

Parametric Improvements - Load Forecast Considerations

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Agenda

- **Background**
- **Initial Potential Enhancements**
- **Initial Potential Enhancements Assessment**
- **Next Steps**

Background

- **The parametric process evaluates the direction and magnitude of impacts from modeling and assumption changes during the development of the installed reserve margin (IRM) study base case, and is intended to serve as an early indication of expected Tan45 outcomes.**
 - In last year's IRM study, material divergence (2.2%) between parametric and Tan45 outcomes were observed, motivating a deeper review of the parametric process.
- **The presentation at the 2/4/2026 ICS meeting identified load forecast, transmission, and generation updates as key drivers of divergence between Tan45 and parametric outcomes.**^[1]
 - These drivers affect outcomes through different mechanisms (i.e., locational impacts, changes in zonal excess Unforced Capacity (UCAP), and upstate/downstate relationship).
- **After the 2/4/2026 ICS meeting, the NYISO identified two potential improvements to the current parametric process for consideration:**
 - Potential changes to the MW shifting methodology in the parametric study to better align with the shifting in the Tan45 process ("Upstate/Downstate Parametric Split")
 - Potential changes to the parametric study process to limit the IRM impact of assumption updates ("Excess UCAP Shifting")
- **This presentation outlines initial testing results for these potential improvements with respect to load forecast updates, using a single IRM study load forecast update (i.e., the 2024-2025 IRM study fall load forecast update).**^[2]

[1] Parametric Whitepaper Scope ICS #313

[2] 2024-2025 IRM FBC Load Forecast Update Impact ICS #282

Considerations

- **A fundamental distinction between the parametric and Tan45 approaches is the method by which capacity is adjusted to achieve the 0.1 loss of load expectation (LOLE) target.**
 - Tan45 explicitly shifts MW across different locations to satisfy the LOLE criterion and can adjust the capacity balance between upstate and downstate.
 - The parametric process adjusts capacity while maintaining the total UCAP ratio of MW across zones and does not explicitly adjust capacity balances between upstate and downstate.
- **As a result, differences in the IRM results between the two methodologies are expected to arise. The magnitude of differences in results between the two processes is exacerbated when an assumption change impact excess UCAP levels and/or the capacity balance between upstate and downstate.**
 - Load forecast updates may increase load in upstate and decrease load in downstate (or vice versa)
 - Generation resource updates may increase available UCAP in upstate and decrease in downstate (or vice versa)
 - Changes in transmission topology may impact how capacity can be balanced between upstate and downstate
- **The two potential improvements assessed in this presentation are intended to better capture the locational effects of assumption updates, and to narrow the gap between parametric estimates and Tan45 outcomes.**
 - Upstate/Downstate Parametric Split: intended to allow for separate capacity shifts between upstate and downstate similar to Tan45 behavior
 - Excess UCAP Shifting: intended to reduce divergence from Tan45 results when excess UCAP ratios change; this is also intended to better align with the Tan45 shifting methodology

Current Parametric Method

- **Under the current approach, the parametric assessments estimate the impact of modeling and assumption changes by performing incremental capacity removals or additions.**
 - Capacity is shifted proportionally based on the total UCAP in each zone.
 - At each step of the linear search, system-wide UCAP is adjusted according to these ratios until the 0.1 LOLE criterion is met.
- **The parametric method is intended as a simplified and computationally efficient approximation of the full Tan45 process and has been used for interim impact assessments during IRM base case development.**
- **Unlike the Tan45 process, the parametric approach does not explicitly reallocate MW across locations to achieve the 0.1 LOLE target. As a result, it may not fully capture changes in zonal excess UCAP, or shifts in the upstate/downstate reliability balance.**

Initial Potential Enhancements

Upstate/Downstate Parametric Split

- The parametric process allows capacity adjustments to be applied at the full system level (Load Zones A–K) or regionally to Upstate (Load Zones A–F) or Downstate (Load Zones G–K).
- Under the current parametric process, load forecast updates are addressed using system-wide (Load Zones A–K) adjustments.
- This alternative evaluates a two-step approach, in which Upstate and Downstate are solved sequentially.

Excess UCAP Shifting

- The load forecast update is applied across all Load Zones (A–K), consistent with past practice.
- The system is then solved to 0.1 LOLE while adjusting capacity using excess UCAP ratios, rather than total UCAP ratios.
- This alternative isolates the impact of excess UCAP treatment on parametric outcomes.

Test Case Selection and Process

- **During the 2024-2025 IRM Final Base Case (FBC) development, the load forecast update ^[1] reflected a larger reduction in load in Upstate zones (Load Zones A-F) relative to Downstate zones (Load Zones G-K).**
 - This load forecast update included a total net reduction in load of 686MW: 500MW Upstate and 186MW Downstate.
- **This load forecast update resulted in a material difference between parametric and Tan45 outcomes, of ~0.7% IRM impact as shown in presentation linked below**
 - Under the parametric methodology, the load forecast update produced a 0.93% increase on the IRM.
 - A separate Tan45 run conducted with the load forecast update on the 2024-2025 IRM Preliminary Base Case (PBC) produced a 0.25% increase on the IRM.
- **The NYISO selected this load forecast update and performed two separate parametric runs on the 2024-2025 PBC to compare against the Tan45, using the two potential enhancements:**
 - Upstate/Downstate Parametric Split: apply load forecast update to upstate only (Load Zones A-F) and solve Load Zones A-F to restore 0.1 LOLE; then apply remaining load forecast update to downstate (Load Zones G-K) and solve Load Zones G-K to restore 0.1 LOLE
 - Excess UCAP Shifting: apply load forecast update to all zones and solve Load Zones A-K based on the zonal excess UCAP ratios with the updated forecast to restore 0.1 LOLE

[1] [2024-2025 IRM FBC Load Forecast Update Impact ICS #282](#)

Initial Assessment Results

Metric	Current Parametric Process	Upstate/Downstate Parametric Split	Excess UCAP Shifting
IRM Δ vs Tan45	+0.68	+0.122	-0.214
J LCR Δ vs Tan45	+0.05	+0.47	+1.17
K LCR Δ vs Tan45	-1.23	-0.57	-0.37

- It should be noted that the initial testing of the two potential enhancements was conducted on the 2024-2025 IRM PBC to be compared with the Tan45
 - The 2024-2025 presentation reflected the parametric study results following the sequential data base update process and the load forecast update parametric run was conducted on the previous case that captured other data updates for the 2024-2025 FBC

Observations

- **The initial testing results indicate that, compared against the current parametric method both potential enhancements may reduce the magnitude of divergence from the Tan45 results.**
 - The Upstate/Downstate Parametric Split approach reduces the divergence while showing consistent directional IRM impact of the updated load forecast
 - The Excess UCAP Shifting approach also reduces the divergence, but shows an opposite directional IRM impact of the updated load forecast
- **The Excess UCAP Shifting approach substantially increased the Load Zone J locational requirement.**
 - This is because there is no excess UCAP in Load Zone J, and shifting based on excess UCAP leads to no MW removal from Load Zone J, resulting in a higher J LCR
- **Neither enhancement is designed to explicitly address the divergence that can result from transmission updates since the Tan45 process remains the only method which explicitly shifts capacity between upstate and downstate subject to transmission constraints.**

Next Steps

- **Further assess the potential enhancements by developing and executing additional test cases to validate the impacts prior to finalizing recommendations.**
- **Make initial recommendations to be considered for 2027-2028 IRM PBC process**

Questions?

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