

TO: NYPA BOARD OF TRUSTEES
FROM: EDWARD WELZ, CHIEF OPERATING OFFICER
DATE: FEBRUARY 10, 2015
SUBJECT: MONTHLY REPORT FOR THE BOARD OF TRUSTEES

This report covers performance of the Operations group in February 2015.

Operations

Plant Performance

Systemwide net generation¹ in February was 2,052,478 MWh (megawatt-hours²) year-to-date which is below the projected net generation of 2,155,884 MWh. For the year, net generation was 4,206,754 MWh which is below the projected target of 4,517,132 MWh.

The fleet availability factor³ in February was 89.37 percent year-to-date, and was 89.42 percent for the year. Generation Market Readiness factor⁴ in February was 99.02 percent year-to-date, which is lower than the target of 99.40 percent. Year-to-date Generation Market Readiness factor was at 99.48 percent, which is above the annual target of 99.40 percent.

There were four significant forced outage⁵ events in February:

1. Gilboa Unit 3 remains in a forced outage from December 5, 2014 because of cracks discovered in the main rotor ledge.
2. St. Lawrence Power Project units were hampered by extreme ice conditions throughout the month. The resulted in the equivalent of 48 forced outage hours for the plant.
3. Astoria 500MW Unit 7A had failed to swap to liquid fuel which resulted in \$511,127 in lost revenue.
4. Unit 7A shutdown automatically while transferring to liquid fuel. This outage resulted in a revenue loss of \$153,260.

Generation Net Revenue in February was \$33.6 million with lost revenue of \$0.7 million. Year-to-date net revenue was \$67.2 million while revenue loss was \$0.7 million.

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

Transmission Performance

Transmission reliability⁶ in February was 98.86 percent, which was above the target of 97.59 percent. Year-to-date transmission reliability is 98.94 percent, above the target of 98.00 percent.

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

Safety

The NYPA DART (Days Away, Restricted or Transferred) Rate for February is 2.38. For the year, the DART Rate is 2.05 compared to the target of 0.78.

The Operations DART Rate for February is 2.31. For the year, the DART Rate is 2.46 compared to the target of 1.08.

There were 3 lost time incidents in February that met the DART criteria.

For the year, there have been 5 injuries that resulted in lost time and met the DART criteria.

Environmental

There were two reportable incidents in February. Both of them occurred at the Astoria 500MW facility:

1. An exciter compartment bard unit at Combustion Turbine 7A released 11.7 pounds of R-22 fluid.
2. The trailer filter system failed to remove chlorine from the city water supply system. This exceeded the SPDES limit.

For the year, there have been 3 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.
 - Removing demo cables from control tunnel.
 - Pulling cables for PCB 1724 from SAMAC building to control tunnel in preparation for PCB 1724 install.
 - Installing cable tray and conduit in Service Building basement for new 480V system.
 - Draining oil from OCB 1702, 1708 and 1714 bushings in preparation for removing them from site next week.
- **STL Remote Substations and Switchyard LEM (CPR 558, 1162, and 1163)**
 - 2017 Construction Start – Plattsburgh.
 - Adirondack Sub work will be included in the MA1 rebuild package.
 - Engineering for replacement of Adirondack breakers OCB 102 and 202 in progress.
 - Engineering for Station Service Upgrade at Plattsburgh in progress. Switchgear removal to be completed before relay replacement work can take place.
 - Relaying/Metering/Communications/SCADA conceptual design for Plattsburg discussed 12/8. Follow up meeting with site scheduled for January.
 - Schedule for Remote Substation BARR/LEM work under development.
 - CT/VT metering units for MA1&2 in procurement. Final round of technical clarifications underway.
- **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.
 - **NIA Packard 195, Gardenville 180, and Panel 9NR (CPR 209):** The replacement of the Packard 194 relay with a 311L is planned for the 3rd quarter 2015.
- **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 completed. RCMT will issue 60% drawings on 1/23/15 and 90% drawings on 5/15/15.
 - 800MVA auto-transformer design/fabrication is in process.
 - 115kV circuit breaker contract awarded; kick off meeting was held on 1/16/15
 - 230kV circuit breaker proposals are being evaluated.
 - 115kV trenching and conduit installation is in progress.
 - Engineering for Tubular Bus, Disconnect Switches, and MODS by RCMT in progress.

- **CEC Switchyard LEM:**
 - CEAR and award for 765 kV circuit breakers approved by Trustees.
 - 345 kV circuit breakers and 765 kV potential transformers award in progress.
 - Kick Off meeting with ABB for 765 KV Circuit Breakers was held on 1/20/2015.
- **CEC Auto-Transformer/Reactor Refurbishment:**
 - Reactor 1A, 1C, 1X completed.
 - Reactor 1B scheduled for Spring 2015.
 - Meeting conducted with ABB on January 22, 2015 to review detailed report following damage to auto-transformer 1X; NYPA has decided to proceed with the repair to address the damage caused by ABB as well as legacy issues discovered during the inspection.
- **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 February – March 2015; installation in progress.
 - Continued working on marshaling cabinet enclosure for Bank 2 and conduits.
 - Bank 2 is planned to return-to-service in April 10, 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 conducted January 21, 2015.

LPGP LEM

The third unit outage (Unit 7) commenced on August 4, 2014 and is presently being re-assembled. The “dry commissioning” of the new unit control, static excitation and relay protection systems are well underway. The unit will return to service in March. The fourth unit outage (Unit 2) is scheduled to commence on April 1, 2015 and return to service on November 10, 2015.

The fourth runner was inspected and is scheduled to be delivered in July 2015. The fifth runner components 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 components are occurring at two new facilities: Japan Steel Works (JSW) located in Japan and Voestalpine located in Austria. The seven blades for the sixth runner as fabricated by Voestalpine arrived at MHPSA’s facility located in Japan. The fabrication of the crown

and band are nearing completion at JSW's facility and are scheduled to be shipped to MHPSA's facility at the end of March. The seventh runner components are in various stages of fabrication at the Litostroj foundry located in Slovenia and a blade for the eighth runner has been poured by Litostroj.

The fourth set of wicket gates are in transit to the port of New Jersey from China. The fabrication of the fifth set of wicket gates is underway and the sixth set of gates has been released. The third set of spare shafts was delivered and we are in the process of releasing three additional spare sets of shafts 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)

During the reporting period, NYPA reported one (1) new possible violation of the North American Electric Reliability Corporation (NERC) Reliability Standards to the NPCC. The NPCC is reviewing NYPA's determination that the violation posed minimal risk to the reliability of the Bulk Electric System and that the violation can be processed as a compliance exception under NERC's risk-based enforcement program for self-logging of minimal risk issues.

Internal Investigation of Possible Violations

Since the last report, three (3) new internal investigations were initiated and one (1) was closed. There are currently seven (7) open internal investigations.

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 February, NYPA engaged NYSEG and National Grid in discussions to add some of NYPA's newly identified BES elements to their list of controlled assets for Transmission Operator (TOP) compliance purposes. 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 registered as a TOP. These discussions are ongoing.

NYPA continues 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. In January, RSC staff and

consultants met with Alcoa staff at the Alcoa headquarters in Tennessee to review supporting documentation for the exclusion exception request. It is anticipated the exclusion exception request will be submitted to NPCC for evaluation in April 2015.

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 of the 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

During the reporting period, final ballots for five Critical Infrastructure Protection Standards Version 5 standards revisions and two definitions were approved by industry. The standards will be submitted to the NERC Board of Trustees for adoption and then filed with the appropriate regulatory authorities. NYPA will continue to monitor the regulatory changes and adjust its plan transition for moving from Version 3 to Version 5 accordingly.

The CIP Version 5 Implementation Project Management team stood up a Core Transition team and the seven (7) compliance teams. These teams have cross functional representation of NYPA's internal stakeholders and are focusing on the following areas:

- Review and update of the CIP policies and procedures,
- Identification and classification of all the new in-scope cyber assets,
- Implementation of the physical security controls, and
- Identification and modifications to the work management tools

NYPA expects to engage NPCC in July 2015 to conduct an assessment of its progress in moving from Version 3 to Version 5 compliance. The assessment is an opportunity for NYPA to validate its approach and implement any recommendations made by NPCC. Execution of the implementation plan and the NPCC assessment are expected to enable NYPA to demonstrate compliance with the new standards by the April 1, 2016 enforcement date.

With the cancellation of the January 2015 Board of Trustees meeting, the CIP Version 5 implementation Capital Expenditure Authorization Request (CEAR) was presented for approval at the February 2015 Board of Trustees meeting. A procedural matter further delayed approval of the CEAR until the March 2015 meeting. In the interim, a letter of intent was provided to the successful bidder with a funding release that has enabled the vendor to undertake engineering tasks and initiate other long-lead time activities that are critical to meet the compliance enforcement date. The CIP Version 5 implementation expenditure estimates are included in the Operations budget plan for 2015-2016.

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 February, NYPA continued to attend meetings with the NYISO and New York Transmission Owner planning staffs to help facilitate the development of 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 Alerts

On February 5, 2015, NERC issued a public industry advisory to alert the industry of recommended governor dead band and droop settings that will enable generators to provide better frequency response to support the reliable operation of the Bulk Electric System and restoration of the electric grid. This alert is associated with the Eastern Interconnection Frequency Initiative to ensure proper setting of dead bands, droop, and other controls. NYPA has provided the NYISO with its generator dead band, droop, and other controls settings in support of this initiative and is working to develop internal procedures for clarifying ownership for and ensuring communication of control setting changes to the NYISO.

Energy Resource Management

NYISO Markets

In February, Energy Resource Management (ERM) bid 2.16 million MWh of NYPA generation into the NYISO markets, netting \$98.5 million in power supplier payments to the Authority. Year-to-date net power supplier payments are \$159.4 million.

Fuel Planning & Operations

In February, NYPA's Fuels Group transacted \$73.2 million in natural gas and oil purchases, compared with \$64.2 million in February 2014. Year-to-date natural gas and oil purchases are \$111.7 million, compared with \$140.4 million at this point in 2014. The total -\$28.7 million decrease is due to the lower cost of fuel and / or fuel consumption at the Astoria Energy II Plant (-\$16.9 million), 500 MW Combined Cycle Plant (-\$3.2 million), and Richard M. Flynn Power Plant (-\$3.3 million), and Small Clean Power Plants (-\$5.3 million).

GLOSSARY

- ¹ **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.
- ² **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.
- ³ **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).
- ⁴ **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.
- ⁵ **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.
- ⁶ **Transmission Reliability** - A measurement of the impact of forced and scheduled outages on the statewide system's ability to transmit power.
- ⁷ **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.