Attachment XIII

UNITED STATES OF AMERICA BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

New York Independent System Operator, Inc.

Docket No. ER13-___-000

AFFIDAVIT OF STEVEN COREY

Mr. Steven Corey declares:

1. I have personal knowledge of the facts and opinions herein and if called to testify could and would testify competently hereto.

I. Purpose of this Affidavit

2. The purpose of this Affidavit is to describe the 2013 New Capacity Zone Study ("NCZ Study") which was performed in accordance with the rules set forth in the New York Independent System Operator, Inc.'s ("NYISO's") Market Administration and Control Area Services Tariff ("Services Tariff") and Open Access Transmission Tariff ("OATT"). This affidavit also introduces the 2013 New Capacity Zone Study Report ("NCZ Study Report") which details the inputs and assumptions used in, and the methodology used to perform, the NCZ Study and results of it.¹

II. Qualifications

3. My name is Steven Corey, and I am the Manager of Interconnection Projects for the New York Independent System Operator, Inc. ("NYISO"). In this position I am responsible for interconnection studies, which include the NYISO's Class Year Interconnection Facilities Study² ("Class Year Study") pursuant to OATT Attachment S; addressing requests for Capacity Resource Interconnection Service ("CRIS") and Energy Resource Interconnection Service ("ERIS"); performing engineering and related analyses of

¹ The NCZ Study Report is Attachment X to this filing.

² Capitalized terms that are not otherwise defined herein have the meaning set forth in the NYISO OATT, and if not defined therein, in the Services Tariff.

proposed new, and changes to existing, generation and merchant transmission interconnections, including system impacts; and providing input to interconnection agreements.

- 4. As the Manager responsible for the Class Year Study, I am responsible for determining the eligibility of projects to participate in a particular Class Year Study, identifying the inputs in the annual Class Year Study, determining the System Upgrade Facilities ("SUFs") necessary for projects electing ERIS and the project cost allocation(s) of the SUFs; and determining whether projects electing CRIS are deliverable, and if not deliverable, the necessary System Deliverability Upgrade(s) ("SDUs") and project cost allocation(s) thereof.
- 5. I have held my current position for seven years. Prior to my current position, I was Manager of Transmission Planning for the NYISO for six years. I was responsible for interconnection studies during that time as well. Prior the NYISO, I was employed for nearly 26 years by the New York Power Pool, where, among other positions, I served as Manager of Transmission Planning before the transition to the NYISO. I received a Bachelor of Science degree in Electrical Engineering from Clarkson College of Technology (now Clarkson University) and a Master of Engineering degree in Electrical Engineering, also from Clarkson University.

III. Background

6. Section 5.16 of the Services Tariff requires the NYISO to perform the NCZ Study using rules which in large part employ the deliverability test methodology in Attachment S of the OATT.³ The NCZ Study is to be performed to determine whether there is a constrained Highway interface into one or more Load Zones.

³ The "deliverability test methodology" refers to the process in the Class Year Study that evaluates a project's deliverability and the identification and cost allocation of SDUs required for a project's proposed capacity to be found fully deliverable.

IV. Performing the NCZ Study

A. General Approach

7. The NCZ Study was performed pursuant to the requirements of the Services Tariff, which uses the deliverability methodology from the Class Year Study set forth in OATT Attachment S with identified adjustments, the key one of which is that the evaluation is limited to an assessment of deliverability across Highway interfaces. Pursuant to Section 5.16.1 of the Services Tariff, the NCZ Study does not evaluate Deliverability across Other Interfaces or Byways.⁴

B. Assumptions

- Services Tariff Section 5.16.1.1 requires that the NCZ Study test be performed "under summer peak system conditions." Additionally, for the NCZ Study, Section 5.16.1.1.1 requires the NYISO to include the following in its assumptions:
 - Existing transmission facilities (other than existing merchant transmission facilities) as identified in the most recent NYISO Load and Capacity Data report published prior to the start of NCZ Study (*i.e.*, the "2012 Gold Book");
 - All firm plans for changes to transmission facilities by Transmission Owners, scheduled to be in-service prior to the Capability Period reviewed in the NCZ Study, as reflected in the 2012 Gold Book;
 - Any planned generation projects or Merchant Transmission Facilities in a completed Class Year, completion of which precedes the start of the NCZ Study.⁵ Additionally, any SUFs and SDUs associated with such planned projects, shall be included, unless construction of a relevant SDU has been deferred pursuant to the relevant tariff provisions, and such construction has not yet been triggered;

⁴ The Class Year Study evaluates three separate categories of transmission facilities: (1) Highways (transmission facilities 115 kV and above that comprise internal NYCA interfaces and in series BPS facilities); (2) Other Interfaces (interfaces into New York Capacity Regions, into Zone J and into Zone K, and external ties into the NYCA); and (3) Byways (all transmission facilities of the NYS Transmission System that are neither Highways nor Other Interfaces).

⁵ Note, however, that pursuant to §5.16.1.1.2, the NYISO does not recognize in the NCZ Study Merchant Transmission Facilities that do not have a currently effective Interconnection Agreement for certain specified reasons.

- All transmission retirements and derates identified in the 2012 Gold Book that are scheduled to occur prior to the start of the NCZ Study Capability Period;
- All existing Generators with CRIS identified in, and all projects with Unforced Capacity Deliverability Rights ("UDRs") on the date of the 2012 Gold Book, as well as all CRIS rights from resources considered "deactivated" as pursuant to relevant tariff provisions, unless the rights have expired without the completion of a permitted transfer prior to the start of the NCZ Study; and
- Any transfer of CRIS rights that are not identified in the 2012 Gold Book but that prior to the start of the NCZ Study, are completed and the transferee is operational.
- Additionally Services Tariff Section 5.16.1.1.3 requires that the Load forecast prepared by the NYISO for the NCZ Study use the Capability Period peak demand forecast for the 2017 Summer peak load conditions from the 2012 Gold Book.
- 10. Also, as required by Services Tariff Section 5.16.1.1.4, the NCZ Study applies the following base case conditioning steps to the assumptions and inputs identified above:
 - Using a derated generator capacity based on the unforced capacity or "UCAP" of each resource.⁶
 - Addressing Load uncertainties by taking the impact of Load Forecast Uncertainties ("LFU") from the most recent base case IRM⁷ and applying to Load.⁸
 - Applying the deliverability base case conditioning steps consistent with those used for the Comprehensive Reliability Planning Process and Area Transmission Review transfer limit calculation methodology.⁹
 - Modeling flows associated with generators physically located in the NYCA but selling capacity out of the market.¹⁰
 - Bringing resources and demand into balance in the baseline.¹¹

⁶ Services Tariff §5.16.1.1.4 and OATT Attachment S §25.7.8.2.3.

⁷ As provided in the New York Control Area Installed Capacity Requirements for the Period of May 2012 to April 2013 – Technical Study Report (December 2, 2011) *available at*, http://www.nysrc.org/pdf/Reports/2012%20IRM%20Final%20Report.pdf>.

⁸ Services Tariff §5.16.1.1.4 and OATT Attachment S §25.7.8.2.4.

⁹ Services Tariff §5.16.1.1.4 and OATT Attachment S §25.7.8.2.5.

¹⁰ Services Tariff §5.16.1.1.4 and OATT Attachment S §25.7.8.2.10.

¹¹ Services Tariff §5.16.1.1.4 and OATT Attachment S §25.7.8.2.11.

11. The NCZ Study was performed utilizing those assumptions, and as set forth on Table 1 of the NCZ Study Report.¹²

C. Base Case and Required Models

- 12. The base case for the NCZ Study is a five-year look-ahead of the NYCA system, using the NYISO FERC Form 715 Report summer case, modified as required by Services Tariff Section 5.16.1. The conditioning steps required by Section 5.16.1 were used to develop Load, Generator, Transmission, and Import/Export models. The models were created using results from many NYISO studies and reports, as further explained below, and as further described the NCZ Study Report.¹³
- Load Model: The NYISO's Load model used the 2017 Summer peak load conditions from the 2012 Gold Book, before reductions for Emergency Demand Response providers. The Load Forecast also accounted for the impact of Load Forecast Uncertainty using the following values from the 2012 NYSRC IRM Report: (1) 9.97% for ROS; (2) 4.3% for NYC; and (3) 5.3% for LI.
- 14. **Generator Model:** The NYISO's Generator model included: (1) existing CRIS generators (*i.e.*, those identified as existing in the 2012 Gold Book) and all projects with Unforced Capacity Deliverability Rights through Class Year 2010, and (2) planned generation projects or Merchant Transmission Facilities through Class Year 2010 that either accepted their Deliverable MW or accepted their SDU Project Cost Allocation and provided cash or posted security as required by OATT Attachment S. The generator model accounted for units retaining CRIS rights for three years after being deactivated (as that term is defined in Section 25.9.3.1 of Attachment S), to the extent such units still had the ability to transfer those rights. Thus, generators deactivated after September 2009 were included in the model as in-service with their applicable CRIS levels, but units deactivated in and before September 2009 were not included in the model. Additionally, the generator model

¹² NCZ Study Report at p. 7.

¹³ NCZ Study Report at pp. 8-11.

included a UCAP derate factor based on a resources' applicable evaluated forced outage rate, as further explained in the NCZ Study.¹⁴

- 15. Transmission Model: The transmission model included all existing transmission facilities, as set forth in the 2012 Gold Book, as well as planned changes of facilities scheduled to be in service prior to the start of the NCZ Study Capability Period. Additionally, any SUFs and SDUs associated with projects included in the above Generator Model were included in the transmission model, except for SDUs that have not been triggered for construction.
- 16. Imports/Exports Model: For the Import/Export modeling, the initial generation and interchange schedules for the NYCA and the three existing Capacity Regions (*i.e.*, ROS, LI, and NYC) were determined using the following inputs:
 - <u>External Generation Sources:</u> (1) 2170 MW in grandfathered long-term firm power transactions; (2) 273 MW in generating capacity associated with firm export commitments; (3) 50 MW of grandfathered external firm capacity imports; (4) 1387 MW of wheeling contracts; and (5) generator reactive (MVAr) capabilities as appropriate per ISO procedures, NPCC and NYSCR Criteria and NERC requirements.
 - <u>ROS Direct MW Transfer:</u> 2422 MW for ROS to NYC and 1072 MW for ROS to LI.
 - <u>Unforced Capacity Deliverability Rights ("UDRs"):</u> (1) 315 MW from Linden VFT to NYC; (2) 330 MW from Cross-Sound Cable to LI; (3) 660 MW from Neptune HVDC to LI; and (4) 660 MW from the Hudson Transmission Project to NYC.

V. Methodology

17. Pursuant to Services Tariff Section 5.16.1.1.5, the NCZ Study assumptions and inputs were applied to Highway interfaces in the Rest of State ("ROS") region (*i.e.*, Dysinger-East, West Central, Volney East, Moses South, Central East/Total East, UPNY-SENY, and UPNY-ConEd), using the methodology contained in OATT Attachment S. The methodology requires that deliverability across ROS Highway interfaces in the Capacity

¹⁴ NCZ Study at 8.

Region (*i.e.*, Load Zones A through I at the time of the 2013 NCZ Study) be tested using a transfer limit assessment.

- 18. Generation shifts were simulated from ROS Load Zone combinations from generation "upstream" of an interface to generation "downstream" of the relevant interface.¹⁵ This transfer limit assessment determined whether the network can deliver capacity within ROS from generation in Load Zones with a surplus to Load Zones that require additional capacity.¹⁶
- 19. As also required by the methodology, in the actual transfer limit assessment, the NYISO monitored all transmission facilities that are part of the New York State Transmission System.¹⁷ The transfer limit assessment was performed in accordance with emergency transfer criteria and related contingency testing requirements.¹⁸
- 20. The NYISO utilized the concept of First Contingency Incremental Transfer Capability ("FCITC") to determine the limit of how much additional capacity (additional above the base generation dispatch) is deliverable across each of the ROS Highway interfaces. As explained in the NCZ Study Report, the FCITC "measures the amount of generation in the exporting zone that can be increased to load the interface to its transmission limit."¹⁹ The FCITC limit determined for each Highway interface is shown in the column labeled "FCITC (export limit)" in Table 6 of the NCZ Study Report.
- 21. The NYISO determined for each ROS Highway interface, the amount of net available capacity (i.e., surplus capacity) in the NCZ Study case within each of the "exporting Zones" (*i.e.*, Load Zones upstream of the Highway interface). The amount of net available capacity determined for the exporting Zones associated with each Highway

¹⁵ OATT Attachment S §25.7.8.2.13.

¹⁶ Additionally, the NYISO modeled external system imports and adjusted PARs as required in the Services Tariff and applicable operating procedures and agreements. *See* OATT Attachment S §§25.7.8.2.9, 25.7.8.2.12.

¹⁷ OATT Attachment S § 25.7.8.2.7.

¹⁸ OATT Attachment S §25.7.8.2.6 (these include all applicable emergency transfer criteria contingencies defined by the New York State Reliability Council ("NYSRC") Reliability Rules).

¹⁹ NCZ Study at 4.

interface is shown in the column labeled "Net available Capacity" in Table 6 of the NCZ Study report.

22. Finally, by comparing the values in the Net Available Capacity column against the corresponding FCITC limits, the NYISO determined whether the net available capacity was deliverable across each of the Highway interfaces, or some level of the Net Available Capacity was "bottled" (*i.e.*, not fully deliverable) by a transmission constraint associated with the Highway interface. If the Net Available Capacity is found to be deliverable across a Highway interface, the NYISO also determined the additional amount of capacity that would be deliverable up to the corresponding FCITC limit. The results of this analysis is shown in the column labeled "Additional Transmission Capacity (+) or Bottled Generation Capacity (-)" in Table 6 of the NCZ Study Report. As indicated in the column heading, a positive value in this column indicates that additional capacity (above the net available capacity) would be deliverable across the Highway interface, and a negative value indicates that some level of the net available capacity was not deliverable across the Highway interface.

VI. Results of the NCZ Study

23. The NCZ Study identified a constraint on the UPNY-SENY Highway interface. Specifically, that interface is bottling 849.2 MW of generation from Load Zones A through F. Table 6 of the NCZ Study Report provides a summary of the results.

This concludes my Affidavit.

ATTESTATION

I am the witness identified in the foregoing affidavit. I have read the affidavit and am familiar with its contents. The facts set forth therein are true to the best of my knowledge, information, and belief.

Steven L. Corey

Subscribed and sworn to before me this 30th day of April 2013

Notary Public

My commission expires: _____

ATTESTATION

I am the witness identified in the foregoing affidavit. I have read the affidavit and am familiar with its contents. The facts set forth therein are true to the best of my knowledge, information, and belief.

Steven L. Corey

Subscribed and sworn to before me this 30th day of April 2013

Notary Public

My commission expires: 02/12/2014

CARL F. PATKA Notary Public - State of New York No. 4962209 Qualified in Albany County My Commission Expires Feb. 12, 2014