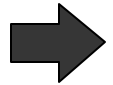# *Revising the Procedures for Using Load Forecasts to Calculate ICAP Requirements*

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Presented to
NYISO Installed Capacity Working Group

August 25, 2003
Albany, NY

Agenda

- **Background**

- **Specifics of Proposal**

  - *Hours Used for Calculating Each ICAP Requirement*

  - *Data and Analysis to Be Provided by TOs and ELRRs*

  - *Data and Analysis to Be Provided by the ISO*

  - *ISO Review and Dispute Resolution*

Plan of Action

My presentation today will summarize the main elements of the Transmission Owners' proposal for revising the procedures for using load forecasts to calculate ICAP requirements.

- **For the purposes of this proposal, the TOs include NYPA and LIPA.**

The TOs hope to bring this proposal before the BIC and MC in September.

We believe this would permit sufficient time to implement these revised procedures for the 2004-05 capability year.

Original Vision

The following procedures were envisioned when the tariff was written:

- **Each TO would measure the noncoincident peak load within its own Transmission District (TD).**

- **The next year's ICAP requirement for LSEs within that TD would then be calculated by multiplying the product of**
  - *The TD peak load,*
  - *One plus the installed reserve requirement for the NYCA, adjusted for load diversity across the TDs, expressed as a percentage of peak load, and*
  - *One plus the regional load growth factor for that TD.*

- **Note that the adjustment for load diversity should always reduce the ICAP requirement.**

Similar procedures applied for locational ICAP requirements.

Problems in 2003-04

The ISO calculates a NYCA ICAP requirement based upon its own load forecasts for the NYCA, consistent with the installed reserve margin determined by the NYSRC.

- **It then ensures that the sum of the TDs' requirements is equal to the NYCA requirement.**

- **When this NYCA requirement differs from the sum of the TD requirements, the ISO allocated the difference among the TDs.**

- **It needed to do this to fulfill its mandate to ensure that sufficient resources are maintained within the NYCA.**

In previous years, this difference had been small, so it was not cause for concern.

- **But in 2003-04, there was a difference of about 400 MW.**

Problems in 2003-04

As a result, LSEs found themselves needing to procure about 400 MW of ICAP that they had not planned to have to procure, based upon their load forecasts for 2003-04.

- **However, this capacity was necessary to meet reliability objectives for the NYCA.**

A secondary problem was that there was not sufficient opportunity to review the ISO's calculations.

This led the TOs to conclude that changes in these procedures were needed.

Intent of TO Proposal

Consequently, the TOs initiated an effort several months ago to develop revised procedures for using these data to determine ICAP requirements, culminating in this proposal.

The intent of this proposal is:

- **To ensure that each TD's ICAP requirement was based on peak load within that TD, thereby eliminating these unpleasant surprises,**

- **While also ensuring that sufficient capacity is maintained within the NYCA to permit reliability objectives to be met,**

- **And permitting all market participants sufficient opportunity to review the calculation of these requirements before they take effect so that they dispute these calculations if warranted.**

Allocation to LSEs

This proposal is limited to the calculation of total ICAP requirements for LSEs within each TD, and locational ICAP requirements for LSEs within each locality.

- **It does not address the allocation of these requirements among LSEs within each TD or locality.**

- **If this proposal is acceptable, additional work will be needed in this area.**

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- **Conclusion**

Contents of Proposal

The detailed proposal is described in the document that was circulated last week. I will break today's discussion into four parts:

- **Hours Used for Calculating Each ICAP Requirement (§ 1 of the detailed proposal)**

- **Data and Analysis To Be Provided by TOs and ELRRs (§ 2)**

- **Data and Analysis To Be Provided by the ISO (§§ 3,4)**

- **ISO Review and Dispute Resolution (§§ 5,6)**

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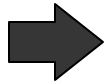
Use Shares of Coincident Peak for Total Req't

The TOs propose a change in the procedure used to determine shares of the total NYCA ICAP requirement.

- **Under the proposal, each TD's ICAP requirement would be based on its share of load in the NYCA coincident peak hour, instead of its load in that TD's noncoincident peak hour.**

- **This will make it much easier to calculate ICAP requirements for each TD that will be consistent with the requirements the ISO would calculate for the NYCA.**

Locational ICAP requirements would continue to be calculated based on the peak load hour for each locality.

Treatment of Demand Response Programs

The peak load hour would be the hour in which load in the NYCA was highest, after the ISO adds back the effect of all load reduction programs considered by the NYSRC when determining ICAP requirements.

- **These programs currently include SCRs, the EDRP, and voltage reduction (VR).**
  - *ISO procedures for determining the effect of VR would consider the decay in load response resulting from VR.*

- **We need to add back these effects because ICAP requirements would have been higher if this response had not been considered.**

Effects of other demand response programs would not be added back.

- **The ICAP requirement was not reduced to account for these programs.**

- **These are not programs that the ISO monitors.**

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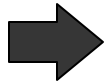
Importance of Consistent Measures

One of the main causes of the 400 MW discrepancy between the NYCA ICAP requirement calculated by the ISO and the sum of the TD requirements was inconsistency in the ways that each TD reported its loads.

The TO proposal has been developed with the intent of ensuring:

- **Consistent procedures for weather normalization.**

- **Consistent treatment of losses.**

- **Consistent treatment of demand response.**

Weather Normalization Procedure

Under the TO proposal:

- **Each TO will report weather-normalized load within its TD for the NYCA peak hour.**

  - *TOs in localities would also report weather-normalized loads for the locality peak hour.*

- **The weather normalization procedure used by each TO must meet at least a 50th percentile criterion (a.k.a. a 1-in-2 criterion).**

Weather Normalization Procedure

Subject to this constraint, TOs would be permitted to use their own weather normalization procedures.

- **The TOs believe these are likely to be more accurate than weather normalization applied across the NYCA by the ISO.**

However, the TOs also recognize the need for the ISO to ensure that these procedures are not manipulated to lower ICAP requirements.

- **Procedures that will be used to ensure this does not occur are described in § 5.**

Different Methods for Measuring Load

Each TO would also continue to use its current method for measuring load within each TO. Currently, two different methods are used:

- **Some TOs measure load as the sum of real power passing through all of the step-down transformers between the transmission and distribution systems throughout the TD. ("Grid method")**

  - *This method does not include transmission losses occurring within the TD in the measure of TD load.*

- **Others measure it as net generation within each TD, plus transmission inflows into that TD, minus net outflows out of that TD. ("Con Ed method")**

  - *This method includes transmission losses occurring within the TD in the measure of TD load.*

The procedure used to calculate ICAP requirements will account for this difference.

No Modification by TOs for Demand Response

Finally, TOs would not modify their loads to add back the effects of any of the ISO-monitored demand reduction programs.

- **The ISO will perform all such adjustments.**

Entities with Load Reporting Responsibilities

In some cases, TOs may not report all load within their TD.

- **Other entities will have responsibility for reporting part of that load to the ISO.**

In this proposal, we refer to such entities as Entities with Load Reporting Responsibilities (ELRRs).

- **Each ELRR will have responsibilities for the region it serves that generally parallel those of the TO.**

- **In cases where there are ELRRs, the TO's responsibility will be to report data for the portion of its TD not served by an ELRR.**

While the detailed proposal is careful to be precise about these details, for the purposes of this presentation we will generally assume that each TO reports all load for its TD (and locality, where relevant).

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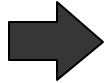
Total and Locational Requirements

The ISO would use these data to calculate each TD's share of the total ICAP requirement and each locational ICAP requirement.

- **The two calculations will use similar procedures.**

- **But they are entirely separate.**
    - *The total ICAP requirement for a TD that includes a locality will be based on the NYCA peak hour.*
    - *The locational ICAP requirement will be based on the locality peak hour.*

Weather Normalization for ELRRs

We will discuss the procedures the ISO would use to determine each TD's total ICAP requirement first.

The ISO begins with weather-normalized peak load data.

- **The TOs will all report weather-normalized peak loads.**

- **Some ELRRs may not report weather-normalized data.**
  - *In that case, the ISO would weather-normalize those data in a manner that is consistent with the weather normalization performed by the relevant TO.*

This yields the weather-normalized peak load for each TD.

Correction for Intra-TD Losses Reported by Some TOs

Next, the ISO would adjust these weather-adjusted loads to account for differences in the treatment of intra-TD losses by different TOs.

- **It would deduct weather-normalized intra-TD transmission losses from the load of each TO that used the Con Ed method for reporting load.**

- **No deduction is necessary for TOs that used the Grid method.**

This yields the weather normalized lossless peak load for each TD.

Allocation of Transmission Losses

Then the ISO would allocate weather-normalized NYCA-wide transmission losses to each TD, in proportion to that TD's weather-normalized lossless peak load.

- **Thus, TDs with low loads that happen to be in areas with lots of transmission are not required to carry a disproportionate share of ICAP requirements.**

- **This approach also ensures that all losses within the NYCA will be included in the determination of the ICAP requirement of one, and only one, TD.**
  - *Distribution losses are already included in loads.*
  - *The ISO will need to coordinate with the TOs to ensure a consistent definition of transmission and distribution losses.*

This yields the weather normalized peak load including an allocated share of transmission losses for each TD.

Calculation of ICAP Requirement

Finally, the ISO would add back the effect of ISO-monitored demand response programs on load in each TD during the peak hour.

- **This yields the adjusted actual peak load for that TD.**

The adjusted actual peak load would then be multiplied by:

- **One plus the installed reserve requirement for the NYCA, expressed as a percentage of peak load, and**

- **One plus the regional load growth factor for that TD,**

To yield the ICAP requirement for that TD.

Losses and Locational ICAP Requirements

The ISO would follow similar procedures to determine each locational ICAP requirement.

The primary difference pertains to losses. The ISO will not adjust the loads reported for each locality's peak load hour to account for intra-locality losses, because:

- **Locational ICAP requirements are based on load including transmission losses in the locality.**

- **All TOs and ELRRs in each of the current localities use the Con Ed method for reporting transmission losses.**

- **Therefore, the sum of the loads reported by the TOs and ELRRs is consistent with the measure of load on which locational ICAP requirements are based.**

Calculation of Locational ICAP Requirement

So to determine the adjusted actual peak load for each locality, the ISO will simply:

- **Weather-normalize the load reported by ELRRs for localities, if necessary, and**

- **Add back the effects of ISO-monitored demand reduction programs on each locality's peak load.**

This would then be multiplied by:

- **The locational installed capacity requirement for that locality, expressed as a percentage of peak load, and**

- **One plus the regional load growth factor for that locality,**

To yield the ICAP requirement for that locality.

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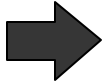
ISO Review

This process is partly based upon:

- **Weather normalization performed by the TOs.**

- **Regional load growth factors estimated by the TOs.**

In each case, the ISO must ensure that the data or analysis provided by the TOs are reasonable.

Review of Regional Load Growth Factors

Such a procedure already exists for the calculation of regional load growth factors (RLGFs). Under that procedure:

- **The ISO develops criteria to assess whether the RLGFs provided by a TO are reasonable.**

- **If the RLGFs do not meet these criteria, the ISO and the affected TOs work together to resolve the difference.**

- **If they cannot resolve the difference, the ISO may impose its own RLGF.**

- **The TO then may elect to take the issue to expedited dispute resolution.**

- **If the ISO agrees to accept RLGFs that are not consistent with its criteria, any other market participant may take the issue to expedited dispute resolution.**

Review of Weather Normalization Results

The RLGF procedure seems to work well, so it will continue in place, and a similar procedure will be developed to deal with weather normalization.

- **The ISO will develop criteria to assess whether the results of the weather normalization performed by a TO are reasonable.**

- **If the results of the normalization do not meet these criteria, the ISO and the affected TOs would work together to resolve the difference.**

- **If they cannot resolve the difference, the ISO could impose its own method for weather normalizing (using a 50th percentile criterion).**

- **The TO then may elect to take the issue to expedited dispute resolution.**

- **If the ISO agrees to accept weather normalization results that are not consistent with its criteria, any other market participant may take the issue to expedited dispute resolution.**

Posting, Notification and Disputes

Finally, the ISO will post the results of its calculations.

- **It will notify market participants of this posting, giving them sufficient time to review the results.**

- **In the event that a market participant believes that the ISO has performed some aspect of this calculation incorrectly, it could discuss this with the ISO.**

- **If necessary, the market participant could elect to take the issue to expedited dispute resolution.**

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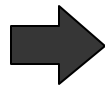
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Conclusion

Recall that the intent of this proposal was:

- **To ensure that each TD's ICAP requirement was based on peak load within that TD, thereby eliminating these unpleasant surprises,**

- **While also ensuring that sufficient capacity is maintained within the NYCA to permit reliability objectives to be met,**

- **And permitting all market participants sufficient opportunity to review the calculation of these requirements before they take effect so that they dispute these calculations if warranted.**

Conclusion

This proposal bases each TD's ICAP requirement on its weather-normalized peak load.

- **It includes appropriate adjustments to ensure that losses are included in loads and demand response is handled properly.**

This proposal ensures that the sum of the TDs' ICAP requirements will match the ISO's ICAP requirement.

- **It thereby eliminates the need for the ISO to include an adder resulting from inconsistent assumptions made by different TOs that is spread over all of the TDs.**

And this proposal permits all market participants with an opportunity to review and, if necessary, to dispute the results.

- **This process is based on the RLGF process which has proven successful.**