

Energy Conservation & Demand Management Plan

2024



Trillium
Health Partners

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1. 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 The Bill repealed the GEA and all its underlying Regulations, including O. Reg. 397/11.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.

As of February 23, 2023, O. Reg. 507/18 was replaced by **O. Reg. 25/23, and BPS reporting and ECDM Plans** are under the Electricity Act, 1998 rather than the Green Energy Act, 2009.



2. Executive Summary

The purpose of this Energy Conservation and Demand Management (ECDM) Plan from Trillium Health Partners (THP) is to outline specific actions and measures that will promote good stewardship of the 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 THP'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, THP will be able to provide compassionate service to more people in the community. This ECDM Plan is written in accordance with O. Reg. 25/23 of the recently amended Electricity Act, 1998.

Through past conservation and demand initiatives, THP has achieved the following results:

- 1,164,108 m³ reduction in natural gas use

Today, utility and energy related costs are a significant part of overall operating costs. In 2023:

- Energy Use Index (EUI) was 61.97 kWh/ft²
- Energy-related emissions equaled 21,174 tCO₂e

To obtain full value from energy management activities, THP 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, THP can expect to achieve the following targets by 2029:

- ~15% reduction in electricity consumption
- ~15% reduction in natural gas consumption
- ~19% reduction in carbon equivalent emissions



In order to obtain full value from energy management activities, and to strengthen THP’s conservation initiatives, a strategic approach must be taken. THP will strive to fully integrate energy management into THP’s practices by considering indoor environmental quality, operational efficiency and sustainably sourced resources when making financial decisions. The results and the progress of the past five years, and the projected impact of the new ECDM Plan is presented in the chart below.

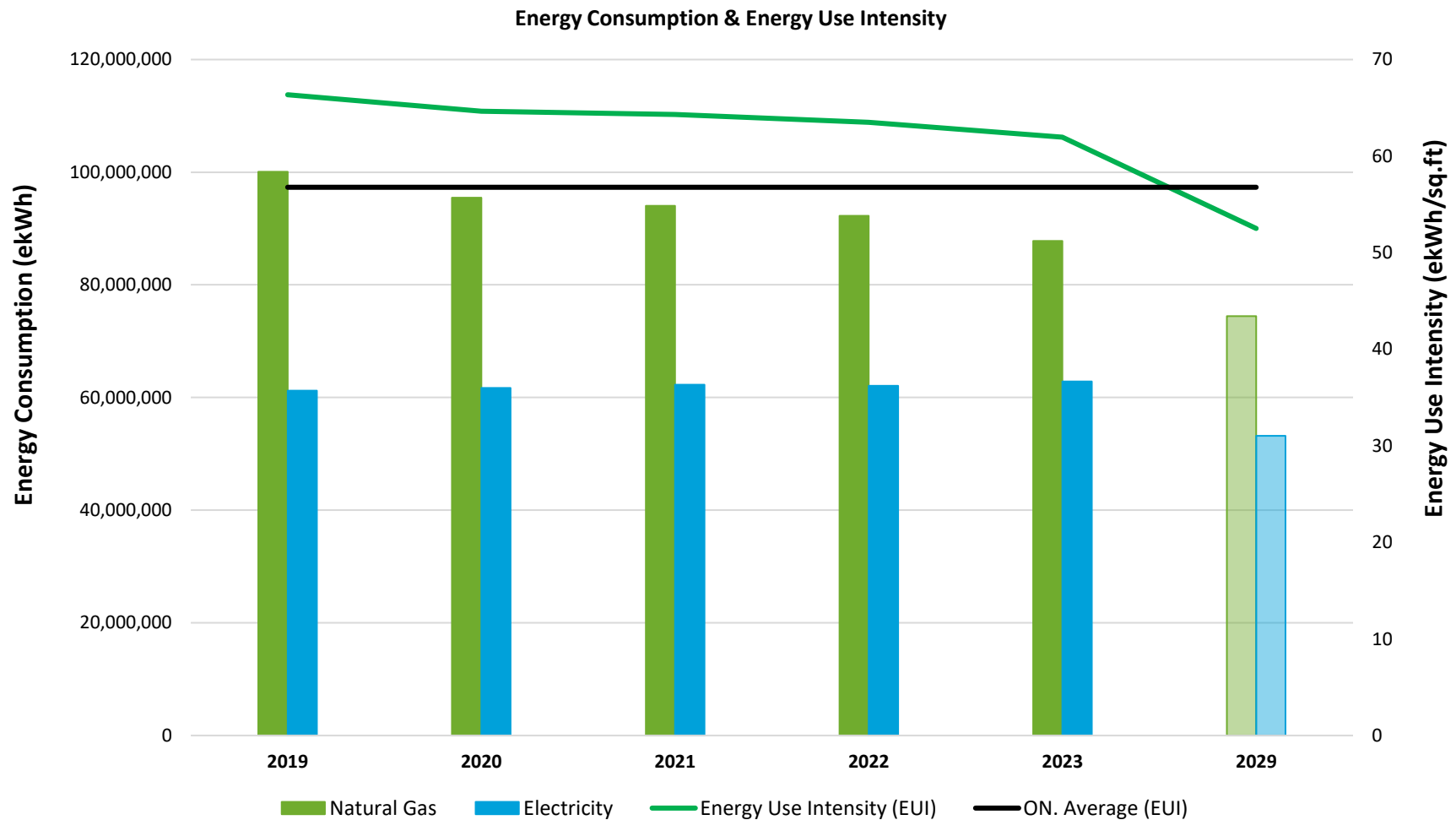


Figure 1. Site-Wide Energy Consumption Trends & Projections



3. About Trillium Health Partners

Trillium Health Partners is one of Canada's largest leading academically affiliated health centre with highly specialized regional programs and serves over one million residents in Peel and West Toronto and from other communities across Ontario. THP envisions a new kind of health care for a healthier community – an inter-connected system of care that is organized around the patient, both inside the hospital and beyond its walls. Through partnership, working in a coordinated way across the system, THP can meet the needs of the patients and continue to provide outstanding, sustainable quality patient care.

Trillium Health Partners is a leading hospital with an outstanding record of performance, fiscal responsibility and quality patient care. The hospital encompasses three main sites – Credit Valley Hospital, Mississauga Hospital, and Queensway Health Centre – offering the full range of acute care hospital services, as well as a variety of community-based, specialized programs. THP's intention is to achieve the highest quality of care that is easily accessible for the THP community, at the lowest cost. THP is committed to creating an exceptional experience for everyone who walks through THP's doors.

THP Vision

Better together

THP Mission

A new kind of health care for a healthier community using scientific expertise, innovative approaches and partnerships

THP Values

THP is committed to enabling, producing and sharing meaningful research and innovation through **compassion, excellence and courage**

- **Compassion** and inclusion of patients, providers and community
- **Excellence** in using scientific evidence, system design and evaluation
- **Courage** to think differently - plan, try, fail, succeed, improve, share





Building New Capacity for a New Kind of Health Care

Trillium HealthWorks is the largest health infrastructure renewal in Canada's history, and will help shape the future of health care for the community and beyond. In addition to stronger community partnerships, Trillium HealthWorks will mean building The Peter Gilgan Mississauga Hospital, and when the expansion of the Queensway Health Centre is completed, it will become The Gilgan Family Queensway Health Centre. It will mean more beds, shorter wait times, and greater specialization closer to home. More doctors, nurses, and support staff. Better technology to share information and be more connected.

The Peter Gilgan Mississauga Hospital

The new hospital will be a full replacement of the existing hospital and will redefine a new urban centre focused on health in this part of the city. Features include:

- At 22 storeys, The Peter Gilgan Mississauga Hospital will almost triple the size of the current hospital and will be approximately 2.8 million square feet.
- The new hospital will be over 950 beds.
- The number of operating rooms will increase to 23, up from 14 today.
- 100% of patient rooms will be private rooms
- A new and expanded Emergency Department (ED) – creating one of the largest EDs in the province – reducing wait times and improving the patient experience.
- The new hospital will also include advanced diagnostic imaging facilities and a new pharmacy and clinical laboratory.

Shah Family Hospital for Women and Children, focusing on health equity and inclusive care for everyone. The 200,000-square-foot facility will span two floors within The Peter Gilgan Mississauga Hospital and is designed to meet the highest standards of care for all people and families accessing reproductive, gynecological, paediatric and postpartum care, including those who identify outside of the gender binary.

The new Women's and Children's Hospital will feature:

- A full suite of highly specialized reproductive, gynecological and children's health services for all people, focused on reducing health inequity and nurturing diversity.
- Dedicated mental health inpatient beds for children and youth - a first for the region.
- Expert care for pregnancies and births, including those that are high-risk, with modern labour and birthing suites for parents and families.
- A Neonatal Intensive Care Unit (NICU) including specially-designed couplet care suites to accommodate parents and babies staying together.
- Access to state-of-the-art surgical suites to accommodate specialized procedures closer to home.
- Family-centred care that stretches throughout all areas of the hospital and includes gender-neutral washrooms, breastfeeding areas and a dedicated paediatric zone in the emergency department.
- Excellent patient and family experience with access to highly-trained specialists.



The Peter Gilgan Mississauga Hospital will allow Trillium Health Partners to increase flexibility to respond to future health care challenges, feature modern hospital facilities and technology, and reflect the latest standards in infection prevention and control. The hospital will continue to deliver highly specialized care through THP's regional programs, such as the regional centre for cancer care, advanced cardiac surgery, and geriatric mental health services among others.

The Gilgan Family Queensway Health Centre

The expansion at the Future Home of The Gilgan Family Queensway Health Centre, will be a modern dedicated centre for complex care and rehabilitation services where patients can receive care and recover in a purpose-built environment.

Today, capacity challenges at Trillium Health Partners means rehab and complex care services are delivered across six different sites, from Milton to Toronto. This expansion addresses the growth in this community, and provides patients with the specialized care they need, closer to home.

Features include:

- A modern nine-storey facility at 600,000 square feet, with space for over 350 beds.
- Increased capacity for specialized care, including complex continuing care and rehabilitation services.
- 100% private rooms.
- Retaining existing facilities to continue to provide high-quality care to this community.
- A new parking structure.

This project will make a meaningful difference in the lives of the patients and families it will serve and allow Trillium Health Partners to meet this community's growing and changing needs for years to come.



3.1. Site-Wide 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, you can compare facilities of different sizes with ease. In this case, THP is comparing their 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 56.77 ekWh/sq. ft.

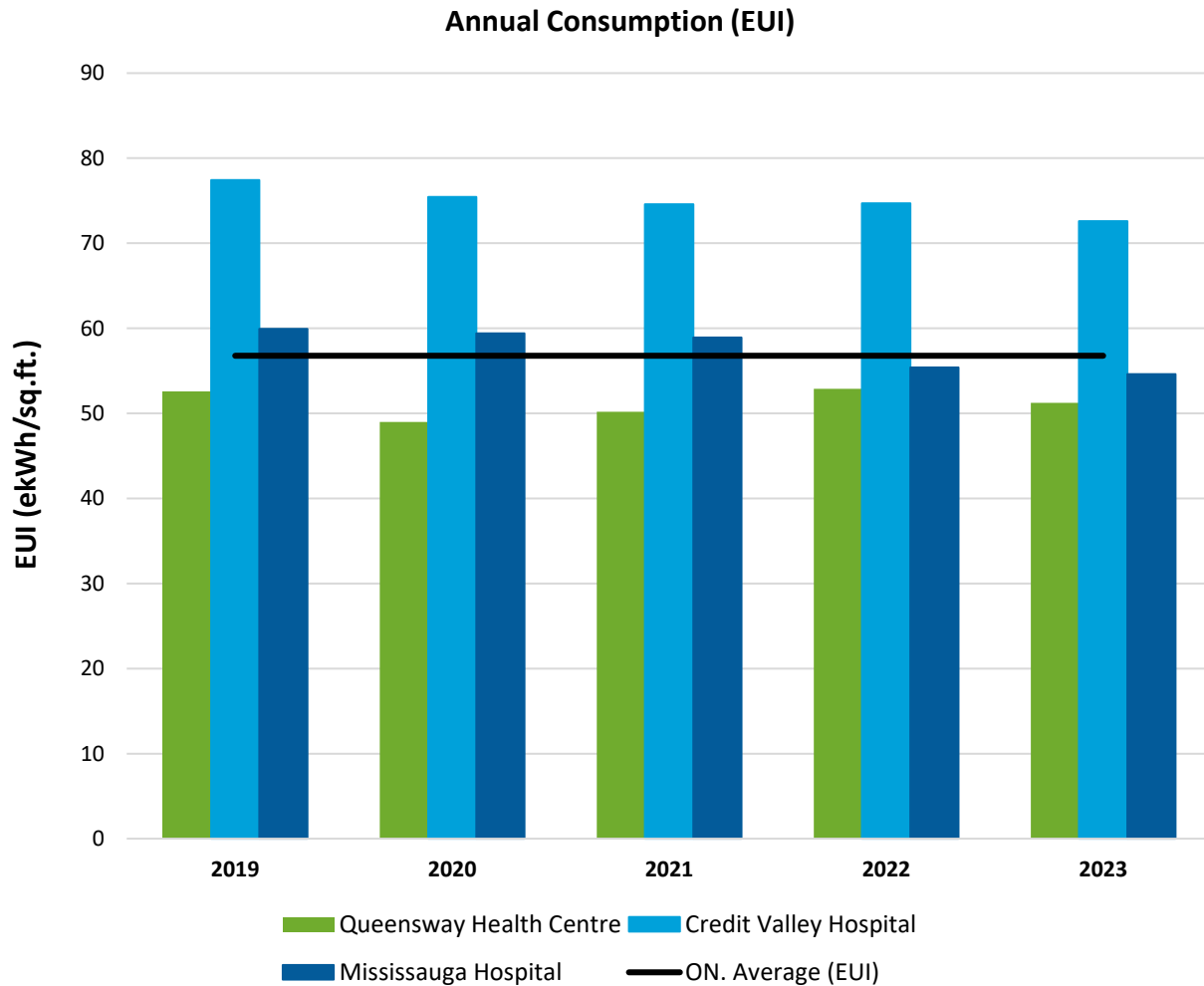


Figure 2. Historic Annual Energy Utilization Indices for all Sites

Site	2019	2020	2021	2022	2023
Credit Valley Hospital	77	75	75	75	73
Mississauga Hospital	60	59	59	55	55
Queensway Health Centre	52	49	50	53	51
Total	66.36	64.65	64.30	63.50	61.97

Table 1. Historic Energy Utilization Indices for all Sites



3.2. Site-Wide Historical GHG Emissions

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 nuclear power and hydroelectricity, and coal-fired plants have been phased out. Scope 1 (natural gas) 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.

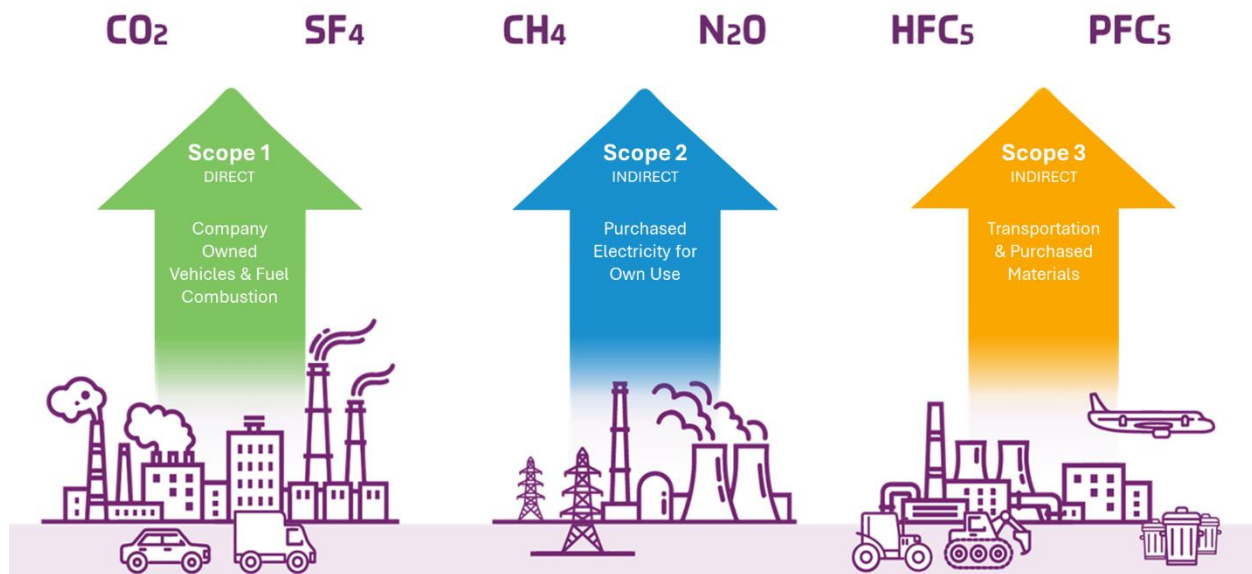


Figure 3. Examples of Scope 1 and 2



The site-wide greenhouse gas emissions for THP have been tabulated and is represented in the table and graph below.

Historical Site-Wide GHG Emissions

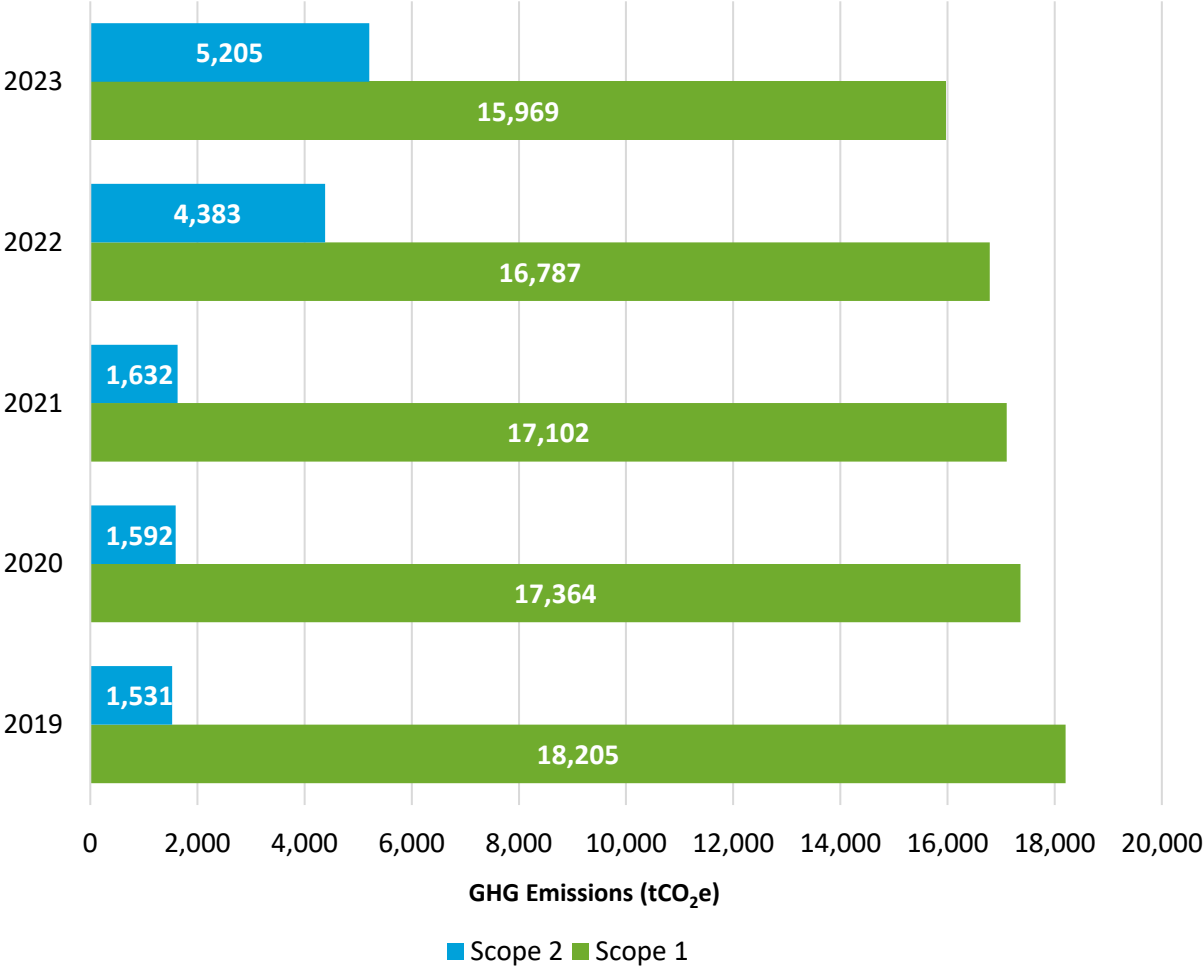


Figure 4. Historic Greenhouse Gas Emissions for all Sites

GHG Emissions	2019	2020	2021	2022	2023
Scope 1 (Natural Gas)	18,205	17,364	17,102	16,787	15,969
Scope 2 (Electricity)	1,531	1,592	1,632	4,383	5,205
Total	19,736	18,957	18,734	21,170	21,174

Table 2. Historic Greenhouse Gas Emissions for all Sites



3.3. Sustainability at Trillium Health Partners

Trillium Health Partners have made a commitment to sustainability and going green. They have demonstrated this through events, initiatives and real change throughout all their sites. They have a commitment to employee engagement, outreach and education.

Trillium has been recognized with multiple awards that highlight their commitment:

- Greening Health Care Leadership Award 2021 – recognizes leadership in the pursuit of sustainability and a committed to all facets of sustainability
- Greening Health Care Waste Award 2019 and 2021 – recognizes health care facilities that are setting the standard in eliminating mercury, reducing and recycling waste, sustainable sourcing, and other areas

In addition to countless green initiatives awards, Trillium has made changes and outreach on a community level. They are constantly evolving their efforts in their journey to sustainability.

Success include:

- Continued success with THP's Environmental Awareness Training Program which details THPS's objectives and how all employees can help towards its environmental programs
- Earth Day events are held annually and involve a participation in Earth Hour
- Solar powered parking meters
- EV chargers at all sites
- Shuttle bus between sites to reduce car emissions
- Bike racks at each site
- Security uses bikes to patrol property
- Using The Partners in Project Green, People Power Challenge to engage with staff and raise awareness and get their help and ideas towards achieving THP's goals
- Participated in a green transportation challenge
- Transitioned from disposable wrappers to reusable for the instrument trays
- Changed from individual packs to multi-supply packs and maintaining the use of reusable gowns in an individual pack.
- Anesthetic gas reduction in Operating Rooms

Trillium has completed many energy conservation and demand management measures over the past 5-years. The table below outlines the measures implemented that resulted in electricity, natural gas and water saving impacts.



Electricity

Site	Year	Project
All Sites	2020	Commissioning HVAC
MH	2020	Lab Rooftop Unit Replacement
CVH	2021	AHU 6F & AHU 8F VFD
CVH	2021	4 VFDs On ACS-6F & ACS-8F
CVH	2021	Install 4 VFDs on PRCC Cooling Tower
MH	2021	Install VFD on ACS 3 in J-Wing
QHC	2021	Atrium Lighting
MH	2023	LED Recessed Downlight Retrofit
QHC	2023	7 Variable Frequency Drives (VFDs)
QHC	2023	Betty Wallace RTU Replacement
QHC	2019	Lighting Retrofit
MH	2019	Kitchen Lighting Upgrade
QHC	2020	Lighting Retrofit
QHC	2023	Lighting Retrofit
CVH	2023	HVAC Setbacks for Brachytherapy OR

Natural Gas

Site	Year	Project
All Sites	2020	Steam Trap Repairs & Replacement
All Sites	2020	Commissioning HVAC
CVH	2021	Steam Trap Repairs & Replacement
MH	2021	Steam Trap Repairs & Replacement
QHC	2021	Steam Trap Repairs & Replacement
MH	2022	Steam Trap Repairs & Replacement
QHC	2022	Steam Trap Repairs & Replacement

Water

Site	Year	Project
CVH	2020	MRI Make-up Water Conversion
ALL Sites	2022	Irrigation System Repairs

Table 3. Previously Implemented Measures



4. Site Analysis

The following section will introduce each of THP’s sites and provide a brief description about the building and its operations, energy & greenhouse gas (GHG) emissions trends, and specific conservation measures.

4.1. Credit Valley Hospital



Picture 1. Credit Valley Hospital

Credit Valley Hospital features a regional cancer and ambulatory care centre, a 24-emergency care centre, and a regional women’s and children’s health centre featuring an advanced level 2 neonatal intensive care unit and the largest pediatric oncology satellite program in Ontario outside of the Hospital for Sick Children. THP is known for its innovative, can-do approach to providing quality patient care to the people of Mississauga and the surrounding region (approximately one million people).

Facility Information	
Facility Name	Credit Valley Hospital
Address	2200 Eglinton Avenue W., Mississauga, ON
Gross Area (Sq. Ft)	1,077,376
Facility Use	Healthcare Services
Average Operational Hours Per Week	168
Number of Beds	495
Number of Floors	4

Table 4. Credit Valley Hospital Facility Information



4.1.1. Utility Consumption Analysis

Utilities to the site are electricity and natural gas. 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).

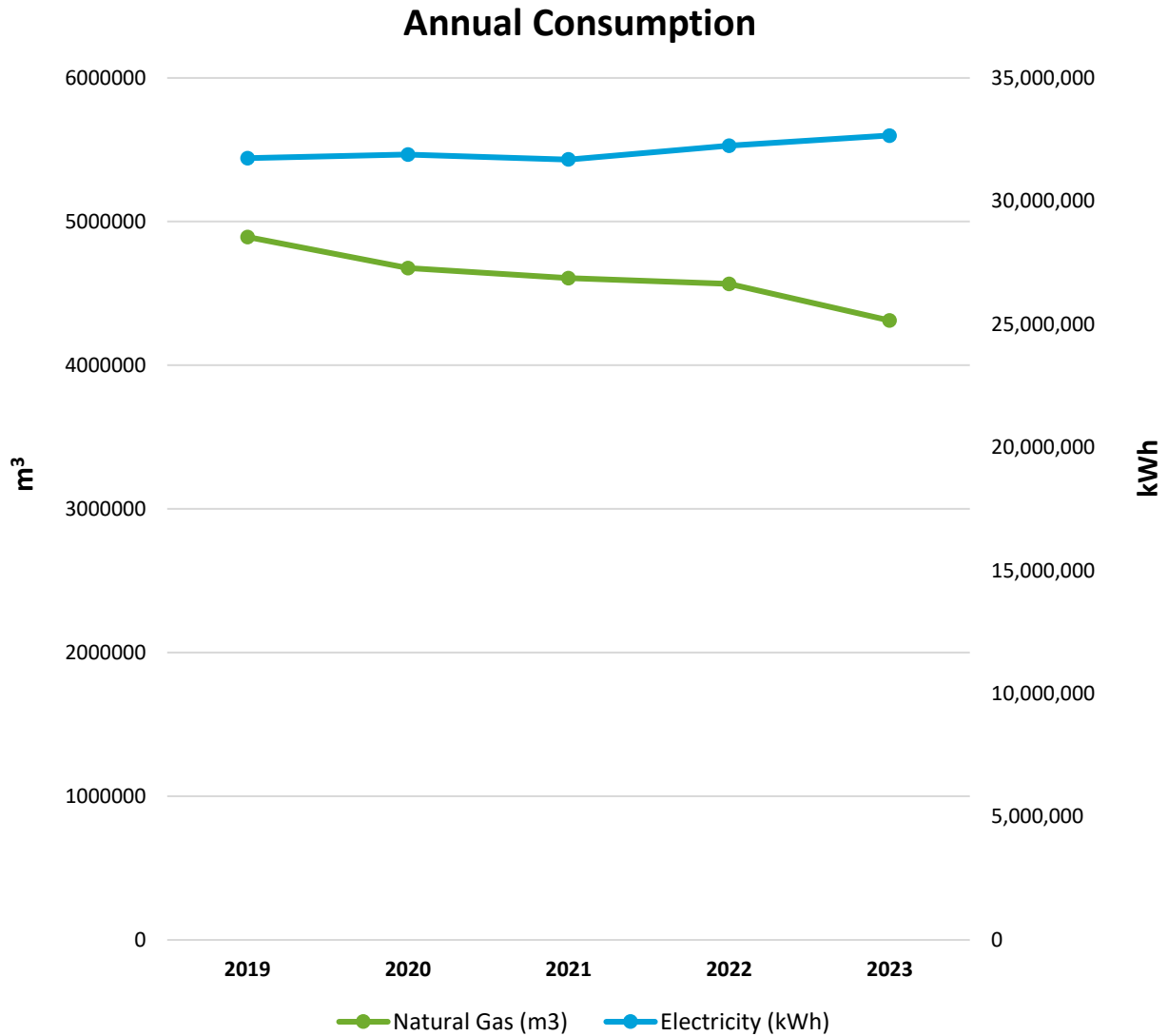


Figure 5. Historic Annual Utility Consumption for the Credit Valley Hospital

Utility	2019	2020	2021	2022	2023
Electricity (kWh)	31,739,391	31,888,145	31,684,331	32,244,488	32,664,352
Natural Gas (m³)	4,893,006	4,676,891	4,607,017	4,566,447	4,311,908

Table 5. Historic Annual Utility Consumption for the Credit Valley Hospital



4.1.2. GHG Emissions Analysis

The greenhouse gas emissions are calculated based on the energy consumption data analyzed in the following table.

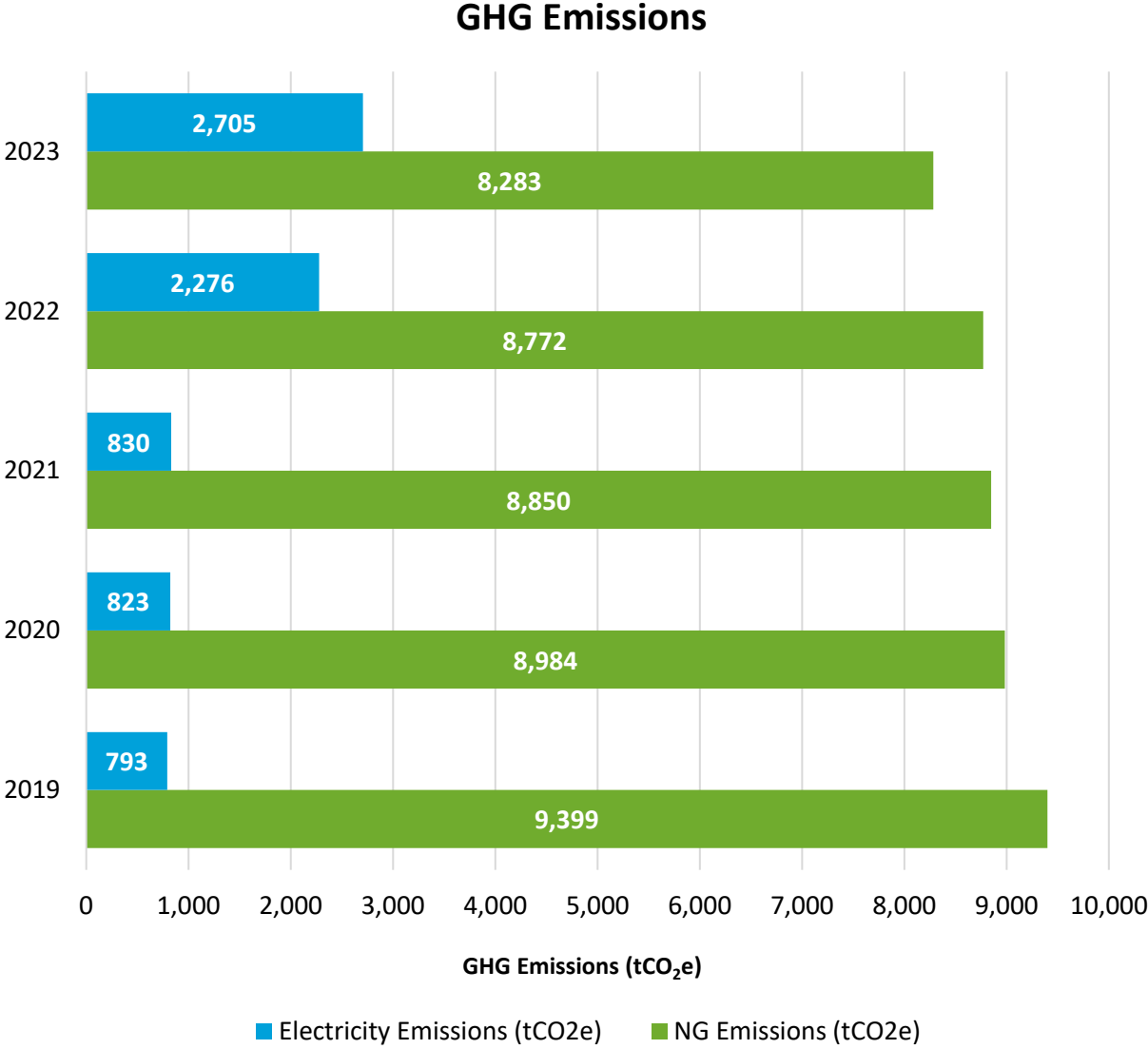


Figure 6. Historic Annual Greenhouse Gas Emissions for the Credit Valley

Utility Source (tCO ₂ e)	2019	2020	2021	2022	2023
Natural Gas (Scope 1)	9,399	8,984	8,850	8,772	8,283
Electricity (Scope 2)	793	823	830	2,276	2,705
Totals	10,193	9,807	9,680	11,049	10,988

Table 6. Historic Annual Greenhouse Gas Emissions for the Credit Valley Hospital



4.1.3. Proposed Conservation Measures

THP's energy analysis has revealed several conservation strategies for the facility. Credit Valley Hospital's proposed energy 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. The current year of implementation is listed as TBD as implementation is dependent on the availability of funding and incentives.

Measure	Estimated Annual Savings		Estimated Project Cost	Implementation Year
	Electricity (kWh)	Natural Gas (m3)		
OR Optimization (Phase 1, 11 ORs)	308,678	32,546	\$30,000	TBD
OR Optimization (Phase 2, 11 ORs)	257,232	27,122	\$25,000	TBD
Recommissioning	1,633,218	215,595	\$450,000	TBD
Lighting Retrofit	1,714,878	-4,872	\$2,261,700	TBD
Convert Make-Up Air (MUA) unit to Mixed Air Unit (MAU)	0	258,714	\$75,000	TBD
Real Time Monitoring of Utility Meters (blackPAC)	653,287	86,238	\$120,000	TBD
Energy-as-a-Service Project	N/A	N/A	N/A	TBD
AHU Coil Cleaning	973,409	126,504	\$113,400	TBD
Total	4,567,293	615,344	\$2,961,700	-

Table 7. Proposed Conservation Measures for the Credit Valley Hospital



4.1.4. Utility Consumption Forecast

By implementing the energy conservation measures stated in the previous section, the electricity and natural gas 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 2023 and shows the forecast if THP implements all measures by 2029.

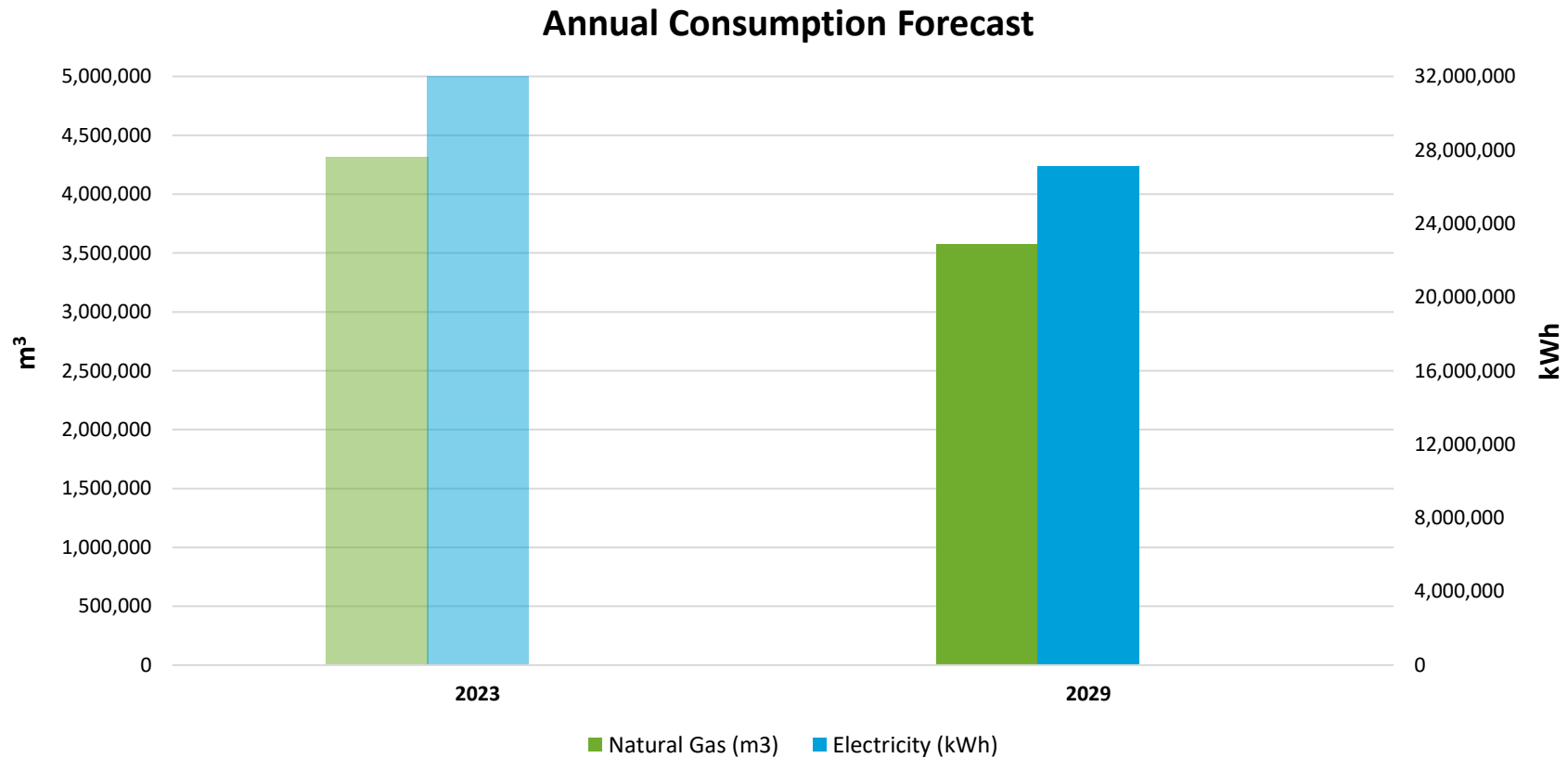


Figure 7. Forecast of Annual Utility Consumption for the Credit Valley Hospital

Fuel	2029	
	Units	% Reduction
Natural Gas (m ³)	3,570,060	17%
Electricity (kWh)	27,123,650	17%

Table 8. Forecast of Annual Utility Consumption for the Credit Valley Hospital



4.1.5. GHG Emissions Forecast

The forecasted greenhouse gas emissions are calculated based on the forecasted energy consumption data analyzed in the previous section and are tabulated in the following table.

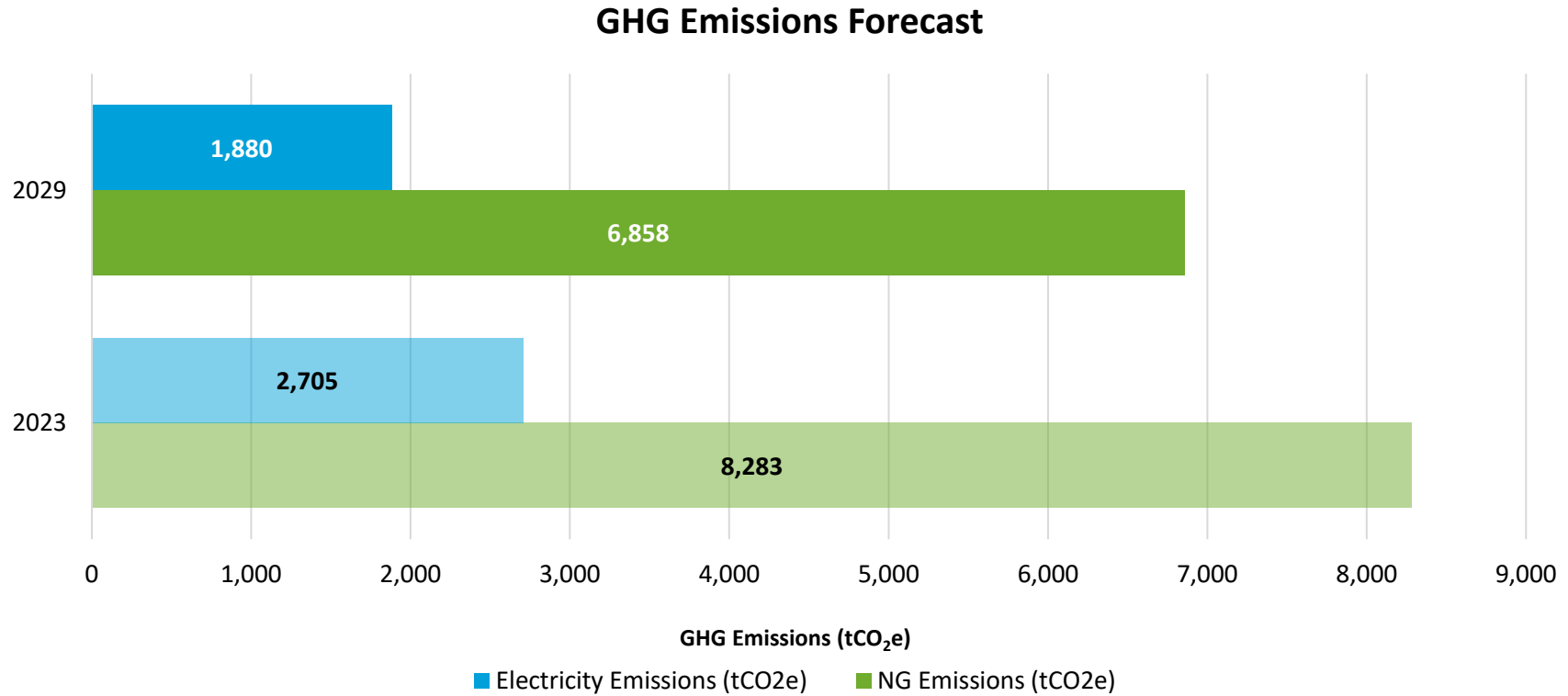


Figure 8. Forecast of Annual Greenhouse Gas Emissions for the Credit Valley

Utility Source (tCO ₂ e)	2029
Natural Gas (Scope 1)	6,858
Electricity (Scope 2)	1,880
Totals	8,738
Reduction from Baseline Year	20%

Table 9. Forecast of Annual Greenhouse Gas Emissions for the Credit Valley Hospital



4.2. Mississauga Hospital



Picture 2. Mississauga Hospital

The 24-hour Emergency Centre Mississauga Hospital is the largest in Canada, one of the busiest in the country, and frequently the front door to many of THP’s regional programs including Stroke, Neurosurgery, Cardiac and Sexual Assault & Domestic Violence Services. THP’s Mississauga location also houses the largest concentration of critical care services in Canada with modern facilities offering bright and roomy patient rooms for Intensive Care, Cardiac Surgery Intensive Care and Coronary Care.

Facility Information	
Facility Name	Mississauga Hospital
Address	100 Queensway W., Mississauga, ON
Gross Area (Sq. Ft)	918,993
Facility Use	Healthcare Services
Average Operational Hours Per Week	168
Number of Beds	668
Number of Floors	4

Table 10. Mississauga Hospital Facility Information



4.2.1. Utility Consumption Analysis

Utilities to the site are electricity and natural gas. 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).

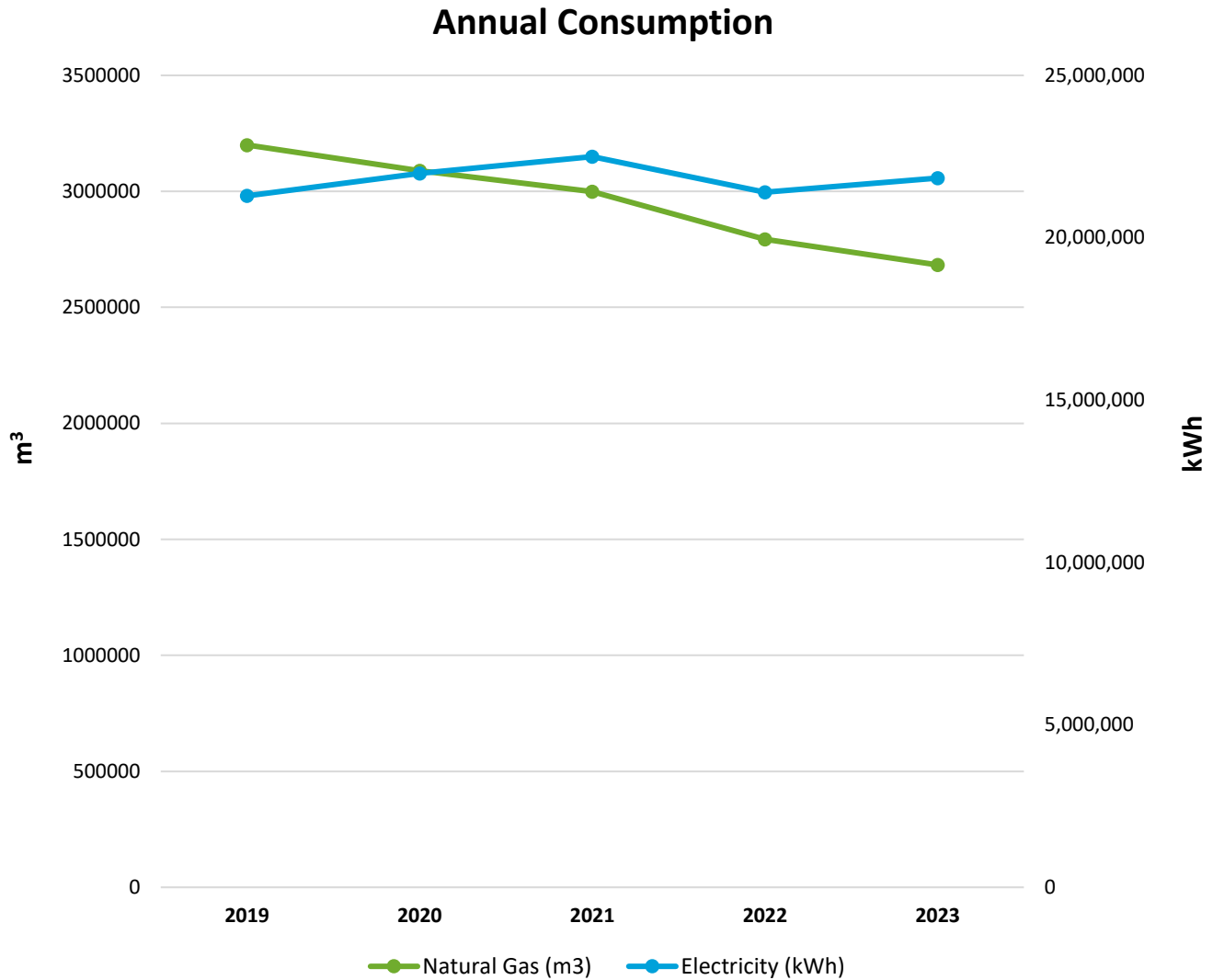


Figure 9. Historic Annual Utility Consumption for the Mississauga Hospital

Utility	2019	2020	2021	2022	2023
Electricity (kWh)	21,291,079	21,979,357	22,498,210	21,403,804	21,836,719
Natural Gas (m³)	3,199,937	3,089,408	2,998,535	2,794,097	2,683,127

Table 11. Historic Annual Utility Consumption for the Mississauga Hospital



4.2.2. GHG Emissions Analysis

The greenhouse gas emissions are calculated based on the energy consumption data analyzed in the following table.

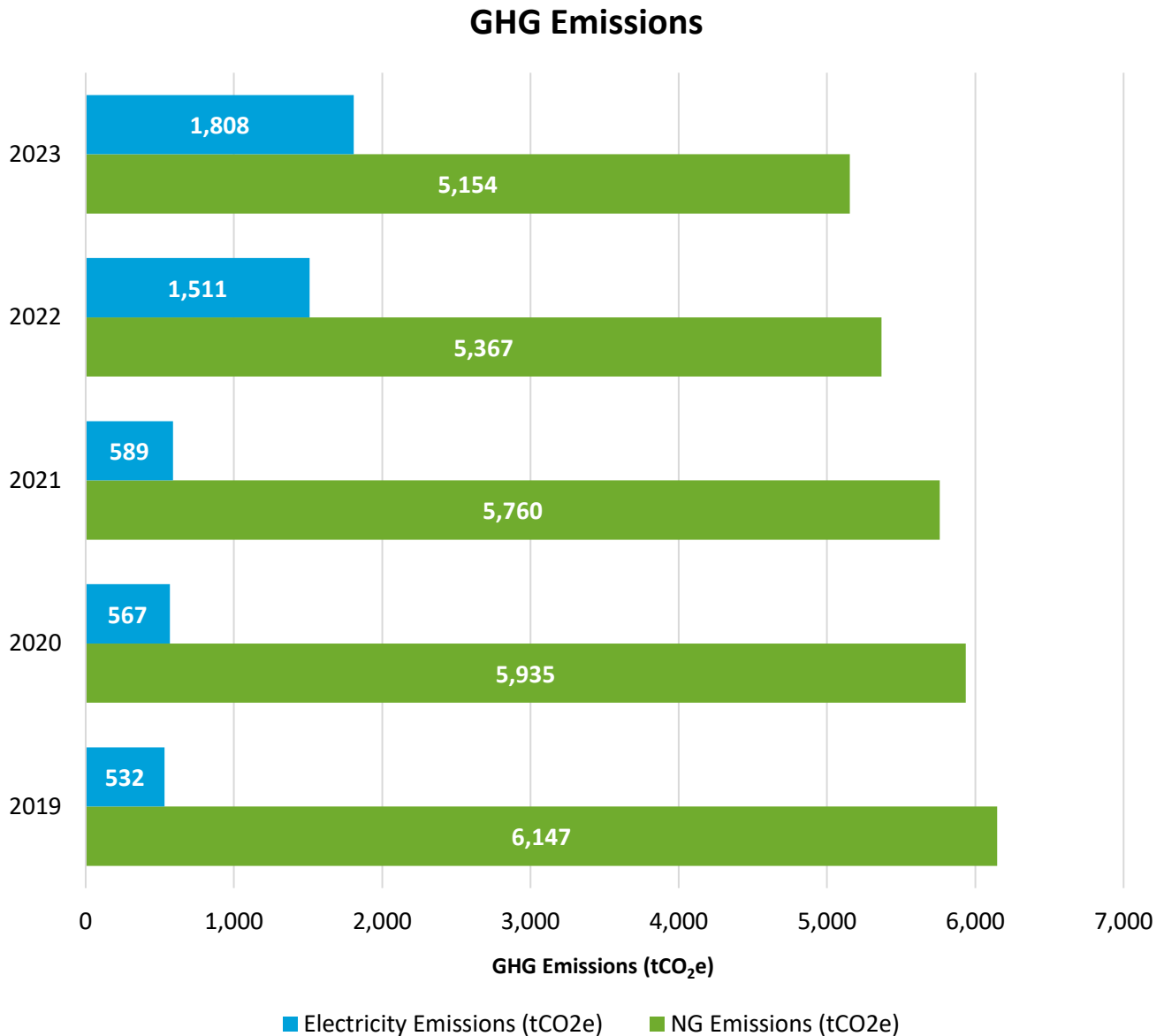


Figure 10. Historic Annual Greenhouse Gas Emissions for the Mississauga Hospital

Utility Source	2019	2020	2021	2022	2023
Natural Gas (Scope 1)	6,147	5,935	5,760	5,367	5,154
Electricity (Scope 2)	532	567	589	1,511	1,808
Totals	6,679	6,502	6,350	6,879	6,962

Table 12. Historic Annual Greenhouse Gas Emissions for the Mississauga Hospital



4.2.3. Proposed Conservation Measures

THPs energy analysis has revealed several conservation strategies for the facility. Mississauga Hospital's proposed energy 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. The current year of implementation is listed as TBD as implementation is dependent on the availability of funding and incentives.

Measure	Estimated Annual Savings		Estimated Project Cost	Implementation Year
	Electricity (kWh)	Natural Gas (m ³)		
Real Time Monitoring of Utility Meters (blackPAC)	436,734	53,663	\$120,000	TBD
Energy-as-a-Service Project	N/A	N/A	N/A	TBD
OR Optimization (14 ORs)	614,326	64,773	\$70,000	TBD
HVAC Recommissioning	1,091,836	134,156	\$400,000	TBD
AHU Coil Cleaning	830,256	107,900	\$97,200	TBD
Total	2,973,153	360,491	\$687,200	-

Table 13. Proposed Conservation Measures for the Mississauga Hospital



4.2.4. Utility Consumption Forecast

By implementing the energy conservation measures stated in the previous section, the forecasted electricity and natural gas 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 2023.

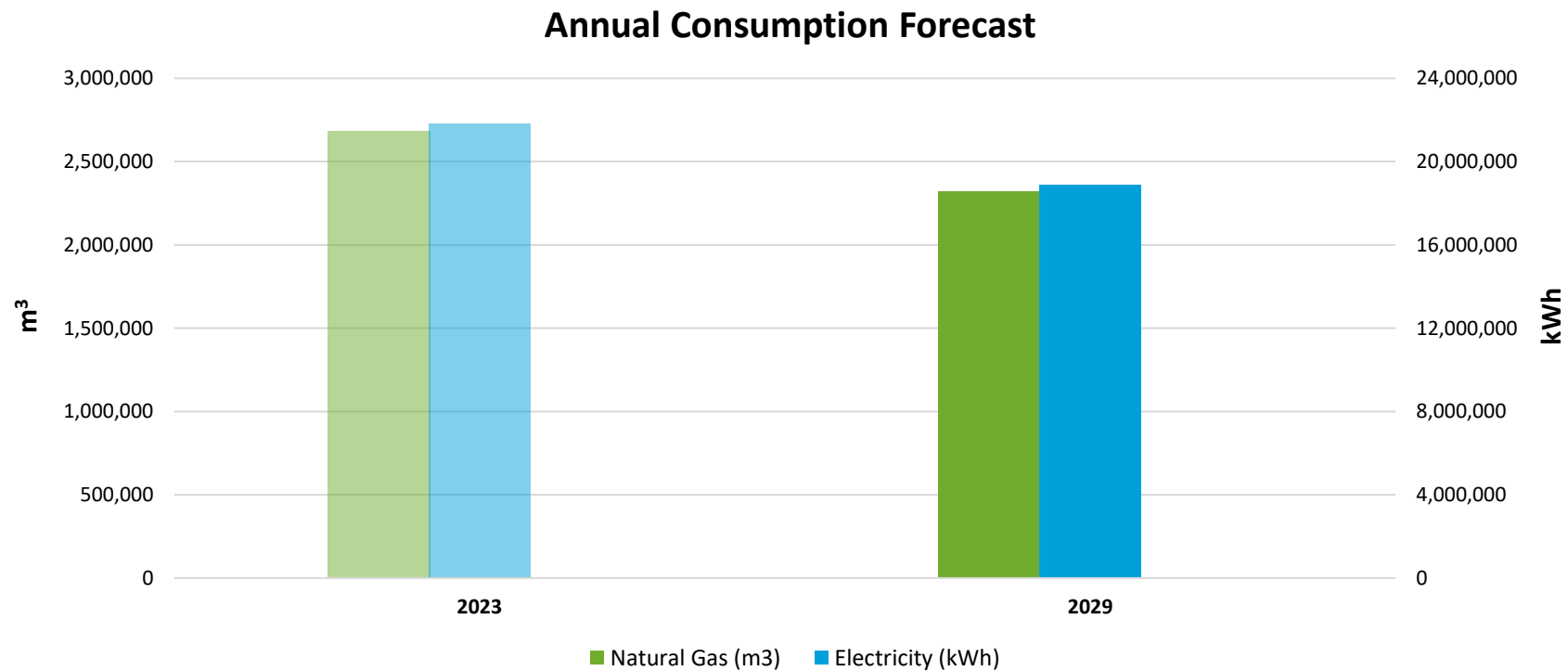


Figure 11. Forecast of Annual Utility Consumption for the Mississauga Hospital

	2029	
	Units	% Reduction
Natural Gas (m ³)	2,322,636	13%
Electricity (kWh)	18,863,567	14%

Table 14. Forecast of Annual Utility Consumption for the Mississauga Hospital



4.2.5. GHG Emissions Forecast

The forecasted greenhouse gas emissions 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 2023.

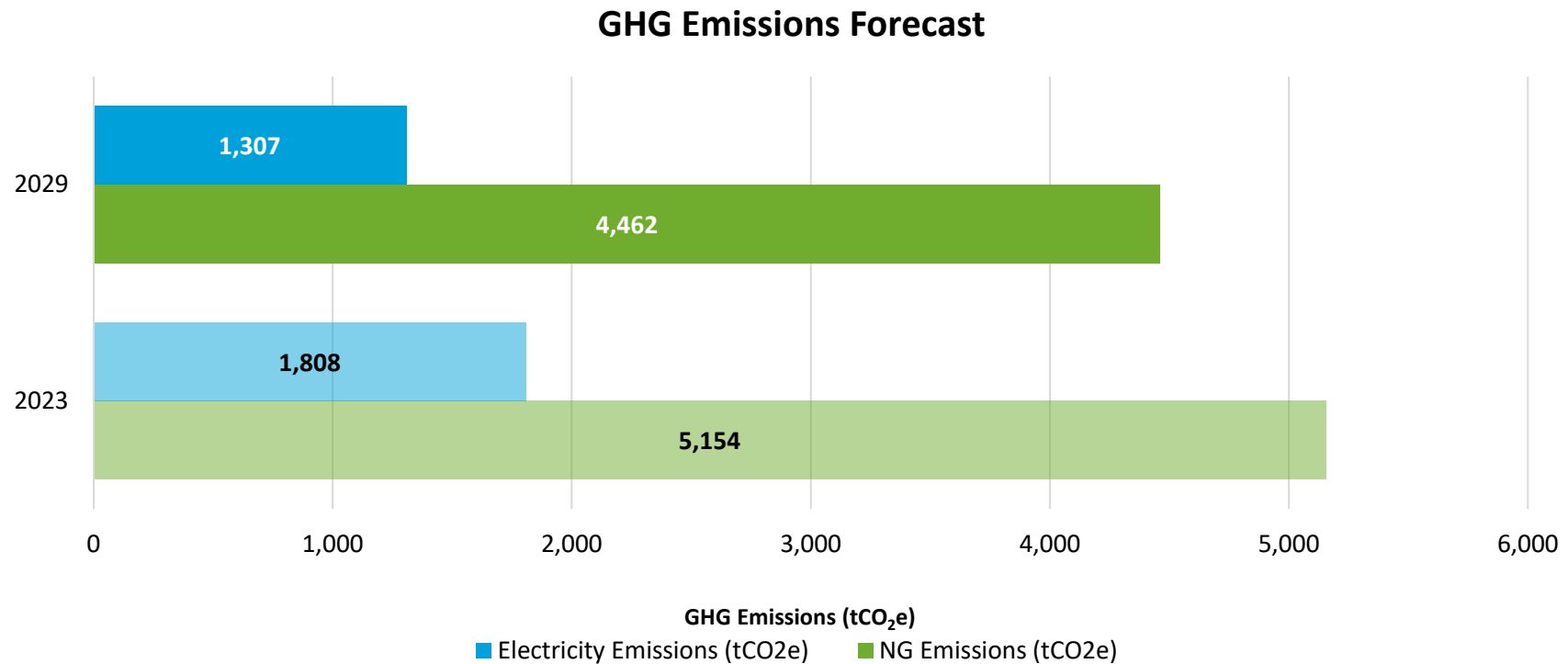


Figure 12. Forecast of Annual Greenhouse Gas Emissions for the Mississauga Hospital

Utility Source (tCO ₂ e)	2029
Natural Gas (Scope 1)	4,462
Electricity (Scope 2)	1,307
Totals	5,769
Reduction from Baseline Year	17%

Table 15. Forecast of Annual Greenhouse Gas Emissions for the Mississauga Hospital



4.3. Queensway Health Centre



Picture 3. Queensway Health Centre

Located on 24 acres of treed land in Toronto, Queensway Health Centre features a 14-Hour Urgent Care Centre, the largest day surgery centre in North America (Surgicentre), a widely recognized Cardiac Wellness & Rehabilitation Centre, and The Betty Wallace Women’s Health Centre.

Facility Information	
Facility Name	Queensway Health Centre
Address	150 Sherway Drive, Etobicoke, ON
Gross Area (Sq. Ft)	434,539
Facility Use	Healthcare Services
Average Operational Hours Per Week	98
Number of Beds	159
Number of Floors	5

Table 16. Queensway Health Centre Facility Information



4.3.1. Utility Consumption Analysis

Utilities to the site are electricity and natural gas. 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).

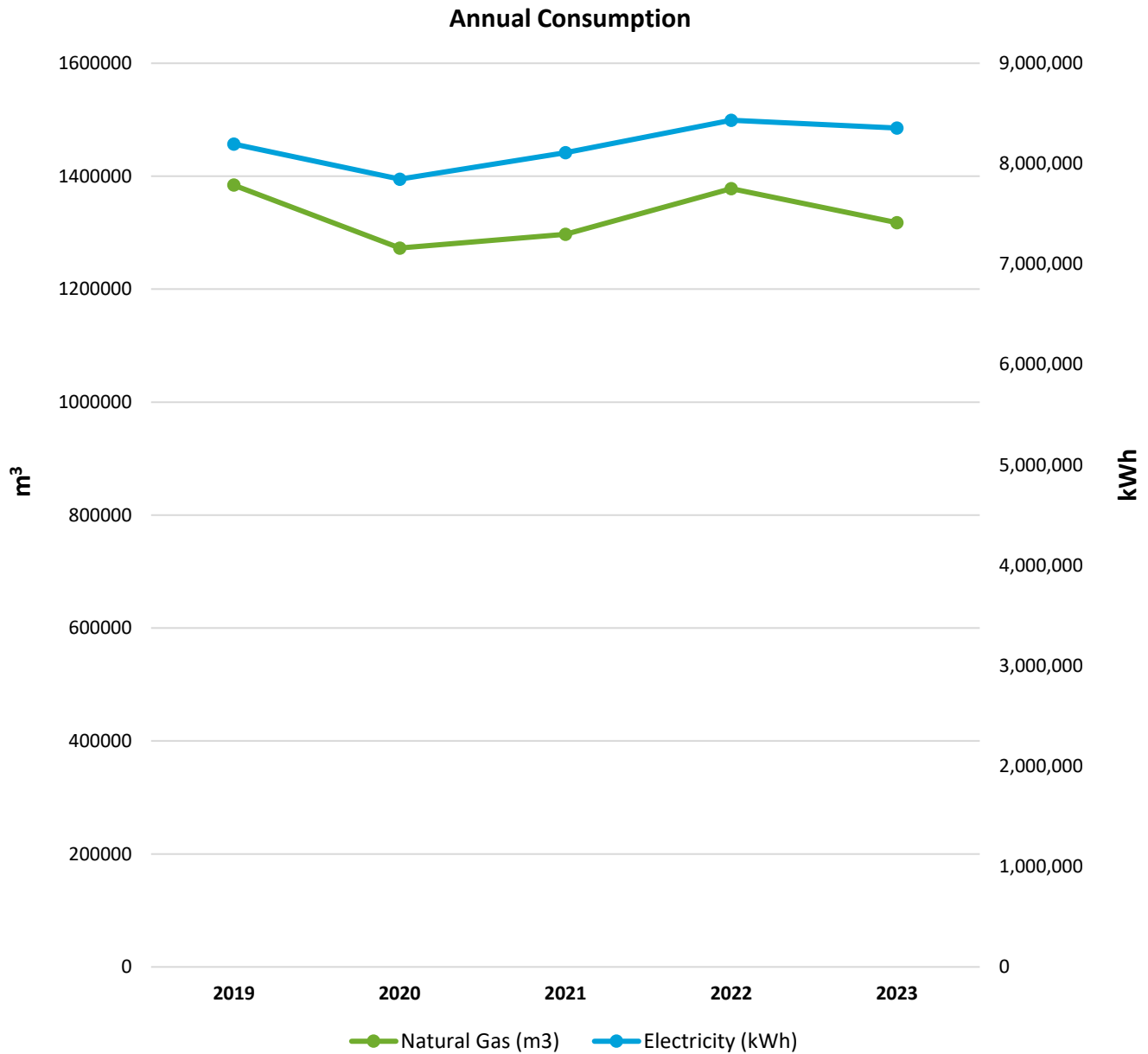


Figure 13. Historic Annual Utility Consumption for the Queensway Health Centre

Utility	2019	2020	2021	2022	2023
Electricity (kWh)	8,196,206	7,846,097	8,110,229	8,432,589	8,355,424
Natural Gas (m³)	1,384,056	1,272,911	1,297,104	1,377,959	1,317,856

Table 17. Historic Annual Utility Consumption for the Queensway Health Centre



4.3.2. GHG Emissions Analysis

The greenhouse gas emissions are calculated based on the energy consumption data analyzed in the following table.

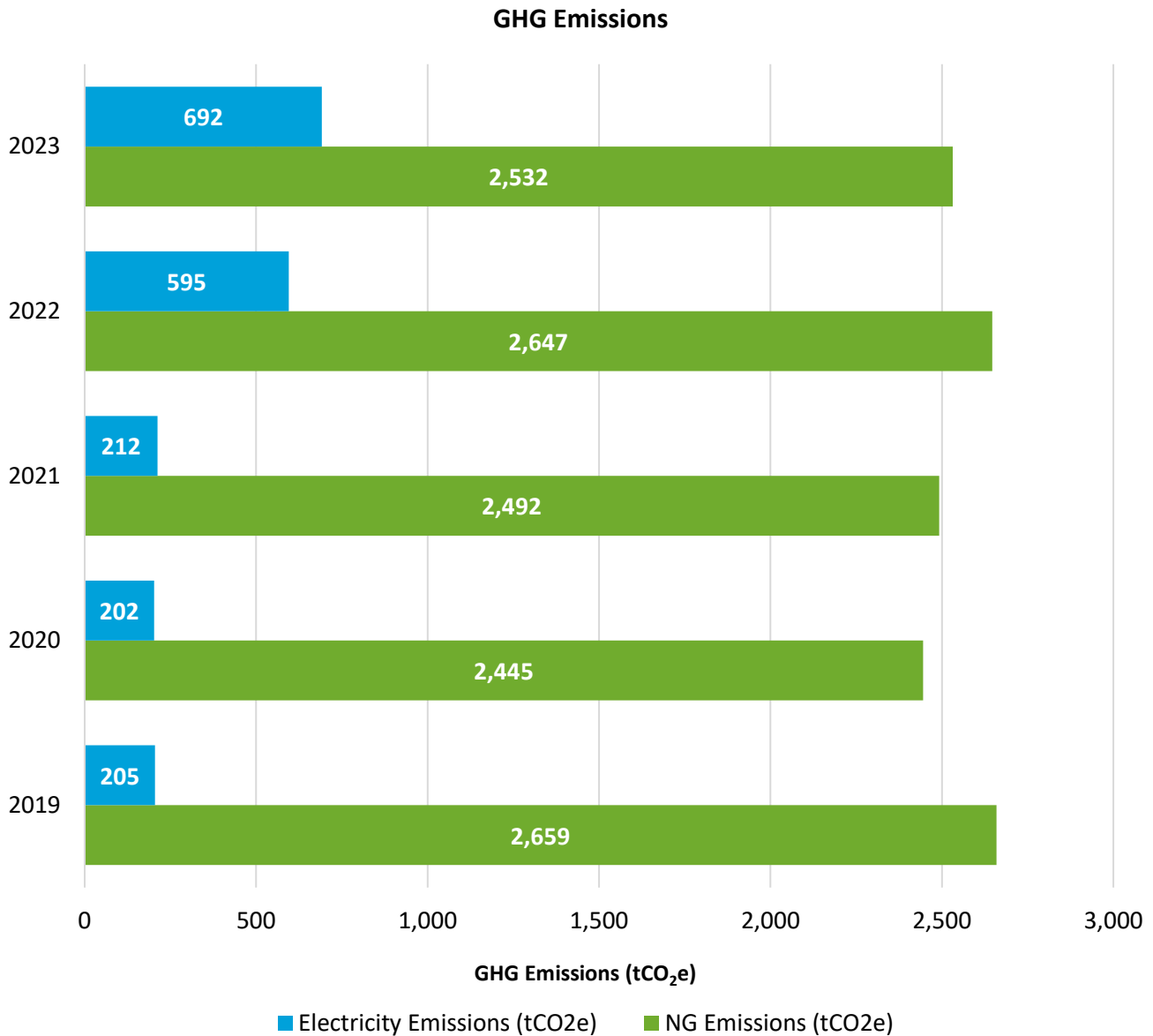


Figure 14. Historic Annual Greenhouse Gas Emissions for the Queensway Health Centre

Utility Source (tCO ₂ e)	2019	2020	2021	2022	2023
Natural Gas (Scope 1)	2,659	2,445	2,492	2,647	2,532
Electricity (Scope 2)	205	202	212	595	692
Totals	2,864	2,648	2,704	3,242	3,223

Table 18. Historic Annual Greenhouse Gas Emissions for the Queensway Health Centre



4.3.3. Proposed Conservation Measures

THP's energy analysis has revealed several conservation strategies for the facility. Queensway Health Centre's proposed energy 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. The current year of implementation is listed as TBD as implementation is dependent on the availability of funding and incentives.

Measure	Estimated Annual Savings		Estimated Project Cost	Implementation Year
	Electricity (kWh)	Natural Gas (m ³)		
OR Optimization (8 ORs)	165,793	17,481	\$40,000	TBD
Recommissioning	417,771	65,893	\$200,000	TBD
Real Time Monitoring of Utility Meters (blackPAC)	167,108	26,357	\$120,000	TBD
Energy-as-a-Service Project	N/A	N/A	N/A	TBD
AHU Coil Cleaning	392,606	51,023	\$64,800	TBD
Total	1,143,279	160,754	\$424,800	-

Table 19. Proposed Conservation Measures for the Queensway Health Centre



4.3.4. Utility Consumption Forecast

By implementing the energy conservation measures stated in the previous section, the forecasted electricity and natural gas 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 2023.

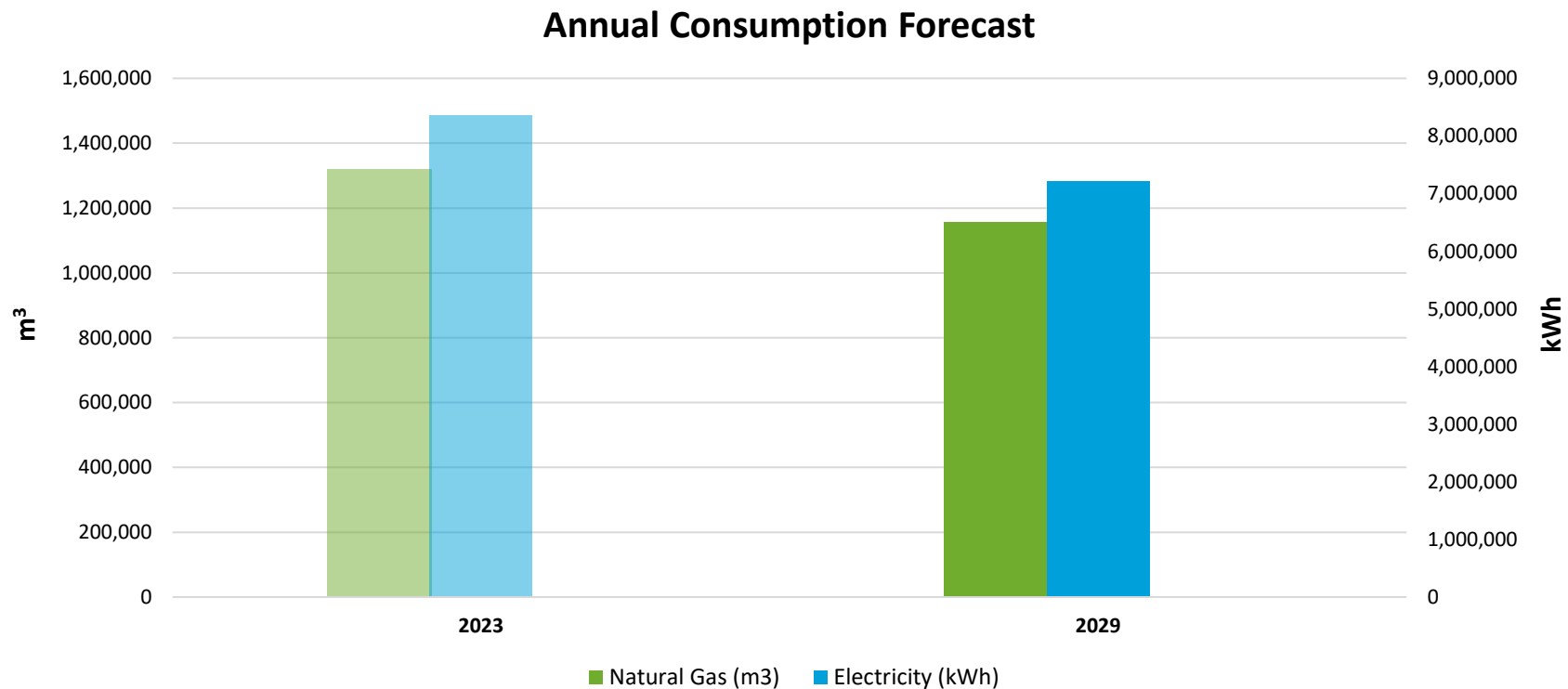


Figure 15. Forecast of Annual Utility Consumption for the Queensway Health Centre

	2029	
	Units	% Reduction
Natural Gas (m ³)	1,157,102	12%
Electricity (kWh)	7,212,145	14%

Table 20. Forecast of Annual Utility Consumption for the Queensway Health Centre



4.3.5. GHG Emissions Forecast

The forecasted greenhouse gas emissions 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 2023.

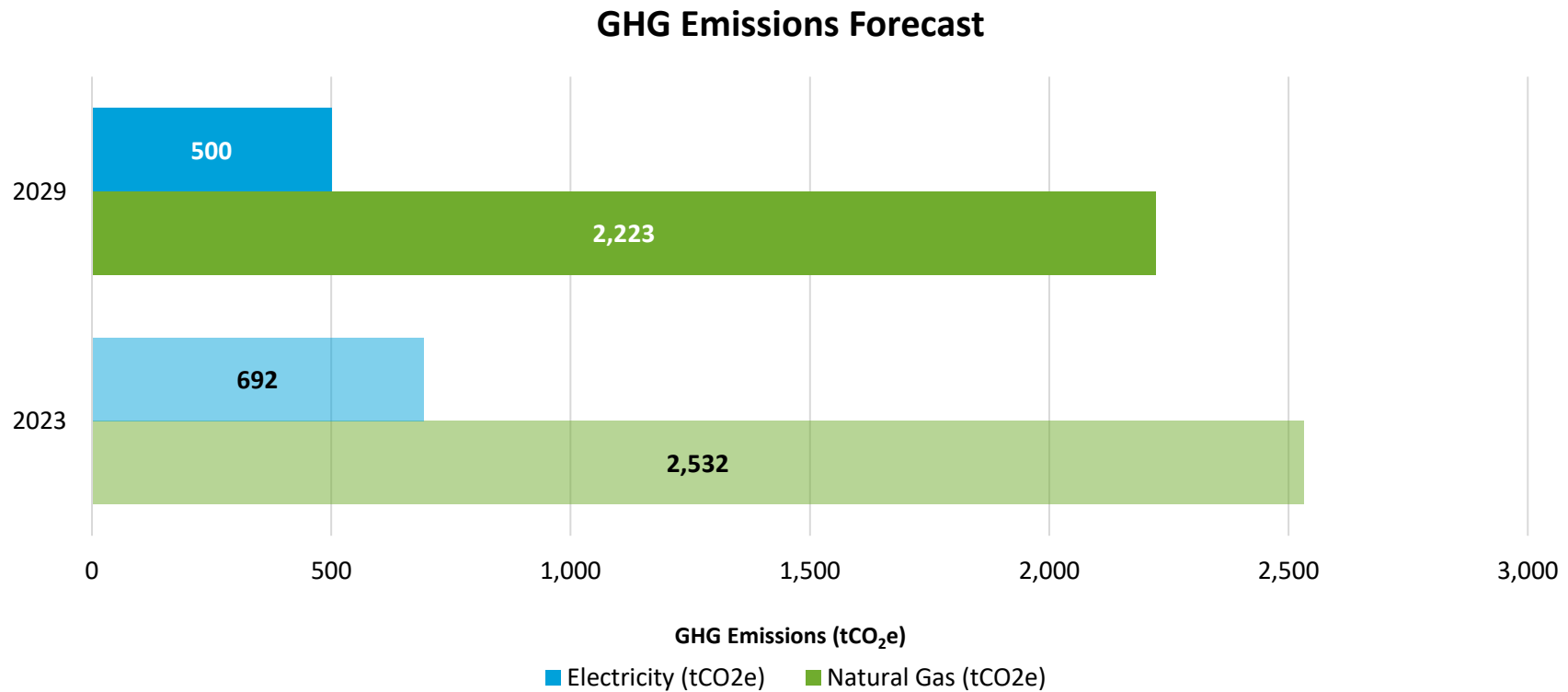


Figure 16. Forecast of Annual Greenhouse Gas Emissions for the Queensway Health Centre

Utility Source (tCO ₂ e)	2029
Natural Gas (Scope 1)	2,223
Electricity (Scope 2)	500
Totals	2,723
Reduction from Baseline Year	16%

Table 21. Forecast of Annual Greenhouse Gas Emissions for the Queensway Health Centre



5. Site Outlook

5.1. Site-Wide Utility Consumption

By implementing the energy conservation measures stated in the previous sections, in each respective site, Trillium Health Partners' site-wide projected electricity and natural gas use could be forecasted based on the utility savings generated from individual measures. The site-wide forecasted utility consumption is tabulated below. The percentage of change is based on the data from the baseline year of 2023.

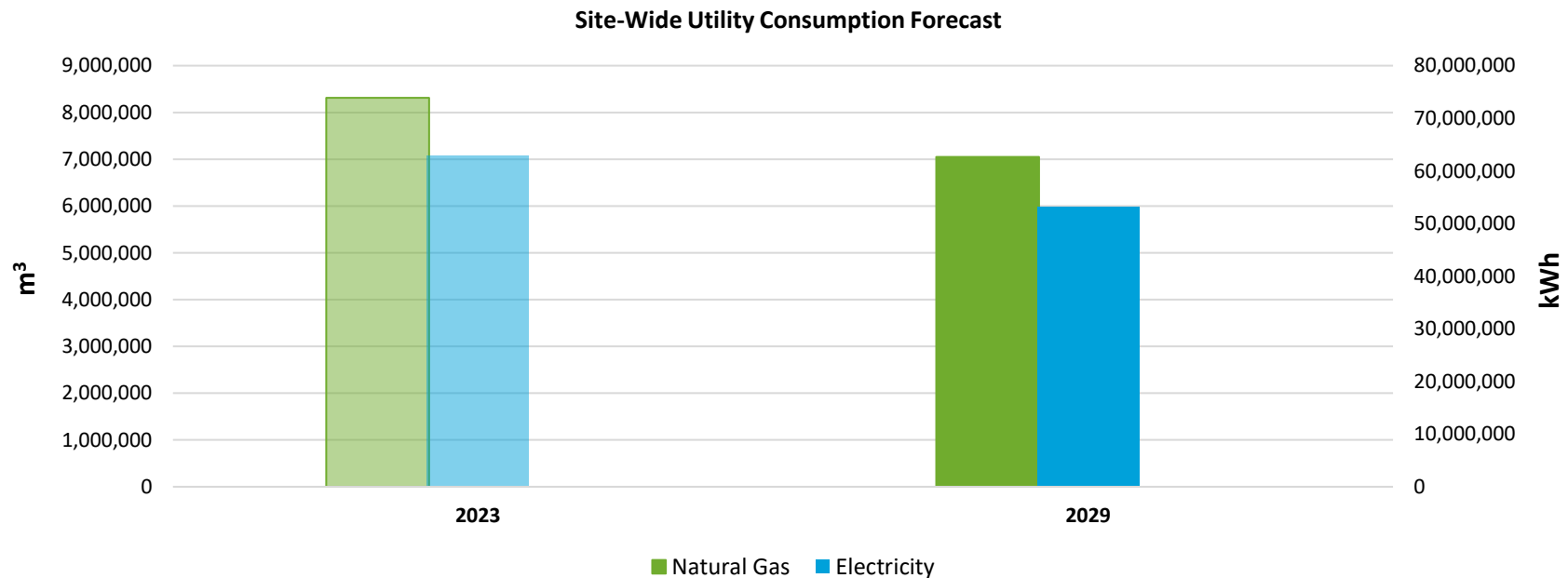


Figure 17. Forecast of Annual Utility Consumption for all Sites

Fuel	2029	
	Units	% Change
Natural Gas (m ³)	7,049,797	15%
Electricity (kWh)	53,199,362	15%

Table 22. Forecast of Annual Utility Consumption for all Sites



5.2. Site-Wide GHG Emissions

The organizational greenhouse gas emissions are calculated based on the forecasted site-wide energy consumption data analyzed in the previous section and are tabulated in the following table. The percent of reduction is based on the data from the baseline year of 2023.

Site-Wide GHG Emissions Forecast

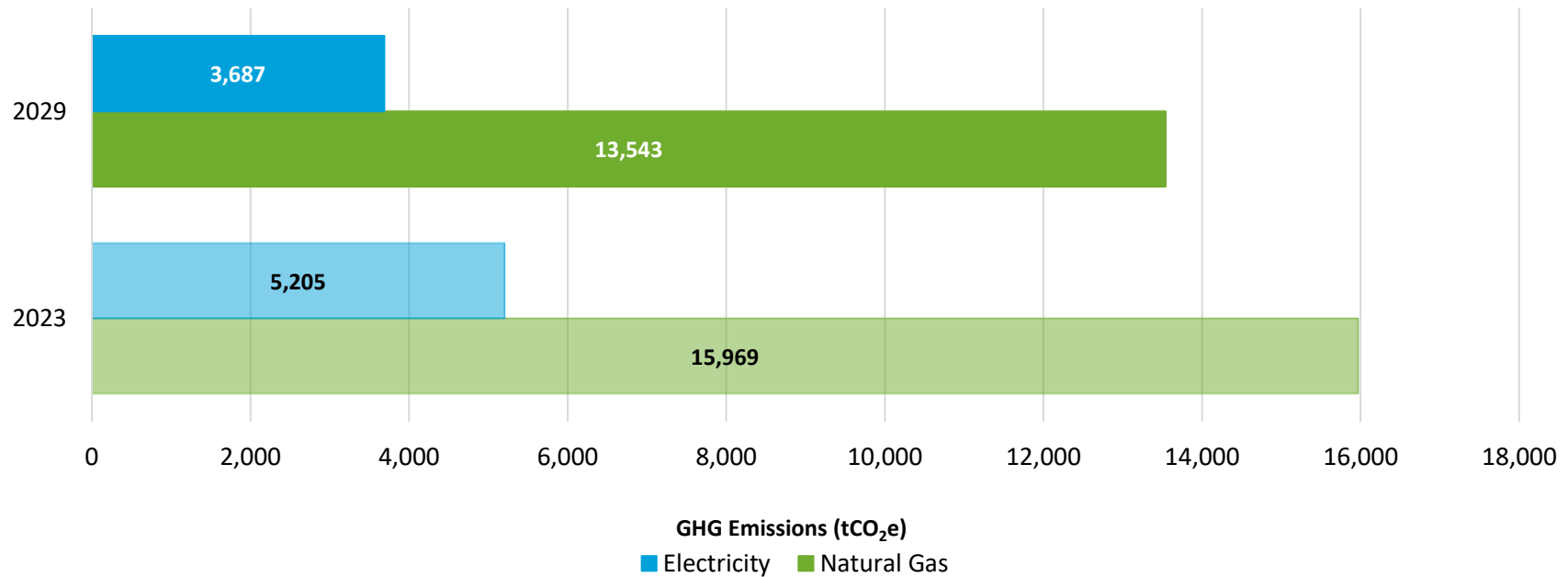


Figure 18. Forecast of Annual Greenhouse Gas Emissions for all Sites

Utility Source (tCO ₂ e)	2029
Natural Gas (Scope 1)	13,543
Electricity (Scope 2)	3,687
Totals	17,229
Reduction from Baseline Year	19%

Table 23. Forecast of Annual Greenhouse Gas Emissions for all Sites



6. Closing Comments

THP extends its heartfelt appreciation to all those who have contributed to Trillium Health Partner's Energy Conservation & Demand Management Plan. As a vital healthcare facility, THP recognizes its role as a primary source of care within the community. THP's commitment extends beyond medical services; it encompasses environmental stewardship as well.

The cornerstone of THP's relationship lies in the efficient and effective utilization of its facilities. By doing so, THP enhances its capacity to deliver the highest quality healthcare services while minimizing its ecological footprint. On behalf of Trillium Health Partners, we wholeheartedly endorse this Energy Conservation & Demand Management Plan.

Approved By: Paul Soares
Director, Facilities Operations
June 2024

This ECDM plan was created through a collaborative effort between Trillium Health Partners and Blackstone Energy Services



7. Appendix

7.1. 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	CO ₂	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 relative to a buildings physical size typically measured in square feet.
Equivalent Carbon Dioxide	CO ₂ e	CO ₂ e provides a common means of measurement when comparing different greenhouse gases.
GHG Protocol		GHG Protocol refers to the recognized international standards used in the measurement and quantification of 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.



7.2. List of Pictures, Tables and Figures

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