External Resource Performance & Eligibility

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ICAPWG
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Agenda

- Background
- Review of External Resource SRE Penalty Proposal
- Make-Whole Payment Examples
- Draft Tariff & Manual changes
- Next Steps

Background

Previous Discussions

Date	Working Group	Discussion points
04-24-18	ICAPWG	Discussed proposal with stakeholders and took feedback
05-31-18	ICAPWG	Discussed proposal with stakeholders and took feedback
07-31-18	ICAPWG	Market Design Concept Proposal for External Supplier Obligations
10-18-18	ICAPWG	Discussed External SRE Penalty Proposal and took feedback

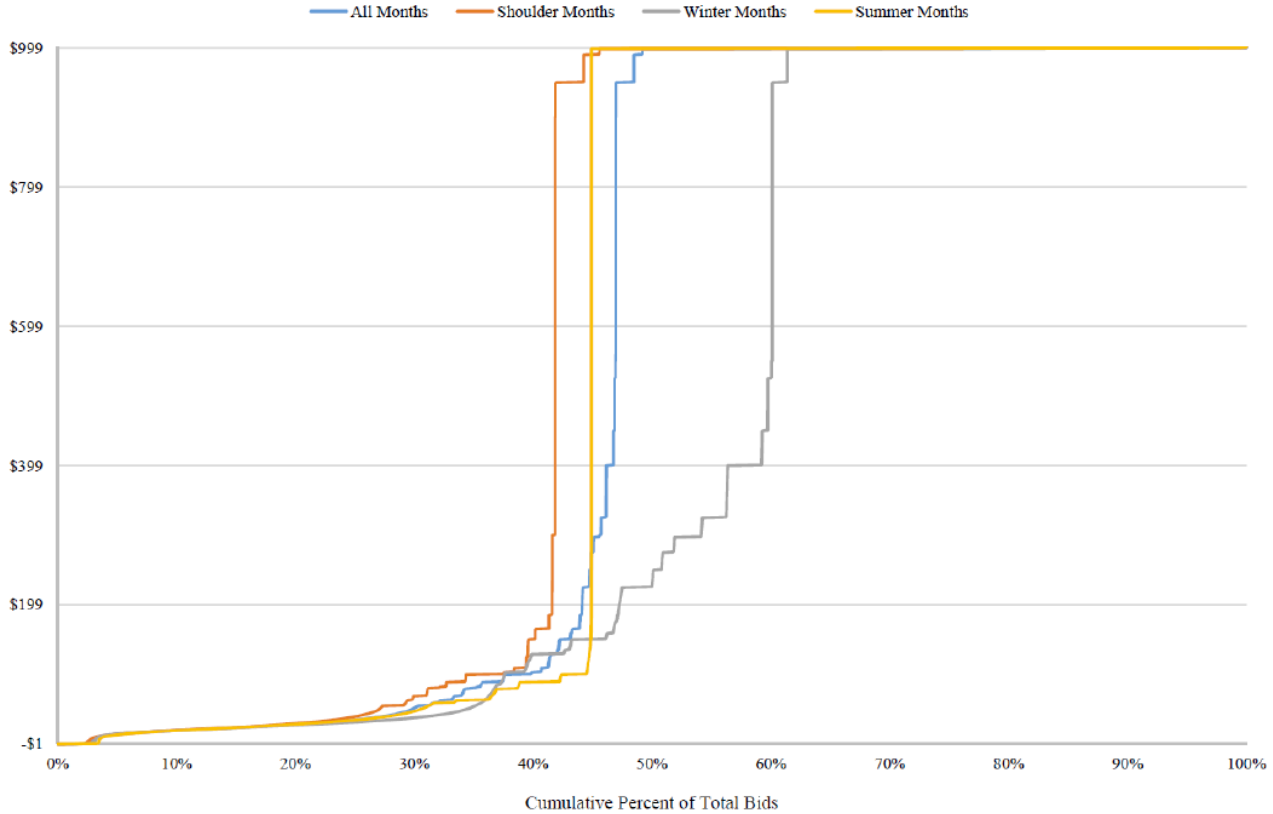
Objective

- **The NYISO's objective is to enhance delivery of the energy corresponding to the capacity that external capacity suppliers sold into the NYISO markets when we call upon that energy for reliability.**
  - We also aim to minimize impacts to current software systems, operational processes, and market rules, in order to allow for faster implementation.

Challenge

- Given the current market design, depending on the economics of its SRE bid, an external capacity resource may not be scheduled by the NYISO software to provide energy when it is needed for reliability.

Cumulative Percent of External Capacity Bids



Source: 11/06/17 Analysis Group presentation to ICAPWG

- Across the year, over 50% of hourly external Day-Ahead offers are at or very near the $1000/MWh bid cap.
- The average hourly Day-Ahead capacity offers from external suppliers exceeding $990/MWh is 376MW.

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Strategy to Enhance Response of External Capacity Suppliers

- **Incentivize external capacity resource performance during critical system conditions.**
  - To accomplish this goal, we propose to update the obligations of external capacity suppliers as well as establish new consequences for external resources' non-compliance.
    - The NYISO proposes that failure to meet the existing and new obligations will result in new penalties, as discussed in later slides.

7/31/18 Market Design Concept Proposed: External Capacity Supplier SRE Requirements

- **If the NYISO issues an SRE (a request to a capacity supplier) notice on its website for capacity in an external Control Area that sold in the NYCA for the month, then all external capacity suppliers that are required to offer their energy at the external proxy(s) identified in the NYISO's posted notice shall take all of the actions specified below to ensure delivery of energy from their designated capacity resources, to either the Locality or to the NYCA, as applicable to the SRE call:**

  1) for the entire duration of the SRE call, fulfill the SRE bid request for the ICAP equivalent of the UCAP sold, *i.e.,* submit all necessary bid(s) at prices that will ensure the scheduling of both the resource and the export to the NYCA to the greatest extent possible; and

  2) a. the resource must be operating for the entire duration of the SRE call, and

  b. the resource must be available up to the ICAP equivalent of the UCAP sold for the entire duration of the SRE call; and

  3) if the transaction(s) is/are scheduled in the energy market, flow the capacity-backed transaction(s) to the appropriate Proxy Generator Bus at the NYCA border.

Requirements: Additional Details

- **If an external capacity supplier does not demonstrate satisfaction of all 3 requirements on the previous slide, then the supplier will be assessed a penalty.**
  - Note: Consistent with current rules, an external capacity supplier that is in a forced outage during an SRE call will have its future availability affected by an EFORd impact. It will not be subject to the penalty associated with a failure to respond to an SRE.
  - The NYISO is not mandating that external suppliers bid the minimum possible dollar in response to the SRE call (-$1000), but if a supplier bids at a higher price and does not get scheduled due to economics, the supplier will be subject to the SRE penalty.
- **An external capacity supplier is not prohibited from placing other bids into NYISO and other RTO markets during the SRE call hours. However, if those bids interfere with the resource's ability to respond to an SRE, they do not excuse the resource from a penalty that would otherwise apply.**

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External Resource SRE Penalty Proposal

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Rationale for Penalty Proposal

- **Unlike external resources, internal resources selected for an SRE will be marked by NYISO Operations as "Must Run."**
  - This status ensures that a unit will receive an energy schedule without needing to be economically scheduled by the NYISO software.
  - It is not possible within the current NYISO software to assign this status to an external transaction.
- **The NYISO does not have full visibility of external resources or full visibility or control over external transmission.**
  - NYISO Operations has the ability to manage internal transmission outages in order to make internal capacity available.

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Rationale Continued

- **Internal resources are subject to energy market mitigation rules, while external resources are not.**
  - The NYISO's mitigation measures incentivize internal resources to bid accurately with respect to their costs.
  - If an internal capacity supplier failed to be available and operating up to the ICAP equivalent of UCAP sold for the entire duration of an SRE call (for a reason other than an outage), the NYISO would look to energy market mitigation consequences.

External Resource SRE Penalty Proposal

- **If an external resource fails to meet any or all criteria described on slide 9, it shall be subject to the penalty consistent with the formula below.**

$$Deficiency\ charge = 1.5 * PRICE * \left(\frac{1000kW}{1MW}\right) * \left(\frac{\sum_{n=1}^{N}\left(\max(\ ICAP_n^{MWh} - \ SRE_n^{MWh}, 0)\right)}{N}\right)$$

  - This equation multiplies 1.5 by the applicable ICAP Spot Market clearing price, which is then multiplied by the number of MWh of shortfall and divided by the total number of SRE call hours. Further description of the calculation can be found in the posted draft Tariff.
  - Deficiencies will be calculated on a monthly basis, using the total number of SRE call hours in a given month, and the total number of MW of shortfall in that month.
  - Example on the following slide

External Resource SRE Penalty Example

ICAP MW Sold (ICE)	SRE Call Duration (hours)	Spot Market Clearing Price ($/kw-month)
100	4	10

- Scenario: An external capacity resource provided 75 MW for 2 hours and 100 MW for 2 hours (and there was only one SRE call in the month).

Deficiency Charge Calculation =
1.5 * ($10/kw-month) * (1000 kW/1MW) * ((50 MWh deficiency)/4 hours)
= $187,500

External Transmission as a Barrier to Delivery

- **The NYISO has evaluated stakeholder feedback on the topic of external transmission limitations that might prevent an external capacity supplier from delivering energy.**
  - The NYISO views this risk to appropriately lie with external capacity suppliers.
    - External capacity suppliers can appropriately bid the risk of incurring the new SRE penalty into their offer costs, just as other risks may be incorporated into bids.
  - The NYISO generally has the authority to order that internal transmission be returned to service, but it can only request that transmission be returned externally.

External Transmission Outages

- If an external transmission outage is located anywhere from the generator step-up to the point of withdrawal (for a controllable tie line) or the NY interface (for an AC interface), and the outage prevents an external capacity supplier from delivering energy to the NYCA during an SRE, then that capacity supplier will be subject to the new penalty.

Make-Whole Payments

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Make-Whole Payment Examples

- **The NYISO recognizes that Market Participants may incur costs in responding to a NYISO SRE, which may not be offset by energy market revenues.**
  - The following three slides describe circumstances under which a make-whole payment would or would not be warranted.
    - These examples do not cover all types of costs that may be eligible for make-whole payments. Costs will be verified by NYISO MMA on a case-by-case basis.

Example 1: Opportunity Cost

- **Scenario: During a 4-hour NYISO SRE call, an External Installed Capacity Supplier bid its 50MW ICE of UCAP sold at -$1000 in an effort to get scheduled by the NYISO software. During the SRE period, IESO's price for the supplier's proxy was $800, NYISO's price for the supplier's proxy was $700, and the NYISO MMA validated the External Installed Capacity Supplier's costs of supplying to be $100/MWh.**
  - Assuming the supplier was able to demonstrate that its sales to NYISO precluded additional sales to IESO that would have otherwise been possible, the make-whole payment for this scenario would be calculated as follows:

Supplier's hypothetical net revenue from selling to IESO = 4 hours x $700 x 50MW = $140,000

Supplier's actual net revenue from selling to NYISO = 4 hours x $600 x 50MW = $120,000

Make-whole payment = $140,000-$120,000 = $20,000

Example 2: No Make-Whole Payment

- **Scenario: During a 4-hour NYISO SRE call, an External Installed Capacity Supplier bid its 50MW ICE of UCAP sold at -$1000 in an effort to get scheduled by the NYISO software. During the SRE period, IESO's price for the supplier's proxy was $800, NYISO's price for the supplier's proxy was $900, and the NYISO MMA validated the External Installed Capacity Supplier's costs of supplying to be $100/MWh.**
  - This scenario would not warrant a make-whole payment, since the supplier would have recovered all of its costs from its NY energy market schedule.

Example 3: Negative Real-Time LBMP

- **Scenario: During a 4-hour NYISO SRE call, an External Installed Capacity Supplier bid its 50MW ICE of UCAP sold at -$1000 in an effort to get scheduled by the NYISO software. During the SRE period, NYISO's price for the supplier's proxy was -$50, and the NYISO MMA validated the External Installed Capacity Supplier's costs of supplying to be $100/MWh.**
  - The make-whole payment for this scenario would be calculated as follows:

Total supplier Cost = ($100 * 50MW * 4 hours) = $20,000
Total supplier "Revenue" = (-$50 * 50MW * 4 hours) = -$10,000
Make-whole payment = $20,000 –(-$10,000) = $30,000

SRE Communication

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SRE Communication

- **External capacity sellers are officially notified of SRE capacity calls through a posting to the NYISO website, located at:**

  http://www.nyiso.com/public/markets_operations/market_data/system_conditions/index.jsp.

  - The NYISO will also endeavor to send an email to the ICAP resource's designated contact, as described in the revisions to the Transmission & Dispatch Operations Manual posted with today's meeting materials.

Tariff & Manual Changes

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Tariff: MST Sections 5.12.1.10 & 5.12.12.2

- The NYISO proposes that during hours in which the new SRE penalty applies for an external resource, no other penalty shall be applied, as described in the posted edits to MST section 5.12.12.2.
  - Multiple penalties may still be assessed across a month.

Transmission & Dispatch Operations Manual: Section 6.5

- Edits reflect the clarification that an email may also be sent in addition to the official SRE notice website posting.

Questions?

Email deckels@nyiso.com and

acarney@nyiso.com

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Next Steps

- Incorporate stakeholder feedback
- Return to future working groups to discuss
- Target Tariff vote in Q1 2019

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The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policy makers, stakeholders and investors in the power system

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Appendix I: The Supplemental Resource Evaluation (SRE) Process*

*Further information regarding the NYISO SRE process is included in the NYISO Market Services Tariff (MST), and in the Transmission & Dispatching Operations Manual at the following link:
www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Operations/trans_disp.pdf

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The NYISO SRE Process

- **SRE commitment refers to the NYISO scheduling a generator to start-up to run at, or above its minimum generation level.**
- **The NYISO SRE process varies slightly depending on the timing of the SRE (*e.g.*, after Day-Ahead/before real time, and during real time). Generally, for the SRE process:**
  - If time permits, a notice is posted that an SRE is planned, and that additional resource bids are being solicited.
  - The amount, location, and need (energy, regulation, or reserve) are identified, as well as the duration of the SRE.
    - The resource ability to resolve the reliability issue is considered.
    - Known transmission outages are considered.
  - Resources are selected for SRE on a least-cost basis where least-cost equals the composite availability, start-up costs, and minimum generation costs.
    - If these factors are equal, then bid energy cost is used as the tie breaker.

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SRE Make-Whole Payments

- **Costs incurred by a resource in responding to an SRE, such as start-up, minimum generation, and incremental costs are made whole by the NYISO.**
  - Opportunity costs could possibly be included as well.
    - Eligibility for make-whole payments will be evaluated by the NYISO Market Mitigation team on a case-by-case basis.
  - Resources that have been SRE'd by the NYISO may lower but cannot raise accepted bid costs for the duration of the time that the resource is committed as an SRE.

Current SRE Challenge

- **If an external capacity resource is offline when the SRE is called, the external Control Area is not obligated to deliver the capacity transaction.**
  - The external capacity resource is then required to submit a transaction (import) bid for evaluation by the NYISO market software.
    - The external supplier can submit an energy bid (*e.g.*, $999/MWh) that is often not economic or reflective of its costs.
      - Depending on the economics of this bid, the external capacity supplier may not be scheduled by NYISO software to provide energy for the SRE.
      - Since external resources are not subject to NYISO's mitigation evaluations, the NYISO has no ability to validate external resource bids or issue physical withholding consequences.

External SRE Bid Request

- **The NYISO is proposing that in order to fulfill the "SRE Bid Request," referenced in requirement 1 on slide 9, an external capacity supplier must bid in such a way that will maximize the likelihood that it gets scheduled by NYISO software.**
    - For non-competitive proxy buses, a Market Participant will be required to modify the real-time bids among its portfolio of transactions in order to make sure that the capacity-backed transactions are economically prioritized, and thus most likely to be scheduled by the NYISO's optimization.

An External Capacity Supplier will not be penalized if it fulfills the requirements on slide 9, but…

- The resource does not get scheduled by the NYISO.
- The resource cannot be scheduled due to a transmission issue that is within the bounds of the NYCA interfaces.

Appendix II: Existing Consequences for Capacity Supplier Shortfalls

Generator and Transmission Outages External to the NYCA

- An external capacity supplier that is unable to respond to a call due to a forced outage, *e.g.,* attempts but the equipment failed to start or was running and tripped offline, will not be subject to a penalty for non-performance during the SRE.
  - However, NYISO Operations would not remove the SRE and, if the resource associated with the transaction became available, then it would be expected to respond and fulfill the requirements on slide 9.
  - The outage will impact the resource's EFORd.
- A failure to deliver energy in response to an SRE due to a transmission facility failure on the external control area system would be subject to a penalty for non-performance.

Determining an External Capacity Supplier Shortfall

- **Currently, if an External ICAP Supplier fails to deliver Energy to the NYCA due to a failure to obtain appropriate transmission service or rights (or due to a forced outage), then:**
  - There is a shortfall starting from the later of 1) the beginning of the period for which the UCAP was certified or 2) the last demonstrated delivery of the Installed Capacity Equivalent.
  - The shortfall extends to the earlier of either 1) the time at which the entity demonstrates delivery, or 2) the end of the term for which the block of UCAP was certified.

Determining External Deficiency Charge

- **The deficiency charge is equal to 1.5 times the applicable Market-Clearing price for UCAP determined in the ICAP Spot Market Auction for the applicable month.**
  - This value is prorated for the number of hours in the month that the External ICAP supplier is deemed to have a shortfall.
  - The value is then multiplied by the number of MW of shortfall.
- **Additional information on External Capacity Supplier Requirements and Deficiencies can be found in section 5.14.2 of the NYISO Market Services Tariff.**

Determining Internal Capacity Supplier Shortfall

- If an internal capacity supplier fails to bid, schedule, notify, or submit bids in response to a NYISO SRE call, it could be subject to a penalty.

Determining Internal Deficiency Charge

- *"On any day in which an Installed Capacity Supplier fails to comply with the scheduling, bidding, or notification requirements of Sections 5.12.1.6 or 5.12.1.10, or with Section 5.12.7 of this Tariff… The deficiency charge may be up to one and one-half times the applicable Market-Clearing Price of Unforced Capacity determined in the ICAP Spot Market Auction corresponding to where the Installed Capacity Supplier's capacity cleared, and for each month in which the Installed Capacity Supplier is determined not to have complied with the foregoing requirements."*
  - Deficiencies are calculated across each month.
- **Additional information on Internal Capacity Supplier Requirements and Deficiencies can be found in section 5.12.12.2 of the NYISO Market Services Tariff.**