

GROVES MEMORIAL COMMUNITY HOSPITAL & NORTH WELLINGTON HEALTH CARE

2019 ENERGY CONSERVATION AND DEMAND MANAGEMENT PLAN





July 2019

RE: Conservation and Demand Management Plan North Wellington Health Care Alliance

I am happy to approve the enclosed Conservation and Demand Management (CDM) Plan for Groves Memorial Community Hospital (GMCH) and North Wellington Health Care (NWHC).

This Plan renews the efforts implemented in 2014 for an additional 5 years. GMCH and NWHC will continue to coordinate budgeting, strategic planning, purchasing policies, preventative maintenance plans, environmental management, and policy development to further our goals. Stakeholders will continue to be an integral part of the development, communication and deployment of our energy efficiency commitment and priorities.

We look forward to continued success in our CDM efforts as GMCH and NWHC grows to better serve our communities during these exciting times.

Sincerely,

Stephen K. Street
President and CEO

**North Wellington Health
Care Corporation**
630 Dublin Street
Mount Forest, ON
N0G 2L3

**Louise Marshall
Hospital**
630 Dublin Street
Mount Forest, ON
N0G 2L3

**Palmerston & District
Hospital**
500 Whites Road
Palmerston, ON
N0G 2P0

**Groves Memorial
Community Hospital**
235 Union St. E
Fergus, ON
N1M 1W3

TABLE OF CONTENTS

Senior Management Approval 2

About Wellington Health Care Alliance 4

 Louise Marshall Hospital & Palmerston and District Hospital 4

 Groves Memorial Community Hospital 4

Overview of 2019 CDM Plan 5

Energy Consumption 2013-2018 6

Results of Our Programs, Process, and Projects 8

Energy Management Vision 9

Our Commitment to Strategic Energy Management..... 9

 Strategic Planning 9

 Structure Planning 9

 Resource Planning..... 10

 Procurement Planning 10

 Implementation Planning 10

 Investment Planning 10

Energy Management Objectives..... 11

Our CDM Initiatives for 2019-2024..... 11

Appendix 13

ABOUT WELLINGTON HEALTH CARE ALLIANCE

The Wellington Health Care Alliance (WHCA) is comprised of three, rural, acute care hospitals: Groves Memorial Community Hospital in Fergus and North Wellington Health Care (NWHC), with hospital sites in Mount Forest (Louise Marshall Hospital) and Palmerston (Palmerston and District Hospital). Each hospital provides a comprehensive range of surgical, inpatient and outpatient services, including 24/7 emergency and obstetrical care. WHCA is an administrative alliance that was formed to provide a strong, consistent voice for rural health care. We value the strength we have with our health care partners across the Waterloo-Wellington region.

OUR VISION

Your Health Matters.

OUR MISSION

Together, advancing exceptional care and wellness

OUR VALUES

We are compassionate, respectful, innovative, professional and collaborative.

Louise Marshall Hospital & Palmerston and District Hospital



Both the Louise Marshall Hospital (LMH) and the Palmerston and District Hospital (PDH) are community hospitals operating 15 inpatient beds. Located in the Town of Mount Forest and the Town of Palmerston, respectively, the fully accredited hospitals offer a range of services including 24-hour emergency services, inpatient and outpatient care, specialist clinics and supportive diagnostic services.

Groves Memorial Community Hospital



Groves Memorial Community Hospital (GMCH), located in Fergus, operates 39 inpatient beds serving the health care needs of approximately 52,151 people within the hospital's catchment area. Currently, a new facility located in Aboyne, Ontario, between Elora and Fergus, is being built to replace the existing GMCH in Fergus. The new facility is being built on a greenfield site with additional space for emergency, ambulatory, diagnostic, and inpatient services to accommodate the growing community. The facility, which will include 37 beds, is set to open in the Spring of 2020.

OVERVIEW OF 2019 CDM PLAN

First completed in 2014, WHCA’s Conservation and Demand Management (CDM) plan, is a way of making a commitment to our community, patients and staff to work towards improving the hospital from an efficiency standpoint. We will allocate the necessary resources to develop and implement our plan to reduce our energy consumption and its related environmental impact. Our Senior Management Team and hard-working staff will ensure the objectives presented in this plan are achieved and that progress towards those objectives is monitored on an ongoing basis.

The below table compares WHCA’s annual electricity and natural gas consumption, as well our Greenhouse Gas (GHG) emissions and Energy Use Intensity (EUI) from the baseline year (2013) and the last year covered in the previous plan (2018). As our caring efforts continue to grow with the populations of our catchment areas, so does our energy needs. For each of our hospitals, our annual values have fluctuated over the past five years, with some locations seeing a decline in consumption while others an increase. The consumption data below has been weather normalized using 2013 as the baseline year. This was then compared to 2018’s actual consumptions to determine what each facility would have consumed in 2018 holding all else equal. The percent differences have been summarized below.

	Weather Normalized		2013 vs. 2018	
	Electricity	Natural Gas	GHG Emissions	EUI
Louise Marshall Hospital	+3%	+20%	+11%	+18%
Palmerston & District Hospital	+6%	-0.11%	-10%	+1%
Groves Memorial Community Hospital	-2%	+4%	-9%	+2%

Moving forward, WHCA will be renewing our goals set in 2014. These goals focus not only on the environmental benefits of CDM measures, but also the additional improvements that the hospital sees with such initiatives.

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

Over the next five years, WHCA will incorporate energy efficiency into all areas of our activity including procurement practices, investment decisions, and facility operations and maintenance. Active management of energy and related costs will provide a significant economic return to the organization and will support other key organizational objectives.

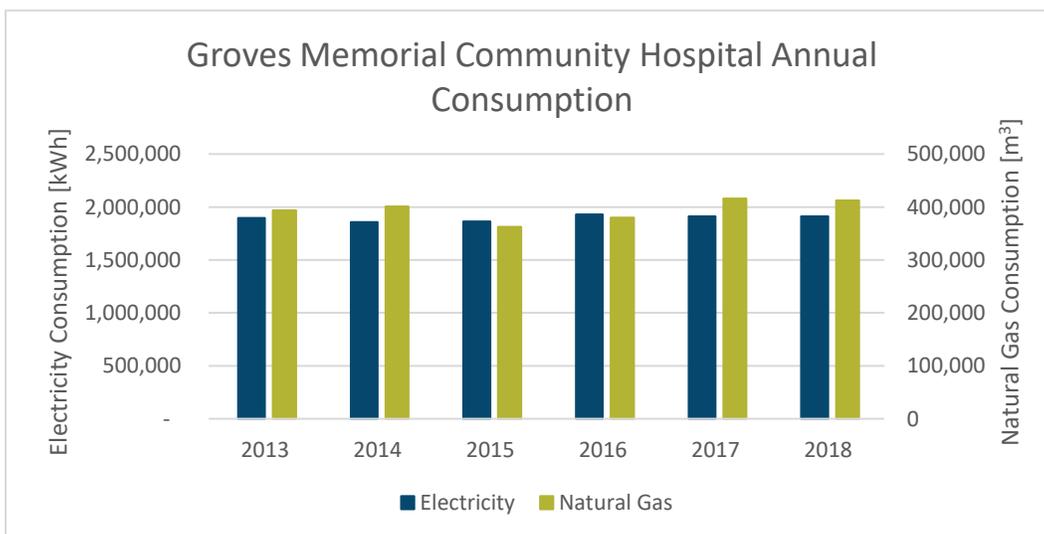
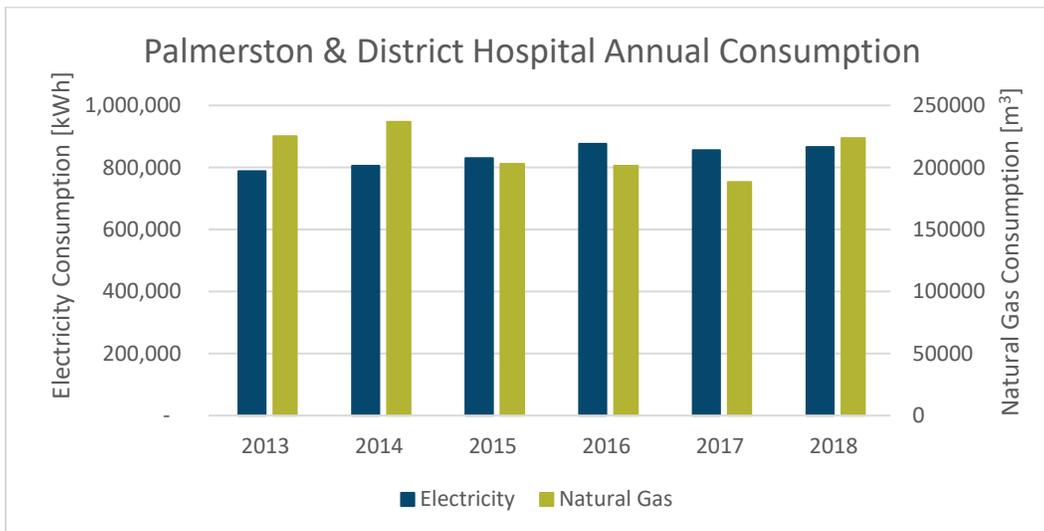
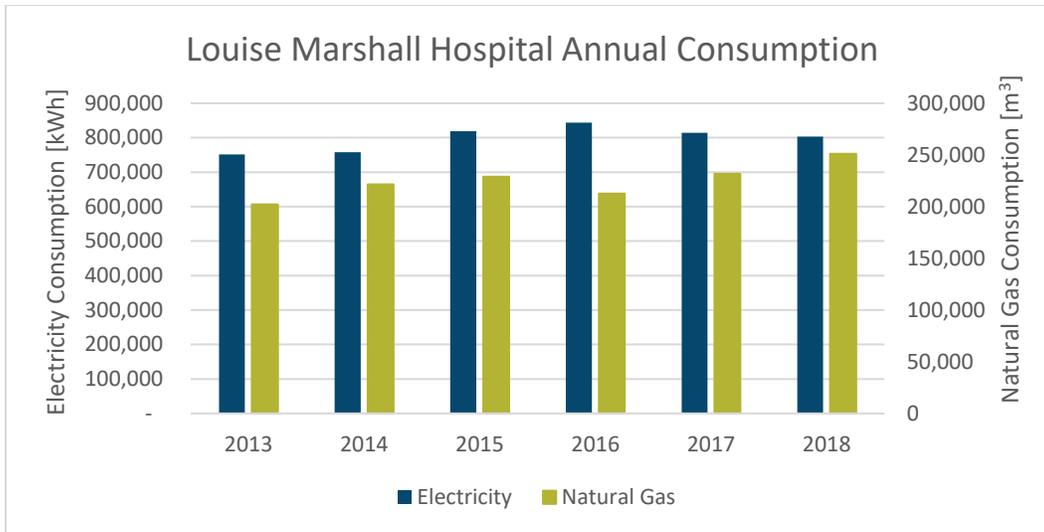
ENERGY CONSUMPTION 2013-2018

As part of Ontario Regulation 507/18 under the Electricity Act, 1998, WHCA publishes and makes available our annual energy consumption and resulting greenhouse gas (GHG) production. Each hospital is reported separately as seen in the table below.

Year	Location	Floor Space [ft ²]	Electricity [kWh]	Natural Gas [m ³]	GHG Emissions [kg CO ₂ e]	EUI [ekWh/ft ²]
2013	Louise Marshall	45,000	751,219	202,268	440,593	64.88
2014	Louise Marshall	45,000	758,277	221,429	449,344	69.60
2015	Louise Marshall	45,000	818,437	228,852	465,814	72.65
2016	Louise Marshall	45,000	843,881	212,674	432,039	69.11
2017	Louise Marshall	45,000	913,868	231,686	452,104	72.40
2018	Louise Marshall	45,000	803,361	251,068	488,566	76.71
2013	Palmerston & District	45,000	787,722	225,204	486,854	71.15
2014	Palmerston & District	45,000	805,541	236,652	480,039	74.28
2015	Palmerston & District	45,000	830,543	202,914	417,266	66.75
2016	Palmerston & District	45,000	876,720	201,388	411,868	67.16
2017	Palmerston & District	45,000	855,240	188,251	370,701	63.14
2018	Palmerston & District	45,000	865,920	223,712	437,929	71.69
2013	Groves Memorial	105,363	1,897,026	393,943	891,090	58.09
2014	Groves Memorial	105,363	1,856,149	400,656	832,654	58.38
2015	Groves Memorial	105,363	1,862,140	362,761	761,254	54.55
2016	Groves Memorial	105,363	1,929,018	380,034	786,973	56.74
2017	Groves Memorial	105,363	1,912,748	415,750	819,104	59.78
2018	Groves Memorial	105,363	1,912,963	412,543	813,044	59.46

As Ontario's power grid continues to become greener through renewable energies such as wind, solar and water, the GHG emissions associated with electricity generation decreases. As such, WHCA's GHG emissions have decreased over the years despite our fluctuating annual usages. The electricity and natural gas for our three hospitals have been plotted on the following page.

WHCA also reports the annual consumption values of our Claire Stewart Medical Clinic. While this is not one of our hospitals and as such is not required to be included in our CDM plan, we have included the facilities consumption data in the appendices of this report. Despite not being a focus of our CDM plan, this site has successfully decreased its electricity consumption by 4%, natural gas consumption by 21% and GHG emissions by 45%!



RESULTS OF OUR PROGRAMS, PROCESS, AND PROJECTS

WHCA had developed a list of programs, processes and projects that we planned to be completed between 2014 and 2018. We are happy to report that we were successful in implementing most of the programs and processes, including:

- **Visual Displays:** We utilize visual displays to demonstrate the implications of energy behaviour and to remind staff to turn off appliances when not in use.
- **Energy Leader:** Designated our Manager of Plant Operations as our Energy Champion to instill a culture of energy conservation and develop conservation strategies with staff.
- **Employee Engagement:** Encouraged staff to identify areas of improvements or projects that would reduce corporate and personal energy consumption.

In addition to this, our various facilities each saw infrastructure and equipment improvements that decreased the energy consumption of each building while improving their overall efficiencies. The projects completed between 2014 and 2018 are summarized below.

Louise Marshall Hospital					
Project Name	Description	Electricity [kWh]	Natural Gas [m ³]	GHG Emissions [kg CO ₂ e]	Savings [\$ /yr]
Roof Replacement	Replaced 19,917 ft ² of roof and upgraded to 4" insulation.	5,056	4,772	9,199	\$2,041
Palmerston and District Hospital					
Roof Replacement	Replaced 13,523 ft ² of roof and upgraded to 4" insulation.	3,433	3,244	6,255	\$1,387
Boiler Replacement	The old steam boilers provided space heating and ventilation air heating. These were replaced with small steam boilers for process loads and condensing hot water boilers for space heating and domestic water heating.	-	28,245	53,400	\$8,191
Gas Condensing Water Heater	Replaced old water heater with a new Energy Star certified gas condensing model.	-	4,017	7,595	\$1,165
TOTAL		8,489	40,278	76,449	\$12,784

Groves Memorial Community Hospital					
Project Name	Description	Electricity [kWh]	Natural Gas [m ³]	GHG Emissions [kg CO ₂ e]	Savings [\$ /yr]
Elevator Upgrades	The elevators main motor, braking system and generator were rebuilt, and controls and door operators were replaced.	N/A	N/A	N/A	N/A
Rooftop Unit Replacement	The rooftop unit above oncology was replaced with a more efficient model.	-	3,631	129	\$472
TOTAL		-	3,631	129	\$472

ENERGY MANAGEMENT VISION

In 2014, WHCA created a vision for our health care facilities that we strived to achieve over the five years covered in our first plan. This vision was reflected upon annually to monitor our progress and recognize our achievements. However, WHCA recognizes that energy management is an ongoing effort and as such we will be re-affirming this vision for the five years to come.

Our Energy Management Vision

We will strive to continually reduce our total energy consumption and associated 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 public. This will involve a collaborative effort to increase the education, awareness, and understanding of energy management within the facilities. 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 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.

OUR COMMITMENT TO STRATEGIC ENERGY MANAGEMENT

Carrying on from our 2014 Plan, these guiding principles and goals for our energy management practices will shape WHCA's efforts to reduce our environmental impact. They have been revised based on the successes of the past five years.

Strategic Planning

WHCA will continue to develop and implement energy policies, communicate with our stakeholders, and invest in energy management measures. As an integral component of the management structure, we will coordinate our CDM plan 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

WHCA will incorporate energy budget accountability into our corporate responsibilities. In addition, we will incorporate energy efficiency into standard operating procedures and the knowledge requirement for operational jobs. With respect to equipment, we will continue to use life cycle cost analysis to design capital projects including HVAC equipment, building controls and automation, and building envelope/infrastructure, the process for which is demonstrated on the following page.



Resource Planning

We will continue to develop criteria for determining whether internal resources can be utilized for the implementation of energy projects. WHCA will continue to implement the selection criteria under our Procurement Policy in the selection of our external consultants and energy suppliers. We will expand this to include contractors for equipment replacement and facility upgrades to ensure an added focus on renewability and efficiency is included in such decisions. Over the past five years we have placed a focus on training our employees to be energy conscious in their daily work. Going forward, we will continue to incorporate such energy training into regularly scheduled training sessions. Our staff have done an excellent job of committing to our energy management vision.

Procurement Planning

In our 2014 Plan, WHCA recognized the importance of proper energy procurement including rate optimization, utility account management, supplier choice and evaluation. We currently work with a third-party procurement specialist who provides us with optimized natural gas and electricity rates. They effectively address our cost considerations, available energy services, energy quality and reliability and other performance factors. In addition, they assist in commodity budgeting and consumption load profiles.

Implementation Planning

WHCA has developed criteria for the design of new buildings, expansions, and major renovations that include energy performance factors and use as appropriate the principles embedded in performance standards such as LEED. This has proved beneficial, specifically in the design of our new Groves Memorial Community Hospital location, the energy initiatives of which are highlighted later in this report. We will continue to have open communication between our management team, staff and patients on our energy strategies, successes and areas for improvement.

Investment Planning

Over the past five years we have come to look at energy management projects as investments rather than expenses. These investments are analyzed and prioritized based on their benefits, not just in terms of energy savings and through life cycle versus simple payback. These benefits include energy and operating costs savings, physical asset renewal, improved employee comfort and service deliver and enhanced environmental protection.

ENERGY MANAGEMENT OBJECTIVES

In addition to the goals highlighted earlier in this plan, WHCA will also be renewing our energy management objectives from 2014. These objectives have been revised, and in some cases, expanded to better serve the needs of our hospitals.

1. **Ensure energy efficiency consistency across facilities.**
 - Over the life cycle of a facility, the mechanical building automation and distribution systems are adjusted from day-to-day to suit end user requirements. Re-commissioning and ensuring that such systems are set to operating specifications to ensure optimal efficiency.
 - Maintain energy standards such as lights off programs and shutting off non-essential equipment (desk fans, computers, etc.) overnight for staff and patients to uphold.
2. **Monitor and report on energy consumption annually at minimum.**
 - WHCA's hospitals report our annual electricity and natural gas consumption under O.Reg 507/18. Communicating these values to our staff and having them monitor their own consumption will enable reinvestment in energy projects.
 - Monitoring our facility consumption will also allow for identification of savings opportunities through the analysis of month to month consumption trends.
3. **Better analyze project costs and look for savings opportunities.**
 - To implement large infrastructure upgrades and equipment replacements, WHCA needs funding through various sources.
 - We will utilize programs such as the Provincial Hospital Infrastructure Renewal Fund (HIRF) and utility incentives to help fund our larger projects.
4. **Raise Senior Management, staff, patient and visitor awareness around energy efficiency.**
 - Effective energy management is a team effort across all our hospital facilities.
 - Engaging our staff, patients and visitors through awareness programs helps create a community of energy conservation and benefits North Wellington as a whole.

OUR CDM INITIATIVES FOR 2019-2024

We are very excited about the big changes coming to WHCA over the next couple of years. Construction began for our new Groves Memorial Community Hospital in August of 2017. The new facility is 50% larger than the current hospital and will feature energy efficient, sustainable and environmentally friendly building features. Expected to open in the Spring of 2020, the new hospital will feature the following energy efficient and green elements.

All interior and exterior lighting will be energy efficient LED bulbs.

- LED bulbs use up to 90% less power than incandescent bulbs, have a lifespan almost four times that of other bulbs, and improve safety through their minimal heat generation.

Variable speed drives/pumps will be optimized.

- Variable speed drives offer several advantages including energy savings and increased motor longevity.
- They convert a basic fixed-frequency to a variable-frequency which means it allows the motor to operate at various speeds rather than staying fixed at one setting.

Energy efficiency boilers and chillers are being installed.

- New technologies have seen boiler and chiller systems becoming even more efficient, some of which achieve over 90% efficiency!
- This means that the system can heat or cool the facility with less wasted energy than older technology, which in turn reduces the total energy consumption required for such temperature control.

The new facility has a target to be LEED Silver certified.

- LEED, or Leadership in Energy and Environmental Design, is a green building rating system that provides a framework to create healthy, highly efficient and cost-saving green buildings.
- Buildings earn points based on categories such as Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, Innovation and more, with Silver level requiring 50-59 points.

In addition to our new hospital location, WHCA has also received approval to expand our emergency room and ambulatory care at Louise Marshall Hospital. The new addition to the hospital will see energy efficient measures being implemented including:

- All interior and exterior lighting in the new and renovated areas impacted by the expansion will be LED.
- Variable speed drives and pumps will be installed as part of the project, but areas not affected by the construction may not be upgraded until funding becomes available.
- Energy efficient boilers and chillers will be installed as part of an overall boiler plant project tender recently closed. This includes replacing the boilers and the water heaters.

APPENDIX

Year	Location	Floor Space [ft ²]	Electricity [kWh]	Natural Gas [m ³]	GHG Emissions [kg CO ₂ e]	EUI [ekWh/ft ²]
2013	Claire Stewart	12,290	142,405	8,009	26,008	18.57
2014	Claire Stewart	12,290	147,980	8,853	22,731	19.76
2015	Claire Stewart	12,290	152,591	6,467	18,406	18.05
2016	Claire Stewart	12,290	148,982	6,977	18,480	18.17
2017	Claire Stewart	12,290	154,347	4,823	11,788	16.70
2018	Claire Stewart	12,290	136,078	6,292	14,250	16.47

	Electricity	Natural Gas	GHG Emissions	EUI
Claire Stewart Medical Clinic	-4%	-21%	-45%	-11%

