CASE STUDY

Energy & Water Efficiency Gets the Green Light at WoodGreen

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WOODGREEN

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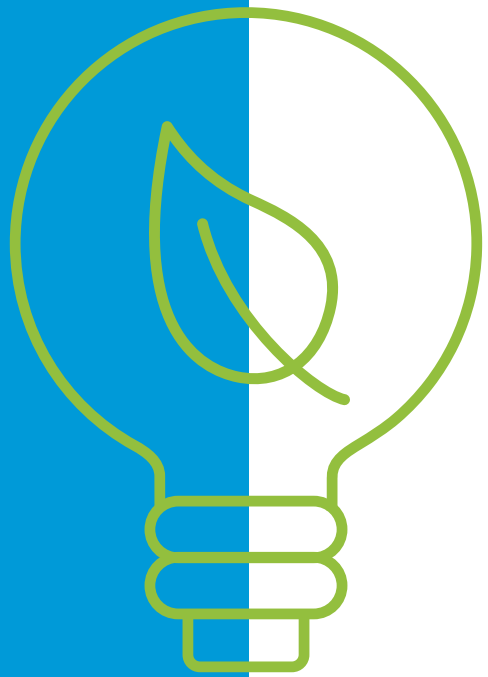

With a significant history spanning more than 80 years, WoodGreen Community Services is one of the largest social service agencies in Toronto, serving approximately 37,000 people each year from 36 locations.

WoodGreen helps people find safe and affordable housing, assists seniors to live independently, aids internationally-trained professionals to enter the job market, provides parents access to childcare, supports children and youth with after-school programs, ensures newcomers settle into Canadian life, enables homeless and marginalized people to get off the streets, fosters youth to find meaningful employment and training, and provides a wide range of mental health supports.

This organization is a highly valuable resource in the city, and it's important that it operates as efficiently as possible to secure its sustainability and success over the long-term.

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The Challenges

A comprehensive energy-efficiency and water-conservation retrofit was undertaken at eight of WoodGreen's 12 residential buildings and two day-care properties to address energy related capital renewal needs that have been identified as part of a largely unfunded long-term capital liability.

WOODGREEN'S OPERATIONS TEAM

PROJECT LEADS
Mwarigha M.S. - VP Housing Operations & Asset Sustainability
Chaggan Z. - Chief Financial Officer

PROJECT DEVELOPMENT
Brewster C. - Strategic Projects Manager

IMPLEMENTATION LEAD
Duane G. - Director

IMPLEMENTATION MANAGER
Jeffery P. - Senior Manager Building Services

To put the project challenges into context, this Energy & Water Efficiency Project is a key component in WoodGreen's over-arching Assets Sustainability & Climate-Change Framework - ASCF – a long-range stewardship framework comprising a set of recommended present-day strategic actions for the sustainable renewal of WoodGreen's real-property assets.

The purpose of the retrofit was to address a significant portion of the infrastructure renewal needs identified through the ASCF by leveraging the monetization potential of operating-cost savings from improved energy and water efficiency. By applying an efficiency lens to asset management decisions that have traditionally been planned on the basis of end-of-life replacement, the project capitalizes the net present value of projected future energy and water savings to fund as much immediate capital improvement as possible. This strategy enables the offsetting of high-return upgrades of energy and water consuming systems against lesser ones to optimize short and long-term energy and water related renewal.

With a limited capital operating budget, building system conditions from a lifecycle equipment replacement point of view, were causing multiple maintenance issues with high repair costs and tenant comfort problems.

Project at a glance

LOCATIONS

270 Donlands Ave
570 Coxwell Ave
1119 Gerrard St E
444 Logan Ave
137 Sears St
243 Cosburn Ave
55 Pape Ave
17 Renwick Cres

PROJECT

Energy & Water Efficiency Project for WoodGreen Community Services

SQUARE FOOTAGE

Eight multi-residential buildings at 366,174 Sq.ft

PREVIOUS CONDITIONS

No central control system, limited standalone control devices, and some of the building HVAC equipment was at the end of its useful life.

RENEWED BUILDING INFRASTRUCTURE

Boilers, chillers, make up air units, and pumps; lighting and toilet retrofits; central IOT BAS lite control system which includes VFD for pumps and MAUs; and, in suite temperature feedback and utility metering for gas, electricity, and water.

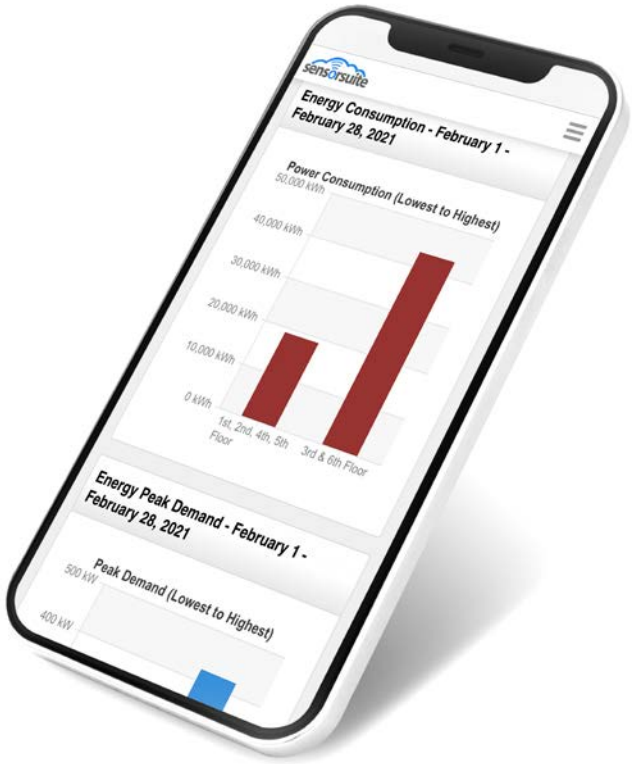
The Integrated Approach

> The Operations team at WoodGreen were looking for a turn-key integrated solution approach to effectively address all of their building operational systems issues and requirements. There are many moving parts at WoodGreen facilities, and they wanted to avoid dealing with a multitude of vendors of various products and services.

In order to maintain consistency of design, products, and services in the development of a comprehensive energy and water program across their whole building portfolio, they embarked on a mission to determine how to best achieve their goals. After extensive research and careful consideration, the Operations team decided on an integrated engineering and energy controls solution approach with proven experience in smart building technology.

The initial strategy was to develop a capital creation strategy to define utility waste within their existing utility budget that would be used to pay for the energy and water retrofit program. The next critical step was to create a detailed feasibility study to identify and recommend energy and water measure retrofits that would set the plan and the expectations in motion to design, implement, and commission a complete program for the building energy and water systems.

SensorSuite, in collaboration with engineering partner Finn Projects, a professional building performance company with over 30 years of exceptional building performance experience, worked together in the delivery of an integrated design build approach and the implementation of the Woodgreen Energy & Water Savings Retrofit Project. The project partners provided a clear path toward the goal of delivering a predictable level of utility savings for WoodGreen – with guaranteed results.



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This program includes a central Internet of Things (IOT BAS Lite) Energy Cloud Ecosystem (ECE) platform that is connected to chillers, boilers, make up air units, variable frequency drives (VFD) for pumps, & make up air fans, temperature space sensors and utility metering for gas, electricity and water for the eight WoodGreen buildings.

By utilizing intelligent energy efficiency algorithms, which are provided in real time, the SensorSuite system achieves flexible demand side resource efficiencies in response to a grid signal that automatically results in reduced energy costs.

"This energy & water savings investment project is a self-financing mechanism to address the problem of dwindling capital dollars and the urgent need to ensure the long-term sustainability of WoodGreen's affordable housing assets that serve the hardest to house population in Toronto."

Mwarigha M.S. - VP Housing Operations & Asset Sustainability

"With a singular focus to visualize, control and optimize the entire building, we will deliver consistent, bankable utility savings for our customers, effectively leaving the days of siloed, inefficient analogue building management systems where they belong, in the past."

Glen Spry - CEO of SensorSuite

Integrated Design Build Approach

Building Owner

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Finn Projects

SensorSuite & Building Performance Partner

Feasibility Study

Concept Design

Measure Approval

Implementation:
Project managment, engineering, site supervision, commissioning, monitoring & verification

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BAS | LIGHTING | HVAC | Water, etc.

Benefits

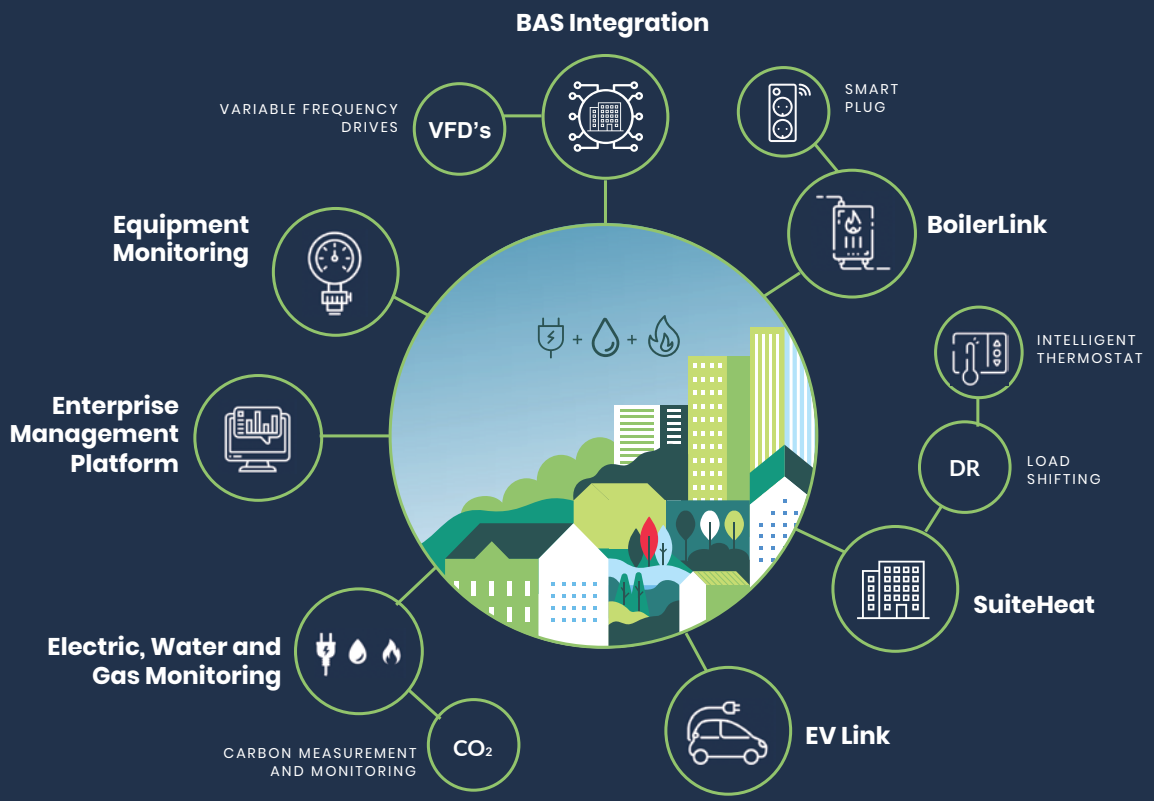
New equipment

Reduced utility costs

New real time IOT dashboard to monitor and control building alerts, status, & maintenance

Measurement & Verification

Energy Cloud Ecosystem Platform



THE INTEGRATED APPROACH CONT'D

An initial challenge in creating an IOT ECE platform was in transitioning building legacy equipment and new assets into the network. IOT ECE helps support business outcomes of energy and water efficiency, building health, and occupancy comfort.

There is a moderate degree of complexity in terms of operational integration of incorporating new technologies for real-time equipment monitoring and control, preventative maintenance work routines, and reporting methods, but the SensorSuite team has the experience to coordinate any integration task in an efficient manner.

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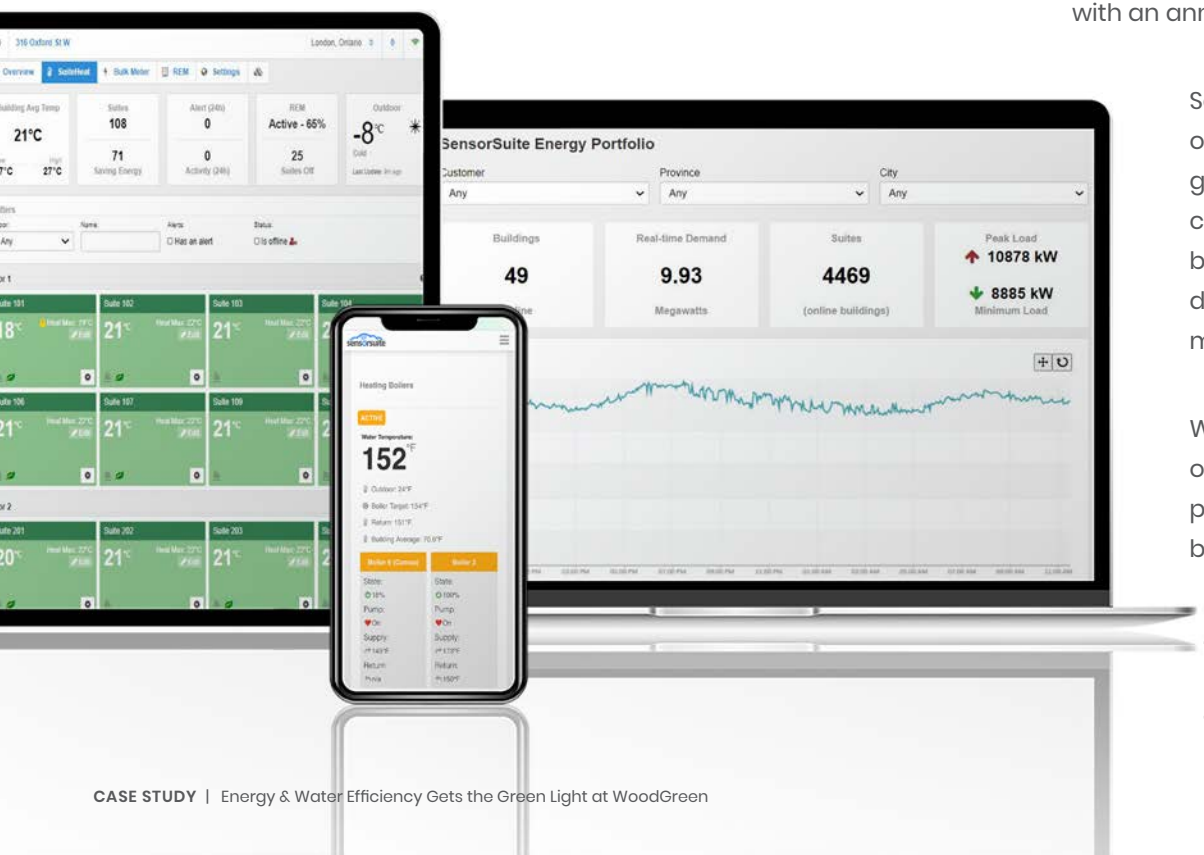
Sustainable Success

SensorSuite's IOT ECE platform creates an optimized human experience that helps to unify different building legacy assets so that they can interact with each other and the building operator(s) can monitor and control numerous devices through one dashboard viewing multiple facilities at once.

The Energy & Water Efficiency Project has successfully integrated comprehensive energy efficiency and water conservation upgrades with WoodGreen's capital replacement plan at the eight multi-residential buildings. It included a host of energy conservation measures that focuses on electrical, mechanical, and water upgrades for an estimated capital cost of $3.4 million. This project was structured and financed by Efficiency Capital Inc. It is expected to be completed and operational by Q1 2021. The project was developed with long-term efficiency in mind, with upgrades providing savings of nearly $5.7 million over the next 20-30 years and guaranteed savings in the first 10 years with an annual reduction of 250 tonnes of GHG emissions.



SensorSuite's approach of bringing all levels of an organization to one platform can effectively eliminate building operations silos that get created, to prevent misaligned performance metrics. Future considerations include connecting to the utility grid as it transitions by aggregating and coordinating heating, ventilation, and air conditioning (HVAC) and common area loads in the eight WoodGreen multi-unit residential buildings.

WoodGreen Community Services is leading the way in creating healthy occupant environments, supporting the green economy, and providing peace of mind and financial security for their tenants, their business, and their community.

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