Probabilistic Locality Exchange Factor Analysis

March 22, 2017

DRAFT
Overview

Methodology

System Topologies

• Current IRM Topology
• Contract Topology
• Reserve Sharing Topology

Schedule and Next Steps
Methodology

1) Update System Topology and Set System at IRM / all LCRs
2) Model the Export Contract
3) Add to zones of excess west of Total East (A, C, D) until the IRM is satisfied
4) Iteratively shift from zones of excess west of Total East to GHI until the LOLE from Step 1 is met
Current IRM / LCR Topology
F&G to ISONE Topology
Current IRM / LCR Topology

- E
- ATHENS
- F
- G
- WMA
- CT

Interface
Joint Interface
Contract Topology
F&G to ISONE Topology

Contract Topology
Add an open interface which crosses only the NY components of the existing UPNY-SENY interface.
Add a Dummy Bubble attached to Zone G with no load and only the export unit. This will allow us to cut the contract flow when the export unit is unavailable.
Balance the flow out of the export unit bubble and across the F and G contract paths.

For example, if the export unit is unavailable, the contract path flows will be held to zero because flow from the dummy bubble to Zone G is zero.
F and F Contract joint flow to WMA is held to the same limit as F to WMA in the base topology.

G and G Contract joint flow to CT is held to the same limit as G to CT in the base topology.
Add WMA and CT Load Bubbles

Load = Contract Size X Capacity Split %

If the export unit is unavailable, the contract will not flow. The joint interfaces added will not allow flow from CT and WMA to the load bubbles if the contract is not flowing.

This will only add load to ISONE if the contract is delivered.
Reserve Sharing Topology
F&G to ISONE Topology
Reserve Sharing Topology
Add an open interface which crosses only the NY components of the existing UPNY-SENY interface.
Add a new pool containing only the export unit. Assign the reserve sharing priority out of this pool to ISONE first and NYISO second.
Subtract the appropriate percentage of export unit to CT flow out of UPNY-SENY and F to G.

Using this approach, these interfaces are only adjusted when the export unit is supplying power to ISONE.
Add the appropriate percentages of export unit to CT flow to the F to WMA and G to CT interfaces.
Add load to Connecticut which is the same size as the export unit.
Schedule and Next Steps
Sensitivities Currently Under Consideration

In order to perform the analysis, and based on input at NYISO stakeholder meetings, it is apparent that these different topologies each provide information that might be useful to considering potential market scenarios.

The next step is to consider key sensitivities in order to assess the robustness of the model and the outcomes.

- GE notes that the NYISO’s Locality Export Capacity rule applies to each of its neighboring Control Areas. It has not considered whether the methodologies described in the presentation might be suitable if a topology was developed in relation to any neighboring Control Area other than ISONE, and the different sensitivities that might be appropriate to consider.

The following sensitivities are currently being considered using each topology:

- Deterministic LE Factor Flow Split – 47.8% UPNY-SENY Backflow
- 0% UPNY-SENY Backflow (100% flow from G to CT)
- 100% UPNY-SENY Backflow (100% flow from G to F to WMA)
## Schedule

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<thead>
<tr>
<th>Description</th>
<th>Forum</th>
<th>Date</th>
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<tr>
<td>Present Initial Methodology to Stakeholders</td>
<td>ICAPWG</td>
<td>01/27/2017</td>
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<tr>
<td>Proposed Methodology and Export Topologies</td>
<td>ICAPWG</td>
<td>03/22/2017</td>
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<tr>
<td>Presentation of Final Results to Stakeholders</td>
<td>ICAPWG</td>
<td>TBD</td>
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