

REVISED - COMPLETED DRAFT CARIS PROCEDURE
ESPWG - 13/923/09

ADDITIONAL BENEFIT/~~COST~~ METRICS FOR CARIS STUDIES
METHODOLOGY AND MODELS TO DEVELOP AND
IMPLEMENT ADDITIONAL METRICS
(ATTACHMENT Y: SECTION 11.3.d)

Tariff Requirement:

11.3.d In conducting the CARIS, the NYISO shall conduct benefit/cost analysis of each potential solution to the congestion identified, applying benefit/cost metrics that the NYISO will develop in conjunction with ESPWG. The principal benefit metric for the CARIS analysis will be expressed as the present value of the NYCA-wide production cost reduction that would result from each potential solution.

Additional benefit metrics shall include estimates of reduction in losses, LBMP load costs, generator payments, ICAP costs, Ancillary Services costs, emission costs, and TCC payments. The NYISO will work with the ESPWG to determine the methodology and models needed to develop and implement those additional metrics, and also to determine the most useful metrics for each CARIS, given overall NYISO resource requirements.

Proposed mMethodology:

The additional metrics will estimate the benefits of the potential solutions to the congestion identified for information purposes only. All the quantities, except ICAP, will be the result of the forward looking production cost simulation. The additional benefit metrics will be determined by measuring the difference between the CARIS base case fully constrained system value and a system value when the potential generic solution is added. All three resource types will be considered as potential generic solutions to the congestion identified~~transmission constraint under study is removed.~~, such as generation, transmission, and/or demand response. The additional metrics will be expressed as the Present Value by using the following formula: *Present Value in year 1 = Sum of the Present Value from each of the 10 years of the Study Period.* The discount rate to be used for the present value analysis shall be the current weighted average cost of capital for the NY Transmission owners.

The definitions of the LBMP load cost metric, generator payments metric, reduction in losses metric, ancillary services costs metric, and TCC payments metric are set forth below.

LBMP load costs:

This metric measures the change in total load payments and unhedged load payments. Total load payments will include the LBMP payments (energy, congestion and losses) paid by electricity demand (forecasted load, exports, and wheeling). Exports will be consistent with the input assumptions for each neighboring control area. Unhedged load payments will represent total load payments minus the TCC payments. hedge.

Reduction in losses:

This metric will measure the change in marginal losses payments. Losses payments will be based upon the loss component of the zonal LBMP load payments.

Generator payments:

This metric measures the change in generation payments. Generation payments will include the LBMP payments (energy, congestion, losses), and ancillary services payments made to electricity suppliers. Ancillary Services costs will include payments for Regulation Services and Operating Reserves, including 10 Minute Synchronous, 10 Minute Non-synchronous and 30 Minute Non-synchronous. Thus, generator payments will be ~~It is~~ the sum of the LBMP payments and ancillary services ~~these~~ payments to generators and imports. Imports will be consistent with the input assumptions for each neighboring control area.

Reduction in losses:

~~This metric will measure the change in losses payments. Losses payments will be based upon the loss component of the zonal LBMP load payments.~~

Ancillary Services costs:

~~This metric will measure the change in payments to generators for Regulation Services and Operating Reserves, including 10 Minute Synchronous, 10 Minute Non-synchronous and 30 Minute Non-synchronous.~~

TCC (Transmission Congestion Contracts) payments:

This metric will measure the change in congestion hedging derived from multiplying the TCC MW owned times the congestion component of the LBMP difference between the TCC contract point-of-withdrawal (POW) minus point-of-injection (POI). POI will represent the location where the energy is purchased, and POW will represent the location where the energy is supplied. There is no adjustment in this calculation for different owner types (i.e., all TCC revenue is attributed to load), nor for the variety of ~~grandfathered~~ TCC contracts. For zonal TCC attributions, the TCC is credited to a zone based on its POW.

Emission metric:

This metric will measure the change in CO₂, NO_x, and SO₂ emissions in tons on a zonal basis. Emission costs will be reflected in the development of the production cost curve~~s~~ of capacity resources. ~~This metric will measure the change in CO₂, NO_x, and SO₂ emissions.~~

ICAP costs:

The measurement of this metric is highly dependent on the rules and procedures guiding the calculation of the IRM and LCR, both for the next capability period and ~~future capacity market. NYISO suggests that this metric be postponed until after the NYISO future capacity market is fully developed.~~

~~capability periods. Therefore, only for the first CARIS cycle, the NYISO will use the MW impact methodology described below. For the future CARIS cycles, the NYISO will develop a methodology to reflect potential changes in ICAP costs separate from this temporary approach set forth below. The temporary approach is not meant to set precedence for the more fully developed ICAP cost methodology applicable to future CARIS cycles.~~

The MW impact methodology:

Method A

1. Determine the base system LOLE for the horizon year (e.g. 2018 LOLE 0.02).
2. Add a potential generic solution to congestion identified.
3. Calculate the LOLE for the system with the potential generic solution added.
4. If the LOLE is lower than the base system, reduce generation in all NYCA zones proportionally regardless of type of generic solution until the base system LOLE is reached. The amount of reduced generation is reported as the NYCA MW impact.

Method B

1. Determine the base system LOLE for the horizon year (e.g. 2018 LOLE 0.02).
2. Add a potential generic solution to congestion identified.
3. Calculate the LOLE for the system with the potential generic solution added.
4. If potential generic solution is transmission, then:
 - a) If the reserve margin in either Zone J or Zone K is in excess (greater than currently approved LCR), reduce generation in Zone J or Zone K local capacity regions until the base system LOLE level or the currently approved LCR level is reached, whichever occurs first.
 - OR
 - b) If the reserve margin in both Zones J & K is in excess (greater than currently approved LCR), reduce the generation in Zones J & K together proportional to relative load levels until the base system LOLE level or the currently approved LCR level is reached, whichever occurs first.
 - c) If both Zones J & K are at their currently approved LCR levels and the base system LOLE has not been reached, reduce generation in the ROS zones until the base system NYCA LOLE is reached.

5. If potential generic solution is a capacity resource, then:
 - a) Reduce generation in all NYCA zones proportionally until the base system LOLE is reached.

Method C

1. Determine the base system LOLE for the horizon year (e.g. 2018 LOLE 0.02).
2. Add a potential generic solution to congestion identified.
3. Calculate the LOLE for the system with the potential generic solution added.
4. If the LOLE is lower than the base system, first perform a scenario that reduces equivalent MWs in ROS zones proportionally regardless of type of generic solution until the base system LOLE is reached. The amount of reduced MWs is reported as the ROS MW impact.
5. Then perform another scenario where the equivalent MWs reduced are in zone J regardless of type of generic solution until the base system LOLE is reached. The amount of reduced MWs is reported as the Zone J MW impact.
6. Finally, perform another scenario where the equivalent MWs reduced are in zone K regardless of type of generic solution until the base system LOLE is reached. The amount of reduced MWs is reported as the Zone K MW impact.
7. NYISO will report the range of equivalent MW impact to compare the ROS, zone J, and zone K impact.