



Modernizing Energy Systems for Federal Buildings

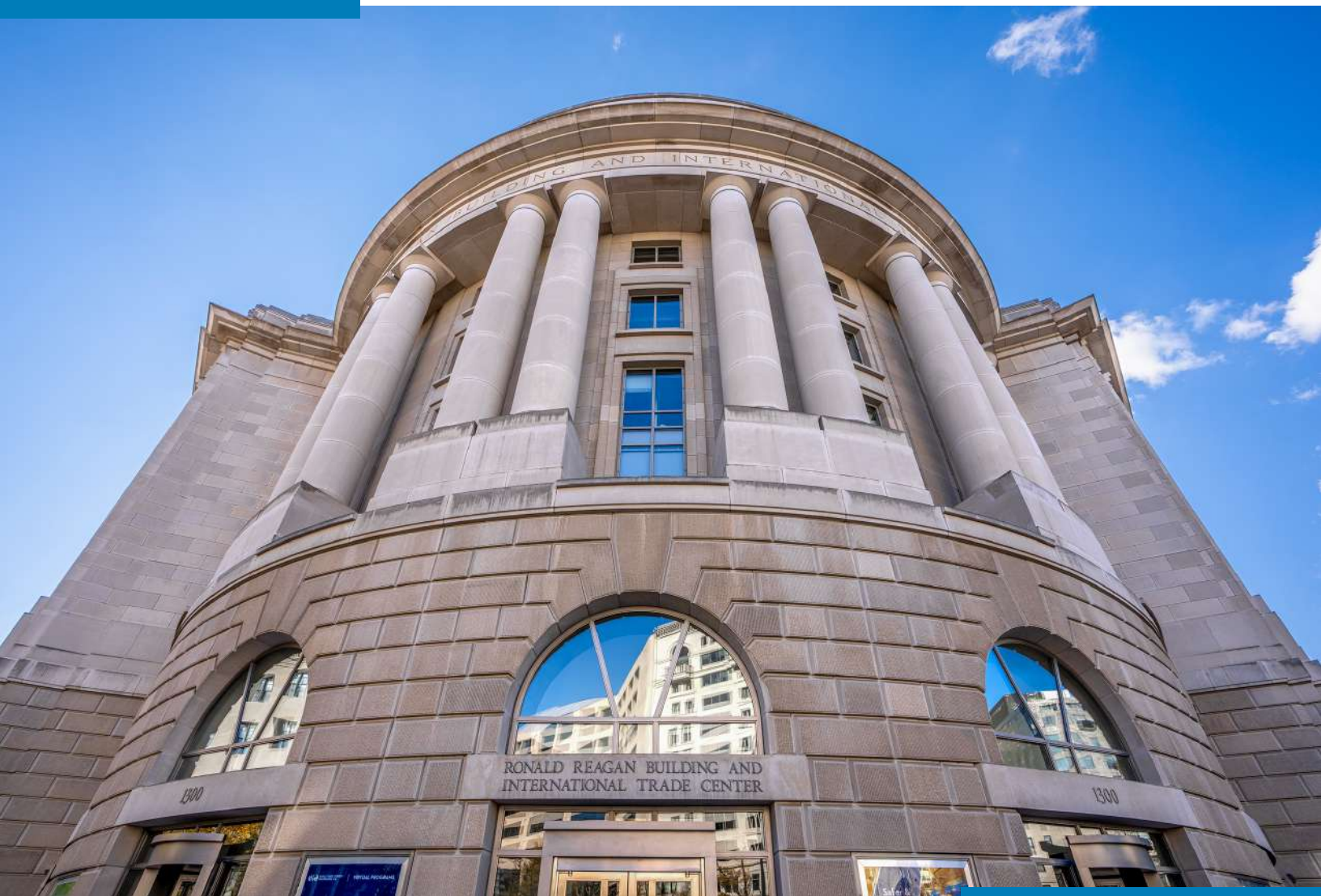
GSA Washington DC Energy Efficiency Services EES

- Reducing utility costs with innovative, energy-efficient heating and cooling systems
- Cutting transformer losses by more than 85%
- Reducing overall maintenance costs for federal buildings

The New Executive Office Building (NEOB) and the Ronald Reagan Building and International Trade Center (RRB) may not be the first institutions to come to mind when you think of Washington DC, but these buildings cover over 3 million square feet and house the offices of thousands of government employees. As mechanical and electrical systems started to degrade, maintenance costs became a growing concern.

Delivering on Energy Goals with a Custom PowerSecure Solution

As the buildings' operators, the General Services Administration National Capital Region 11 upgraded the NEOB and the RRB through an Energy Savings Performance Contract, ensuring long-term investments in federal GSA facilities.



PowerSecure was selected to implement energy-efficient infrastructure upgrades. For the NEOB and RRB to lower energy costs and improve energy efficiency, PowerSecure developed custom solutions that covered a variety of improvements across the two buildings, including:

- Renovating the NEOB central plant by replacing three centrifugal chillers with new magnetic bearing models.
- Utilizing roof space to install new high-efficiency cooling towers.
- Converting constant air volume (CAV) distribution to variable air volume (VAV) distribution by replacing CAV terminal reheat boxes with new VAV boxes.
- Overseeing the installation and commissioning of the VAV controls.
- Installing a steam condensate heat recovery heat exchanger to preheat hot water return for the heating plant.
- Replacing all dry-type electrical transformers with high-efficiency transformers.

568

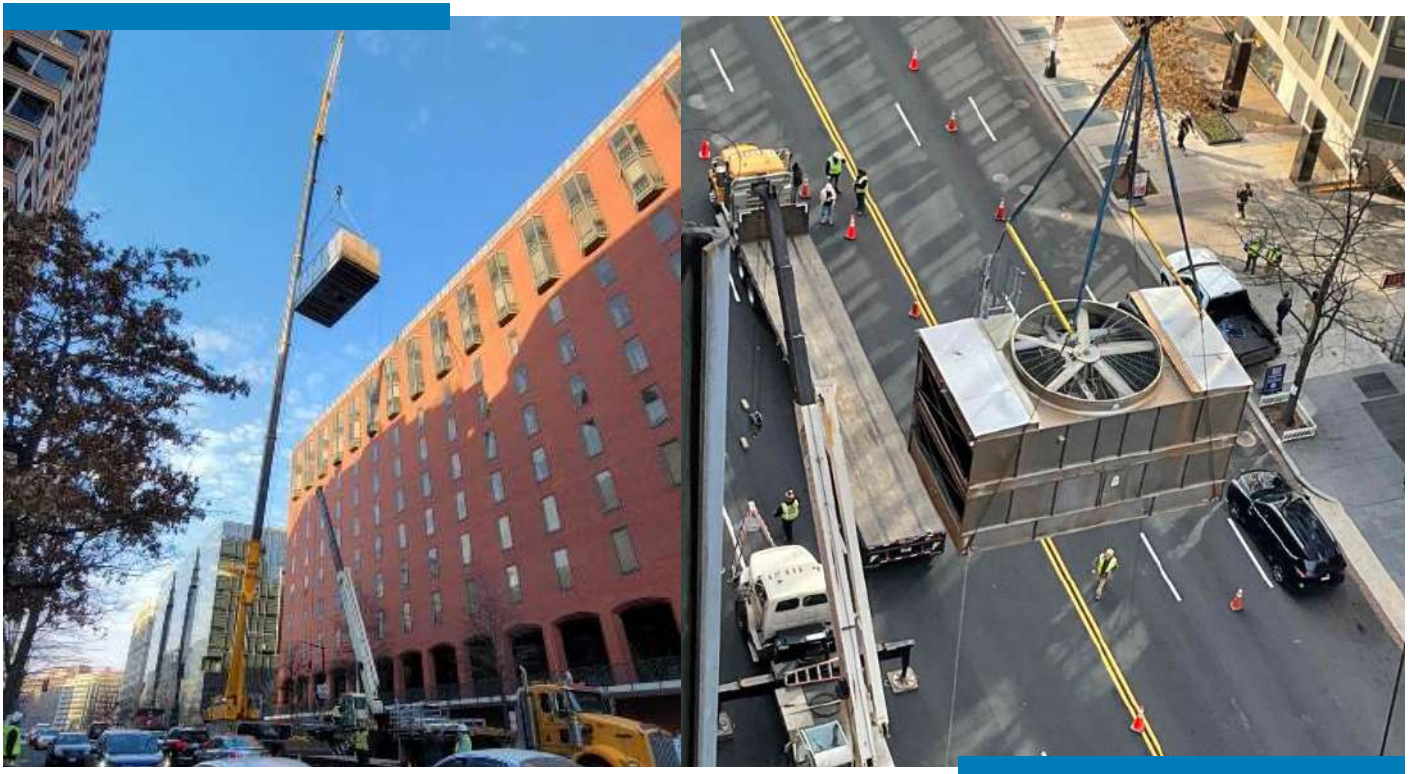
Dry-Type Electrical
Transformers Replaced

1950

Tons New Magnetic
Bearings Installed

132

CAV Terminal Reheat
Boxes Replaced



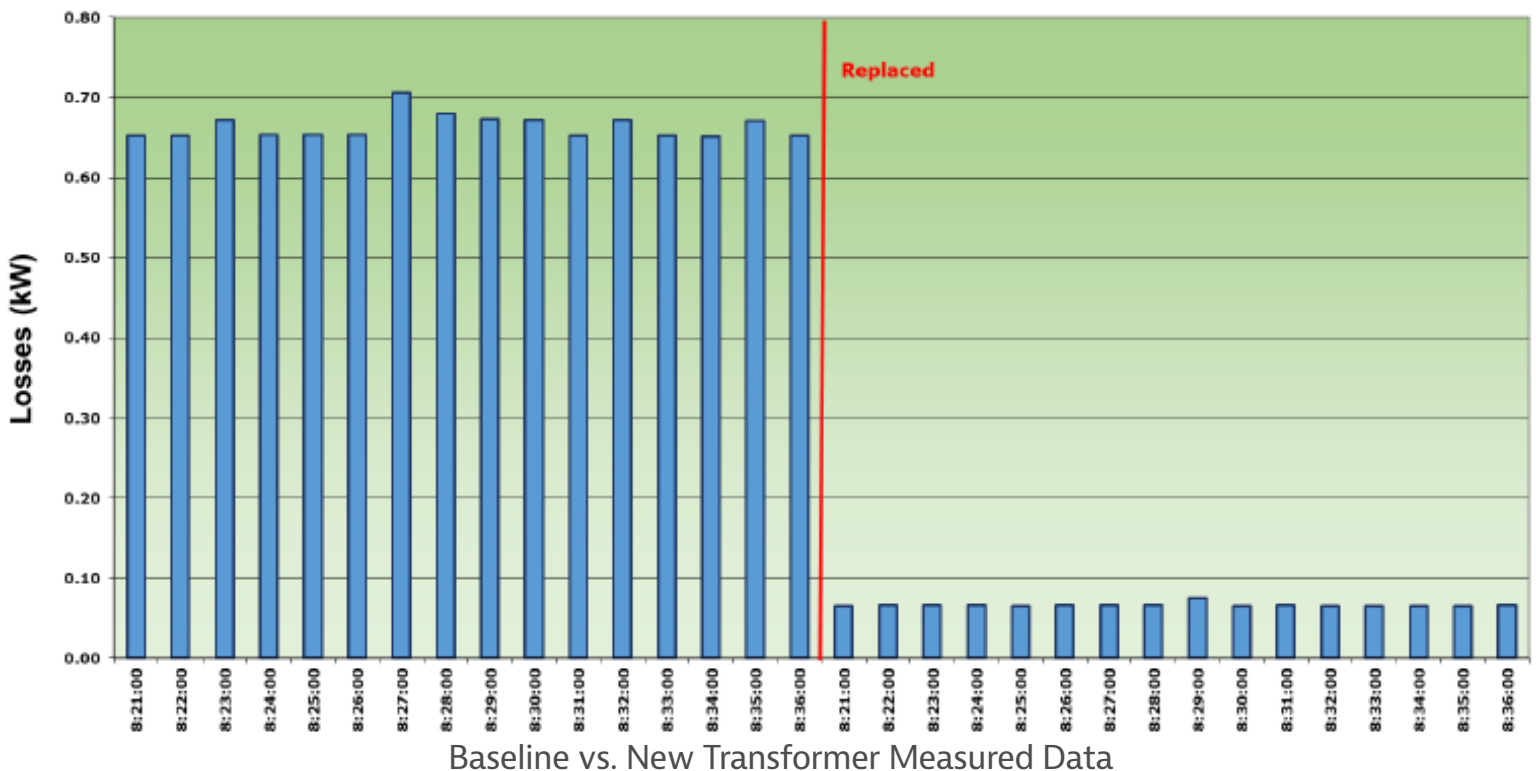
The PowerSecure Impact

Upgrades of this size and scope require significant planning, coordination, and costs. Yet many PowerSecure customers see a return on their investment quickly in both energy and reliability costs. So, how did these measures impact the NEOB and RRB and lower costs?

- The NEOB reduced energy consumption in the air distribution system through HVAC improvements, including conversion to variable air volume.
- The steam heating system efficiency improved with the installation of heat recovery from the steam condensate return system.
- By replacing the transformers in the buildings, the reliability and resiliency of the electrical systems in these critical facilities improved, lowering maintenance costs.
- High-efficiency transformers lowered losses and provided significant energy savings.

Transformer losses dropped by more than 85%, resulting in a simple payback in under 10 years!

M&V Results: Loss Reduction with Ultra High-Efficiency Transformer



Solving the Secure Retrofitting Equation

Anyone who has been to downtown Washington DC knows that traffic in the area can be a challenge. Working on highly secure federal buildings in downtown Washington DC creates an even bigger challenge.

Our teams worked closely with security personnel to meet access requirements. The Secret Service screened, X-rayed, and escorted all materials and equipment on-site. PowerSecure planned for this extra time and coordination to ensure compliance.

To address the unique architecture of these buildings, PowerSecure developed specialized solutions. The old equipment was cut into small sections for removal. The factory sent the new chillers in four parts and assembled these parts directly in the mechanical room.

Replacing electrical distribution transformers required power shutdowns of portions of the buildings while staff removed old units and connected new units. PowerSecure knew there would be concerns that power outages may cause other issues or not re-power properly. Coordination with the General Services Administration team was key to staying on schedule so community members could prepare for the moment when facilities powered down and re-energized.



Delivering On Time and Under Budget

Through diligent pre-planning, communication, and coordination, PowerSecure maintained the scheduled milestones and completed the projects on time and under budget. By meeting our commitments, PowerSecure overcame the significant logistical challenges of implementing this project.

Giving our customer:

- Reduced utility costs with new, high efficiency heating and cooling plant systems
- Greater reliability of mechanical and electrical systems
- Improved occupant comfort in the NEOB
- Reduced costs of maintaining equipment

To learn more, visit us at [PowerSecure.com](https://www.powersecure.com), or speak to your PowerSecure representative.

