NEW YORK INDEPENDENT SYSTEM OPERATOR
People Who Power New York

REQUEST FOR PROPOSAL- 19-01 Demand Curve Reset Business Owner Input

1.3 RFP Objectives, Scope, and Deliverables

Consistent with the requirements of Section 5.14.1.2.2 of the NYISO's Market Administration and Control Area Services Tariff (Services Tariff), Tthe objective of this Request for Proposal is to select an independent consultant (hereinafter referred to as the "consultant") to conduct a study of the parameters, and the assumptions and methodology to identify them, used as the basis to set the NYISO's Installed Capacity[1] (ICAP) Demand Curves beginning with the Summer 2021 Capability Period. The consultant will propose and evaluate methodologies to enhance the projection of net Energy and Ancillary Services (EAS) revenues used to determine the net cost of new entry (CONE) of the peaking plant used for each ICAP Demand Curve, including approaches to reflect impacts from expected market rule changes. Such methodologies will need to ensure compliance with the requirements set forth in Section 5.14.1.2.2 of the ~~NYISO's Market Administration and Control Area Services Tariff (~~Services Tariff~~)~~ and consider that there may not be robust historical data regarding the effect of certain market rules or changes thereto (for example, shortage pricing). Further details are set forth below, and certain background facts are described in the Background (Appendix J). The timeline for developing the ICAP Demand Curves for the 2021/2022 Capability Year, as well as the methodologies and assumptions to be used in the annual updates to determine the ICAP Demand Curves for the subsequent three Capability Years (2022/2023, 2023/2024, and 2024/2025) is set forth in the 2019 and 2020 Demand Curve Reset Schedule (Appendix L). The information provided by each bidder will be used by the NYISO to evaluate each bidder's proposed approach.

1.3.1 Scope of the Services to be performed

The "consultant" will be required to recommend parameter values for the ICAP Demand Curves for the ~~2021-2022~~2021/2022 Capability Year, as well as the methodologies and assumptions that will be used in the annual update process to determine the ICAP Demand Curves for the 2022/2023, 2023/2024, and 2024/2025 Capability Years.[2]

---

[1] Capitalized terms that are not otherwise defined ~~in this filing~~herein shall have the meaning specified in the NYISO's Services Tariff.

[2] Capability Years begin on May 1. For example, the 2021/2022 Capability Years runs from May 1, 2021 through April 30, 2022.

As currently applied, ICAP Demand Curves are derived from: (a) a point defined by the minimum ICAP requirement based on the Installed Reserve Margin set by the New York State Reliability Council in the case of the NYCA or, in the case of a Locality, the Locational Minimum Installed Capacity Requirement established by the NYISO, and the net cost of a new peaking plant (the reference point)[3]; (b) a point greater than the applicable minimum requirement at which the value of ICAP declines to zero ("zero crossing point") that reflects the declining value of capacity reserves and an appropriate slope for the ICAP Demand Curve; and (c) the maximum allowable value of ICAP based on a value equal to 1.5 times the monthly gross CONE of the relevant peaking plant. The reference point is determined by an estimate of the annual capital and fixed operation and maintenance costs, including a return on investment, to practicably construct a new peaking plant (which may be one or more units) less an offset for a projection of the likely EAS revenues, net of variable operating costs, that the new peaking plant could expect to earn in the NYISO-administered markets, at the level of the applicable minimum requirement plus a determined level of excess capacity.

Additional information regarding the ICAP Demand Curve reset process can be found in Services Tariff Section 5.14.1.2, and ICAP Manual Sections 5.5 and 5.6.

The consultant will be required to deliver a written report to the NYISO documenting the consultant's study methodology, calculations, results, and recommendations consistent with the existing regulatory requirements and certain proposed regulatory requirements covering the four Capability Years beginning May 1, 2021. The consultant will be required to deliver to the NYISO the model utilized in performing the computations, and the model will be posted on the NYISO's web site for its stakeholders to access. Currently, the Services Tariff requires that a comprehensive review of the ICAP Demand Curves be conducted every four years. Accordingly, the consultant's recommendations will relate to the establishment of the ICAP Demand Curves for the 2021/2022, 2022/2023, 2023/2024, and 2024/2025 Capability Years.

Prior to drafting the written report, the consultant will provide recommendations to enhance the projection of net EAS revenues, if necessary, consistent with requirements of Section 5.14.1.2.2 of the Services Tariff.

Bidders are required to submit one proposal that encompasses the necessary analysis to support the determination of ICAP Demand Curves for the 2021/2022 Capability Year, as well the methodologies and assumptions necessary for the annual updates to determine the ICAP Demand Curves for the subsequent three Capability Years (2022/2023, 2023/2024, and 2024/2025), as described in the consultant's written report and recommendations.

[3] The Services Tariff requires use of the costs and projected net EAS revenues for a "peaking plant" in determining the values of the ICAP Demand Curves. A "peaking unit" is defined as "the unit with technology that results in the lowest fixed costs and highest variable costs among all other units' technology that are economically viable." The Services Tariff defines a "peaking plant" to mean "the number of units (whether one or more) that constitute the scale identified in the periodic review."

The report's findings and recommendations shall include at least the following, with a description and analysis of the basis thereof:

1) Total installed costs as of May 2021: the localized, levelized embedded cost of a peaking plant, including transmission/interconnection and any deliverability costs, in the G-J, NYC, and LI Localities, and any New Capacity Zone (NCZ) proposed by the NYISO in its required NCZ study report filing with the FERC on or before March 31, 2020 (NCZ Study Filing), and in various locations within Load Zones A through F (Rest of State or "ROS" region).

   The NYISO will provide support to the consultant including performing the deliverability study related to the peaking plants, as well as the combined cycle plant (further described below). In the event the plants are determined to not be deliverable, the NYISO will provide support to the consultant by determining an appropriate system deliverability upgrade. Determining the cost of any defined deliverability upgrades are the responsibility of the consultant.

2) Total installed costs as of May 2021: the localized, levelized embedded cost of a combined cycle plant that results in the lowest cost net of estimated EAS revenues under current conditions, accounting for the amount of capacity excess associated with the technology, and including transmission/interconnection and deliverability costs, in the G-J, NYC, and LI Localities, and any NCZ proposed by the NYISO in its NCZ Study Filing, and in various locations in the ROS region.

3) In determining items 1 and 2 above, the consultant is to develop and present the analysis to stakeholders, and consider stakeholder input. Upon the request of the NYISO, the consultant will participate in meetings and FERC proceedings regarding the proposed ICAP Demand Curve parameters, methodologies and assumptions.

4) Factors impacting total installed costs include but are not limited to:

   A. Regulatory requirements (including, but not limited to, environmental and permitting requirements)

   B. Minimum capacity of each unit and/or the total plant

   C. Utility scale – the MW size or footprint of the plant,

   D. Ability to be called upon or dispatched with short notice. The technology requirements are as specified in the RFP.

   E. Dual fuel capability (if natural gas is primary fuel) – if it is a requirement of the location of the plant, it should be included in the evaluation.

   F. Commercial availability of the technology

5) Projected net EAS revenues (as referenced in Section 1.3) for the identified plants in each Locality, any NCZ proposed by the NYISO in its NCZ Study Filing, and the ROS region noted in items (1) and (2) above, at the system conditions equal to the applicable minimum ICAP requirement, plus the plant's MW capacity, known as the "prescribed level of excess".

6) Recommended shape and slope of the ICAP Demand Curves for each Locality, as noted in items (1) and (2) above, any NCZ proposed by the NYISO in its NCZ Study Filing, and the NYCA as a whole. ICAP Demand Curve shape and slope recommendations may take into account recommended "zero-crossing points" (*i.e.*, the quantity of capacity beyond which the price of capacity is zero) and should balance market stability and certainty while seeking to minimize market power, minimize price volatility, recognize the reliability value of extra capacity, and minimize cost impacts to customers.

7) Recommended "zero-crossing points" for each Locality, any NCZ proposed by the NYISO in its NCZ Study Filing, and the NYCA as a whole.

8) Projected costs and revenues for the identified plants in each Locality, any NCZ proposed by the NYISO in its NCZ Study Filing, and the ROS region noted in items (1) and (2), for the Capability Year starting May 1, 2021, as well as the methodologies and assumptions to be utilized in conducting the annual updates to determine the ICAP Demand Curves for the subsequent three Capability Years.

9) Financial parameters and amortization period for the identified plants for each Locality, any NCZ proposed by the NYISO in its NCZ Study Filing, and the ROS region, as noted in items (1) and (2), that include, but are not limited to, escalation factor, short-term inflation rate, debt-to-equity ratio, cost of debt and cost of equity, composite tax and insurance rates used to calculate the after tax weighted average cost of capital (ATWACC) and annual carrying charge.

10) Evaluate the current approach (data and analytical modeling/simulation and scaling methodologies) used to determine the estimated net EAS revenues for the identified plants for each Locality, any NCZ proposed by the NYISO in its NCZ Study Filing, and the ROS region, as noted in items (1) and (2) above. Projected net EAS revenues (as referenced in Section 1.3) must comply with the requirements of the Section 5.14.1.2.2 of the Services Tariff. The consultant should also evaluate the current approach that requires formulaic annual updates to determine the appropriate revenues to be used in the derivation of the ICAP Demand Curves for each subsequent Capability Year between resets.

11) A determination of the lowest net CONE (totalized installed costs less EAS net revenues) peaking plant in each Locality, any NCZ proposed by the NYISO in its NCZ Study Filing, and the ROS region, as noted in items (1) and (2) above, for the Capability Years beginning May 1, 2021.

12) A comparison of costs to historical values and those in similar studies.

13) The point above the applicable minimum ICAP requirement equal to the MW value of the identified peaking plants proposed to establish each ICAP Demand Curve.

14) All sources of data, programs used, and assumptions used in the report shall be clearly identified in the report, and demand curve and net EAS models shall be delivered to the NYISO for posting to the NYISO website.[4]

15) Recommended process, methodology, and data sources used to determine the appropriate level of excess – adjustment factors (LOE-AFs) that are used to adjust historic Locational Based Marginal Prices (LBMPs) and Ancillary Services prices from the current as-found system to the "prescribed level of excess" noted in item (5) above.

The consultant will be required to provide all necessary testimony and affidavits in relation to the NYISO's filing with FERC proposing the ICAP Demand Curves for the 2021/2022 Capability Year as well as the methodologies and assumptions to be used in the annual updates to determine the ICAP Demand Curves for the 2022/2023, 2023/2024, and 2024/2025 Capability Years, and any subsequent filings by the NYISO in response to comments and protests related top such filing. Upon the request of the NYISO, the consultant will participate in proceedings and meetings before FERC.

The consultant's participation in NYISO stakeholder meetings will be in person or via phone, as identified by the NYISO. The number of stakeholder meetings in which the consultant will participate is uncertain. The number of meetings with FERC, affidavits, and testimony also is uncertain. As a result, consultant should clearly separate the pricing for preparing, attending, and participating in those meetings (for stakeholders and FERC meetings). There should be a separate line item – with an hourly rate – for FERC meeting preparation, attendance, and participation. Pricing should be further segregated between in-person and teleconference costs. The consultant will be required to meet with the NYISO in preparation for these meetings and may also be required to provide the NYISO with preliminary presentations and progress reports at weekly NYISO planning sessions.

1.3.2. Schedule for Completion of the Services

This section to be completed by Vendor- Indicate by when each of the work products and deliverables defined in §1.3.3 will be completed. Please include all assumptions regarding begin date, expectations of NYISO staff availability and effort, etc.

The consultant's written report shall be due on the following dates:

- Draft Report: June 17, 2020

[4] The model used by the consultants for the 2017-2021 ICAP Demand Curve reset is available on the NYISO website <http://www.nyiso.com/public/markets_operations/market_data/icap/index.jsp>, under "ICAP Documents & Resources, then "Reference Documents", then "2017-2021 Demand Curve Reset."

- Final Report: August 14, 2020 (subject to subsequent updating of values to reflect data through August 31, 2020)

1.3.3. Work Products and Deliverables

The consultant will also be required to present, at a minimum, to the NYISO's stakeholder meetings:

- Consultant's proposed work plan for completing principles, framework, analysis and deliverables
- Consultant's proposed and final principles and framework
- Consultant's proposed and final assumptions and methodologies
- The results of Consultant's analysis, projections, and modeling/simulations, including the models/methodology for:
    - Net EAS revenue offset
    - Level of excess adjustment factors
    - Demand Curve Modeling
- Consultant's responses to stakeholder- and NYISO- identified issues and questions as well as its the Draft and Final Reports, which will include a description of the:
    - Final study methodology
    - Calculations
    - Analysis
    - Projections
    - Modeling/simulation
- Consultant's results and recommendations to NYISO stakeholders, and to answer stakeholder questions, in accordance with the attached schedule set forth in Appendix L.

The consultant will provide to the NYISO materials prepared for stakeholder meetings at least five (5) days in advance of posting to the NYISO's public website. Materials will be posted to the NYISO's public website at least three (3) business days in advance of stakeholder working group meetings (or five business days in advance as it relates to any materials presented at voting committee meetings). This includes PowerPoint slides, spreadsheets, models, and other information and documents that are used to describe the information and perform the calculations made in the report.

1.3.4. Acceptance Criteria

NYISO's acceptance of the Deliverables shall be deemed to occur as follows:

a. Following thorough review of presentations, models, and reports by NYISO, the NYISO's Market Monitoring Unit (Potomac Economics, Ltd.), and NYISO stakeholders/market participants, and when all questions raised during such

review process have been addressed to the satisfaction of the NYISO, as confirmed by the NYISO in writing.

b. Completion and delivery of draft and final reports, and NYISO's written acceptance of same.
c. Development and delivery for posting to the public NYISO website of a spreadsheet model which performs the ICAP Demand Curve parameter calculations as specified in this Statement of Work (SOW) and subject to written acceptance by the NYISO.
d. Development and delivery for posting to the public NYISO website of the model that performs the net EAS revenue offset value calculations as specified in this SOW and subject to written acceptance by the NYISO.

1.3.5. Personnel to be assigned to the Project

This section is to be completed by the respondent, showing who you intend to assign to this project, along with their relevant project backgrounds. There isn't a form for you to follow; we just need the information in as much detail as possible.

1.3.6. Roles and Responsibilities of the Parties

This section is to be completed by the respondent; we want to know which parties (you as the vendor or the NYISO) are responsible for which actions that are expected to occur during the project.

1.4 Schedule of Events

The following table outlines the schedule for important action dates and times. If the NYISO finds it necessary to change any of the dates prior to the "Best and Final Offer" (BAFO) proposal submission, the date changes will be communicated through an addendum to this RFP.

Event	Date
Release of RFP	4/10/2019
Notice of Intent to Participate	4/17/2019*
Deadline for Receipt Written Questions	4/26/2019*
Deadline for NYISO to Provide Written Responses to Questions	5/10/2019
RFP Response Due Date	6/24/2019*

* to be submitted by 2 pm EDT

APPENDIX J

BACKGROUND

The NYISO administers a series of periodic Installed Capacity (ICAP) auctions. In these NYISO-administered auctions, Load Serving Entity(ies) (LSEs) have the opportunity to purchase Unforced Capacity (UCAP) necessary to meet their Locational and New York Control Area (NYCA) Minimum UCAP Requirements, ICAP Suppliers (which include ICAP Marketers) have the opportunity to sell and buy UCAP, and the NYISO has the ability to ensure all UCAP requirements are met. The auctions are a six (6) month Capability Period Auction (Strip Auction), a Monthly Auction, and an ICAP Spot Market Auction (Spot Auction).

The ICAP Demand Curves are used only in the Spot Auctions. In the Spot Auction, the NYISO submits monthly bids on behalf of all LSE UCAP requirements that have not been satisfied prior to the Spot Auction. The price per MW is determined by the applicable ICAP Demand Curve. Each LSE's Unforced Capacity Obligation (UCAP obligation) is determined each month. LSEs pay to the NYISO the product of the applicable Market-Clearing Price (MCP) of UCAP determined in the Spot Auction and the amount of its UCAP obligation. The NYISO pays ICAP Suppliers whose offers clear the MCP per MW offered into the market.

Prior to each Spot Auction, LSEs certify all UCAP to be counted toward their respective minimum UCAP requirements (obtained through bilateral transactions, self-supply or in the Capability Period and/or Monthly Auctions). Each entity that has previously committed to supply UCAP for the Obligation Procurement Period also certifies to the NYISO before the Spot Auction the specific resource from which it is providing UCAP to meet its commitments. ICAP Suppliers can offer into the Spot Auction UCAP that they have not previously certified. LSEs can offer into the Spot Auction UCAP that they have in excess of their UCAP requirements.

Four ICAP Demand Curves are currently used in the Spot Auction to set the MCP and to determine the LSE UCAP obligation for each of G-J Locality, New York City (NYC), Long Island (LI), and for all LSEs in the NYCA.

The key parameters necessary for establishing the ICAP Demand Curves are: (i) the maximum allowable price of capacity; (ii) the reference point price; and (iii) the point at which the price of capacity declines to zero (commonly referred to as the zero-crossing point). The maximum allowable price of capacity is established at 1.5 times the applicable monthly localized levelized embedded cost of the peaking plant. The reference point price is determined, in part, based on the net CONE value, derived by subtracting the relevant net energy and ancillary services revenue estimate for a peaking plant from the levelized embedded cost value of the same plant.

The Services Tariff contains the rules by which a New Capacity Zone (NCZ) is identified and proposed (once established, a Locality). As applicable to the timing of the ICAP Demand Curve reset pertinent to this request for proposals (and as is indicated in the schedule provided in Appendix L), the boundaries and characteristics of any NCZ would be identified and proposed to Federal Energy Regulatory Commission (FERC) in a filing on or before March 31, 2020. A proposed new Locality may consist of one or more of the existing Load Zones, and may include an existing Locality.

The requirements that the ICAP Demand Curves for the existing and any proposed new Localities, and NYCA be reviewed every four years are set forth in Section 5.14.1.2.2 of the Services Tariff.