

# Manitoba Hydro Place

One of the Greenest Buildings in North America Using Niagara<sup>AX</sup> Framework<sup>®</sup>

## The Project

- Manitoba Hydro, the primary energy utility for Winnipeg, Manitoba, Canada, serves 532,000 electric customers throughout Manitoba and 274,000 natural gas customers in various communities throughout southern Manitoba.
- Completed in September 2009, the new corporate headquarters - Manitoba Hydro Place, a nearly 700,000 square foot, 22-story office tower, was built with the goal of being energy efficient, to assist in urban revitalization, and provide a supportive workplace.



- Occupying a full block in the urban center of Winnipeg, well known for its extreme climate, the building encompasses public, retail, commercial and Manitoba Hydro office space.

## The Requirements

Manitoba Hydro wanted to construct a headquarters that would serve as a world-class model of energy efficiency and sustainability, and at the same time, provide a healthy, productive and creative workplace for employees.

Energy efficiencies include items such as:

- atriums to provide conditioned fresh air
- double external walls to reduce heating and cooling requirements in extreme temperatures
- geothermal heating and cooling system
- T-5 high output lighting, with occupancy and light sensors on each fixture
- advanced computer-based Building Management System to coordinate operation of energy management and building systems
- building location and design selected to maximize use of solar energy

## The Niagara<sup>AX</sup> Framework

Selected for its ability to integrate diverse building systems and equipment, the Niagara Framework<sup>®</sup> connects multiple systems and equipment within Manitoba Hydro Place, including over 30 JACEs to provide connectivity to the systems within such as temperature, ventilation, and energy. – helping to create a building that is smarter, uses less energy, is more efficient, and has lower operating costs.

One of the major challenges was to install a BAS infrastructure that was flexible enough to deal with changing design criteria. The fundamental nature of the JACE and its ability to neutralize point information at the appliance allowed for layout and install, with a decentralized integration platform that would be functional regardless of what changes were made.



## Case Synopsis

**COMPANY:** Manitoba Hydro

**INDUSTRY:** Energy Utility

**PROJECT:** Manitoba Hydro Place

**FOCUS:** Energy Efficiency

**CHALLENGE:** Develop and build a world class model of energy efficiency and sustainability in an area known for its extreme climate conditions.

**SOLUTION:** The Niagara Framework is being used as a centralized energy management infrastructure to connect and manage over 130 metering points.

**SUPPLIERS:**

- Cochrane Supply and Engineering
- BSD Solutions
- Tridium

**KEY RESULTS:**

- 2010 ENERGY STAR Participant of the Year
- \$15 million savings in reduced operating costs annually
- Exceeded goal of 60% energy savings and approaching 65%

The BMS system at Manitoba Hydro Place has proven to be a valued tool with respect to building operations, equipment performance, and from an energy management perspective. The system installed here at Manitoba Hydro Place has proven itself reliable and user friendly. From our experience the system communicates well with the end devices using various forms of communications protocol. Overall we are quite happy with the Niagara Framework and Tridium product to date.

### Darren Sachvie, Supervisor, Manitoba Hydro

With more than 130 individual metering points, Niagara and its energy applications provided a user-friendly and intuitive way for the owner to easily group, display and analyze all energy monitoring points. In some instances there was the requirement to perform BTU calculations using flow and temperature data, which was easily done at the JACE since it supports a vast library of calculations and programming functionality.

From the new location Manitoba Hydro Place is able to:

- export electricity to over 30 electric utilities through participation in Canadian wholesale markets and the mid-western United States;
- maintain a position of being among the lowest cost providers of domestic electricity rates in Canada, and the major distributor of natural gas in the province;
- generate nearly all electricity from self-renewing water power from 14 hydroelectric generating stations, primarily on the Winnipeg, Saskatchewan and Nelson rivers;

“Considering we had to support 300+ users the Niagara<sup>AX</sup> was the perfect solution. Since the AX is designed around web accessibility, there was no requirement for specialized software to be installed on the client’s PCs, a simple browser was all that was required., said Claude Dupas, Vice President of Operations for BSD Solutions, the system integrator for the project. “There could have been a significant cost to this if we would have

considered a thick client type solution not to mention the significant amount of owner IT issues that would need to be dealt with.”

The design of the building demonstrates Manitoba Hydro’s commitment to environmentally responsible practices. By connecting passive solar, wind, and geothermal energy, the initial reduction target was set at 60%; however, to date an unprecedented 65% energy savings is being achieved.

### The Results

Since initially occupying the building in December 2009, Manitoba Hydro Place has exceeded the original target of 60% energy savings and had approached 65% savings at the end of August 2010. Additionally, they were named 2010 ENERGY STAR Participant of the Year by Natural Resources Canada - an award recognizing companies and organizations for their efforts encouraging Canadian consumers to purchase the most energy efficient product, technology, or service available on the market. They were also recognized in 2009 by the Council on Tall Buildings and Urban Habitat as the number one office tower in North America in regard to design, quality of space, urbanism, sustainability and energy efficiency.

The new headquarters is saving the corporation \$15 million in annual operating costs resulting from energy efficiencies, productivity improvements, office consolidation and co-location of employees, and other design features.

## Summary

The design of the building is proof that an extremely energy efficient and sustainable building can also be provide an unsurpassed work environment for its occupants and save on operational and energy usage costs. Their staff is able to enjoy one of the most healthy, vibrant, and productive workspaces in the world, while also contributing to the revitalization of their community. Manitoba Hydro Place is one of the most energy-efficient large-scale office towers in the world and serves as a model for extreme climate design.



## About Tridium Inc.

Tridium is the global leader in open platforms, application software frameworks, automation infrastructure technology, energy management and device-to-enterprise integration solutions. Our technologies extend connectivity, integration and interoperability to the millions of devices deployed in the market today and empowers manufacturers to develop intelligent equipment systems and smart devices that enable collaboration and communication between the enterprise and edge assets.

