, and evaluating the number of microgrid operations and the associated number of customers that are not interrupted due to successful microgrid operations. The Company plans to include performance measures in future iterations of the Plan but notes that several climate-related uncertainties can affect the Company's ability to distinguish pre-impact and post-impact measurements. As such, the Company may look to refine certain performance measures in the future to account for uncertainties.

Appendix F – Summary of Rochester Gas and Electric Corporation's Climate Change Resilience Plan

Summary of Rochester Gas and Electric (RGE) Climate Change Resilience Plan
Case 22-E-0222

Climate Change Vulnerability Study and Findings

As required by PSL §66 (29), Rochester Gas and Electric Corporation (RG&E or the Company), in partnership with New York State Electric and Gas Corporation (NYSEG), performed a climate change vulnerability study (Study) to update its understanding of the climate risks associated with its electric system and to inform its climate change resilience plan (Plan). The forecasted impacts of the climate variables assessed by the Company are summarized below in Table 1.

Climate Variable(s)	Forecasted Impact by 2050
High Temperature	• 11 days projected daily maximum temperatures exceeding 95°, compared to a current baseline of one.
Flooding	• Projections show an average increase of two inches of increased flood depth for substations that are in the FEMA 100-year floodplain.
Wind	• Extreme wind speeds and gusts are projected to increase in both frequency and intensity by mid- through late century.
Wind and Ice	• Decreased frequency and increased intensity of ice storm events.

Table 1: Summary of findings on climate variables assessed.

Using the findings of its Climate Change Vulnerability Study, the Company analyzed the vulnerability that each climate change variable and forecasted climate change impact would have on its system. This analysis considered both the degree to

which assets may be exposed and the potential impacts of exposure. For high temperature and flooding, the Company's substation assets were primary vulnerabilities. For wind, transmission and distribution assets were primary vulnerabilities. For wind and ice, all assets were identified as being vulnerable.

Stakeholder/Working Group Engagement

RG&E coordinated with the other electric utilities in New York State during the development of the Study and Plan. In partnership with NYSEG, RG&E formed a climate resilience working group to discuss climate resilience topics with interested stakeholders. Involvement in this working group was open to the public. In total, RG&E met five times with interested stakeholders between September 22, 2022, and September 28, 2023. The Company solicited feedback from the working group at various stages throughout the planning process and incorporated comments and concerns from the group into its Study and Plan.

Resilience Strategy and Prioritization

RG&E developed a multi-pronged resilience strategy that is focused on four objectives. The first objective is to strengthen and withstand against the impacts of climate change by implementing proactive measures to reduce climate change risks and enhance the reliability and resiliency of the Company's electric system. An example would be to upgrade transmission assets to withstand extreme wind and the combined effects of wind and ice events. The second objective is to anticipate and absorb impacts by reinforcing assets to reduce impacts to electrical service in the event of an asset failure. An example would be to raise equipment at a substation to mitigate against potential flood damage. The third objective is

to respond and recover. The primary focus of this objective is to improve the system to reduce recovery and outage times. The fourth objective is to advance and adapt to impacts, and it aims to use data from previous experiences and incorporate it into future planning, design, and operation practices. An example would be to relocate an asset to limit the exposure to a climate-driven risk. Additionally, the Company developed a Business Case Justification framework to prioritize projects.

Forecasted Costs and Bill Impacts

As stated in RG&E's Plan, the Company has existing programs and projects currently used that address many of the vulnerabilities identified in its Study. These programs and projects are included in the Company's current rate plan and their forecasted implementation schedules are not explicitly discussed in the Plan. However, RG&E's Plan identified updates to the substation transformer ambient temperature specification that would result in an incremental funding of approximately $146,000 per year during the first five years of Plan implementation. The incremental rate impact resulting from substation transformer upgrades is not significant, and therefore, the Company plans to defer the associated costs for recovery until its next rate case.

Proposed Investments

In RG&E's Plan, four categories of projects are discussed: Substation Transformer Temperature Specification Update, Substation Flood Protection, Transmission Line Upgrades and Distribution Resiliency Projects. For each climate hazard identified in the Study, RG&E discussed its current projects and programs and discussed future measures that could address the hazards identified. For Substation Transformer Temperature

Specification Updates, RG&E identified incremental cost increases for the first five years of Plan implementation. For Substation Flood Protection, the Company provided conceptual cost estimates for projects that could be performed in the 10-year or 20-year timeframe. RG&E did not identify future investments for Transmission Line Upgrades. Regarding the Distribution Resiliency Projects, investments for 2025 and 2026 are already in the current rate plan, and the Company only provided forecasted investments for 2027 to 2029. Additional information for all four categories of projects was provided in response to a Department Staff interrogatory, and this information was used to develop the summary of the Company's forecasted investments shown below in Table 2.[1]

Program	**2025-2029 ($000s)**	**2030-2035 ($000s)**	**2035-2040 ($000s)**	**2040-2045 ($000s)**
Substation Transformer Temperature Specification Update[2]	730	NA	NA	NA
Distribution Resiliency Projects	36,300	75,000	75,000	75,000
Substation Flood Protection[3]	None Proposed	15,000		

[1] Response to DPS-36 RG&E.

[2] According to the response to DPS-36, future resilience plan filings will not include incremental funding if the Substation Transformer Temperature Specification Update costs can be captured in future base rates.

[3] According to response to DPS-36, Substation Flood Mitigation projects are anticipated to occur in the 10-year and 20-year periods, and these projects will undergo complete solution alternative and engineering analysis prior to being implemented.

Transmission Line Upgrades	Any additional needs for upgrades would be identified as part of business-as-usual activities[4]

Table 2 Summary of forecasted investments for 2025 through 2045. Figures include both capital and operations and maintenance costs.

Substation Transformer Temperature Specification Update

The cost of updating the Substation Transformer Temperature Specifications include incremental costs for purchasing substation transformers with increased ambient temperature standards. According to RG&E's Plan, this specification update would allow newly installed substation transformers to better withstand future extreme temperatures and increase the size and cost of transformers. This new program has planned end date and would cost approximately $0.73 million in the first five years (2025-2029) of Plan implementation.

Substation Flood Protection

RG&E plans to address one substation under the flood protection category. According to the Company's Plan, this substation is aging, has asset condition issues, and is in the FEMA 100-year floodplain. Rebuilding it outside of the floodplain would reduce potential flooding and water intrusion impacts on substation equipment. The total conceptual cost of relocating this station between 2030 to 2045 is $15 million.

Transmission Line Upgrades and *Distribution Resiliency Projects*

The Company plans to make enhancements to its transmission and distribution systems to reduce the potential impact of wind and combination effect of wind and ice on overhead equipment. Upgrading transmission lines is a

[4] Response to IR DPS-36 RG&E.

continuation of existing Company activities that address asset conditions to limit transmission line failures and improve reliability. No additional funding is included in the Plan for transmission line upgrades, and RG&E would continue to perform these activities as part of existing programs and projects.

The Distribution Resiliency Project category includes infrastructure hardening, distribution automation, and vegetation management. Examples of work activities performed within this category include replacement of defective poles, undergrounding, installation of switches, and tree trimming. As previously stated, investments for 2025 and 2026 are already in the current rate plan, and the Company forecasts a total investment of approximately $36.3 million for 2027 to 2029.

Performance Measures

RG&E proposed performance measures to track the effectiveness of the incremental project proposals included in its Plan. For Substation Transformer Temperature Specification Updates, the Company plans to track the number of transformers that meet the latest temperature specification. For Substation Flood Protection, flood damage experienced at locations with completed flood mitigation protection would be tracked. For Distribution Resiliency Projects, RG&E plans to track the frequency of outages on hardened circuits post-resiliency implementation activities and compare that to the frequency of outages prior to hardening the respective circuits as part of the Distribution Resiliency Project category.

Appendix G – Summary of Orange and Rockland Utilities, Inc.'s Climate Change Resilience Plan

Summary of Orange and Rockland's Climate Change Resilience Plan
Case 22-E-0222

Climate Change Vulnerability Study and Findings

As required by PSL §66 (29), Orange and Rockland Utilities, Inc. (Orange and Rockland or the Company) undertook a climate change vulnerability study (Study) to assess how climate change impacts the Company's electric system and to inform the development of the Company's climate change resilience plan (Plan). The forecasted impacts to the climate variables assessed by the Company are summarized below in Table 1.

Climate Variable(s)	Forecasted Impact by 2050
Temperature	• Projected 35 days with an average temperature exceeding 95°, compared to a current baseline of four days (Dobbs Ferry Weather Station). Projected 13 days with an average temperature exceeding 95°, compared to a current baseline of one day (Mohonk Weather Station);
Sea Level Rise and Flooding	• Projected five days per year with precipitation exceeding 2 inches, compared to a baseline of three. • Projected sea level rise of 16 inches.
Wind and Ice	• Forecasted higher wind gusts and greater potential for severe radial icing events.
Extreme Events	• Increased frequency and intensity of extreme weather events.

Table 1: Summary of findings on climate variables assessed.

Using the findings of its Study, the Company analyzed the vulnerability that each climate change variable and forecasted climate change impact would have on its assets, operations and, customers. This analysis considered both the degree to which assets may be exposed, as well as the potential

impacts of exposure, defined by infrastructure sensitivity. For temperature, the Company did not identify any assets that were primary vulnerabilities. For flooding, substation assets were primary vulnerabilities. For wind and ice, overhead distribution assets were primary vulnerabilities.

Engagement with Outside Stakeholders and the Climate Resilience Working Group

During the development of the Study and Plan, Orange and Rockland worked closely with the other electric utilities in New York State. Orange and Rockland organized a climate resilience working group to discuss climate resilience topics with interested stakeholders, including representatives of local municipalities and advocacy groups for consumers and the environment. In total, Orange and Rockland met six times with the climate resilience working group between August 10, 2022, and October 30, 2023. The Company solicited feedback from the working group at various stages throughout the planning process and incorporated comments and concerns from the group into its Study and Plan.

Resilience Strategy and Prioritization

Orange and Rockland developed a multi-pronged resilience framework that is focused on three central strategies to guide the implementation of its Plan. The first strategy is to prevent, by enhancing the reliability and resiliency of the Company's electric system against climate change risks through proactive efforts or measures. An example of a proactive measure would be replacing circuit sections that are vulnerable to the forecasted increased frequency of extreme events. The second strategy is to mitigate, by taking actions or developing

strategies to reduce the consequences of climate events when they do happen. An example would be automating distribution by using automated devices to reduce customer impact during an event. The third strategy is to respond, which includes upgrades or enhancements that reduce both recovery and outage times. One example provided by the Company is the acquisition of additional spare parts to allow for faster restoration of power after an event.

The Company developed also developed a prioritization strategy. Orange and Rockland's strategy, or screening criteria, was based on Con Edison's existing Selective Undergrounding Pilot Program, which was included in Con Edison's 2022 Rate Case[1]. The screening criteria is a step-by-step process, which starts with identifying where investments would avoid the largest number of outages. Next, the Company would identify where investments would have the greatest impact for critical facilities, such as hospitals and fire stations. Then, the Company would identify Disadvantaged Communities using the NYS Disadvantaged Communities Map. Finally, the assets are prioritized for investment.

Forecasted Costs and Bill Impacts

The Company developed a set of preferred adaptation strategies for each climate hazard, which result in a total investment of approximately $411 million in the first five years of implementation. Over the following years (2030-2044), the Company would require an additional $1.1 billion. Based on

[1] Case 22-E-0064, Proceeding on Motion of the Commission as to the Rates, Charges, Rules, and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service, Order Adopting Joint Proposal and Establishing Electric and Gas Rate Plans with Additional Requirements (issued July 20, 2023) (2023 Rate Plan).

estimated in-service dates, the Company estimates that the investments would result in a revenue requirement of $165 million for the first five years, requiring a five-year cumulative electric delivery impact of 11.6% and five-year cumulative total bill impact of 7.6%. A summary of the capital investments requested, revenue requirement, total bill change, and other financial markers are summarized below in Table 2.

Year	Capital Requested ($000s)	Revenue Requirement ($000s)	O&M ($000s)	Delivery (%change)	Total Bill (%change)
2025	80,000	8,000	3,000	2.2%	1.3%
2026	94,000	19,000	4,000	4.9%	2.9%
2027	77,000	35,000	5,000	8.8%	5.4%
2028	63,000	47,000	6,000	10.9%	6.9%
2029	66,000	56,000	7,000	11.6%	7.6%

Table 2: Summary of Annual Company capital request, revenue requirement, operations and maintenance costs, delivery bill impact and total bill impact.

Proposed Investments

Orange and Rockland proposed a total of 13 projects and programs or investments in its Plan. Each investment was to address at least one of three climate hazards identified by the Company in its vulnerability study – flooding, combined wind and ice, and extreme events - and was to also use at least one of the three strategies proposed by the Company in its Plan – prevent, mitigate, and respond. For each of the proposed investments, Orange and Rockland provided project information that contained implementation schedules, estimated costs and qualitative benefits, and a feasibility analysis describing other options that the Company considered. A summary of the proposed investments over the 2025-2029, 2030-2034 and 2035-2044 timeframes is shown below in Table 3.

Program	2025-2029 ($000s)	2030-2034 ($000s)	2035-2044 ($000s)	2025-2044 ($000s)
Hillburn 138 kV Substation Flood Protection	500	-	75,000	75,500
Summitville Substation Flood Protection	140	-	-	140
Lovett 138kV Substation Flood Mitigation	13,200	-	-	13,200
Shoreline Erosion Protection	6,330	7,210	15,250	28,790
Transmission Structure Replacement	20,140	32,040	67,760	119,940
Enhanced Overhead Program	90,970	70,390	148,870	310,230
Hazard Tree Removal Program	8,540	15,220	32,180	55,940
Selective Undergrounding	143,880	117,480	248,460	509,820
Micronet Weather Station Expansion	790	570	1,200	2,560
NY Accelerated Smart Grid Distribution Automation	60,620	13,450	25,100	99,170
Emergency Response Operations and Control Facility	15,630	5,580	11,810	33,020
Storm Material Management	37,590	7,910	16,720	62,220

Storm Resilience Center	12,980	1,080	2,280	16,340
TOTAL	**411,310**	**270,930**	**644,630**	**1,326,870**

Table 3: Summary of Company program funding requests in millions of dollars. Figures include both capital and operations and maintenance costs.

Flooding

Orange and Rockland proposed the Hillburn 138 kV Substation Flood Protection Project. This project would install a 4-foot berm to protect the substation from flood damage. The berm would be installed around Hillburn Substation at a cost of $500 thousand and is planned to be completed in 2025. The Substation is located in the FEMA 100-year floodplain. As a long-term solution, Orange and Rockland plans to rebuild the substation at a nearby location outside of the floodplain.

Another project is the Summitville 34.5kV Substation Flood Protection Project. This project aims to protect substation assets that are vulnerable to flooding by installing a perimeter berm. The substation is currently within the FEMA 100-year and FEMA 500-year floodplains. The total cost of the project is $140 thousand and is forecasted to be complete by 2025. As a long-term solution, Orange and Rockland would rebuild the Wurtsboro Substation which would serve the Summitville circuits.

Orange and Rockland also proposed the Lovett 138kV Substation Flood Mitigation Project. The Substation is currently within the FEMA 100-year floodplain and is adjacent to the Hudson River. Orange and Rockland would install a control house at a higher elevation and install waterproofing cabinets for essential electrical components. This project would cost $13.2 million and is forecasted to be completed by 2027.

The final flood mitigation program is the Shoreline Erosion Protection Program. Orange and Rockland plans to expand its existing shoreline protection efforts by establishing more robust erosion monitoring through increased routine inspections. This is a new program, with no end date, would cost $6.3 million in the first five years, 2025-2029.

Wind and Ice

Orange and Rockland proposed the Transmission Overhead Structure Replacement Program. This program would expand and accelerate overhead transmission pole replacements by supplementing the current inspection-based pole replacement projects with a new approach that includes the vulnerability of aging poles. This program would start in 2025 with a total cost of $20.1 million in the first five years, 2025-2029.

Another program is the Enhanced Overhead Program. This investment would expand Orange and Rockland's current installation scope of spacer cables in the overhead distribution system by over 75 miles, over the first five years, 2025-2029. The spacer cable system is designed for high reliability and tree contact resistance. Within the five-year plan, Orange and Rockland has identified 27 specific overhead spacer cable projects to enhance 30 miles of overhead distribution line. Orange and Rockland plans to enhance an additional 45 miles of overhead distribution line within the same time frame. This program would cost $91 million over the first five years, 2025-2029.

Orange and Rockland also proposed the Hazard Tree Removal Program Expansion. The Company is proposing to increase the number of hazard trees removed annually under its current program by an additional 500 trees per year through 2029, for a

total of 4,000 hazard trees. A hazard tree is a tree that has a structural defect or other issue that makes it likely to fall and damage lines. This program would cost $8.5 million within the first five years, 2025-2029.

Orange and Rockland also proposed a Selective Undergrounding Program, which is an expansion of Orange and Rockland's current undergrounding efforts. This program would convert overhead electrical lines to underground systems to increase resilience against wind and ice storms. According to Orange and Rockland, this program would reduce customer outages and long-term repair costs by mitigating exposure to external environmental hazards. The Company is requesting $143.9 million total for 2025 to 2029 to underground 19 specific distribution circuits and one transmission line. This program would continue through the 2044 period.

Extreme Events

The first program proposed by the Company to be more resilient to extreme events is the Micronet Weather Station Expansion Program. Through this program, Orange and Rockland would install seven weather stations in its service territory. According to Orange and Rockland's Plan, these additional weather stations would allow the Company to collect more data to better understand the impacts of climate change across its service territory. This program has a total capital cost of $380 thousand in the 2025-2029 timeframes, with a cost of approximately $100 thousand in operations and & maintenance, annually.

The next program is the NY Accelerated Smart Grid Distribution Automation Program. This program would accelerate Orange and Rockland's current annual Supervisory Control and

Data Acquisition (SCADA) device installation schedule. Orange and Rockland initially planned to install the remaining distribution automation devices over an eight-year timeframe, however, this program would accelerate these installations to a five-year deployment, 2025-2029, and install an additional 60 units per year. This program has an annual cost of $12 million per year, for a total of approximately $60 million in the first five years, 2025-2029. For future years, the Company expects to spend approximately $45 million over the 2030-2044 timeframe.

Another program proposed by the Company is the Emergency Response Control Facility. This project would construct a dedicated emergency response control facility with an in-service date of 2027. The facility would have an incident control center to monitor Orange and Rockland's overall electric system during emergencies, as well as dedicated spaces for planners and deployment of storm response personnel. This program would cost $14.6 million in capital over the first five years of the resilience plan with a forecasted operations and maintenance cost of approximately $500 thousand, annually, beginning in 2028.

The next program is the Storm Material Management Program. This project would install a dedicated storm material warehousing facility across from the Company's Blooming Grove Operating Center. The warehouse facility would house spare equipment for both transmission and distribution systems. The inventory would be purchased once the warehouse is built in 2029. The project would cost $376 million in the first five years of the plan, with additional funding in the later years for maintenance and upkeep of inventory.

To combat the effects of extreme weather events due to climate change projection, Consolidated Edison Company of New York, Inc., and Orange and Rockland are both proposing a Storm

Resilience Center. This facility would serve as a central hub for crews, equipment, and emergency response coordination during extreme weather events for both companies. The center would be specially designed to host up to 500 mutual aid crew members and would eventually be the year-round home for the forecasted 250+ bucket trucks that the Companies would maintain for fly-in mutual aid crews. According to Orange and Rockland's Plan, the Storm Resilience Center would reduce outage duration times and costs for customers as it would reduce the time needed to engage mutual aid resources and for them to travel to the Company's territory. The total cost share of the project for Orange and Rockland over the 2025-2029 timeframe is approximately $13 million.

Performance Measures

Orange and Rockland proposed performance measures to track the effectiveness and implementation of its programs and projects. As discussed in the Company's Plan, although there are no formally recognized performance measures to gauge resiliency or improvements in resiliency to the electric system, it is important to measure progress, incorporate lessons learned, and improve future iterations of the Plan through the tracking of performance measures. Orange and Rockland proposed tracking two set of performance measures – outcome-based and implementation-based.

The outcome-based measures that Orange and Rockland would track are to assess overall effectiveness of the proposed Plan, by gauging specific performance measures before and after project/program implementation or execution. Examples of the outcome-based performance measures proposed by the Company include tracking the number of assets affected by floods, the

total amount of avoided outages, and measuring outage frequency on undergrounded circuits both before and after enhancements.

The Company would also track and assess implementation-based measures. These measures would follow program completion over time using a traditional project management approach to assess the Company's performance. Implementation-based performance measures proposed by the Company to track progress include the status of planned protective measures for various programs, the number of SCADA devices installed per year as part of the Accelerated Smart Grid Distribution Program, and the number of overhead structures replaced per year as part of the Transmission Overhead Structure Replacement Program.

Appendix H – Summary Revenue Requirement Impact of Filed Resilience Plans

Summary of Revenue Requirement Impact of Utilities Filed Climate Change Resilience Plans

Annual Impacts Compared to Each Companies' First Year Estimated Revenues Excluding Resiliency Plans

Central Hudson	**2025**	**2026**	**2027**	**2028**	**2029**
First Year Est. Revenue Excluding Resilience Plans					
Delivery Revenue	$ 442,427,000				
Total Revenue	$ 1,051,841,000				
Revenue Requirement Impact of Resiliency Plans	$ 1,097,000	$ 1,583,000	$ 2,067,000	$ 2,547,000	$ 3,016,000
Delivery RR Impact	0.2%	0.4%	0.5%	0.6%	0.7%
Total RR Impact	0.1%	0.2%	0.2%	0.2%	0.3%

Consolidated Edison	**2025**	**2026**	**2027**	**2028**	**2029**
First Year Est. Revenue Excluding Resilience Plans					
Delivery Revenue	$ 8,464,000,000				
Total Revenue	$ 12,515,600,000				
Revenue Requirement Impact of Resiliency Plans	$ 5,500,000	$ 15,400,000	$ 31,400,000	$ 50,000,000	$ 70,300,000
Delivery RR Impact	0.1%	0.2%	0.4%	0.6%	0.8%
Total RR Impact	0.0%	0.1%	0.3%	0.4%	0.6%

National Grid	**FYE 2026**	**FYE 2027**	**FYE 2028**	**FYE 2029**	**FYE 2030**
First Year Est. Revenue Excluding Resilience Plans					
Delivery Revenue	$ 2,839,407,110				
Total Revenue	$ 3,481,189,600				
Revenue Requirement Impact of Resiliency Plans	$ 782,184	$ 3,077,667	$ 11,696,830	$ 17,432,334	$ 22,967,041
Delivery RR Impact	0.0%	0.1%	0.4%	0.6%	0.8%
Total RR Impact	0.0%	0.1%	0.3%	0.5%	0.7%

Orange and Rockland	**2025**	**2026**	**2027**	**2028**	**2029**
First Year Est. Revenue Excluding Resilience Plans					
Delivery Revenue	$ 371,700,000				
Total Revenue	$ 625,700,000				
Revenue Requirement Impact of Resiliency Plans	$ 8,200,000	$ 18,700,000	$ 35,100,000	$ 47,300,000	$ 55,800,000
Delivery RR Impact	2.2%	5.0%	9.4%	12.7%	15.0%
Total RR Impact	1.3%	3.0%	5.6%	7.6%	8.9%

Note that the cost, timing, and priority of all climate change resilience plan investments will be addressed in ongoing and future rate proceedings. The revenue requirement impacts above reflect all projects included in the Utilities filed plans.