

PROJECT PROFILE / **HYDROELECTRIC PLANT CONTROLS UPGRADE**

# MODERNIZING A LINCHPIN IN NEW YORK'S CLEAN ENERGY GOALS

Since it opened in 1961, the Robert Moses Niagara Power Plant has provided a significant baseload supply of clean energy to New York.

To maintain performance, reduce failure risks and maximize access to plant data, NYPA has begun the largest single investment in its history to modernize and upgrade the hydropower plant's control and electrical protection systems.



# A LEADING HYDROPOWER PLANT READIES FOR MODERNIZATION WITHOUT SLOWING DOWN

A phased approach is delivering significant enhancements to a controls system while maintaining the plant's ongoing service.

The New York Power Authority (NYPA) is embarking on an extensive modernization effort at the Niagara Power Project, the state's largest producer of electricity. This \$1.1 billion commitment — the largest single investment in NYPA's history — will focus on the aging Robert Moses Niagara Power Plant, the second most productive hydroelectric plant in the U.S. and New York's largest producer of electricity.

One of the largest pieces of the overall effort will entail upgrading the station control systems and electrical protection devices, which largely have been in place since the hydropower plant opened in 1961. To help New York meet its carbon-free energy goals and reduce risks of power failure or loss of production at the plant, NYPA turned to our team for an overhaul of its equipment for integrated digital controls, to be accomplished without taking the plant offline.

Using an engineer-procure-construct (EPC) delivery method, this 15-year project, called Next Generation Niagara, will begin with an overhaul of the plant's main and backup control rooms. Because operations and maintenance staff will still need to work during this process, the design plans for dividing the control rooms in half and updating one side at a

time. Our team also has purposefully selected materials that can be installed without causing excessive dust, disturbances or other strains to the senses. To provide a final result accommodating the needs of operators, our architectural design integrates top-of-the-line aesthetics and ergonomics, including color schemes, lighting levels, desk and chair selections, and acoustics.

The upfront engineering of this first phase will also incorporate upgrades to the switchyard, helping to address security compliance regulations regarding anti-terrorism and NERC-CIP. Once these areas are complete, the team will focus on updating the controls and protecting relaying for each unit. Again, to avoid reducing the plant's power output and downtime, each unit will be addressed individually throughout the remainder of the program.

Work on the project's first phase began in late 2019 and includes the first generating unit, the control rooms and several auxiliary systems. When the entire project is complete, the modernized hydropower plant will lead the market by leveraging digital technology to produce power more efficiently, reliably and with more information available.

## PROJECT STATS

### CLIENT

New York Power Authority

### LOCATION

Lewiston, New York

### ESTIMATED COMPLETION

2035

# 13

GENERATING UNITS

# 2,675

CAPACITY, IN MW,  
FOR HYDRO PLANT