Haliburton Highlands Health Services

Conservation & Demand Management Plan

2019

HALIBURTON HIGHLANDS HEALTH SERVICES
Leaders in Innovative Rural Health Care

ABOUT HHHS

Haliburton Highlands Health services (HHHS) has been an integral part of Haliburton County and surrounding communities for many decades, dating back to the opening of the original Red Cross Outpost in Wilberforce close to a century ago. Over the years our staff, physicians, Board of Directors, and many volunteers have developed deep relationships with the individuals we serve, their friends and families, and the community as a whole. As providers of high quality Hospital Care, Long-Term Care, and Community Programs for residents and visitors of the area, we take pride in the critical role we play – in partnership with many others – to help support this community to thrive. There are approximately 285 employees, 6 Full-time Equivalent Physicians with privileges and over 300 volunteers serving a community of approximately 17,000 people with a seasonal increase to approximately 48,000 people during the summer months.

HHHS is part of The Central East Local Health Integration Network (LHIN) 9. LHIN 9 includes the municipalities of Haliburton County, City of Kawartha Lakes, City of Peterborough and County, Northumberland County, Durham North East, Durham West and the City of Scarborough.

In 2018/19, there were 11,295 patient visits to Haliburton Emergency Department and 15, 470 patient visits to Minden Emergency Department. There are 30 residents for Highland Wood Long-Term Care Home (LTCH) at the Haliburton facility, and 62 residents for Hyland Crest LTCH at the Minden facility.

For further information, please visit the HHHS website at www.hhhs.ca

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INTRODUCTION

Ontario Regulation 397/11 requires all public agencies to prepare, publish, implement and make available to the public energy Conservation and Demand Management plans (CDM). On January 1, 2019, the Green Energy Act, 2009 was repealed, along with its regulations. Select conservation and energy efficiency initiatives including Broader Public Sector energy reporting were moved to the Electricity Act, 1998. Ontario Regulation 397/11 (Energy Conservation and Demand Management Plans) was replaced by O. Reg. 507/18 (Broader Public Sector Energy Reporting and Conservation and Demand Management Plans). No changes were made to the regulation when it was replaced.

HHHS CDM plan, in order to meet O. Reg. 507/18, will include:

- Information on annual energy consumption during the last year where complete information is available for a full year.
- Information on renewable energy generation from solar array and geo-thermal heating and cooling
- Goals and objectives for conserving and/or reducing energy consumption, and managing its demand for energy.
- Confirmation that HHHS senior leadership has approved the Strategic Energy Conservation and Demand Management Plan.

GOALS OF THE CONSERVATION AND DEMAND MANAGEMENT PLAN

The overall goal and objective of HHHS CDM Plan is to:

- Continue to support and work collaboratively with our leadership team to ensure we are optimizing all resources available to us and maximizing opportunities to access additional resources as they become available
- Re-invest any available surpluses directly back to point of care and service
- Goal to reduce energy usage by 5% over the next 5 years, 2019 through 2024, through both behavioural and facility improvement initiatives.
- Key measures for improvement will be:
    1. Average KWh per day per facility
    2. Fuel Oil #2 Consumption in Liters per month
    3. Propane Consumption in Liters per month

HHHS CDM Plan has the support of the Senior Leadership Team.

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ENERGY CONSUMPTION FROM 2016 to 2018

Table 1 - HHHS Haliburton 5-Year Energy Summary

Energy Type	2014	2015	2016	2017	2018
Electricity Kilowatt Hours (KWh)	1,161,847	1,219,037	1,282,720	1,184,800	1,188,560
Fuel Oil #2 Liters (L)	221,379	59,041	53,995	69,608	90,202
Propane Liters (L)	17,654	12,124	13,993	14,385	9,943

Table 2 - HHHS Minden 5-Year Energy Summary

Energy Type	2014	2015	2016	2017	2018
Electricity Kilowatt Hours (KWh)	1,533,635	1,517,151	1,668,720	1,598,160	1,508,640
Fuel Oil #2 Liters (L)	286,007	87,669	91,082	107,189	141,925
Propane Liters (L)	12,851	13,471	10,802	13,857	10,987

RENEWABLE ENERGY

During 2012, HHHS installed geothermal systems and 10 kW solar panels at both the Haliburton and Minden hospitals to offset changes in oil and propane prices. The facilities are located in a rural area without access to natural gas. Before the project, oil represented two-thirds of the hospitals' total energy consumption. Geothermal was an initiative that has reduced the facilities dependency on fuel oil by an estimated 100,000 to 130,000 liters per year per facility.

Ecosystem and HHHS worked together to redesign and optimize the energy infrastructure at both the Haliburton and Minden hospitals. Geothermal systems for heating and cooling were installed at both sites.

Fixed rooftop 10 kW solar panels were installed at both sites and are operating reliably at approximately 90% efficiency and generating 9 to 9.8 kW of electricity each year.

Today, HHHS is more energy efficient. Please find below Table 3 – HHHS Haliburton Renewable Energy Summary and Table 4 – HHHS Minden Renewable Energy Summary.

Table 3 - HHHS Haliburton Renewable Energy Summary

Energy Type	Benchmark 2008	2017	2018
Solar Panels Kilowatt Hours (KWh)	0	9,134	8,911
Geothermal Fuel Oil #2 Liters (L)	208,133	69,608	90,202

Table 4 - HHHS Minden Renewable Energy Summary

Energy Type	Benchmark 2008	2017	2018
Solar Panels Kilowatt Hours (KWh)	0	9,883	9,741
Geothermal Fuel Oil #2 Liters (L)	277,240	107,189	141,925

ENERGY CONSERVATION AND DEMAND MANAGEMENT INITIATIVES

Fiscal Year 2017-2018

During 2017, Nadine International performs a Facility Condition Assessment which included both capital replacement forecast for building and equipment and energy savings opportunities. Project identified for 2018 were identified in the Capital Plan and Hospital Energy Efficiency Program (HEEP) grants. Below is a summary of projects executed through HEEP initiatives.

Table 5 – Completed Projects with Energy Savings in Fiscal Year 2017-2018

Project Description	**Project Cost** actual	**Energy Savings** Per year estimate
1. Minden Hospital LED Lighting Conversion[1]	$98,000	88,70000 KWh $7,500/year
2. Minden Hospital Occupancy Sensors in offices, washrooms and storage room.	$5,100	11,000 KWh
3. Haliburton Hospital Occupancy Sensors in offices, washrooms and storage rooms.	$4,700	10,000 KWh
4. Minden Hospital Hot Water system Replacement to stand-alone oil fire and HEX on geo-thermal system.	$174,000	12,000 liters #2 Fuel Oil
5. Haliburton Hospital high efficiency pump replacement and upgrades (89% to 93% motors)	$90,000	26,300 KWh

Notes

1. The Minden Hospital LED lighting conversion was estimated at 88,700 KWh. Actual KWh reduced in 12 months after the conversion was approximately 89,500 KWh. Please see Table 2 - HHHS Minden 5-Year Energy Summary

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Fiscal Year 2018-2019

Funding limitations and the cancelling of the HEEP put a number of proposed projects on hold. These proposed projects are identified in the following section.

Proposed Future Energy Projects for 2019 to 2024

Table 6 – Potential Projects with Energy Savings Identified

Project Description	**Project Cost** estimated	**Energy Savings** per year estimate
1. Haliburton Hospital Outdoor Air-Cooled Chiller Replacement with multi-stage scroll compressor with an estimated combined Integrated Part Load Value of 15.95 BTU/Wh	$175,000	116,000 KWh $10,000
2. Minden Hospital Outdoor Air-Cooled Chiller Replacement with a multi-staged scroll compressor with an estimated combined Integrated Part Load Value of 16.76 BTU/Wh	$223,000	215,000 KWh $19,000
3. Haliburton Hospital LED Lighting Conversion	$50,000	141,000 KWh $12,000
4. Hyland Crest LTCH LED Lighting Conversion	$50,000	89,300 KWh $7,500
5. Highland Wood LTCH LED Lighting Conversion	$26,000	44,600 KWh $3,800
6. Replacement of Haliburton Hospital Laundry Equipment	$45,000	3,100 KWh 14,000 Liters of Propane $9,000
7. Replacement of Minden Hospital Laundry Equipment	$45,000	3,100 KWh 5,000 Liters of Propane $3,500

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Other Energy Initiatives for 2019 to 2014

- Johnson Controls Inc. (JCI) is performing an energy study during the summer of 2019 to identify further energy initiatives.
- Environmental Committee is being planned to identify energy opportunities including energy and organization behaviour.
- "Lights Out Awareness" reminders issued to all staff twice per year for office, storage rooms and unused areas to reinforce the behavioural awareness to reduce energy costs.
- Labeling all light switches with awareness signage to turn-off when leaving.
- Labeling all computer monitors to turn-off at the end of day.

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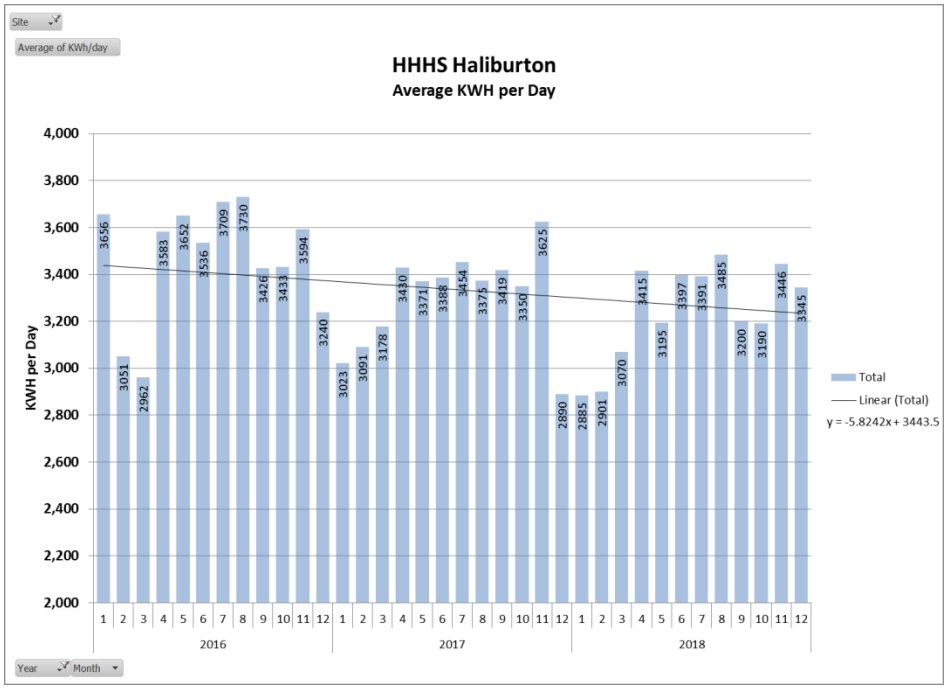
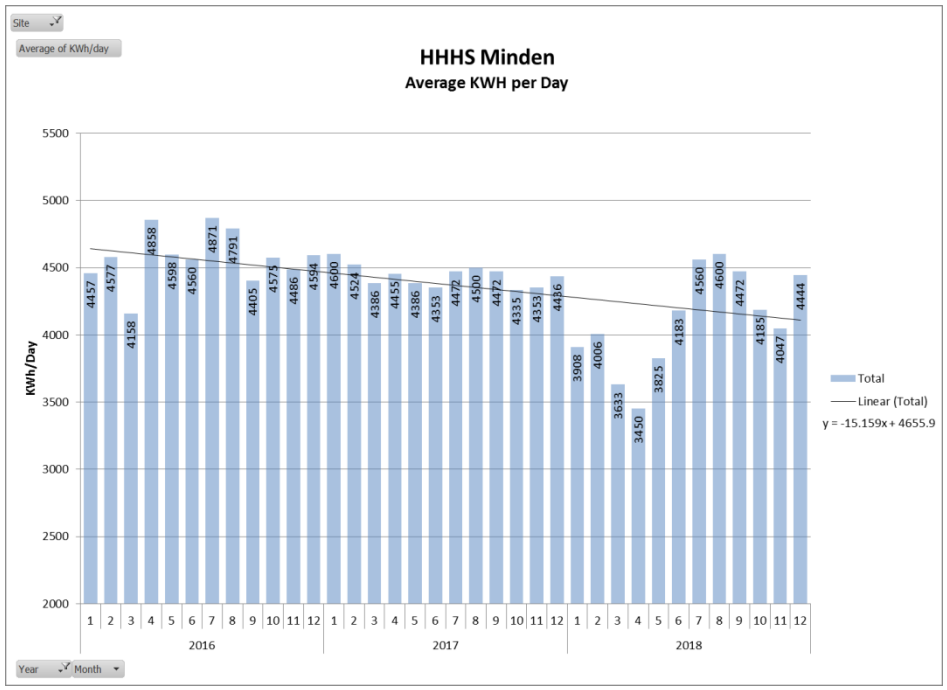
APPENDIX A – ELECTRICAL POWER CONSUMPTION





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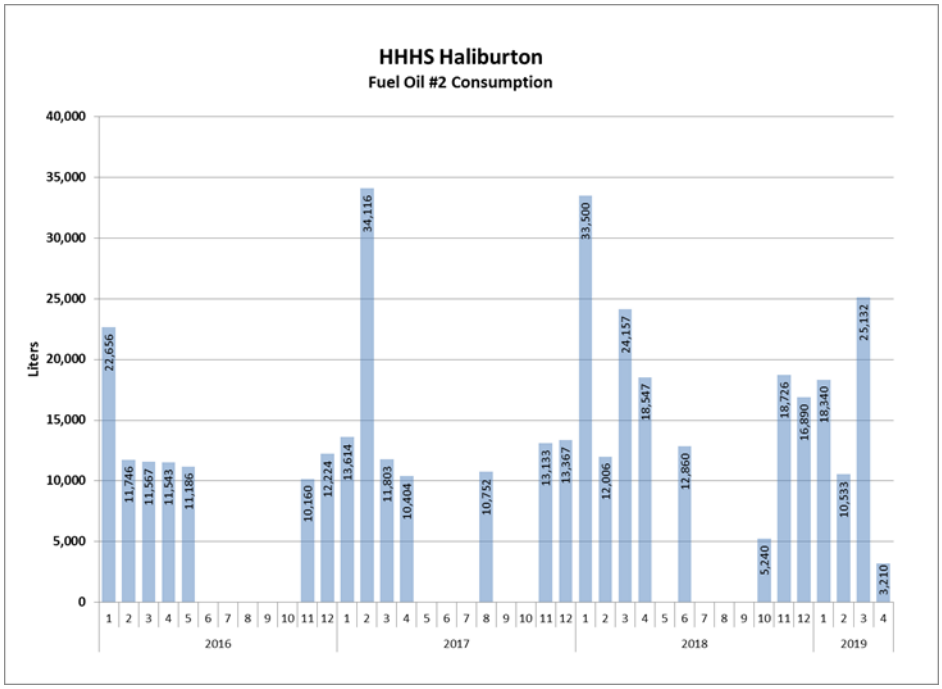
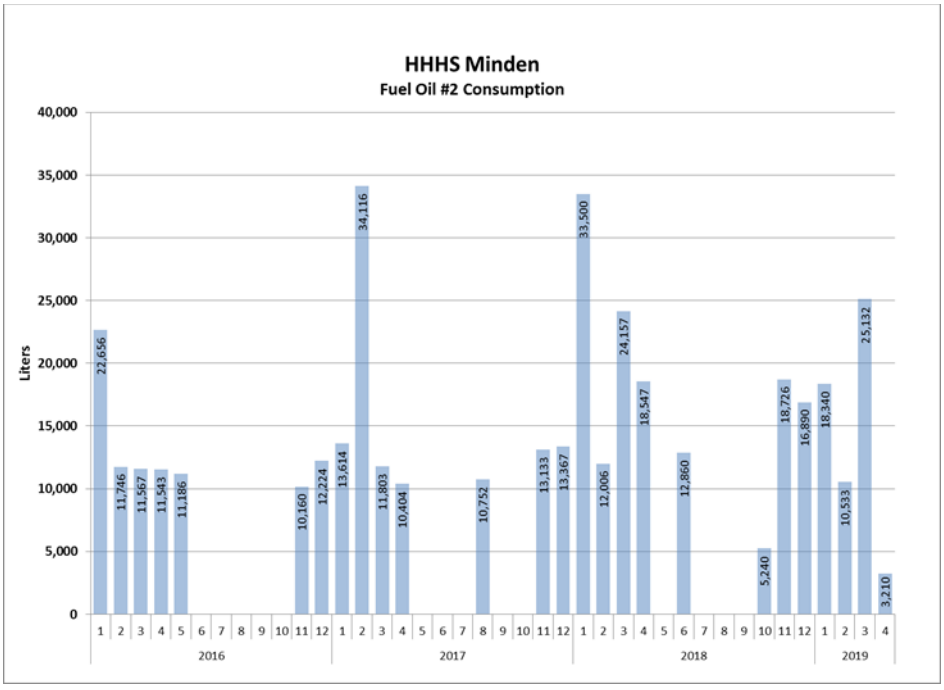
APPENDIX B – FUEL OIL CONSUMPTION





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APPENDIX C – PROPANE CONSUMPTION