



**Edward Welz**  
Chief Operating Officer

TO: NYPA BOARD OF TRUSTEES  
FROM: EDWARD WELZ, CHIEF OPERATING OFFICER  
DATE: JANUARY 12, 2015  
SUBJECT: MONTHLY REPORT FOR THE BOARD OF TRUSTEES

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

## **Operations**

### *Plant Performance*

Systemwide net generation<sup>1</sup> was 2,253,070 MWh (megawatt-hours<sup>2</sup>) for December which is below the projected net generation of 2,282,832 MWh. For the year, net generation was 25,677,116 MWh which is above the projected target of 25,161,700 MWh.

The fleet availability factor<sup>3</sup> was 86.99 percent in December, and was 88.06 percent for the year. Generation Market Readiness factor<sup>4</sup> was 92.46 percent in December, which is higher than the monthly target of 99.40 percent. Year-to-date Generation Market Readiness factor was at 98.95 percent, which is above the annual target of 99.40 percent.

There was one significant forced outage<sup>5</sup> in December:

1. Gilboa Unit 3 was declared into a forced outage on December 5 because of cracks discovered in the main rotor ledge.

Generation Net Revenue in December was \$24.8 million with \$3,000 of lost revenue for the month. Year-to-date net revenue was \$394.8 million while total revenue loss was \$0.9 million.

Niagara River flows in December were above the historical average and are expected to be above normal levels for next year. St. Lawrence River flows for December were above forecast levels and are expected to be above historical levels for next year.

### *Transmission Performance*

Transmission reliability<sup>6</sup> in December was 98.75 percent, which was above the target of 98.11 percent. Year-to-date transmission reliability is 97.07 percent, above the target of 96.42 percent.

There were no significant unplanned transmission events in December to report.

### *Safety*

The NYPA DART (Days Away, Restricted or Transferred) Rate for December is 0.00. For the year, the DART Rate is 1.13 compared to the target of 0.78.

The Operations DART Rate for December is 0.00. For the year, the DART Rate is 1.68 compared to the target of 1.08.

There were no lost time incidents in December that met the DART criteria.

For the year, there have been 18 injuries that resulted in lost time and met the DART criteria.

### *Environmental*

There was one reportable incident in December:

1. At Niagara, a historical release of oil was discovered when excavating for a new electrical conduit at the switchyard. All contaminated material was removed.

For the year, there have been 27 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:** Trustees authorized funding for Phase 1 in the amount of \$67.8 million (total \$110 million) at the December 2012 meeting.
  - 480V ATS's and Conduit 90% complete.
  - MOD 8011 and CCVT 1744 conduit installation in progress.
  - MOD 8011 and CCVT 1744 cable termination and megger testing in progress.
  - Core bores underway for CB1724 & 1824.
  - Award recommendation with procurement for 13.8KV/480v TX's and switchgear. Finalizing terms and conditions. Delivery expected 8-12 weeks after award.
  - Installing Capacitor Bank #6 CT's.
  - Installing 480V Raceway.
- **STL Remote Substations and Switchyard LEM (CPR 558, 1162, and 1163)**
  - 2016 Construction Start – Plattsburgh.
  - Engineering for replacement of Adirondack breakers OCB 102 and 202 in progress.
  - Project Plan developed by CH2MHill. Final submission of the project plan will be made after finalization of integrated schedule and cost estimates. Scheduling activities are underway.
  - Engineering for Station Service Upgrade at Plattsburgh in progress. Switchgear removal to be completed before relay replacement work can take place.
  - Conceptual design for Saranac station service in progress.
- **NIA Protective Relay Replacement:** Trustees authorized funding for Phase 1 in the amount of \$25.9 million (total \$52 million) at the December 2012 meeting.
  - **PA 27, 301 & 302:** Completed.
  - **NIA Packard 195, Gardenville 180, and Panel 9NR (CPR 209):** The replacement of the Packard 194 relay with a 311L is planned for the 3<sup>rd</sup> quarter 2015.
  - **NIA NR2 (CPR 209):** RG&E reported that current planned location for RG&E's Station 255 will need to be revisited because of property owner issues and is now likely scheduled for construction 2019.
- **NIA Switchyard LEM:** Trustees authorized funding for Phase 1 in the amount of \$154 million (total \$266.9 million) at the December 2012 meeting.

- **NIA DC Distribution Upgrade:** Preliminary design in progress by RCM to address recommendations of NYPA Engineering DC Load Study. Preliminary design completed and under review. A site meeting took place on 10/23/14 to discuss the preliminary design.
- 800MVA auto-transformer design/fabrication is in process.
- 115kV circuit breaker contract awarded; 230kV breaker evaluation is in progress.
- 115kV trenching and conduit installation is in progress.
- Engineering for Tubular Bus, Disconnect Switches, and MODS by RCMT in progress.
- **CEC Switchyard LEM:**
  - Award in progress for 765 and 345 kV circuit breakers and Instrumentation Transformers.
  - Final preliminary engineering report submitted by CH2M Hill and is under review.
  - CEAR and award of 765kV circuit breakers approved by Trustees.
  - Long lead items have been procured.
- **CEC Auto-Transformer/Reactor Refurbishment:**
  - Reactor 1A, 1C, 1X completed.
  - Reactor 1B scheduled for Spring of 2015.
  - Meeting scheduled with ABB for January 22, 2015 to review detailed report following damage to auto-transformer 1X and plan way forward.
- **Massena Substation Reactor Refurbishment:**
  - Refurbishment of (2) reactors is planned for 2015.
- **PV-20 Submarine Cable Replacement:**
  - Final review of bid package is in progress by NYPA and VELCO.
- **BG & CEC Relay Replacements:**
  - The project team continues to design, procure equipment, and install relays.
- **Massena Substation Autotransformer Replacement:**
  - (2) auto-transformers have been delivered to Massena with the remaining (4) being planned for delivery in late January and February 2015.
  - Continued working on marshaling cabinet enclosure for Bank 2 and conduits.
  - Bank 2 is planned to return-to-service in Q2 2015; Bank 1 return-to-service will be in 2016.
- **Tower Painting:**
  - Contract awarded to Tower Maintenance.
  - Estimated start is April 2015 running through November 2015.
  - Kick-off meeting scheduled for January 21, 2015.

### LPGP LEM

The third unit outage (Unit 7) commenced on August 4, 2014 and is presently being re-assembled; the additional unforeseen repairs were performed in an expedited fashion in order to maintain the schedule. The “dry commissioning” of the new unit control and static excitation systems commenced; the unit’s return to service date is March 20, 2015.

The third runner was completed and installed in the third unit. The assembly of the fourth runner is well underway and is scheduled to be delivered in July 2015. The fifth runner's crown, band and seven blades have arrived at MHPSA's facility located in Japan and assembly commenced and is scheduled to be completed in December 2015.

The fabrication of the sixth runner is occurring at two new facilities: Japan Steel Works (JSW) located in Japan and Voestalpine located in Austria. The fabrication of the seven blades were completed and inspected and are in transit to MHPSA's facility located in Japan. The final inspection of the crown and band were performed at JSW's facility and the results were satisfactory. The fabrication of the seventh runner components at the Litostroj foundry located in Slovenia is well underway.

The final inspection of the fourth set of wicket gates (total of 20) was conducted and the results were satisfactory, and the fabrication of the fifth set of wicket gates is underway.

The 2nd set of spare shafts was delivered and is being installed in the third unit; the original turbine shaft required extensive repairs (as previously reported) which could have extended the outage significantly. The fabrication of the 3rd set of shafts was successfully completed and delivered to the site.

We are in the process of ordering three additional spare set of shafts based the findings on the previous two units and in order to maintain the LEM schedule as previously reported. The time frame between the future unit outages has been condensed in order to maintain the completion of the LPGP LEM program in 2020 as originally planned.

#### *Technical Compliance – NERC Reliability Standards*

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

NYPA has three (3) minimal risk violations being processed pursuant to NYPA's participation in a NERC-sponsored Reliability Assurance Initiative (RAI) pilot program for self-logging. These actions are expected to be closed in January 2015. There will not be any penalties associated with these violations.

##### Internal Investigation of Possible Violations

Since the last report, there was one new internal investigation initiated. There are currently five (5) open internal investigations.

##### NPCC Spot Check Audit

On July 29, 2014, NPCC initiated an off-site Spot Check Audit of the operations and planning standard PRC-002-NPCC-001 – Disturbance Monitoring for NYPA's Transmission Owner function registration. The NPCC audit staff completed its review of NYPA's compliance documentation and provided a preliminary indication that NYPA is fully compliant with PRC-002-NPCC-001. In December, NPCC requested additional supporting evidence for their records which NYPA provided. The final NPCC Spot Check Audit report is expected to be issued in January 2015.

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

As stated in earlier reports, the Federal Energy Regulatory Commission (FERC) approved the new Bulk Electric System (BES) definition and that NYPA has nearly

50 newly identified BES elements that will be subject to the NERC reliability standards in July 2016. NYPA continued its participation in meetings with the NYISO and the other NY Transmission Owners to assess new state-wide functional registration and compliance management impacts and actions pursuant to the new BES definition.

In December, NYPA sent a position paper and request regarding NYPA's registration as a TOP and TP to the NYISO. NYPA is taking a position that since it does not operate most of its newly identified BES assets, in a NERC functional model sense, that it will not be a TOP. The position paper includes a request of the NYISO to add some of NYPA's newly identified BES elements to its list of controlled assets for TOP compliance purposes. The position paper recommends that NYPA become a registered TP under a Coordinated Functional Registration (CFR) agreement with the NYISO, in which the NYISO will accept compliance accountability for all but a few requirements of the standards applicable to the TP function for NYPA's newly identified BES elements. These positions have also been discussed with NPCC staff. It is anticipated that NYPA will engage the NYISO in further discussions on this matter in January 2015.

In December, NYPA continued to work closely with Alcoa in the development of a joint exception request to exclude the Moses-Alcoa 115 kV transmission lines from the BES.

NYPA staff continued discussions with NY Transmission Owners to reach agreements that clarify the roles and responsibilities for compliance management for the Transmission Owner (TO) standards related to NYPA assets operated and maintained by others. NYPA's discussions with these organizations also focused on reaching agreements, before April 2016, for managing compliance with the Version 5 Critical Infrastructure Protection (CIP) cyber security standards for assets owned by NYPA but that reside in facilities owned by others.

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

In December, NYPA continued to monitor regulatory developments associated with NERC's Critical Infrastructure Protection (CIP) Version 5 reliability standards for cyber security. These new reliability standards will have substantive impacts on NYPA's operations-related cyber security compliance program. In response, a comprehensive CIP Version 5+ Compliance Transition Project Plan (Plan) has been developed to leverage NYPA's existing CIP Version 3 compliance program and includes tasks to expand the program to include the newly identified Cyber Systems, the identification of critical milestones, and key internal resources. The CIP V5+ Transition team is ramping up and will be engaging internal stakeholders in early 2015.

The CIP Version 5+ Capital Expenditure Request will be presented to the Board of Trustees in January 2015. Expenditure estimates for implementation of the revised standards have been included in the Operations budget plan for 2015-2016.

When completed, these efforts will enable NYPA to demonstrate compliance with the new standards by the April 1, 2016 enforcement date.

#### Physical Security Standard

FERC approved the new physical security standard (CIP-014-1 – Physical Security) on November 20, 2014 and it will become effective October 1, 2015.

In December, NYPA continued to work with the NYISO and NY Transmission Owners to develop a modeling methodology to ensure consistency across New York State in the assessment and identification of transmission facilities that will be subject to this standard. Those facilities that are identified from the modeling studies will be subject to other requirements including a vulnerability assessment and a documented security plan that must be reviewed and updated every 30 months.

#### NERC Reliability Assurance Initiative

The VP Technical Compliance, R. Crissman, continued to serve on an Industry Advisory Group, established by NERC, which will provide implementation guidance to industry for this NERC initiative. The objective of the initiative is to establish more risk-based compliance monitoring and enforcement processes for NERC's reliability standards; the implementation is planned to be completed by the end of 2015. Mr. Crissman attended an Advisory Group meeting at NERC's offices in Washington, DC on December 17. The next meeting of the Advisory Group is on January 27.

## Energy Resource Management

### *NYISO Markets*

In December, Energy Resource Management (ERM) bid 2.61 million MWh of NYPA generation into the NYISO markets, netting \$49.9 million in power supplier payments to the Authority. Year-to-date net power supplier payments are \$773.5 million.

### *Fuel Planning & Operations*

In December, NYPA's Fuels Group transacted \$29.7 million in natural gas and oil purchases, compared with \$31.8 million in December 2013. Year-to-date natural gas and oil purchases are \$361.4 million, compared with \$324.4 million at this point in 2013. The total \$37.0 million increase is mainly due to the higher cost of winter fuel and/or fuel consumption at the Astoria Energy II Plant (\$17.4 million), 500-MW Combined Cycle Plant (\$23.1 million), and Richard M. Flynn Power Plant (\$9.5 million), which was offset by a decrease at the Small Clean Power Plants (-\$13.0 million).

### *RGGI*

Auction 26 of the Regional Greenhouse Gas Initiative was held on December 3, 2014. Auction 26 cleared at \$5.21 and NYPA was awarded 700,000 allowances. Since inception, NYPA has purchased over 20.7 million RGGI allowances for a total cost of approximately \$62.4 million, averaging \$3.02 per allowance.

## 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.