

Comments on the Staff Straw Proposal For Conducting Headroom Assessments

Case 20-E-0197

June 22, 2021

Submitted by:

The Alliance for Clean Energy New York

I. EXECUTIVE SUMMARY

In these Comments, the Alliance for Clean Energy New York (“ACE NY”) first discourages the New York State Department of Public Service (“DPS”) staff and Public Service Commission (“Commission”) from waiting for the headroom assessment methodology to be finalized and fully implemented before making an initial set of grid prioritization decisions for Upstate New York. The Initial Power Grid Study¹ identified three particular areas as priorities for transmission system upgrades, which was supported in a number of stakeholder comments submitted in response to the Initial Power Grid Study. They are the (1) Genesee, Lockport and Lancaster area; (2) Hornell and South Perry area; and (3) the Watertown, Oswego, and Porter area. These three areas are “high-priority and high-value locations for targeted transmission development” and as such represent no-regrets targets for near-term identification and approval of transmission upgrade projects by the Commission.

In parallel to prioritizing this initial set of transmission investments, ACE NY recommends that DPS Staff finalize the headroom assessment methodology and adopt it as a tool for informing transmission and generation siting decisions across a range of stakeholders, including renewable generation developers, transmission companies, distribution companies, and policymakers. Headroom will be a useful metric for many stakeholders. The member companies of ACE NY see value in a repository of existing headroom values to better inform how much new renewable

¹ The Initial Report of the New York Power Grid Study. Prepared by the New York Department of Public Service Staff, the New York Energy Research and Development Authority Staff, The Brattle Group, and Pterra Consulting. January 19, 2021. Prepared for the New York State Public Service Commission and filed in Case 20-E-0197.

energy generation can be supported by existing facilities. Incremental headroom that could be created by a particular local transmission and distribution project will also be a valuable data point for the renewable development community and policymakers.

In addition to our general support for finalization and implementation of a headroom assessment methodology, these Comments communicate the following in more detail below:

- Complete consistency in modeling should be balanced with the need for timeliness;
- The methodology should examine both energy and capacity headroom;
- Given the lead-time for upgrades, the longer term view should be prioritized;
- Headroom values should be updated annually;
- The headroom assessment assumptions and results should be well documented;
- Grid enhanced technologies (GETs) should be integrated into headroom assessments; and
- Distribution technologies should be integrated into headroom assessments.

II. INTRODUCTION

The Alliance for Clean Energy New York (“ACE NY”) appreciates the opportunity to submit comments on the New York State Department of Public Service *Staff Straw Proposal for Conducting Headroom Assessments* (“Straw Proposal”) filed in Case 20-E-0917 and discussed at the DPS technical conference held on May 13, 2021. ACE NY also appreciates the continued transmission planning efforts of DPS staff and the New York Public Service Commission, as well as the prioritization of transmission investments by the Commission to support renewable energy project deployment as required by the recent enactment of two laws in New York: the Accelerated Renewable Energy Growth and Community Benefit Act of 2020 and the Climate Leadership and Community Protection Act (“CLCPA”) of 2019.

A consistent headroom assessment methodology could provide a meaningful representation of current and potential transmission capacity and limitations at specific locations on the grid and become an important tool for informing future generation siting, as well as decisions on grid

expansion needs and pathways for meeting those needs. In these Comments, ACE NY makes specific recommendations on the Straw Proposal for conducting more detailed and consistent analyses of headroom. Prior to that, these Comments highlight the need for the Commission to make certain decisions even in advance of a full headroom analysis.

III. The Commission Should Act on No-Regrets Transmission Projects in Advance of Finalizing the Headroom Assessment Method.

ACE NY is discouraging the Commission from waiting for the headroom assessment methodology to be finalized and fully implemented before making an initial set of grid prioritization decisions for Upstate New York. There are several areas of the grid that require immediate investments in transmission that have already been analyzed and identified in studies, including in the Initial Power Grid Study, NYISO and NYTOs studies. ACE NY is urging the Commission to follow through with the prioritization proposed in the Initial Power Grid Study released in January 2021, namely the following three areas described on pages 35-36 of the Study:

- (1) Genesee, Lockport and Lancaster area, known as pockets W1 and W2;
- (2) Hornell and South Perry, also known as Southern Tier area or pocket Z1; and
- (3) Watertown, Oswego, and Porter area, known as pockets X1 and X3.

The Commission issued a February 2021 Order² enabling Phase 1 upgrades to be pursued. As mentioned in the Initial Power Grid Study, these Phase 1 upgrades could potentially improve headroom in the Genesee, Lockport, and Lancaster area. The congestion outlook for the other two areas however – Hornell and South Perry (also referred to as the Southern Tier area), and the Watertown, Oswego, and Porter area – continues to be a strong driver for prioritizing upgrades with congestion forecast to be severe. Re-iterating our Comments from March 22, 2021, ACE NY explains below why those areas are “**high-priority and high-value locations for targeted transmission development.**”

² New York Public Service Commission, February 11, 2021. *Order on Phase 1 Local Transmission and Distribution Project Proposals*. Case 20-E-0197.

- **Area 1**, defined as Genesee, Lockport and Lancaster, is known as pockets W1 and W2. There are approximately 1,500 MW of renewable projects with a NYSERDA award that are yet to come online. There are multiple Phase 1 grid upgrades that will improve congestion in the area but to the extent additional improvements are needed, ACE NY recommends this area be prioritized.
- **Area 2**, referred to as Hornell and South Perry, and known as Pocket Z1, has significant renewable generation development proposed. Across all of the Southern Tier area, defined as pockets Z1 and Z2 in the NYISO CARIS study, there are over 1,700 MW of renewable projects proposed that have a contract with NYSERDA but have yet to come online. The Initial Power Grid Study notes:

“Avangrid’s existing headroom calculation shows significant uncertainty in this area with estimates ranging from only 16 MW to 978 MW, depending on the POI assumptions used in the analysis. A closer assessment, accounting for regional transmission conditions, likely would indicate a need for additional on-ramp capacity—such as provided by Avangrid’s proposed Phase 2 projects for this area, which are estimated to provide up to an additional 510 MW of headroom.”

Additional mid- to late-stage clean energy development projects in the queue in those areas will benefit from grid reinforcements and could be procured in the ongoing or upcoming NYSERDA Clean Energy Standard solicitation process. Reinforcing this area of the grid will also enable more west to east transfers of low-cost energy. In comments filed on the Utilities Transmission and Distribution Investments Working Group Report on January 20, 2021 in Case 20-E-0917, NYSERDA also asked for prioritization of this area due to both the procurement activities to-date and the strategic nature of the system in that area, which *“also provides flow-through capacity for upstream Southwest, Genesee and Genesee Valley areas.”* Furthermore, the Southern Tier has been recognized as a top needs area in the last two NYISO’s Public Policy Transmission Needs processes (2018-2019 and 2020-2021) with multiple stakeholders supporting a public policy need determination in the Southern Tier region.

- **Area 3**, described as the Watertown, Oswego, and Porter area and known as pockets X2 and X3 also has significant renewable generation development with close to 700 MW of renewable projects holding NYSERDA contracts but yet to come online. This area has been recognized as requiring prioritization and acceleration in both the Initial Power Grid Study and the NYSERDA January 2021 comments on that study. Indeed, the Initial Power Grid Study itself notes that *“the development of Phase 2 projects in this region may need to be prioritized for expeditious development.”* In its January 2021 Comments, NYSERDA further noted:

*“National Grid’s proposed Phase 1 projects will not offer sufficient improvements to accommodate the pipeline of proposed renewable generators in this area. While National Grid’s proposed Phase 2 projects could further increase the amount of headroom needed in these areas, **renewable energy projects in development and under contract with NYSERDA are expected to come online well in advance of these proposed Phase 2 projects’2025-2035 in-service dates**, (emphasis added). NYSERDA requests that the Commission prioritize and accelerate the transmission and distribution (T&D) projects identified for these areas and ensure that the T&D projects are sized appropriately for the expected level of renewable generation, the temporal profile of expected renewable generation, and the technology types of renewable generation in development.”*

The emphasized text above demonstrates that transmission is needed to accommodate projects with NYSERDA contracts. Absent transmission investments in this area, renewable energy projects – even those with contracts with NYSERDA - could see their development slowing down or be unable to get financing due to the severe congestion and curtailment risk, absent a plan from the state to prioritize grid upgrades in that area.

Therefore, the Commission should follow-through with prioritization and approval of transmission upgrade projects in these three areas (or at a minimum Area 2 and 3 above, if Phase 1 upgrades are deemed to be sufficient in addressing Area 1 constraints), by rapidly approving the proposed Phase 2 upgrade projects or declaring a public policy need in those areas, or both. A public policy

need declaration pursuant to the FERC Order 1000 Public Policy Transmission Needs Planning Process (“PPTNPP”) would enable robust transmission solutions to be proposed and assessed. Alternatively, New York Power Authority (“NYPA”) authority could be leveraged. Regardless of the approach used, we urge the Commission to act quickly.

We also note that all or part of the Phase 2 upgrades could be required irrespective of any bulk aspect of a final transmission solution. This is because the grid is managed on a pre-contingency basis, as if a bulk facility is out of service (e.g. if a 345kv line is out of service, the underlying low-voltage system is monitored for flows to remain within the ratings of the low-voltage facilities). Development of Phase 2 upgrades should therefore be swiftly approved (or allowed to be further developed and defined and then approved), and if a public policy need is also declared in those areas, the final solution could be a combination of bulk and local Phase 2 upgrades. In its March 22, 2021 Comments³, the NYISO highlighted the importance of *“initiating certain local and bulk power transmission system needs and projects now before opportunities for efficient transmission system design are foreclosed”* and *“respectfully disagree with the conclusions of the Initial Report that new bulk transmission facilities beyond those already in progress are not needed to meet the CLCPA 70*30 target.”* This interaction of the local and bulk system is highlighted even in the November 2020 Joint Utilities report: *“A number of local transmission facilities in AVANGRID’s service area have strong interactions with the bulk system. For this reason, it is important that a comprehensive approach considering a larger area is sometimes appropriate rather than narrowly focusing only on areas in the immediate vicinity of the bottleneck.”*

The New York transmission owners (“TOs”) presented limitations above 200% in the areas described above in their November 2020 *Utility Transmission and Distribution Investment Working Group Report*. For instance, National Grid notes that the highest area circuit loading is 368% (as percentage of rating) in the Watertown, Oswego, and Porter area, while Avangrid notes a severity

³ New York Independent System Operator, March 22, 2021. *Comments of the New York Independent System Operator, Inc. on the Initial Report on the Power Grid Study and Department of Public Service Staff Questions*, Case 20-E-0197.

above 200% for several facilities in the Hornell area. Clearly these areas are facing congestion issues. Application of a finalized headroom assessment methodology would simply reiterate these findings given the severity of the overloads and the fact that the main driver of congestion remains local generation. Therefore, the Commission shouldn't wait for finalization and application of the headroom assessment method to prioritize these high-priority, high-value areas of the grid. The need for prioritization and acceleration of upgrades in these regions is three-fold: (1) prioritize investments in areas of the grid with large NYSEERDA procurements to date, which absent upgrades can threaten the successful completion of projects or fail to unleash additional mid-to-late stage renewable energy development unless sufficient grid capacity is added; (2) accelerate investments given the significant lead-time associated with the permitting and construction of grid upgrades; and (3) optimize bulk-local interactions which can yield the most cost-efficient solutions for ratepayers.

IV. The Commission Should Finalize the Methodology while Considering Timeliness, both Energy and Capacity, a Long-Term Planning Horizon, Regular Updating, and Grid Enhanced Technologies.

In parallel to prioritizing an initial set of transmission investments, ACE NY recommends that DPS Staff finalize the headroom methodology and adopt it as a tool for informing transmission and generation siting decisions across a range of stakeholders, including renewable generation developers, transmission companies, distribution companies, and policymakers. ACE NY agrees with DPS Staff that consistency in presenting current and future limitations of the grid, as well as in assessing potential capacity improvements that would result from a transmission upgrade project, is important. Based on the review of the *Staff Straw Proposal for Conducting Headroom Assessments* and the May 13 technical conference materials and discussion, ACE NY makes the following specific comments in regard to the headroom assessment methodology:

- **Headroom will be a useful metric for many stakeholders.** The member companies of ACE NY see value in a repository of existing headroom values to better inform how much new

renewable energy generation can be supported by existing facilities. Incremental headroom that could be created by a particular local transmission and distribution project will also be a valuable data point for the renewable development community. More detailed information will be required for renewable developers to model the potential impact of an upgrade accurately. This information should include a facility's name and specific parameters of the transmission improvements, including reactance, resistance, normal and emergency rating (pre- and post-upgrade), conductor type (if known), and/or at the very least, the existing and updated ratings as currently done in the NYISO Gold Book. This can be accomplished via a process that would grant access to certain information upon specific request with proper clearance. ACE NY also encourages Staff and the Commission to use the headroom data as a tool in the toolbox for selecting the best upgrade project to meet a particular need. Incremental headroom created by a local transmission project that has a high \$/MW cost could be used to inform when broader bulk upgrades should be explored. In these cases, a public policy needs declaration in the PPTNPP could be utilized in areas with severe limitations or/and high renewable potential. Further, such areas could be nominated as Renewable Energy Zones. We urge Staff to consider using this approach as well because, in some circumstances, constraints on the local voltage could be addressed by simply unloading the low-voltage system by expanding or adding an outlet at the bulk transmission level.

- **Complete consistency in modeling should be balanced with the need for timeliness.** The member companies of ACE NY generally agree with Staff that there is a need for unified planning data and a standardized model, but only as long as the benefits of developing and maintaining such model outweigh the possible challenges associated with a joint model development, meaning a model developed jointly by all utilities. Our concern is that a joint model development process could take many months and years, for potential little added value in some certain circumstances. If modeling and developments in Zones J and K are not expected to materially impact developments and modeling in the Upstate and Western zones, for instance, there may be little value in a time-consuming process to develop and maintain the statewide joint model. Using a model developed by the NYISO with a detailed explanation

of the changes made in each local TO's area or/and prioritizing model coordination with neighboring TOs would enable a more expedited way to assess upgrades and provide flexibility in updating headroom values. Furthermore, development of a large joint model without a stakeholder process for input, review and validation of key inputs can lead to assumptions and outcomes that might be disconnected from reality or that are not fully vetted and embraced, in addition to such efforts possibly creating redundancy and inefficiencies with the NYISO processes. A cumbersome process can also result in further delays in prioritizing transmission investments, given the need for such models to be updated on a regular basis. In returning to our theme of an expedited process, ACE NY strongly encourages flexibility to be allowed when considering what model to be used, while preserving a high standard of transparency for key assumptions. ACE NY also highlights the importance of DPS Staff engaging the NYISO Staff in these model discussions to assess the best and timeliest pathway for the model development, in order to build as much as possible on existing practices, models and methodologies in place at NYISO.

- **The methodology should examine both energy and capacity headroom.** While powerflow assessment is appropriate and is the norm for reliability upgrades, public policy needs are often expressed in percentage of load. This means that energy headroom assessments that use production cost simulation models and an 8,760-hourly representation of load and clean energy generation better represent the percentage of energy that can be delivered to loads and the percentage of energy that has to be curtailed due to transmission limitations. The latter - % of potential curtailment- is an important metric when presenting an energy headroom. The TOs should have the flexibility to present an energy headroom assessment using a production cost model as a complement or replacement to an energy or capacity headroom calculation. Further, a capacity headroom methodology could show material headroom created, but if limitations remain severe when looking from an energy deliverability standpoint, renewable development could still be at risk or slowed down if there is material congestion or curtailment risk. Therefore, the model(s) to be used for the capacity headroom assessment methodology should include high-dispatch assumptions for clean energy

resources (e.g. 90-100% dispatch) to represent high-output conditions for the generators in a particular area. For instance, in the Initial Report on the New York Power Grid Study, it is noted that a wide range of average generation assumptions were employed by the Utilities in its study cases, with for example, land-based wind generation ranging from 0-75% and utility solar generation ranging from 0-70%. Capacity headroom results will ultimately be heavily influenced by the dispatch assumptions used in the study. A headroom value using an average dispatch will clearly overstate the headroom created, given that there can be many intervals with dispatch at much higher levels. Furthermore, the NYISO is in the process of moving to a 20-year System & Resource Outlook which will provide energy deliverability as a metric reported for the resources on the system. This assessment will be done as an 8,760-hourly chronological assessment using production cost simulation tools versus snapshot assessments. In its March 22, 2021 comments in this proceeding, NYISO highlights how *“traditional system upgrade analysis only examines temporal snapshots of system conditions, and must be supplemented to properly assess temporal issues that should drive the extensive buildout expected in the next few decades.”* The NYISO further points to its Economic Planning Process which provides for interested parties to obtain an additional CARIS study that can include analysis of the energy deliverability of a proposed transmission or generation project. Ultimately, ACE NY posits that both capacity and energy headroom should become the norm for representing the potential benefit of a transmission upgrade driven by public policy needs, either by leveraging NYISO processes and studies, or by requiring utilities to undertake a production cost simulation model that uses pre-defined transmission limitations from the powerflow analysis such that percentage energy deliverability and percentage curtailment are shown with and without an upgrade. Based on the Addendum to the Straw Proposal with a supplemental example of an energy headroom calculation, ACE NY suggests that it is important to show both the energy headroom (i.e., MWh that can be supported without curtailment) and the curtailment expectations (i.e., MWh that cannot be supported) using the installed capacity assumptions by technology that are being used in the headroom analysis. The example points to potentially high curtailment in one of the seasons, which could yield a material curtailment of a facility at an annual level. Furthermore, the Addendum points to the

fact that the analysis will be conducted for system intact conditions (N-0). It is ACE NY's strong view that an N-1 analysis needs to be conducted to more accurately reflect the grid capacity in the area. The NYISO has started securing low-voltage facilities for N-1 conditions. At a minimum, the headroom capacity should be shown for both N-0 and N-1 conditions; if the headroom is materially diminished in N-1 conditions, there is no guarantee that NYISO will not secure these facilities if congestion conditions materialize. The Addendum also points to existing generation in a region being dispatched as if outside the area. If such generation is existing hydro or nuclear, assuming this capacity outside the source area can also underestimate the headroom. At a minimum, a detailed description of the existing generation should be provided and a sensitivity analysis should be included to reflect the headroom available when the existing generation cannot be dispatched down. Alternatively to an energy headroom calculation, as mentioned earlier, NY TOs should be allowed to complement the capacity headroom assessments with a production cost simulation analysis.

- **Given lead-time for upgrades, the longer term view should be prioritized.** ACE NY agrees with the statements made by New York TOs during the May 13 technical conference that models which are 5-10 years out are more meaningful and should be prioritized, given that a one-year out view only has a limited informational value. Given the lead-time associated with grid upgrades, the look ahead should be done for 5, 10 years and 15 years out. While the uncertainty is higher long-term, it is not only practical but also important to look at both the medium-term and long-term needs to inform transmission and distribution upgrade prioritization decisions. This will avoid a piecemeal expansion of the grid. For example, a proposed transmission upgrades that looks robust five years from now but are insufficient to address reliability or economic needs seven to ten years later might not be the right investment. Ultimately, the cost of the transmission expansion is paid by ratepayers and a piecemeal expansion could result in higher costs to them, in addition to resulting in market and system planning inefficiencies.

- **Headroom values should be updated annually:** ACE NY supports an annual frequency of headroom methodology calculations, with some flexibility if a particular utility area has not experienced significant change since the last assessment. This will give NYSERDA and the renewable energy development community a current view of the transmission and distribution headroom given the accelerated schedule for REC procurements and the evolving community distributed generation (“CDG”) program. Transmission/distribution infrastructure and generation infrastructure present a “chicken and egg” problem, therefore it is important to offer current views to inform both siting, transmission, and procurement and program decisions.
- **To be successfully used, the headroom assessment assumptions and results should be well documented.** It will be critical for the Commission, DPS Staff, and TO’s to educate stakeholders on how results of a headroom assessment should be properly interpreted and what possible caveats should be applied. While system and market conditions continue to change, it is important that the results of the headroom assessment be well-documented with the proper set of key assumptions. Additional information upon request by renewable developers should be allowed under proper confidentiality and critical energy and electric infrastructure information (CEII) requirements.
- **Grid Enhanced Technologies (GETs) should be integrated into headroom assessments:** The Commission should also recognize the prominent role GETs can have in the transition to a clean energy grid and should encourage headroom assessments that allow for the benefits of GETs to be measured from an operational planning and real-time operations standpoint. The headroom methodology should entail how GETs could be incorporated to reflect the operational benefit of their deployment.
- **Distribution technologies should be integrated into headroom assessments:** There are a variety of tested and piloted technologies that can be used to resolve interconnection issues and optimize hosting capacity through real-time monitoring and control. These types of applications can support continued interconnection in otherwise bottlenecked areas without the expense and time of conventional utility upgrades. One example is the Flexible

Interconnection Capacity Solution proposed by Avangrid in the *Utilities Transmission and Distribution Infrastructure Working Group Report* as a possible Phase 2 solutions as an alternative to infrastructure upgrades. Infrastructure should be modeled comprehensively to meet the generation and load needs of the system, and include opportunities for any low-cost solutions that can be deployed on an interim or permanent basis to resolve a hosting capacity challenge. Further, the layering of distribution technologies to an infrastructure upgrade may in some circumstances provide greater incremental headroom.

V. CONCLUSION

ACE NY appreciates that opportunity to submit these comments on the *Staff Straw Proposal for Conducting Headroom Assessments* and we reiterate both the importance of finalizing a methodology, with the modifications discussed herein, to provide an important planning and decision-making tool, *and* the importance of moving ahead with certain identified no-regrets projects on a parallel track. Given the limited time available for New York to make the long-term investments in transmission and generation necessary to meet the CLCPA goals on time, we strongly recommend this parallel approach so that clearly needed projects can move ahead as soon as possible, and New York DPS and the Commission can continue to learn more about the comprehensive transmission capacity and needs.