NYISO Consumer Interest Liaison Weekly Summary

April 20 – April 24, 2020

Notices:

- *On April 21, 2020, the New York Independent System Operator (NYISO) Board of Directors announced that* ***Daniel C. Hill was named chair of the Board of Directors.*** *Mr. Hill takes over the role from Ms. Ave Bie whose term concludes on April 21, 2020. Ms. Bie will continue to serve on the board and take over for Mr. Daniel Hill as vice chair.*

- *We wanted to inform you that we are posting* ***weekly updates on COVID-19 related demand impacts to our COVID-19 landing page****, www.nyiso.com/covid. The most recent update was posted on Wednesday, April 22, 2020. Along with the written update, there is a hyperlink on the right-hand side called* ***"COVID-19 Demand Impact Update"*** *which links to our forecast team's latest analysis. Please refer to this page for any updates.*

- *The final version of the Installed Capacity Manual (M-04) has been posted to the* ***Manuals, Technical Bulletins & Guides webpage*** *under Manuals>Operations. All proposed changes were discussed in the 03/20/2020 ICAP WG meeting and approved at 04/08/2020 BIC meeting. The proposed revisions include updates for energy storage resources and expanding capacity eligibility.*

Meeting Summaries:

Wednesday, April 22, 2020

Joint Market Issues/Installed Capacity/Price Responsive Load Working Group

NYISO 2019/2020 ICAP Demand Curve Reset

Paul Hibbard of the Analysis Group (AG) provided an update on the 2019/2020 ICAP Demand Curve Reset process.

Mr. Hibbard started with a review of the fuel hub selection process. This was followed by the selection of fuel hubs for each Locality with a brief discussion of the factors supporting each

selection. An appendix with additional information for stakeholder review was provided with the meeting materials.
AG next presented the preliminary recommendation for fossil fuel unit technology for each Locality. Units recommended for Long Island and NYC both have dual-fuel capability and Supplemental Catalytic Reduction (SCR) emission control technology. The recommendation for all other Localities excludes the requirement for SCR inclusion.
Some stakeholders objected to AG's rationale that even though there is no formal policy in place requiring SCR emission controls, it would not be possible in New York to build a facility without SCR controls. A developer with recent combined-cycle construction experience supported AG's approach noting that they were required to include SCR controls to obtain their air permits. Another stakeholder suggested that if SCR controls are not a requirement, a level of risk should be included in the analysis to balance the cost of issues that may develop from the decision not to include SCR. AG responded by explaining that the requirement for SCR controls can be mitigated with a limit on run time, along with other factors, and considered the decision an economic decision. A stakeholder requested that AG provide the analysis behind the recommendation for stakeholder review.
Todd Schatzki of AG continued the presentation with a discussion of the length of the amortization period. Earlier in the process, AG had advocated a decreasing amortization schedule throughout the DCR period. Mr. Schatzki explained that after further analysis, a tariff change would be required to accommodate using a varying amortization period between Demand Curve Resets. AG is recommending a fixed amortization period of 17 years. Some stakeholders suggested that a 17 year amortization period was not appropriate since a combustion unit could be retrofitted in the future to a more environmentally acceptable fuel, therefore extending the economic life of the unit. Mr. Schatzki explained that at this time, there is no established retrofit process in a demonstrated commercial application that can be applied to the analysis. In AG's opinion, the concept of a retrofit would not meet the tariff requirement. Other stakeholders suggested that the 17 year amortization period is not long enough for a unit to recover its costs due to the length of time it would take a unit to build and qualify for supply.
Next, Mr. Schatzki reviewed the current economic data reflected in the Return on Equity (ROE) recommendation. AG is continuing to consider the potential impact of the COVID-19 on the cost of debt.
Mr. Schatzki also provided updates to the Energy Storage, Net Energy and Ancillary Services (EAS) modeling discussion. Based on feedback from the last stakeholder meeting and discussion with NYISO staff, the modeling logic has been revised to allow battery storage units to simultaneously earn reserve revenues in hours when it is charging in the energy market. Foregone opportunity cost and a risk cost have been incorporated into a refined real-time (RT) risk premium for batteries.
To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/12067564/DCR%20Net%20EAS%20Model%20Results,%20Initial%20Demand%20Curve%20Model,%20Financial%20Parameters.pdf/87063a7c-a4dc-886a-1135-cbdf2a53b4b9

CVEC comments on Analysis Group Financing Assumptions

Ron Terrill of Cricket Valley Energy Center (CVEC) provided comments on AG's financing assumptions based on CVEC's recent experience in financing new generation in the New York Control Area as well as and other areas.
Mr. Terrill explained that the ROE (Return on Equity) for a new build in New York should be increasing not decreasing. CVEC analysis indicates that the investment communities' views of market

and regulatory risks to New York gas fired generation resources have increased significantly over the last four years.
CVEC advocates that the debt assumptions for a new build gas generation facility needs to assume significant forward hedging to obtain the debt terms proposed by AG. The CVEC assumption is that there are no lenders in the market that would provide debt to a new gas fired generator without at least five years of contracted revenues to provide debt coverage. CVEC's position is that if a hedging assumption is not used, it is recommending a higher debt interest rate that reflects unrated junk debt with no secured revenues. Based on the historical volatility of the energy and capacity markets, a rating agency would not assign a rating to this debt and a significant premium in interest rates would be demanded by the issuer of this debt.
To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/12067564/Cricket%20Valley%20Feedback%20on%20Proposed%20DCR%20Financial%20Parameters.pdf/1622859e-50ad-7b07-2aa1-27de12264810

NYISO ICAP Demand Curve Reset: Updates to Gross CONE Inputs
Kieran McInerney of Burns/McDonnell updated the capital cost assumptions for the Demand Curve Reset (DCR) proxy unit. Mr. McInerney began the presentation with a cost per kW comparison for the different technologies under consideration.
A stakeholder suggested that repowering an existing unit should be considered as an alternative to a new unit. Several stakeholders advocated for and against the option. The meeting chair suggested that the NYISO take the issue back for consideration and return to a future ICAPWG/MIWG with a decision whether or not a repowering unit would be considered as a viable alternative for a DCR proxy unit.
Mr. McInerney updated the assumptions for the cost of noise mitigation mechanisms. Also, cost adjustments were provided reflecting the updated AG recommendations for SCR application by unit technology and Locality.
Electrical interconnection, switchyard and gas interconnection preliminary cost assumptions were revised and presented for Zone J (NYC), with no changes to the other localities. Stakeholders suggested that values based on overhead line interconnection for Zone J are invalid and need to be adjusted to accommodate the cost of underground buried cable, as NYC will not permit new overhead lines.
Next, Mr. McInerney led a discussion of the operating and maintenance costs for land leases. Land lease cost assumptions for each technology were provided.
To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/12067564/DCR%20Final%20Discussion%20of%20Gross%20CONE%20by%20Locality.pdf/1770753b-d0c1-fe77-d49f-d6473a29cfd5

Calpine Energy Solutions NYISO On & Off Peak TCC Proposal
Jung Suh of Calpine Energy Solutions (Calpine) presented a proposal to develop On Peak and Off Peak Transmission Congestion Contracts (TCCs). Mr. Suh began with a description of TCCs and how Load Serving Entities (LSEs) use TCCs to hedge congestion costs. He explained how the daily load shape variation affects the amount of congestion especially during periods of high demand. The NYISO currently only offers a 24 hour TCC, which is effective for all hours of the day at the same cost per hour. The change in congestion (congestion cost) in the off peak hours makes a TCC non cost-effective for the off peak hours.
By developing TCC products that differentiate between on peak and off peak hours, the cost of hedging can be reduced and the savings passed on to the end user. Offering separate products would

better align congestion hedges with load (and generation) profiles, hence reducing cost; which in turn would reduce collateral cost and pre-payment obligations for TCC holders that do not wish to hold a 24-hour TCC.
Additional benefits of developing on peak and off peak TCCs include:

- *It could increase TCC auction revenue by better aligning transmission outages and topology with actual system conditions, thereby increasing available transmission capacity and decreasing revenue deficiency*
- *It increases market transparency by providing further granularity*
- *Benefits are garnered without adding incremental risk to the system*

Examples were provided to illustrate the potential benefits of enhancing the TCC product offering. Calpine will present the proposal to the BPWG as a project candidate for the 2021 Project Prioritization Process. To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/12067564/NYISO_On_Off%20Peak_TCC%20Proposal_CalpineSolutions%20V.2.pdf/b1301f2c-ff4f-8b70-87cd-f36ab98bc5fa

Master Plan
Ethan Avallone of the NYISO presented the Master Plan for 2020. The Master Plan provides a multi-year vision for future NYISO enhancements. In response to stakeholder feedback on prior versions of the plan, the 2020 Master Plan includes a number of features to improve readability and clarity. The updated draft of the Master Plan was posted with the meeting materials
The 2020 Master Plan follows NYISO Strategic Initiatives and key themes:

- *Grid Reliability and Resilience*
- *Efficient Markets for a Grid in Transition*
- *New Resource Integration*
- *Integration of Public Policy*
- *Technology and Infrastructure Investment*

Mr. Avallone highlighted the projects associated with each initiative above and explained how each project advances the initiative. A timeline for the 2020 Master Plan was provided with the final report posted in December following Board of Director's approval. To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/12067564/2020_Master_Plan_4.22.2020_FINAL.pdf/3321abdb-5fab-c5d5-5f3d-8f1bac2fa39a

Thursday, April 23, 2020
Joint Electric System Planning Working Group/Transmission Planning Advisory Subcommittee
Updates to Public Policy Transmission Planning Manual
Dawei Fan of the NYISO presented revisions to the Public Policy Transmission Planning Process (PPTPP) Manual. At the April 6, 2020 ESPWG/TPAS meeting, NYISO reviewed the updates to the PPTPP Manual (Manual-36) with stakeholders to reflect the tariff revisions accepted by FERC. The updates incorporate stakeholder feedback from the April 6 meeting.
Mr. Fan led a review of the updates, including revisions to:

- *Manual Section 3.4.4*
- *Manual Section 4.1*
- *Manual Section 10.2*
- *Manual Attachment C*

Redline copies were included with the meeting materials for stakeholder review. The NYISO will post the proposed manual revision for a 15-day review period and is targeting the May 20, 2020 Business Issues Committee for approval of the manual. To see the complete presentation, please go to: https://www.nyiso.com/espwg?meetingDate=2020-04-23

2019 CARIS 1 Draft Report Review

Chen Yang of the NYISO presented the Draft 2019 CARIS 1 Report. Mr. Yang began with a timeline of the report process, including a July 2020 submission to the Board of Directors for approval.
Mr. Yang highlighted the content of the report by section for today's draft:

- *Introduction and Background*
- *CARIS Methodology and Metrics*
- *Base Case Assumptions*
- *CARIS Phase 1 Results*
    - *Congestion Assessment*
    - *Identifying the CARIS Studies*
    - *Benefit/Cost Analysis*
    - *Scenario Analysis(High/Low gas price and load*

Mr. Yang also noted content that is not included in the draft report such as the 70X30 scenario final assumptions and results, the key findings of the study and the conclusion.
The NYISO is seeking comments and will return to a May 2020 ESPWG/TPAS with additional information on the draft report.
To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/12126107/03%202019CARIS1_DraftReport%20presentation.pdf/aec74470-f8e3-cea0-9e94-80f056472212

2019 CARIS 70x30 Scenario: Constraint Modeling, Energy Storage Sensitivity and Additional Case Results

Benjamin Cohen of the NYISO updated the 2019 CARIS 1 70x30 scenario. Mr. Cohen began with a review of previous presentations, providing links to the prior presentations for stakeholder review. The study will identify opportunities for transmission investment to un-bottle renewable energy to enable the state's renewable energy production goals. Mr. Cohen noted that the scenario examines two potential renewable build-out levels for one assumed distribution pattern across the state, but does not attempt to specifically compute the percentage of renewable energy relative to end- use energy.
Mr. Cohen highlighted the generation additions used in the scenario and provided a map to illustrate the locational distribution of these assets. Stakeholders were reminded that this study was not done with the formality of an interconnection study, but rather to indicate where constraints may occur. Identifying the impact of given constraints to the curtailment MW level is outside of this study scope.
Chen Yang continued the presentation with the preliminary constrained case bulk level congestion cost summary. Constraint pockets and sub-pockets were indicated on a map for locational illustration. Constraint pockets were identified as:

- *Pocket X: Northern NY Constraints*
- *Pocket Y: Eastern NY Constraints*
- *Pocket Z: Southern Tier Constraints*
- *Pocket W: Western NY Constraints*
- *NYC Constraints*
- *LI Constraints*

Pocket congestion and curtailment levels were provided by constraint location. Hourly pocket Renewable Energy generation, curtailment, and congestion were posted with today's meeting materials as an excel file for stakeholder review.
Additional sensitivities examined the impact of exports to neighboring regions as a result of stakeholder request. Results provide a directional indication, not a precise value. Sensitivity results show:

- *Decreased exports*
- *Decreased fossil and renewable generation*
- *Increased curtailments*

Mr. Cohen continued the discussion with the study modeling approach for Energy Storage Resources (ESRs) sensitivity, driven by the state mandate of 3,000 MW of ESRs. The methodology for the scenario was detailed using the Zonal capacity distribution roughly based on the NYSERDA Energy Storage Roadmap. The sensitivity will study three methods to examine the impact of the placement of ESR (in load pockets) and resulting (optimization of) utilization in (economic) planning studies. Preliminary results were provided and discussed with stakeholders.
The NYISO will continue the review of the 2019 CARIS 1 Draft Report in May and intends to seek approval from the BIC and MC in June 2020. To see the complete presentation, please go to: https://www.nyiso.com/espwg?meetingDate=2020-04-23

Climate Change Phase II Study

Charles Wu of the Analysis Group (AG) presented updates to Phase II of the NYISO climate change study. Mr. Wu reviewed the initial load assumptions used for the starting point of the study. The study utilizes the results of Phase I, completed in 2019 by Itron for the NYISO, for load shapes and hourly demand for a summer load, a winter load, and a low load shoulder period. The Phase I study provided four scenarios:

- Reference Case – Load growth based on Gold Book 2019 Estimates with 0.7° F per decade average temperature increase
- Accelerated Climate Change Case – Reference case with assumption of 1.4° F per decade average temperature increase
- State Policy Case – Increased energy efficiency to meet NY Clean Energy Standard goals; increased BTM PV, EV, and heating electrification
- CLCPA Case – 85% reduction in overall GHG by 2050, large scale electrification in residential and commercial sectors; 85% reduction in transportation GHG

The generation assumptions for the year 2040 were detailed. Given the starting point of an emissions free resource mix and applying 2040 CLCPA loads, imbalances between load and generation are expected and will need to be met with additional resources. Mr. Wu highlighted the two dimensions to load/generation balance:

- *Balance of power – Are there enough MWs of generation and storage to meet instantaneous load in each hour?*
- *Balance of energy – Are there enough MWhs generated over the modeling period to meet aggregate load over the same period?*

Mr. Wu highlighted instances where power and energy imbalances are anticipated. In the summer season modeling period (July 2040) for the reference case, there is a substantial overall deficit of generation over load in terms of aggregate energy. Individual hours exist with deficits as high as 15,000 MW. A table was provided to illustrate the summary of NYCA load and generation balance for the Reference Case.

The transmission system was examined to identify bottlenecks for the 2040 Reference Case. The transmission bottlenecks were provided for the summer, winter and shoulder periods. Given current transmission limits, transmission is not able to transfer all "surplus" generation (above local load) from Zones A-E to downstate in many hours.
Paul Hibbard of AG continued the presentation with the concept that, as expected, removal of dispatchable resources leads to major resource deficiencies in 2040, even with addition of significant MWs of variable renewable resources on top of 2020 system levels. Thus, the first step is to identify incremental "resource sets" for each load scenario constructed of combinations of generation, storage, transmission, and demand reshaping that achieve basic reliability in all seasons. Resource options include:

- *Additional transmission*
    - *Reduces zonal bottlenecks but does not address aggregate energy deficits Additional low-carbon resources outside of NYCA requiring transmission (e.g., resources in neighboring regions)-*
- *Demand modulation through*
    - *additional demand response and*
    - *"shaping" of electrification loads-Potential assistance with power deficits, but limited support for addressing aggregate energy deficits*
- *Additional energy storage*
    - *Can meet instantaneous power needs but does not address aggregate energy deficits*
- *Generic dispatchable resources*

Examples of the options above were provided to illustrate the approximate quantity of resources, transmission, energy storage, and demand strategies that would be required to alleviate the anticipated energy deficits.
To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/12126107/05%20Climate%20Change%20Phase%20II.pdf/3b069a2a-9d32-6e5e-30ae-eb5703a8d64b

FERC Filings

April 21, 2020

NYISO annual report of total MW-hours of transmission service interstate commerce for 2019 in compliance with FERC Reporting Requirement No. 582.

April 20, 2020

Joint 205 filing between NYISO and New York State Electric & Gas Corporation ("NYSEG") of a small generator interconnection agreement (SA 2526) among the NYISO, NYSEG and Duke Energy Renewables Solar, LLC regarding the Niagara Solar facility

April 20, 2020

Joint 205 filing by NYISO and New York State Electric and Gas Corporation ("NYSEG") of a small generator interconnection agreement (SA 2527) among NYISO, NYSEG and Duke Energy Renewables Solar re: Scipio Solar facility

FERC Orders

April 21, 2020

Order accepted compliance filing regarding certain DER revisions; method to establish an effective date; and certain buyer-side mitigation revisions

Filings and Orders:

http://www.nyiso.com/public/markets_operations/documents/tariffviewer/index.jsp