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TO: NYPA BOARD OF TRUSTEES  
FROM: EDWARD WELZ, CHIEF OPERATING OFFICER  
DATE: MAY 8, 2014  
SUBJECT: MONTHLY REPORT FOR THE BOARD OF TRUSTEES

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This report covers performance of the Operations group in April 2014.

## **Operations**

### *Plant Performance*

Systemwide net generation<sup>1</sup> was 1,967,242 MWh (megawatt-hours<sup>2</sup>) for April which is below the projected net generation of 2,062,786 MWh. For the year, net generation was 8,199,375 MWh which is below the projected target of 8,557,793 MWh.

The fleet availability factor<sup>3</sup> was 86.45 percent in April, and was 91.19 percent for the year. Generation Market Readiness factor<sup>4</sup> was 99.97 percent in April, which is better than the monthly target of 99.40 percent. Year-to-date Generation Market Readiness factor was at 99.78 percent, which is above the annual target of 99.40 percent.

There were no significant forced outages<sup>5</sup> in April.

Generation Net Revenue in April was \$16.0 million with a loss of revenue of \$1,500. For the year, net revenue was \$174.0 million while revenue loss is \$0.75 million.

Niagara River flows in April were below the historical average and are expected to be at or below normal levels for most of the year. St. Lawrence River flows for April were below forecast levels. River flows are expected to be below historical levels for most of the year.

### *Transmission Performance*

Transmission Reliability<sup>6</sup> was 95.54 percent in April which was below the target of 97.02 percent. Year-to-date transmission reliability is 97.10 percent, above the target of 97.05 percent.

There were two significant unplanned transmission events<sup>7</sup> to report in April. The MSU-1 line was taken out on emergency for 52 hours to replace a Massena CCVT shortly after being restored from an initial trip. The MSC-7040 Line was forced out of service for 57 hours that was initiated by a cross trip from the MSU line due to a contractor error and remained out for the CCVT replacement.

### *Safety*

The NYPA DART (Days Away, Restricted or Transferred) Rate for April is 1.54. For the year, the DART Rate is 1.35 compared to the target of 0.78.

The Operations DART Rate for April is 2.37. For the year, the DART Rate is 2.00 compared to the target of 1.08.

There were two lost time incidents in April that met the DART criteria. In the Western region there was an incident attributed to a February injury that was declared lost time due to medical follow up in April. This will be recorded under February's lost time injuries.

The Central Region had one recordable lost time injury in April 2014. While tightening bolts, a journeyman mechanic experienced shooting pain and discomfort from his upper left arm through the elbow and to the wrist. The employee's physician wrote the employee out of work until an MRI could be completed and reviewed. The MRI was negative and the employee was diagnosed with tendonitis. This injury is considered a lost time recordable because the employee was written out of work for 10 days. This injury was reported late due to the MRI test and results review.

For the year, there have been 7 injuries that resulted in lost time and met the DART criteria.

### *Environmental*

There were no reportable incidents in April.

For the year, there have been eight incidents. The annual target is 32 incidents.

## *Life Extension and Modernization Programs*

### Transmission LEM

T-LEM is a multiyear program that will upgrade the Authority's existing transmission system to maintain availability, increase reliability, and ensure regulatory compliance. The Program encompasses Authority transmission assets in the Central, Northern, and Western Regions. The Program is estimated to cost \$726 million and is comprised of several projects:

- St. Lawrence Breaker & Relay Replacement:
  - STL Breaker Installation: An interim award has been issued to O'Connell Electric for construction activities during the period 2014 – 2016. A Trustee Item is being presented at the May meeting seeking contract approval.
  - STL Breaker Procurement: Contract issued to HVB for procurement of circuit breakers. Fabrication of the circuit breakers is ongoing.
  - 100MVAR Capacitor Banks: Award issued to Cooper Power Systems. CH2M is working on the final design package.
- CEC Autotransformer/Reactor Refurbishment:
  - One auto-transformer and one reactor will be refurbished in 2014.
  - On April 23, while ABB was placing vacuum on Auto-Transformer 1X, the tank wall failed resulting in external and internal damage. ABB is investigating the incident and analyzing the extent of damage to provide recommended course of action.
- Massena Substation Reactor Refurbishment:
  - Two reactors will be refurbished July – October 2014.
- NIA, BG & CEC Relay Replacements:
  - The project team continues to design, procure equipment and install relays.
- Massena Substation Autotransformer Replacement:
  - The spare auto-transformer has arrived at Massena Substation. A revised schedule indicates return to service on June 2014.
  - Remaining auto-transformers are scheduled for delivery and installation in 2014 – 2015. At this time, one bank is planned to be installed in 2014 with the other in 2015.
  - An interim award for site prep of Banks #1 & 2 has been awarded. A Trustee Item is being presented at the May meeting seeking contract approval.
- Tower Modeling:
  - Tower modeling of the weathering steel structures and grillage was completed.
- Tower Painting:
  - Tower painting proposals were received and are being evaluated for work at STL starting in 2015.
- NIA, STL, CEC & BG Switchyard LEM & STL Substation LEM:

- The project team has assessed switchyard and substation equipment and determined the priority of equipment replacements.
- Project Plans have been issued for review.
- Trustee Items are being drafted. A CEAR for the NIA Switchyard LEM is being presented at the May Trustee meeting seeking partial funding.
- PV-20 Submarine Cable Replacement:
  - Preliminary engineering activities are ongoing by CHA in collaboration with VELCO.

### LPGP LEM

The assembly of the third and fourth turbines commenced in Mitsubishi Hitachi Power Systems America's (MHPS's) facility located in Japan. The components for the fifth turbine are in various stages of fabrication and are nearing completion by MHPS's sub-contractor, Litostroj, located in Slovenia. The fabrication of the sixth turbine at MHPS's two new facilities has commenced: Japan Steel Works, located in Japan, is fabricating the runner crown and blades; Voestalpine, located in Austria, is fabricating the blades.

The refurbishment work and re-assembly of Unit 5 is completed and commissioning is underway. Due to the need to replace the shaft on Unit 5, the return to service date has been moved to early June. The fabrication of two additional sets of spare shafts has commenced, and one of the sets of shafts will be expedited in order to have it delivered in time for the next unit outage, Unit 7.

During the post unit upgrade mechanical testing on Unit 11, several deficiencies were discovered and the testing was not completed. The main issues that need to be addressed are: the overheating of the rotor pole connections and the unit vibrations at speed no load and a potential shaft miss-alignment. It was decided by the Project team that it would be in our best interest to take another outage for Unit 11 to address these issues. As a result, the outage for the third unit, Unit 7, will be postponed so resources can be concentrated on the commissioning of Unit 5 and address the Unit 11 issues simultaneously. The generator contractor, Andritz, will be replacing the rotor pole connections in an outage that is planned in May. The turbine contractor, MHPS, will be investigating the vibration issue and will be checking the bearings and shaft alignment during the May outage as well. The LPGP LEM program is scheduled to be completed in 2020.

### *Technical Compliance – NERC Reliability Standards*

#### Enforcement Actions – Northeast Power Coordinating Council (NPCC):

NYPA has three (3) minimal risk possible violation being processed pursuant to NYPA's participation in a NERC-sponsored enforcement pilot program (see RAI section below).

#### Internal Investigation of Possible Violations:

In April, two new investigations were initiated. Five (5) investigations, relating to various requirements, are currently in progress.

#### New Bulk Electric System (BES) Definition:

In June 2013, FERC approved a request for a one-year delay in the implementation of the new BES Definition from July 1, 2013 to July 1, 2014. Based on the new BES Definition, a number of NYPA owned assets have been identified that may require NYPA's registration as Transmission Operator (TOP) and Transmission Planner (TP). NYPA staff has been engaging the NYISO, NY Transmission Owners and Alcoa in discussions about these possible impacts and the development of the Reliability Standards Compliance Management Agreements for these new BES assets. Beginning on July 1, 2014, NYPA will submit to NERC, via a NERC on-line software tool, the new BES assets and the applicable BES exclusions and exceptions requests. NYPA must demonstrate compliance with the applicable reliability standards for its new BES assets by July 1, 2016.

#### Critical Infrastructure Protection (CIP) Standards - Version 5:

On November 21, 2013 the Federal Energy Regulatory Commission (FERC) approved the CIP Version 5 reliability standards and the implementation plan. NYPA's cyber asset classification assessment surveys required pursuant to the new standards will be completed by June 2014. In April, the survey of the St. Lawrence Power Project facilities and substations was completed. The results of the surveys will be used to confirm the scope, costs, and schedule of the implementation plan NYPA will need to execute to demonstrate compliance with the revised standards by April 1, 2016.

#### Physical Security Standard

On March 7, 2014, FERC issued an order (RD14-6) directing NERC to develop and submit for approval within 90 days a new reliability standard to address physical security risks and vulnerabilities related to the reliable operation of the Bulk Power System. The new standard will require owners and operators of Bulk Power System assets to perform a three-step process to identify critical facilities, assess physical security threats and vulnerabilities risks to such facilities, and implement appropriate security plans to protect against physical attacks that may compromise the operability or recovery of such facilities. Generally, the standard is intended to apply to transmission substations and their associated primary control centers that, if rendered inoperable or damaged as a result of a physical attack, could result in instability, uncontrolled separation, or cascading within an interconnection. This new standard is currently in development and is expected to be filed with FERC for approval by June 5, 2014. NYPA staff is closely monitoring the development of this standard with APPA and LPPC members, is assessing the applicability and impacts to NYPA's facilities, and is regularly updating management.

#### NERC Reliability Assurance Initiative (RAI):

NYPA, along with other generation and transmission companies in North America, including Large Public Power Council (LPPC) and American Public Power Association (APPA) members, has been actively supporting the NERC and NPCC in moving this important program forward. In April, NYPA continued to participate in an NPCC pilot program to test enforcement tools for processing minimal risk violations of the standards. NYPA is the only registered entity of over 350 in the

NPCC region participating in the pilot program. Similar pilot programs are being conducted in several regions across the country to establish the basis for a more risk-based, continent-wide compliance monitoring and enforcement process.

## Energy Resource Management

### *NYISO Markets*

In April, Energy Resource Management (ERM) bid 2.23 million MWh of NYPA generation into the NYISO markets, netting \$46.8 million in power supplier payments to the Authority. Year-to-date net power supplier payments are \$405.7 million.

### *Fuel Planning & Operations*

In April, NYPA's Fuels Group transacted \$23.5 million in natural gas and oil purchases, compared with \$26.5 million in April 2013. Year-to-date natural gas and oil purchases are \$209.1 million, compared with \$129.9 million at this point in 2013. The total \$79.2 million increase is mainly due to the higher cost of fuel and/or fuel consumption at the Astoria Energy II Plant (\$30.1 million), 500-MW Combined Cycle Plant (\$40.3 million), and Richard M. Flynn Power Plant (\$12.2 million), which was offset by a decrease at the Small Clean Power Plants (-\$3.4 million).

## GLOSSARY

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<sup>1</sup> **Net Generation** – The energy generated in a given time period by a power plant or group of plants, less the amount used at the plants themselves (station service) or for pumping in a pumped storage facility. Preliminary data in the COO report is provided by Accounting and subject to revision.

<sup>2</sup> **Megawatt-hour (MWh)** – The amount of electricity needed to light ten thousand 100-watt light bulbs for one hour. A megawatt is equal to 1,000 kilowatts and can power about 800 homes, based on national averages.

<sup>3</sup> **Availability Factor** – The Available Hours of a generating unit over the Period Hours (hours in a reporting period when the unit was in an active state). Available Hours are the sum of Service Hours (hours of generation), Reserve Shutdown Hours (hours a unit was not running but was available) and Pump Hours (hours a pumped storage unit was pumping water instead of generating power).

<sup>4</sup> **Generation Market Readiness Factor** – The availability of generating facilities for bidding into the New York Independent System Operator (NYISO) market. It factors in available hours and forced outage hours that drive the results.

<sup>5</sup> **Significant Unplanned Generation Events** – Those events (forced or emergency outages of individual generator units) of duration greater than 72 hours, or have a total repair cost of greater than \$75,000, or result in greater than \$50,000 of lost revenues.

<sup>6</sup> **Transmission Reliability** - A measurement of the impact of forced and scheduled outages on the statewide system's ability to transmit power.

<sup>7</sup> **Significant Unplanned Transmission Events** – Those events (forced or emergency outages of individual transmission lines) which directly affect the reliability of the state's transmission network, or affect the availability of any component of the state's transmission network for greater than 8 hours, or that have a repair cost greater than \$75,000.