



June 30, 2014

To whom it may concern,

**RE: Conservation and Demand Management Plan
Groves Memorial Community Hospital**

This letter confirms that I have reviewed and approved the Conservation and Demand Management Plan for Groves Memorial Community Hospital.

This plan will be implemented by 2019 and will coordinate with budget planning, strategic plan, purchasing policy, preventative maintenance plans, environmental management plan, asset management plan, and the policy development process. A communication plan will also be developed to convey energy efficiency commitment and priority to staff and stakeholders.

Groves Memorial Community Hospital staff will carry out a comprehensive review of all business processes and modify them as necessary in order to incorporate energy efficiency considerations.

A third party facility energy audit will be completed, following which additional projects will be conducted.

Should you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "S. Street", is written over a light blue horizontal line.

Stephen K. Street
Vice President, Corporate Services and Planning

GROVES MEMMORIAL COMMUNITY HOSPITAL

Conservation and Demand Management Plan

2014 to 2019

Commitment

- **Declaration of Commitment:** Groves Memorial Community Hospital will allocate the necessary resources to develop and implement an Energy Conservation and Demand Management Plan as required under Regulation 397/11 of the Green Energy Act. Senior Management supports energy planning because it will help avoid cost increases, improve service delivery while protecting human health and the environment. Our Energy Conservation and Demand Management Plan will reduce our energy consumption and its related environmental impact as outlined in our overall target. Staff and Senior Management will ensure the objectives presented in this plan are achieved and that progress towards those objectives is monitored on an ongoing basis. Staff and Senior Management will update the plan as required under Regulation 397/11 of the Green Energy Act or any subsequent legislation.

- **Vision:** We will strive to continually reduce our total energy consumption and associated greenhouse gases (GHGs) through wise and efficient use of energy and resources, while still maintaining an efficient and effective level of service for our clients and the general public. This will involve a collaborative effort to increase the education, awareness, and understanding of energy management within the facilities. Total energy consumption includes electricity and natural gas. This vision can be achieved through the integration of energy efficiency facility infrastructure, operational efficiencies, and building the foundation for a culture of energy awareness and knowledge within the facilities. While commitment from Senior Management is crucial, everyone has a role in the wise use of energy and to showcase appropriate leadership within facilities and operation.

- **Policy:** Groves Memorial Community Hospital will incorporate energy efficiency into all areas of our activity including, procurement practices, investment decisions, and facility operations and maintenance. As a major component of the operating costs of facilities and equipment, energy costs will be factored into the lifecycle cost analysis and asset management analyses and policies of the facilities. All departments have clear links to some or all of the goals and objectives of the Energy Conservation and Demand Management Plan.

- **Goals:** Groves Memorial Community Hospital Energy Conservation and Demand Management Plan was completed to help achieve the following goals:

1. Maximize fiscal resources and avoid cost increases through direct and indirect energy savings
2. Reduce the environmental impact of the facilities' operations
3. Increase the comfort and safety of staff, patients and visitors of the facilities
4. To create a culture of conservation within the facilities.
5. To improve the reliability of the facilities' equipment and reduce maintenance.

- **Overall Target:** We will reduce our energy consumption by a minimum of 10% from 2014 (based on baseline data) to 2019.

- **Objectives:** In order to meet the strategic goals of the Energy Conservation and Demand Management Plan, there are a number of goals and objectives that align with its development and implementation:

1. Ensure energy efficiency consistency across facilities
2. Monitor and report on energy consumption in quarterly intervals. Staff will monitor and verify ROI to enable reinvestment in energy projects and report on energy consumption four times per year.
3. Better analyze energy costs and look for savings opportunities. This will include looking at energy commodity procurement options and taking advantage of all available resources and funding for energy projects.
4. Raise staff and Senior Management awareness around energy efficiency. This will include communicating successes to both internal and external stakeholders.
5. Strengthen partnerships with external stakeholders such as electric and gas utilities.
6. Identify and seize renewable energy generation opportunities.

Organizational Understanding

- **Our Energy Needs:** Groves Memorial Community Hospital requires reliable, low-cost, sustainable energy sources.

- **Stakeholder Needs:** Internal stakeholders (Senior Management, Management and staff) need to be able to clearly communicate the corporate commitment to energy efficiency, and to develop the skills and knowledge required to implement energy management practices and measures. External stakeholders (the Province, community citizens and groups) need the facilities to be accountable for energy performance and to minimize the energy component of the costs of services.

- **Facility Energy Situation:** Our assessment of organizational capacity for energy management with respect to energy policy; organizational structure; employee awareness, skills and knowledge; energy information management; communications; and investment practices indicates the following issues:

--Energy use and costs continue to increase and are forecast to increase further.

--Energy is not visible to facility decision makers such as Senior Management, Managers, front-line staff, and members of the public. This leads to a lack of understanding of the costs of energy and the opportunities for energy efficiency.

--Occasional efforts are made to raise general staff awareness about energy.

-- The requirement for this Energy Conservation and Demand Management Plan provides an opportunity to build upon current initiatives such as the HIRF projects and capital expansions.

- **How We Manage Energy Today:** The management of our energy is a combination of energy data management, energy supply management, and energy use management.

Energy Data Management: Our facility energy data is managed through the Manager Building Services. The data is received via supplier invoices, then tracked and/or monitored, consumption/trends are analyzed, and reports are generated.

Energy Supply Management: Our facility energy is supplied via a number of providers as outlined below: Electricity is supplied by local Hydro suppliers on an as needed basis and is priced at the standard rates offered by the provider. Natural gas is supplied by ECNG commodity supplier.

Facility staff will investigate a hedging strategy for purchasing electricity Local Authority Services (LAS).

Energy Use Management: Day to day management of energy has historically happened in an ad-hoc manner. To aid in our efforts to track and reduce energy use Groves Memorial Community Hospital plans to utilize an Energy Planning Tool (EPT) in an ongoing manner and to generate and share reports as required.

- Summary of Current Technical Practices: Our assessment of operations and maintenance practices, facility and equipment condition, and energy performance indicators establishes the following priorities:

- Development of standard operating procedures incorporating energy efficiency optimization.
- Enhancement of preventative maintenance procedures.
- The facility applies for funding under the Healthcare Infrastructure Renewal Funding to make the following upgrades: lighting efficiency, replacement of rooftop HVAC units which are nearing end of life, heating system upgrades, Building automation system upgrade.

Strategic Planning

- Links with other facility plans: Groves Memorial Community Hospital will develop and implement energy policies, develop the required skills and knowledge, manage energy information, communicate with our stakeholders, and invest in energy management measures. As an integral component of the management structure, the Energy Conservation and Demand Management Plan is to be coordinated with the facilities' budget planning, strategic plan, purchasing policy, preventative maintenance plans, environmental management plan, asset management plan, and the policy development process.

Structure Planning

- Staffing requirements and duties: Groves Memorial Community Hospital will incorporate energy budget accountability into our corporate responsibilities. We will incorporate energy efficiency into standard operating procedures and the knowledge requirement for operational jobs.

- Consideration of energy efficiency for all projects: Groves Memorial Community Hospital will incorporate life cycle cost analysis into the design procedures for all capital projects. Typically equipment to be considered for this process includes:

- HVAC equipment (e.g. boilers, chillers, pumps, motors etc.)
- Lighting and controls
- Building envelope (e.g. roofs, insulation, windows and doors etc.)
- Water use (e.g. toilets, water reclaim etc.)
- BAS (building automation system) controls,
- Process improvements
- Back-up generators
- Any other energy consuming device

These types of projects generally follow 5 steps:

1. Project Identification & Feasibility
2. Energy Audits, Feasibility Analysis or through detailed Condition Assessments.
3. Planning & Budgeting - Project Financing, Incentives, Business Case & Approvals
4. Implementation: Tender, Project Execution, Project Management, Commissioning
5. Monitoring & Verification: Measure and Verify Results, Reporting Achievements The intent is to make this LCA analysis part of the facilities' normal course of business for all facility and operational retrofits, including capital renewal and life cycle replacements projects. Success means incorporating energy efficient options at the initial stages of a project design. This ensures that options for improving energy efficiency are considered, evaluated and quantified in terms of life cycle costing analysis, including cost, maintenance and emission reductions.

Resources Planning

- **Energy Leader:** The Manager of Building Services has been designated as our energy leader with overall responsibility for corporate energy management.

- **Energy Team:** We will identify staff members and personnel from our critical service providers who carry significant responsibility for energy performance or who can make essential input to energy management processes.

- **Internal Resources:** We will develop criteria for determining whether internal resources can be utilized for the implementation of energy projects.

- **External Consultants and Suppliers:** We will establish criteria in our Procurement Policy based on our energy goals and objectives for the selection of external consultants and energy suppliers. This criteria will include a lifecycle cost analysis of desired products and services whenever possible.

- **Energy Training:** Groves Memorial Community Hospital will develop and deliver energy training for relevant staff and Senior Management members. This training will not be limited to operators and maintainers with "hands-on" involvement with energy consuming equipment but will also include others since they also make energy consumption decision in their daily work. Training focused on the energy use and conservation opportunities associated with employees' job functions will be utilized whenever possible. Energy management training will be incorporated into employee orientation and future training opportunities offered through Human Resources. All such energy management training opportunities are integrated into ongoing staff training and designed to allow for the internal capacity building necessary to ensure that staff are making informed decision and reducing the need for costly external assistance. Groves Memorial Community Hospital will utilize both internal and external resources to provide this training as much as resources allow.

Procurement Planning

- **Energy Purchasing:** In addition to the conservation of energy, the procurement of energy is equally as important. Proper energy procurement includes: rate optimization, utility account management, supplier choice and evaluation, supply reliability and quality, demand/supply optimization and risk management. Groves Memorial Community Hospital will develop a procedure for the negotiation of energy purchase contracts that appropriately addresses our cost considerations, available energy services, energy quality and reliability, and other performance factors. A primary objective of this policy will be to provide price stability by fixing future prices. A key deliverable will be to investigate and report back to Senior Management on energy commodity purchasing programs available to the facilities. Quarterly meetings will be held to review any cost and consumption variances as well as to project the upcoming annual cost per commodity for budgeting and

consumption load profiles. Monthly billing analysis also provides an opportunity to identify and recover any billing errors, or usage that requires further investigation.

- **Consideration of energy efficiency of acquired equipment:** Our purchasing procedures will be modified as required to incorporate energy efficiency into the criteria for selection of materials and equipment.

Implementation Planning

- **Building Standards:** Groves Memorial Community Hospital staff will develop criteria for the design of new buildings, expansions and major renovations that include energy performance factors and that use as appropriate the principles embedded in performance standards such as LEED and the Model National Energy Code for Buildings. Considering LEED for new construction and major renovations makes good business sense, in that a high performance green building vs. conventional inefficient buildings can reduce energy consumption by 25% to 75%, water use reduction by 20% to 50% and reduced environmental greenhouse gas (GHG) emissions by as much as 60%. Groves Memorial Community Hospital will investigate adopting such a standard for new buildings or major renovations and will incorporate any such standard into our revised Energy Conservation and Demand Management Plan.
- **Communication Programs:** Groves Memorial Community Hospital staff will develop a communication strategy that creates and sustains awareness of energy efficiency as a corporate priority among all employees, and conveys our commitment and progress to our stakeholders.

Investment Planning

- **Internal Funding Sources:** We will develop and/or clarify as necessary the financial indicators that are applied to investment analysis and prioritization of proposed energy projects, taking due consideration of the priority given to energy efficiency projects versus other investment needs (life cycle versus simple payback). Energy and operating costs savings, physical asset renewal, improved employee comfort and service delivery, and enhanced environmental protection are all quantifiable benefits of energy conservation and demand management and will be factored in accordingly.
- **Creative Approaches:** Groves Memorial Community Hospital staff will investigate, document, and communicate funding sources for energy projects, including government and utility grants and incentives.

Implementation Planning

- **Business Procedures:** Groves Memorial Community Hospital staff will carry out a comprehensive review of all business processes and modify them as necessary in order to incorporate energy efficiency considerations. Groves Memorial Community Hospital will include depreciation of all assets as part of its Asset Management and Capital Planning and will undertake a Lifecycle Cost Analysis of potential new products and services to ensure operating costs are factored into our plans and analyses.

Projects Execution

- **Facility Level:** The administration and implementation of this Energy Conservation and Demand Management Plan will be the responsibility of the Manager of Building Services. Since we all use energy in our daily activities, it will also be the responsibility of all facility staff to be aware of their energy use and work towards a culture of conservation. Through staff training and web base energy management tools, staff will be able to see the results of their efforts, and benchmark between corporate facilities and with industry standards.
- **Asset Level:** In order to sustain a corporate culture of conservation, staff must be engaged in an effective awareness and education program. Although facilities staff have the lead responsibility in ensuring facilities operate efficiently, all facility staff should be familiar with and utilize energy efficient measures where possible.

The first step in implementing an energy management program is the completion of energy audits for the facilities. Audits involve a technical review of a facility and its operations, the development and analysis of a baseline energy profile for the facility and identification of energy management opportunities and savings. Audits will be conducted on the facility as part of this initial planning exercise and should continue to occur on a regular schedule in the future for new and existing facility. Another important component of an energy management program is the re-commissioning. Over the life cycle of a facility, the mechanical building automation and distribution systems are adjusted from day-to-day to suit user room temperature requirements. Moreover, mechanical distribution or building controls instrumentation is sometimes over-looked when renovations take place. Re-commissioning involves examining the original mechanical design and operating specification against any building renovations and recalibrates the settings to suit today's energy efficient standard practices. It also ensures that mechanical operating practices are current and appropriate to maximize building system efficiencies. The use of renewable energy measures can also help reduce overall corporate greenhouse gas emissions by lessening our demand for fossil fuel generated energy (oil, gas or coal). The investment for these types of measures can be significantly greater than conservation initiatives and therefore, should be considered on a case-by-case basis through a cost and environmental benefits analysis. However, it is acknowledged that the use of technologies such as wind, solar and geothermal can show community leadership and help raise awareness of the benefits of utilizing renewable energy.

Review

- **Energy Plan Review:** As part of any energy management strategy, continuous monitoring, verification, and reporting is an essential tool to track consumption and dollar savings and/or avoidance as the result of implemented initiatives. Groves Memorial Community Hospital staff will develop an annual progress report with energy consumption data and initiatives undertaken within the calendar year and will report to Senior Management on progress quarterly. As part the Energy Plan, the implemented processes improvements, program implementation and projects will continued to be documented and reviewed annually to update consumption savings. By regularly monitoring and reporting consumption and dollar savings and/or avoidance to Departments, the outcomes of their participation in energy management initiatives can be demonstrated, and feedback can be obtained for any new ideas. This monitoring and reporting will also align with the requirements of Regulation 397/11 under the Green Energy Act and/or any subsequent legislation related to energy management.

- **Discussion of Progress:** Quarterly energy performance summary reports will be generated to apprise Senior Management of the progress made towards our corporate energy goals and objectives. The general public will be apprised of energy performance of facility facilities and the impact of implemented energy management measures where appropriate.

Evaluation Progress

- **Energy Consumption:** We will review and evaluate our energy plan, revising and updating it as necessary, on an annual basis as based on the Energy Consumption Reports that are submitted to the Ministry of Energy on an annual basis as required under Regulation 397/11.

- **Green House Gas Emission:** Governments at all levels are moving to address emissions of greenhouse gases (GHGs), in light of scientific evidence on how human activities are affecting the world's climate. For more information on the science, see <http://www.ipcc.ch/>. The combustion of fossil fuels in buildings is a major source of GHG emissions that fall under local government influence. Facilities can lower emissions by improving energy efficiency of buildings and using more renewable energy. Groves Memorial Community Hospital is committed to both objectives through the development and implementation of this Energy Conservation and Demand Management Plan (CDM). We will continue to track and report on GHGs as part of our regular reporting on energy consumption and will evaluate progress in this area against our overall reduction target.

Programs, Process, and Projects

Programs

Description	Facility	Responsible Person	Date	Status
Add energy awareness to management meetings	All	Manager Building Services		Pending
Details	Energy reports to be distributed to Management Team on a quarterly basis.			
Visual Displays	All	Manager Building Services		Pending
Details	<p>Make use of visual displays to demonstrate to staff the implications of current behaviors. Displays can include:</p> <ul style="list-style-type: none"> -- simple poster and/or screen saver that reminds staff of the facility energy conservation goal -- reminders around light switches and thermostats to turn off appliances when not in use. -- quarterly reports posted in staff lunchroom(s) -- graphic representation of progress made towards energy conservation goal 			
Energy Leader	All	Manager Building Services		Active
Details	<p>The Manager Building Services has been designated as the Energy Champion within Groves Memorial Community Hospital. The Energy Champion is responsible for:</p> <ul style="list-style-type: none"> -- instilling a culture of energy conservation within their respective workplaces with each occupant and piece of equipment -- developing conservation strategies with facility staff for implementation within each given facility -- share best practices, lessons learned, and innovative energy practices with other team members -- monitor progress towards energy conservation goal and ensure that there is no backsliding 			

Employee Engagement	All	Manager Building Services		Pending
Details	<p>Although the adoption of energy efficient technology usually forms the basis for energy conservation projects, there is a behavioral aspect to the energy conservation equation that is often overlooked. The objective of this program is to empower staff and provide them with the education required to adopt behavioral practices that will result in the optimization of facility energy usage. This engagement program will include, but not be limited to, the following items:</p> <ul style="list-style-type: none"> -- Identification of improvements. Staff will be encouraged to submit ideas for process improvements or projects that will reduce the corporate and personal energy consumption. A best practice in this area would be to establish a separate email or virtual community for the posting of these suggestions and that senior management and/or the energy champion review these messages on a pre-determined and regular basis. -- Have different staff walk through facilities on a semi-annual basis. Enabling staff from different departments (or neighboring facility) to walk through another's facility one or twice a year will highlight some wasteful practices that the regular inhabitants have become unaware of. Organizational behavior research states that staff have become 'blind' to existing practices once they are in a given organization or facility for more than six months. 			

Processes

Description	Facility	Contact	Start	End	Status	Cost	Save (ekWh/yr)	Save (\$)	ROI
Energy Commodity Procurement	All				Pending	0.00	0	1000	0
Details	<p>Poor energy procurement decisions can be expensive. Energy prices fluctuate constantly, which can significantly affect your energy bill and performance against budget. By taking a proactive approach to buying energy, we can better control your costs. Groves Memorial Community Hospital will examine options to procure energy commodities more efficiently.</p>								
Appliance Usage	All				Pending	0.00	0	1000	0
Details	<p>Since there is no equipment required to turn appliances off, there are no environmental impacts from product manufacture, shipping or disposal. Appliances are often left on in facility offices because staff feels their individual impact is insignificant, however, when totaled across the facilities across a given year the impact can run in the hundreds of dollars for facilities the size of North Wellington Healthcare.</p> <p>Turn off all electronic devices such as coffee makers, printers, calculators, phone chargers, etc. at night and on weekends.</p> <p>Reduce the usage of portable electric heaters. While this will need to occur concurrently with recommended energy projects to tackle employee comfort issues, this should be a priority issue given the large number of these appliances in use in every facility. For example, a single 1500 watt heater would cost \$300-500 per year to operate if it use during working hours and more if they are let on in off hours.</p> <p>The Energy Champion will develop a series of messages at regular intervals throughout the month to remind staff to reduce appliance power use.</p>								

Projects

Description	Facility	Contact	Start	End	Status	Cost	Save (ekWh/yr)	Save (\$)	ROI
Facility Energy Audit	GMCH	Manager Building Services	Aug 2014		Pending [0%]	0.00	0		0
Details	RFP for a third party Facility Energy Audit. Audit involves a technical review of a facility and its operations, the development and analysis of a baseline energy profile for the facility and identification of energy management opportunities and savings. Audit will be conducted on the facility as part of this initial planning exercise and should continue to occur on a regular schedule in the future for new and existing facility.								
Building Automation System (BAS)	GMCH	Manager Building Services	Aug 2014		Pending [0%]	0.00	0	0.00	0
Details	Existing BAS will be expanded to include three major HVAC units. This will allow better environmental control as well as automated setback of systems during non-occupied times. The upgrade will also allow better control of fresh air economizers utilizing free cooling.								
Power Factor Correction	GMCH	Manager Building Services	Oct 2014		Pending [0%]	0.00	0	0.00	0
Details	Poor power factor is evident at both sites resulting in penalty costs from local power suppliers. A power factor correction project will be implemented.								
Install Occupancy Sensors	GMCH	Maint.	Aug 2014		Pending [0%]	0.00	0	0.00	0
Details	Survey rooms and spaces that are used infrequently and install occupancy sensors to control lighting.								
Replace Remaining T12 Lighting	GMCH	Maint.	Fall 2014		Pending [0%]	0.00	0	0.00	0
Details	Most of the existing fluorescent fixtures have been retrofitted to T8 lamps, however, it would be recommended to further retrofit any existing T12 lamps as these are being phased out and replacements will no longer be made available. Replacement Cost: approximately \$38/fixture (includes \$12/fixture incentive) Energy Cost Savings: approximately \$5-\$8/fixture annually.								

VFD Upgrade to Main HVAC Units	GMCH	Manager Building Services	Dec 2014		Pending [0%]	0.00	0	0.00	0
Details	The main hospital HVAC system comprises of Hot and Cold air handlers each with 40 hp blower motors. The original design incorporated modulating vane technology to control the air flow for each deck. Plan is to replace the antiquated modulating vane technology with VFD technology. This will save electrical energy by modulating the motors to the speed required to maintain the proper air flow.								
Exit Light Upgrade	GMCH	Manager Building Services	Jan 2014		Pending [0%]	0.00	0	0.00	0
Details	Existing exit lights are PL7 technology. Project is to upgrade all exit light to LED technology.								
Envelope Upgrade	GMCH	Manager Building Services	Fall 2014		Pending [0%]	0.00	0	0.00	0
Details	This project involves upgrading the facility envelope with weather proofing technology. Such as weather striping on all exterior doors, re-caulking of windows and door frames. Windows will be evaluated to determine if the ROI warrants being replaced.								
Steam Trap Audit	GMCH	Manager Building Services	Dec 2014		Pending [0%]	0.00	0	0.00	0
Details	Steam traps when failing can waste energy by passing steam to condensate return lines. A steam trap audit will be conducted hospital wide at the beginning of the heating season and faulty traps will be repaired/replace. The traps will then be monitored annually by in house with a portable trap tester.								
					Pending [0%]	0.00	0	0.00	0
Details	Additional projects to follow based on third party Facility Energy Audit.								
					Pending [0%]	0.00	0	0.00	0
Details									