Alternative Approach For Elimination/Creation of Localities in the Capacity Market
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Submitted on Behalf of the NY UIU

This memo will describe an alternative approach for creating/eliminating localities in the ICAP Market. This approach retains components of the NYISO's Proposal ("Proposal") while enhancing the Locality Assessment Process ("LAP") by introducing a probabilistic aspect. Our proposed approach also aligns with similar processes applied by other RTOs/ISOs. It also provides consistency with related processes such as the new LCR calculation methodology and enhances market efficiency and transparency.

BACKGROUND

Over the last few months, the NYISO has engaged stakeholders in discussions to develop a "robust and transparent process for the creation and elimination of localities based on reliability principles to ensure locality capacity prices reflect system reliability needs and market conditions."[1] This process has concluded with the ISO proposing the LAP with rules for governing the creation and elimination of capacity zones. The two most critical components of the Proposal are the Creation and Elimination tests that assess the transmission system impact upon the removal of certain amount of generation – called "headroom." If the results of the N-1-1 plus headroom test exceeds or does not meet the established transmission planning design criteria, then the area becomes or ceases being a locality. The Locality Creation Test headroom is 2 generator contingencies and the Locality Elimination headroom is 4 generator contingencies. According to the NYISO, the asymmetrical headroom is needed to prevent toggling.

Various stakeholders have voiced their concerns regarding the Proposal. Some argued that the tests are too stringent and in effect prevent the elimination of an established capacity zone. Others stated that the tests fail to incorporate a probabilistic aspect resource adequacy component to better reflect the availability and variability of existing system components and conditions.

In response, the UIU proposes the alternative approach described below which seeks to address the ISO's and various stakeholders' concerns.

APPROACH

There is general agreement that the capacity market should have a locational aspect, recognizing that even when the overall region has sufficient reserves, reliability issues may still arise in sub-areas, because capacity was not installed in the locations where it is needed. Our approach ensures efficient procurement of capacity while ensuring deliverability to load standards[2] are met. Deliverability to load refers to the system's capability to deliver energy from the aggregate of all capacity resources to an electrical area

[1] http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2017-11-06/On%20and%20Off%20Ramps%20171106%20ICAPWG%20Presentation_171101%20Final.pdf

[2] We consider deliverability to load standards as the combination of both resource adequacy (1 in 10 LOLE) and transmission criteria (NERC planning standards)

experiencing capacity deficiency.[3] As with generation adequacy, assessment of deliverability to load should employ probabilistic techniques and a Loss of Load Expectation ("LOLE") standard. A new locality should be established when load deliverability standards fail in a specific area of the system, and an existing locality should be eliminated when load standards are met. With this in mind, we developed an alternative approach for the locality on/off ramps initiative that seeks to establish transparent and easily reproducible tests that assess both load and generation deliverability standards and determine with clarity the need for a locality.

The expanded Locality Assessment Process ("LAP") has three steps:

- Initial Screening of areas at risk
- Transmission Security Assessment ("TSA")
- Local Resource Adequacy Assessment ("LRAA")

1. Initial screening of areas at risk. This step will be conducted during the period between RNA and CRP. The NYISO will determine the need for a particular area of the system to proceed to steps 2 and 3 of the LAP process based on a high-level transmission analysis and estimate of generator resource changes.

2. Transmission Security Assessment ("TSA"). The second part of the LAP is the TSA that applies a deterministic methodology based on the NYISO's established methods for calculating transfer capabilities pursuant to North American Reliability Corporation ("NERC") Standard FAC -013-2 "Assessment of Transfer Capabilities for the Near-Term Transmission Planning Horizon." FAC-013-2 is designed to ensure that Planning Coordinators have a methodology to perform an annual assessment and identify potential future transmission system weaknesses and limiting facilities that could impact the Bulk Electric System's ability to reliably transfer energy between areas in the Near-Term Transmission Planning Horizon. In brief, the transfer capability between two areas of the system satisfies the N-1 and N-1-1 criteria and is calculated under stressed load conditions. If the flow of energy between two areas is restricted by transmission constraints, then a need for a locality is confirmed and the NYISO should create a new capacity locality. Conversely, if new transmission upgrades or new generation has eliminated the transmission restrictions, then the capacity zone should be removed.

This fundamental concept may be tailored to meet the needs of the NYISO and thus additional discussion with stakeholders is warranted. As a starting point, the ISO can use the well-established process for developing interface limits between areas within the ISO system. A more limited interface limit can be established that considers more stringent planning criteria than the NPCC mandated N-1-1 criteria. This is where the NYISO's Proposal can be utilized. As an example, a more stringent interface limit can be calculated that adheres to N-1-1-2G (where 2G are two generator contingencies at risk of retirement). The inclusion of the transmission limitations between areas of the system has been commonly accepted and used in the Locality Capacity Requirements project. These interface limits will be used as an input to the probabilistic part of the LAP.

[3] This is a concept similar to PJM's load deliverability provided here: http://www.pjm.com/~/media/committees-groups/task-forces/urmstf/20161110/20161110-item-03-external-generation-in-load-deliverability-analysis.ashx

3. Local Resource Adequacy Assessment ("LRAA"). The third step of the LAP is the LRAA test that relies on a probabilistic methodology similar to the determination of the IRM. The LRAA test calculates a Locational Adequacy Value ("LAV") for the assessed area which depends expressly on the transfer capability as determined by the TSA, the availability of resources within the assessed locality and loads (both internal to locality and system wide) in a probabilistic manner. The LAV is determined using the Reliability Needs Assessment base case to reflect existing and near-term system conditions with no generation adjustments (additions or removals)[4] within the assessed area and can be calculated with a full-scale planning simulation system like MARS. After the simulation is complete, a LAV will be produced expressed as LOLE (e.g. 1 in 23) for all areas considered at risk.

After this process is completed for all the areas considered at risk by the NYISO planning, the LAV value is compared with established LOLE thresholds for elimination and creation. If the LAV for an existing locality fails, the Elimination LOLE threshold test then the locality will remain. If a potential locality fails the formation LOLE threshold test, then the ISO will formulate a new locality. The table below describes in more detail how the On/Off Ramp LOLE threshold test will be applied.

Existing Capacity Zone	
LAV Elimination Threshold	**Result**
Below 1 in 50	Maintain Existing Locality
Above 1 in 50	Eliminate Existing Locality

Potential Capacity Zone	
LAV Creation Threshold	**Result**
Below 1 in 20	Create New Locality
Above 1 in 20	Do not Create New Locality

The LOLE threshold process is proposed to address NYISO's concern regarding toggling. We propose the threshold for the Elimination LOLE Threshold to be 1 in 50 and for the Formation LOLE threshold 1 in 20. We based these values on the established demand curves and pricing points where new generators signified entering the NYISO capacity market. We urge the NYISO to refine the thresholds to achieve a more efficient process.

EXAMPLE

As an example, after the LAP process begins, the NYISO calculates the updated interface limits – as described above- for areas considered at risk. These limits will be considered in the probabilistic analysis on the determined base case (RNA case or other) called LAP Basecase. The updated case results show that Zone X which is not a Locality at the time has a LOLE of 1 in 18. Since this is below the creation threshold, the ISO will create Zone X and will consider it in the upcoming ICAP Auctions. In parallel, an

[4] As it occurs in the IRM process to bring the system in 1 in 10

existing Zone Y at the time, was a locality and the price signal produced in the ICAP Auctions resulted in new investments in generation and transmission. As a result, the LOLE for Zone Y in the LAP Basecase is 1 in 83 and is well above 1 in 50 therefore it will not be considered in the upcoming ICAP Auctions.