

# Tobyhanna Army Depot

## The Project

In operation since 1953, Tobyhanna Army Depot is the largest, full-service electronics maintenance facility in the Department of Defense, employing in excess of 5,600 personnel.

Located in Northeastern Pennsylvania, the base spans 1,296 acres: 398 acres in an industrial area and a large portion is preserved as wetlands. It is also the largest employer in the area.



During the last 10 years, the Depot decentralized its existing coal-fired steam heating plant through an Energy Savings Performance Contract with Ameresco – a leading independent energy efficiency and renewable energy company.

Under this agreement, Ameresco provided:

- 10 Boiler Rooms which housed 21 new boilers
- 37 Air Rotation Units in various Depot buildings
- Integration to HMI/SCADA system
- An upgrade to the existing control systems

## The Requirements

Ameresco required that all control points be viewed through the EMS system for status, history and alarming. As a result, this required that the boiler controllers be integrated into the EMS in 5 of the largest boiler rooms.

An upgrade was needed to the existing SCADA alarm system which contained voice alarm call-outs to maintenance personnel for notification and acknowledgement purposes. The existing SCADA alarm system included a Voice Alarm Callout feature for alerting Ameresco's maintenance personnel to accomplish notification and acknowledgement purposes.

The system also called for an upgrade to the EMS system whereby two communication protocols (Lon and Modbus) were required and needed to work together as "one unified system." Excel controllers were chosen to monitor the status of the boiler rooms and air rotation units (ARU) via Lon bus while Modbus was used to integrate data from the Fireye combustion controllers that also were part of the overall system.



## Case Synopsis

**COMPANY:** Ameresco

**SYSTEM INTEGRATOR:** Postler & Jaeckle Corporation

**INDUSTRY:** Government

**PROJECT:** Tobyhanna Army Depot

**FOCUS:** Energy Efficiency

**CHALLENGE:** Upgrade existing controls and create one unified control points system

**SOLUTION:** The Niagara Framework allows for best in breed system selection for integration regardless of protocol.

### KEY RESULTS:

- Reduced maintenance and operating costs
- Facilities run with one integrated system even with multiple protocols
- Greater flexibility to add new controls without regard to protocol or manufacturer
- Better response rate to maintenance issues
- The Niagara<sup>AX</sup> OPC server provides a robust solution to an existing SCADA system

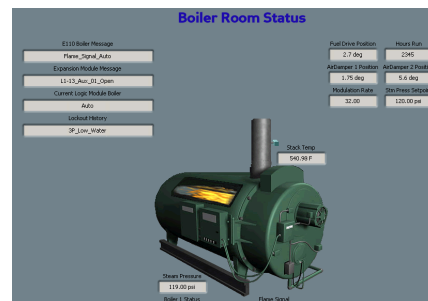
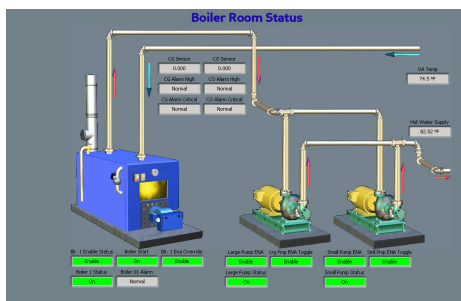
Also a necessity was a multi-year operations contract to operate and maintain the equipment that was installed. Since the original system had become outdated, the project also called for an update to the existing controls that were in the buildings.

## The Niagara<sup>AX</sup> Framework

Using Tridium's open protocol Niagara Framework with JACE embedded controllers, Ameresco was able to integrate all of the controls no matter the manufacturer, whether they were legacy or not, into a single, completely interoperable system with the flexibility to add new controls.

The solution included:

- Installation of LON Controllers for each of the boiler rooms
- Installation of 36 LON Controllers for ARU
- Installation of 4 JACE 600's for boiler room monitoring
- 6 JACE 200's for air rotation monitoring
- 1 AX Web Supervisor which brought all the different information from each controller residing in a boiler room and ARU building back to the AX Supervisor over the existing fiber backbone.
- Development of a method that transferred alarm data from the Niagara-based systems to the SCADA alarm system.
- 5 IO-485 Remote IO Modules that translated data from Fireye to Niagara<sup>AX</sup>.
- Development of a Voice Alarm Callout system that would call Ameresco maintenance personnel if and when an on-site problem developed. (Also included were operator codes and acknowledgement back-up logs.)



**“The alarm callout is vital to our Operations and Maintenance. The capability of being able to work with a third party alarm was effective to reach our on call staff by cell phone or home phone when an alarm occurred in JACE.”**

**Chuck Hazelton**  
Ameresco's Operations and Maintenance Site Manager

**“As soon as an alarm is received in the Niagara-based system, it sends the alarm to one of my on-call personnel for immediate response.”**

**Daniel Palmiter** Ameresco's Lead Mechanic

## The Results

- Using Tridium's Niagara Network allowed the different controllers, systems, equipment and the two different protocols to be integrated.
- A seamless integration via OPC to the existing SCADA and new third party voice alarm notification system
- Tridium's technology has helped Ameresco's maintenance personnel to successfully respond to any alarms that may occur from any boiler or any air rotation unit. Overall maintenance and operation costs have been reduced.
- Niagara's historical trending technology facilitates Measurement & Verification reports.

With the Niagara<sup>AX</sup> OPC server, Tridium's Niagara Framework platform provides a robust solution to an existing SCADA system, thereby providing value to customers.

## About Tridium Inc.

Tridium is the global leader in open platforms, application software frameworks, automation infrastructure technology, energy management and device-to-enterprise integration solutions. Our technologies extend connectivity, integration and interoperability to the millions of devices deployed in the market today and empowers manufacturers to develop intelligent equipment systems and smart devices that enable collaboration and communication between the enterprise and edge assets.

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