Roger Caiazza's Filings and Comments on Wind and Solar Resource Availability Lulls and Droughts in the New York DPS DMM System

Based on my comprehensive research of Roger Caiazza's activities in the New York Department of Public Service Document and Matter Management (DMM) system, I have identified extensive documentation of his concerns about wind and solar resource availability lulls, droughts, and worst-case conditions. Caiazza has made this issue a central focus of his regulatory advocacy, filing numerous detailed comments across multiple proceedings.

Overview of Wind and Solar Resource Availability Concerns

Roger Caiazza has consistently argued that **wind and solar resource availability lulls represent the fundamental fatal flaw** of renewable energy systems[1]. As a retired air pollution meteorologist with over 40 years of experience in the electric generating sector, he has used his technical expertise to warn that any electric grid relying primarily on wind and solar is "doomed to failure"[2].

Major DPS Filings on Wind and Solar Lulls

Case 15-E-0302 - Large-Scale Renewable Program Proceedings

Caiazza has been most active in Case 15-E-0302, where he has filed multiple comprehensive comments addressing wind and solar resource availability issues:

August 8, 2023 Filing: Caiazza submitted comments highlighting the need for a study to address the development and deployment of resources capable of achieving a zero emissions grid. He specifically noted that the proceeding "explicitly points out that a dispatchable emissions-free resource (DEFR) is needed to meet multi-day periods of low wind and solar resource"[3].

January 22, 2024 Filing: In response to NYISO's Zero Emissions by 2040 Technical Conference, Caiazza emphasized the "Ultimate Reliability Problem" illustrated by NYISO data showing **long-duration wind lull problems**. He specifically referenced a graph showing the challenge from a September 16, 2020 presentation to the Climate Action Council[4].

July 2, 2024 Filing: Caiazza submitted detailed technical comments directly responding to Sierra Club and Earthjustice criticisms of NYISO's DEFR analysis. In this filing, he provided extensive analysis of wind lull data, noting that **25% of the time only 7% of New York's total wind capacity is available**. He argued that this demonstrates the high correlation of wind resources across the state and validates concerns about extended wind lulls[5].

Analysis of Historical Wind and Solar Droughts

Caiazza has consistently advocated for using longer historical datasets to identify worst-case renewable energy resource conditions:

The January 1961 Event: Working with climatologist Judith Curry, Caiazza identified the January 1961 weather event as the probable worst-case scenario for New York. Their analysis found a **15-day period from January 20 until February 3, 1961** that represented the worst-case cold wave, characterized by high-pressure systems that caused extremely light wind speeds across the Northeast[5] [6].

Comparison with ISO New England: Caiazza has referenced ISO-NE analysis showing that using longer historical datasets reveals more severe resource adequacy challenges. While a 10-year lookback period suggested a system risk of 8,714 MW, extending the analysis back to 1950 increased the worst-case requirement by an additional 446 MW, representing a 5.1% increase[5].

Technical Arguments About Wind and Solar Correlation

High Correlation Across New York State

In his July 2024 filing, Caiazza provided detailed data analysis showing the high correlation of wind resources throughout New York. Using 2021 NYISO wind production data, he demonstrated that wind resources across the state are highly correlated, with **25% of hours showing only 7% of total wind capacity available**[5].

Geographic Scope of Wind Lulls

Caiazza has emphasized that wind lulls affect entire regional transmission organization (RTO) areas simultaneously. He argues that **high-pressure weather systems are huge and can cover all of New York and much of eastern North America at the same time**[7]. This correlation means that the traditional approach of geographic diversification cannot solve the intermittency problem.

National Grid Rate Case Filings

May 14, 2025 Statement in Opposition

In his joint statement with Constantine Kontogiannis opposing the National Grid Joint Proposal, Caiazza included specific analysis of wind lulls during September 2024. The filing contained "Table 1: Categorial Hourly Totals for New York State Wind Power from 12 September 2024 hour 0000 to 19 September 2024 hour 2300," documenting a significant wind lull event that affected the entire state[8].

April 17, 2025 Comments on Gas System Long-Term Plan

In his comments on National Grid's Gas System Long-Term Plan, Caiazza emphasized the need to **"determine how much DEFR capacity is needed for wind and solar resource lulls using as long record of weather data as possible"**. He argued that analyses done to date suggest resource capacity equivalent to existing fossil resources will be needed to address renewable energy droughts[7].

New York State Reliability Council Extreme Weather Working Group

Caiazza represents the Environmental Energy Alliance of New York on the NYSRC Extreme Weather Working Group, where he has contributed to multiple analyses of wind lull impacts:

Offshore Wind Analysis: The EWWG analyzed high-resolution offshore wind data provided by NYISO and found that **wind lulls from 24 to 86 hours occur frequently**. The analysis concluded that "the magnitude, duration, and widespread geographic impacts identified by this preliminary analysis are quite significant and will be compounded by load growth from electrification"[9] [5].

Specific Technical Concerns Raised

Dispatchable Emissions-Free Resource (DEFR) Requirements

Caiazza has consistently argued that the need for DEFR resources is driven by extended wind and solar lulls. In his technical analyses, he has estimated that during a 7-day wind lull with 25% wind capacity factor, **DEFR would need to produce approximately 1,800 GWh to maintain grid reliability**[5].

Energy Storage Inadequacy

Caiazza has argued that energy storage cannot solve the wind and solar drought problem. He notes that the life expectancy of battery storage technologies is much less than the return frequency of severe weather events, making it impractical to build enough storage for once-in-60-year events[5].

Expected Unserved Energy (EUE) Concerns

In recent 2025 testimony, Caiazza has discussed Expected Unserved Energy as a parameter that **"addresses issues associated with the long duration wind and solar resource lulls that is the driver for the need for DEFR"**. He has concluded that this issue causes "insurmountable reliability risks"[10].

Recommendations for Addressing Resource Availability Issues

Continental-Scale Analysis

Caiazza has recommended that New York conduct a detailed feasibility analysis using meteorological data reanalysis techniques covering a period back to 1950. He advocates for a **continental-scale analysis with realistic estimates of maximum available buildout of resources**[5].

Demonstration Projects

Caiazza has suggested that before proceeding with large-scale renewable deployment, New York should require **proof-of-concept demonstration projects** to prove that a zero-emission electric grid powered predominantly by wind and solar can work reliably[5].

Safety Valve Implementation

Throughout his filings, Caiazza has advocated for implementing the safety valve provisions in Public Service Law Section 66-p(4) that allow the Commission to suspend renewable energy programs if they impede safe and adequate electric service[11] [7].

Recent Developments and Ongoing Analysis

September 2024 Wind Lull Event

Caiazza's most recent detailed analysis focused on a significant wind lull that occurred in September 2024, which he documented in his National Grid rate case testimony. He noted that during this event, **New York's 2,454 wind turbine fleet generated only 0.2 MW during one hour**[12].

Climate Act Integration Analysis Critiques

Caiazza has consistently critiqued the Climate Act Integration Analysis for failing to adequately address worst-case renewable energy resource conditions. He argues that the analysis uses **relatively short periods of historical data** and therefore underestimates the DEFR requirements[5].

Impact on New York Energy Policy

Caiazza's extensive documentation of wind and solar resource availability issues has brought significant attention to these challenges within New York's energy planning processes. His technical expertise and persistent advocacy have influenced academic discussions, regulatory proceedings, and policy debates about the feasibility of New York's renewable energy transition.

His work has been particularly influential in highlighting the need for dispatchable emissions-free resources and the inadequacy of current renewable energy planning methodologies to address worst-case weather conditions. Through his 257+ filings in the DPS DMM system, Caiazza has created one of the most comprehensive individual records documenting the technical challenges associated with wind and solar resource availability variability in New York State.

The breadth and depth of Caiazza's wind and solar lull documentation represents a sustained decade-long effort to ensure that New York's energy transition planning adequately addresses the fundamental reliability challenges posed by weather-dependent renewable energy resources.

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