



## CASE STUDY

# Sunnybrook Health Sciences Centre Leads the Way in Innovative Electricity Grid Initiative with Enbala

Sunnybrook Health Sciences Centre is a Toronto-based, state-of-the-art teaching hospital that has achieved international recognition for its breakthrough research achievements. Sunnybrook's "leading the way" philosophy is also reflected in its energy programs and green initiatives. The organization has won numerous green awards for its environmental stewardship including its energy conservation, waste management, sustainable transportation, procurement and awareness and education practices. Sunnybrook's energy improvement initiatives are focused on saving energy costs and reducing CO2 emissions.

## Background

The Independent Electricity System Operator (IESO) works at the heart of Ontario's power system, balancing supply and demand through the electricity market, and managing the reliability of the provincial power grid. With a view to integrating new demand management and storage technologies into the power system, earlier this year the IESO took a major step forward by selecting new suppliers of regulation service, a grid-balancing function traditionally provided by generators. Enbala Power Networks was chosen to provide its technology platform to respond to the needs of the power system through an automated, real-time grid balancing

network. As a result, the IESO and Enbala joined Sunnybrook Health Sciences Centre to introduce Ontario's first highly innovative Grid Balance® initiative which engages the province's commercial, industrial and institutional organizations.

## Enbala Power Networks: The Platform Explained

An integral part of Sunnybrook's Smart Energy Actions Program is working with Enbala's multipurpose, real-time demand management platform. The Platform seamlessly and intelligently enables time-shift power usage in real time to match the moment-to-moment fluctuations of electricity demand on Ontario's power system.

## How the Enbala Platform is Being Used at Sunnybrook

The decision was made to use the Enbala Platform for five of the chillers within the hospital's central chiller plant, because they have flexibility in when and how they use power. Enbala engineers worked closely with Sunnybrook to determine the operating parameters necessary to keep the hospital at a comfortable temperature. The next step was the installation of a local communications panel (LCP) and metering at the site.

The team then worked with Sunnybrook's trusted contractors to program the building control system (BCS) connected to the chillers.

This was followed by comprehensive testing using a simulated IESO signal to ensure that Enbala's response stayed within the set temperature parameters. With the implementation complete, Sunnybrook's BCS operator can view a screenshot of Enbala's activities in real time as it works to keep electricity generation and demand in balance. The Enbala Platform receives real-time requests (or signals) from the IESO which are then sent to Sunnybrook's BCS, which automatically adjusts the chillers' output with no perceptible impact to the operation.

## Summary of Benefits Achieved by Sunnybrook

In working with Enbala, Sunnybrook is achieving a number of benefits, such as:

- Contributing to the reliability of the province's power system
- Generating a new revenue stream that can be applied against their energy initiatives and patient care
- Leveraging existing energy-consuming assets as "dual-use" in an automated, cost-free program
- Contributing to the reduction of Ontario's greenhouse gas emissions
- Experience with innovative technologies that can be applied elsewhere at Sunnybrook to realize further benefits in the future

Enbala received support to implement its Grid Balance initiative in Ontario from the Ontario Ministry of Energy's Smart Grid Fund and the Ontario Power Authority's (OPA) Conservation Fund

