Comments on Fuel Security Proposals

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POTOMAC ECONOMICS

Introduction

- In our recent Annual Reports, we have raised concerns regarding the ability of the markets address potential fuel security contingencies.
- ISO-NE is currently designing rules to incentivize suppliers to:
  - ✓ Acquire the fuel necessary to maintain reliability during periods of gas scarcity; and
  - ✓ Invest in fuel-secure new resources and maintenance of existing resources.
- ISO-NE's current proposal for its October filing includes day-ahead operating reserves, as well as options to satisfy forecasted energy demand and replacement reserves.
- It is also considering the additional benefits of implementing a multi-day ahead market in the longer-run.
- This presentation provides our initial comments on these proposals and discusses the need for changes in the market power mitigation measures.

How is Fuel Security Different than Other Reliability Concerns?

- Reliability requirements and associated planning studies address electricity system contingences.
- Planning studies and reliability requirements generally do not address:
  - ✓ Unique needs and risks associated with unusual extended cold weather patterns;
  - ✓ Fuel infrastructure contingencies; or
  - ✓ Fuel inventory limitations;
- These factors can threaten the 1-in-10 reliability standard.
- The current markets, including the pay-for-performance framework, provide incentives to be available during these conditions,
- **But,** improvements in the markets would help ensure that:
  - ✓ The value of the resources needed to address these risks are priced;
  - ✓ Suppliers have sufficient incentives to take actions to address the risks;
  - ✓ Limited inventories are managed efficiently and priced;

Developing Market Solutions to Address Fuel Security

- Developing market solutions to address the fuel security must include:
  - ✓ Identifying the participant decisions to be facilitated by the solution;
  - ✓ Then evaluating the extent to which the candidate solutions will facilitate participant decisions to satisfy the fuel security needs.
- The decisions/actions that a participant must make to provide fuel security to New England include:
  - ✓ Consuming its fuel to produce output (daily/hourly);
  - ✓ Scheduling fuel deliveries to replenish fuel supplies or procuring firm fuel (daily/weekly);
  - ✓ Determining its initial fuel inventories going into the winter season (seasonal); and
  - ✓ Investing in and maintaining firm fuel infrastructure – non-gas generation, storage tanks, fuel-switching equipment, etc. (long-term).

ISO New England's Proposed Approach

- The ISO has proposed an approach that includes the following:
- Initial Day-Ahead Products:
  - ✓ Day-ahead contingency reserves
  - ✓ Two additional options to be procured day-ahead to cover forecasted load and replacement reserves
- Possible Future Products or Designs:
  - ✓ Multi-day ahead market
  - ✓ Seasonal procurement

Day-Ahead Contingency Reserves

- We have been recommending these products for years.
- It will produce substantial benefits by causing the DA markets to schedule and price previously unpriced requirements.
  - ✓ The current market includes capacity constraints associated with the ISO's reserves needs, but without the market requirements.
  - ✓ This results in supply commitments that tend to lower prices and result in NCPC (because the products are not priced).
- Including DA market products corresponding the reserve requirements will improve:
  - ✓ The day-ahead commitment and scheduling of resources; and
  - ✓ Day-ahead prices and reduce NCPC.

Energy Imbalance Reserves

- This option product will:
  - ✓ Improve the reliance on the day-ahead market to satisfy system needs.
  - ✓ Allow day-ahead prices to better reflect the full needs of the system.
  - ✓ Reduce reliance on out of market actions, including the RUC process.
  - ✓ Reduce real-time NCPC.
- It will provide improved incentives to schedule the full demand in the day-ahead because:
  - ✓ Virtual load will have incentives to increase purchases until day-ahead LMP and real-time LMPs converge.
  - ✓ If a sizable FER price exists, billing this price to negative deviations will incent physical loads to increase their day-ahead purchases.

Energy Imbalance Reserves

- In our opinion, the following design details or corresponding changes are very important:
  - ✓ The sellers of the EIR option must accept physical obligations to perform in real-time
  - ✓ The excess FER costs must be incurred by the negative deviations that caused the procurement of the EIR options.
    - – Virtual supply and under-scheduled load cause the procurement.
  - ✓ The current allocation of NCPC to deviations should be eliminated or substantially modified to be based on cost causation
    - – It is very important in this design to stop allocated inefficient costs to virtual load so it will efficiently arbitrage differences between the day-ahead and real-time LMPs.

Day-Ahead Replacement Reserves

- We believe this is a valuable product to the extent that it satisfies real reliability needs because it should:
  - ✓ Allow prices and other outcomes in the DA to prepare the system to operate reliably in the operating day.
  - ✓ Provide incentives for resources to be physical prepared to operate if the uncertainties or system risks materialize in real time.
  - ✓ Reduce the need for operators to take out-of-market actions to address these uncertainties or risks.
- We believe it is important, however, that the requirement be dynamic and reflect the needs perceived by the operators.
  - ✓ During cold spells, for example, the replacement reserve quantity may be very high.
  - ✓ On many days, the efficient quantity may be zero.
  - ✓ The tariff should describe the process for determining the quantity.

Day-Ahead Replacement Reserves

- As the ISO moves from the day-ahead into the operating day, the uncertainties and risks change so the reserve requirements change.
  - ✓ Hence, we do not believe it is desirable to require procurement of the same product in real-time.
- However, the resources procured should retain the physical obligation to be capable of responding to a call in the operating day.
- This process should reduce the need to commit other resources through the RUC process.

Multi-Day Coordination

- The existing markets together with the new day-ahead options will improve the procurement and management of secure fuels:
  - ✓ Suppliers with fuel limitations should recognize the opportunity costs in their offers of consuming their fuel inventories; and
  - ✓ The expected value of PFP and shortage pricing create incentives to maintain fuel inventories/firm fuel.
- However, additional benefits would be achieved during unusually cold weather if the markets:
  - ✓ Recognized the demand for secure fuel over multiple days; and
  - ✓ Optimize the commitment and dispatch of resources with limited secure fuel inventory resources.
- The ISO proposed a multi-day ahead market to capture these benefits.

Multi-Day Coordination

- The benefits of a multi-day ahead market would be concentrated in periods when firm fuel constraints are binding (generally during cold weather events).
- The potential benefits currently would not likely justify the costs and risks of implementing a multi-day ahead market.
- A possible substitute is a firm energy product that could be procured over a 5-7 day timeframe and optimized with commitments and schedules in the single day-ahead market.
  - ✓ Such a product would likely only be procured/bind in a few weeks each year in the winter – providing a more targeted solution to the fuel security concerns.
  - ✓ A number of details would need to be developed and issues addressed, but we believe such a product would be feasible.
  - ✓ When it binds, it could provide significant revenues to resources with secure fuel.

Seasonal Procurement

- There has been significant interest in a seasonal procurement.
- For the past few years, we have recommended eliminating the forward reserve market and do not recommend modifying it to address fuel security.
- An efficient forward market would procure products forward that are settled against the same product in the operating timeframe (i.e., the spot market).
- If a firm energy product is created in the day-ahead and real-time market, the seasonal market could procure this product forward.
- Although we do not consider it essential, such a market could help facilitate seasonal fuel procurement decisions.

Other Proposals

- Efficient market solutions are based on the system's actual needs in the operating timeframe.
  - ✓ We do not support proposals to procure products forward (three years ahead or seasonally) that do not exist in the operating timeframe.
- Some have proposed products that are similar to the firm energy product described above.
  - ✓ Such products could be workable, but would be most beneficial if optimized over multiple days.
  - ✓ However, such products should only be procured when a projected need exists in excess of the standard operating reserve products.