

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

**Petition for Performance of Statewide Utility
Climate Change Vulnerability Studies**

Case 21-M-_____

**PETITION OF THE CITY OF NEW YORK,
ENVIRONMENTAL DEFENSE FUND, NATURAL
RESOURCES DEFENSE COUNCIL, AND SABIN
CENTER FOR CLIMATE CHANGE LAW
TO COMPREHENSIVELY STUDY
THE IMPACTS OF CLIMATE CHANGE
ON UTILITY INFRASTRUCTURE**

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PRELIMINARY STATEMENT

The City of New York (“City”), Environmental Defense Fund, Natural Resources Defense Council, and Sabin Center for Climate Change Law (collectively, “Petitioners”) hereby petition the Public Service Commission (“Commission”) to direct every major utility in the State – electric, gas, water, and telecommunications – to conduct a climate change vulnerability study to: (1) assess how future projections of climate risks and climate variability for New York State and their specific geography or service area will impact their key assets and facilities, their overall system operations, supply chain, worker safety, and emergency response capabilities; (2) identify and prioritize key vulnerabilities based upon the assessment in step 1; (3) evaluate and develop options to ameliorate, mitigate, or minimize the risks identified, including considering different levels of risk mitigation relative to cost, and specifically for electric and gas utilities, consider the required transformation to achieve climate change mitigation targets; and (4) develop a plan and organizational approach to achieve effective and accountable climate governance, including assigning and ensuring executive accountability, collecting and monitoring climate and weather indicators, incorporating climate resiliency into existing planning processes and developing resiliency metrics to track progress over time.

As observed in the Fourth National Climate Assessment, “climate change and extreme weather events are increasingly affecting the nation’s energy systems (including all components related to the production, conversion, delivery, and use of energy), threatening more frequent and

longer-lasting power outages and fuel shortages.”¹ Utility systems serve as the backbone to nearly every sector of the economy, and reliability and resiliency issues on the bulk power and/or distribution systems can cause “cascading impacts on other critical sectors.”² Consistent with this assessment, there is a need for every New York utility to conduct a comprehensive climate change risk analysis and develop plans to make their systems more resilient to avoid or minimize future outages and disruptions.

Because most of the utility systems are integrated, they are only as strong as the weakest link.³ Therefore, all electric, gas, steam, telecommunications, and water utilities must engage in these efforts. The first step will be to understand utility-specific vulnerabilities, but it is important to acknowledge that there are also clear interdependencies between the utility sectors. For example, telecommunications utilities require reliable electric service, and many critical operations for electric, gas, and water utilities depend on reliable telecommunications systems. The second (and potential future) step of addressing potential vulnerabilities and risks that are a result of these interdependencies means that the State must first have a holistic understanding of each individual utilities’ risks and mitigation plans. Even for stand-alone utilities, such as water companies, recent events amply demonstrate the need to make their infrastructure more resilient

¹ Zamuda, C., *et al.*, *Energy Supply, Delivery, and Demand. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*, U.S. Global Change Research Program, Washington, DC, US (2018) at 178, available at <https://nca2018.globalchange.gov/chapter/4/>

² *Id.*

³ The Northeast Blackout of 2003 demonstrates the cascading effects a single utility’s problems can cause. *See, e.g.*, U.S. Canada Power System Outage Task Force, *Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*, (issued April 2004), available at <https://www.energy.gov/sites/prod/files/oeprod/DocumentsandMedia/BlackoutFinal-Web.pdf>.

to protect public health and welfare. Although the efforts that have been undertaken by the FERC and the NYISO are important steps toward bolstering the transmission system, they do not encompass the entirety of the electric systems or other utility systems, and thus system vulnerabilities at the utility-level remain largely unidentified.

Accordingly, Petitioners also request that the Commission direct each gas, electric, steam, telecommunications, and water utility to develop a plan to incorporate its climate change vulnerability study findings into its planning and investment processes and reliability models, including undertaking capital investments and implementing operating procedures needed to make its system more resilient. Such plans should be presented and open to stakeholder feedback, and the implementation plans should be used to inform the capital and operations and maintenance spending in utilities' rate cases or in other proceedings as the Commission deems appropriate.

While all of New York's utilities need to prepare for the impacts of climate change to their systems, each electric and gas utility also must pursue greenhouse gas emission reductions in accordance with the CLCPA. Climate vulnerability analyses should not be a pathway to extend the life of existing fossil fuel infrastructure. Thus, as the electric and gas utilities identify vulnerabilities and plan to address them, such planning should account for the significant transformation of their systems required by the CLCPA. Indeed, the vulnerability studies should consider vulnerabilities that may be amplified by that transformation.

The climate crisis is one of the largest threats facing the United States. The impacts of anthropogenic climate change, including rising temperatures, erratic and shifting weather patterns, and increasingly severe storm events, are stressing the nation's infrastructure in ways never before contemplated. Indeed, the Department of Energy's latest installment of its Quadrennial Energy Review found that,

[t]he leading cause of power outages in the United States is extreme weather, including heat waves, blizzards, thunderstorms, and hurricanes. Events with severe consequences are becoming more frequent and intense, due to climate change, and have been the principal contributors to an observed increase in the frequency and duration of power outages in the United States.⁴

Although climate change is often viewed as a gradual process, it is clear that its acute impacts can be highly variable and volatile, even over short time frames. Therefore, it is becoming increasingly urgent that planning and actions start now. Recognizing this need, combatting climate change has become a priority at the federal, State, and local levels. The recent events in Texas and California, discussed below, underscore the need for the Commission to be proactive and take affirmative action to protect New Yorkers and New York businesses. Indeed, the utilities all have a statutory obligation to provide safe and adequate service to their customers, and it is appropriate for the Commission to confirm that they continue to be able to properly serve their customers as the conditions in which they operate change over time.

BACKGROUND

A. The Need To Respond To Climate Change Within New York

Over the last decade, increasingly severe weather events have struck the United States and resulted in significant impacts to public health and safety, infrastructure, and the economy. For example, Hurricane Sandy was a critical “focusing event” for New York City – it inherently altered the way the City and its utilities, hospitals, schools, businesses, and communities think about

⁴ U.S. Department of Energy, *Transforming The Nation's Electricity System: The Second Installment Of The Quadrennial Energy Review* (issued January 2017) at Chapter IV, p. 4-2, available at <https://www.energy.gov/sites/prod/files/2017/01/f34/Transforming%20the%20Nation%27s%20Electricity%20System-The%20Second%20Installment%20of%20the%20Quadrennial%20Energy%20Review--%20Full%20Report.pdf>.

climate change and resiliency, and it forced many to take a hard look at both their vulnerabilities and what measures could be undertaken to make their systems and operations more resilient. It also was a clear warning that climate change would result in impacts never or rarely seen in New York City, and the need to protect infrastructure in ways not previously contemplated.

Following Hurricane Sandy, the City undertook a comprehensive climate change resilience study to identify weaknesses and corresponding improvements in all types of infrastructure to protect against the impacts of climate change.⁵ As a result, the City has committed to invest more than \$20 billion in resilience measures that will help protect New Yorkers from sea level rise and severe weather events.⁶ Similarly, Consolidated Edison Company of New York, Inc. (“Con Edison”) invested approximately \$1 billion to harden its electric, gas, and steam systems against coastal storms and flooding.

Hurricane Sandy cannot be considered an anomaly. A 2017 study published in the Proceedings of the National Academy of Sciences concluded that 1-in-500-year flood events could be experienced in New York City every five years.⁷ Based on climate science, Mayor Bill de Blasio has appropriately continued to recognize resilience as an overarching priority of his administration. In his 2021 State of the City address, he unveiled the City of New York Recovery For All Plan (“Plan”).⁸ One of the key tenets of this Plan is taking additional steps to protect New

⁵ NYC Office of the Mayor, *A Stronger, More Resilient New York* (issued June 2013).

⁶ *OneNYC 2050: Building a Strong and Fair City A Livable Climate* (issued April 2019) at 28, available at <http://onenyc.cityofnewyork.us/strategies/a-livableclimate/> (“OneNYC”).

⁷ Garner, A., Mann, M., *et al.*, Proceedings of the National Academy of Sciences of the United States, *Impact of climate change on New York City’s coastal flood hazard: Increasing flood heights from the preindustrial to 2300 CE*, PNAS November 7, 2017 114 (45) 11861-11866; first published October 23, 2017; <https://doi.org/10.1073/pnas.1703568114>.

⁸ State of the City 2021: Mayor DeBlasio Announces a Recovery for All of Us (issued January 28, 2021), available at <https://www1.nyc.gov/office-of-the-mayor/news/062-21/state-the-city->

York City against the pervasive and increasing threat of climate change through greater investment in green infrastructure and reduced dependence on fossil fuels.⁹ The Plan continues the City's objectives of mitigating the physical risks of climate change and developing policies and governance structures to support resiliency, as detailed in OneNYC.¹⁰

B. Climate Change Impacts on Utility Service in Other Parts Of The Country

Other areas of the country are similarly confronting the significant consequences of severe weather events. California experienced significant power outages in recent years, due in large part to the threat of wildfires and the impacts of increasing temperatures. In the summer of 2020, a heat wave led to energy supply issues, causing the California Independent System Operator to institute rolling blackouts across the State.¹¹ The City of Houston has experienced 1-in-500-year storms in each of 2015, 2016, and 2017, each of which led to widespread power outages.¹²

[2021-mayor-de-blasio-recovery-all-us#:~:text=In%202021%2C%20New%20York%20City,19%20and%20supercharge%20our%20recovery.&text=New%20York%20City's%20Vaccine%20for,New%20Yorker%20every%20three%20seconds; See also NYC Office of the Mayor, Recovery for All, available at <https://recoveryforall.nyc.gov/>.](#)

⁹ *Id.*

¹⁰ OneNYC at 23-24.

¹¹ Maanvi Singh, The Guardian, *Governor Demands Investigation After Californians Left Without Power in Extreme Heat*, (August 17, 2020) available at <https://www.theguardian.com/us-news/2020/aug/17/california-power-outages-investigation-iso-heatwave>.

¹² Christopher Ingraham, Washington Post, *Houston is Experiencing Its Third '500-year' Flood in 3 Years. How is That Possible?* (August 29, 2017), available at <https://www.washingtonpost.com/news/wonk/wp/2017/08/29/houston-is-experiencing-its-third-500-year-flood-in-3-years-how-is-that-possible/>

In mid-February, large parts of the United States were struck by Winter Storm Uri, which brought record-breaking cold temperatures and precipitation levels.¹³ Uri left millions of Americans without power, which led to a catastrophic domino effect of many then losing heat and water service.¹⁴ Texas suffered the brunt of the storm, with approximately four million households without power, and many households facing boil water advisories over a week after the storm.¹⁵ Many people died as a result of the freezing temperatures, and many more experienced carbon monoxide poisoning as a result of attempting to stay warm in dangerous manners, such as bringing propane heaters into homes or sitting in running cars in closed garages.¹⁶ In addition, there were food shortages due to supply chain and spoilage issues.¹⁷ The storm closed many COVID-19

¹³ The Weather Channel, *Winter Storm Uri Spread Snow, Damaging Ice From Coast-to Coast, Including the Deep South (Recap)*, (February 16, 2021), available at <https://weather.com/safety/winter/news/2021-02-14-winter-storm-uri-south-midwest-northeast-snow-ice>.

¹⁴ Neil Vigdor, New York Times, *More Than 3 Million Homes and Businesses Have Lost Power* (February 15, 2021), available at <https://www.nytimes.com/2021/02/15/us/storm-power-outage.html>; Eric Levenson, CNN, *A Third of Texans Still Have Issues With Their Water Supply After Widespread Power Outages* (February 21, 2021), available at <https://www.cnn.com/2021/02/21/us/texas-winter-outages-water/index.html>.

¹⁵ Andrew Freeman *et al.*, Washington Post, *Central States' Arctic Plunge: The Historic Cold Snap and Snow By The Numbers* (February 24, 2021), <https://www.washingtonpost.com/weather/2021/02/24/texas-winter-storm-temperature-records/?arc404=true>; Reese Oxner, Texas Tribune, *Texans now face a water crisis after enduring days without power* (issued February 19, 2021), available at <https://www.texastribune.org/2021/02/19/texas-water-power-outages/>.

¹⁶ Rachel Treisman, NPR, *'A Disaster Within a Disaster': Carbon Monoxide Poisoning Cases are Surging in Texas* (February 18, 2021), available at [https://www.npr.org/sections/live-updates-winter-storms-2021/2021/02/18/969050038/a-disaster-within-a-disaster-carbon-monoxide-poisoning-cases-are-surging-in-texas#:~:text=Live%20Sessions-,'A%20Disaster%20Within%20A%20Disaster'%3A%20Carbon%20Monoxide%20Poisoning%20Cases,like%20grills%2C%20stoves%20and%20generators](https://www.npr.org/sections/live-updates-winter-storms-2021/2021/02/18/969050038/a-disaster-within-a-disaster-carbon-monoxide-poisoning-cases-are-surging-in-texas#:~:text=Live%20Sessions-,%20Disaster%20Within%20A%20Disaster'%3A%20Carbon%20Monoxide%20Poisoning%20Cases,like%20grills%2C%20stoves%20and%20generators).

¹⁷ Leslie Patton, Bloomberg, *Texas is Facing a Food Supply Nightmare in Wake of Blackouts* (February 19, 2021), available at <https://www.bloomberg.com/news/articles/2021-02-19/texas-restaurants-are-throwing-away-spoiled-food-amid-blackouts>.

vaccination clinics and delayed shipments of the vaccine, further hindering the ability of those most in need to receive inoculations.¹⁸ Beyond its health and safety impacts, Winter Storm Uri created an economic crisis. Though the projections vary widely, the economic losses from Uri are estimated to be between \$20 billion and \$200 billion in Texas alone.¹⁹

C. Responses To Climate Change

The Federal Energy Regulatory Commission (“FERC”) has begun to examine the impact of climate change on the transmission system. In 2018, the FERC instituted a proceeding to identify resiliency concerns facing each regional transmission organization (“RTO”) and independent system operator (“ISO”).²⁰ Based on the information gathered in that proceeding, the FERC determined that a uniform resiliency proceeding was inappropriate as the climates and challenges facing each RTO and ISO vary widely.²¹ The FERC recently announced a technical conference to understand the “near, medium and long-term challenges [to maintaining electric system reliability] facing the regions of the country; how decisionmakers in the regions are evaluating and addressing those challenges; and whether further action from the [FERC] is needed to help achieve an electric system that can withstand, respond to, and recover from extreme

¹⁸ Rachel Treisman, NPR, *Winter Storm Disrupts COVID-19 Vaccinations, Closing Clinics and Delaying Shipments* (February 16, 2021) available at <https://www.npr.org/2021/02/16/968364404/winter-storm-disrupts-covid-19-vaccinations-closing-clinics-and-delaying-shipmen>.

¹⁹ Jack Healy, The New York Times, *‘Like We’re Being Cursed’: First COVID and Now Waterlogged Homes* (updated February 23, 2021), available at <https://www.nytimes.com/2021/02/22/us/texas-winter-storm-recovery.html>. See also, Irina Ivanova, CBS News, *Texas Winter Storm Costs Could Top \$200 Billion – More than Hurricanes Harvey and Ike* (February 25, 2021), available at <https://www.cbsnews.com/news/texas-winter-storm-uri-costs/>.

²⁰ *Grid Reliability and Resilience Pricing*, 162 FERC ¶ 61,012 (2018).

²¹ *Grid Resilience in Regional Transmission Organizations and Independent System Operators*, 174 FERC ¶ 61,111 (2021) at P 4.

weather events.”²² Although the FERC has terminated the generic proceeding in favor of addressing these issues on a regional basis, the FERC recognized the importance of undertaking such efforts, stating, “the resilience and reliability of the bulk power system must—and will—remain one of the Commission’s paramount responsibilities and concerns.”²³

Separately, the New York Independent System Operator, Inc. (“NYISO”) recently undertook a Climate Change Impact and Resilience Study to “examine long-term energy, peak, and hourly load projections that capture the impact of [projected] increasing temperatures,” as well as “state policy designed to improve energy efficiency and address climate change.”²⁴ That study laid the groundwork for understanding how to incorporate future temperature projections into load forecasts and identified several issues that will require increased monitoring and consideration by the NYISO in the future.²⁵ Using the results of that study, the NYISO now includes climate change projections in its core planning processes. For example, the NYISO’s annual Load & Capacity Data Report (Gold Book) now incorporates the impacts of temperature change projections on hourly load through 2050.²⁶ At a recent NYISO Management Committee meeting, the NYISO’s Chief Executive Officer noted that climate change presents planning and operational challenges and is now an important consideration in the NYISO’s activities.

²² Notice of Technical Conference, Docket No. AD21-13-000 (March 5, 2021).

²³ *Id.*

²⁴ Notably, the study undertaken by the NYISO was based on a proposal jointly developed by the City and Con Edison. See NYISO, *The Vision for a Greener Grid: Power Trends 2020* (issued June 10, 2020), available at <https://www.nyiso.com/documents/20142/2223020/2020-Power-Trends-Report.pdf/dd91ce25-11fe-a14f-52c8-f1a9bd9085c2>.

²⁵ NYISO, *Climate Change Impact and Resilience Study – Phase II Final Report* (September 2020), available at <https://www.nyiso.com/documents/20142/10773574/NYISO-Climate-Impact-Study-Phase-2-Report.pdf/209bc753-3f69-8ab9-37b5-eae3698b0ed1>.

²⁶ See NYISO, 2020 Load & Capacity Data (issued April 2020), available at <https://www.nyiso.com/documents/20142/2226333/2020-Gold-Book-Final-Public.pdf/>.

National Climate Advisor Gina McCarthy has warned that the devastation in Texas and neighboring states should serve as a “wake up call.”²⁷ It is imperative that the Commission heed the warnings of climate scientists and the experiences within the State, California, and in the central and southeastern United States and take immediate action to prevent a similar disaster from occurring again.

At least one State has already taken similar action as is proposed in this Petition. Last year, the California Public Utilities Commission (“CPUC”) directed the utilities subject to its jurisdiction to perform assessments of the vulnerability of their infrastructure due to climate change. The parameters of the required assessments are discussed in Point II, below.

D. Previous Commission Actions Regarding Climate Change

This Petition builds on previous actions the Commission has taken to consider the impacts of climate change in utility operations. The first action was approval of Con Edison’s \$1 billion resilience plan discussed above. In its approval of that plan and an associated Resiliency Collaborative, the Commission was prescient regarding the need to more broadly consider climate risks. The Commission observed:

The State’s utilities should familiarize themselves with scientists’ projections for local climate change impacts on each service territory. These will differ: other coastal and estuarine utilities also face sea level rise and storm surges, while all the State’s utilities face challenges such as Hurricane Irene and Tropical Storm Lee, Nor’easters, floods, severe winds, increasing ambient heat, and extreme heat events. 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

²⁷ Matthew Daly, Associated Press, *White House Climate Czar to AP: Texas Storm ‘A Wake-Up Call’* (issued February 27, 2021), available at <https://apnews.com/article/white-house-climate-czar-tx-storm-a95db513d00f6ba0e56dcb2cc17facb8>.

considerations into their system planning and construction forecasts and budgets.²⁸

Petitioners are not aware of the extent to which each regulated utility heeded this this directive. Regardless, performing climate change vulnerability studies is a logical subsequent action to gaining familiarity with the effect of climate change within each utility’s service territory.

Last year, the Commission took another significant step regarding the impact of climate change on utilities. Following on a series of disclosure recommendations developed by the Financial Stability Board, the Commission announced that it was considering requiring the major electric and gas utilities to make certain climate risk-related disclosures. The Commission rationalized the need for such disclosures as follows:

Given the potential impacts of climate change on the provision of utility services, *it is necessary for utilities to earnestly incorporate these impacts into all of their future decision-making*, and to robustly and consistently report those impacts to potential investors, so that the market can operate efficiently with maximum information.... [T]here is a need to factor climate change into a utility’s financial planning....²⁹

Also last year, in approving new electric and gas rate plans for Con Edison, the Commission authorized the development of a plan to implement the recommendations set forth in a Climate Change Vulnerability Study, which that utility completed at the end of 2019. The Commission held that the plan “can provide many benefits to the health and safety of Con Edison’s

²⁸ Cases 13-E-0030, *et al.*, Consolidated Edison Company of New York, Inc. – Electric, Gas, and Steam Rates, Order Approving Electric, Gas and Steam Rate Plans in Accord with Joint Proposal (issued February 21, 2014) at 71-72.

²⁹ Case 20-M-0499, In the Matter Regarding the Need for Reporting Risks Related to Climate Change, Order Instituting Proceeding (issued October 15, 2020) at 8-9 [emphasis added]. The Commission has not yet made any final determinations in this matter.

customers and the public.”³⁰ Con Edison’s Climate Change Vulnerability Study is discussed in further detail in Point II, below.

DISCUSSION

POINT I

SYSTEM RELIABILITY AND RESILIENCY REQUIRES A COMPREHENSIVE UNDERSTANDING OF THE IMPACTS OF CLIMATE CHANGE ON UTILITY INFRASTRUCTURE

A. New York Utilities Need To Better Understand The Potential Impacts Of Climate Change On Their Systems

New York’s experiences during Hurricane Sandy and more recent major storms, and the experiences in California, Texas, and across the South and Southwest demonstrate both significant deficiencies and the need for more emphasis on utility planning for increasingly severe weather events and chronic changes precipitated by climate change. There no longer should be any question about the need for all types of utilities to make their infrastructure more resilient to climate change. Indeed, Winter Storm Uri underscored one of the realities of climate change – past experience is no longer a sufficient guide or predictor of future events. Utilities must be prepared to deal with events that were once considered extremely unlikely or never before seen in their service territories.³¹ Climate change is upending expectations as to the types of events and chronic changes that could occur and the associated planning that is needed.

³⁰ Cases 19-E-0065, *et al.*, Consolidated Edison Company of New York, Inc. – Electric and Gas Rates, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan (issued January 16, 2020) at 80.

³¹ For example, utility systems in southern states apparently were designed to withstand high temperatures and winds – conditions previously considered to be typical. However, as shown by Uri, they were not designed to handle prolonged periods of subzero temperatures, layers of ice, and significant accumulation of snow.

The City and New York State have made combatting climate change a priority. Passage of the New York City Climate Mobilization Act in 2019 and the Climate Leadership and Community Protection Act (“CLCPA”), which requires 100 percent zero-emissions electricity by 2040 and an 85 percent reduction in greenhouse gas emissions by 2050, are prime examples of the strong actions taken.³² Measures to substantially and expeditiously reduce our greenhouse gas emissions, such as the CLCPA, are absolutely critical, but we must simultaneously prepare for the extreme weather patterns and chronic changes that are becoming more frequent. As Mayor de Blasio observed, “we not only have to reduce emissions to prevent the most cataclysmic potential effects of global warming, we have to prepare for the ones that are already inevitable.”³³ To that end, the CLCPA also included a suite of measures designed to take a more comprehensive approach to resiliency, including expanding the scope of the Community Risk and Resiliency Act (“CRRRA”) to require applicants seeking certain facility siting permits under the Environmental Conservation Law to demonstrate that “future physical climate risk has been considered” and authorizing the Department of Environmental Conservation to require applicants to mitigate significant risks.³⁴

Utility infrastructure must adapt to changing weather patterns expected in New York including higher average temperatures, longer heat waves, changes in precipitation, sea level rise and increased coastal storms. In order to design and upgrade systems in ways that will withstand these variables, it is critical that the utilities integrate forward climate projections into their system

³² L. 2019, c. 106.

³³ NYC Office of the Mayor, *Mayor de Blasio Announces Resiliency Plan to Protect Lower Manhattan From Climate Change* (issued March 14, 2019), available at <https://www1.nyc.gov/office-of-the-mayor/news/140-19/mayor-de-blasio-resiliency-plan-protect-lower-manhattan-climate-change#/0>.

³⁴ L. 2019, c. 106.

planning efforts. A holistic approach to climate change planning must work to not only dramatically reduce greenhouse gasses, but also increase the reliability and resilience of existing infrastructure to ensure that it is able to withstand the impacts of climate change .

That is, New York utility systems are largely designed to provide safe and adequate service based on historical weather patterns and load trends. This historical analysis must be informed by climate science and predictions of future conditions, and the manner in which utilities plan, design, construct, and operate their systems should be based as much (if not more) on forecasts as on historical patterns. Although some future projections are used in planning efforts, to Petitioners' knowledge, for most utilities, this data largely does not comprehensively consider the potential impacts of climate change on variables such as temperature, precipitation levels, winds, flooding, and icing.³⁵

Although the efforts that have been undertaken by the FERC and the NYISO are important steps toward bolstering the transmission system, they do not encompass the State's distribution system or other utility systems, and thus system vulnerabilities at the utility-level remain largely unidentified. In order to ensure that the State's utility systems are able to withstand the impacts of climate change, and to help satisfy the resilience-related requirements of the CLCPA, steps must be taken to identify and remedy these weaknesses.

³⁵ Petitioners acknowledge that some utilities have begun to consider climate impacts, but their efforts have not been as comprehensive as the vulnerability analysis undertaken by Con Edison, discussed below. Most utility studies have focused on storms or other discrete events or on specific types of facilities rather than entire systems. See Webb, R., Panfil, M., and Ladin, S., *Climate Risk in the Electricity Sector: Legal Obligations to Advance Climate Resilience Planning by Electric Utilities* (December 2020) at 9-10, available at https://climate.law.columbia.edu/sites/default/files/content/Full%20Report%20-%20Climate%20Risk%20in%20the%20Electricity%20Sector%20-%20Webb%20et%20al_0.pdf. (“Climate Risk Legal Obligations”)

The first step in this approach is to develop a better understanding of the vulnerabilities of New York’s utility systems (electric, gas, steam, telecommunications, and water) to the impacts of climate change. This step is best accomplished via the preparation of utility-specific climate change vulnerability studies.

B. Con Edison’s Climate Change Efforts Provide A Good Example of The Needed Actions

After the completion of its storm hardening investments, to better understand the risks of climate change, including risks beyond flooding, Con Edison worked with Petitioners and other consultants and experts to prepare a Climate Change Vulnerability Study (“Vulnerability Study”) to assess climate risks, review its planning, design standards, construction and operations practices, and guide the development of a climate risk mitigation plan.³⁶ The Vulnerability Study (i) developed a shared understanding of new climate science and projected climate and extreme weather for the utility’s service territory, including translating select climate science projections into usable inputs for Con Edison’s existing system planning processes and reliability models, (ii) assessed the risks of potential climate change impacts on ConEdison’s operations, planning, and physical assets; and (iii) reviewed a portfolio of operational, planning, and design measures, considering costs and benefits, to improve resilience to climate change.³⁷

Through the Vulnerability Study, Con Edison determined that the greatest threats to its utility systems are sea level rise, coastal storm surge, inland flooding from intense rainfall, hurricane-strength winds, and extreme heat.³⁸ The Vulnerability Study identified areas on its

³⁶ Con Edison, Climate Change Vulnerability Study (issued December 2019), available at <https://www.coned.com/-/media/files/coned/documents/our-energy-future/our-energy-projects/climate-change-resiliency-plan/climate-change-vulnerability-study.pdf?la=en>.

³⁷ *Id.* at 11.

³⁸ *Id.* at 5.

systems that may be particularly susceptible to these risks. For example, underground infrastructure is particularly vulnerable to damage from flooding, and some above-ground equipment faces the largest hazards from high winds and heat, the latter of which can decrease asset life and system capacity.³⁹

Con Edison then developed a Climate Change Implementation Plan, which “explains how the Company will incorporate climate change projections for heat, precipitation, and sea level rise from the ... Vulnerability Study into its operations to mitigate climate change risks to its assets and operations and establishes an ongoing process to reflect the latest science in the Company’s planning.”⁴⁰ The Implementation Plan focuses on 5-, 10-, and 20-year actions that Con Edison will take with respect to load forecasting, load relief planning, reliability planning, asset management, system planning, emergency response activities, and worker safety protocols.⁴¹ Con Edison also established a “Climate Change Planning and Design Guideline that outlines responsibilities and guiding principles for incorporating climate projections into Company practices.”⁴² The Company’s new “Corporate Instruction on Climate Adaptation” requires various departments at the utility (*e.g.* engineering and operations) to incorporate this guideline into their processes.⁴³ Further, Con Edison has started to take steps to incorporate climate change into its governance structure. The utility has created an executive committee to facilitate the

³⁹ *Id.* at 4-6.

⁴⁰ Cases 19-E-0065, *et al.*, Consolidated Edison Company of New York, Inc. – Electric and Gas Rates, Climate Change Implementation Plan (filed December 29, 2020) at 1 (“Implementation Plan”).

⁴¹ *Id.* at 2.

⁴² *Id.* at 4.

⁴³ *Id.* at 4.

Implementation Plan and a Climate Risk and Resilience Team to manage the activities required by the Implementation Plan.⁴⁴

Con Edison's Vulnerability Study and Implementation Plan are positive and important steps forward on the path to achieving resilient and reliable utility systems that are designed to adapt to climate change. Indeed, the Con Edison Vulnerability Study should represent a new paradigm for utility resilience planning in New York.

Due to the fact that the electric, gas, and telecommunications systems in New York are largely integrated and interdependent, it is imperative that every utility identifies and rectifies the climate change vulnerabilities on its system(s). However, it is Petitioners' understanding that Con Edison is the only major utility in the State that has taken steps to better understand the vulnerabilities of its utility steam systems to climate change. Although steam and water systems are not integrated in the same way, the Texas experience shows the equal need to make such systems as resilient as the electric, gas, and telecommunications systems. Accordingly, in order to ensure New York is able to withstand the increasingly severe storms and other climate impacts that are likely to occur, all of the State's major utilities should undertake similar efforts.

C. Assessments of Climate Vulnerabilities Must Consider Mitigation Measures

A fulsome understanding of utility system vulnerabilities requires the recognition that electric and gas utilities are transforming and will undergo significant changes due to building and transportation electrification and efforts to reduce greenhouse gas emissions. To guard against maladaptation – exacerbating an underlying problem in an effort to address a symptom of the

⁴⁴ *Id.* at 4-5.

problem – in the context of energy utility climate resilience planning, the planning process must consider the importance of reducing greenhouse gas emissions to reduce climate risk.⁴⁵

Climate-resilient planning can be done in a way to benefit customers by ensuring any expenditures are narrowly tailored to meet identified needs. For electric and gas utilities, the assessment of vulnerabilities and implementation of measures to ensure continued safe, adequate, and reliable service in the face of climate change should occur in a manner consistent with the CLCPA and New York’s overall decarbonization and greenhouse gas emissions reduction policies and goals.

For gas utilities, the vulnerability studies can serve a dual role of informing the Commission and stakeholders, and gas planning efforts, about opportunities for limiting and reducing capital investments in gas infrastructure not related to safety, as well as identifying and prioritizing non-pipe alternatives, electrification, and other options for achieving the CLCPA goals. That is, the studies should show where the greatest vulnerabilities exist. That information can be considered in conjunction with opportunities for decarbonization and the managed contraction of the gas system to allow for well-informed decision-making on the most cost-effective approach to addressing the identified vulnerabilities and ensuring the remaining system is resilient to climate change. This approach should provide the greatest resiliency, operational, and financial benefits while advancing toward achievement of the CLCPA goals.

⁴⁵ *Climate Risk Legal Obligations* at 4.

POINT II

THE COMMISSION SHOULD REQUIRE EACH UTILITY TO IDENTIFY CLIMATE CHANGE VULNERABILITIES AND TO DEVELOP PLANS TO MITIGATE THEM

For the reasons set forth above, assessments of and plans for addressing vulnerabilities should be developed and implemented in the near-term. The Commission should require each jurisdictional utility to undertake a climate change vulnerability study to understand the projected impacts of climate change on its service territory, assets, and operations and develop a plan to implement upgrades and other capital improvements, and changes to operations and maintenance practices, to increase the resilience of its system(s) and operations. Each implementation plan should include instituting accountable climate governance within the utility, with responsibility assigned to senior executives, and an approach to identify and track key climate and resilience indicators over time. Without sufficient knowledge of the strengths and weaknesses of each system, it is impossible for the State, municipalities, or the utilities to appropriately plan and prepare for severe weather events.⁴⁶

Differences among service territories and conditions throughout the State could lead to different types of risks and vulnerabilities and in turn, the types of resiliency measures that are most effective (*e.g.*, icing may be a larger concern in northern parts of the State, and chronic flooding from sea level rise will be a concern in only some areas). Therefore, each utility should assess and identify how different climate factors could impact its system(s) and prioritize those impacts and risks.

⁴⁶ Notably, Petitioners' request aligns with the CLPCA's expansion of the CRRRA described previously.

At a minimum, each vulnerability study should include the same components as the Con Edison Vulnerability Study. The studies should first assess the potential impacts of climate change on the utilities' physical infrastructure, system operations, supply chain, worker safety, emergency preparedness, and corporate governance. The studies should use the most up-to-date climate science available to accurately inform temperature and weather projections for the utility's service territory to help predict system stressors.⁴⁷

To ensure each utility is working from the same projections, the Commission should require the utilities to use the data from the New York State Energy Research and Development Authority's ("NYSERDA") ClimAID Report until newer data is available.⁴⁸ The studies should assess acute events (*i.e.*, extreme events, such as hurricanes and extended heat waves), chronic events (*i.e.*, projected changes over time, such as sea level rise or temperature increase) and multi-hazard and consecutive events. Once the impacts have been ascertained, the weaknesses and other vulnerabilities in the utilities' systems should be identified. Although it is critical that all system vulnerabilities be identified through this process, the utilities should adopt a risk-based approach to prioritizing upgrades and modifications to ensure that the most vulnerable infrastructure is addressed first.

The climate vulnerability studies also should account for expected changes to electric and gas systems that are needed to achieve the greenhouse gas emission reduction targets established

⁴⁷ Each utility need not perform its own assessment of available climate science as Con Edison did. However, it is critical that the utilities take the available climate data and determine the impacts to its specific system.

⁴⁸ NYSERDA, *Updating the 2011 ClimAID Climate Risk Information Supplement to NYSERDA Report 11-18 (Responding to Climate Change in New York State)* (issued September 2014), available at <https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York>.

by the CLCPA, such as reduced reliance on gas heating in the residential and commercial sectors.⁴⁹ For electric utilities, the assessment should consider risks to existing sources of generation and their fuel supply chains and how different climate risks will affect the growing share of clean electricity resources connected to the grid. Gas utilities should consider vulnerabilities created by gas system decarbonization efforts undertaken in furtherance of the CLCPA, such as supply- and demand-side non-pipes alternatives.

Once the studies have been completed, they should be shared and vetted with stakeholders.⁵⁰ Upon completion of the studies, the utilities should then be required to develop implementation plans that describe what changes they plan to make to their systems, including across planning, operations, and key equipment and assets. These implementation plans should develop options to minimize the risks identified through the vulnerability studies. To ensure that financial impacts to customers are considered as part of this process, the implementation plans should evaluate different levels of risk mitigation relative to cost. Consistent with the scope of the vulnerability studies discussed above, the electric and gas utilities' implementation plans should address vulnerabilities due to climate change and arising from or amplified by the transformation and decarbonization of their systems. Additionally, the Commission should direct the utilities to share best practices and lessons learned among themselves, and to consult with utilities in other

⁴⁹ See Energy + Environmental Economics, *Pathways to Deep Decarbonization in New York State* (June 24, 2020) at 25, available at <https://climate.ny.gov/-/media/CLCPA/Files/2020-06-24-NYS-Decarbonization-Pathways-Report.pdf> (indicating significant reduction in building energy demand served by natural gas from 2020 to 2050).

⁵⁰ Petitioners urge that the vetting process be iterative and interactive and not limited to the submission of written comments once the studies are completed. In the case of the Con Edison Vulnerability Study, the use of multiple meetings and substantive discussions among stakeholders during the preparation of the Study produced a superior final product.

regions to gain a broader perspective on best practices and learn from utilities that have experienced similar conditions as are projected for New York.⁵¹

Similar to the Con Edison Implementation Plan, each utility should identify short-, medium-, and long-term actions that will be taken. Because climate science and the nature and extent of climate risks are evolving, the Commission should require that both the vulnerability studies and implementation plans begin immediately and be updated on a regular cycle as new climate science and resiliency management practices becomes available. Moreover, climate change should be added to reliability, load growth, and changing legal requirements in the utilities' planning efforts and annual evaluations and prioritizations of system needs, capital plans, and operating budgets. To facilitate the implementation plans and ensure that climate change considerations are being integrated into the utilities' processes and operations company-wide, each implementation plan should also detail the organizational changes that will be implemented to achieve effective and accountable climate governance, and how climate and resilience indicators will be developed and tracked over time. The State may also consider over time the application of uniform resiliency metrics or indicators for utilities of the same type. Finally, as part of its directive to the utilities, the Commission should determine a schedule for creating and updating the vulnerability studies and implementation plans that will allow the information from these efforts to inform utility rate cases and other proceedings examining utility resilience efforts.

There is precedent for Petitioners' request. The CPUC recently established a statewide utility infrastructure vulnerability assessment effort. The CPUC commenced a proceeding to explore how to integrate "climate change adaptation into the investor-owned electric and gas

⁵¹ For example, utilities along the Atlantic Coast have dealt with storm surge, flooding, and high winds for many years, and utilities in the South and Southwest have experience with heat waves lasting a week to multiple weeks.

utilities’ existing planning and procurement processes”⁵² After an extensive stakeholder process, including soliciting input specifically from disadvantaged communities, the CPUC required California’s electric and gas utilities to file vulnerability assessments every four years that identify:

climate risks to operations and services as well as to utility assets over which IOUs have direct control; options for dealing with vulnerabilities, ranging from easy fixes, where applicable, to more complicated, longer term mitigation; exposure to climate risk of facilities IOUs have third party contracts with for power, capacity, or reliability; green and sustainable remedies for the vulnerable infrastructure; and how to promote equity in [disadvantaged communities].⁵³

CPUC Decision 20-08-046 also sets forth the minimum criteria that the utilities must consider in their assessments, such as evaluation of temperature impacts on infrastructure, operations, and personnel, and the impacts of “cascading/compound” events on infrastructure.⁵⁴ The schedule for filing the vulnerability assessments was set by the CPUC to allow the utilities to use the information from the assessments to inform their rate cases.⁵⁵ Importantly, Decision 20-08-046 requires the utilities to create “cross-departmental climate change teams” that report to a senior level executive to ensure collaboration on and prioritization of these issues.⁵⁶ Although there are many differences between the climate change impacts facing California and New York, the

⁵² CPUC Rulemaking 18-04-019, Order Instituting Rulemaking to Consider Strategies and Guidance for Climate Change Adaptation (filed April 26, 2018) at 17.

⁵³ CPUC Rulemaking 18-04-19, *supra*, Decision 20-08-046 - Decision On Energy Utility Climate Change Vulnerability Assessments And Climate Adaptation In Disadvantaged Communities (Phase 1, Topics 4 And 5 (issued September 3, 2020) at 4 (“Decision 20-08-046”).

⁵⁴ *Id.* at 87.

⁵⁵ *Id.* at 74-75, 82-84.

⁵⁶ *Id.* at 90-93.

CPUC's actions demonstrate the merits of this Petition and the need for utility climate vulnerability assessments.

In 2014, the Commission appropriately directed regulated utilities to begin to understand climate science and the potential impacts of climate change within their respective service territories. Last year, the Commission appropriately considered the need for utilities to disclose climate risks in their financial disclosures. The vulnerabilities studies proposed herein both build on and inform those actions. To properly disclose climate risks, utilities must understand the nature and scope of the risks, and the vulnerability studies will provide that information. But, the vulnerability studies serve a much broader purpose than disclosing risks to the financial community – they will provide a platform to guide utility and Commission decision-making regarding capital investment plans and operations and maintenance practices, and they will serve as an important tool in making utility infrastructure more resilient and in ensuring that the utilities can provide safe and adequate service.

Requiring the utilities to take these proactive steps now will help to mitigate the potential for widespread outages and equipment failures in the future. In turn, the health and safety of New Yorkers will be better protected. These steps also will help reduce the risk of customers bearing costs of utility infrastructure that cannot be used for its full useful life or which requires retrofits over time to ameliorate climate change risks and impacts. That is, the vulnerability studies can inform system and equipment designs and utility investment decisions, thereby avoiding wasteful and duplicative expenditures (*i.e.*, facilities would be designed and constructed from the outset to be resilient to projected climate risks, minimizing or eliminating the need for later replacements or retrofits). The cost benefits of the studies will inure to the benefit of all customers, and adverse

economic impacts from climate change-related outages and inefficient spending on New York businesses and the State as a whole will be lessened.

CONCLUSION

To ensure that New York is able to withstand the effects of climate change, the Commission should take action to ensure that the State's utilities understand the potential vulnerabilities of their systems and develop robust plans for mitigating these climate-related risks. Petitioners respectfully urge the Commission to act expeditiously in granting this Petition and directing the actions discussed herein.

Respectfully submitted,

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