NEW YORK STATE

PUBLIC SERVICE COMMISSION

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Case 15-E-0302 – Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and Clean Energy Standard

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ROGER CAIAZZA RESPONSE TO

JULY 18, 2024 SIERRA CLUB AND EARTHJUSTICE'S RESPONSE TO

CAIAZZA JULY 3, 2024 COMMENTS

January 24, 2025

Case No. 15-E-0302
-Via Electronic Filing-
January 24, 2025

Re: Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard – Zero Emissions Target

This filing is in response to comments submitted by Sierra Club and Earthjustice dated July 18, 2024. These relate to my previously submitted comments rebutting their assertion that the size of the Dispatchable Emissions-Free Resource (DEFR) has been overstated.

I have been following the Climate Leadership & Community Protection Act (Climate Act) since it was first proposed, submitted comments on the Climate Act implementation plan, and have written over 500 articles about New York's net-zero transition. I am a meteorologist with over 40 years' experience in the electric generating sector. I am a member of the New York State Reliability Council (NYSRC) Extreme Weather Working Group (EWWG). The opinions expressed in this comment do not reflect the position of the Reliability Council, the Extreme Weather Working Group, or any of my previous employers or any other company I have been associated with, these comments are mine alone.

Sierra Club and Earth Justice underestimate the size of the DEFR gap

My analyses directly contradict the Sierra Club and Earthjustice ("SC&E") concern that "NYISO's presentation at the December technical conference overstates the need for dispatchable, emissions-free resources ("DEFRs") and downplays the value of taking steps in the near term to minimize this gap." This filing specifically addresses the following SC&E assertion:

> There is no reason to believe that wind speeds offshore New York City, Long Island, and the Massachusetts Cape will be significantly correlated with land-based wind resources located in Upstate New York. Extrapolating current wind correlation for a small fleet to a future system overstates the correlation concerns. Furthermore, New York is interconnected with neighboring systems, so correlation in wind production across Ontario, Quebec, and New England is more relevant when considering reliability risks associated with wind lulls.

NYISO Resource Outlook Appendix E

Appendix E: New York Renewable Profiles and Variability in the New York Independent System Operator (NYISO) July 2024 2023-2042 System & Resource Outlook conclusively rebuts the statement that "there is no reason to believe that wind speeds offshore New York City, Long

Island, and the Massachusetts Cape will be significantly correlated with land-based wind resources located in Upstate New York."

According to the overview in Appendix E of the System & Resource Outlook:

> The NYISO contracted with DNV to produce long-term hourly simulated weather and generation profiles for representative offshore wind (OSW), land-based wind (LBW), and utility-scale solar (UPV) generators. Information about these databases and their production methods were presented to and discussed with stakeholders. The Offshore Wind Profile Details & Methodology was shared and discussed at the February 7, 2023 ICAP/MIWG/PRLWG meeting, and the Solar and Land-Based Wind Profile Details & Methodology was shared by DNV and discussed at the November 21, 2024 ESPWG/TPAS meeting. DNV provided data for seven OSW locations and nearly 80 LBW and UPV locations each throughout the state. The locations were aggregated to the county or zonal level to be put into a format consistent with the capacity expansion modeling framework for use in this Outlook. Capacity weighted aggregation of the site-level net capacity factor (NCF) shapes by technology type in each region was performed in each hour to determine the zonal or county aggregate NCF profiles that the NYISO used as inputs for this Outlook.2 To align with the weather representation inherent in the demand forecasts used, the renewable generation profiles from 2018 were leveraged from the 20-plus-year database to represent the production from renewable generators in every year of the 20-year study.

The NYSRC EWWG analyzed the output from the NYISO study. The minutes from t Extreme Weather Working Group Meeting on September 27, 2024 included a summary of the resource gaps found. Tom Primrose calculated the resource gaps based on the DNV shape data for the UPV, LBW, OSW, OSW+LBW+UPV and OSW+LBW resource profiles. He used the projected 2030 System & Resource Outlook incremental builds and determined lulls defined as the average duration below 10% capacity factor. The relevant finding for this is the longest resource lull durations observed in the 20-plus-year database:

- Longest PV Lull: 1280 hours, 11/8/2000-12/31/2000 (Note that these numbers are inconsistent but I am only worried about the wind here.)
- Longest LBW Lull: 575 hours, 9/9/2017-10/3/2017
- Longest OSW Lull: 229 hours, 8/3/2014-8/12/2014
- Longest OSW+LBW Lull: 224 hours, 8/3/2014-8/12/2014
- Longest OSW+LBW+UPV Lull: 73 hours, 11/23/2016-11/26/2016

Primrose said "the major takeaway is that lulls of average capacity factor below 10% are common and lengthy in all (21) years of DNV data."

For this filing note there was a 224-hour period when the offshore and land-based winds in the New York Control Area were correlated well enough that the average capacity factor was less than 10%. This directly contradicts the SC&E belief that "There is no reason to believe that wind speeds offshore New York City, and Long Island will be significantly correlated with land-based wind resources located in Upstate New York." This analysis did not include the and the Massachusetts Cape resources but earlier work by the EWWG found there was a high degree of correlation between New York and those resources.

Resource Gap Analysis

Both SC&E and I agree there exists significant uncertainty at present about the ultimate size of the potential gap in DEFRs and that a detailed feasibility analysis that determines the worst-case observed wind and solar resource drought is needed. The SC&E comments quoted my recommendation:

> The meteorological data reanalysis techniques that enable a period of record back to 1950 should be used. It should be a continental-scale analysis with realistic estimates of maximum available buildout of resources. Obviously, this analysis would require major effort, but other stakeholders across the country need the same information, so that they can determine how much energy will be available for import and export. The worst-case resource availability analysis will define the conditions, and at that point resource planners can determine what resources must be deployed to meet the State's goals and requirements. Using a long period of record will allow planners to analyze return time relative to life expectancy of resources. The Commission should encourage coordination amongst all the RTOs to prepare this analysis.

Last summer, the NYSRC EWWG developed its own recommendation that differs slightly. Instead of a continental-scale analysis they recommended extending it only to adjoining control areas and did not specify a starting date:

> The EWWG recommends that the NYSRC EC submit a comment to the PSC requesting that this kind of analysis be extended to adjoining control areas and over a longer analysis period. The frequency, duration, and intensity of wind and solar availability gaps must be known to properly plan to provide the generation, storage, and DEFR resources necessary to maintain reliable service.

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