COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK
LAW SCHOOL

December 12, 2012

Hon. Jaclyn A. Brilling
Secretary to the Commission
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223

Re: Petition on Natural Hazard Planning

Dear Secretary Brilling:

This letter is a petition on behalf of the undersigned to the New York Public Service Commission, requesting that it use its regulatory authority to require all utility companies within its jurisdiction to prepare and implement comprehensive natural hazard mitigation plans to address the anticipated effects of climate change. While many utilities are currently required to develop and implement emergency response plans, these only cover short-term responses to storms or other disasters when they occur. Utilities are not currently required to engage in long-term hazard mitigation planning, which would consider future projections for the natural hazards that may affect New York State given changing climate conditions and then determine how best to mitigate risks to the reliable provision of utility services.

The Public Service Commission, fulfilling its duty to encourage the formulation of long-range programs, care for the public safety and ensure reliability of service, should require all utility companies within its jurisdiction to take these steps. This petition asks that the Public Service Commission take action as soon as possible to require New York's utilities to consider how their infrastructure and service delivery may be impacted by the extreme weather scenarios that are predicted to occur in the future and to develop plans for how those risks can best be mitigated.

The Problem

Extreme weather events threaten the reliable service of utilities to consumers throughout New York State. Hurricane Sandy, the most recent and devastating example in a series of storms affecting New York utilities, interrupted vital electrical, water, steam, and telecommunications services for over a million utility users throughout the state. Once interrupted, services may take weeks to reinstate, further exacerbating the human and economic costs of the storm.

Failed utilities affected more than just homes and residents. Emergency back-up generators at the New York University Langone Medical Center failed on Monday, October 29th, and in the absence of electrical power from the utility companies, 219 patients were forced to be

evacuated in the midst of the storm.[1] On the financial end, the New York Stock Exchange closed for two days during Sandy — the first time the exchange had closed for two consecutive days due to weather since 1888.[2] Con Edison Senior Vice President for Electric Operations John Miksad described Hurricane Sandy as "the largest storm-related outage in our history."[3]

While the severity of Hurricane Sandy may have been unique, its destructive effect on utility service is not. In 2011, Hurricane Irene left nearly 400,000 New York City residents without power.[4] The Public Service Commission's 2011 Electric Reliability Performance Report confirms the connection between utility outages and storm events.[5]

Million Customer Hours of Interruption (Total)				
2007	2008	2009	2010	2011
18 mil	32 mil	14 mil	34 mil	82 mil

Million Customer Hours Interruption Due to Storms				
2007	2008	2009	2010	2011
6.5 mil	23 mil	4 mil	25 mil	72 mil

Such outages occur at least in part because the critical infrastructure that supports New York utilities is vulnerable to storm surge and flooding. As described in the New York City Panel on Climate Change 2010 (NPCC 2010) Report, New York power plants have traditionally been located on shorelines in order to support water intake and discharge, and their proximity to the shore leaves them vulnerable to flooding due to storms and sea level rise.[6] Though underground utilities are generally thought to be less vulnerable than above-ground lines, New York City's PlaNYC 2011 discusses the vulnerability of the 90,000 miles of underground power cables — infrastructure that is "often immovable and was built for different environmental conditions than it is likely to face in the future".[7] Transmission lines are similarly vulnerable, according to NPCC 2010, because they enter the city from "relatively few directions" and

[1] J. David Goodman, Patients Evacuated From City Medical Center After Power Failure, New York Times, 30 Oct 2012, http://www.nytimes.com/2012/10/30/nyregion/patients-evacuated-from-nyu-langone-after-power-failure.html.
[2] Mark Morales, "Apocalypse N.Y.: Hurricane Sandy kills 32, takes estimated $20 billion toll on the city after deadly two-day attack," New York Daily News, 31 Oct 2012, http://www.nydailynews.com/new-york/deadly-hurricane-sandy-takes-20b-tll-city-article-1.1195048#ixzz2BTNuL2ij.
[3] Millions of Tri-State Customers Without Power Following Superstorm Sandy, CBS New York, 30 Oct 2012, http://newyork.cbslocal.com/2012/10/30/superstorm-sandy-leaves-millions-without-power-across-tri-state-area.
[4] Power Outages in NYC Region as Hurricane Irene Arrives, 28 Aug 2011, http://gothamist.com/2011/08/28/power_outages_in_nyc_region_as_hurr.php.
[5] State of New York Department of Public Service, 2011 Electric Reliability Performance Report, June 2012, Figures 3 and 4, page 10-11. Figures are inexact as they are estimated from the graph provided in the report. Report available online at http://bit.ly/SWcXWb
[6] Rae Zimmerman and Craig Faris, Infrastructure impacts and adaptation challenges, in Annals of the New York Academy of Sciences 1196, New York City Panel on Climate Change 2010 Report, p63-86, May 2010, http://onlinelibrary.wiley.com/doi/10.1111/j.1749-6632.2009.05318.x/pdf.
[7] PlaNYC 2011, Climate Change Chapter, page 156, http://nytelecom.vo.llnwd.net/o15/agencies/planyc2030/pdf/planyc_2011_climate_change.pdf.

provide "little flexibility should any of these lines be compromised."[8] Vulnerable electrical infrastructure can have far-reaching consequences, as many other critical services in New York rely on the city's power grid.[9]

For the most part, utility companies are already aware of the risks posed by storms and other extreme weather events, and many take steps to prevent unnecessary loss of service and damage to infrastructure. In advance of Hurricane Sandy hitting New York City, Consolidated Edison shut off power to sections of lower Manhattan in order to better protect underground equipment.[10] The substation located near the East River in southeast Manhattan withstood a storm surge of 9.5 feet during Hurricane Irene, and, according to news reports, the company had planned its defense measures based on the record high of 11 feet of storm surge recorded in 1821,[11] but Hurricane Sandy created a 14 foot storm surge that flooded into the substation and destroyed underground equipment, leaving about 250,000 customers without power.[12] "We designed our equipment to be over almost a foot and a half above the highest high tide ever seen before," John McAvoy with Con Edison told reporters.[13]

As Hurricane Sandy demonstrated, infrastructure that has historically been safe from extreme weather events cannot be assumed to be safe from future events. As climate change continues, extreme weather events are predicted to become more frequent and more severe. According to the New York State ClimAID report, "Due to sea level rise alone, flooding at the level currently associated with the 100-year flood may occur about four times as often by the end of the century, based on the more conservative IPCC-based sea level rise scenario. The rapid ice melt scenario, should it occur, would lead to more frequent flood events."[14] The New York City Panel on Climate Change projects that by mid-century, New York City's average temperatures will rise by three to five degrees Fahrenheit, and sea levels could rise by more than two feet.[15] Brief, intense precipitation events that cause inland flooding are also likely to increase and storm-related coastal flooding due to sea level rise is very likely to increase.[16] Each of these different categories of extreme weather events creates potential hazards for utility infrastructure and service delivery.

---

[8] Zimmerman, supra note 6.
[9] Zimmerman, supra note 6.
[10] Cara Buckley, Power Failures and Furious Flooding Overwhelm Lower Manhattan and Red Hook, 29 Oct 2012, http://www.nytimes.com/2012/10/30/nyregion/red-hook-residents-defy-evacuation-warnings-drinks-in-hand.html?pagewanted=all.
[11] Dave Carpenter, Associated Press, Atlanta Journal-Constitution, NYC utility prepped for big storm, got even bigger, 31 Oct 2012, http://www.ajc.com/ap/ap/top-news/coned-prepped-for-big-storm-got-even-bigger-1/nSr6H/
[12] Carpenter, supra note 11.
[13] Millions of Tri-State Customers Without Power Following Superstorm Sandy, CBS New York, 30 Oct 2012, http://newyork.cbslocal.com/2012/10/30/superstorm-sandy-leaves-millions-without-power-across-tri-state-area.
[14] ClimAID, Report 11-18 Response to Climate Change in New York State, Chapter 1 Climate Risks, page 35, http://www.nyserda.ny.gov/Publications/Research-and-Development/Environmental/EMEP-Publications/Response-to-Climate-Change-in-New-York.aspx.
[15] PlaNYC 2011, supra note 7.
[16] New York City Panel on Climate Change, Climate Risk Information, 2009, http://www.nyc.gov/html/om/pdf/2009/NPCC_CRI.pdf.

In the past two years alone, New York City has been hit by two of the largest hurricanes in history (Irene and Sandy). "In just 14 months, two hurricanes have forced us [New York City] to evacuate neighborhoods — something our city government had never done before," New York City Mayor Bloomberg wrote in an editorial for Bloomberg View.[17] "If this is a trend, it is simply not sustainable."

As Governor Cuomo recognized:

> Extreme weather is a reality. It is a reality that we are vulnerable. And if we're going to do our job as elected officials, we're going to need to think about how to redesign, or as we go forward, make the modifications necessary so we don't incur this type of damage…. For us to sit here today and say this is a once-in-a-generation and it's not going to happen again, I think would be short-sighted…. I think we need to anticipate more of these extreme weather type situations in the future and we have to take that into consideration in reforming, modifying, our infrastructure.[18]

These statements from Mayor Bloomberg and Governor Cuomo demonstrate that the highest levels of government in New York are aware of the risks posed by climate change and that new plans and approaches are needed to mitigate those risks.

Fortunately, the costs of extreme weather events can be reduced through smart planning. By taking climate change into account when making plans for the future, communities will be better prepared to invest in cost-effective, proactive hazard mitigation strategies. As Mayor Bloomberg wrote in the 2010 NPCC Report, "Planning for climate change today is less expensive than rebuilding an entire network after a catastrophe. We simply can't wait to plan for the effects of climate change."[19]

Recommended Approach

The Commission, through its responsibility to oversee utility companies and under its duty to promote the formulation of long-range programs for the performance of public service responsibilities with care for the public safety, can and should require electricity, natural gas, steam, telecommunication, and water utility companies to compile existing information on and predictions of future natural hazards; prepare plans to ensure infrastructure is built, operated, and maintained to cope with future hazards; and implement those plans to ensure safe and reliable provision of service. These plans should form the basis for a larger effort by utility companies to incorporate climate change considerations into their infrastructure investment decisions.

---

[17] Michael Bloomberg, A Vote for a President to Lead on Climate Change, Bloomberg View, 1 Nov 2012, http://www.bloomberg.com/news/2012-11-01/a-vote-for-a-president-to-lead-on-climate-change.html.

[18] Ken Lovett, Hurricane Sandy Death Toll in NY at 26; Gov. Cuomo Blames Climate Change for Increase in Storms, New York Daily News, 31 Oct 2012, http://www.nydailynews.com/blogs/dailypolitics/2012/10/hurricane-sandy-death-toll-in-ny-at-26-gov-cuomo-blames-climate-change-for-inc.

[19] Michael Bloomberg, Forwards to Climate Change Adaptation in New York City: Building a Risk Management Response, Annals of the New York Academy of Sciences, 1196, 2010 Report of the New York Panel on Climate Change, 24 May 2010, http://onlinelibrary.wiley.com/doi/10.1111/j.1749-6632.2009.05415.x/pdf.

Each electric, gas, steam, telecommunications, and water utility should be required to develop and implement a natural hazard mitigation plan, and to either prepare a corresponding disaster response plan, or to modify existing emergency response plans to account for future climate predictions.

The Commission has the legal authority to require utilities to undertake this planning exercise. As the primary regulator of the state's electric, gas, steam, telecommunications, and water utilities, the Commission is charged with ensuring that safe and reliable service is provided by New York's utilities. Section 5[2] of the N.Y. Public Service Law states that the Commission "shall encourage all persons and corporations subject to its jurisdiction to formulate and carry out long-range programs, individually or cooperatively, for the performance of their public service responsibilities . . . ." Similarly, the Public Service Law makes it clear that reliable provision of utility service is a policy of the State of New York. Section 30 of that Law, which applies to residential gas, electric and steam services, states that "continued provision of [such services] to all residential customers without unreasonable qualifications or lengthy delays is necessary for the preservation of the health and general welfare and is in the public interest." Section 66 of that Law mandates that the Commission will "require every electric corporation to submit storm plans to the commission for review and approval at such times and in such detail and form as the commission shall require. . . ." This is the authority under which the Commission currently requires electric utilities to prepare emergency response plans for storms and storm-like events (16 NYCRR Part 105). Adequately planning for storms, as required under the Public Service Law, requires long-term assessment of risks and mitigation planning, in addition to short term emergency response planning.

Requiring utilities to undertake adequate hazard mitigation and response planning is clearly relevant to the fulfillment of the identified mission:

> The primary mission of the New York State Department of Public Service is to ensure safe, secure, and reliable access to electric, gas, steam, telecommunications, and water services for New York State's residential and business consumers, at just and reasonable rates. The Department seeks to stimulate innovation, strategic infrastructure investment, consumer awareness, competitive markets where feasible, and the use of resources in an efficient and environmentally sound manner.[20]

Evaluating risks to existing infrastructure and taking account of future climate predictions are essential to ensuring safe, secure and reliable access to utility services for the residents and businesses of New York. Failure to ensure that this planning takes place will lead to increasing frequency of service outages in the future and a significant degradation of utility reliability in certain areas. As outlined earlier in this petition, outages due to extreme weather events are already increasing in frequency, making the need for action to mitigate risks all the more urgent.

[20] New York State Public Service Commission Website, Mission Statement, http://bit.ly/WgDtub (last accessed 19 Nov 2012).

Studies and plans should incorporate four main elements: (1) They should incorporate both hazard mitigation and disaster response planning efforts, which should include an evaluation of infrastructure; (2) They should be based on future predictions of climate rather than historic observations; (3) They should be created in coordination with other utility companies and state and city officials, with full opportunity for input by all stakeholders, so as to form a coherent overarching plan for New York State utility security; and (4) They should incorporate a review at regular intervals to reflect new information on climate predictions as it becomes available and to assess the adequacy of mitigation planning.

Hazard Mitigation and Disaster Response

All utility companies should be required to create both hazard mitigation plans, detailing their plans to relocate or protect infrastructure and withstand extreme weather events, and disaster response plans, illustrating their anticipated methods to respond after a disaster has occurred and the utilities have failed. These two plans are distinct and yet interrelated. In an ideal world, the hazard mitigation plan would render the disaster plan obsolete, but as Hurricane Sandy has reminded us, no extreme weather event can be predicted with certainty.

Many utilities are already required to have emergency response plans, which set out how that utility would respond to storms or similar events. For example, as noted above, under 16 NYCRR Part 105, electric utilities are required to file an emergency plan with the Commission which includes information about that utility's training programs, preparatory measures which would be implemented in anticipation of a storm and service restoration procedures. While these plans are extremely important, we suggest that emergency preparedness requires both mitigation and response.

As Consolidated Edison's Report on Preparation and System Restoration Performance during Hurricane Irene demonstrates, existing emergency plans are focused on anticipation and response to disasters in the short-term, rather than long-term evaluation of the potential hazards posed to utility infrastructure by extreme weather and changes in the climate. The Con Edison report contained no evaluation of how frequently storms such as Hurricane Irene (or more severe storms) were likely to occur in the future, and what long term changes in infrastructure could best minimize the risk of power outages or equipment failures.[21]

Several other utility companies also submitted several reports to the Commission following on from the outages caused by Hurricane Irene and Tropical Storm Lee. Analysis of these reports confirms that they share the short-term approach outlined in the Consolidated Edison report mentioned above. None of the reports mention climate change, and any mention of "mitigation" refers exclusively to short-term disaster response procedures designed to combat imminent, named storms rather than general hazard mitigation strategies. The "lessons learned" sections of these reports contain no analysis of the effectiveness of long-term hazard mitigation strategy in limiting the impact of the storms in question. Furthermore, there is no discussion of

[21] Consolidated Edison Company of New York, Inc.: Report on Preparation and System Restoration Performance, Hurricane Irene August 27 through September 3, 2011, 14 Nov 2011, available at http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={29C5874D-7E8B-4455-9432-C542B2CBB68B}.

the relationship between disaster response and hazard mitigation. The main deficiency of these reports is therefore their short-term approach, which privileges event-specific measures ("disaster response") at the expense of long-term, general measures ("hazard mitigation").

Therefore, we suggest that hazard mitigation plans should include an evaluation of risks to existing capital and infrastructure. Studies and plans that incorporate future natural hazards will inform infrastructure development, operation, and maintenance decisions to ensure the greatest possible future reliability.

Natural hazard mitigation plans and disaster response plans should be made public to inform customers how the utility company plans to prioritize its resources and what its contingency plans are. This would encourage collaboration between companies and ensure the implementation of best practices.

Future Predictions

A common weakness in existing natural hazard mitigation planning is its failure to account for the predicted severity of future storms and its reliance instead on historic trends. Past records are no longer expected to be the upper limit of storm surge, rainfall, and wind intensity. In fact, available evidence indicates that storm surge and rainfall will be greater in the future than what has been seen historically.

In order to prepare natural hazard mitigation plans, it would not be necessary for utilities to take on the burden of engaging consultants to predict future climatic conditions in the state. Various expert reports which project future climate conditions have already been prepared, or are forthcoming. These include:

- The New York City Panel on Climate Change's Report, "Climate Change Adaptation in New York City: Building a Risk Management Response" (2010);
- New York State's Climate Action Plan (2010);
- New York State Sea Level Rise Task Force Report (2010);
- U.S. Global Change Research Program's National Climate Assessment (forthcoming 2013);
- Intergovernmental Panel on Climate Change (IPCC's) Fifth Assessment Report (forthcoming 2014).

New York State and City planners already recognize the importance of climate change and extreme weather events in their planning efforts. The scientific predictions outlined above, which have been used in these state and city planning methods, should be incorporated in utility company plans

Examples of how climate change can be incorporated into utility planning can be found in other jurisdictions. In Colorado, Denver Water has a Drought Response Plan that addresses future predictions for water shortage and identifies how the company expects to address those

challenges.[22] Other water utility companies have conducted climate vulnerability assessments, including East Bay Municipal Utility District, City of Boulder Utilities Division, Portland Water Bureau, Massachusetts Water Resources Authority, Lower Colorado River Authority, and Seattle Public Utilities.[23] On a national scale, the EPA's Climate Ready Water Utilities (CRWU) initiative provides resources for the water sector to adapt to climate change.[24]

Hazard mitigation plans, while preparing for future climate conditions and doing so in a timely manner, should not be allowed to degrade the existing environment without due consideration of alternatives. Hazard mitigation measures should be evaluated not only on their cost-effectiveness and ability to withstand future weather events but also on their impact on the current environment.

Review Period

Public utility companies are already accustomed in the wake of a disaster to accounting for what went wrong and understanding where they can improve. Even the best preparations can often have flaws and should be reviewed regularly to ensure they are as complete as possible. Therefore, the natural hazard mitigation plans to address future environmental threats from extreme weather events should be reviewed on a periodic basis to incorporate new scientific information, updated predictions, and an evaluation of the success of adaptation and hazard mitigation strategies.

Conclusion

As part of its mission to promote safe, reliable provision of utilities to New York State, the Commission should require all utility companies under its jurisdiction to:

1) Compile existing information on and predictions of future natural hazards;
2) Prepare natural hazard mitigation plans to ensure infrastructure is built, operated, and maintained to cope with future hazards; and
3) Implement those plans to ensure safe and reliable provision of utilities

Natural hazard mitigation plans should incorporate predictions on the future state of the climate, as assessed by numerous studies and commissions which make projections for New York State, should be conducted in coordination with other utility companies and government agencies, and should be reviewed periodically to assess their continued adequacy. Such actions would prepare utility infrastructure throughout the state for future extreme weather events, which are expected to be more severe than those seen in the past, and to ensure the reliable provision of vital service to New York citizens.

---

[22] Denver Water, Drought and Climate Change, http://www.denverwater.org/SupplyPlanning/DroughtInformation (last accessed 19 Nov 2012).
[23] Environmental Protection Agency, Office of Water, *Climate Change Vulnerability Assessments: A Review of Water Utility Practices*, August 2010, available at http://water.epa.gov/scitech/climatechange/upload/Climate-Change-Vulnerability-Assessments-Sept-2010.pdf.
[24] Environmental Protection Agency, Climate Ready Water Utilities, http://water.epa.gov/infrastructure/watersecurity/climate (last accessed 19 Nov 2012).

Sincerely,

Anne R. Siders
Associate Director
Center for Climate Change Law
Columbia Law School
435 West 116th Street
New York, NY 10027

Deborah Goldberg
Managing Attorney
Earthjustice
156 William Street, Suite 800
New York, NY 10038

Robert Moore
Executive Director
Environmental Advocates of New York
353 Hamilton Street
Albany, NY 12210

Vin Cipolla
President
Municipal Art Society of New York
111 West 57th Street
New York, NY 10019

Donna De Costanzo
Senior Attorney
Natural Resources Defense Council
40 West 20th Street
New York NY 10011

Marcia Bystryn
President
New York League of Conservation Voters
30 Broad Street
New York, NY 10004

Jackson Morris
Director of Strategic Engagement
Pace Energy & Climate Center
Pace Law School
78 North Broadway
White Plains, NY 10603

Paul Gallay
President and Hudson Riverkeeper
Riverkeeper, Inc.
20 Secor Road
Ossining, New York 10562