

# 1 Grid in Transition Enhancements

## 1.1 Problem / Opportunity

New York State's Green New Deal ("GND") 2040 carbon neutral end state and 2030 70% renewable energy transitional state contain specific renewable energy and energy storage capacity targets and mandates. These public policy mandates are likely to implicate multiple areas of market design. Designing markets that achieve these states in an economically efficient manner is important. The NYISO is undertaking a white paper to scope the issues that will need to be addressed in response to New York State's clean energy targets; however, further discussion on specific design objectives and prospective elements throughout 2020 is warranted. Significant cost savings in implementing the clean energy objectives could be realized with well-tailored market design. There is value in considering different stakeholder perspectives in an effort to develop lower cost solutions to achieve state policies.

## 1.2 Project Objective(s) & Anticipated Deliverable(s)

The objective of this project is to solicit a variety of stakeholder perspectives on key market design issues that may be implicated by New York State's clean energy mandates and objectives. In a series of monthly meetings throughout 2020, the NYISO would make available a forum to address a single topic, allowing stakeholders to provide their perspectives, including presentations that describe the problem and potential solutions. For each topic and/or subject area, the NYISO would provide appropriate background, including any education on the current market design, take stakeholder input, and track issues that generate stakeholder interest. Following this comprehensive review, stakeholders will prioritize NYISO market design changes for 2021 with the target of "Market Design Proposed". Key subject areas and representative questions include but are not limited to the following:

### 1. Future of Fossil Generation

- What should the role of combustion units be?
  - Should combustion units be limited to biofuels?
- The role of fossil units for resilience/outage/unavailability/electrification?
  - For resilience?
  - Other reserves?
  - To address unlikely transmission outages, for example?
  - To reduce more carbon in other sectors through electrification?
  - To the extent fossil purchase offsets elsewhere?

### 2. Implications of a Carbon Neutral Grid

- Carbon Neutrality – What does it mean?
- What if any role should loads' carbon footprint offsets play in assuring carbon neutrality given remaining fossil generation?
- How should we measure and accommodate fossil units to the extent they support electrification of other higher carbon sectors reducing carbon emissions, and how should we measure and accommodate their impact?
- What is the relevance of carbon pricing for achieving the 2030 transitional 70% renewables state or 2040 carbon neutral end state?

### 3. Reliability and Market Considerations

- What are appropriate market structures for assuring reliability in the 2030 and 2040 cases?

- What are the appropriate ways of setting reliability requirements and measuring reliability with a system comprised primarily or completely of renewables and storage of different durations?
  - How should the system accommodate potentially reduced UCAP contribution arising from correlated renewable outages?
  - What role should real time retail pricing play to assure customer load reductions when correlated outage events occur?
  - Where should the cost of loss of load be considered?
4. Capacity Market Enhancements
- What, if any, capacity market changes may be needed to maintain reliability at lower cost given state mandates?
  - What changes might allow optimizing the combination of storage, wind (and potentially fossil) resources?
  - Given uneven renewables injection, how should balance of system costs be identified and allocated? What, if any, changes in cost allocation for these resources may be needed?
  - Given a synergetic reliability contribution of storage/renewables/potential fossil facilities, how should capacity payments be allocated?
5. Energy Market Enhancements
- What, if any, energy and ancillary services market changes may be needed?
  - Absent mandates and moratoria, how might energy market changes assure that transitional and end-state renewable generation targets are met?
  - What, if any, ancillary service changes are needed to support flexible resources?
  - What, if any, changes in cost allocation might be expected or appropriate?
6. Effective Capacity Market Mitigation
- What does BSM look like in a 2040 full renewables case?
  - How should supply side mitigation change?
  - What BSM and SSM outcomes should we be seeking to support the 2030 transitional mandates?
  - How should bidding rules and SSM change to accommodate increased DAM v. RT risk?
7. Inter-regional Coordination
- How may these mandates affect trade with neighboring ISO/RTOs?
  - How may these mandates affect New York's historic ability to provide mutual reliability support?
8. Future of the Competitive Market
- Would we and should we still have a competitive market?

### 1.3 Project Justification

This project should be considered given mandates highlighted in the PSC Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement (Case 18-E-0071 – In the Matter of Offshore Wind Energy), PSC Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Order Adopting a Clean Energy Standard (issued August 1, 2016) (“CES Order”), PSC Case 18-E-0130 In the matter of Energy Storage Deployment Program Order Establishing Energy Storage Goal and Deployment Policy (December 13, 2018) and the governor’s state of the state commitments and subsequent PSC Orders. The intention is to identify means of addressing the state’s goals and mandates in a cost-effective way while continuing to reliably serve load.