NYISO Capacity Accreditation: Consumer Impact Analysis

Presented by:

Pallas LeeVanSchaick
Joseph Coscia
NYISO Market Monitoring Unit
Potomac Economics

October 18, 2021

POTOMAC ECONOMICS

Background

- NYISO presented its Comprehensive Mitigation Review proposal on September 28, 2021.
  - ✓ The NYISO's presentation included a proposed capacity accreditation framework and draft tariff revisions.
- Stakeholders expressed interest in an analysis of the impacts of alternative capacity accreditation approaches.
- The MMU is conducting an analysis of the long-term impacts of capacity accreditation on consumer costs and the NYISO markets.
  - ✓ This analysis can be used to address many of the questions being raised by stakeholders ahead of the November BIC and MC meetings.

Overview of Approach

- **Purpose**: Model the resource mix, capacity market outcomes, and consumer payments by 2030 under alternative accreditation methods.
- Two primary components:
  - ✓ **Simplified capacity accreditation model** – calculate capacity credit under Marginal, Average (Delta Method), and Status Quo for each resource type for a given resource mix.
  - ✓ **Simplified capacity expansion model** – calculate profit-maximizing investment decisions with given capacity credit ratings.
  - ✓ These two models are iterated to arrive at an optimal set of investment decisions by 2030 under each accreditation method.
- Outputs of analysis:
  - ✓ Capacity price, total accredited UCAP, and consumer payments under each accreditation method.
  - ✓ Capacity additions by technology under each accreditation method.

Features of Approach

- Allows for comparison of accredited UCAP and consumer costs under each method.
- Calculates capacity requirements and capacity credit in a consistent manner.
- Captures the effect of the capacity accreditation method on economic investment decisions.
  - ✓ Includes impact on economic investment decisions of policy resources that receive state support.
- Accounts for extent to which differences in capacity payment between methods are offset by differences in REC costs.

Capacity Accreditation Model

- Simplified, deterministic hourly loss of load model.
  - ✓ Calculate unserved energy in each hour considering hourly load shapes and resource profiles.
  - ✓ Adjust system to criteria level of loss-of-load.
- Calculate capacity credit using alternative techniques:
  - ✓ MRI – change in unserved energy from adding 1 MW of a resource type at criteria, relative to 1 MW of perfect capacity.
  - ✓ Average ELCC – based on Delta Method[1]:
    - Calculate portfolio ELCC as perfect capacity that could replace all capacity of intermittent and storage resources at criteria.
    - Allocate interactive effect to resource classes proportional to difference between "First In" and "Last In" marginal ELCC.
  - ✓ Status Quo – based on Tailored Availability Metric and Expanding Capacity Eligibility rules.

[1] See Slide 12 of presentation by E3 at 9/27/2021 ICAPWG.

POTOMAC ECONOMICS

Capacity Expansion Model

- Iterative model to choose the most economic investment and retirement decisions to unit owners under each capacity accreditation method.
  - ✓ Add or remove capacity of a given type when its total expected revenue exceeds or falls short of its cost of new entry.
- New resource options: solar, land-based wind, offshore wind, energy storage (2, 4, 6, and 8 hour).
- Calculate capacity prices with ICAP requirements and derating factors derived from loss-of-load model.
- Build new resources to satisfy state targets (70 percent renewable and 3 GW storage by 2030).
  - ✓ Calculate REC price and storage incentives as out-of-market payment needed to attract investment in these resource types.

Next Steps

- We expect to present results of the analysis at the November 2, 2021 ICAPWG meeting.