

Summary of Loss Issues and Requests to the ISO for Explanations and Review

This document attempts to summarize issues and questions (as well as a few proposed solutions) regarding losses that the ISO calculates. It is likely not definitive. There have been three other requests made to the ISO via email (summarized in a separate document) that reflect an increased understanding of what it is exactly that I don't understand...

This all has its roots in ISO related billing as it applies to LSEs serving load in NY; specifically it has arisen under NMPC's Retail Access Program.

Background

For each hour, the ISO calculates loads for each zone (or sub-zone if you prefer). This is based on the summation of generation in the zone plus the summation of tie flows that connect the zone to other zones. Once the metering issues that may arise are finally suppressed, these loads represent a target to adjust LSE load responsibilities to. Note that LSEs here include the TOs.

On the retail side, end use customer meters are read; those readings increased for retail Tariff based losses. At least in NMPC's case (see Rule 39) this is the only adjustment to the loads LSEs are responsible for EXCEPT for ISO based adjustments for "unaccounted for losses" which are also allocated out to all LSEs.

We understand the need to account for all load in NYS and truing up LSE responsibilities such that all load is accounted for. (For the moment we will presume that the total load is correct)

The Issues

1. We need to understand what is meant by "unaccounted for losses".

It is not clear if this means the delta between the loss adjusted meter reads in aggregate and the ISO calculated zonal loads OR if it means that there are other loss specific allocations that are part of the referenced delta. It simply is NOT clear. Maybe this should be "unaccounted for load"...

The reason for raising this as an issue is that the B-Matrices, to my knowledge, exist as representing 9 distinct areas in NY – 3 for NMPC (West, Center and East) and 6 for the other TOs – RG&E, NYS, CH, OR, ConEd and LI. Since there are 11 LBMP zones it is anything but clear as to how losses calculated on the fly using the B-Matrices within SCD map

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to the LBMP zones. Thus the possible “unaccounted for loss” allocations...

2. NMPC has made issue of fixed % factors that allocate NYISO “unaccounted for losses” to zones and it is our understanding that these factors date to pre-ISO load flow based analyses that have fixed % allocations to each sub-zone. At a minimum, the ISO should provide to the Participants what these %’s are (hopefully they sum to 100%.)

It is not clear if these factors are used to allocate all delta between the LSE retail load plus distribution losses and the ISO based zonal loads OR if there is a specific loss amount that is being allocated. It seems that if the ISO can calculate sub-zone loads then there would be no need for some fixed % allocation process; all the difference between LSE calculated load and what the ISO sees would be accounted for.

3. The ISO was asked to supply the inputs to the B-Matrix calculations at a 9-01 Metered Data WG mtg. At November’s meeting I indicated that such data is readily available in the form of the Tie Line and Generator Reports that can be run against the base case load flow history file that serves as the input to the B-Matrix program. This request was also made to Ric Gonzales in a 10-30 email.

I took this one step further on 11-1, by requesting that the ISO review the input to the B-Matrix as it is used by SCD for on-line calculation purposes. It is one thing to have potential for errors in the input to the B-Matrix calculation (that results in the actual productions of the matrices themselves) and another matter to have incorrect input to the loss calculations that the B-Matrix is used for...

The ISO is being requested to provide any benchmarking studies that they may have performed on the B-Matrix models.

4. In the same email to Ric Gonzales, I suggested several possible approaches to the fixed % allocation problem (assuming it is a problem).

Assuming there is a loss allocation problem the ISO could:

- 1 Do nothing,
- 2 Recalculate the %’s more frequently,
- 3 Use the B-Matrices to reduce the error in approximate allocation (there would still be problems in some zones but likely fewer overall),
- 4 Change the B-Matrices to exactly map onto the LBMP Zones and
- 5 Wait until the State Estimator replaces the B-Matrices. The first option seems to not be the best choice and we need to discuss exactly what to do.

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5. There is an issue of the magnitude of losses that occur in the ISO's DAM. The numbers e.g. for some months run as much as 20% from Zones A to J, appear high. While being high does not make them incorrect there are questions that need to be addressed by the ISO here as well:

It is understood that the B-Matrices are only used for RT and that the DAM losses presumably are based on the network model that underlies SCUC. It is not clear if the network model for SCUC is virtually identical to load flow models of the system or represent, as yet, another source for differences.

The ISO needs to explain how the DAM losses are arrived at and also to provide any benchmarking studies that may have been performed against SCUC's underlying network model. Please note that in the above paragraph I said presumably underlying – we need to know how this is done, presumptions aside.