COLUMBIA LAW SCHOOL
SABIN CENTER FOR CLIMATE CHANGE LAW

Initiative on
Climate Risk
& Resilience Law

August 30, 2024

Hon. Michelle L. Phillips
Secretary to the Public Service Commission
3 Empire State Plaza
Albany, NY 12223-1350

VIA EMAIL

Case No: 22-E-0222: Proceeding on Motion of the Commission Concerning Electric Utility Climate Vulnerability Studies and Plans

Re: Comments of the Sabin Center for Climate Change Law on the Utilities Climate Change Resilience Plans

Dear Secretary Phillips:

The Sabin Center for Climate Change Law ("Sabin Center") respectfully submits the following comments to the New York Public Service Commission ("Commission") in response to the request for comments concerning climate vulnerability and resiliency plans ("Plans") submitted by the Utilities[1] on November 21, 2023 in compliance with Public Service Law §66(29).

The Sabin Center develops and promulgates legal techniques to address climate change and trains law students and lawyers in their use. The Sabin Center has worked extensively on issues relating to climate resilience in the electric utility sector, including participating in prior proceedings before the Commission and other state and federal regulatory bodies. The Sabin Center has also published a number of reports and other materials that, among other things, establish best practices for climate resilience planning in the electric utility sector. Drawing on those materials, we have assessed the quality and comprehensiveness of the climate vulnerability and resilience plans submitted by the Utilities, and make the following observations:

- We strongly support the requirement for Utilities to prepare climate vulnerability and resilience plans. The higher temperatures, more frequent and severe storms, and other weather and environmental shifts associated with climate change pose a significant and growing threat to electric utility infrastructure and operations.[2]

[1] The "Utilities" are: Consolidated Edison Company of New York, Inc., Orange and Rockland Utilities, Inc., New York State Electric and Gas Corporation, Rochester Gas and Electric Corporation, Central Hudson Gas & Electric Corporation, and Niagara Mohawk Power Corporation d/b/a National Grid.
[2] Craig Zamuda, et al., *Ch. 5. Energy supply, delivery, and demand* in FIFTH NATIONAL CLIMATE ASSESSMENT

While electric utilities have always had to deal with weather and environment-related risks, climate change presents a new and fundamentally different problem. The impacts of climate change are likely to affect utility systems in multiple, compounding, and synergistic ways that vary across regions and even within states. Utilities must revise their maintenance, asset management and risk mitigation practices to adapt to this new reality, otherwise they may be unable to fulfil their statutory obligations to provide reliable service at just and reasonable rates.[3]

- The Utility Plans provide a solid foundation for tackling the challenges posed by climate change. We are encouraged to see the Utilities taking a forward-looking approach and basing their Plans on the best available climate projections, rather than historic weather data, which has often been relied on in other climate planning processes, even though it does not accurately reflect the risks posed by climate change. We also commend the Utilities for committing to updating their Plans as new climate data becomes available.
- There are some areas where the Plans could be further improved. Specifically:
    - The Plans should account for *all* potential climate-change driven deviations from historic regional weather patterns, not just the most significant or costly, and should evaluate risks to all assets the utility owns, operates, or otherwise relies on, including upstream generation and transmission assets.
    - The Commission should encourage Utilities to consider gas and electric assets together when planning for resilience as both are within the Commission's authority.
    - Maladaptation safeguards must be implemented within the Plans to prevent exacerbating the problem the plans purport to solve: climate change impacts.

These points are further elaborated below.

1. Utility Plans must consider all climate-related risks to the energy system

While Utilities' Plans differ in scope, some fail to address the full range of risks posed by climate change. For example, Central Hudson identified the vulnerability of its assets to extreme heat, extreme cold, flooding, extreme precipitation, and wind, but then only addressed the subset of wind, heat and flooding in its proposed resilience measures.[4] Rochester Gas & Electric identified temperature increases, flooding, wind, and wind & ice as the climate change risks its system was susceptible to, leaving out extreme cold and precipitation entirely.[5] And Orange & Rockland chose to prioritize risks from flooding and erosion, wind and ice, and extreme weather events, leaving out changing temperatures.[6]

As the Commission has itself previously recognized, climate change is already causing,

(A. R. Crimmins et al., eds., 2023), https://doi.org/10.7930/NCA5.2023.CH5.

[3] ROMANY M. WEBB ET AL., CLIMATE RISK IN THE ELECTRICITY SECTOR: LEGAL OBLIGATIONS TO ADVANCE CLIMATE RESILIENCE PLANNING BY ELECTRIC UTILITIES 2 (2020), https://scholarship.law.columbia.edu/sabin_climate_change/44.

[4] CENTRAL HUDSON GAS & ELECTRIC CORPORATION, CLIMATE CHANGE RESILIENCE PLAN, 5 (2023).

[5] ROCHESTER GAS & ELECTRIC CORPORATION, CLIMATE CHANGE RESILIENCE PLAN, 13 (2023).

[6] ORANGE AND ROCKLAND UTILITIES, INC., CLIMATE CHANGE RESILIENCE PLAN, 31 (2023).

and will continue to cause, a wide range of weather- and environmental-related changes, including (but not limited to) increasing average air and water temperatures, sea-level rise, and changing precipitation patterns, all of which threaten Utility assets and operations.[7] The climate-related risks faced by each Utility will differ depending on where they operate. Therefore, it is important that each Utility tailors its plan to the unique set of climate and geographic conditions it faces. Even so, most Utilities will be affected by the following climate-related phenomena, which are either missing entirely from the Plans (as in the case of water temperatures), or only briefly mentioned in a handful of Plans (as with precipitation, which comes up primarily in the context of flood risk, and extreme cold which is linked to ice):

- **Increasing average water temperature:** Higher average air temperatures are leading to increased water temperatures,[8] which can compromise thermoelectric generator operation. Even where Utilities that do not own generation assets, accounting for the impacts of rising water temperatures is essential as generation interruptions can and have led to failures at the transmission and distribution levels.[9]

  Many thermoelectric generators, including natural gas, coal, and nuclear generators, are subject to thermal limits for wastewater discharge. If temperatures in nearby waterbodies rise, plants may need to reduce discharges, leading to temporary shutdowns or curtailment of operations.[10] This has already occurred in some areas. For example, high water temperatures forced the Limerick Generating Station in Pennsylvania to curtail output on at least 79 separate occasions between 2008 and 2016.[11] Utilities must consider the potential for similar incidents involving generation assets on which they rely in developing plans to effectively mitigate the impacts of climate change as envisioned by §66(29)(b).

  Changing precipitation patterns: Warmer temperatures will cause precipitation patterns to change, including causing more precipitation to fall as rain rather than snow.[12] Shifts from snow to rain could impair the operation of hydroelectric power plants, particularly in areas that rely on snowmelt to augment stream flows in

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[7] Craig D. Zamuda et al., *Energy Supply, Delivery, and Demand*, in IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME II 174, 176, 191 (D.R. Reidmiller et al. eds., 2018), https://perma.cc/ZP2G-JJRK; State of New York Public Service Commission (NYPSC). 2014. , *Order Approving Electric, Gas and Steam Rate Plans in Accord with Joint Proposal*, 71-2 (Feb. 21, 2014), https://climate.law.columbia.edu/sites/default/files/content/docs/Final-Order-2014-02-21%20(1).pdf. (The Commission noted in this settlement with several of the Utilities that "the States' [U]tilities should familiarize themselves with scientists' projections for climate change impacts on each service territory. These will differ… We expect the utilities to consult the most current data to evaluate the climate impacts anticipated in their regions over the next years and decades, and to integrate these considerations into their system planning and construction forecasts and budgets.")

[8] *See* U.S. DEP'T OF ENERGY, U.S. ENERGY SECTOR VULNERABILITIES TO CLIMATE CHANGE AND EXTREME WEATHER 10–11 (2013), https://perma.cc/FMB6-RSRK (2013 DOE Report).

[9] Mark Specht, *Why Did My Power Go Out? Four Ways the Grid Can Fail and Cause an Outage*, UNION OF CONCERNED SCIENTISTS (2020) https://blog.ucsusa.org/mark-specht/why-did-my-power-go-out-four-ways-the-grid-can-fail-and-cause-an-outage/.

[10] *Id*.

[11] Alan Neuhauser, *Nuclear Power, Once Seen as Impervious to Climate Change, Threatened by Heat Waves*, U.S NEWS AND WORLD REPORT (July 1, 2019), available at https://www.usnews.com/news/national-news/articles/2019-07-01/nuclear-power-onceseen-as-impervious-to-climate-change-threatened-by-heat-waves.

[12] *See* D.R. Easterling et al., *Precipitation Change in the United States*, in CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME I 207, 207, 217 (D.J. Wuebbels et al. eds., 2017), https://perma.cc/MV9S-NMAS.

summer.[13] Changing precipitation patterns are also associated with drought events, which can affect the operation of hydroelectric and thermoelectric power plants.[14] New York has experienced several periods of extreme drought in its recorded history, as well as general periods of drought every two to three years. In 2024, one of New York's key suppliers of low cost renewable energy, Canada, had to reverse the usual flow of electricity as its hydroelectric plants struggled under the burden of drought.[15] Again, the Utilities cannot effectively mitigate the impact of climate change through their Plans as envisaged by §66(29)(b) unless they include consideration of how precipitation patterns may impact generation facilities they own or contract with for power.

- **Extreme cold weather:** While the Plans emphasize the increasing number of days over 90 degrees in New York state,[16] they fail to account for the other end of the spectrum driven by climate change: extremely cold days. Stretching of the Arctic polar vortex—strong winds in the stratosphere surrounding the North Pole—has increased, and is linked to extreme cold in parts of North America.[17] While New York state is historically used to periods of cold, cold weather events in the United States have been the costliest natural disasters for some other states in recent years, including Texas. As consumers substitute away from propane and fossil fuel based heating to electric heat pumps, extreme periods of cold could present an increasing resilience challenge for the grid.[18] Cold weather will drive up demand for electricity, stressing the distribution system, and could exacerbate ice buildup on distribution assets, causing damage and possibly outages.[19] In addition, extreme cold may make assets operate differently both upstream and within the grid, increasing the potential for faults and circuit overloads.[20]

These other climate change driven hazards pose a threat to New York's Utilities and should be fully addressed in their Plans.

2. The Utilities must consider their electric and gas systems together, across the state, to make the grid resilient

This proceeding focuses specifically on the climate resilience plans of *electrical*

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[13] See U.S. DEP'T OF ENERGY, CLIMATE CHANGE & THE ELECTRICITY SECTOR: GUIDE FOR CLIMATE CHANGE RESILIENCE PLANNING 10-11 (2016), https://perma.cc/29MD-XWEE (DOE Planning Guide).
[14] *See* JUSTIN GUNDLACH AND ROMANY WEBB, CLIMATE CHANGE IMPACTS ON THE BULK POWER SYSTEM: ASSESSING VULNERABILITIES AND PLANNING FOR RESILIENCE 8-10 (2018), available at https://climate.law.columbia.edu/sites/default/files/content/docs/Gundlach-Webb-2018-02-CC-Bulk-Power-System.pdf; *see also* 2013 DOE Report, *supra* note 6, at 10-11.
[15] *See* DROUGHT.GOV, *New York*, https://www.drought.gov/states/new-york; *see also* Ivan Penn, *Abnormally Dry Canada Taps U.S. Energy, Reversing Usual Flow*, N.Y. TIMES (June 3, 2024), https://www.nytimes.com/2024/06/03/business/energy-environment/canada-hydropower-electric-grids.html.
[16] *See* CONSOLIDATED EDISON, CLIMATE CHANGE RESILIENCE PLAN, 58 (2023) (forecasting a 300% increase in days with a Heat Index over 90 degrees Fahrenheit by 2030 in its service area).
[17] Judah Cohen et al., *Linking Arctic variability and change with extreme winter weather in the United States*, SCIENCE VOL. 373, 1116 (2021), https://doi.org/10.1126/science.abi9167.
[18] Sherri Billimoria et al., *The Economics of Electrifying Buildings*, ROCKY MOUNTAIN INSTITUTE (2018) https://rmi.org/insight/the-economics-of-electrifying-buildings/.
[19] ENERCON, *Understanding Cold Weather Power Outages* (2023), https://www.enerconpower.com/post/understanding-cold-weather-power-outages.
[20] *Id*.

corporations, as mandated by Public Service Law §66(29)(b). While some of the identified threats and priorities have specific relevance to the electric grid (e.g., flooding of substations), most of them will also create challenges for the safety, reliability, and resiliency of the natural gas distribution system. Moreover, utility systems do not exist in silos; rather, interdependencies abound, such that risks to the electric system can affect the natural gas system and vice versa. Indeed, gas-electric reliability issues have emerged as a major area of concern for federal and regional entities.[21]

To ensure that the utility distribution systems on which customers rely work in the face of emerging threats, it is critical to explore the linkages between the various state utility systems and evaluate how emergent risks to one system may exacerbate challenges. The Commission already flags that Plans may identify opportunities for coordination with "other utility" service providers in §66(29)(d)(viii), and this should include gas utilities. The Commission should indicate moving forward that this is the expectation for Plans under §66(29)(b) as they are all under the Commission's jurisdiction of "general supervision" in §66(1).

To the extent the Commission may be addressing similar issues in one or more pending proceedings specific to the natural gas system, the need for the Commission to address interactions and interdependencies between these two systems will require coordination between this proceeding and any such proceedings specific to natural gas. In future, the Utilities should work cooperatively to align their resilience plans as opposed to focusing just on the electrical system to make sure that Utilities are tackling the ways in which climate change may impact the whole utility infrastructure as opposed to just their specific electric assets.

3. All of the plans should all include safeguards to prevent maladaptation

Of the Utilities subject to the proceeding, Consolidated Edison Company of New York, Inc. ("Con Edison") is the only one to include an emphasis on reducing overall greenhouse gas (GHG) emissions.[22] In their cost benefit analysis for one proposed resilience project, Con Edison used the estimated value of carbon sequestration from a project to illustrate its benefits.[23] Orange and Rockland pay lip service to GHG emissions, noting in one line on their investment analysis for each project that it will have "no direct impact on GHG Emissions," but provide no further analysis.[24] Most Utilities ignore their GHG emissions entirely.

Under Public Service Law §66(29)(d)(i), the Commission must consider the extent to which Utility Plans mitigate the impacts of climate change. Since climate change is driven by GHG emissions, any Plan that increases a Utility's GHG total emissions, by definition, fails to mitigate climate change. Con Edison notes in its current resilience plan that "while none of the programs [in its resilience plan] are focused on reducing GHG emissions, some of the programs could have small but positive impacts on Con Edison's overall GHG emissions, and none of the programs should negatively impact Con Edison's overall GHG

[21] *See* JENNIFER DANIS & DENA ADLER, REDUCING POLLUTION WITHOUT SACRIFICING RELIABILITY: A BREAKDOWN OF THE RESPECTIVE ROLES THAT FERC, EPC, AND STATE REGULATORS PLAY TO SUPPORT A CLEANER & MORE RELIABLE ELECTRIC GRID 21 (2024), https://policyintegrity.org/publications/detail/reducing-pollution-without-sacrificing-reliability.
[22] CONSOLIDATED EDISON, CLIMATE CHANGE RESILIENCE PLAN, 66, 98 (2023).
[23] *Id.* at 129.
[24] ORANGE & ROCKLAND UTILITIES, INC. CLIMATE CHANGE RESILIENCE PLAN, 87 (2023).

emissions."[25] Other Utilities should similarly evaluate the GHG emissions impacts of their resilience programs to ensure they do not contribute to maladaptive outcomes.[26]

Maladaptation occurs when an action taken to address a particular risk exacerbates the underlying cause of that risk or create a new vulnerability.[27] In the electricity context, maladaptation occurs where measures taken to make the grid more resilient to climate change-induced phenomena lead to increased GHG emissions or otherwise exacerbate climate change, thus worsening the burden on the utility. As an example, one proposed resilience solution that could prove maladaptive is the Storm Resilience Center Project proposed by Orange & Rockland County to be shared with Con Edison.[28] Depending on the construction methods used, and the assets the facility will house, the Center could generate significant GHG emissions. The Utilities are proposing to increase their fleet of bucket trucks housed at the Center, and this too could increase emissions depending on the type of vehicle the Utility invests its capital in. The Utilities should address these concerns and seek to minimize the carbon footprint of the new Center. Con Edison should deploy its decarbonization metric and focus on its carbon neutrality goals in planning for, and constructing, the facility, and other Utilities should use similar tools to evaluate resilience measures to minimize the risk of maladaptation.[29]

One climate-beneficial resilience measure Con Edison is proposing to invest in is "more green infrastructure and rewild[ing] with native vegetation on various types of Company property (e.g., service centers, transmission line rights-of-ways, substations, etc.) in order to mitigate the impacts of climate change."[30] This promises to increase resilience both by helping to combat climate change, but also because "biodiverse habitats, even with greater vegetation growth seasons in New York, due to climate change, can naturally limit their height – thus maintaining better equipment clearances wile requiring minimal upkeep."[31] In addition, Con Edison will work to make Company shoreline properties more resilient to rising sea levels and storm surges through installing "living shorelines" which are a type of nature based, green coastal protection that use natural materials to stabilize shoreline and protect from erosion.[32] These proactive measures should be embraced by the other Utilities as well as they work to become more resilient and avoid maladaptation. For many Utilities, the only mention of vegetation is to describe hazard tree removal, and they are missing a low-cost opportunity to embrace a climate-positive resilience technique.

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[25] CONSOLIDATED EDISON, CLIMATE CHANGE RESILIENCE PLAN, 98 (2023).
[26] *Id.* at 66.
[27] Siri Eriksen et al., *Adaptation interventions and their effect on vulnerability in developing countries: Help, hindrance or irrelevance?,* 141 WORLD DEVELOPMENT (2021), https://www.sciencedirect.com/science/article/pii/S0305750X20305118#b0585.
[28] ORANGE & ROCKLAND UTILITIES, INC. CLIMATE CHANGE RESILIENCE PLAN, 58 (2023); CONSOLIDATED EDISON, CLIMATE CHANGE RESILIENCE PLAN, 190-1 (2023).
[29] Consolidated Edison, *Our Clean Energy Commitment*, CONSOLIDATED EDISON, https://www.coned.com/en/our-energy-future/our-energy-vision/storm-hardening-enhancement-plan.
[30] CONSOLIDATED EDISON, CLIMATE CHANGE RESILIENCE PLAN, 119 (2023).
[31] *Id*. at 121.
[32] *Id*. at 125.

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Thank you for the opportunity to submit these comments. Please contact us with any questions.

Respectfully,

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