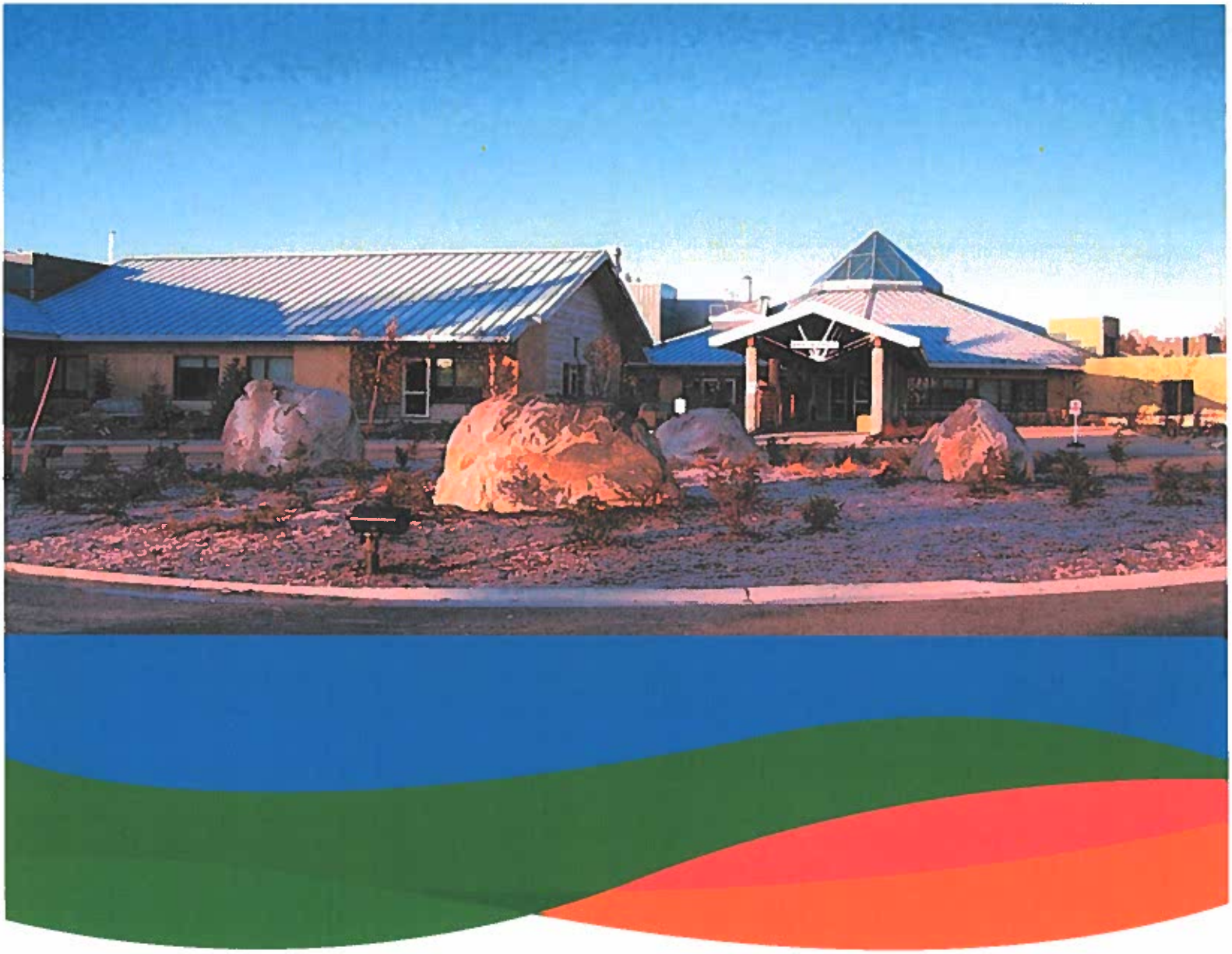


ENERGY CONSERVATION & DEMAND MANAGEMENT PLAN 2019

SIOUX LOOKOUT
Meno Ya Win
HEALTH CENTRE

Executive Summary

The purpose of this Energy Conservation and Demand Management (ECDM) Plan from Sioux Lookout Meno Ya Win Health Centre ("Sioux Lookout") is to outline specific actions and measures that will promote good stewardship of our environment and community resources in the years to come. The Plan will accomplish this, in part, by looking at future projections of energy consumption and reviewing past conservation measures.

In keeping with Sioux Lookout's core values of efficiency, concern for the environment and financial responsibility, this ECDM outlines how the hospital will reduce overall energy consumption, operating costs and greenhouse gas emissions. By following the measures outlined in this document, we will be able to provide compassionate service to more people in the community. This ECDM Plan is written in accordance with sections 4, 5, and 6 of the recently amended Electricity Act, 1998, O. Reg. 507/18.

Today, utility and energy related costs are a significant part of overall operating costs. In 2018:

- Energy Use Index (EUI) was 95 ekWh/ft^2
- Energy-related emissions equaled 1,916 tCO_2e

To obtain full value from energy management activities, Sioux Lookout will take a strategic approach to fully integrate energy management into its business decision-making, policies and operating procedures. This active management of energy-related costs and risks will provide a significant economic return and will support other key organizational objectives.

With this prominent focus on energy management, Sioux Lookout can expect to achieve the following targets by 2024:

- ~ 13% reduction in electricity consumption
- 27 tCO2e carbon equivalent emissions

Contents

1. Introduction

In order to obtain full value from energy management activities, and to strengthen our conservation initiatives, a strategic approach must be taken. Our organization will strive to fully integrate energy management into our practices by considering indoor environmental quality, operational efficiency and sustainably sourced resources when making financial decisions.

Sioux Lookout Meno Ya Win Health Centre ("Sioux Lookout") is located in Sioux Lookout Ontario, the "Hub of the North". Surrounded by pristine landscape, Sioux Lookout mixes First Nations and other world cultures. We encourage ongoing education, training and development, and endeavor to provide quality care and state-of-the-art facilities. We are fully accredited and are striving to become a Centre of Excellence.

Our Vision

We will be a Centre of Excellence in First Nations and northern health care by working together to improve the health status of individuals, families and communities now and for generations to come.

Our Mission

Caring for people.
Embracing Diversity.
Respecting Different Pathways to Health.

Our Values

We value compassion, respect, quality and teamwork.

- **Compassion:** We promise to provide care that is compassionate and reflects humility, caring, dignity, empathy and love.
- **Respect:** We promise to be respectful and embrace honesty, integrity, humility, engagement, accountability, responsiveness and truth.
- **Quality:** We promise to provide high-quality, individualized care that is innovative, meets best practice standards and reflects our awareness of cultural safety.
- **Teamwork:** We commit to working as a team and collaborating in a care planning that involves the patient. We value leadership, wisdom, and bravery.

2. Regulatory Update

O. Reg. 397/11: Conservation and Demand Management Plans was introduced in 2013. Under this regulation, public agencies were required to report on energy consumption and greenhouse gas (GHG) emissions and develop Conservation and Demand Management (CDM) plans the following year.

Until recently, O. Reg. 397/11 was housed under the Green Energy Act, 2009 (GEA). On December 7, 2018, the Ontario government passed Bill 34, Green Energy Repeal Act, 2018. The Bill repealed the GEA and all its underlying Regulations, including O. Reg. 397/11. However, it re-enacted various provisions of the GEA under the Electricity Act, 1998.

As a result, the conservation and energy efficiency initiatives, namely CDM plans and broader public sector energy reporting, were re-introduced as amendments to the Electricity Act. The new regulation is now called **O. Reg. 507/18: Broader Public Sector: Energy Conservation and Demand Management Plans (ECDM).**

As of January 1, 2019, O. Reg. 397/11 was replaced by O. Reg. 507/18, and BPS reporting and ECDM plans are under the Electricity Act, 1998 rather than the Green Energy Act, 2009.

Through conservation, Ontario homeowners, businesses and industry have saved more than 1,900 megawatts (MW) of peak demand electricity since 2005 – the equivalent of more than 600,000 homes being taken off the grid.

3. About Sioux Lookout Meno Ya Win Health Centre

Picture 1. Sioux Lookout Meno Ya Win Health Centre

Sioux Lookout Meno Ya Win Health Centre ("Sioux Lookout") provides health services to all residents within Sioux Lookout and the surrounding areas. "Meno Ya Win", in the Anishinaabe language means health, wellness, well-being; it refers to holistic healing and wellness, the whole self being in a state of complete wellness. Our care recognizes the relationship of the physical, emotional, mental and spiritual aspects of the person. We embrace a wholistic approach to healthcare and recognize and respect the cultural and linguistic significance of the people whose health care is entrusted to us.

Sioux Lookout Meno Ya Win Health Centre	
Type of Facility	Healthcare Services
Facility Name	Sioux Lookout Meno Ya Win Health Centre
Address	1 Meno Ya Win Way, Sioux Lookout, ON
Gross Area (ft2)	144,000
Number of Floors	2

Table 1. Sioux Lookout Meno Ya Win Health Centre Overview

3.1 Historical Energy Intensity

Energy Utilization Index is a measure of how much energy a facility uses per square foot. By breaking down a facility's energy consumption on a per-square-foot-basis, we can compare facilities of different sizes with ease. In this case, we are comparing our facility to the industry average for Ontario hospitals (derived from Natural Resources Canada's Commercial and Institutional Consumption of Energy Survey), which was found to be **63.23 ekWh/sq. ft.**

Annual Consumption (EUI)						
Year	2013	2014	2015	2016	2017	2018
Sioux Lookout Meno Ya Win Health Centre	91	89	95	89	91	95

Table 2. Historic Energy Intensity

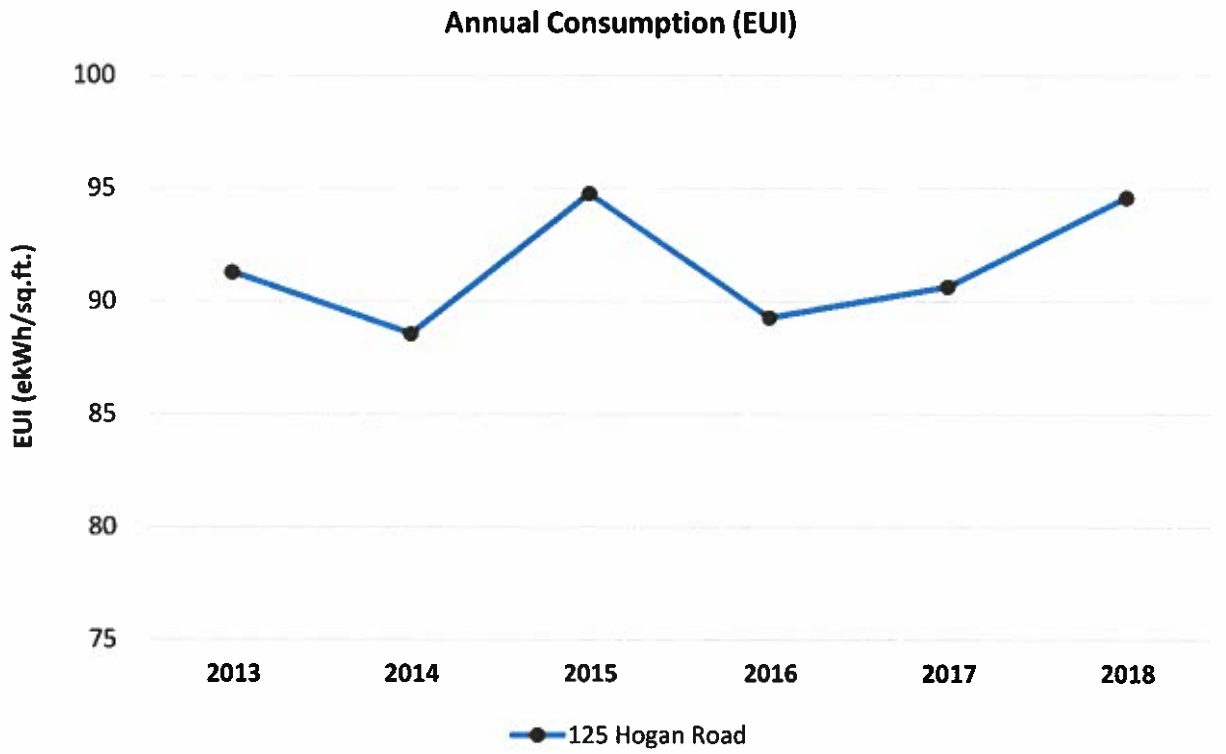
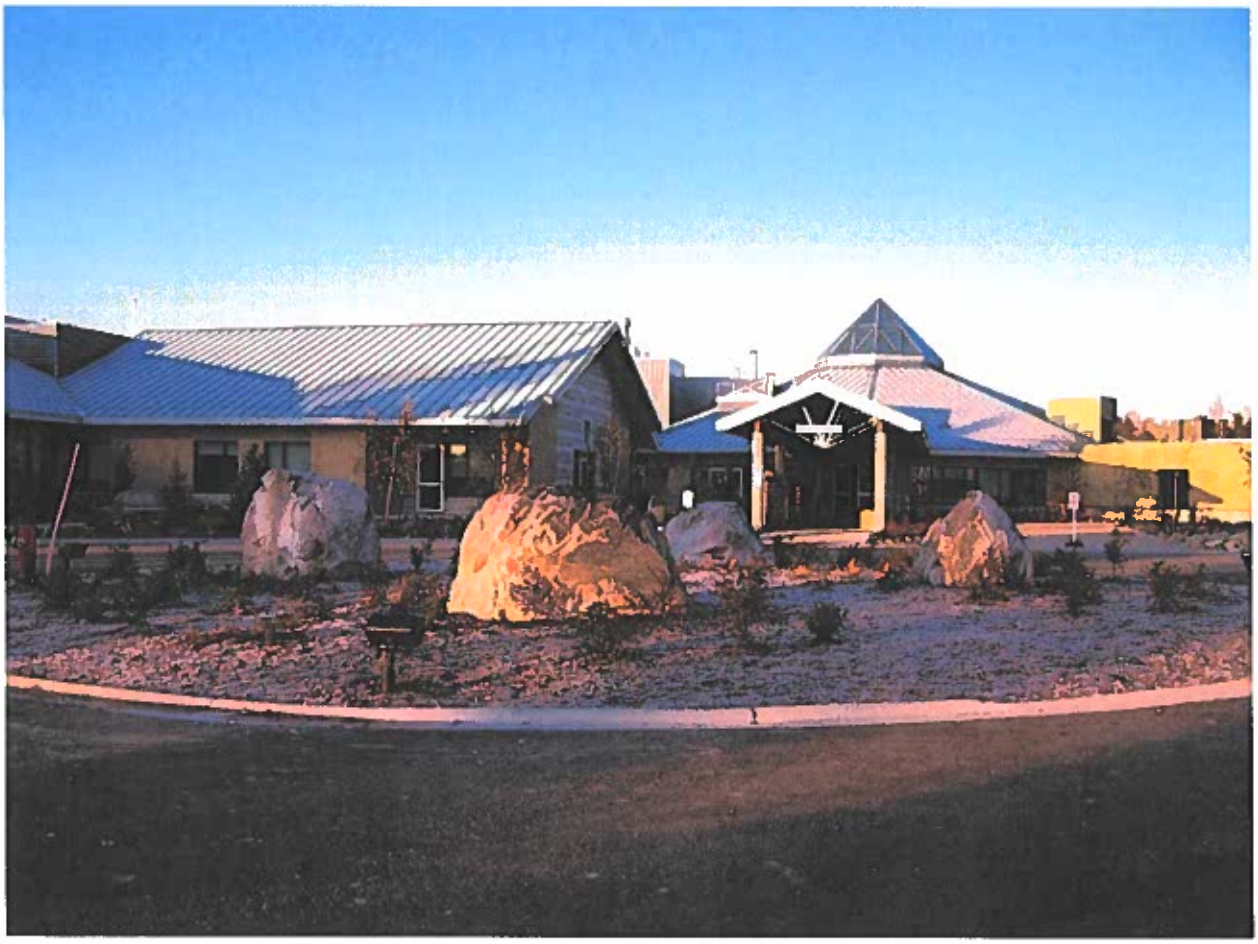


Figure 1. Historic Energy Intensity

3.2 Sustainability Strategies to Date

Sioux Lookout's Meno Ya Win Health Centre began construction in 2008 and was designed with energy efficiency in mind. The hospital and its operational systems are in great condition, and the operations Team reviews opportunities to further conserve energy as opportunities arise.



Picture 2. Sioux Lookout Meno Ya Win Health Centre

4. Site Analysis

Picture 3. Sioux Lookout Meno Ya Win Health Centre

We are a fully accredited 60-bed hospital and a 20-bed extended care facility. We provide health services to all residents within Sioux Lookout and the surrounding area, including the Nishnawbe Aski communities north of Sioux Lookout, the Treaty #3 community of Lac Seul First Nation, and residents of Hudson, Pickle Lake and Savant Lake. Annually, our outpatients number approximately 30,000. We embrace a wholistic approach to healthcare and patients and families have the option of integrating traditional and modern medicines and practices.

Sioux Lookout Meno Ya Win Health Centre	
Address	1 Meno Ya Win Way, Sioux Lookout, ON
Gross Area (Ft.^{2})	144,000
Average Operational Hours in a Week	168
Number of Beds	80
Facility Use	Healthcare Services

Table 3. Sioux Lookout Meno Ya Win Health Centre Facility Information

4.1 Utility Consumption Analysis

In order to compare different energy sources within this report, energy will be expressed in units of ekWh – equivalent kilowatt-hours. The energy contained in a cubic metre of propane and fuel oil would be converted into the equivalent amount of the energy contained in a kilowatt hour of electricity.

Utilities to the site are electricity, propane, fuel oil and water. The following table summarizes the accounts for each utility. Consumption for each respective utility has been adjusted to fit a regular calendar year (365 days).

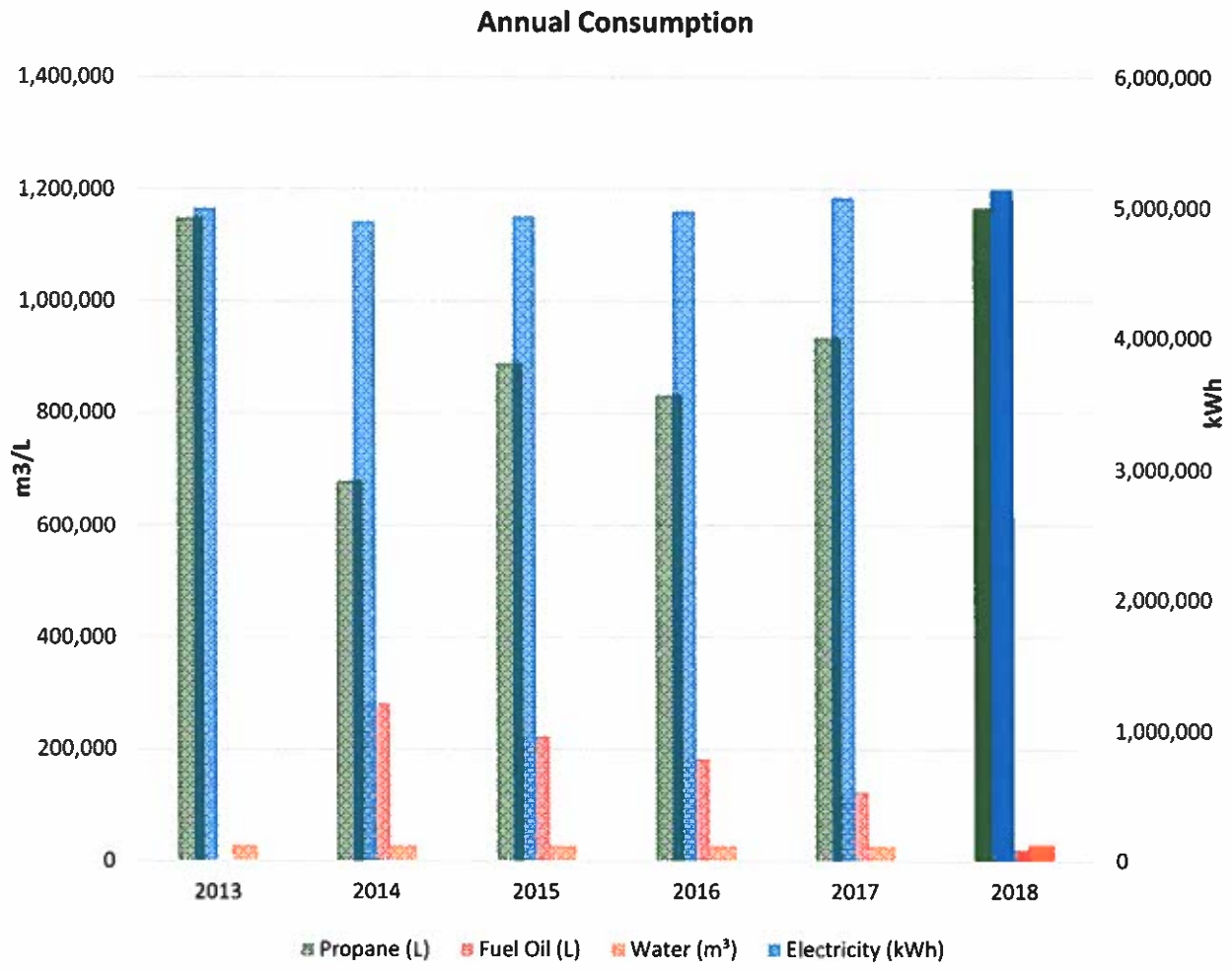
Annual Consumption (units)						
Year	2013	2014	2015	2016	2017	2018
Electricity (kWh)	4,995,600	4,897,200	4,936,800	4,974,000	5,083,200	5,135,400
Propane (L)	1,149,351	679,673	889,621	832,614	935,545	1,166,487
Fuel Oil (L)	0	282,720	223,711	184,208	124,388	20,020
Water (m3)	28,158	28,158	28,158	28,158	27,823	29,651

Table 4. Historic Annual Utility Consumption

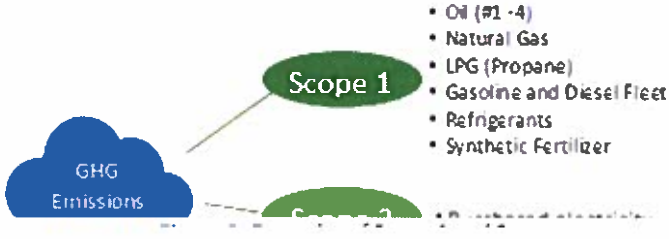
Figure 2. Historic Annual Utility Consumption

4.2 GHG Emissions Analysis

Greenhouse gas (GHG) emissions are expressed in terms of equivalent tonnes of Carbon Dioxide (tCO2e). The GHG emissions associated with a facility are dependent on the fuel source — for example, hydroelectricity produces fewer greenhouse gases than coal-fired plants, and light fuel oil produces fewer GHGs than heavy oil.



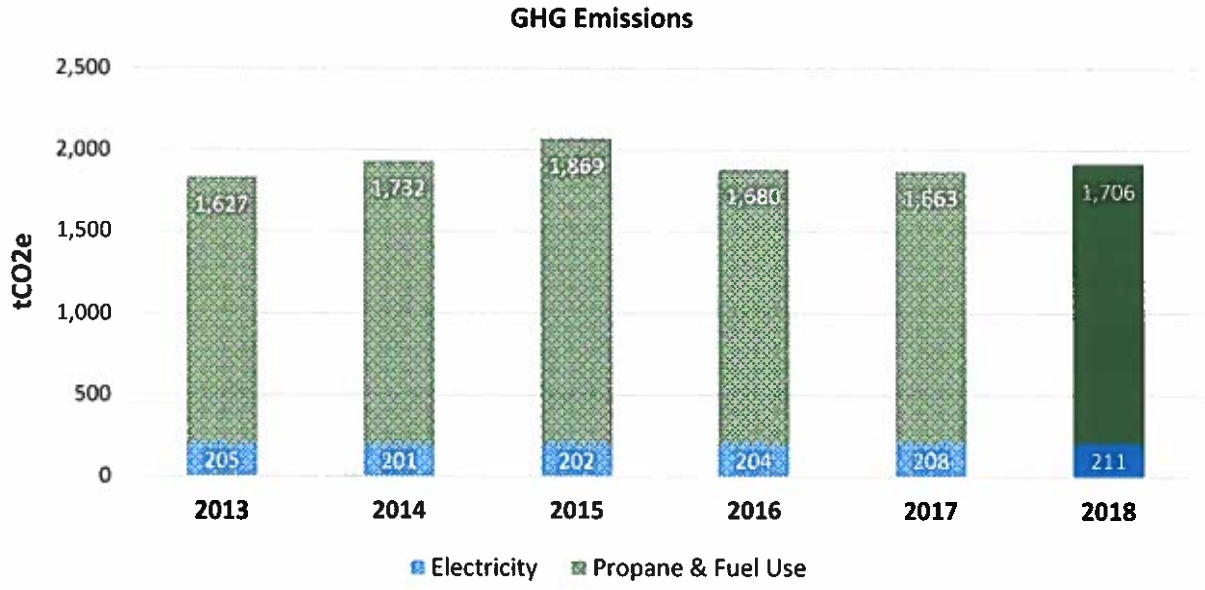
Electricity from the grid in Ontario is relatively "clean", as the majority is derived from low-GHG hydroelectricity, and coal-fired plants have been phased out. Scope 1 (propane and fuel oil) and Scope 2 (electricity) consumptions have been converted to their equivalent tonnes of greenhouse gas emissions in the table below. Scope 1 represents the direct emissions from sources owned or controlled by the institution, and Scope 2 consists of indirect emissions from the consumption of purchased energy



generated upstream from the institution.

Table 5. Historic Greenhouse Gas Emissions

GHG Emissions	2013	2014	2015	2016	2017	2018
Electricity	205	201	202	204	208	211
Propane & Fuel Use	1,627	1,732	1,869	1,680	1,663	1,706
Totals	**1,832**	**1,933**	**2,071**	**1,884**	**1,871**	**1,916**



4.3 Proposed Conservation Measures

Our energy analysis has revealed several conservation strategies for the facility. Sioux Lookout's proposed energy and water saving initiatives are summarized in the table below outlining the targeted utilities. These measures will remain in place until a more efficient and cost-effective technology is found.

Measure	Impacted Utility	Estimated Annual Savings		Simple Payback (years)	Year of Implementation
		kWh	M3		
Computer Sleep Settings	Electricity	0	0	0	Ongoing
Sustainability Culture Programs	Electricity	0	0	0	Ongoing
Exterior Lighting Retrofit	Electricity	10,957	0	5.00	2022
Interior Lighting Retrofit	Electricity	653,451	0	3.50	2020
Totals		**664,408**	**0**		

Figure 4. Historic Greenhouse Gas Emissions

Table 6. Proposed Conservation Measures

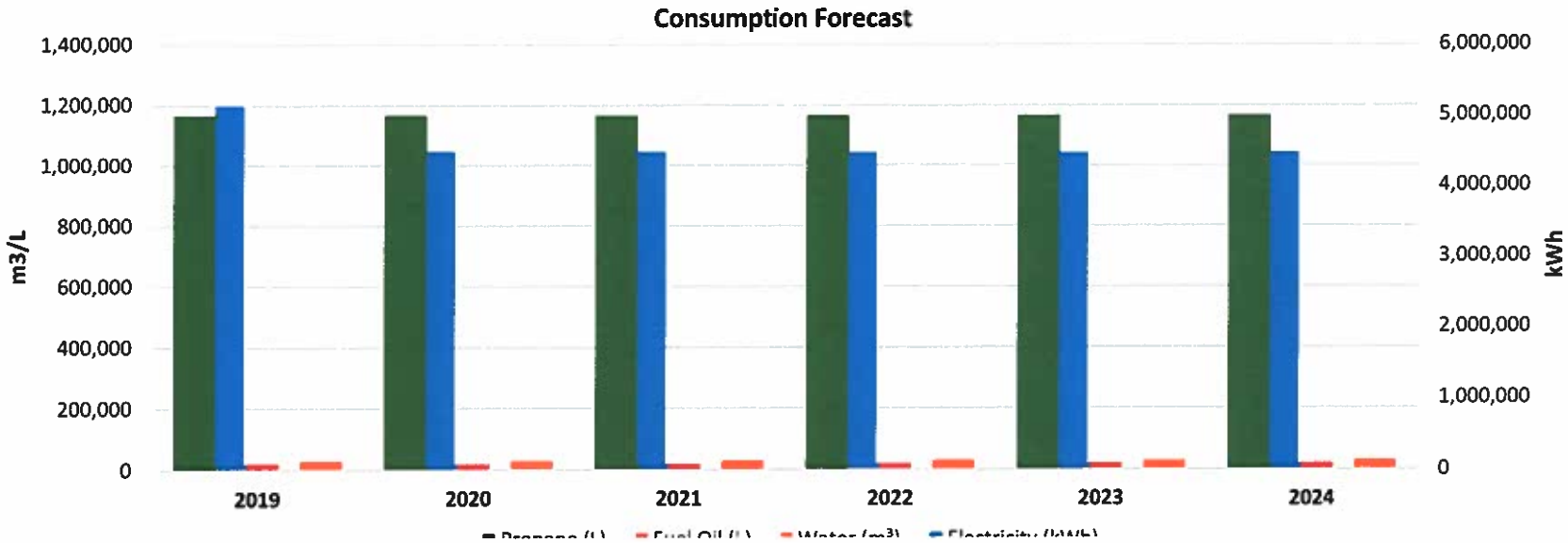
4.4 Utility Consumption Forecast

By implementing the energy conservation measures stated in the previous section, the forecasted electricity, propane and fuel oil use could be forecasted based on the utility savings generated from individual measures. The forecasted utility consumption is tabulated below. The percentage of change is based off the data from the baseline year of 2018.

	Annual Consumption Forecast (units)											
	2019		2020		2021		2022		2023		2024	
	Units	% Change	Units	% Change	Units	% Change	Units	% Change	Units	% Change	Units	% Change
Electricity (kWh)	5,135,400	0%	4,481,949	13%	4481949	13%	4,470,992	13%	4,470,992	13%	4,470,992	13%
Propane (L)	1,166,487	0%	1,166,487	0%	1166487	0%	1,166,487	0%	1,166,487	0%	1,166,487	0%
Fuel Oil (L)	20,020	0%	20,020	0%	20020	0%	20,020	0%	20,020	0%	20,020	0%
Water (m3)	29,651	0%	29,651	0%	29651	0%	29,651	0%	29,651	0%	29,651	0%

Table 7. Forecast for Annual Utility Consumption

Figure 5. Forecast for Annual Utility Consumption



4.5 GHG Emissions Forecast

The forecasted greenhouse gas emissions for Sioux Lookout are calculated based on the forecasted energy consumption data analyzed in the previous section and are tabulated in the following table. The percentage of reduction is based off the data from the baseline year of 2018.

Annual Emissions Forecast (units)						
Utility Source	2019	2020	2021	2022	2023	2024
Electricity	211	184	184	183	183	183
Propane & Fuel Use	1,706	1,706	1,706	1,706	1,706	1,706
Totals	**1,916**	**1,889**	**1,889**	**1,889**	**1,889**	**1,889**
Reduction from Baseline Year (2018)	0.00%	1.40%	1.40%	1.42%	1.42%	1.42%

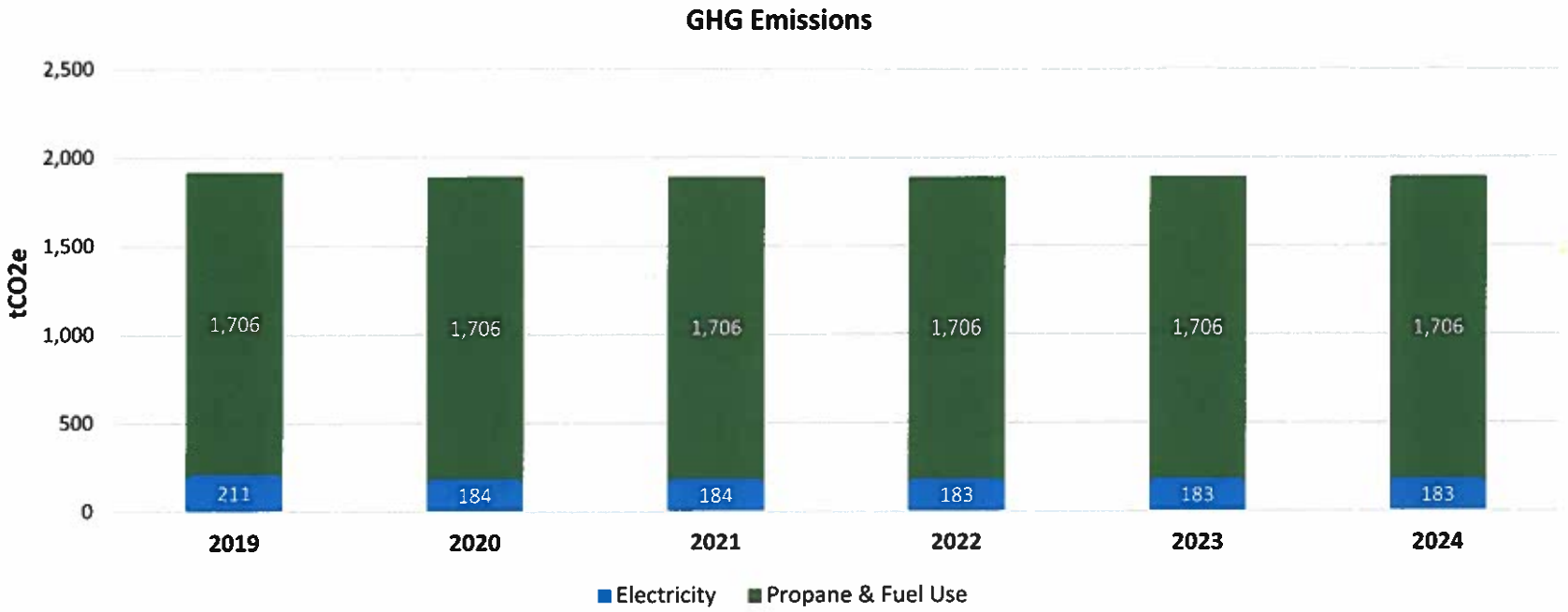


Table 8. Forecast for Annual Greenhouse Gas Emissions

Figure 6. Forecast for Annual Greenhouse Gas Emissions

5. Closing Comments

Thank you to all who contributed to Sioux Lookout Meno Ya Win Health Centre's Energy Conservation & Demand Management Plan. We consider our facility a primary source of care, and an integral part of the local community. The key to this relationship is being able to use our facilities efficiently and effectively to maximize our ability to provide the highest quality of healthcare services while integrating environmental stewardship into all aspects of facility operations.

On behalf of the senior management team here at Sioux Lookout Meno Ya Win Health Centre, we approve this Energy Conservation & Demand Management Plan.

Heather Lee, RN, BScN, MHA
President & Chief Executive Office
Sioux Lookout Meno Ya Win Health Centre

This ECDM plan was created through a collaborative effort between Sioux Lookout Meno Ya Win Health Centre and Blackstone Energy Services.

6. Appendix

6.1 Glossary of terms

Word	Abbreviation	Meaning
Baseline Year		A baseline is a benchmark that is used as a foundation for measuring or comparing current and past values.
Building Automation System	BAS	Building automation is the automatic centralized control of a building's heating, ventilation and air conditioning, lighting and other systems through a building management system or building automation system (BAS)
Carbon Dioxide	CO2	Carbon dioxide is a commonly referred to greenhouse gas that results, in part, from the combustion of fossil fuels.
Energy Usage Intensity	EUI	Energy usage intensity means the amount of energy relative to a buildings physical size typically measured in square feet.
Equivalent Carbon Dioxide	CO2e	CO2e provides a common means of measurement when comparing different greenhouse gases.
Greenhouse Gas	GHG	Greenhouse gas means a gas that contributes to the greenhouse effect by absorbing infrared radiation, e.g., carbon dioxide and chlorofluorocarbons.
Metric Tonnes	t	Metric tonnes are a unit of measurement. 1 metric tonne = 1000 kilograms
Net Zero		A net-zero energy building, is a building with zero net energy consumption, meaning the total amount of energy used by the building on an annual basis is roughly equal to the amount of renewable energy created on the site,
Variable Frequency Drive	VFD	A variable frequency drive is a device that allows for the modulation of an electrical or mechanical piece of equipment.

6.2 List of Tables, Figures and Pictures

Tables

Figures

Pictures