Summary of June 2022 Joint Board / MC Discussions:

Summary of Main Points / Emilie Nelson - NYISO

Key Takeaways from Joint Board/MC Discussions

Theme 1: The Influence of Public Policy

- The scope and scale of the CLCPA is driving unprecedented change and in many ways, uncertainty. With this backdrop, the NYISO's role in maintaining and evolving a reliable power grid is essential.
- We need new clean energy supply that can replace the services provided by today's fleet of emitting plants. New technologies will be needed that are not available today.
- Public policy is playing a greater role in shaping investment decisions than in the early years of the NYISO's markets. Public policy and markets need to work effectively together.
- There remain many unknowns with respect to the public policy in terms of how the transition to a clean energy system will be managed, including the impact on consumers.
- It is important for NYISO to facilitate coordination to the maximum extent possible.

Theme 2: System Planning Challenges

- Necessary to balance planning processes to reduce uncertainty and inform system needs versus retaining some flexibility to meet needs and adapt to changing circumstances
- Planning processes shouldn't be so rigid that they ignore the potential of markets to provide solutions
- No regrets strategies
- Coordination with utility-based planning processes is essential to facilitate an orderly transition and retirement of existing resources
- Interconnection Planning
- Improvements are necessary
- There was discussion about streamlining the process by focusing on value-add activities only. Need to rethink the process and approach with creativity.
- There was also discussion about managing the interconnection queue by requiring developers to have more "skin in the game" to encourage projects that are less speculative to enter or stay in the queue
- Finally, we heard concerns about the staffing resources we have dedicated to interconnection, with the request to add more resources through direct hires or consulting services

Theme 3: Staffing and Human Resources

- This topic came up often, and there was feedback that the skills needed to manage the transition going forward go beyond engineering
- Recognition that the NYISO, like many of its stakeholders' organizations, is faced with unprecedented staffing challenges
    - The NYISO needs talent and competition for it is high

Theme 4: Markets

- Discussion regarding how the markets will perform going forward with the build-out of renewables and in conjunction with RECs.
- There is a need for additional modeling and a focus on market products that are introduced as needed throughout the transition.
- There are some challenges ahead with respect to the capacity market, such as working through the details of resource accreditation, and the next demand curve reset including the selection of a proxy unit
- In general, there are a few themes:
    - Develop products and features more quickly
    - Use data to guide actions
    - Will be necessary to educate parties on how things work and the bounds as markets evolve
    - Market signals need to procure the right flexibility, including ramp capability – features that are supported through markets and hard to achieve through REC based processes

Theme 5: Coordination and Communication

- Possibly the most common theme across all the tables was the notion that NYISO needs to focus on communications and coordination with all stakeholders to a greater degree.
- Need for communication that can be understood by the general public
- Stakeholders noted that the NYISO needs to continue to coordinate and communicate closely with policymakers and other critical decision makers such as the DEC, NYSERDA, ORES, the PSC and DPS
- The NYISO's role as an Authoritative Source is key
- In close, I couldn't agree more with the comments on the need for coordination. The NYISO's stakeholder process has proven effective time and time again and we will, of course, work to continue that success going forward.

Summary of Main Points / Chris Wentlent – MC Chair

General Process – We did our verbal table closeout yesterday. Julia and I kept notes, and Mark Seibert also forwarded the written information after the session. We appreciate the information provided by each table's note keeper. We have tried to capture the information as accurate as possible. We appreciate the candidness, and level of detail provided.

Major Themes – This is summarized into eight (8) major themes based on the discussions held yesterday. Four of the themes are very straightforward, and the other four themes have much greater detail.

1. **Sense of Urgency** – this is a transformation time, not a transition. Can markets and new products be developed that support markets, or are we heading to more contracts?
2. **Staffing** – four major areas of concern – interconnection, coordinated planning, IT/Software Development and market product development. The NYISO should consider adding more staff, even above current budgeted levels, to deal with these areas of high importance and high volume. As work activities decrease; attrition can be utilized to downsize when it becomes applicable.
3. **Role of NYISO – NYISO External Affairs has done an excellent job informing the Management Committee about outreach and educational efforts of the NYISO team during this past year, including regular presentations at planned meetings. The Management Committee universally believes education and outreach continues to be an area of opportunity due to the transformation ongoing in our industry:**
   - Must continue to be the unbiased, informative, non-partisan and trusted advisor.
   - Excellent accomplishments (for example BSM & Capacity Accreditation), planning work such as the current Economic Planning, and NYISO education outreach pieces. However, the future demands more and the challenge will intensify.
   - Our meeting lacked several key stakeholders including the NYSDEC, other major environmental group representation, Environmental Justice, and legislative representatives. These stakeholders play critical roles in the energy transformation and ways to incorporate them into future discussions should be considered.
   - NYISO should consider CAC comments that include reliability, operational impacts, timing and cost related topics.
   - NYISO must engage with key agencies collectively as a group, not individually, to ensure a coordinated energy approach. We know this is a complex recommendation to accomplish.
   - Reregulation is not at all out of the question. The NYISO must be viewed as part of the solution going forward by offering rational solutions.
   - What is the role of the NYISO with respect to R&D and emerging technologies?
4. **Market Products – this is another area of universal thoughts and recommendations.**
   - Need to identify needs/attributes and identify system requirements. Endeavor to use markets to promote these new products.

- Areas of market product development discussed included new ramping products, reliability-based products, a dispatchability product, energy storage as transmission resource, synchronous condensers, expansion of TCC offerings to hedge risk, etc.
    - 2030, 2040 and 2050 CLCPA requirements will dictate a certain resource mix, and associated attributes – what do the pictures look like?
- NYISO must promote animation of the demand side of the market as another operating option in the future. Enabling distributed resource participation will require involvement of customers at all levels, including coordination between the NYISO, PSC and utilities. New York should utilize experiences from other countries and states, like Canada, to educate about consumer conversions to greater reliance on electricity, acceptance patterns, and implementation considerations.
- Capacity market construct utilizing the lowest cost peaker as proxy will need to be evaluated.
- Major concern about the market depending on technologies in the future (2040 or earlier) that have not been developed yet.
- What will the RTM and DAM look like in 2030 and 2040, as we approach 70% by 2030 and carbon free by 2040?

5. **Operational System Planning/Reliability – Management Committee believes the work products from planning have been excellent and more will be needed in the future. The table discussions recognized more NYISO Operational challenges will exist in the future as we transition to a high percentage of intermittent resources and manage the changeover to new resources and the retirement or deteriorating performance of existing, older resources.**
    - Need for coordinated planning where the NYISO needs to be in the middle with utilities and key agencies. Transmission and distribution additions are needed to serve generators and loads. The Coordinated Grid Planning Process (CGPP) must build off the strengths of the NYISO Planning Processes.
    - Consider emissions ramifications in analysis of resource scenarios, i.e., fossil units used infrequently, where they provide great reliability benefit.
    - NYISO should consider a scenario analysis of generator retirements due to age; many existing conventional units are approaching 70 years old and may no longer be repairable should they experience a failure.
    - Reliability issues must be determined on the front end, not after planned policy changes take effect. The Peaker Rule was highlighted as an example of things working right. The NYISO worked in a collaborative manner with the NYSDEC.
    - Reliability requirements may trigger the need for new reliability rules.
        - Is N-1-1 and LOLE of 1 day in 10 years enough going forward?
        - How will New York maintain its 60 Hertz system without rotating equipment in the future?
        - What new cyber-security requirements might be necessary?
    - Forecasting and IT become critical going forward. We need to understand load, supply, EV, heating, and other electrification impacts on the system.

- Extreme weather, and wind/solar lulls require additional analysis to understand the full magnitude of reliability and resiliency issues.
- What is the CLCPA off-ramp for reliability related issues and how will the mechanism be triggered?
- Can we depend on our neighbors going forward as they consider similar policy changes? How does this impact the operating group in managing the grid?

6. **Interconnection Process – general view is that the NYISO process performs better than some other RTOs. However, this is a critical success factor to moving the market resources toward CLCPA mandates; the process must be improved and be an area of focus.**
   - A full analysis of short-term and long-term changes must be conducted.
     - SRIS Bottleneck and time to complete
     - Possibly consider greater capital requirement as you go further in the process
   - Must understand how other "state" processes and associated requirements impact the NYISO processes. For example, RFP requirements from other agencies which require a queue position could impact NYISO's ability to timely review interconnection requests.
   - How to manage projects with low probability of ever becoming commercial but taking up time and resources?
   - Additional staffing above current budgeted levels should be considered in this area, as failure to perform impacts the pace of transition from existing to new carbon free resources.
7. **Timing & Sequencing**
   - Transmission and Distribution buildout must align with renewable energy and electrification efforts
   - New products must be coordinated with the introduction of new technologies to the market.
   - Generation retirements must align with appropriate new resource entry to avoid unintended reliability consequences.
8. **Costs**
   - **Costs matter** – currently consumer costs will either show up in a PSC or NYISO process. Consumers need to be educated before impacts become transparent in 2026, 2027 and 2028 timeframe to mitigate future public outcry.

Summary of Main Points / Julia Popova – MC Vice Chair

Joint Board of Directors and Management Committee Meeting - June 2022
Summary of Topic 2 discussion: Enabling the Transition

✓ It is paramount to unlock demand side resources

A highly electrified system with significant quantities of variable renewable generation will benefit from demand flexibility (captured by new energy market products/services). Encouraging demand-side management with dynamic financial incentives will help shape the electric load to improve the fit with the supply side and support the decarbonizing the energy sector. NYISO need to work with utilities, stakeholders, and legislators to unlock the potential of demand side resources.

✓ Human talent may be found in related fields

Staff is the is the most important asset of any organization, and it has recently been an industry struggle to train and retain talent. While power engineers and electrical engineers are in high demand, there is also a need to look outside the box to enable transformation of the power sector, potentially attracting experts from related fields.

✓ NYISO should take a more proactive role in disseminating knowledge and coordinating with State agencies, regulators, and utilities.

Everyone agrees that information is a valuable resource and that obtaining the right information will enable us to make the right decisions for the future we are building. Conversations and meetings like the Joint Board/Management Committee Meeting should be part of the solution as it facilitates the exchange of knowledge and expertise.

It is important to look and plan ahead; so, we encourage the NYISO to keep running short-term and longer-term studies (a variety of scenarios including different level of renewable penetration and conventional generation retirement, highlighting areas of concern, and identifying the need for additional planning studies) of what the future grid may look like as NYS makes progress toward the CLCPA goals and electrification. These studies will inform policymakers of risks as new policies are considered, including key legislators who are drafting energy related legislation. NYISO has already published a

plethora of information and now it is time to make sure that the right people (policymakers and legislature) practice engaged listening.

While we all may agree that it takes a lot of knowledge and expertise to understand the discussion at NYISO meetings, we also agree that NYISO communicates in a transparent manner, and that information is available for industry experts, policymakers, and the public. NYISO has been a leader (that is ahead of other ISOs and RTOs) in transforming the market rules to accommodate clean resources, distributed resources, and big infrastructure changes.

The NYISO's first and foremost roles in the transition is to be an authoritative source of information on reliability and operational issues, and to provide market rules expertise. However, more can be done to improve coordination and collaboration. For example, coordination grid planning (i.e., CCGP) should become part of the normal course of business.

A more integrated approach is needed to achieve New York State's goals. Making incremental changes to the market rules may not be perfect but will incentivize developers to bring the necessary capital and build new resources to help realize New York's vision. This will allow stakeholders and ISO to gain operational experience and better understand how to further hone the market rules.