



CASE STUDY: THUNDER BAY REGIONAL HEALTH SCIENCES CENTRE

Optimizing energy efficiency and resilience with **Siemens** **Demand Flow**[®]

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Introduction

Hospitals operate 24/7, relying on complex infrastructure to maintain optimal conditions for patient care and healing. From air quality to comfort, reliable HVAC performance is critical. But balancing operational performance requirements with energy efficiency can be challenging. Thunder Bay Regional Health Sciences Centre (TBRHSC) needed a solution to enhance energy efficiency, reduce operational costs, and support its long-term sustainability commitments. By partnering with Siemens, TBRHSC implemented Demand Flow[®] chilled water optimization, a strategic investment that has improved energy efficiency while supporting greater reliability for its central plant operations.

About Thunder Bay Regional Health Sciences Centre

Thunder Bay Regional Health Sciences Centre (TBRHSC) is a 375-bed acute care facility and is the only tertiary healthcare provider for Northwestern Ontario—a region that's larger than the size of France. The hospital provides comprehensive patient care to more than 245,000 people, addressing diverse healthcare needs with a focus on excellence, innovation, and accessibility. As an academic health sciences centre, TBRHSC plays a key role in training future medical professionals and advancing clinical research through its affiliation with the Thunder Bay Regional Health Research Institute (TBRHRI).

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The hospital is deeply committed to fostering equity, diversity, and inclusion, ensuring that its services reflect the diverse backgrounds of the communities it serves. Guided by its Strategic Plan 2026, TBRHSC is committed to enhancing patient and staff experience, driving research and innovation, and ensuring a sustainable future through responsible resource management and operational efficiency. As part of these efforts, optimizing energy usage in its central plant became a priority—leading to the collaboration with Siemens and, ultimately, the implementation of Demand Flow technology.

Modernizing for efficiency and reliability

According to Allan Korol, Manager of Facilities and Biomedical Services at TBRHSC, the central plant was relying on chillers and control logic from the mid-1990s. In a remotely located facility that provides round-the-clock acute care for an entire region, even the potential for system downtime was a serious concern.

“When you’re remotely located like us, you have to have reliable operations. There’s no one right around here with the expertise to service 700-ton chillers. We’ve had some trouble in the past with power bumps, where the chillers and pumps would shut down and leave us struggling to maintain operations,” says Korol.

In addition to equipment reliability, reducing energy consumption is a key goal for TBRHSC, as success in this area helps manage operating expenses while mitigating the facility's environmental footprint. And because central plants are inherently large energy consumers, this combination of factors made Demand Flow attractive to the organization.



Demand Flow: Strategically modernizing central plant operations

In 2022, TBRHSC implemented Siemens Demand Flow for chilled water optimization, a solution that would modernize central plant operations to address the facility's energy efficiency and operational reliability objectives.

About Demand Flow Chilled Water Optimization Technology

Demand Flow is our intelligent, powerful, proven HVAC optimization solution that focuses on three key areas of your chiller plant – uptime, comfort, and energy efficiency. It can be implemented on any BACnet-compatible building automation system without shutting down your HVAC operations or disrupting your day-to-day.

TBRHSC Energy Savings Impact

2022-Present
TBRHSC has realized
third-party verified
annual savings of
846,000 kWh



Equivalent to the carbon
sequestered by

570 acres
of forest



Moreover, these energy
savings represent a

145%
overachievement
relative to initial
project estimates.



Korol explains that these savings combine with other projects TBRHSC and Siemens have implemented across various building systems.



In my experience, when you upgrade your facilities, your problems go away because you're modernizing with more efficient, steady, and reliable equipment. And, when you're not fighting the same problem over and over, you can find some peace."

Allan Korol

Manager of Facilities and Biomedical Services at TBRHSC

Beyond the technical upgrades, Korol points to Siemens implementation and training process as key to a smooth transition. "Our building system operators had to learn a new way of running the plant," said Korol. "Siemens provided excellent support, staying on-site for the first few months to help our team get comfortable with the system. Now, we have the benefit of our Siemens technicians, who are highly familiar with Demand Flow and Desigo CC, our building automation system, so we always have someone to call when we need support."



Looking ahead: a culture of continuous improvement

For TBRHSC, the successful implementation of Demand Flow is just one step in an ongoing journey toward modernization, energy efficiency, and operational resilience—and it's one that has allowed the facility operations team to focus their attention elsewhere while knowing that the chilled water system is operating effectively and efficiently.

"We're always looking for the next opportunity. If you're not modernizing and upgrading, the numbers will show it—electricity consumption, maintenance costs, and operational risks all add up. That's why we're continuously developing energy efficiency projects, and Siemens has been a valuable partner in that." Over the years, the hospital has worked with Siemens on a range of projects including existing building commissioning and fault detection + diagnostics, which complement the organization's other energy efficiency initiatives to significantly reduce utility costs.

Korol concludes: "Everything we've taken on with Siemens has worked out. They're a good company who provides us with a lot of support, and we're relying on them to keep giving us good ideas like these."

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