2025-2030

MIDDLESEX HOSPITAL ALLIANCE

Conservation and Demand Management Plan

Middlesex Hospital Alliance
395 Carrie Street
Strathroy, Ontario
N7G 3J4

RE: 2025 CONSERVATION AND DEMAND MANAGEMENT (CDM) PLAN

July 2025

As part of our ongoing commitment to transparency—and in compliance with Ontario Regulation 25/23—we are pleased to present Middlesex Hospital Alliance's (MHA) 2025 Conservation and Demand Management (CDM) Plan.

This document highlights the key conservation initiatives implemented by MHA since the publication of our previous CDM Plan in 2019. Further information about our ongoing energy conservation efforts is available in the Strategic Energy Management Plan Update, published in June 2024.

Looking ahead, we are optimistic about the continued opportunities to reduce energy consumption, emissions, and waste, as outlined throughout this plan. Building on past successes, we know these efforts will continue to improve the experience for our visitors, patients, and staff—while enabling us to direct more resources toward frontline services.

I fully endorse and support the enclosed plan and look forward to sharing future updates as we continue our commitment to delivering *Exceptional Care by Exceptional People*.

Sincerely,

Julie McBrien

President and CEO,

Middlesex Hospital Alliance

Table of Contents

Middlesex Hospital Alliance

About Middlesex Hospital Alliance

Middlesex Hospital Alliance (MHA) serves the Middlesex County region, located just southwest of London, Ontario, through its two hospital sites: Four Counties Health Services (FCHS), a primary care facility located in Newbury, and Strathroy Middlesex General Hospital (SMGH), a full service community hospital located in Strathroy.

Our Values We are committed to providing the highest standards of quality care to all of our patients and families. In our commitment to champion excellent health services for our community, our actions are guided by four core values:

COMPASSION	ACCOUNTABILITY	RESPECT	EXCELLENCE
We will listen, seek to understand and through our words and actions, show our genuine concern for others. We will foster an environment that is patient-centered, caring, and helping to others.	We will embrace responsibility in all that we do, each of us owning our actions and behaviours. We are committed to acting with honesty and integrity.	We will support an inclusive space in which we seek to understand and honour each other's diversity and individuality. We will foster an environment that is fair and supports a sense of belonging and engagement.	We will continually strive for exceptional patient, family, caregiver, and provider experiences. If we do not meet expectations, we will learn and take action to improve.

Our Vision:

Exceptional People providing Exceptional Care.

Our Mission:

To provide the healthcare we would expect for our own families.

Energy Management Vision: Identify, Monitor and Reduce Waste, wherever possible, through education, infrastructure improvement, policy and process changes, and embrace a culture of sustained energy stewardship

Middlesex Hospital Alliance

Overview of Our Plan

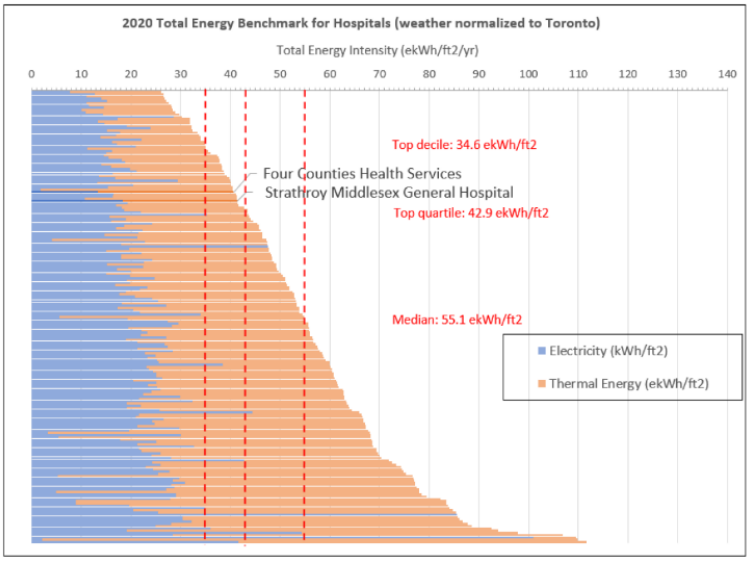
Since 2014, Middlesex Hospital Alliance (MHA) has actively developed, implemented, and reported on Conservation and Demand Management (CDM) plans, demonstrating our enduring commitment to environmental stewardship and sustainability. The updated 2025–2030 CDM Plan continues this legacy, reaffirming MHA's Energy Management Vision, Goals, and Guiding Principles as outlined in our Strategic Energy Management Plan (SEMP).

This plan provides a comprehensive analysis of energy consumption and intensity across all MHA sites, offering detailed site-specific insights.

The table below presents a high-level summary of MHA's progress in reducing overall utility consumption and associated carbon emissions through sustained conservation initiatives. From 2018 to 2024, MHA achieved a net reduction in total energy use. While electricity consumption increased by just over 5%, natural gas usage declined by approximately 2.35%, resulting in an overall reduction of 1.58% in total greenhouse gas (GHG) emissions. A comparative analysis of annual energy consumption, GHG emissions, and Energy Use Intensity (EUI) for this period is included below.

Site	Year	Electricity (kWhs)	Natural Gas (m3)	GHG (tCO2e)	EUI (ekWh/ft2)
SMGH	2018	3,133,821	392,652	864	41.83
	2024	3,274,540	380,327	844	41.91
FCHS	2018	801,688	159,463	337	43.42
	2024	864,858	158,833	338	44.43
Total	**2018**	**3,935,509**	**552,115**	**1,201**	**42.22**
	2024	**4,139,398**	**539,160**	**1,182**	**42.55**
		-5.18%	**2.35%**	**1.58%**	**-0.74%**

Compared to other hospitals in Ontario, both MHA facilities rank among the top 25% of the most energy-efficient institutions, as reported by Greening Health Care. The graph to the right illustrates how FCHS and SMGH perform relative to peer hospitals in terms of energy intensity per square foot, measured in equivalent kilowatt-hours (ekWh) for both electricity and thermal energy (natural gas).



Middlesex Hospital Alliance

As an active member of the Greening Health Care initiative, MHA has received consistent recognition over the past five years for its leadership in sustainability and conservation. As highlighted in our previous update, MHA has been acknowledged with numerous awards for outstanding performance in water and energy efficiency across both of our facilities:

- ✓ 2018 – *Four Counties Health Services (FCHS)* recognized as the Top Performer in Water Usage among small hospitals (2017 data); award presented at the annual Ontario Hospital Association (OHA) Conference.
- ✓ 2019 – *FCHS* awarded Top Performer in Water Usage (small hospitals).
- ✓ 2019 – *Strathroy Middlesex General Hospital (SMGH)* awarded Top Performer in Energy Usage (small hospitals).
- ✓ 2021 – *FCHS* awarded Top Performer in Energy Usage, Top Performer in Water Usage, Green Hospital of the Year, and Green Hospital Leadership in the small hospital category.
- ✓ 2021 – *SMGH* awarded Top Performer in Energy Usage (small hospitals).
- ✓ 2022 – *FCHS* awarded Top Performer in Water Usage and Top Performer in Energy Usage (small hospitals).

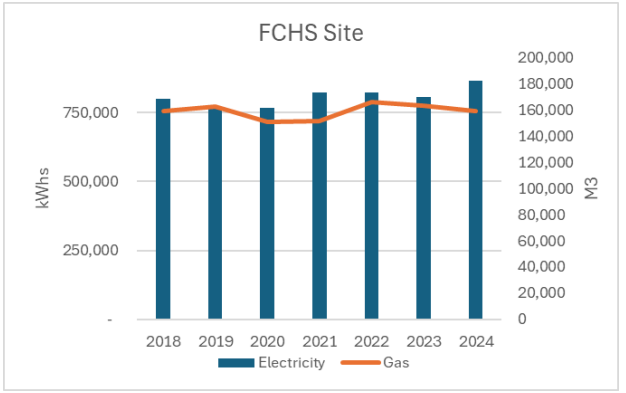
Looking ahead to 2030, MHA remains committed to building on these achievements by embedding environmentally responsible practices into our daily operations. We will adopt a comprehensive, strategic approach to energy management that fully integrates sustainability into business decision-making, policy development, and operational procedures—ensuring that conservation remains a cornerstone of our organizational culture.

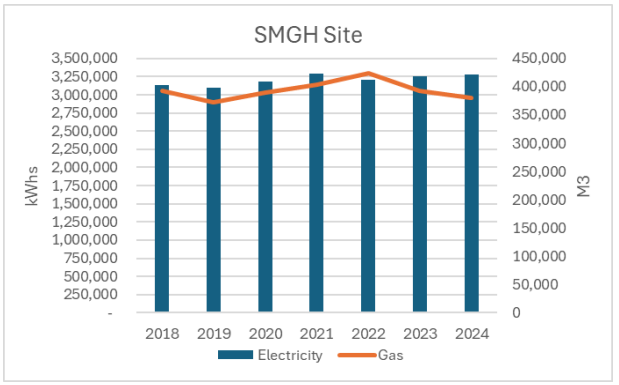
Broader Public Sector Reporting

In accordance with Ontario Regulation 25/23, all public hospitals, along with other Broader Public Sector (BPS) organizations, are required to report annual energy consumption and greenhouse gas (GHG) emissions for each of their facilities by July 1st.

MHA has been in full compliance with this requirement since the regulation was first introduced under Ontario's Green Energy Act in 2011. We remain committed to transparency and accountability in energy reporting, recognizing the vital role these regulations play in driving energy conservation, encouraging the adoption of renewable energy, reducing GHG emissions, and supporting the growth of a green economy. Presented below are MHA's annual energy consumption and GHG emissions data for both sites, covering the reporting period from 2018 to 2024. For a more detailed breakdown of monthly usage, please refer to Appendix A.

Year	Electricity [kWh]	Natural Gas [m^3]	GHG Emissions [tCO2e]	EUI [ekWh /ft^2]
		FCHS		
2018	801,688	159,463	337	43.42
2019	768,125	162,428	341	43.37
2020	767,807	150,961	318	41.26
2021	824,316	151,189	321	42.31
2022	822,956	165,945	350	44.99
2023	805,767	163,505	345	44.23
2024	864,858	158,833	338	44.43
		SMGH		
2018	3,133,821	392,652	864	41.83
2019	3,096,894	372,941	821	40.43
2020	3,183,606	389,383	853	41.93
2021	3,284,728	404,147	891	43.40
2022	3,205,987	424,233	928	44.15
2023	3,256,082	392,941	868	42.56
2024	3,274,540	380,327	844	41.91





Past Conservation Efforts

Over the past five years, MHA has undertaken significant initiatives aimed at reducing annual energy consumption and associated greenhouse gas (GHG) emissions across its facilities. These efforts have been guided by the Energy Management Goals established in our previous Conservation and Demand Management (CDM) Plan.

The following strategic priorities were central to our approach:

- ✓ Approval of the Strategic Energy Management Plan (SEMP) and allocation of resources to support implementation
- ✓ Integration of energy-conscious financial practices into decision-making processes
- ✓ Adoption of Strategic Energy Management Practices, including:
  - Establishing purchasing specifications for energy-efficient equipment and services
  - Enhancing design and construction standards
  - Optimizing facility operations
  - Implementing cost-effective facility upgrades
  - Actively managing energy commodities
- ✓ Ongoing monitoring, tracking, and recognition of performance improvements

The major projects implemented during this period focused on replacing outdated and inefficient infrastructure with modern, energy-efficient systems. These upgrades have delivered measurable improvements in both energy performance and environmental impact. The following section outlines the specific benefits achieved, highlighting enhancements to the building envelope and upgrades to critical building systems and equipment.

Building Envelope

Window and Door Replacement

In 2020, FCHS completed a window and exterior door replacement project aimed at enhancing the facility's thermal efficiency. Much like insulation, windows and doors can contribute to significant energy losses—up to 25%—affecting both heating and cooling demands and ultimately increasing natural gas and electricity consumption.

The effectiveness of windows and doors in preventing heat transfer is measured by the U-Factor, with lower values indicating better insulating properties. Additionally, when properly installed, new windows and doors can significantly reduce air infiltration, further improving the building's energy performance.

To ensure optimal energy savings, MHA selected ENERGY STAR® certified products, which meet strict energy efficiency criteria established by the Government of Canada.

According to Natural Resources Canada (NRCan), ENERGY STAR certified windows and doors are, on average, 20% more energy efficient than standard models.

Roof Replacement
Roof replacement or repair presents a strategic opportunity to improve a building's thermal performance by enhancing its insulation levels. Increased insulation helps reduce heat loss during the winter and limits heat gain during the summer, contributing to lower energy consumption year-round.
The effectiveness of insulation is measured by its R-value—the higher the R-value, the greater the resistance to heat flow and the better the insulating performance of the material.

Over the past several years, FCHS has undertaken the replacement and upgrade of multiple sections of its roof, including improvements to the inverted roofing system. These upgrades have strengthened the building envelope and contributed to overall energy efficiency by improving thermal resistance and reducing HVAC loads.

Building Equipment Upgrades

Upgrades to building systems and equipment can significantly reduce energy consumption and improve operational efficiency. These upgrades may include Heating, Ventilation, and Air Conditioning (HVAC) systems, Domestic Hot Water (DHW) systems, and other major energy-consuming infrastructure such as elevators.

Outlined below are the key equipment upgrades implemented across MHA facilities in recent years, along with their respective impacts on energy efficiency, system reliability, and occupant comfort:

Replaced Air Handling Units (AHU)
Replacing aging Air Handling Units (AHUs) at end-of-life provides an opportunity to install newer, energy-efficient models that enhance occupant comfort while significantly reducing energy consumption. Modern AHUs are often equipped with Variable Frequency Drives (VFDs), which allow for dynamic adjustment of airflow based on real-time demand, as well as advanced control systems that optimize the sequence of operations, including temperature and humidity setbacks.

In 2020, FCHS successfully replaced AHU #2 with a high-efficiency unit, improving overall system performance, reducing energy loads, and contributing to a more stable and comfortable indoor environment.

Chiller Replacement
Over the past two years, SMGH has replaced its aging single chiller system with two more efficient chillers. This dual-chiller configuration allows cooling capacity to be

modulated to match demand more precisely, enhancing overall system performance compared to the previous single-chiller setup.
By optimizing chiller operation according to seasonal load requirements, this upgrade has significantly reduced the power demand associated with cooling, resulting in improved energy efficiency and operational flexibility.

Boiler Replacement
Upgrading boilers presents a significant opportunity to enhance the efficiency of heat generation for various hospital functions. For instance, in 2020, SMGH replaced its DHW tanks with new, high-efficiency boilers, while FCHS upgraded its steam boiler system.

Both projects have improved thermal comfort for patients and staff and contributed to a reduction in the consumption of carbon-intensive natural gas, supporting MHA's broader sustainability goals.

Motor Replacements
Replacing older, inefficient motors with modern, energy-efficient models offers a valuable opportunity to reduce overall energy consumption across a variety of building systems. When combined with Variable Frequency Drives (VFDs), these motors can be precisely controlled to deliver the required output without operating at full capacity unnecessarily, resulting in significant energy savings.
MHA has successfully implemented these technologies in multiple applications, including:

- ✓ **Pumps:** In 2020, SMGH upgraded its domestic water booster pump by installing a motor with VFD controls and advanced control technology.
- ✓ **Exhaust Fans:** FCHS replaced an exhaust fan in 2023 with a new energy-efficient motor equipped with VFD drives.
- ✓ **Elevator Modernization:** As part of its modernization efforts, SMGH upgraded existing elevators by integrating VFD drives and energy-efficient motors, enhancing both safety and user experience for patients and staff.

Guiding Principles for Strategic Energy Management

Effective energy management identifies opportunities for improvement that lead to reduced energy consumption. This reduction directly lowers greenhouse gas (GHG) emissions, minimizing the environmental impact of the facility's operations. Beyond environmental benefits, CDM practices deliver a range of additional advantages, forming the core business rationale behind MHA's commitment to strategic energy management.

In support of this commitment, MHA renews its focus on the following guiding principles:

Taking a Strategic Approach: Middlesex Hospital Alliance actively manages energy costs by implementing opportunities as they are identified and within a limited budget envelope. By acting strategically, MHA can improve its energy-related performance. Internalizing energy management into our organization's day-to-day decision making, policies, and operating procedures will help ensure long lasting reductions in energy use throughout MHA.

Supporting Mission-Critical Goals: Strategic energy management supports the Middlesex Hospital Alliance's goals of delivering timely access to patient care services, meet or exceed established quality benchmarks, invest in our people in accordance with our principles and purpose, provide a safe environment for patients and people, and to ensure fiscal responsibility. The impacts of Middlesex Hospital Alliance's energy management efforts on those goals are reviewed using annual energy usage to determine positive outcomes.

Pursuing Long-Term Change to Core Business Practices: The core of a strategic approach is the consistent incorporation of energy management into our organization's strategic planning and budgeting processes. Change in energy-related business practice will cover all applications of energy management – new construction and major renovations, existing facility operations and upgrades, and the economic analysis and procurement practices underlying these practices.

Fostering Organizational Commitment and Involvement: Executive and organizational commitment and involvement is critical to successful strategic energy management. Senior management at Middlesex Hospital Alliance will work with facility managers and other key staff to ensure that adequate organizational support and resources are provided to maximize the benefits of energy management. Middlesex Hospital Alliance energy management will be integrated into the strategic planning and capital budgeting processes.

Obtaining Solid Economic Returns: Energy management investments will yield economic returns that meet Middlesex Hospital Alliance's standard requirements applied through the hospital's capital budgeting process. Middlesex Hospital Alliance

will apply consistent financial analysis methods that consider life-cycle to reduce total cost of facility ownership and operation

Using Available Resources and Assistance: Middlesex Hospital Alliance will use all available sources of strategic, technical, and financial assistance to help achieve our energy management goals. These include programs through local distribution companies, the IESO, ENERGYSTAR, the Canadian Coalition for Green Health Care, The Canadian Healthcare Engineering Society and EnerCan.

The Business Case for Strategic Energy Management

Below are the central business arguments for Middlesex Hospital Alliance's pursuit of strategic energy management.

Strengthened Community Leadership and Environmental Stewardship - Energy management is a visible, public commitment to the community and environment. Through aggressive energy management, Middlesex Hospital Alliance can provide leadership in promoting sustainable communities, efficient business practices, and environmental stewardship. This is an excellent opportunity to provide leadership and reduce costs at the same time.

Enhanced Healing and Working Environment - In existing facilities, efficient operating practices improve patient as well as employee comfort with more stable air temperature, and better indoor air quality and lighting.

Improved Financial Health and Operating Cost Reduction - Strategic energy management presents an opportunity to reduce operating costs and positively impact Middlesex Hospital Alliance's bottom line. Operating cost savings directly improve the hospital's operating position. Further, investments in energy projects typically have a lower risk of performance over time relative to other investments and savings from energy projects are easier to forecast than savings or revenue increases expected from more variable types of investment.

Optimization of Capacity to Meet Current and Expanding Operational Needs - Energy efficiency optimizes inefficient or poorly designed and operated equipment/systems so wasted energy system capacity can be reclaimed for current and expanding operational needs. This "free capacity" can eliminate the need to add major new energy capacity and be much less expensive.

The Next Five Years

Building on the goals established in our previous plan and reaffirmed in this update, MHA looks forward to continuing its successful conservation and sustainability initiatives. A key driver behind the implementation of these projects is securing necessary funding through sources such as the Health Infrastructure Renewal Fund (HIRF), as well as incentives offered by programs like Save on Energy and local utilities including Enbridge.

Looking toward 2030, MHA recognizes that upgrading equipment and enhancing the building envelope will provide long-term operational benefits, with replacements planned as existing assets approach the end of their service life to ensure ongoing improvements in efficiency. In parallel, behavioural and operational measures will remain ongoing efforts, adapting as hospital needs and capacity evolve.

For example, MHA is proud to expand its service offerings while carefully managing the impact on energy intensity. A recent illustration is the commissioning of the new MRI at SMGH, which came online in March 2025, enabling better support for our community.

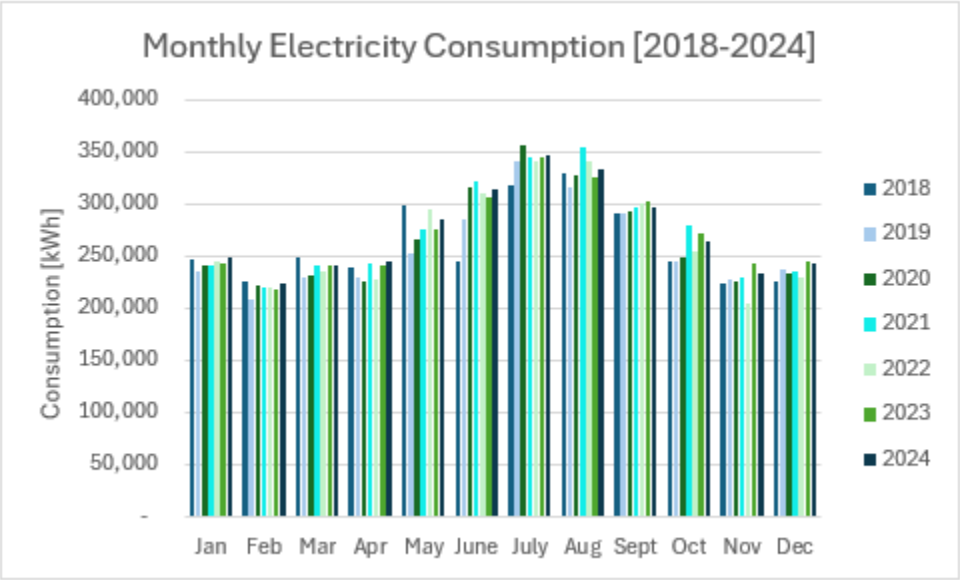
Operational Changes and optimization represent a significant opportunity for energy conservation within MHA facilities, with heating and cooling systems offering particularly large potential for savings. By refining operational practices and optimizing the use of existing equipment, MHA can achieve substantial energy reductions in a cost-effective manner. Fine-tuning HVAC systems ensures that components work cohesively rather than counterproductively—for example, preventing simultaneous heating and cooling of the same space.

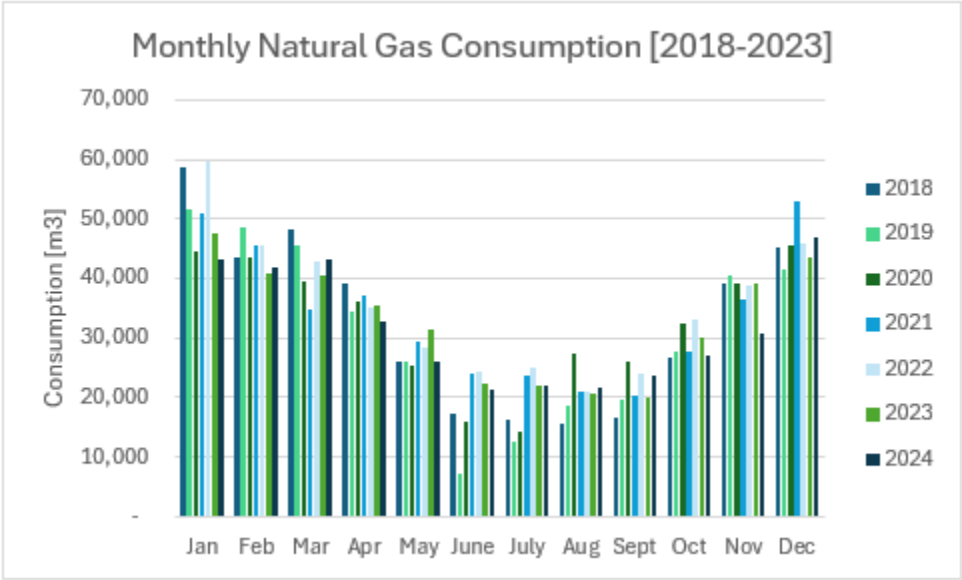
Upgrading Equipment to more energy-efficient models is another proven method for reducing overall energy intensity. Such upgrades not only lower energy consumption but also enhance system performance and safety. MHA remains committed to identifying opportunities for further improvements across building equipment and infrastructure to decrease energy use and operating costs. Current projects include ongoing roof replacements at SMGH and other targeted infrastructure enhancements.

Behavioral Change ensures long-term success in energy management. Aligning daily habits with MHA's energy goals requires the commitment of our Senior Leadership and dedicated staff, who actively work to modify routines and eliminate energy waste. We also aim to engage patients, families, and visitors, encouraging them to participate in these efforts and helping to educate the broader community on how we can collectively reduce our environmental footprint.

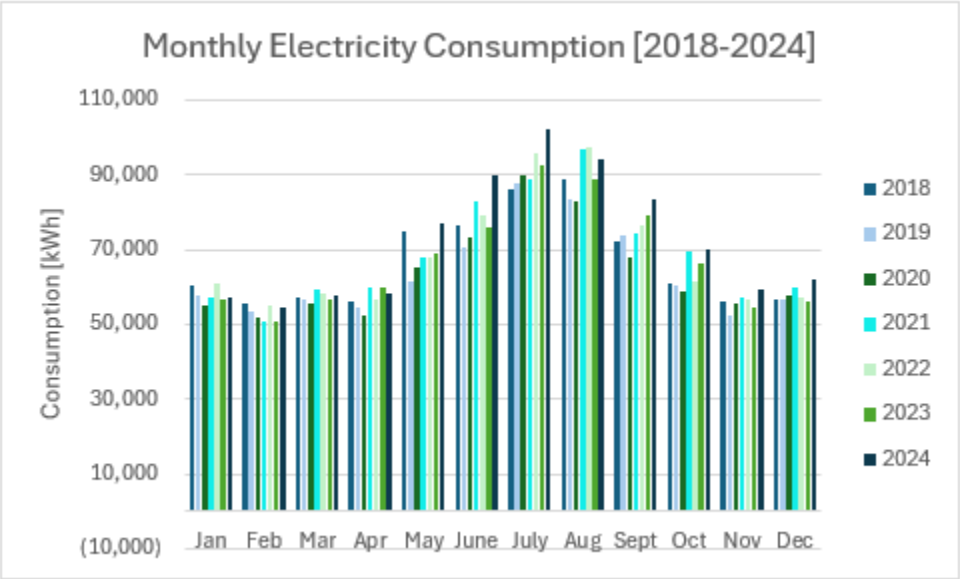
Appendix A

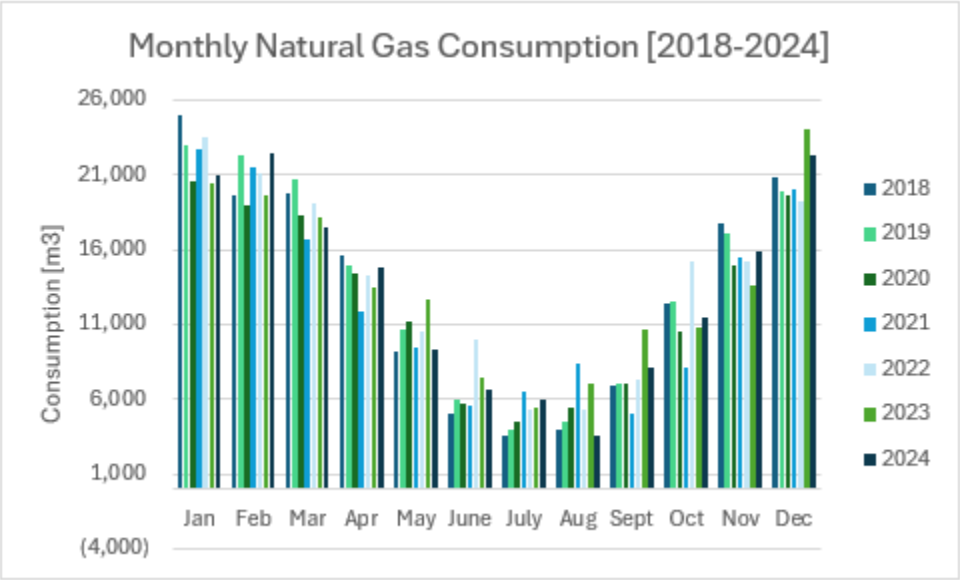
SMGH Site





FCHS Site





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