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**BEFORE THE
NEW YORK STATE
PUBLIC SERVICE COMMISSION**

Proceeding on Motion of the Commission to Examine
Repowering Alternatives to Utility Transmission
Reinforcements

Case 12-E-0577

REPORT ON CAYUGA REPOWERING ANALYSIS

Jeffrey A. Rosenbloom, Esq.
Managing Attorney and Assistant Secretary
New York State Electric & Gas
Corporation
89 East Avenue
Rochester, NY 14649
(585) 724-8132 (Telephone)
jeffrey_rosenbloom@rge.com

Noelle M. Kinsch, Esq.
Deputy General Counsel
Iberdrola USA
99 Washington Avenue, Suite 2018
Albany, NY 12210
(518) 434-4977 (Telephone)
noelle.kinsch@iberdrolausa.com

*Counsel for New York State Electric & Gas
Corporation*

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REPORT ON CAYUGA REPOWERING ANALYSIS

New York State Electric & Gas Corporation (“NYSEG” or the “Company”) submits this Report on Cayuga Repowering Analysis (“Report”) in response to the Commission’s January 18, 2013 Order Instituting Proceeding and Requiring Evaluation of Generation Repowering.¹ The Report’s recommendations are necessarily preliminary given the unverified nature of the information underlying the four repowering options proposed by Cayuga Operating Company, LLC (“Cayuga”).² The Report’s analysis and recommendations are also necessarily based on assumptions about uncertain future variables including the price of natural gas, the number of hours that the repowered generators would be called upon to run, the forward looking price of electricity and capacity, construction and permitting uncertainties, financing risk and other variables.

The Report recommends that the Company’s transmission reinforcement alternative be adopted as the best available option. Moreover, given the uncertainty inherent in a generation option, the Report also recommends that transmission planning

¹ Case 12-E-0577 - Proceeding on Motion of the Commission to Examine Repowering Alternatives to Utility Transmission Reinforcements, Order Instituting Proceeding and Requiring Evaluation of Generation Repowering (Jan. 18, 2013) (“Evaluation Order”).

² The only source of repowering cost data was a non-binding response from Cayuga. That response has embedded in it assumptions about critical variables, many of which appear to be optimistic in favor of Cayuga’s proposal.

be continued for risk mitigation until such time as the generation is actually brought on line.

I. BACKGROUND

In the Evaluation Order, the Commission directed the Company to analyze repowering “as an alternative to transmission system upgrades when a facility needed for reliability proposes to retire.”³ Cayuga proposed “protective lay-up” or mothballing of Cayuga Unit 1 and Cayuga Unit 2 (collectively the “Cayuga Generating Facility”) by January 16, 2013.

As the entity responsible for local reliability, NYSEG conducted an analysis of the proposed mothballing and identified adverse reliability impacts that could occur if the mothballing were effectuated. NYSEG also identified transmission system reinforcements as a mitigation measure that would remedy those reliability impacts but estimated that all of the reinforcements would not likely be completed until 2017. Since the system reinforcements necessary to mitigate the reliability impacts would not be in service until after the proposed mothball date, NYSEG determined that the Cayuga Generating Facility would need to remain capable of operating and available for commitment in order to maintain system reliability on an interim basis.⁴

Accordingly, NYSEG negotiated with Cayuga a Reliability Support Service Agreement (“RSSA”) to ensure the continued maintenance and availability of the Cayuga Generating Facility to avoid adverse impacts that the proposed mothballing would have

³ Evaluation Order at 1.

⁴ See Case 12-E-0400 - Petition of Cayuga Operating Company, LLC to Mothball Generating Units 1 and 2, Order Deciding Reliability Issues and Addressing Cost Allocation and Recovery (Dec. 17, 2012) (“RSS Approval Order”)

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on system reliability. The RSSA was approved by the Commission in the RSS Approval Order with an initial term of January 16, 2013 through January 15, 2014.⁵

The Evaluation Order notes that the Commission has in prior orders “urged the utility to continue developing their transmission proposals” and “required them to consider other solutions as part of their planning process.”⁶ The Evaluation Order also “directs the utilities to evaluate repowering as an alternative outcome for these two retirements over a long-run horizon of at least ten years.”⁷ NYSEG was directed to file with Department of Public Service Staff (“Staff”) the projected costs of the transmission alternatives that it proposes. The Commission also directed NYSEG to solicit a bid from Cayuga for the level of out of market support required in order to finance the repowering of the Cayuga Generating Facility.⁸

NYSEG filed with Staff its projected cost for the transmission enhancements on February 19, 2013.⁹ On the same date, Niagara Mohawk Power Corporation d/b/a National Grid (“National Grid”) submitted information relating to the cost of its anticipated transmission system upgrades to address long-term reliability needs on its system resulting from the Cayuga Generating Facility retirement.¹⁰

NYSEG developed a comprehensive draft solicitation for Cayuga and consulted with Staff on February 14, 2013 regarding modifications and improvements to the

⁵ Id. at 25.

⁶ Evaluation Order at 2.

⁷ Id. at 3.

⁸ Id. at 3-4.

⁹ Case 12-E-0577, NYSEG Submission Regarding Transmission Costs (Filed Feb. 19, 2013) (“Transmission Submission”).

¹⁰ See Case 12-E-0577, Letter from Carlos A. Gavilondo to Hon. Jeffrey Cohen, Acting Secretary (Filed Feb. 19, 2013).

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solicitation. On February 19, 2013, NYSEG transmitted to Cayuga a nineteen page detailed solicitation for the repowering of the Cayuga Generating Facility.¹¹ NYSEG indicated that it required the information requested in the solicitation to: 1) determine the feasibility (cost and schedule) of repowering the Cayuga Generating Facility; 2) obtain information needed to respond to the Evaluation Order; and 3) establish Cayuga's financial and technical ability to complete a repowering project. Cayuga was also asked to identify any other process or agreement structures that might yield a lower cost to NYSEG's customers in its response to the solicitation.¹² The repowered facility at the Cayuga Generating Facility was required to consist of at least two units of at least 150 MW each and be capable of producing at least 300 MW for a minimum of 600 hours per year, with the facility capable of operating for a period of 15 years.¹³

Cayuga sought and was granted an extension of time to March 26, 2013 to submit its response to the NYSEG solicitation.¹⁴ Cayuga responded to NYSEG's solicitation on March 26, 2013. NYSEG requested and was granted an extension of time to file this report, based on the need to collect additional data.¹⁵ NYSEG requested an additional extension on April 26, 2013 based on additional data collection requirements, which was granted on May 1, 2013.¹⁶

¹¹ See Case 12-E-0577, Letter from Mr. Jeffery M. Converse, Manager – Electric Supply NYSEG/RG&E, to Mr. Jim Mulligan, President, Cayuga Operating Company, LLC (Filed Feb. 19, 2013).

¹² Id.

¹³ Id.

¹⁴ Case 12-E-0577, Letter Ruling from Acting Secretary Jeffrey C. Cohen (Mar. 13, 2013).

¹⁵ Case 12-E-0577, Letter Ruling from Acting Secretary Jeffrey C. Cohen (Apr. 17, 2013).

¹⁶ Case 12-E-0577, Letter Ruling from Acting Secretary Jeffrey C. Cohen (May 1, 2013).

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In the intervening time, NYSEG has evaluated repowering of the Cayuga Generating Facility as an alternative outcome to transmission enhancements over a long run horizon of at least ten years and has compared the relative costs, benefits and risks between the two alternatives. In conducting this evaluation, NYSEG focused its review on reliability and customer cost. In addition to its evaluation of these two main factors, NYSEG also sought to evaluate environmental impacts, the economy, and electric market competitiveness.

II. ANALYSIS

A. Reliability Need

As noted above, NYSEG conducted an analysis of the proposed mothballing and identified adverse reliability impacts that could occur. More specifically, NYSEG identified a thermal overload of the 336 ACSR conductor in the Elbridge to State Street 115 kV line #972 under all facilities in-service system conditions at a local area load level of 135 MW, which is approximately 73% of the projected 2012 summer peak load. Exposure to this condition historically has been limited to the months of June through September for a total of 221 hours in 2011. NYSEG's studies also indicated that loss of the Quaker Road to Sleight Road 115 kV line #980 will cause the conductor in the #972 line to exceed its summer Long Term Emergency ("LTE") rating at a local area load level of 120 MW, which is approximately 65% of the projected 2012 summer peak load. Exposure to this condition historically has been limited to the months of June through September for a total of 505 hours in 2011. Also, loss of the Clinton Corn to State Street 115 kV line #971 will cause the conductor in the #972 line to exceed its summer LTE rating at a local area load level of 138 MW, which is approximately 75% of the 2012

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projected summer peak load. Exposure to this condition historically has been limited to the months of June through September for a total of 170 hours in 2011. In fact, during times when the Auburn summer load is at peak (185 MW), an outage of either the #971 or #980 lines would cause the #972 line to exceed its summer Short Term Emergency rating. As a result, of these studies, the Company proposed transmission enhancements and entered into the RSSA.

B. Transmission Upgrade Option

1. NYSEG

The transmission reinforcement currently under consideration includes a new 14.5 mile, 115 kV line from National Grid's Elbridge Substation to NYSEG's State Street Substation with 1192.5kmil ACSR conductor routed significantly on existing National Grid right-of-way. Substation modifications are also required at the respective line terminals.

In addition, in the event that Cayuga Generating Facility is going to be permanently retired from service, NYSEG is also proposing to rebuild the existing 14.5 mile, 115 kV line from National Grid's Elbridge Substation to NYSEG's State Street Substation with 1192.5kmil ACSR conductor (4.2 miles of which is NYSEG's Line #972 and 10.3 miles is Grid's Trunk #15 line). National Grid has proposed a lower cost alternative that would increase the capacity on National Grid's 10.3 mile line section, which may likely become the preferred transmission solution. Either way, this transmission reinforcement option will eliminate the thermal overload problems in the Auburn area and will satisfy capacity and voltage requirements by creating a new transmission supply into the Auburn Division.

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NYSEG is actively pursuing the transmission project and is intending to file an Article VII application by June 2013. The proposed in-service date is currently the end of 2016 for the first phase.¹⁷

2. National Grid

National Grid has identified [REDACTED] projects that will be required specifically to address impacts of the Cayuga plant retirement on the National Grid transmission system. These projects are [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

Completion of the entire transmission reinforcement projects identified above will address the reliability need and will therefore enable the Company to provide adequate and reliable electric service to all customers during either extended outages (planned or forced) of the Cayuga Generating Facility (Phase 1) or in the event that one or both units at Cayuga Generating Facility are permanently retired from service (Phase 2).

3. Transmission Costs

NYSEG's Phase 2 Auburn Transmission project is scheduled to be completed in mid-2017. At the completion of this project, no electric generation will be required at the Cayuga Generating Facility to support the reliability needs of either NYSEG or National Grid. The capital costs for the NYSEG work are detailed on Exhibit 1 and the estimated

¹⁷ Studies completed to date by NYSEG and the NYISO identify that in the interim, in an attempt to eliminate the potential normal system and contingency thermal overload problems of the #972 line from occurring, both units at Cayuga Generating Facility will need to be available and capable of being committed when NYSEG and the NYISO determine the units are required to maintain system reliability.

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total cost of this work, including AFUDC, an additional expenditure for Cost of Removal and supporting work by National Grid is estimated at [REDACTED].¹⁸

National Grid also must perform transmission system work to eliminate the need for the Cayuga Generating Facility to operate to support local reliability needs. The revenue requirements associated with these capital projects are detailed on Exhibit 2 and the estimated total cost of this work, including AFUDC, is [REDACTED].¹⁹

C. Cayuga Repowering Options

In its response to the Company's February 19, 2013 detailed solicitation for repowering of the Cayuga Generating Facility, Cayuga presented four separate repowering options. The four options vary significantly in terms of the equipment sought to be utilized, cost and timing. The two common elements among the four options are that each relies upon a levelized revenue stream from NYSEG's customers over an approximately [REDACTED] period and requires the permitting, siting and construction of a new approximately [REDACTED] natural gas pipeline to the Cayuga Generating Facility.

1. *Option 1*

Option 1 would repower the two existing coal-fired boilers with natural gas while continuing to utilize the balance of the existing plant facilities to generate electricity. This option involves the least amount of new construction and, as a result, the anticipated commercial operation date for this option is [REDACTED]. The maximum output of Option 1 is 300 MW with a heat rate of [REDACTED].

¹⁸ This figure includes [REDACTED] of work by National Grid.

¹⁹ The information regarding National Grid's revenue requirement was provided by National Grid.

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The Cayuga Generating Facility originally entered commercial operation in the 1950s and exists today as a nominal two unit 150 MW utility station facility with a total site output of 300 MW (net). Coal is the original and base fuel of the existing facility. The steam generators are Combustion Engineering manufactured and are tangentially fired with pulverized coal. The design superheat outlet conditions are 1900 Psig, 1005°F. The Unit One steam turbine is a triple pressure/temperature, reheat unit supplied by Westinghouse. The Unit Two steam turbine is a triple pressure/temperature, reheat unit supplied by General Electric. The station cycle is two separate nominal 150 MW power trains. Each cycle is equipped with six closed feedwater heaters and one deaerator.

2. *Option 2*

Option 2 would repower the Cayuga Generating Facility with simple cycle combustion turbine generators firing only natural gas. More specifically, Option 2 proposes three (3) new GE LMS100 simple cycle combustion turbines with a maximum combined output of 294 MW. The anticipated commercial operation date for Option 2 is [REDACTED].

The objective of Option 2 is to continue a reliable supply of approximately 300 MW of electricity to the grid and the proposed simple cycle gas turbines offer a potential solution for this need. The identified GE LMS100 unit offers efficient, low emissions service for cyclic operating needs. The GE LMS100 has 10 minute start up times, load following capability and cycling duty capability. The GE LMS100 is an up rate and outgrowth of the GE LM6000 engine generators, aero derivative combustion turbines. The GE LM6000 engine has been equipped with a larger than normal compressor section. Mid-way through the compression stage, hot compressed air is taken out of the

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compressor to a compressor inter-stage cooling unit mounted alongside to cool the compressed air and reinsert the compressed air back into the final stages of compression before entering the combustion turbine. Being aero derivative, the GE LMS100 has a low flue gas exhaust temperature, signifying efficiency of the compression and combustion process.

The GE LMS100 produces 99 to 100 MW, at [REDACTED] cycle efficiency, uncontrolled NOx level of [REDACTED] has an [REDACTED] heat rate (HHV). Using the GE LMS100 would improve current station efficiency by [REDACTED] and improve heat rate by [REDACTED]

3. Option 3

Cayuga's proposed Option 3 is to repower the Cayuga Unit 2 with a combined cycle combustion turbine generator, a heat recovery steam generator ("HRSG") and a condensing cycle steam turbine generator. The objective of Option 3, like each of the preceding options, is to supply a nominal 300 MW of electricity to the grid on a high-reliability basis. This option also includes a fuel switch to natural gas on the existing Cayuga Unit 1. Option 3 includes a GE PG7241FA with a 3P HRSG using at least a portion of the existing Unit 2 GE manufactured steam turbine. Option 3 will continue to utilize the Unit 2 steam turbine and once through cooling from the existing infrastructure.

This repowering option utilizes the existing Unit 2 steam turbine generator and therefore enables a large portion of the plant's existing equipment and infrastructure to be reused including (in addition to the Unit 2 steam turbine generator) major support systems such as once through cooling from Cayuga Lake, lube oil systems, service air and water systems, the turbine building and infrastructure, main transformer, switchgear,

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and high voltage electrical systems. There are cost savings realized by reusing Unit 2 and its infrastructure. However, one GE PG7241FA will only produce enough steam to produce approximately 65 MW of the rated 150 MW from the Unit 2 steam turbine. Supplemental duct firing of the HRSG would boost the output of this configuration. The GE PG7241FA would produce about 169 MW. Therefore, the nominal output of this configuration, prior to any supplemental duct firing, would be 234 MW. Supplemental duct firing could boost the station output by a minimum of 25 MW to as much as 40 MW for a total output of between 259 to 274 MW.

Option 3 is therefore a “hybrid” of Options 1 and 4. The maximum combined output, including duct firing, is 309 MW with a heat rate of [REDACTED] for Unit 1 and a heat rate of [REDACTED] for Unit 2. The anticipated commercial operation date for Option 3 is [REDACTED].

4. *Option 4*

Option 4 includes the repowering of the station with a combined cycle combustion turbine generator, HRSG and a condensing cycle steam turbine generator. Specifically, Option 4 proposes two new combined cycle combustion turbine generator trains with a maximum output of 326 MW and a heat rate of [REDACTED]. The anticipated commercial operation date for Option 3 is [REDACTED]. Once again, the objective of this option is to supply a nominal 300 MW of electricity to the grid on a high reliability basis. A representative CCGT is the Alstom 11N2 Combined Cycle. The equipment that best matches an independent, two power train configuration sporting two combustion turbines, two HRSGs and two steam turbines for reliability, are Alstom 11N2 units. Two separate power trains, i.e., 1 x 1 CC x 2 trains, would provide maximum

redundancy and reliability. Two trains of 1 x 1 CC separate plants are similar to the existing coal fired configuration. It provides the most flexibility and reliability but at an added cost. The maximum combined output is 326 MW with a heat rate of [REDACTED] [REDACTED].

5. *Levelized Revenue Stream*

Cayuga's repowering options all require a levelized revenue stream from NYSEG's customers over an approximately [REDACTED]. The precise revenue stream sought by Cayuga is based, in part, on an assumed stream of market revenues that would be generated under each option. As a result, NYSEG's analysis of cost for each option calculated a fixed-price payment obligation to be borne by ratepayers, offset by the relevant market revenue stream resulting from the repowering.

NYSEG was unable to replicate Cayuga's forecast of the market revenue stream using publicly available market forward pricing data. NYSEG's internal studies conducted with publicly available data produced a lower amount of energy market revenues than reported by Cayuga for Option 1. In addition, Cayuga's capacity price forecast was higher than NYSEG's.

Accordingly, there is a risk that Cayuga has overstated Option 1's revenue potential. As noted in Section III (B) below, that risk includes the possibility that Option 1 will generate no market revenues.²⁰ Absent market revenues, Option 1 is far more costly than transmission as shown on Exhibit 3. By relying heavily on estimates of future market revenues, Cayuga's four proposals therefore require that NYSEG's customers assume market price risk by guaranteeing Cayuga the forecast market revenue stream.

6. *Cayuga Projected Market Revenues*

Cayuga provided NYSEG with forecasts of the dispatch of the generating units during the term of the contract period. Exhibit 4 provides details of the annual generation levels, gross market revenues, and variable costs for each repowering option proposed by Cayuga. The components of the modeling include:

- Annual generation for each unit.
- Gross energy, capacity, and ancillary services revenues for the plant.
- Annual fuel costs, variable O&M costs, and allowance costs for the plant.

Under the contract methodology proposed by Cayuga, NYSEG would receive the net wholesale market revenues for any plant production. As a result, the level of revenue available to offset repowering contract costs is subject to both market price volatility (discussed above) and generating unit performance.

D. Cayuga Repowering Option Costs

Cayuga provided NYSEG with detailed estimates of the fixed payment obligation that NYSEG would be required to provide to Cayuga under the terms of a [REDACTED] contract for reliability services. Exhibit 5 provides details of the annual fixed cost obligation for each repowering option. The components of the fixed cost obligation include:

- Natural Gas Transmission Reservation Rate to provide natural gas service to the plant.²¹
- Fixed annual plant operations and maintenance costs.

²⁰ Complaint Requesting Fast Track Processing of the Independent Power Producers of New York, Inc., Docket No. EL13-62-000 (filed May 10, 2013).

²¹ This is not to be confused with the commodity cost of the natural gas or with any variable transmission costs.

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- Permit fees.
- Major maintenance costs.
- Capital costs for plant improvements during the term of the contract.
- Income taxes and return on and return of investment.

As noted in the footnote to Exhibit 5, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

III. OTHER IMPACTS

A. Ratepayer Cost

The Report methodology focuses on a comparison of customer cost (revenue requirement) for the various options under consideration. The Report models and compares the revenue requirement required for the transmission reinforcement with the repowering options proposed by Cayuga. Exhibit 6 provides details of the annual revenue requirements for both the proposed transmission and repowering reliability solutions.

[REDACTED]

[REDACTED]

[REDACTED]

The annual revenue requirements associated with the proposed transmission options are also set forth on Exhibit 6.

The first grouping of Cayuga revenue requirements presents the net cost to customers assuming the level of market revenues forecast by Cayuga is realized. This grouping assumes that 2014 – 2016 “Carrying Costs” are not charged to NYSEG’s customers. Other groupings of Cayuga revenue requirements present the net cost to customers assuming NYSEG’s use of forward market prices and a no market revenues forecast. The latter is a worst case scenario in which NYSEG’s customer costs are at their highest level. This grouping assumes that 2014 – 2016 “Carrying Costs” are not charged to NYSEG’s customers.

The cost of each of the proposed Cayuga repowering options is compared to the cost of NYSEG’s transmission reinforcement costs using a net present value (“NPV”) of revenue requirements at a [REDACTED] rate.

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The revenue requirements for the Cayuga repowering options were determined by subtracting market (energy, ancillary service and capacity) revenues from the fixed cost payments over the approximately [REDACTED] term of the proposal. Market revenues were provided by Cayuga for each option.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] However, as discussed above, there is a risk that Cayuga has overstated Option 1's potential market revenues.

The customer bill impacts of the various options are shown on Exhibit 10.

B. Risk Assessment Methodology

NYSEG employed a standardized approach to identifying, assessing, and evaluating mitigation strategies for project risks. Identified risks included: a) Project cost increases; b) Project schedule delays; c) Project performance in terms of meeting the reliability need; and d) Customer cost impact. All risks were also evaluated for their likelihood of occurrence and their consequence if they were to occur.

On that basis, the risk assessment method then further categorized all risks as being "low", "moderate", "high", or "extreme." The Report assessed each of the Cayuga repowering options along with the Transmission alternative to help characterize the potential level of associated risk. This initial assessment methodology included the

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following steps: 1) Describe the potential risk factor and the area of potential impact, i.e., Project Cost, Project Schedule, Reliability Performance, and Customer Cost Impact; 2) Assess the potential likelihood of occurrence using the ratings from “E” (very lowest potential) to “A” (very highest potential);²³ 3) Assess the impact level of the consequences for each occurrence;²⁴ 4) Calculate the product of the likelihood of occurrence and the impact level results to calculate a numeric risk level rating;²⁵ 5) Following this initial risk characterization, NYSEG then assessed each of the risks and the general approach, if any, that might be employed to mitigate the risk. Based on NYSEG’s assessment of potential risk mitigation, the risk level rating of each risk factor was re-assessed and finalized for purposes of the analysis.

A summary of risk factor analysis for each Cayuga repowering option and for the Transmission solution is set forth on Exhibits 11 and 12.

One critical risk to NYSEG’s ratepayers is electric market risk. As indicated above, Cayuga’s proposals place on NYSEG the full market price risk, since NYSEG must make a fixed rate payment to Cayuga, while the market price revenues (which offset the flat rate payment to Cayuga) will fluctuate. Cayuga assumes a certain revenue stream from market operations. This market revenue stream is based upon the energy and natural gas market price forecast used by Cayuga in its dispatch model. Much of the market revenue is attributable to the capacity value and associated capacity market price

²³ For ease of developing a spreadsheet risk register, the risk weighting ranges from 1 – 5 were assigned to the likelihood of occurrence for each risk factor.

²⁴ Again, for ease of developing a spreadsheet risk register, consequence weighting ranges from 1 – 5 were assigned to the impact of the consequences for each risk factor.

²⁵ For purposes of this risk analysis, NYSEG used the following risk level ratings: Risk Level 5 or below (Low); Risk Level 5 to 10 (Moderate); Risk Level 10 to 15 (High); Risk Level Greater than 15 (Extreme).

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forecast used by Cayuga. Using publicly available data, NYSEG was not able to duplicate the forecasted level of revenues projected by Cayuga. As shown on Exhibits 8 and 9, NYSEG's use of forward market prices results in far less revenues. Accordingly, there is a risk that Cayuga has overstated Option 1's revenue potential. Given the uncertainty in forward energy and capacity prices, NYSEG is concerned about its customers assuming the market price risk associated with the Cayuga repowering option. If this market risk is removed and no market revenues are assumed (as shown on Exhibit 3), the transmission option is the least cost option. Utilizing a forecast of no market revenues is consistent with the fact that certain market participants in the NYISO are seeking actively to have generation with any type of subsidy mitigated in the capacity and energy markets. If adopted, this could result in significantly diminished market revenues for Cayuga repowering.²⁶

In general, the Company's risk assessment demonstrates that the transmission option would have a lower risk level for ratepayers than the Cayuga repowering options.

C. Environment

1. Air Emissions

Cayuga provided to the Company forecast generation levels and air emissions for each of its four proposed repowering options. Exhibit 13 provides details of the annual generation and air emissions. Key assumptions include each of the proposed generation options having a different marginal production cost resulting in different generation levels as detailed on Exhibit 13. Cayuga Options 1 and 2 have the highest marginal costs and run the least amount of time, while Option 4 (installation of a modern natural gas

²⁶ See supra note 20.

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combined cycle unit with very high efficiencies) will result in significantly higher utilization. The Report reviews the forecast emissions for each Option and compares them with two alternative generating facilities: 1) baseline comparison with continued Cayuga coal plant operations and 2) comparison with a modern natural gas combined cycle generation with an emission rate comparable to Cayuga Option 4.

NYSEG assumes for purposes of the Report that if transmission solutions are implemented rather than a Cayuga repowering, air emissions from long term replacement generation in the NYISO would be comparable to Cayuga's Option 4 emissions. The air emissions analysis is intended to provide a general sense of the relative level of air emissions impact resulting from each repowering Option and the transmission option. In any event, the transmission option and any of the repowering options would result in a significant improvement compared to continued coal-fired generation.

D. The Economy

It is impossible for the Company to predict with any certainty likely general developments in the economy over the ten year study period. The Study reviews, however, employment level forecast materials from Cayuga as shown on Exhibit 14. For the transmission option, the construction staffing levels are totals on a man-year basis on Exhibit 14 and no permanent employee positions are forecast for NYSEG or Niagara Mohawk as a result of the transmission reinforcement.

Cayuga also provided forecast levels of property taxes and both NYSEG and Niagara Mohawk have developed estimates of property taxes for the transmission solutions. Details regarding the nominal tax payments for each reliability alternative

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from 2017 to 2036 are set forth on Exhibit 15.²⁷ The property tax estimates for repowering do not include property taxes to be paid for the natural gas transmission facilities to be built to serve the plant. It is also not clear whether Cayuga's forecast assumes Payment in Lieu of Taxes ("PILOT") Agreements for each of the scenarios and such agreements could lower overall revenue requirements for each Cayuga Option.

E. Electric Market Competitiveness

1. Transmission Enhancement May Positively Impact Market Price in that Sub-zone and Improve Energy Market Efficiency

The transmission limitations in the Auburn area cause Cayuga to be called out of merit ("OOM") to meet the local reliability need during those circumstances when the plant's electric output is needed for reliability but is not economic in the NYISO market. NYSEG gets billed by the NYISO its sub-zone load allocated share of the OOM cost (Cayuga's bid price minus energy market value) incurred. Cayuga's OOM costs were almost [REDACTED] in 2012. By definition, Cayuga OOM operation reduces economic efficiency and increases costs for customers in the sub-zone. The proposed transmission enhancements will eliminate the need for Cayuga OOM operation and therefore will have no impact on the economic dispatch of generation.

2. Cayuga Repowering May Result in a Short-term Reduction in Market Prices

In general, Cayuga Option 1 and Option 2 as well as Unit 1 for Option 3 are designed to meet the reliability need, but due to the inefficiency of the designs, are not projected to run much based on NYISO economics. Cayuga Option 4 and Unit 2 for Option 3, utilize the most efficient technology available, and would likely run a

²⁷ It is worth noting that the property taxes for the transmission solutions will be paid to different civil

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significant portion of the time. Their operation could result in a short-term reduction in market prices. Alternatively, absent repowering, the mothballing of the existing coal fired facility would likely lead to the development of a new, potentially more efficient (due to economies of scale) natural gas fired generator with an in-service date similar to the proposed in-service date for the repowering, thus making any assumed market price benefit arising out of the repowering only short-term in nature.

For capacity, the NYISO Rest of State currently enjoys a capacity surplus and with the assumed development of new generation, a repowered Cayuga Generating Facility would not impact capacity market prices for an extended period.

F. Reliability Responsibility

The Commission recently affirmed that jurisdictional utilities such as the Company are obligated under the Public Service Law to provide and maintain safe and adequate service. Included in this responsibility is the need to move forward with planning and development of transmission projects required for reliability.²⁸ As noted below, NYSEG believes that transmission reinforcement is the best option in the current situation. Should the Commission disagree and select a Cayuga repowering option (or another option based on a full market solicitation), NYSEG believes full recovery should be authorized for continuing with the transmission option until such time as the repowering option is either online or likely to be online in the near future. Similar to the Commission's findings in the Indian Point Order, lead times mandate that NYSEG be authorized to proceed forward with transmission enhancement planning and approval to

divisions than the Cayuga repowering options.

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provide customers with reliable service. The Company's customers cannot wait for three years for a repowering project to be completed, only to find out that Cayuga (or another developer) cannot or will not be able to bring on line the generation necessary for reliability.²⁹

IV. RECOMMENDATION

The transmission reinforcement option provides the most certainty to customers with regard to cost, schedule and operational risk.

²⁸ Case 12-E-0503 – Proceeding on Motion of the Commission to Review Generation Retirement Contingency Plans, Order Upon Review of Plan To Advance Transmission, Energy Efficiency, And Demand Response Projects (April 19, 2013) (“Indian Point Order”).

²⁹ Contractual based damages do not provide electricity necessary to provide electric system reliability.

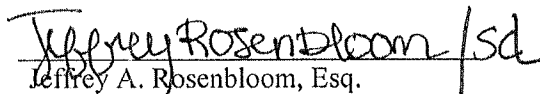
PUBLIC REDACTED VERSION

V. CONCLUSION

For the foregoing reasons, NYSEG recommends that the Commission adopt the above recommendation for the reasons set forth herein.

Dated: May 17, 2013

Respectfully submitted,


Jeffrey A. Rosenbloom, Esq.
Managing Attorney and Assistant Secretary
New York State Electric & Gas
Corporation
89 East Avenue
Rochester, NY 14649
(585) 724-8132 (Telephone)
jeffrey_rosenbloom@rge.com

Noelle M. Kinsch, Esq.
Deputy General Counsel
Iberdrola USA
99 Washington Avenue, Suite 2018
Albany, NY 12210
(518) 434-4977 (Telephone)
noelle.kinsch@iberdrolausa.com

*Counsel for New York State Electric & Gas
Corporation*

EXHIBIT 1

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**CONTAINS CONFIDENTIAL COMMERCIAL /
TRADE SECRET INFORMATION**

EXHIBIT 2

REDACTED

**CONTAINS CONFIDENTIAL COMMERCIAL /
TRADE SECRET INFORMATION**

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EXHIBIT 15

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