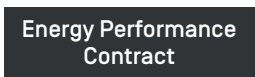
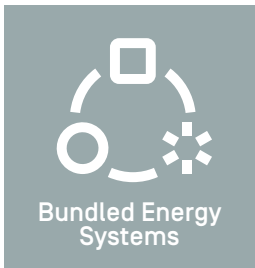


Fulton County, New York



THE CHALLENGE

Fulton County, located in Upstate New York, partnered with SmartWatt to complete a bundled energy systems optimization project throughout its county complex in Johnstown, NY. The primary reasons the county was interested in this project, included:

- **Aging Equipment & Infrastructure:** The buildings' boilers, hot water holding tanks, transformers, and steam traps had exceeded useful life. Because of this, the equipment was inefficient, energy intensive and in danger of failing which could have resulted in costly emergency repairs. Additionally, the buildings throughout the complex had a significant amount of air leaks, resulting in unnecessary overuse of HVAC equipment.
- **Building Automation System:** The existing building automation system did not include the control of all HVAC equipment throughout the complex and at the jail was being controlled by a proprietary system. Because of this, the County was not able to access and control all systems, was limited on the types of equipment they could integrate with the system, and were required to maintain a yearly service contract with a single controls contractor.
- **Occupant Comfort:** Due to the age of the HVAC equipment, lack of a building automation system, and building envelope issues, temperatures throughout the buildings were variable and uneven, resulting in occupant discomfort.
- **Sustainability:** The County was looking for a solution that would help them reduce their overall energy consumption and have a positive impact on the environment and local community.
- **County Follow-up:** SmartWatt is entering into construction on Phase 3, totaling \$432,624, which includes new interior LED lighting along with control component upgrades at the jail.



Pictured Above: Senior Maintenance Mechanic at Fulton County's Department of Highways & Facilities



THE SOLUTION

To update the aging equipment, enhance occupant comfort and achieve sustainability goals, the county implemented a bundled energy systems optimization project. The project was funded through an energy performance contract, requiring no up-front capital and the ability to use guaranteed energy savings to pay for the project.

- **Building Automation System:** A new building automation system was installed to control all HVAC systems throughout the complex via a remote user interface. The new building automation system features truly open protocol infrastructure, which gives the county the ability to integrate with many different systems and options for choosing a contractor to service the controls.
- **Mechanical Systems:** The boilers, domestic hot water holding tanks, transformers, and steam traps were replaced with new efficient equipment that require less energy to operate and maintain. Additionally, the systems were equipped with controls and tied back to the county's new building automation system, allowing for more granular control and scheduling of the systems to achieve deeper energy savings.
- **Building Envelope:** All entrance doors, windows, vents, and roof/wall joints were properly sealed and caulked, and a thermal barrier was applied to attic floors, increasing the thermal resistance of the building envelope, reducing outside air infiltration and enhancing occupant comfort.
- **Water Conservation:** New sink aerators were installed throughout all buildings, and electronic flush valve controls were installed on toilets throughout the jail to limit water usage. The electronic flush valves were integrated into the building automation system, allowing for automated control and remote access of the equipment. Additionally, time limiting push valves were installed in the showers.
- **Lighting Systems:** The existing fluorescent and HID fixtures were replaced with efficient LED fixtures throughout exterior areas. LED fixtures were also installed on the interior of the DSS building. This measure reduced lighting-related energy consumption, while providing a higher quality of light and increased security at night.

Other upgrades included the installation of variable frequency drives on air handling units, a central PC load management system, and hood controls in the jail kitchen.

THE IMPACT

Year 1 guaranteed savings achieved! This energy systems optimization project has allowed the county to upgrade aging equipment and easily automate and control all HVAC equipment, while enhancing occupant comfort, reducing energy consumption and having a positive impact on the local environment.

Financial Impact

\$1.4M / total project cost

Annual energy savings: **\$68K**

Annual maintenance savings: **\$20K**

Energy Impact

23K / therms of natural gas saved

Annual electricity savings: **123,612 kWh**

Total water usage reduction: **50%**