



Efficient Engineering

Better buildings for a better future.

- From 2014 to 2018, Enviri upgraded the energy systems of three Ottawa Police Service stations
- Over \$198,000 in total costs saved annually
- 1.4 million kWh of energy saved annually



Background

Committed to the well-being of the environment and reducing energy waste, three out of five Ottawa Police Service stations in the nation's capital underwent Envari's holistic approach to energy management, upgrades and system retrofits. Between 2014 and 2018, Envari went deep undercover at the Ottawa Police Service to bring them significant savings.

Opportunity

Policing is understood to be one of the world's most dangerous professions, and the Ottawa Police Service wants its officers and staff to focus on their jobs and the community rather than the comfort or efficiency of their police stations.

The Envari Method

Ottawa Police Service trusted Envari because it offers a complete package of turnkey engineering design, build and commissioning services. Energy audits, demand response/reduction analysis, and engineered designs are integral components in helping identify and manage energy and water consumption. Energy efficient upgrades can result in substantial savings, and are often enhanced with financial incentives. Envari's start-to-finish list of services and personalized approach allowed Ottawa Police Service to find the right solutions to fit their needs.

Its police station in the south end of the city was plagued with condensation issues. The station also had heating ventilation and air conditioning (HVAC) equipment nearing end of service life and an outdated building automation system. Envari engineered, installed and commissioned a new dedicated outdoor air system with energy recovery, including building rebalancing, integration of fan coil recirculation, and a complete building automation system upgrade. The project resulted in remediating condensation issues, upgrades to major mechanical components and an annual saving of \$60,000 in electricity, gas and water. The station also received a server room cooling upgrade, chilled water system recommissioning and the addition of variable frequency drives on the level three air handling units; saving a further \$25,000 per year in utilities.

For the Ottawa Police Service downtown station, the Envari solution saved 365,900 kilowatt-hours of electricity and 45,689 cubic metres of gas annually by expanding the building's central heating plant with two new condensing cast iron shoulder season boilers, which serve the main building loop; dedicating one of the new boilers to domestic hot water production — enabling the existing domestic electric hot water tanks and existing electric shoulder season boiler to be decommissioned. As a follow-up project, Envari designed upgrades to the forensic lab heating system, and call centre space conditioning system, leading to the decommissioning of the building environmental loop, enabling the main building heating loop temperature to be raised. The capital investment for this project was larger but will nonetheless provide a simple payback of 9.7 years. Envari designed, installed and commissioned a 30 ton rack level cooling system with N+1 redundancy for the server room equipment.

The project yielded a staggering \$33,000 in annual savings and provides redundancy for the sensitive equipment. Lastly, the Ottawa Police Service was having hot water circulation issues at its six-year old station in the city's west end. Hot water to the locker room showers could sometimes take up to half-an-hour; wasting extremes amount of water. An investigation conducted by Envari revealed that balancing valves were missing on the recirculation line, severely limiting hot water flow in the hot water line serving the locker rooms. The simple fix conservatively saved 155 cubic metres of water annually.

Results

Taking advantage of Envari's Smart Buildings solutions, designed to optimize energy use for large-scale businesses and organizations, Ottawa Police Service was able to identify and solve inefficiencies; cutting serious costs and energy waste—so they can focus on the things that matter: keeping Ottawa safe.

Benefits

- **Over \$198,000 in total costs saved annually**
- **1.4 million kWh of energy saved annually**
- **4,700 m3 of water saved annually**
- **120,000 m3 of gas saved annually**



Envari has helped us get a number of complex and critical projects implemented in a seamless fashion. Our operations are complicated, and sensitive, and we have come to rely on Envari's ability to work with us, and to find innovative ways to implement these improvements.



Corrado Falucci,
Portfolio Manager, Ottawa Police Service

