State Of New York Department of Public Service
Case 15-E-0302 White Paper on Clean Energy Standard Procurements to Implement New York's Climate Leadership and Community Protection Act

Personal Comments of
Roger Caiazza
7679 Bay Circle
Liverpool, NY 13090

July 22, 2020

Introduction

I am following the implementation of the Climate Leadership and Community Protection Act (Climate Act) because I believe it will affect the affordability and reliability of New York's energy. I am submitting these comments because the definition of "renewable energy systems" as amended in the public service law with the addition of section 66-p is inconsistent with the reliability of the future electric system.

I am a retired utility meteorologist with nearly 40-years experience analyzing the effects of environmental regulations on electric and gas operations. The opinions expressed in this post do not reflect the position of any of my previous employers or any other company I have been associated with, these comments are mine alone.

Renewable Energy System Definition

The Climate Act states:

> § 66-p. Establishment of a renewable energy program.
>
> 1. As used in this section:
>
> (b) "renewable energy systems" means systems that generate electricity or thermal energy through use of the following technologies: solar thermal, photovoltaics, on land and offshore wind, hydroelectric, geothermal electric, geothermal ground source heat, tidal energy, wave energy, ocean thermal, and fuel cells which do not utilize a fossil fuel resource in the process of generating electricity.

Problem

At the second Climate Action Council meeting on June 24, 2020 Energy and Environmental Economics (E3) presented results from their report "Pathways to Deep Carbonization in New York State". I have analyzed options for the future Climate Act electric system and agree with their concern about multiple-day periods when wind and solar resources could provide negligible power to the grid. The report notes that "This long-duration (interday) challenge can be solved through a combination of large-scale hydro resources, renewable natural gas (RNG) or synthetic fuels such as hydrogen, Carbon Capture Storage (CCS), and nuclear power". During the question and answer period following the presentation, Climate Action Council members argued that RNG was not acceptable because it was not included in the definition of renewable energy systems. In my opinion, there are two problems with the definition in that light: firm capacity and air source heat pumps.

E3 explains in their report that "Firm capacity is the amount of energy available for power production which can be guaranteed to be available at a given time. As the share of variable resources like wind and solar grows substantially, firm capacity resources will be needed to ensure year-round reliability, especially during periods of low renewables output." The options that they included in their deep carbonization pathway included two that are unlikely sources of much additional capacity in New York, large-scale hydro and nuclear, because of development concerns while two others, synthetic fuels and carbon capture storage, are only at the demonstration technical readiness level according to the International Energy Agency. That leaves RNG as the most likely source of firm capacity. Based on my

work I believe that the alternative approach of using energy storage for this application will be a major technological challenge and surely will be extraordinarily expensive so excluding RNG would make providing firm capacity more difficult. Therefore, I recommend that this technology not be rejected due to the magnitude of the firm capacity problem.

The argument that RNG is not a "renewable energy system" is based entirely on the fact that it is not explicitly included in the definition. Note, however, that "geothermal ground source heat" is included but air source heat pumps are not. As a result, then does that also mean the air source heat pumps are not an acceptable technology to meet the requirements of the Climate Act? In order to meet the GHG emission reduction targets electrification of heating will be necessary. Because air source heat pumps are cheaper and easier to install than ground source heat pumps, they are the preferred alternative. Because this resource is necessary for the Climate Act it should be considered a renewable energy system even though it is not explicitly included in the definition.

Conclusion

Based on the importance of RNG for the firm capacity problem and air source heat pumps for the necessary heating electrification challenge, I recommend that the Department of Public Service, other state agencies and the Climate Action Council resolve the status of these technologies for the Climate Act scoping plan as soon as possible. They both should be considered renewable energy systems.