



Religious Hospitallers
of Saint Joseph
of the Hotel Dieu of Kingston
HOTEL DIEU HOSPITAL

CONSERVATION AND DEMAND MANAGEMENT PLAN HOTEL DIEU HOSPITAL KINGSTON ONTARIO 2014



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Introduction

In compliance with Ontario Regulation 397/11 under the Green Energy Act 2009 the following constitutes the Conservation and Demand Management Plan (CDM Plan) for Hotel Dieu Hospital in Kingston, Ontario. It should be understood that the plan contains initiatives that may or may not be implemented based on the financial ability of the hospital to afford the initiative. It should also be understood that the plan may be adjusted if other opportunities present that may be more lucrative to pursue.

Questions about the plan should be directed to:

Larry Erwin GSC

Director, Facilities Management

Hotel Dieu Hospital

166 Brock St Kingston, Ont.

613-544-3400 ext. 3031

erwinl@hdh.kari.net

Commitment Statement

The management team of Hotel Dieu Hospital is committed to ensuring that our hospital uses energy efficiently in providing excellent and safe care to our patients and their families. Located in the “Sustainable City of Kingston” we want to do our part by reducing our ecological footprint to the betterment of the health of the people we serve.

Our Mission

The mission of Hotel Dieu Hospital in Kingston, rooted in the Gospel of Jesus Christ, is to make visible the compassionate healing presence of God to all persons. We share in this Mission by being a caring and just community. This is expressed through the pursuit of excellence in health service, education and research.

Our Vision

Leading the transformation of ambulatory care

Our Values

Dignity of the human person – recognizes that we respect the intrinsic goodness, worth, spirituality and equality of every person.

Compassion – is a felt experience that allows one to stand by and support others; it is a gentleness that moves us deeply to enter into places of pain and to share in brokenness, fear, confusion and anguish.

Justice – to render to everyone their due, which may be a share of the common good, as well as respect, fair wage and fair working conditions. Justice speaks to action and risk necessary to change attitudes and structures for the common good.

Integrity – speaks to the quality of a person or an organization where consistency of character is shown by honesty, truthfulness, respect for values and ethics, transparency and authentic behavior, which are all lived through accountability and stewardship.

Excellence – to strive to bring quality to all undertakings related to performance of one’s role, work and interactions with others.

History

Hotel Dieu Hospital was established by the Religious Hospitallers of Saint Joseph (RHSJ), a congregation of religious women founded in France by Jerome le Royer de la Dauversiere in 1636. In the mid-1600s, the Sisters arrived in Canada to help build a hospital in Montreal, and they were called upon to continue their healing mission by opening the first public hospital in the Kingston area in 1845.

They originally took up residence on the corner of Brock and Sydenham Streets, caring for the immigrants who flooded the region and for hundreds of orphans whose immigrant parents died from disease and starvation.

In 1892, the Sisters moved to Hotel Dieu's current site, increasing patient capacity from 40 to 150 people. A chapel was built in 1895 and a convent in 1897. A School of Nursing started in 1912, with the first class graduating in 1914. More buildings and services were added over the following years with the Centenary, Brock and Johnson wings, and subsequently the Jeanne Mance building in 1984.

While the mission of the Sisters remains the touchstone of all we do at Hotel Dieu Hospital, formal sponsorship of the hospital now rests with Catholic Health International, whose mission is to ensure the presence of Catholic values in its member Corporations.

Hotel Dieu Hospital is a faith-based, academic hospital where research and learning take place every day and where we are committed to partnership with patients and families. We actively engage in implementing innovative models of care that support patient care, as well as regional and academic health care needs. Affiliated with Queen's University, we serve as a major teaching location for learners from across the Faculty of Health Sciences, including medical, nursing and allied health learners. And research at Hotel Dieu Hospital contributes to the growing field of knowledge about health care and ambulatory care in Canada and beyond. Ambulatory care at Hotel Dieu Hospital is part of an integrated, cost-effective system of health care in Southeastern Ontario.

Definition of Ambulatory Care

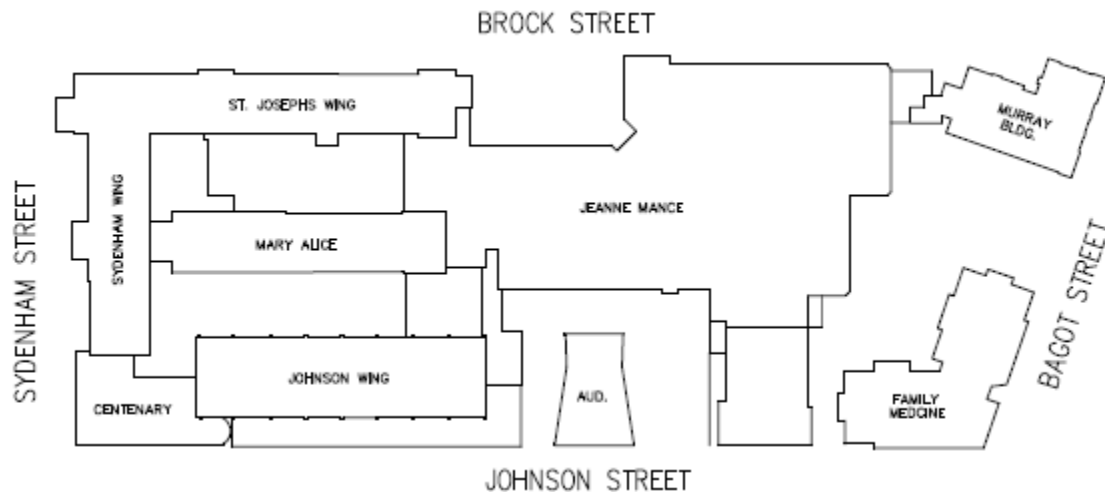
Ambulatory care at Hotel Dieu Hospital (HDH) is specialized care that may include a scheduled visit to one or more hospital clinics, diagnostic or procedural areas. In some cases, a single health care professional, for example a surgeon or internal medicine physician, may see patients in a traditional clinic setting. Increasingly, patients and families will receive care in a team-based inter-disciplinary and/or inter-professional program, such as our pre-surgical screening, diabetes, breast assessment, bariatric, chronic pain or cardiac rehabilitation

programs. Ambulatory care at HDH includes care for patients with urgent and less critical emergency problems at our Urgent Care Centre.

Hotel Dieu Hospital has a very active ambulatory surgery program where most patients return home the same day. We also have a short-stay facility in the form of a satellite post-anesthetic care unit that supports patients who need extended time for pain control and rehabilitation therapy.

Energy Management

Hotel Dieu Hospital consists of nine different buildings ranging in age from the Sydenham building, built in 1839 to the Jeanne Mance Building, built in 1982. The hospital has two electrical feeds into the building from the City of Kingston and is heated by steam that is purchased from the Queen's University steam plant.



Managing energy use in buildings of varying ages and physical plant technologies present unique challenges and opportunities. Despite those challenges, the Hotel Dieu Board, Management and Staff are committed to reducing and managing the energy resources we consume. We feel that good energy stewardship is in line with the values we hold as an organization.

Dignity of the human person – By reducing energy footprint we show dignity to the youth who will inherit the world we leave them.

Compassion– By reducing our emissions we show compassion to all those who are compromised by air pollution.

Justice – By reducing our energy consumption we free up valuable financial resources for direct patient care. It is the right thing to do.

Integrity – By being energy efficient we show our community that we are accountable for way we use our financial resources and we demonstrate our commitment to environmental stewardship

Excellence – Our vision is to be a leader in the transformation of ambulatory care. This includes excellence in Energy and Demand Management for the comfort and care of the people we serve.

Energy Management History

In 2005 Hotel Dieu Hospital's management team recognized the need for energy conservation measures. Many options were reviewed and in January of 2007 the hospital began construction on a \$4.9 million energy retrofit project which included the following measures;

- 1) Aged cooling chillers and tower removed and replaced with energy efficient models**
- 2) A lighting retrofit of ballasts and tubes from T12's to T8's**
- 3) Demolition and replacement of steam heating systems in many of the buildings with a hot water heating system.**
- 4) Installation of a Smardt chiller that is used as a heat pump to collect heat from exhaust air to provide heating of the low temp water heating system.**
- 5) Installation of variable speed drives (VFD's) on most air handling equipment**
- 6) Replacement and installation of new heating and cooling coils, heat exchangers and motors where required by the project.**

The project was completed by September 2008 and has resulted in guaranteed savings of \$542,444/year starting in 2010. This project reduced the hospital's carbon dioxide emissions by 1,500 tons /year or the equivalent of removing 455 cars from the road.

In 2011 further energy reduction initiatives were examined that would reduce our consumption, our ecological footprint and our reliance on steam from our supplier. In May 2013 the hospital embarked on Phase 2 of our energy management journey that will see the construction of our own boiler room and the further conversion of some of the remaining areas of the hospital from steam to hot water heating. This project has many advantages;

1) It will end our dependency on steam provided through an aging steam line from Queens. This line is past the end of its useful life, is prone to failure and is expensive to maintain.

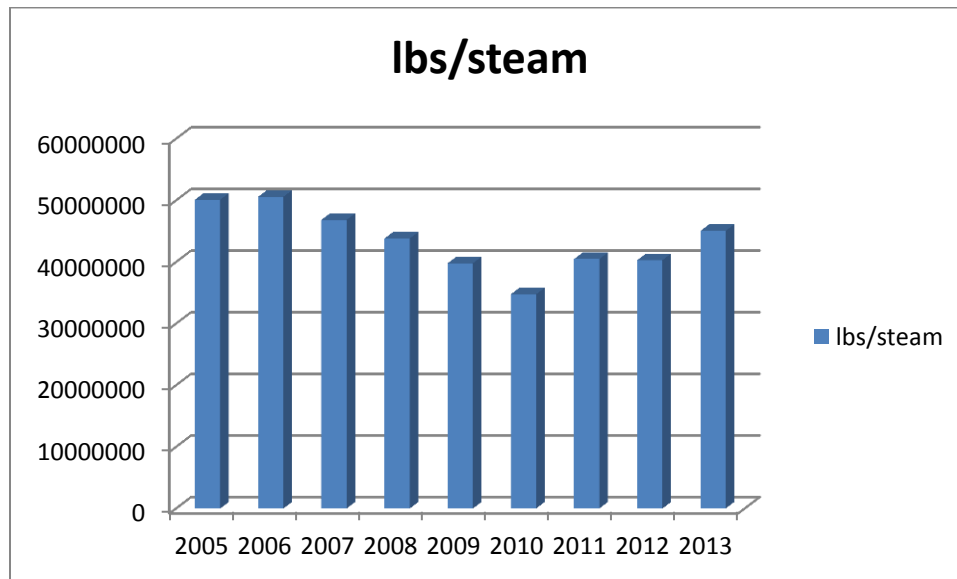
2) The new boiler room will provide for redundancies for the heating systems and for sterilization of equipment.

3) The project will result in a further guaranteed energy saving of \$261,000/year

The following graphs show the energy history over the implantation of Phase 1 of the energy retrofit project and a major redevelopment project that included the completion of two unfinished floors of the Jeane Mance building, major renovations in the Brock and Johnson buildings, the addition of an eight story, two bank elevator tower and a new mechanical penthouse and related HVAC equipment.

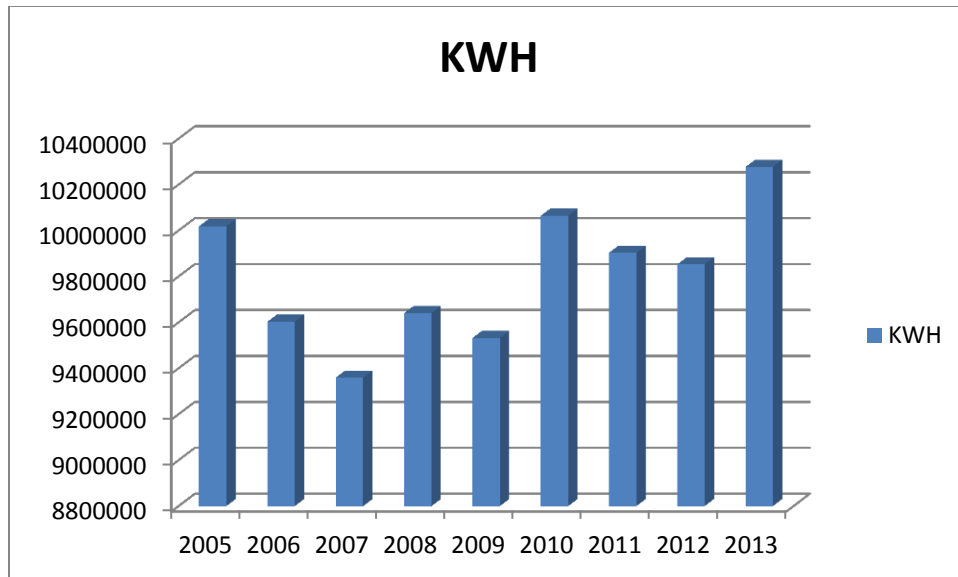
In figure 1 the effects of the conversion to hot water from steam is clearly seen from 2006 through 2010 and the increase from construction and occupancy of the redevelopment project from 2011 through 2013.

Fig 1

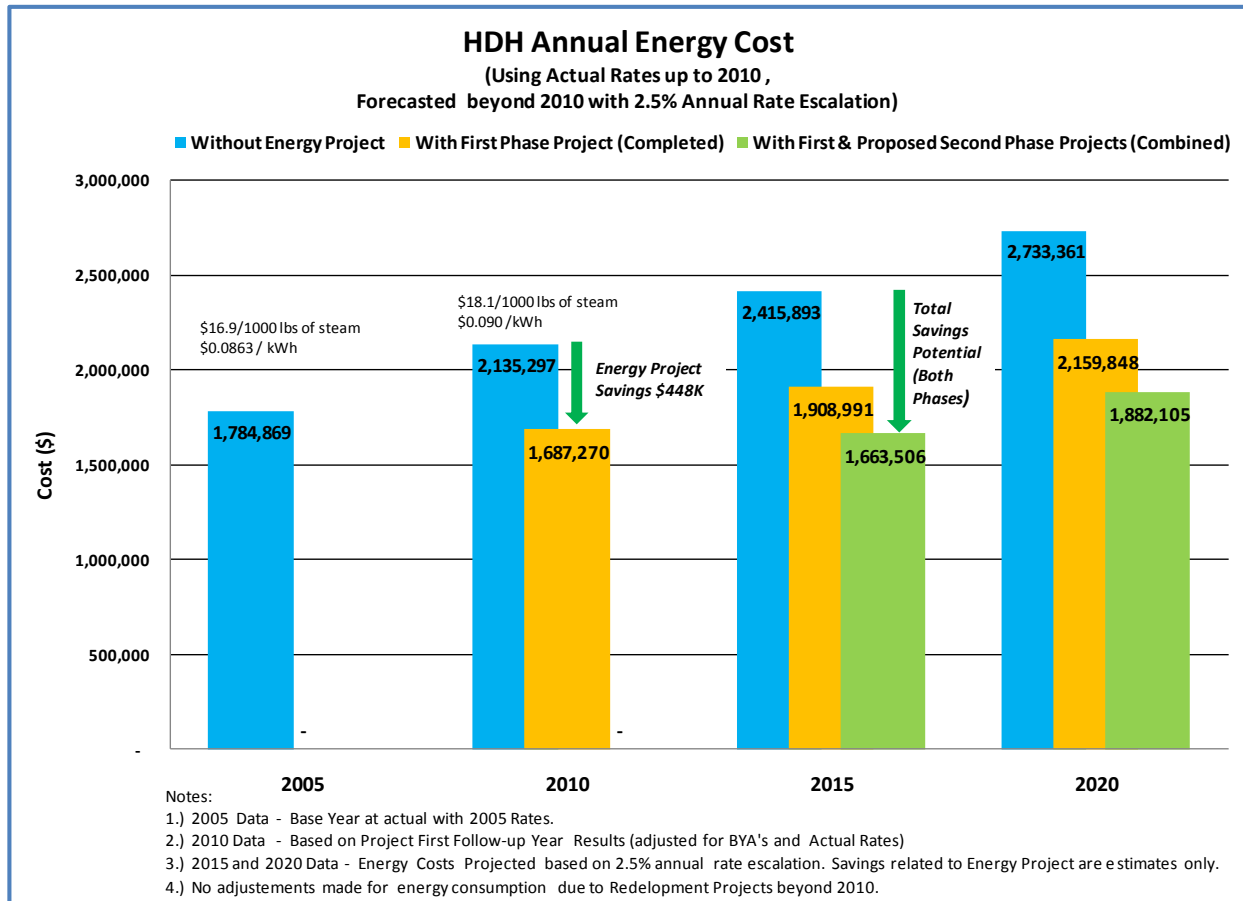


In Figure 2 electrical reductions are seen from 2006 through 2009 however the demand for electricity increased with the construction of the redevelopment project from 2010 through occupancy in 2013

Fig 2



The following demonstrates what our costs would have been if we had not implemented both phases of our energy reduction project.



Energy Intensity

Hotel Dieu Hospital's energy intensity rating is as follows for the required Broader Public Sector reporting periods of 2011 and 2012

2011 – Hospital use- 35.72913

Administration- 35.72935

2012 - Hospital use- 38.41121822

Administration - 38.40381896

Goals and Objectives

It is the goal of the Facilities Management team to implement measures that will result in a 15% reduction in consumption and expense over the 5 years covered by the Conservation and Demand Management Plan. We will accomplish this by;

1) Energy Data Management:

Our energy consumption is monitored monthly by a third party with reports being submitted to the Director of Facilities Management. These reports are reviewed for errors and trends in consumption and are used to compare consumption year over year and to benchmark with other facilities.

2) Energy Supply Management:

Our energy procurement is through a purchasing group representing many hospitals which leverages the bulk buying power of the larger group. This ensures a relatively stable cost avoidance strategy by establishing contractual agreements with suppliers at a reduced cost.

3) Energy Use Management:

We will conduct an energy audit in 2014 to help us better understand our energy use. The audit will be used to identify potential ideas for further savings and areas where energy conservation education is needed.

Proposed Measures and Estimates

Year	Proposed Measure	Estimated Cost
2014	Steam/HW conversion – The bulk of heating steam in the building is currently being converted to hot water. Creation of a new boiler house.	\$2,500,000
	Energy Audit	\$10,000
2015	T12-T8 lighting conversion. Though most of the lighting has been changed there are still areas using T12 lighting	\$8,000
	FMC Cooling – Add FMC on our main chilled water loop. This would provide better reliance and efficiency than the satellite cooling towers we have now and would eliminate the 2 existing systems at FMC.	\$40,000
2016	LED Lighting (Exterior)	\$70,000
2017	Motor Replacement Phase 1	\$20,000
2018	Motor Replacement Phase 2	\$20,000

Ongoing Measures

Cooling Tower Cleaning – Beginning in 2014 we had our cooling tower acid washed. This will increase our efficiency by 4% on the cooling system. This has been added to our preventative maintenance program.

Filter Management – We have partnered with a new filter company to work with us on a filter audit for the hospital, to get lower static and more durable filters for our air handlers. A lower static pressure will save energy and a more durable filter will save operational costs.

BAS Scheduling/Automation – the majority of our AHUs are already on a schedule to scale back at night. New AHUs (AC1, AC2, AC11, AC12) are not on a schedule and operate 24/7, these units will be added during 2014

Education – Beginning in the fall of 2014 we will introduce an energy awareness program that will focus on the responsibilities of all staff to do their part in helping to reduce energy.

Senior Management Endorsement

I have reviewed and support the Conservation and Demand Management Plan for Hotel Dieu Hospital



David R Pichora MD FRCSC
CEO Hotel Dieu Hospital, Kingston, ON
Professor of Surgery, and Mechanical and Materials Engineering, Queen's University
Upper Extremity Surgery and Orthopaedic Trauma