PowerSecure

CASE STUDY

GSA WASHINGTON DC
ENERGY EFFICIENCY SERVICES EES

PowerSecure was selected by our Energy Services Company partner to implement energy efficiency and infrastructure upgrades

PROJECT BACKGROUND

PowerSecure was selected by our Energy Services Company partner to implement energy efficiency and infrastructure upgrade measures in two federal buildings operated by the General Services Administration (GSA) National Capital Region 11. The upgrades for the New Executive Office Building (NEOB) and the Ronald Reagan Building and International Trade Center (RRB) in Washington DC were part of an Energy Savings Performance Contract (ESPC), providing longer-term facility investments for the federal GSA facilities.

PowerSecure installed replacements of chillers and cooling towers for the central chilled water plant in the New Executive Office Building (NEOB). Additional HVAC improvements included conversion to variable air volume to reduce energy consumption in the air distribution system. The steam heating system efficiency was improved with the installation of heat recovery from the steam condensate return system.

In both the NEOB and RRB, PowerSecure replaced a total of 568 dry-type low voltage transformers with new, high efficiency models. These high efficiency transformers have lower losses than standard electrical transformers and provide substantial energy savings, resulting in a simple payback in under 10 years. In addition, by replacing the transformers in the buildings, the reliability and resiliency of the electrical systems in these critical facilities were improved significantly.

PowerSecure upgraded HVAC and Electrical systems with the following measures.

- Upgraded the NEOB central plant by replacing three centrifugal chillers with new magnetic bearing models totaling 1,950 tons. New high efficiency cooling towers were installed on the roof.
- Converted constant air volume (CAV) distribution to variable air volume (VAV) distribution by replacing 132 CAV terminal reheat boxes with new VAV boxes in the NEOB. PowerSecure oversaw the installation and commissioning of the VAV controls.
- Installed a steam condensate heat recovery heat exchanger in the NEOB to preheat hot water return for the heating plant.
- Replaced dry-type electrical transformers throughout both buildings with PowerSmiths high efficiency transformers. The replacements included 47 units in the NEOB and 521 units in the RRB.

ABOUT THE CUSTOMER

The GSA manages nearly 700 buildings and 95.6 million square feet of facilities in the National Capital Region alone. The NEOB is a 10-story, 300,000 square foot office building constructed in 1965. The RRB, opened in 1998, is more than 3 million square feet of space and includes a conference center in addition to federal offices. Although these buildings are relatively modern compared to the historic facilities in Washington DC, the mechanical and electrical infrastructure continues to age and requires continuous improvements and upgrades.

The GSA has utilized the Energy Savings Performance Contract (ESPC) process across its portfolio to make long-term investments in replacing and upgrading major equipment while reducing utility expenditures.

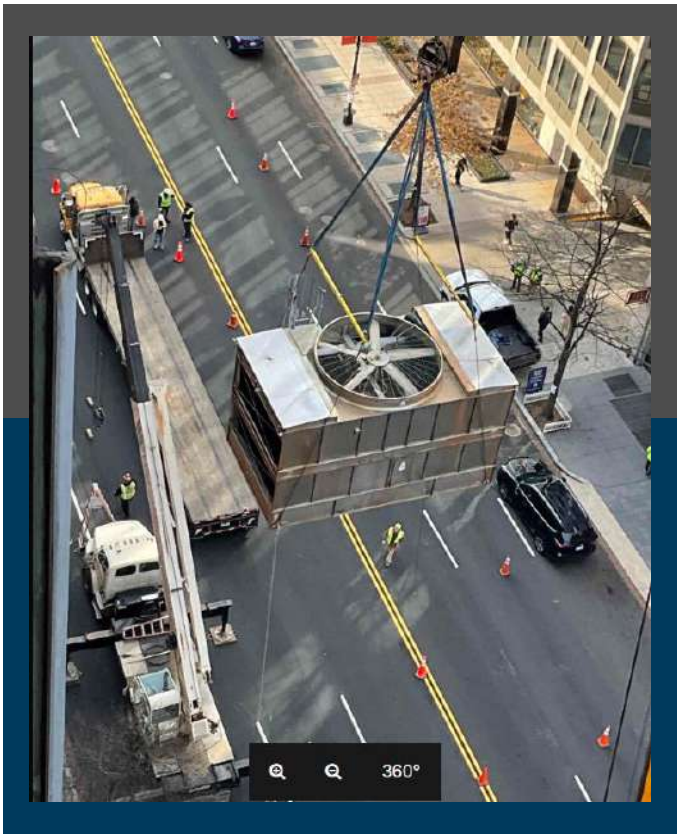
THE CHALLENGE

PowerSecure faced significant challenges working in these highly secure federal buildings in downtown Washington DC. Our teams worked closely with security personnel to meet access requirements. All material and equipment was required to be screened and X-rayed off-site and escorted to the buildings by the Secret Service, requiring extra time and coordination.

- To replace the chillers, all of the existing equipment and new equipment had to be rigged through a standard double door that was nine feet above the mechanical room floor. The access to the door was through a parking deck with overhead clearance of less than seven feet. The old equipment was cut into small sections for removal. The new chillers were sent from the factory in four parts and assembled in the mechanical room.

- Replacing the rooftop cooling towers required performing aerial lifts of the existing and new units, partially shutting down a main road in the heart of the city.

- Replacing electrical distribution transformers required power shutdowns of portions of the buildings while the old units were removed and new equipment connected. Customers are often concerned that power outages may cause other issues or not repower properly. Close coordination was necessary to build trust with the GSA team that the facilities would be powered down and re-energized at the scheduled times.



THE SOLUTION

Through diligent pre-planning, communication and coordination, PowerSecure maintained the schedule milestones and completed the projects on time and under budget. By meeting our commitments, PowerSecure overcame the customer's concerns regarding the significant challenges to implement these projects.

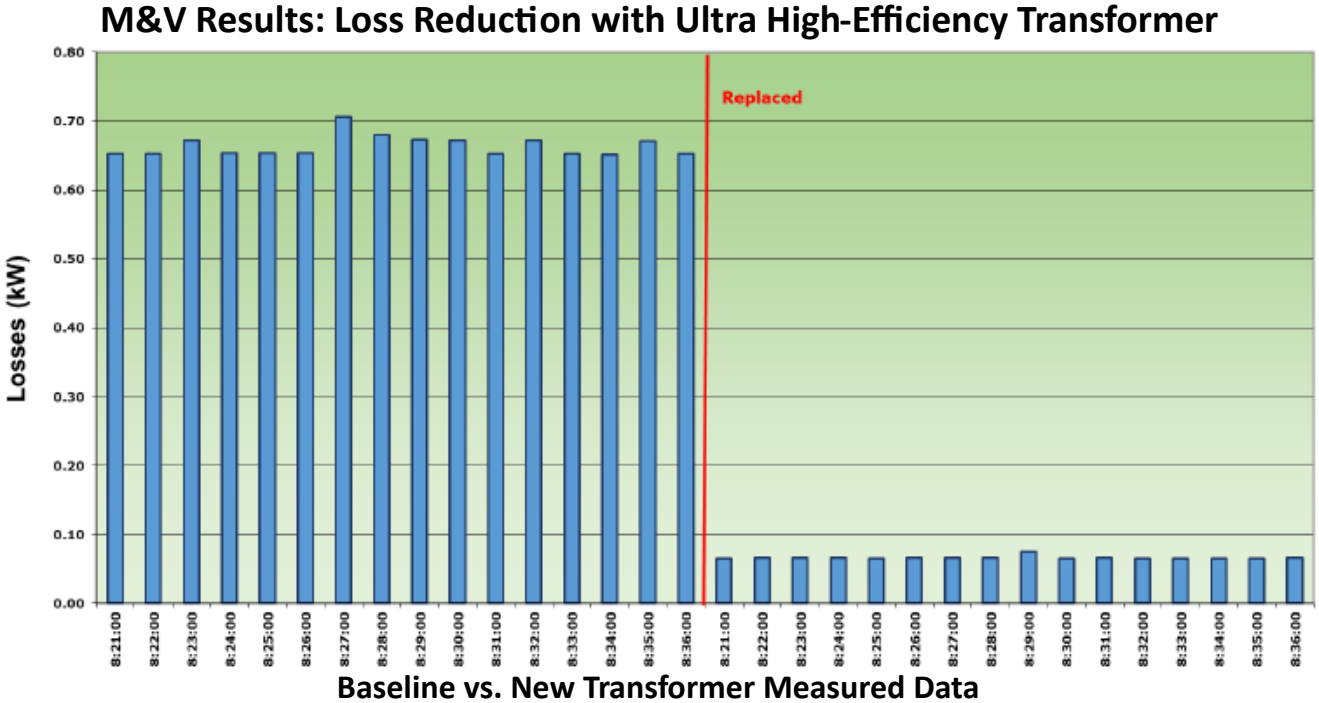
BENEFITS TO THE CUSTOMER

The facility upgrades provided significant benefits as a result of PowerSecure's implementation, including:

1. New, high efficiency heating and cooling plant systems reduced utility costs
2. Greater reliability of mechanical and electrical systems
3. Transformer losses were cut by more than 85%
4. Improved occupant comfort in the NEOB
5. Reduced maintenance costs

OLD TRANSFORMER

NEW TRANSFORMER



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