COMMENTS OF THE NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.
ON THE CROSS-STATE AIR POLLUTION RULE UPDATE
FOR THE 2008 OZONE NAAQS

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I. Introduction

The New York Independent System Operator, Inc. ("NYISO") is an independent not-for-profit corporation responsible for the reliable operation of New York's nearly 11,000 miles of high-voltage transmission lines and the dispatch of more than 700 electric power generators. In addition, the NYISO administers bulk power markets through which an average of approximately $7.5 billion in electricity and related products are traded annually. The NYISO's mission is to serve the public interest and provide benefit to consumers by maintaining and enhancing regional reliability; operating open, fair and competitive wholesale electricity markets; planning the power system for the future; and providing factual information to policy makers, stakeholders, and investors in the power system.

On November 16, 2015, the Environmental Protection Agency ("EPA") issued the proposed "Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS" (hereinafter referred to as the "CSAPR Update") for public comment.[1]

The NYISO appreciates this opportunity to comment on the CSAPR Update, which revises the existing Phase 2 budgets in the CSAPR Ozone Season NOx Federal Implementation Plan ("FIP")[2] to address the interstate transport of ozone under the 2008 NAAQS. The NYISO offers these comments on the CSAPR Update to assist EPA's efforts to develop an accurate electric system model for New York State. Accurate electric system modeling is essential to achieving the objectives of the CSAPR program, including the equitable allocation of allowances to New York State and throughout the regions with which the New York electric system is interconnected.

The NYISO offers specific comments below and respectfully requests the EPA's consideration of these concerns prior to finalizing the CSAPR Update.

[1] Published in the Federal Register at 80 Fed. Reg. 75706 (December 3, 2015), updated to extend the comment period at 80 Fed. Reg. 81251 (December 29, 2015).

[2] 40 C.F.R. Part 97 Subpart BBBBB – TR NOx Ozone Season Trading Program.

II. NYISO Recommendations on EPA's Modeling Processes and Procedures

Complete and accurate modeling efforts are critical to the efficient and equitable implementation of environmental regulations. The EPA should review its modeling program to ensure that the necessary level of accuracy is included in the modeling design, assumptions, and input parameters. The NYISO recommends that the EPA utilize the eleven-zone Integrated Planning Model ("IPM") platform for New York that is available from ICF, the entity responsible for the creation and administration of the IPM platform. This IPM platform provides a more complete representation of the New York electric system for the accurate assessment of the proposed CSAPR Update Ozone Season NOx revisions.

A. The EPA Should Include Electric System Modeling Improvements in the Clean Power Plan IPM Analyses and the CSAPR Update IPM Analyses.

The EPA relies on the Clean Power Plan ("CPP") Rate Based Case[3] modeling as the starting point to model the electric system for the CSAPR Update proposal.[4] The NYISO respectfully submits that the EPA should improve its electric system modeling for the Clean Power Plan before it can be utilized to model the CSAPR Update proposal.[5] The CPP Rate Based Case is derived from individual IPM analyses of CPP building blocks. The EPA performed individual IPM analyses of several building blocks independently and provided illustrative cases for rate-based and mass-based approaches without modeling all of the building blocks collectively.[6] The CPP Rate Based Case then applied state rate goals to all states individually while allowing renewable energy and energy efficiency emission rate credits to be traded among them. This approach is only permitted by the Clean Power Plan when the participating states have joined their respective plans and accounting methods.[7] Since this may or may not be the case for numerous states, the EPA should expand its IPM analyses of the electric system to more accurately reflect the various compliance approaches under the Clean Power Plan. The expanded Clean Power Plan IPM analyses should then be utilized for the CSAPR Update electric system modeling. Consistent, up-to-date electric system modeling is crucial to accurately develop and assess proposed environmental regulations.

[3] *See* http://www.epa.gov/airmarkets/analysis-clean-power-plan.

[4] *See* http://www.epa.gov/airmarkets/analysis-proposed-cross-state-air-pollution-update-rule.

[5] *See* NYISO Comments in Docket ID No. EPA-HQ-OAR-2015-0199, January 21, 2016; a copy is available at http://www.nyiso.com/public/webdocs/markets_operations/documents/Legal_and_Regulatory/Other_Filings/Other_Filings/2016_1_21_NYISO_Comments_CPP_FPMTR.pdf.

[6] *See* http://www.epa.gov/airmarkets/analysis-clean-power-plan.

[7] *See* Clean Power Plan Final Rule Section 60.5795(c).

B. The EPA Should Improve IPM Analyses to Accurately Reflect the New York State Electric System.

The NYISO supports the EPA's desire to design an electric system model to "reflect electricity markets as accurately as possible" by using "the best available information from [] industry experts."[8] The NYISO offers recommendations to allow the EPA to more accurately reflect the New York State electric system in its IPM analyses. The NYISO is also pleased to offer its assistance to the EPA to develop and implement model improvements that more accurately reflect the New York electric system, similar to prior collaborative efforts. In 2011 and 2012, the NYISO and the EPA exchanged detailed production simulation modeling data and methods to improve modeling accuracy.[9] As a result, the EPA issued technical corrections to the model and amended New York State's emission budgets in June 2012.[10] The NYISO recommends that the EPA renew this collaboration with the NYISO, and incorporate the prior modeling improvements, to improve the accuracy of its model based on information the NYISO is able to provide regarding the wholesale electric markets and electric system conditions unique to New York. The NYISO also encourages the EPA to publicly release the IPM analyses for review and comment by stakeholders prior to finalizing the CSAPR Update emission budgets.

The eleven-zone IPM platform would allow the EPA to more accurately reflect the New York electric system in its evaluation of air emission programs. New York has eleven (11) geographic zones that represent load centers defined by electric transfer limits and within which the wholesale prices for energy and capacity are near uniform. The EPA's current IPM topology represents New York State with seven (7) geographic zones. Using the 11 geographic zones in the NYISO system would better incorporate the inter-zonal transfer limits at key interfaces on the New York electric system and the corresponding shifts in electric generation patterns.

The IPM used by the EPA should also account for electric system reliability rules that apply in New York. The New York electric system is subject to numerous stringent reliability rules from the North American Electric Reliability Corporation ("NERC"), the Northeast Power Coordinating Council ("NPCC"), the New York State Reliability Council ("NYSRC"), and local reliability rules that are not captured in the EPA's modeling. As provided for in Section 215 of the Federal Power Act,[11] these rules include requirements to design and operate the New York electric grid to higher standards than are applicable elsewhere in the United States. These standards include requirements: (1) to design and secure the electric system for the occurrence of

[8] *See* 80 Fed. Reg. 75722.

[9] 77 Fed. Reg. 10328 ("EPA is finalizing increases to the New York state ozone-season NOx, annual NOx, and SO_2 budgets in 2012 and 2014, to satisfy three specific immediate-term operational constraints documented by the New York Independent System Operator (NYISO). These three constraints are referred to here as the N–1–1 Contingency, the Minimum Oil Burn Rules, and out-of-merit-order dispatch conditions, which collectively affect the likely 2012 and 2014 operations of specific units in the New York City and Long Island areas. See the proposal to this rule for details (76 FR 63865, October 14, 2011)").

[10] 77 Fed. Reg. 34842 ("EPA recalculated the projected emissions for these units based on this revised assumption and is increasing the New York 2012 and 2014 SO_2 budgets accordingly.").

[11] 16 U.S.C. § 824o (2015).

a second contingency (the loss of a second facility while the electric system is recovering from the loss of a facility);[12] (2) to secure the electric system against the loss of natural gas in New York City and on Long Island under summer weather conditions and high load levels through the use of oil burning generators;[13] (3) to operate the electric system with multiple load pockets within New York City, defined by transmission constraints, that require generators to operate within each of those load pockets to maintain reliable electric service; (4) to secure the electric system against the potential loss of transmission facilities during periods when thunderstorms are possible;[14] and (5) to operate certain generators to satisfy NOx RACT compliance averaging plans. Specific actions are required almost every day to operate generators, or to have generators available, to satisfy these reliability and environmental rules. These characteristics should be included in the EPA's models to accurately reflect the New York electric system.

C. Additional Electric System Modeling Improvements.

The NYISO offers the following additional recommendations to further improve the accuracy of the EPA's electric system modeling.[15]

1. Electric system modeling should be aligned with the first year that the proposed regulation will be effective, *i.e.*, 2017.

2. The EPA's IPM assumes that existing (onshore) wind generators operate at a 24% capacity factor and new (onshore) wind generators are assumed to have a 47% capacity factor beginning in 2018. In New York, wind generators generally have a yearly average capacity factor between 22 and 27%.[16] The EPA should revise the capacity factor for new wind generators to more closely align with historic performance.

3. Existing solar photovoltaic (PV) generation is modeled in the EPA's IPM with a 19% capacity factor; however, the NYISO generally assumes a capacity factor closer to 13.5% to assess the annual energy production of a PV system. The EPA

[12] *See* http://www.nysrc.org/pdf/Reliability%20Rules%20Manuals/RRC%20Manual%2034%20final%201-9-15.pdf at p. 84).

[13] *See* http://www.nysrc.org/pdf/Reliability%20Rules%20Manuals/RRC%20Manual%2034%20final%201-9-15.pdf (see pg. 87); http://www.nysrc.org/pdf/Reliability%20Rules%20Manuals/RRC%20Manual%2034%20final%201-9-15.pdf at p. 90.

[14] *See* http://www.nysrc.org/pdf/Reliability%20Rules%20Manuals/RRC%20Manual%2034%20final%201-9-15.pdf at p. 84.

[15] The NYISO's recommendations are based on its review of the CPP Rate Based Case modeling and the CSAPR Update Base Case modeling, which is derived from the CPP Rate Based Case. These recommendations should be applied to both the Clean Power Plan and the CSAPR Update.

[16] *See* 2015 Load & Capacity Data, A Report by the New York Independent System Operation, Inc., Table III-2: Existing Generation Facilities, available at http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planning_Data_and_Reference_Docs/Data_and_Reference_Docs/2015%20Load%20and%20Capacity%20Data%20Report.pdf

should reevaluate the PV capacity factor used in New York. An accurate capacity factor will enable the EPA to correctly model the energy generation from PV resources. The EPA should also consider increasing the amounts of PV generation over the duration of the planning horizon to reflect additions of PV resources due to programs such as New York-Sun.[17]

4. The EPA's IPM results for New York predict that generation from existing Natural Gas Combined Cycle ("NGCC") units will be more than 50% greater in 2016 than actual generation in 2015, as reported in the EPA's Clean Air Markets Data program.[18] Upstate New York has a number of NGCC generators that historically operate at lower levels than the NGCC units located downstate near the New York City load center.[19] The EPA should refine its model to more accurately reflect the transfer limits between zones and the projected NGCC generation in various areas of New York State.

5. The EPA's IPM analyses do not consider the potential retirement of significant generation in New York. Two nuclear generating plants and several coal-fired generators in New York have indicated intentions to retire.[20] These retirements and deactivations would result in a dramatic shift in New York's generation patterns. The EPA should consider these potential generation shifts when evaluating the proposed CSAPR Update emission limits.

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[17] *See generally* http://ny-sun.ny.gov/.

[18] *See* http://ampd.epa.gov/ampd/QueryToolie.html

[19] *See* http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planning_Data_and_Reference_Docs/Data_and_Reference_Docs/2015%20Load%20and%20Capacity%20Data%20Report.pdf

[20] *See* *http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planned_Generation_Retirements/Planned_Retirement_Notices/Notice_of_%20Intent_to_Retire_James_A_FitzPatrick_Nuclear_Generating_Facility.pdf*, New York Public Service Commission November 14, 2014 Order in Case 14-E-0270 at pp 21-22, http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planned_Generation_Retirements/Planned_Retirement_Notices/NRG_Dunkirk_Mothball_Notice_03142012.pdf, http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planned_Generation_Retirements/Planned_Retirement_Notices/Confirmation%20of%20NRG%20Dunkirk%20Unit%202%20Intent%20to%20Mothball.pdf, http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planned_Generation_Retirements/Planned_Retirement_Notices/Notice%20of%20Intent%20to%20Retire%20Huntley%20Units%2067%20and%2068.pdf, and http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planned_Generation_Retirements/Planned_Retirement_Notices/Cayuga_notice_to_PSC.pdf.

III. Conclusion

The NYISO appreciates the opportunity to comment on the proposed CSAPR Update. These comments are intended to improve the CSAPR Update modeling in a manner consistent with the characteristics of the New York electric system. Accordingly, the NYISO respectfully requests that the EPA consider these comments and undertake efforts to more accurately reflect the electric system in the model before finalizing the CSAPR Update. The NYISO stands ready to assist the EPA in this analysis.

Respectfully submitted,

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