Draft Proposed Cost Allocation Methodology for Regulated Reliability Solutions

Tariff Language

Section 10.2 of Attachment Y to the NYISO tariff describes cost allocation principles for Regulated Responses to reliability needs. It reads,

10.2 Regulated Responses

Cost allocation for regulated solutions to Reliability Needs shall be determined by the NYISO based upon the principle that beneficiaries should bear the cost responsibility. The NYISO will develop criteria in consultation with Market Participants for determining the beneficiaries of regulated solutions to Reliability Needs. The specific cost allocation methodology, to be developed by the NYISO in consultation with the ESPWG, will incorporate the following elements:

a. The focus of the cost allocation methodology shall be on solutions to violations of specific Reliability Criteria.
b. Potential impacts unrelated to addressing the Reliability Needs shall not be considered for the purpose of cost allocation for regulated solutions.
c. Primary beneficiaries shall initially be those Transmission Districts identified as contributing to the reliability violation.
d. The cost allocation among primary beneficiaries shall be based upon their relative contribution to the need for the regulated solution.
e. The NYISO will examine the development of specific cost allocation rules based on the nature of the reliability violation (e.g., thermal overload, voltage, stability, resource adequacy and short circuit).
f. Cost allocation among Transmission Districts shall recognize the terms of prior agreements among the Transmission Owners, if applicable.
g. Consideration should be given to the use of a materiality threshold for cost allocation purposes.
h. The methodology shall provide for ease of implementation and administration to minimize debate and delays to the extent possible.
i. Consideration should be given to the "free rider" issue as appropriate. The methodology shall be fair and equitable.
j. The methodology shall provide cost recovery certainty to investors to the extent possible.
k. The methodology shall apply, to the extent possible, to Gap Solutions.

Tariff Guidance for Cost Allocation

The tariff states that cost allocation for regulated solutions to reliability problems will be based on the principle that "beneficiaries should bear the cost responsibility." The task then becomes developing the criteria for determining who these beneficiaries are and the methodology for assigning appropriate costs to them. The tariff provides guidance with respect to "who beneficiaries are" stating that primary beneficiaries are those Transmission Districts (TD) contributing to the reliability violation.

The tariff provides further guidance with respect to cost allocation, stating that costs should be allocated among the primary beneficiaries based on their "relative contribution to the need for the regulated solution." Allocation based on "relative contribution" can be accomplished by assigning costs to beneficiaries on a load share ratio basis using peak loads. Therefore, the costs of regulated solutions to reliability problems should be allocated to the Transmission Districts contributing to the reliability violation based on a load share ratio. As described below in the examples, adjustments to recognize the terms of prior agreements, the location of loads or for other factors may be appropriate in certain circumstances.

In the event that any of the costs of a regulated solution will be allocated to a transmission district other than the transmission district in which the NYISO identifies the reliability need, the Transmission Owner in whose district the need is identified and the Transmission Owner to whose district costs will be allocated shall engage in good faith negotiations in an effort to achieve an agreement on a proposed regulated back-stop solution and on the implementation of the regulated solution.. ~~The rules governing cost allocation and the determination of who are the responsible TO(s) for advancing a regulated backstop solution to a particular need are interrelated. The discussion of responsible TO(s) is the subject of a related proposal that is to be developed [**Optional additional ending**: with the intention that it be read in concert with the cost allocation proposal contained herein].~~

Applications and Examples of Cost Allocation Principles

General Application of Cost Allocation Principles

In each case, for a regulated reliability solution, the full cost of the smallest feasible solution - taking into account all resource needs as identified over the planning horizon - that can eliminate the deficiency or criteria violation will be allocated and recovered (e.g., if a 63 MW solution would exactly correct the deficiency, but the minimum practical solution is 100 MW, the full 100 MW solution would be cost allocated and cost recovered).

Cost Allocation Finality

The cost allocation computation for a reliability solution will be performed using the same data base assumptions over the same planning horizon as those used to identify the associated reliability violation(s), and that ultimately triggers the need to proceed with the regulated solution. In other words, the cost allocation computation would be done *once* based upon the same information used to approve the regulated solution for proceeding and to be cost recovered; it would not be subsequently revisited (subject, however, to re-computations due to computational errors that are later discovered within a specified time period).

Reliability Violation Caused by LICAP Deficiency in a Locality

- If additional Locational ICAP (LICAP) procurements (i.e., market-based solutions) within a Transmission District(s) are not expected to be available as per the NYISO's Comprehensive Reliability Planning ("CRP") process, loads within the deficient Transmission District(s) (i.e., the loads contributing to the reliability violation) would be allocated the costs for a regulated reliability solution based upon a load ratio share of coincident peak loads forecast for the year in which the reliability deficiency is expected to first occur.

ICAP Deficiency in NYCA

- If additional ICAP procurements within the New York Control Area (NYCA) are not expected to be available as per the NYISO's CRP process, all loads within the NYCA would be allocated the costs for a regulated reliability solution based upon a load ratio share of coincident peak loads forecast for the year in which the reliability deficiency is expected to first occur for each load within the NYCA.

  The load ratio share calculation (for cost allocation of a regulated project associated with an ICAP deficiency in NYCA) would exclude load in Localities covered by LICAP. For example, assume the required Installed Reserve Margin (IRM) is 118% and a Locality's LICAP requirement is 80%. If the Locality has a peak load of 1,000 MW, its total ICAP requirement would be 1,180 MW and its LICAP requirement would be 800 MW. The remaining 380 MW of required ICAP could be procured from outside the Locality. If the overall NYCA is ICAP deficient, the Locality's load that would be included in the load ratio share cost allocation calculation would be 380 MW.

To carry this example one step further, assume only one Locality exists as mentioned above, and that the Rest-of-State (ROS) has a peak load of 2,000 MW so that its ICAP requirement is 2,360 MW (118% x 2,000 MW). If the entire NYCA is ICAP deficient, the cost of a regulated reliability solution that eliminates this deficiency would be allocated as follows…

ROS would be allocated **86.1%** of the cost of the solution
= (2,360 / (2,360 + 380))

Locality would be allocated **13.9%** of the cost of the solution
= (380 / (2,360 + 380))

Inter or Intra-Zonal Transmission Thermal/Voltage/Stability (T/V/S) Criteria Violation

- For T/V/S criteria violations associated with LICAP or ICAP deficiencies, the costs of regulated reliability solutions would be allocated as described above for LICAP/ICAP deficiencies.

- For T/V/S criteria violations not associated with LICAP or ICAP deficiencies, and that can not be eliminated by re-dispatch, costs for a regulated solution would be allocated on an impact basis to account for both load share and the location of the load (similar to using a Generator Shift Factor) to all Load Sub-Zones[1] containing load that, if reduced (on an MVA basis; i.e., the composite of both real and reactive power: MW and MVAr), would contribute to a reduction of the reliability criteria violation that caused the need for the regulated solution (as determined with uniform load decreases using the same software/ procedures that initially identified the violation). As required (by Section 10(2)(f) of Attachment Y to the NYISO OATT), contractual obligations relating to appropriate interface limitations (i.e., minimum transfers and phase-shifter settings) will be respected. Studies conducted will accurately reflect these interface limitations.

  A thermal example: A thermal criteria violation (a 100 MVA overload) is identified in which load reductions in three load sub-zones (A, B and C) would each reduce the reliability violation. Studies indicate that a 5% load decrease in each of sub-zones A, B and C (on an MVA basis) would produce decreases in the thermal overload violation of 10 MVA, 30 MVA, and 60 MVA respectively for a total decrease of 100 MVA. In other words, load decreases in sub-zones A, B

[1] Costs associated with regulated solutions for T/V/S criteria violations will not be allocated to an area smaller than one entire Load Sub-Zone. Alternatively, these costs will be allocated to an entire TD only if all of the Load Sub-Zones within that TD are identified as contributing to the need for the reliability upgrade.

and C reduce the violation by 10%, 30% and 60%, respectively. Consequently, costs for the regulated solution needed to eliminate the violation would be allocated to sub-zones A, B and C on the basis of 10%, 30% and 60%, respectively to account for differential impacts of load reductions.

A voltage violation example: A voltage criteria violation at a specific location (5 kV below acceptable levels on a 345 kV bus) is identified in which load reductions in three load sub-zones (A, B and C) would each reduce the reliability violation. Studies indicate that a 5% load decrease in each of sub-zones A, B and C (on an MVA basis) would produce increases in the voltage level of 1 kV, 1.5 kV and 2.5 kV respectively for a total increase of 5 kV. In other words, load decreases in sub-zones A, B and C reduce the violation by 20%, 30% and 50%, respectively. Consequently, costs for the regulated solution needed to eliminate the violation would be allocated to sub-zones A, B and C on the basis of 20%, 30% and 50%, respectively to account for differential impacts of load reductions.

A system stability violation example: A *system* stability[2] criteria violation is identified in which load reductions in two load sub-zones (A and B) would each reduce the reliability violation (i.e., improve stability so the system is stable rather than unstable). Studies indicate that (due to relative magnitudes and locations), either a 5% load decrease in sub-zone A or a 40% load decrease in sub-zone B would eliminate the stability criteria violation. Based upon these results, studies further indicate that an overall 4.44% load decrease simultaneously in both sub-zones would also eliminate the stability violation. With this uniform decrease, sub-zone A is found to contribute 88.9% of the violation reduction and sub-zone B contributes 11.1% of the violation reduction. Based upon these impacts, costs for the regulated solution needed to eliminate the violation would be allocated to sub-zones A and B on the basis of 88.9% and 11.1% respectively to account for differential impacts of load reductions. See Table S-2 (along with Tables S-1 and S-3) in the Appendix for a more detailed computation of this example.

Short Circuit Duty Criteria Violations

Costs related to short circuit duty violations attributable to new generation will be allocated to that generation under interconnection cost allocation rules.

---

[2] A new generating unit/plant not in compliance with generator stability requirements will be responsible for costs associated with bringing it into compliance under interconnection rules.

Costs related to short circuit duty violations attributable to transmission facility additions and/or reconfigurations will be allocated to the transmission project itself as an integral requirement of that addition or reconfiguration.

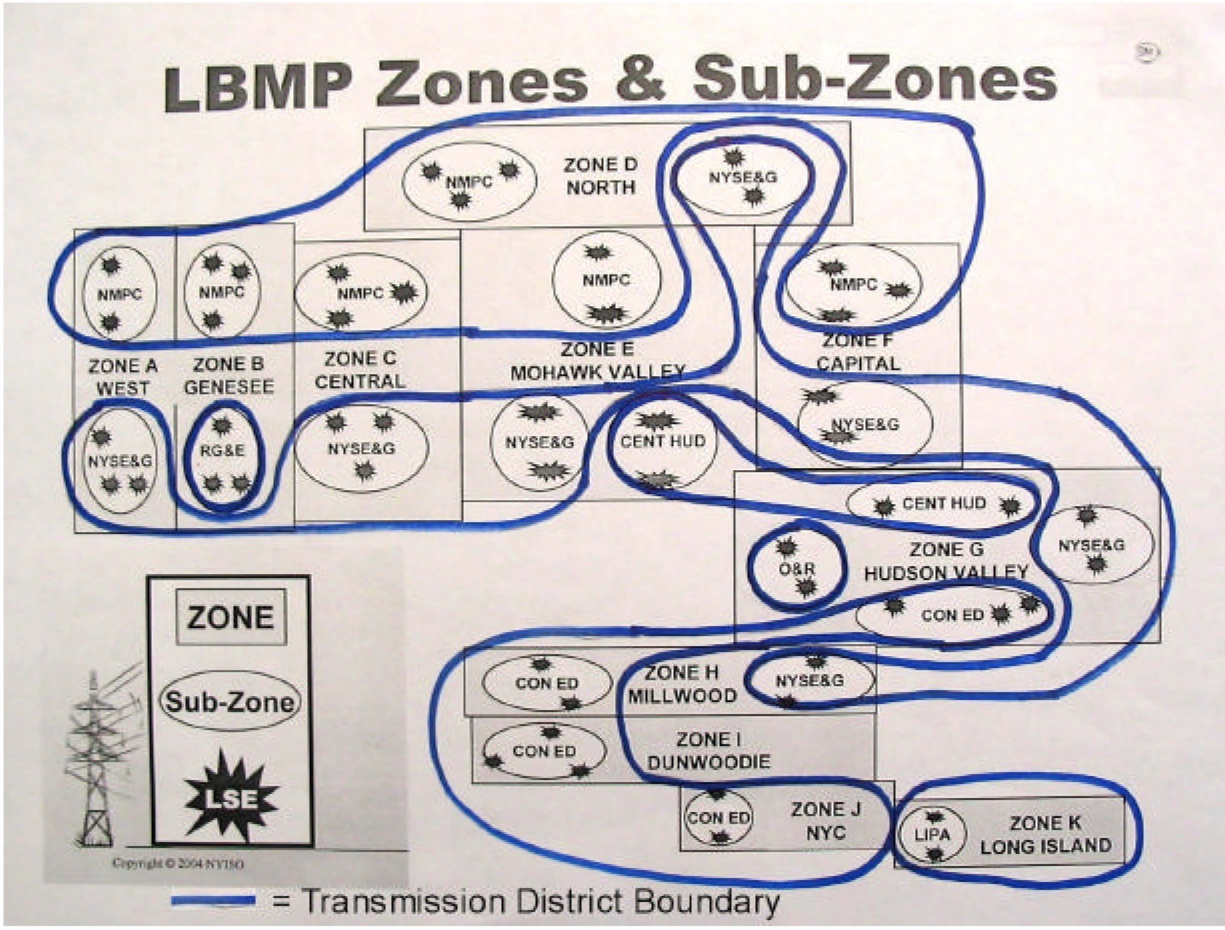
Open Issue: How would costs be allocated for short circuit duty violations not identified as part of a new transmission or generator project or change?

Open Issue: How will external load be treated? Do or should long term capacity contracts from the NYCA to external loads constitute an obligation (if applicable) on the part of the external load for cost allocation of a regulated solution? This should be added to the NYISO's list of seams issues to be discussed with other RTO/ISOs.

~~**Open Issue:** Should (or how should) a *de minimus* materiality threshold (as enumerated in Section 10(2)(g)) be imposed for cost allocation?~~

Appendix

Transmission Districts, LBMP Load Zones and Load Sub-Zones



- **Transmission Districts** delineate TO service territories
- **LBMP Load Zones** delineate areas with generally similar energy prices that may be separated from other areas (other LBMP Load Zones) that have different energy prices due to congestion.
- **Load Sub-Zones** delineate portions of TO service territories for billing purposes.

A **Transmission District or "TD"** (as defined in the NYISO OATT) is the geographic area served by the Investor-Owned Transmission Owners and LIPA, as well as the customers directly interconnected with the transmission facilities of the Power Authority of the State of New York [a TD can be comprised of one or more LBMP Load Zones and one or more Load Sub-Zones].

An **LBMP Load Zone** – referred to simply as a **"Load Zone"** in the OATT - (as defined in the NYISO OATT) is one (1) of eleven (11) geographical areas located within the NYCA that is bounded by one (1) or more of the fourteen (14) New York State Interfaces [an LBMP Load Zone can lie within one Transmission District or can straddle several Transmission Districts.

A **Load Sub-Zone** is a whole or a portion of a TO's Transmission District that lies within one LBMP Load Zone, and which contains all of the load in that LBMP load zone served by that TO (a sub-zone must lie completely within one LBMP Load Zone and one Transmission District). Load Sub-Zones are separated from other Load Sub-Zones with sufficient metering to allow each Load Sub-Zone to be billed for energy withdrawals. Multiple LSEs may be located within each Load Sub-Zone. Currently, 22 Load Sub-Zones exist within the NYCA.

Cost Allocation vs. Cost Recovery - Although cost allocation will be assigned on a Sub-Zonal basis, cost recovery will be assigned directly to LSEs in those Sub-Zones (not the TO(s)). In some cases – based upon retail rate agreements – cost recovery may be spread to all LSEs within a Transmission District even if only one out of several Sub-Zones in that Transmission District is assigned a cost allocation.

The current composition of each TO's Transmission District is as follows …

	TD Composition	
	No. of Load **Sub-Zones** that **Share Portions** of LBMP Load Zones	No. of Load **Sub-Zones** that **Constitute an Entire** LBMP Load Zones
Central Hudson	2	0
Con Ed	2	2
LIPA	0	1
NYPA	10*	0
NYSEG	7	0
NMPC/National Grid	7	0
O&R	1	0
RG&E	1	0

* NYPA Sub-Zones all lie within other TO Sub-Zones; so for the purposes of cost allocation, they will be treated as an integral part of the larger Sub-Zones

Table S-1

System Stability Cost Allocation

Sub-Zones A and B Each Have the Same Geographic Impact

(a 1 MVA reduction has the same impact regardless of where it's located)

	Sub-Zone A	Sub-Zone B	Total
Total MVA Load	**400**	**100**	500
% Load Reduction Needed Alone	**5.0%**	**20.0%**	--
MVA Load Reduction Needed Alone	**20.0**	**20.0**	--
% Load Reduction Needed if Shared	4.0%	4.0%	4.0%
MVA Load Reduction Needed if Shared	16.0	4.0	20.0
MVA Load Reduction Needed on an Equivalent Impact Basis	16.0	4.0	20.0
Regulated Solution Cost Allocation	80.0%	20.0%	100.0%

Sub-Zone Cost Allocation = (Sub-Zone's MVA Needed on Equiv Basis) / (Total MVA on Equiv Basis)
Bold Numbers are inputs - others are computed from these inputs
Load reduction needed is decrease needed to eliminate stability violation

Table S-2

System Stability Cost Allocation

Sub-Zone A Has Twice as Much Geographic Impact as Sub-Zone B

(a 1 MVA reduction in Sub-Zone A is equivalent to a 2 MVA reduction in Sub-Zone B)

	Sub-Zone A	Sub-Zone B	Total
Total MVA Load	**400**	**100**	500
% Load Reduction Needed Alone	**5.0%**	**40.0%**	--
MVA Load Reduction Needed Alone	**20.0**	**40.0**	--
% Load Reduction Needed if Shared	4.44%	4.44%	4.44%
MVA Load Reduction Needed if Shared	17.8	4.4	22.2
MVA on an Equivalent Impact Basis	17.8	2.2	20.0
Regulated Solution Cost Allocation	88.9%	11.1%	100.0%

Total % load reduction needed is determined by first solving for Y where:
(400 x Y) + (100 x Y x 0.5) = 20; or 450 x Y = 20; thus Y = 20/450 = 4.44%
Sub-Zone Cost Allocation = (Sub-Zone's MVA Needed on Equiv Basis) / (Total MVA on Equiv Basis)

Table S-3

System Stability Cost Allocation

Sub-Zone A Has Half as Much Geographic Impact as Sub-Zone B

(a 1 MVA reduction in Sub-Zone A is equivalent to a 0.5 MVA reduction in Sub-Zone B)

	Sub-Zone A	Sub-Zone B	Total
Total MVA Load	**400**	**100**	500
% Load Reduction Needed Alone	**10.0%**	**20.0%**	--
MVA Load Reduction Needed Alone	**40.0**	**20.0**	--
% Load Reduction Needed if Shared	6.67%	6.67%	6.67%
MVA Load Reduction Needed if Shared	26.7	6.7	33.3
MVA on an Equivalent Impact Basis	13.3	6.7	20.0
Regulated Solution Cost Allocation	66.7%	33.3%	100.0%

Total % load reduction needed is determined by first solving for Y where:
(400 x Y x 0.5) + (100 x Y) = 20; or 300 x Y = 20; thus Y = 20/300 = 6.67%
Sub-Zone Cost Allocation = (Sub-Zone's MVA Needed on Equiv Basis) / (Total MVA on Equiv Basis)