

31.3 Economic Planning Process

31.3.1 Congestion Assessment and Resource Integration Study for Economic Planning

31.3.1.1 General

The ~~NYISO~~ISO shall prepare and publish the ~~Congestion Assessment and Resource Integration Study ("CARIS")~~ as described below. ~~The CARIS for economic planning will align with the reliability planning process.~~ Each CARIS ~~will use~~shall (1) develop a ten-year ~~planning horizon consistent with the reliability planning horizon.~~ ~~Each CARIS will be based on projection of congestion and shall identify, rank, and group the most recently concluded and approved CRP.~~ ~~The base case for each CARIS will assume a reliable congested elements on the New York bulk power system for~~based on historic and projected congestion; and (2) include three studies, selected pursuant to Section 31.3.1.2.2, of the potential impacts of generic solutions to mitigate the ten-year planning horizon based upon the CRP-identified congestion. The CARIS will align with the Reliability Planning Process.

31.3.1.2 Interested Party Participation in the Development of the CARIS

31.3.1.2.1 The ~~NYISO~~ISO shall develop the CARIS in consultation with Market Participants and all other interested parties. The TPAS will have responsibilities consistent with ISO Procedures for review of the ~~NYISO's~~ISO's technical analyses. ESPWG will have responsibilities consistent with ISO Procedures for providing commercial input and assumptions to be used in the development of the congestion assessment and the congestion assessment scenarios provided for under Section 31.3.1.5, and in the reporting and analysis of congestion costs. Coordination and communication will be established and maintained between

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these two groups and ~~NYISO~~ISO staff to allow Market Participants and other interested parties to participate in a meaningful way during each stage of the economic planning process. The ~~NYISO~~ISO staff shall report any majority and minority views of these collaborative governance work groups when it submits the CARIS to the Business Issues Committee for a vote, as provided below.

31.3.1.2.2 The ~~NYISO~~ISO, in conjunction with ESPWG, will develop criteria for the selection and grouping of the three congestion and resource integration studies that comprise each CARIS, as well as for setting the associated timelines for completion of the selected studies. Study selection criteria may include congestion estimates, and shall include a process to prioritize the three studies that comprise each CARIS. Criteria shall also include a process to set the cut off date for inputs into and completion of each CARIS study cycle.

31.3.1.2.3 The ~~NYISO~~ISO, in conjunction with ESPWG, will develop a process by which interested parties can request and fund other congestion and resource integration studies, in addition to those included in each CARIS. These individual congestion and resource integration studies are in addition to those studies that a customer can request related to firm point-to-point transmission service pursuant to Section 3.7 of the ~~NYISO~~ISO OATT, or studies that a customer can request related to Network Integration Transmission Service pursuant to Section 4.5 of the ~~NYISO~~ISO OATT, or studies related to interconnection requests under Attachment X or Attachment Z of the ~~NYISO~~ISO OATT.

31.3.1.2.4 The ~~NYISO~~ISO shall post all requests for congestion and resource integration studies on its website.

31.3.1.3 Preparation of the CARIS

31.3.1.3.1 The Study Period for the CARIS shall be the same ten-year Study Period covered by the most recently approved CRP.

31.3.1.3.2 The CARIS will assume a reliable system throughout the Study Period, based first upon the solutions identified in the most recently completed and approved CRP. The baseline system for the CARIS shall first incorporate sufficient viable market-based solutions to meet the identified Reliability Needs as well as any regulated backstop solutions triggered ~~in prior or current CRPs.~~ The NYISO by an ISO request pursuant to Section 31.2.5.7. The ISO, in conjunction with the ESPWG, will develop methodologies to scale back market-based solutions to the minimum needed to meet the identified Reliability Needs, if more have been proposed than are necessary to meet the identified Reliability Needs. Regulated backstop solutions that have been proposed but not triggered ~~in the most recent CRP~~ pursuant to Section 31.2.5.7 shall also be used if there are insufficient market-based solutions for the ten-year ~~study period~~ Study Period. Multiple market-based solutions, as well as regulated solutions to Reliability Needs, may be included in the scenario assessments described in Section 31.3.1.5.

31.3.1.3.3 In conducting the CARIS, the ~~NYISO~~ ISO shall combine the component studies selected and assess system congestion and resource integration over the ~~study period~~ Study Period, measuring congestion by the metrics discussed in Appendix A to this Attachment Y. The ~~NYISO~~ ISO, in conjunction with the ESPWG, will develop the specific production costing model to be used in the CARIS. All resource types shall be considered on a comparable basis as potential

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solutions to the congestion identified: generation, transmission, ~~and~~ demand response, and energy efficiency. The CARIS may include consideration of the economic impacts of advancing a regulated back stop solution contained in the CRP.

31.3.1.3.4 In conducting the CARIS, the ~~NYISO~~ISO shall conduct benefit/cost analysis of each potential solution to the congestion identified, applying benefit/cost metrics that are described in this Section 31.3.1.3. 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. The present value of the NYCA-wide production cost reduction will be determined in accordance with the following formula:

Present Value in year 1 = Sum of the Present Values from each of the 10 years of the Study Period.

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The discount rate to be used for the present value analysis shall be the current after-tax weighted average cost of capital for the ~~New York~~ Transmission Owners.

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31.3.1.3.5 Additional benefit metrics shall include estimates of reductions in losses, LBMP load costs, generator payments, ICAP costs, Ancillary Services costs, emission costs, and TCC payments. The ~~NYISO~~ISO will work with the ESPWG to determine the most useful metrics for each CARIS cycle, given overall ~~NYISO~~ISO resource requirements. The additional metrics will estimate the benefits of the potential generic solutions in mitigating 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 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, such as generation, transmission, and/or demand response. The value of the additional metrics will be expressed in present value by using the following formula:

Present Value in year 1 = Sum of the Present Values from each of the 10 years of the Study Period.

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The discount rate to be used for the present value analysis shall be the current after-tax weighted average cost of capital for the ~~New York~~ Transmission Owners. The definitions of the LBMP load cost metric, generator payments metric, reduction in losses metric, Ancillary Services costs metric, and TCC payment metric are set forth below.

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31.3.1.3.5.1 LBMP load costs measure 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.

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

31.3.1.3.5.3 Generator payments measure 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. Generator payments will be the sum of the LBMP payments and Ancillary Services payments to generators and imports. Imports will be consistent with the input assumptions for each neighboring ~~control~~ Control Area.

31.3.1.3.5.4 The TCC payment metric set forth below will be used for purposes of the study phase of the CARIS process, and will not be used for regulated economic transmission project cost allocation under Section 31.4.3.4. The TCC payment metric will measure the change in total congestion rents collected in the day-ahead market. These congestion rents shall be calculated as the product of the Congestion Component of the Day-Ahead LBMP in each Load Zone or Proxy Generator Bus and the withdrawals scheduled in each hour at that Load Zone or Proxy Generator Bus, minus the product of the Congestion Component of the Day-Ahead LBMP at each Generator Bus or Proxy Generator Bus and the injections scheduled in each hour at that Generator bus or Proxy Generator Bus, summed over all locations and hours.

31.3.1.3.5.5 The emission metric will measure the change in CO₂, NO_x, and SO₂, emissions in tons on a zonal basis as well as the change in emission cost by emission type. Emission costs will be reflected in the development of the production cost curve.

31.3.1.3.5.6 The calculation of the ICAP cost metric will be determined as set forth below. The ICAP cost metric will be highly dependent on the rules and

procedures guiding the calculation of the IRM, LCR, and the ICAP Demand Curves, both for the next capability period and future capability periods. In each CARIS cycle, the ISO will review, with the ESPWG and, as appropriate, other ISO committees, the results of the ICAP cost metric.

- 31.3.1.3.5.6.1 The ICAP metric, in the form of a megawatt impact, will be computed for both generic and actual economic project proposals based on a methodology that: (1) determines the base system ~~loss of load expectation~~ ("~~LOLE~~") for the applicable horizon year; (2) adds the proposed ~~economic~~ project; and (3) calculates the LOLE for the system with the addition of the proposed ~~economic~~ project. If the system LOLE is lower than that of the base system, the ~~NYISO~~ISO will reduce generation in all ~~New York Control Area~~ ("~~NYCA~~") zones proportionally (*i.e.*, based on proportion of zonal capacity to total NYCA capacity) until the base system LOLE is achieved. That amount of reduced generation is the NYCA megawatt impact.
- 31.3.1.3.5.6.2 The ISO will calculate both of the following ICAP cost metrics described in subsections (1) and (2) below by first determining the megawatt impact described above in ~~(A)~~Section 31.3.1.3.5.6.1 and then:
- (1) For Rest of State, the ISO will measure the cost impact of a proposed ~~economic~~generic project for each planning year by: (i) forecasting the cost per megawatt-year of Installed Capacity in Rest of State under the assumption that the proposed ~~economic~~generic project is not in place, with that forecast based on the latest available ICAP Demand Curve for the NYCA and the amount of Installed Capacity available in the NYCA, as shown in the NYISO Load and Capacity

~~table~~Data Report developed for that year; and (ii) multiplying that forecasted cost per megawatt-year for Rest of State in that year by the sum of the megawatt impact for all Load Zones contained within Rest of State, as calculated in accordance with subsection (A) of this Section 31.3.1.3.5.4.

For each Locality, the ISO will measure the cost impact of a proposed ~~eeconomie~~generic project for each planning year by: (i) forecasting the cost per megawatt-year of Installed Capacity in that Locality under the assumption that the proposed ~~eeconomie~~generic project is not in place, with that forecast based on the latest available ICAP Demand Curve for that Locality and the amount of Installed Capacity available in that Locality as shown in the relevant NYISO Load and Capacity ~~table~~Data Report developed for that year, and (ii) multiplying that forecasted cost per megawatt-year for that Locality in each year by the sum of the megawatt impact for all Load Zones contained within that Locality, as calculated in accordance with subsection (A) of this Section 31.3.1.3.5.4.

This ICAP cost metric will then be presented for each applicable planning year as a stream of present value benefits for each Locality and for Rest of State. The applicable planning years start with the proposed commercial operation date of the proposed ~~eeconomie~~generic project and end ten years after the proposed commercial operation date of the proposed ~~eeconomie~~generic project.

- (2) For Rest of State, the ISO will measure the cost impact of a proposed economic project for each planning year by: (i) forecasting the cost per megawatt-year of Installed Capacity in Rest of State under the assumption that the proposed ~~eeconomie~~generic project is in place, with that forecast based on the latest

available ICAP Demand Curve for the NYCA and the amount of Installed Capacity available in the NYCA; (ii) subtracting that forecasted cost per megawatt-year from the forecasted cost per megawatt-year of Installed Capacity in Rest of State calculated in subsection (1) under the assumption that the proposed ~~economic~~generic project is not in place; and (iii) multiplying that difference by fifty percent (50%) of the assumed amount of Installed Capacity available in Rest of State as calculated from the relevant [NYISO Load and Capacity ~~tables~~Data Report](#) developed for the CARIS process.

For each Locality, the ISO will measure the cost impact of a proposed ~~economic~~generic project for each planning year by: (i) forecasting the cost per megawatt-year of Installed Capacity in that Locality under the assumption that the proposed ~~economic~~generic project is in place, with that forecast based on the latest available ICAP Demand Curve for that Locality and the amount of Installed Capacity available in that Locality as shown in the relevant [NYISO Load and Capacity ~~table~~Data Report](#) developed for that year; (ii) subtracting the greater of that forecasted cost per megawatt-year with the proposed ~~economic~~generic project in place or the forecasted Rest of State Installed Capacity cost per megawatt-year with the proposed ~~economic~~generic project in place from the forecasted cost of Installed Capacity in that Locality calculated in subsection (1) under the assumption that the proposed ~~economic~~generic project is not in place; and (iii) multiplying that difference by fifty percent (50%) of assumed amount of Installed Capacity available in that Locality, as taken from the relevant Load and Capacity tables developed for the CARIS process.

This ICAP cost metric will then be represented for each applicable planning year as a stream of present value benefits for each Locality and for Rest of State. The applicable planning years start with the proposed commercial operation date of the proposed economiegeneric project and end with the earlier of: (i) the year when the system, with the proposed economiegeneric project in place, reaches an LOLE of 0.1, or (ii) ten years after the proposed commercial operation date of the proposed economiegeneric project.

- (3) The forecast of Installed Capacity costs per megawatt-year are developed by: first, escalating the Net Cost of New Entry ("CONE") for the NYCA or a Locality from the most recently completed ICAP Demand Curves for each year of the planning period; second, determining the future proxy Locational Minimum Installed Capacity Requirement or Minimum Installed Capacity Requirement for the NYCA as the actual amount of Installed Capacity in the Locality or the NYCA for the year that NYCA reaches 0.1 LOLE; third, reducing the cost per megawatt-year in each year from the escalated Net CONE to reflect the excess Installed Capacity from the NYISO Load and Capacity Data Report above the future proxy Minimum Installed Capacity Requirement with the adjustment calculated from the excess and the slope of the ICAP Demand Curve.

The forecasts of Installed Capacity costs for Localities or Rest of State performed in subsections (1) and (2) above shall, in addition to the assumptions listed above, be based upon: (i) the forecasted Net CONE for the Locality (the NYCA in the case of the Rest of State forecast); (ii) the amount of Installed Capacity required to meet the future proxy Locational Minimum Installed Capacity Requirement

(the Minimum Installed Capacity Requirement for the NYCA in the case of the Rest of State forecast); (iii) the slope of the relevant ICAP Demand Curve, and (iv) the smallest quantity where the cost of Installed Capacity on that ICAP Demand Curve reaches zero.

31.3.1.4 Planning Participant Data Input

At the ~~NYISO's~~ISO's request, Market Participants, Developers, and other parties shall provide, in accordance with the schedule set forth in the ~~NYISO Comprehensive Reliability Planning Process Manual~~ISO Procedures, the data necessary for the development of the CARIS. This input will include but not be limited to existing and planned additions and modifications to the New York State Transmission System (to be provided by Transmission Owners and municipal electric utilities); proposals for merchant transmission facilities (to be provided by merchant ~~developers~~Developers); generation additions and retirements (to be provided by generator owners and ~~developers~~Developers); demand response programs (to be provided by demand response providers); and any long-term firm transmission requests made to the ~~NYISO~~ISO. The relevant ~~Transmissions~~Transmission Owners will assist the ~~NYISO~~ISO in developing the potential solution cost estimates to be used by the ~~NYISO~~ISO to conduct benefit/cost analysis of each of the potential solutions.

31.3.1.5 Congestion and Resource Integration Scenario Development

The ~~NYISO~~ISO, in consultation with the ESPWG ~~and TPAS~~, shall develop congestion and resource integration scenarios addressing the Study Period. Variables for consideration in the development of these congestion and resource integration scenarios include but are not limited to: load forecast uncertainty, fuel price uncertainty, new resources, retirements, emission data,

the cost of allowances and potential requirements imposed by proposed environmental and energy efficiency mandates, as well as overall ~~NYISO~~ISO resource requirements. The ~~NYISO~~ISO shall report the results of these scenario analyses in the CARIS.

31.3.1.6 CARIS Report Preparation

Once all the analyses described above have been completed, ~~NYISO-Staff~~ISO staff will prepare a draft of the CARIS including a discussion of its assumptions, inputs, methodology, and the results of its analyses.

31.3.2 CARIS Review Process and Actual Project Proposals

31.3.2.1 Collaborative Governance Process

The draft CARIS shall be submitted to both TPAS and the ESPWG for review and comment. The ~~NYISO~~ISO shall make available to any interested party sufficient information to replicate the results of the draft CARIS. The information made available will be electronically masked and made available ~~subject pursuant to such other terms and conditions~~a process that the ~~NYISO may~~ISO reasonably ~~determine are~~determines is necessary to prevent the disclosure of any Confidential Information or Critical Energy Infrastructure Information contained in the information made available. Following completion of that review, the draft CARIS reflecting the revisions resulting from the TPAS and ESPWG review shall be forwarded to the Business Issues Committee and the Management Committee for discussion and action.

31.3.2.2 Board Action

Following the Management Committee vote, the draft CARIS, with Business Issues Committee and Management Committee input, will be forwarded to the ~~NYISO~~ISO Board for review and action. Concurrently, the draft CARIS will be provided to the Market Monitoring

Unit for its review and consideration. The Board may approve the CARIS as submitted, or propose modifications on its own motion. If any changes are proposed by the Board, the revised CARIS shall be returned to the Management Committee for comment. The Board shall not make a final determination on a revised CARIS until it has reviewed the Management Committee comments. Upon approval by the Board, the ~~NYISO~~ISO shall issue the CARIS to the marketplace by posting it on its website.

The responsibilities of the Market Monitoring Unit that are addressed in the above section of Attachment Y to the ISO OATT are also addressed in Section 30.4.6.8.4 of the Market Monitoring Plan, Attachment O to the ISO OATT.

31.3.2.3 Public Information Sessions

In order to provide ample exposure for the market place to understand the content of the CARIS, the ~~NYISO~~ISO will provide various opportunities for Market Participants and other potentially interested parties to discuss final CARIS. Such opportunities may include presentations at various ~~NYISO~~ISO Market Participant committees, focused discussions with various industry sectors, and /or presentations in public venues.

31.3.2.4 Actual Project Proposals

As discussed in Section 31.3.1 of this Attachment Y, the CARIS analyzes system congestion over ~~its ten-year study period~~the Study Period and, for informational purposes, provides benefit/cost analysis and other analysis of potential generic solutions to the congestion identified. If, in response to the CARIS, a ~~developer~~Developer proposes an actual project to address specific congestion identified in the CARIS, then the ~~NYISO~~ISO will process that project

NYISO Tariffs --> Open Access Transmission Tariff (OATT) --> 31 OATT Attachment Y - New York ISO Comprehensive System Pla
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proposal in accordance with the relevant provisions of Sections 31.4.1, 31.4.3 and 31.4.4 of this
Attachment Y.

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