External SRE Penalty Proposal

Amanda Carney

Associate Market Design Specialist, Capacity Market Design

ICAPWG/MIWG

03/18/19

Revision to slide 17

Agenda

- Project background, objectives, & challenges
- Review of proposed external resource SRE requirements
- Review of external resource SRE penalty proposal
- SRE communication
- Draft Tariff
- Next Steps
- Appendix Contents:
  - Stakeholder feedback summary, details on the SRE process, make-whole payment examples, additional background, example penalty calculation

Background

NEW YORK INDEPENDENT SYSTEM OPERATOR

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
11-30-18	ICAPWG	Discussed External SRE Penalty Proposal, internal and external capacity supplier comparability, and make-whole payment examples, and took feedback
01-31-19	ICAPWG	Discussed External SRE Penalty Proposal and took feedback

Project Background

- **This proposal is part of the External Resource Performance & Eligibility project, which originates from recommendations in October 2017 Analysis Group report for improving external resource performance, particularly during critical operating conditions**
- **Considerations that are driving this effort:**
  - External capacity resources are expected to deliver energy and provide value to Grid Operations at a level that is comparable with internal resources
  - The authority for the NYISO to call on external resources that have sold into the NYISO markets exists today; however, improvements are needed to better manage this process
  - External capacity suppliers are currently able to receive capacity payments without providing energy, even when called upon by NYISO Operations during critical system conditions

Objectives

- Improve requirements for external capacity sellers to ensure these resources are providing comparable reliability value to that which is expected of internal resources
- Enhance delivery of the energy, when we call upon that energy for reliability, corresponding to the capacity that external capacity suppliers sold into the NYISO markets
- 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
  - Thus, the NYISO cannot rely on external capacity to the same degree that it can rely on internal capacity
- External transactions that are not backed by an operating resource that has sold capacity to NY may be curtailed because the resources supporting them are not currently required to be online

Proposed External SRE Requirements

NEW YORK INDEPENDENT SYSTEM OPERATOR

Proposed External Capacity Call Requirements

- **If the NYISO issues a notice requesting capacity from an external Control Area, 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, for the hours/MW (up to ICAP equivalent of UCAP sold) that they are capable of providing and delivering energy, to ensure delivery of energy from their designated capacity resources, to either the Locality or to the NYCA, as applicable to the call:**

  1) Fulfill the SRE bid request, *i.e.,* bid at the offer floor; and

  2) a. The resource must be operating; and

     b. The resource must be available; and

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

External Resource SRE Penalty Proposal

NEW YORK INDEPENDENT SYSTEM OPERATOR

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 will be scheduled on at minimum generation and available for further dispatch
  - It is not possible within the current NYISO software to assign this status to an external transaction
- **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

- To the extent 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 unexcused shortfall and divided by the total number of SRE call hours during which the resource was capable of providing and delivering energy
  - Deficiencies will be calculated on a monthly basis, using the total number of SRE call hours in a given month that the resource could be online for, and the total number of MW of shortfall in that month
  - See example in appendix

Exemptions from the Penalty

- **External capacity suppliers will not be subject to the proposed penalty if their failure to deliver is for a reason beyond the supplier's control**
  - Examples of circumstances beyond a supplier's control:
    - A physical operating limitation prevented the resource from being online
      - For instance, if an external resource had a demonstrated 18-hour start-up time, and the NYISO SRE notice was issued only 6 hours in advance, the penalty would not apply to the first 12 hours of the SRE
      - A forced unit outage reported to the External Control Area and the NYISO will impact the resource's EFORd but will not result in a SRE penalty
    - A resource could fail to fully or partially deliver due to a transmission limitation
      - If an external Control Area does not permit a resource to run, the penalty would not apply
      - Failure to secure the necessary transmission service, including failure to agree to pay congestion costs, will not be excused

SRE Communication

NEW YORK INDEPENDENT SYSTEM OPERATOR

SRE Communication

- **The NYISO is not proposing changes to the existing communication procedure**
  - External capacity sellers are 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 send an email to the ICAP resource's designated contact
  - If the email is sent and the website notice is posted, and the applicable suppliers do not fulfill the requirements, then those suppliers will be subject to the penalty

Tariff

Tariff Revisions

- Tariff revisions to MST sections 4.1.8, 5.12.1.10, and 5.12.12.2 to reflect this proposal are posted with today's meeting materials

Questions?

Email deckels@nyiso.com and

acarney@nyiso.com

NEW YORK INDEPENDENT SYSTEM OPERATOR

Next Steps

- Continue to discuss Tariff at a March working group
- Target BIC vote in April 2019
- Continue to explore potential enhancements related to the eligibility and deliverability of external resources for Q3 MDC

NEW YORK INDEPENDENT SYSTEM OPERATOR

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

www.nyiso.com

NEW YORK INDEPENDENT SYSTEM OPERATOR

Appendix

NEW YORK INDEPENDENT SYSTEM OPERATOR

Stakeholder Feedback Summary

- Contention that start-up times should be considered when determining if an external supplier is eligible for the penalty (see slides 9 and 12)
- Request for description of make-whole payments (see slides 26-29)
- Request for robust communication procedure (see slide 15)
- Contention that external suppliers should not be subject to the new penalty if external transmission is the reason that they cannot deliver to NY (see slide 10)
- Request for more detail on the SRE selection process (see slides 23 & 24)

Requirements: Additional Details

- **If an external capacity supplier does not demonstrate satisfaction of all 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 a capacity call will have its future availability affected by an EFORd impact
    - It will not be subject to the proposed penalty associated with a failure to respond to a capacity call
    - It may be subject to an after-the-fact review to verify its outage status
  - If an external capacity supplier does not bid at the bid floor, but receives a schedule, and fulfills all the other requirements on slide 9, it will not be subject to the penalty
- **If, due to the timing of the SRE notice and unit operational characteristics, an external capacity supplier cannot physically be online in time to respond to the capacity call, it will not be subject to the penalty for the hours it could not be online**
  - The resource will be subject to an after-the-fact review to verify its operating limitations
- **An external capacity supplier is not prohibited from placing bids into NYISO and other RTO markets during the SRE call hours**

NEW YORK INDEPENDENT SYSTEM OPERATOR

External Capacity Supplier Bidding Requirements

NYISO Operations Action	Current Bidding Requirement	Proposed Bidding Requirement
Operations issues an SRE notice for an external interface	Each capacity resource behind the selected interface must place an import bid for its ICE into the real-time market during the hours of the SRE call (up to $2000)	Each capacity resource behind the selected interface must place an import bid at the bid floor for its ICE into the real-time market for the hours of the SRE call

Internal and External Supplier Comparability

- **Resources electrically located in the NYCA can be SRE'd based on cost and MW quantity to satisfy a reliability need**
  - External capacity suppliers cannot be evaluated by the NYISO SRE software based on cost to supply Energy or the MW that will be supplied in response to the SRE call
- **The NYISO calls entire interfaces when calling external capacity**
  - In that manner, individual external resources are SRE'd
  - NY accommodates all MW that get scheduled over whichever interface(s) the NYISO selects to meet the reliability need

The SRE Process

- **Normal operating process:**
  1. NYISO identifies a reliability need following the day-ahead market run
  2. NYISO SRE's available internal resources that cost less than SCRs
  3. If internal resources are insufficient, then the NYISO SREs external capacity
  4. If the need is still not met, the NYISO then calls demand response
  5. Finally, for any remaining need, the NYISO SRE's available generation in NY that costs more than SCRs
- **The following slides contain examples of how NYISO Operations might select resources for an SRE to satisfy a reliability need**

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

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

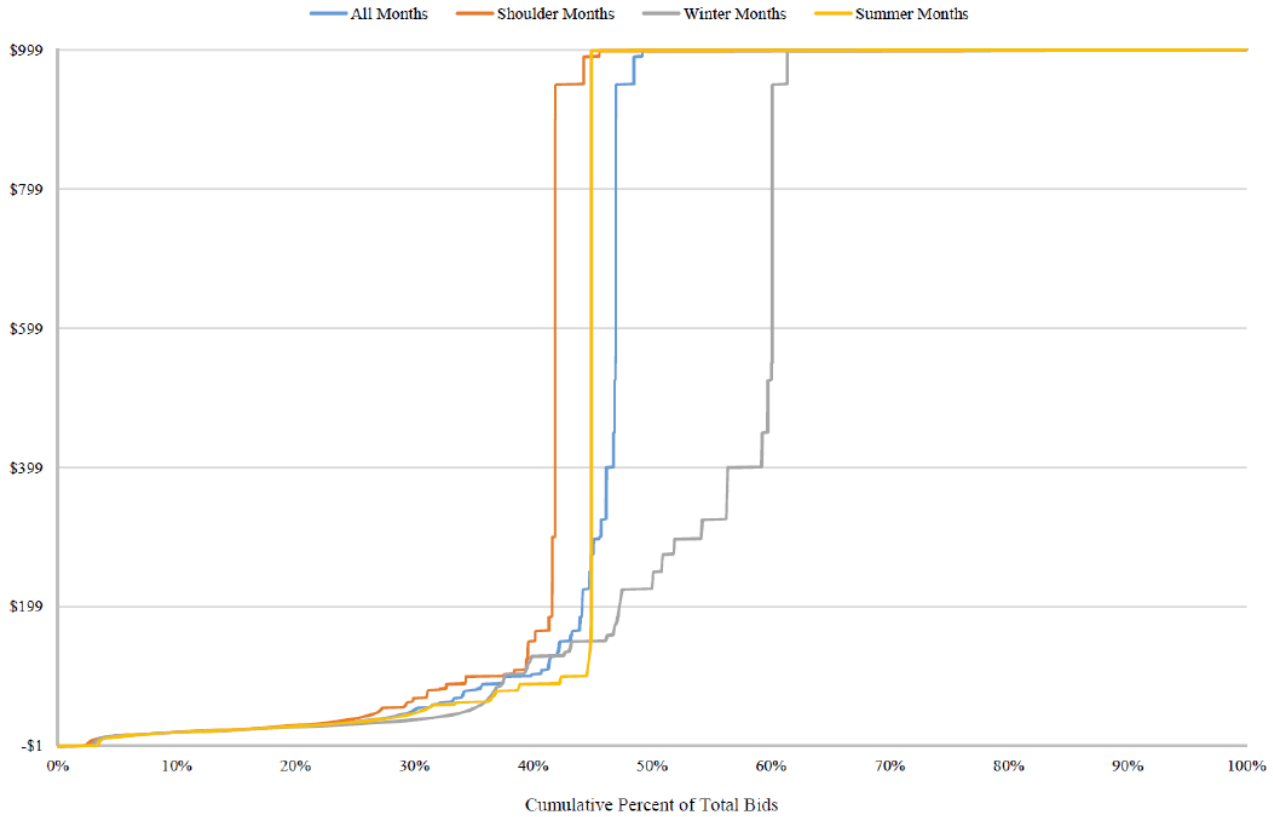
- **Scenario: During a 4-hour NYISO SRE call, an External Installed Capacity Supplier bid its 50MW ICE of UCAP sold at -$1000 in an effort to get scheduled by the NYISO software. During the SRE period, NYISO's price for the supplier's proxy was -$50, and the NYISO MMA validated the External Installed 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

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

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

NEW YORK INDEPENDENT SYSTEM OPERATOR

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 17
  - A resource forced outage will impact that resource's EFORd

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 bid 75 MW for 2 hours and 100 MW for 2 hours (and there was only one SRE call in the month, and resource could have been online)

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

NEW YORK INDEPENDENT SYSTEM OPERATOR