Consumer Impact Analysis: Enhanced Fast Start Pricing

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NEW YORK INDEPENDENT SYSTEM OPERATOR

DRAFT – FOR DISCUSSION PURPOSES ONLY

Background

- **FERC's April 18, 2019 Order on fast-start pricing required the NYISO to do the following:**
  1. Modify pricing logic to allow fast-start resources' commitment costs (*i.e.*, start-up costs and minimum generation (no-load) costs) to be reflected in prices; and
  2. allow the relaxation of all dispatchable fast-start resources' economic minimum operating limits by up to 100 percent for the purpose of setting prices.
- **The NYISO must submit its compliance filing by December 31, 2019**
  - Implementation must be completed by December 31, 2020.

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Benefits of the Proposal

- **The market design changes should result in the following:**
  - "more accurately reflect the marginal cost of serving load in periods when dispatching a fast-start resource is the next action taken to meet load;
  - provide price signals that better inform investment decisions; and
  - provide more accurate and transparent price signals that better reflect the cost of serving load, minimize production costs, and reduce uplift."[1]
- **The Market Monitoring Unit (MMU) expressed support for the changes ordered by FERC stating that they would improve :**
  - "The performance of the day-ahead market and commitment of resources;
  - The incentives to import and export efficiently, and
  - The incentives to offer competitively and perform reliably."[2]

1. See FERC, *Order Instituting Section 206 Proceeding*, December 21, 2017 (p. 15), in Docket No. EL18-33-000
2. See Potomac Economics, *Reply Comments of the New York ISO's Market Monitoring Unit*, March 2018, in FERC Docket No. EL18-33-000

Fast-Start Pricing - Today

- **Existing fast-start pricing logic relaxes minimum generation constraints of these resource types in the ideal (pricing) dispatch:**
  - Fixed Block Units that can start up and synchronize to the grid in 30 minutes or less, that have a minimum run time or one hour or less, and that submit economic offers for evaluation
- **In the ideal dispatch, RTD adds the start-up costs of eligible offline 10-minute Fixed Block Units to their incremental offers, which impacts the LBMP calculation.**
  - 10-minute Fixed Block Units cannot offer minimum generation costs

NYISO's Proposal

- **Fast-start pricing will apply to:**
  - All resources that can start up and synchronize to the grid in 30 minutes or less, that have a minimum run time of one hour or less, and that submit economic offers for evaluation.
- **Revised fast-start pricing logic will include the start-up and minimum generation costs of all fast-start resources in the LBMP calculation in the ideal dispatch**
- **Revised fast-start pricing logic will also apply in the withdrawal state, for fast-start resources that are eligible to submit commitment costs**

Consumer Impact Analysis (IA) Evaluation Areas

- Present the potential impact on all four evaluation areas

RELIABILITY Fast Start Pricing will improve incentives for offering competitively and performing reliably (Potomac Economics)	COST IMPACT/ MARKET EFFICIENCIES Estimated cost increase ranging from $2.5 million to $4.5 million (Energy market increase of approximately $5 million to $7 million offset by capacity market savings of approximately $2.5 million)
ENVIRONMENT/ NEW TECHNOLOGY No impact expected	TRANSPARENCY The identified modifications will also provide more accurate and transparent price signals that better reflect the cost of serving load, minimize production costs and reduce uplift (FERC)

Estimated Energy Market Impact

Cost Impact Estimate

- **The NYISO estimates that the cost impact from this proposal will be approximately $2.5 to $4.5 million.**
  - The annual energy market impact is estimated at ~$5-7 million.
  - The annual capacity market impact is estimated as a savings of approximately $ 2.5 million.

Cost Impact Analysis

- **The NYISO selected intervals between September 2018 and August 2019 where GTs were started.**
  - Real-Time Dispatch (RTD) intervals for hours within this timeframe were rerun using the NYISO market software.
    - The rerun amortized the startup cost over the resource's minimum run time.*
    - Resource minimum generation costs were amortized over all intervals that the resource had offers.
    - These costs were presented to the market software's pricing pass.

*For a discussion of the proposed startup cost methodologies, please see the 9/26/2019 MIWG meeting materials located at the following link: https://www.nyiso.com/documents/20142/8414685/Enhanced%20Fast%20Start%20Pricing_MIWG_09262019_final.pdf/1a29ab7a-6e8b-493c-a8b1-32881b95fbc4

Cost Impact Analysis - Assumptions

- **Data used was in the range of September 2018 to August 2019:**
  - Reran series of 5-minute RTD intervals using the market software.
  - DA LBMPs and real-time actual integrated hourly load were used to estimate the consumer impact.
    - The majority of load is purchased in the Day-Ahead Market.

Cost Impact Analysis – Energy Impact

- **DA LBMPs and real-time actual hourly integrated load data from September 2018 to August 2019 were used in the consumer impact calculation. Only those hours in the year where at least one GT was identified as marginal were selected.**
  - The average percent LBMP delta was multiplied by the DA LBMP to provide an adjusted DA LBMP accounting for the fast start pricing rules.[1]
    - Average percent LBMP delta = (Rerun Price - Original Price)/ Original Price
  - These adjusted DA LBMPs were then multiplied by the actual real-time integrated hourly load.[2]
    - These values were summed across the impacted hours to determine an estimated LBMP impact of ~$15 million.

[1]DA LBMP data is available from the NYISO website at the following link: https://www.nyiso.com/energy-market-operational-data
[2]Actual integrated real-time load data is available from the NYISO website at the following link: https://www.nyiso.com/load-data

Cost Impact Analysis – Offset to DA and RT BPCG

- It is expected that including the start-up and minimum generation costs in the LBMP formation would generally reduce Bid Production Cost Guarantee (BPCG) payments to resources.
- DA and RT BPCG payments to fast start resources between September 2018 and August 2019 total $13 million.
  - We estimated a reduction in BPCG payments of 60% - 80%.

Cost Impact Analysis – Energy Market Impact

- Energy LBMP Impact of ~$15 million annually
- Reduced by lower BPCG payments of ~$8 - $10 million annually
- Total Energy Market Impact of ~$5 – $7 million annually

Estimated Capacity Market Impact

Capacity Market Reference Point Impact Methodology

- **Using the preliminary 2020-2021 ICAP Demand Curve inputs and parameters, revised net EAS revenue offset values and resulting reference price values were calculated to estimate the impact Enhanced Fast Start Pricing could potentially have on the ICAP Demand Curves**
  - New DAM and RT LBMPs were generated for each hour of year 3 of the study period (9/1/2018 – 8/31/2019), using the results of the energy market analysis
    - Data for study year 1 & 2 (9/1/2016 - 8/31/2018) was retained and unadjusted
  - All other inputs and parameters of the annual update for 2020-2021 were held constant
  - These new prices were fed through the net EAS model to estimate revised net EAS revenue offset values, which were used to determine revised Reference Price values for the 2020-2021 ICAP Demand Curves
    - The current peaking plant technology for all Localities is a simple cycle F-Class frame unit

Capacity Market Reference Point Impact Analysis

- **This analysis uses preliminary inputs and parameters used in the 2020-2021 ICAP Demand Curve annual update**
  - The NYISO is currently finalizing the results from the 2020-2021 annual update
  - As the preliminary annual update numbers may change, only the delta between the base case and change case are included in this presentation
- **Due to the characteristics of the peaking plant and the dispatch algorithm used to generate net EAS revenues, the change in the net EAS revenue offset used in calculating the reference price is relatively small**
  - The changes to the reset process implemented in 2016 were intended to allow for the ICAP Demand Curves to capture changes in market conditions over time, including the impacts of changes to market rules
  - As contemplated by the revised procedures, the resulting impacts of implementing the proposed Fast Start Pricing market design should be rolled into net EAS revenue estimates through the existing annual update process over time

Capacity Market Cost Impact

- **The NYISO estimated the short-term and long-term market impacts from this proposed market rule change using the new reference prices calculated**
  - The 2019 as-found system and reference prices is the base case
- **The short-term impact uses the new reference prices calculated in the earlier analysis with no additional changes to generation or demand**
  - The impacts shown in the short-term may not be sustainable, as retirements and other changes could result from the reference price change. We address this in the long-term analysis, that assumes a supply level based on the historical level of excess

Capacity Market Cost Impact

- **The long-term impact uses the same base case as the short-term analysis (2019 as-found system)**
  - However, the supply stack in the base case has been adjusted to assume a historical level of excess
    - This is defined as a percentage of excess above the requirement observed within the last three Capability Years in each of the different Localities
  - The long-term change case incorporates the new reference prices calculated in the earlier analysis
    - In addition, the supply stack has been adjusted to assume a historic level of excess

Capacity Market Cost Impact

- **Impacts to the net EAS offset and the reference price were relatively small**
  - This drove the short-term annual market value savings of $2.5M, and long-term savings of $2.6M

	Net EAS Δ	Ref. Price Δ
NYCA	$0.05	($0.01)
GHI	$0.09	($0.01)
NYC	$0.13	($0.01)
LI	$0.52	($0.07)

	Annual Market Value Δ ($M)
Short-term	($2.5)
Long-term	($2.6)

Other Impacts

Reliability Impacts

- **Potomac Economics in its Reply Comments in FERC Docket No. EL18-33-000 stated that the changes ordered by FERC's would improve:**
  - "the incentives to offer competitively and perform reliably."

Environmental Impacts

- No Impact Expected

Impact on Transparency

- **FERC in its Order instituting this proceeding (Docket No. EL18-33-000) said the following:**
  - "The identified modifications will also provide more accurate and transparent price signals that better reflect the cost of serving load, minimize production costs and reduce uplift."

Feedback?

- Email additional feedback to:
- deckels@nyiso.com

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