



RETROCOMMISSIONING PROGRAM IDENTIFIES MORE ENERGY SAVINGS PROJECTS

Since 2008, Argonne National Laboratory has used a specialized Energy Savings Reinvestment Fund to fund energy savings projects with attractive payback periods.

This internal funding mechanism has allowed Argonne to implement hundreds of projects that save the laboratory energy and money. The laboratory recognizes that the current process is still not identifying many excellent energy savings projects, due to the additional up-front engineering and testing required to identify these projects. In order to address this need, Argonne's Facilities Division, in conjunction with the Sustainability Program, created a Retrocommissioning Program in fiscal year 2017.

In its pilot year, the program had two phases. The first phase created a comprehensive campus plan that evaluated the 40 buildings that use the most energy at Argonne. The team investigated mechanical equipment, building controls, and electrical systems to create building scorecards based on industry-proven standards. Each building was then given a final score according to its "retrocommission-ability." The campus plan provides Argonne a 5-year roadmap for retrocommissioning the 40 largest energy using buildings on campus.



Visual survey of Building 200 mechanical equipment.

In the second phase, the retrocommissioning team performed a two-week investigation and mechanical equipment functional tests in Building 200, which was selected as a representative building on campus. It has combination of modern digital mechanical control systems and older pneumatic and electric controls.

After reviewing existing drawings and documentation, the team cataloged all of the mechanical equipment in the building and created a series of tests to verify the equipment's functionality. The functional tests confirm that the equipment is operating properly and identify deficiencies in the actual equipment and its control sequences.

The team ultimately recommended implementing \$125,000 in potential annual energy savings at an average simple payback period of 5 years. All recommended projects try to reduce the heating and cooling requirements of the air handling equipment by optimizing usage based on what was actually happening in the buildings. In laboratories, the amount of air exhausted can be optimized for the actual laboratory usage rather than just running at full speed at all times. In offices, airflow and temperature settings can be adjusted on nights and weekends to allow greater drift from daytime settings. All of these optimizations can be done while maintaining the safety and comfort of all laboratory occupants.

The Facilities Division, with support of the Sustainability Program, plans to leverage the retrocommissioning effort into a broader effort of ongoing commissioning in the upcoming years. Ongoing commissioning will ultimately help maintain energy efficiency in monitored systems without having to regularly perform the deep-dive retrocommissioning that was performed as part of this program.

**FOR MORE INFORMATION
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**Sustainability Program Manager
sustainability@anl.gov**