Regulation, Ramping, and Reserves

Requested by Multi-Sector Group A*

**Acadia Center, Advanced Energy Economy (AEE), Brookfield Renewable, Conservation Law Foundation (CLF), Energy New England (ENE), Natural Resources Defense Council (NRDC), and Power Options*

Overview

- **Objective:**
  - To assess if there is a need for or benefit from additional ramping, regulation, or load-following resources as the system decarbonizes
- **Study Information:**
  - **Associated Prior Study:** PAC 2016 Economic Study Phase II (Regulation, Ramping, and Reserves), updated and extended beyond 2030
  - **Modeling Tool:** EPECS Simulator (Dartmouth)
- **Scenarios:**
  - **Base Case** reflecting best information about the system in 2030 (updating inputs to 2016 PAC study), adjusted as needed to meet state policy goals
  - **System in flux** between base case and end state (not tied to a particular year)
  - **End State** low-carbon generation scenario (potentially based on end state technical outputs from Massachusetts 80x50 study or Eversource "Aggressive Decarbonization" scenario; not tied to a particular year)

Study Details

- **Deliverables:**
  - Simulated operating reserves: Load Following, ramping and curtailment performance
  - Simulated interface & tie-line performance
  - Simulated regulation performance
  - Simulated balancing performance
  - Timeseries data outputs on the most granular time-scale (e.g. 1- or 10-minute data) for each kind of assessed reserve
- **Other notes:**
  - Mid-point not necessarily linear extrapolation
  - Requestors would like additional information and discussion of the model's treatment of energy storage and flexible demand
  - Inputs should assume declines in resource capital and O&M costs
  - Inputs should assume prices for RGGI allowances / other emission allowances

Thank You

Contact

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