

North Bay Regional
Health Centre



Centre régional
de santé de North Bay

ENERGY CONSERVATION AND DEMAND MANAGEMENT (CDM) PLAN



2019-2024



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Introduction

The purpose of North Bay Regional Health Centre's (NBRHC) Energy Conservation and Demand Management (CDM) plan is to promote good stewardship of our environment and community resources.

In keeping with our core values of **accountability** and **excellence**, NBRHC's Energy Conservation and Demand Management program will aim to reduce overall energy consumption, operating costs, and greenhouse gas emissions. It will also enable us to provide **innovative** patient-centered care to a greater number of persons in our community, with a focus on **compassion**. The plan will also meet the requirements outlined in sections 4, 5, and 6 of the Ontario Regulation 507/18 Broader Public Sector: Energy Reporting & Conservation & Demand Management Plans under Electricity Act, 1998.

The Ontario Regulation 507/18 can be found here:

<https://www.ontario.ca/laws/regulation/r18507>

Our Mission:

"Partnering in care, we restore and maintain health for mind and body"

Our Vision:

"Working with you to be the best in health care"

Our Values:

"iCare: Innovation, Compassion, Accountability, Respect, Excellence"



Energy Matters

The North Bay Regional Health Centre has partnered with Johnson Controls and BGIS which act as the FM Service Provider for the facility. Over the last two years, NBRHC recorded the following improvements as a result of optimizing the energy systems, as shown in Table 1.

- 1.7% reduction in energy use
- **\$69,017** saved from decreased energy consumption
- **368,951 kWh** decrease in electricity consumption
- **117,702 m³** decrease in gas consumption
- **251 tonne** reduction in carbon dioxide equivalent (tCO₂e) emissions

Table 1: Energy, Cost, and GHG Reductions over the Last Two Years:

Fiscal Year (April to March)	Gross Electricity		Purchased Natural Gas		Energy Use [ekWh]	Total Cost of Electricity & Gas [\$]	GHGs		
	Consumption [kWh]	Costs with Taxes [\$]	Consumption [m ³]	Costs with Taxes [\$]**			Electricity CO ₂ [tons]	Natural Gas CO ₂ [tons]	Total CO ₂ [tons]
Y_7 2016-2017	24,378,708	\$ 1,988,198	6,488,662	\$ 1,950,923	92,311,397	\$ 3,939,121	1,950	12,192	14,142
Y_8 2017-2018	24,161,248	\$ 1,213,640	6,418,607	\$ 2,049,179	91,360,503	\$ 3,262,819	1,933	12,061	13,993
Y_9 2018-2019	24,009,757	\$ 899,829	6,370,960	\$ 1,752,217	90,710,170	\$ 2,652,046	1,921	11,971	13,892
Annual Reductions									
Y_8 2017-2018	217,460	\$ 774,558	70,055	\$ (98,256)	1.0%	\$ 676,302	17	132	149
Y_9 2018-2019	151,491	\$ 313,811	47,647	\$ 296,962	0.7%	\$ 610,773	12	90	102
Total Reductions	368,951	\$ 1,088,369	117,702	\$ 198,706	1.7%	\$ 1,287,075	30	221	251

NBRHC is entering operational year 10. The energy & GHG performance parameters of the fiscal year 9, April 1, 2018 to March 31, 2019 were as follows as depicted in Table 2:

- Annual energy spend on electricity and gas were **\$2,652,046**.
- The Hospital's Energy Use Index (EUI) was **126 ekWh/ft²**, factoring in the gas used for cogeneration plant.
- Energy related GHG emissions were **13,892 tCO₂e**, based on emission factors of 2013 from Environment Canada.

Table 2: Energy Spend and GHGs for Operating Year 9, 2018-19:

Fiscal Year (April to March)	Electricity				Purchased Natural Gas		Total Cost of Electricity & Gas [\$]	Energy Use Index ekWh/ft ² /year	GHGs		
	Purchased [kWh] *	Gross In House Cogeneration [kWh]	Total Gross Facility Consumption [kWh]	Costs with Taxes [\$]	Consumption [m ³]	Costs with Taxes [\$]**			Electricity CO ₂ [tons]	Natural Gas CO ₂ [tons]	Total CO ₂ [tons]
Y_9 2018-2019	12,353,884	11,655,873	24,009,757	\$ 899,829	6,370,960	\$ 1,752,217	\$ 2,652,046	126.0	1,921	11,971	13,892



NBRHC Facilities covered by this CDM plan

Under O'Reg. 507/18, NBRHC is obligated to report energy data for facilities used for hospital purposes and for which we are invoiced and pay the utility. Please note that NBRHC's Kirkwood Place facility located at 680 Kirkwood Drive in Sudbury, Ontario, is reported by Health Sciences North at <http://www.hsnsudbury.ca>

North Bay Regional Health Centre, 50 College Drive (Main Campus)

The North Bay Regional Health Centre, is a joint redevelopment project between the former North Bay General Hospital and the former Northeast Mental Health Centre. The North Bay Regional Health Centre provides residents of Northeastern Ontario with state-of-the-art acute and mental health care close to home. This campus is our largest consumer of energy.

The facility offers both a state-of-the-art acute care hospital and a modern, long-term mental health facility. The acute care component of the facility is a 53,353 m², four-story, concrete structure including a penthouse level. It accommodates 275 beds, as well as support services.

The mental health facility component is a 13,970 m², two-story, steel and wood structure with penthouses in the pitched roof structures. It accommodates 113 specialized and forensic mental health beds, associated outpatient services, a client services mall, a gymnasium, workshops, and psychiatric offices. Construction was completed in June 2010.

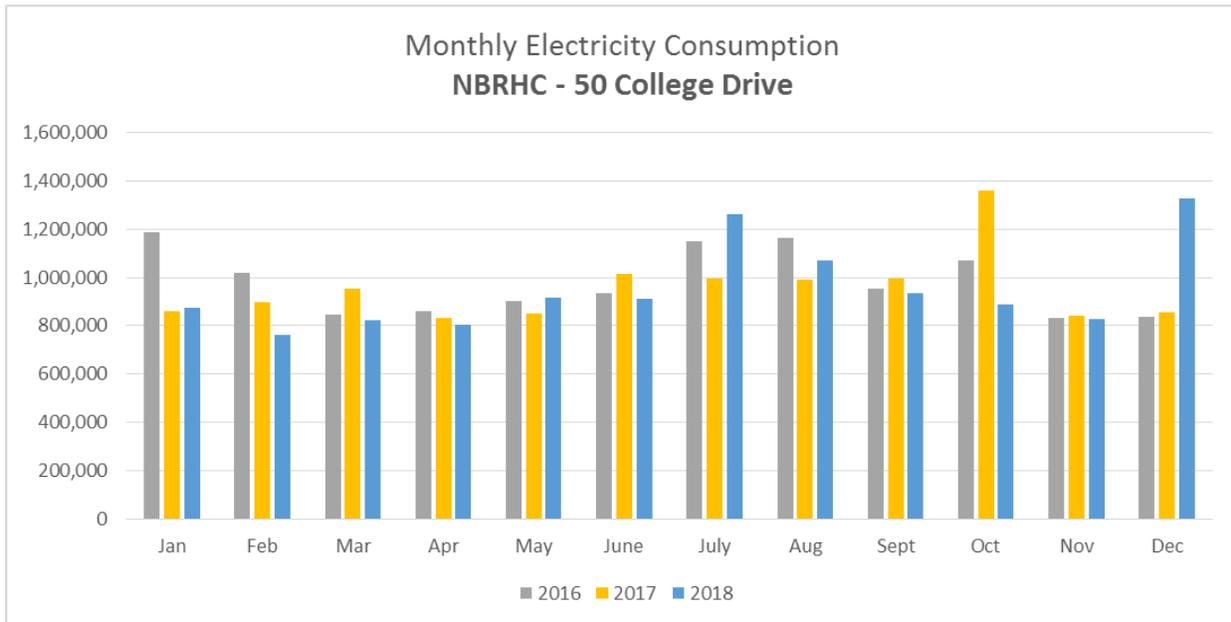
The building has been designed and constructed to achieve LEED® certification.

Plenary Health partnered with the North Bay Regional Health Centre and Infrastructure Ontario to build, finance and maintain our new facility for 30 years. Under the terms of our project agreement with Plenary Health, we jointly engage an Energy Surveyor to complete an energy analysis, set energy benchmarks and to identify opportunities for energy conservation and demand management.

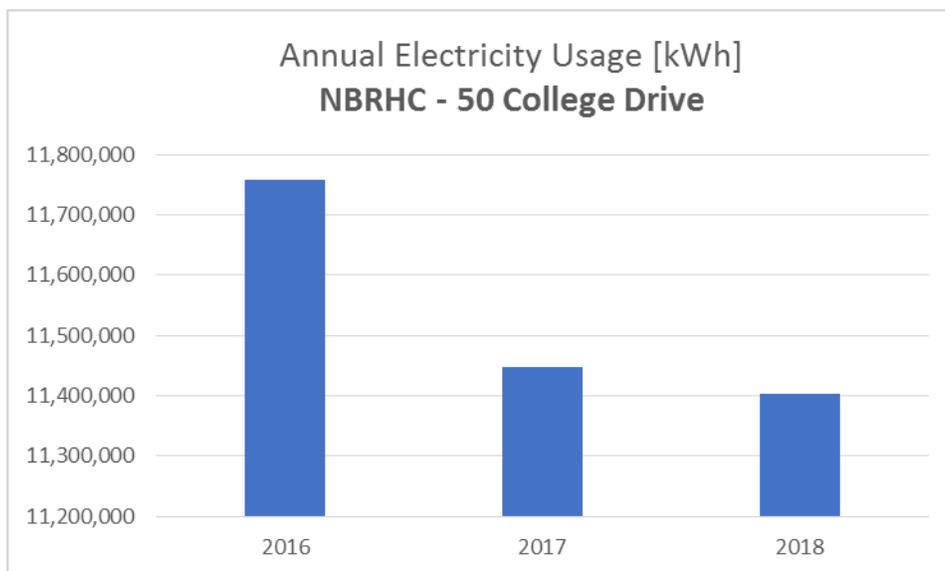




Monthly Electricity Consumption, 50 College Drive (Main Campus)



Annual Electricity Usage, 50 College Drive (Main Campus)





[Nipissing Detoxification and Substance Abuse Program, 120 King Street West](#)

NDSAP is a 21-day residential treatment program for individuals 16 years or over experiencing substance abuse/use issues or concerns. Treatment includes counselling/therapy, as well as psycho-social education and life-skills training. In addition to the scheduled program activities, service recipients have 24-hour on-site access to support and the residential treatment. Some programs may also provide medical, nursing or psychiatric support. The Program occupies 2,185 m² at the King Street facility, and provides 29 residential beds and 2 crisis beds.

[Out Patient Mental Health Clinic, 120 King Street West](#)

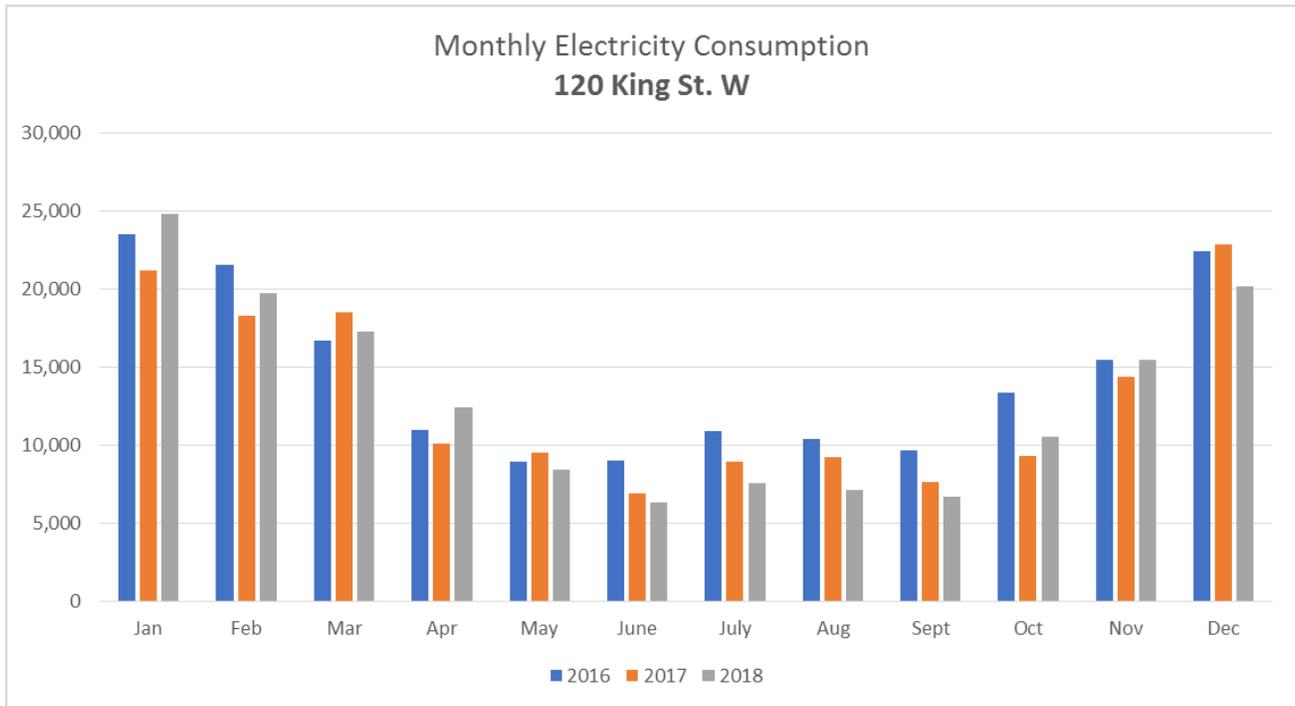
The Outpatient Mental Health Clinic, a community based program of the Mental Health & Addictions Services of the North Bay Regional Health Centre, provides services to individuals 16 years of age and older who reside within the district of Nipissing, including providing community mental health treatment to seriously mentally ill patients within a hospital setting. Using a patient centered, collaborative approach to care, the Outpatient Mental Health Clinic promotes the active participation of individuals in their own recovery. Services are provided Monday thru Friday by a professional health care team. Services include continuing care/health care monitoring, individual and group therapy with CBT applied approach, psychotherapy, early intervention in psychosis, eating disorders and concurrent disorders. The 3-storey, 870 m² facility was occupied by the existing NBRHC-sponsored Programs in July 2011.

NBRHC leases 120 King Street from 2251304 Ontario Inc.

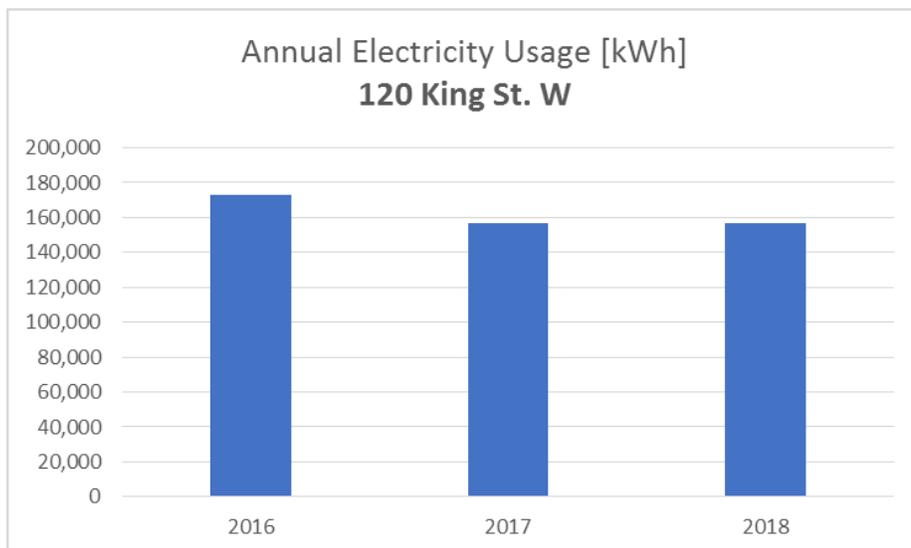




Monthly Electricity Consumption, 120 King St. W



Annual Electricity Consumption, 120 King St. W





Regional Outreach Services, 1164 Devonshire Avenue

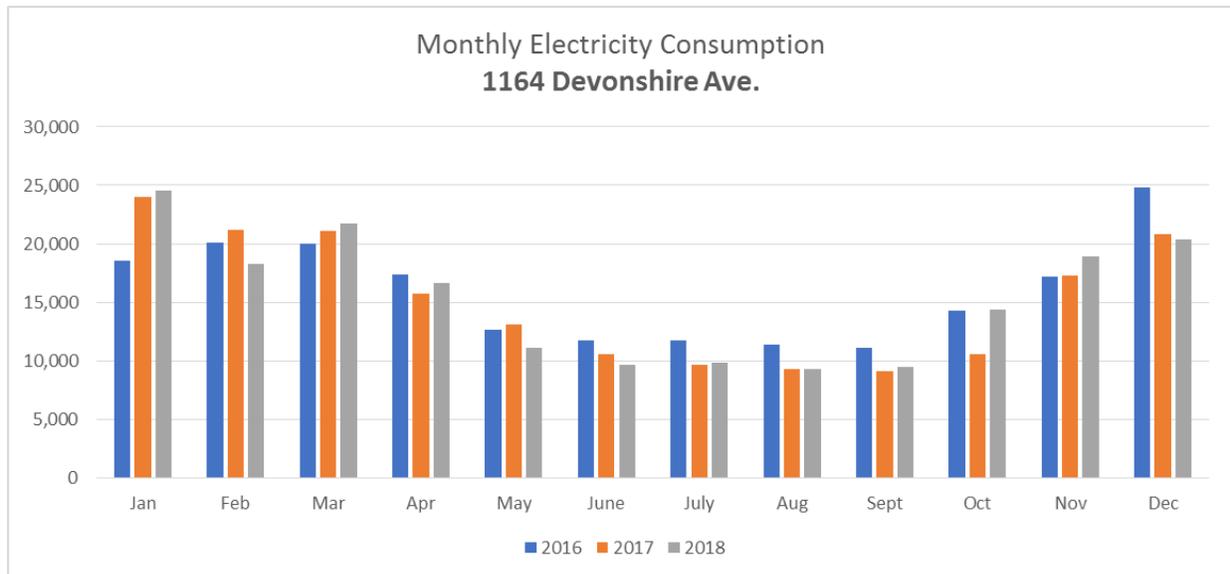
Regional Outreach Services (ROS) is comprised of a number of outreach services which provide an array of support to individuals living across Northeastern Ontario who experience severe and persistent mental illness. This specialized tertiary mental health outreach care is guided by recovery principles and founded in clinical best practices. ROS works in collaboration with local community mental health agencies providing support to individuals, families, professionals, and para-professionals. In addition, this facility houses NBRHC's Diabetes Program. The 1,230 m² facility was occupied by the existing NBRHC-sponsored Programs in July 2011.

NBRHC leases 1164 Devonshire from 1477779 Ontario Inc.

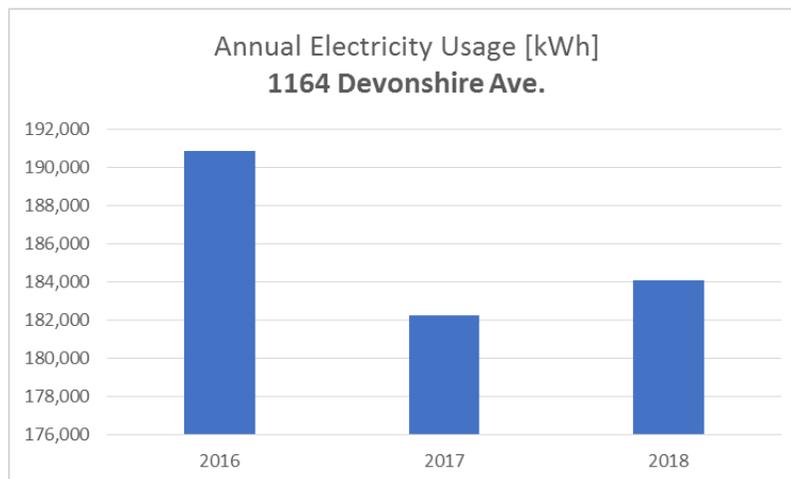




Monthly Electricity Consumption, 1164 Devonshire Avenue



Annual Electricity Consumption, 1164 Devonshire Avenue





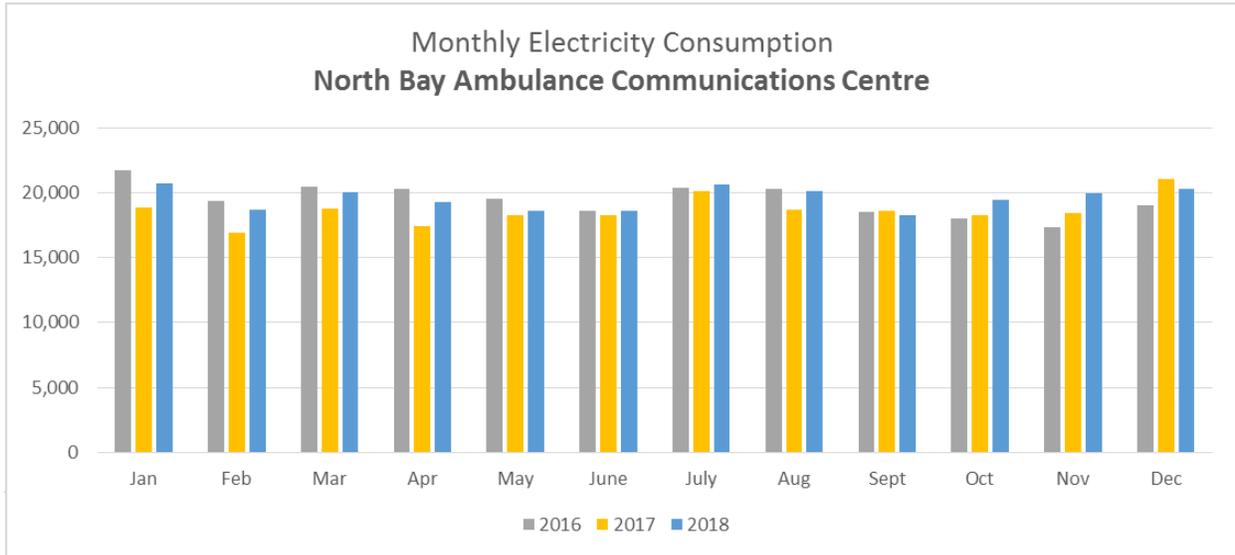
North Bay Central Ambulance Communications Centre, 43 Ferris Drive

The North Bay Ambulance Communications Centre (CACC) provides emergency medical communications services twenty four hours a day, seven days a week for an area of approximately 60,000 square kilometers. This area includes the Districts of Nipissing, Parry Sound and Temiskaming, which encompasses ambulance services in the communities of North Bay, Mattawa, Temagami, West Nipissing, Powassan, South River, Port Loring, Temiskaming Shores, Englehart, and Kirkland Lake.

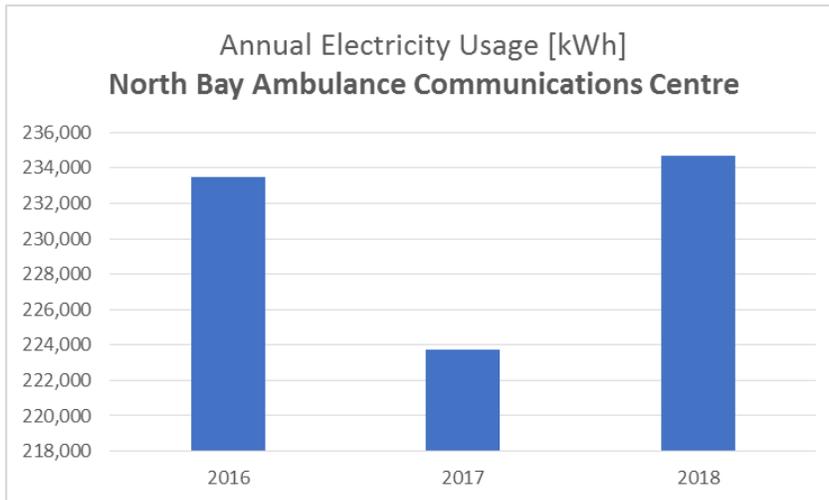




Monthly Electricity Consumption, 43 Ferris Drive



Annual Electricity Consumption, 43 Ferris Drive





Results of Previous Measures from CDM Plan July 2014

In July 2014, North Bay Regional Health Centre with guidance and assistance from Johnson Controls developed goals and devised green initiatives in an effort to decrease the facilities annual energy consumption and resulting greenhouse gas emissions. The following activities, completed between 2014 and 2019, are associated with managing overall energy consumption, lowering annual operating costs, and reducing greenhouse gas emissions. These activities may, or may not, have been included in North Bay Regional Health Centre's 2014 CDM plan and include the following:

1. NBRHC published an Energy Management Policy.
 - Highlights of this policy are:
 - Procure and use Energy Star rated appliances where possible.
 - Prohibiting the use of kitchen appliances in unauthorized areas approved by NBHRC's Facilities Team.
 - Prohibiting the use of space heaters, lamps, fans, and extension cords.
2. Implementation of auto-hibernate feature on all computers.
3. Johnson Controls reprogrammed air handler heat wheels to work more efficiently:
 - Heating less glycol and adjusting calibration settings to save electricity and gas.
4. Johnson Controls change obsolete/burnt lighting to LED where possible:
 - East Main Entrance lighting.
 - Spot lights in front of elevators and entrances to patient pods.
 - Track lighting in common spaces.
 - Can lights and wall sconces in patient lodges.
 - Exterior canopy lights at East & West entrances.
 - Exterior wall packs outside of cafeteria.
5. Where a renovation or facility upgrade takes place, NBRHC takes the opportunity to convert original lighting to LED. Projects include:
 - A1/B1 Comfort Room.
 - CT Scan Room 2.
 - Retail Pharmacy.
 - Safe Over-Bed Lights in Child Adolescent Mental Health.
 - Interior Hummingbird Lodge.



6. Johnson Controls replaced two recovery heat wheels for optimal energy use on Air Handlers 22 and 24.
7. NBRHC installed two hot water booster pumps in the East Main Penthouse. The system circulates hot water used for heat to the West End of the facility faster. Results include, increased heating for the west end, and less reheating of recirculated water.
8. With Johnson Controls, NBRHC publishes educational posts for staff on NBRHC's blog Main Street News. Topics include: turning off lights in unoccupied spaces, use of space heaters, and use of appliances in unauthorized areas.
9. During peak conditions for energy consumption, NBRHC and Johnson Controls reduce Variable Frequency Drives to 50% in non-patient areas (Town Centre, gym, East Entrance, Main Street).
10. During the summer months, Johnson Controls and NBRHC reduce hot water boiler set-point from 91 degrees Celsius to 84 degrees Celsius.
11. Johnson Controls and NBRHC change Air Handling Unit set points from 14 degrees Celsius to 16 degrees Celsius. This offsets the cooling load, thus optimizing chiller plant performance.
12. Johnson Controls, with approval from NBRHC shuts down Air Handling Unit 17 for the Auditorium when it is not in use or when outdoor temperatures are high.
13. Johnson Controls, with approval from NBRHC reschedules, where possible, weekly generator testing (required by CSA) during peak energy usage time.
14. North Bay Hydro plans mechanical inspections of the Cogeneration Plant during non-peak energy hours, therefore optimizing the benefits of the Cogeneration Plant.
15. In 2018 NBRHC installed two new Steris Washers in MDRD which consumes 33% less hot water. In addition, the equipment is Energy Star rated.
16. Johnson Controls, with approval from NBRHC increases/decreases temperature set points for unoccupied spaces in facilities (Hummingbird and Cedar Lodge), reducing either cooling or heating.



17. NBRHC's Go Green Committee actively promotes energy conservation through these programs:

- Celebrating Earth Day.
- Posting "Think Green – Turn Lights Off" stickers in public washrooms and conference rooms.

18. Participate in Industrial Conservation Initiative (ICI) with North Bay Hydro:

- Demand response that allows NBRHC to manage their Global Adjustment (GA) costs by reducing electricity demands during peak periods.
- Rather than be charged on a volumetric basis, NBRHC will be charged Global Adjustment based on the percentage contribution to the top five peak demand hours each year.
- By opting to go Class A through the ICI, NBRHC avoided \$244,000 in additional hydro costs in 2018.



Cogeneration Plant



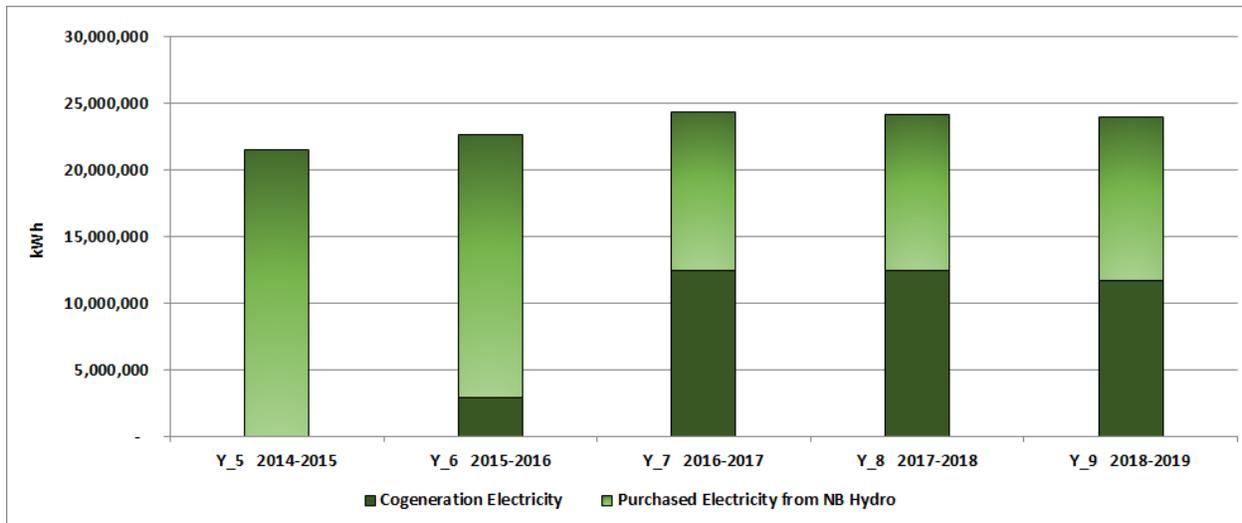
NBRHC has partnered with NB Hydro and installed a 1.5 MW cogeneration plant for in-house electricity and hot water generation. The cogeneration plant started operation in December 2015 and was gradually loaded to almost full capacity to date. This in essence has reduced the purchased electricity cost from NB Hydro and produced partial free heating to the Hospital from one side but increased the gas use by the amount to run the cogeneration plant on the other side, leading to an overall cost reduction of the Hospital energy bill. Considering the pre-cogeneration-installation fiscal year April 1, 2014 to March 31st, 2015 (operational year 5), as the baseline, NBRHC has achieved an accumulated cost avoidance of **\$2,826,118** over the last 4 years, from operational years 6 to 9, as shown in Table 1 below.

Table 1: Cost Avoidance Benefits Related to Installing In-house Cogeneration Plant:

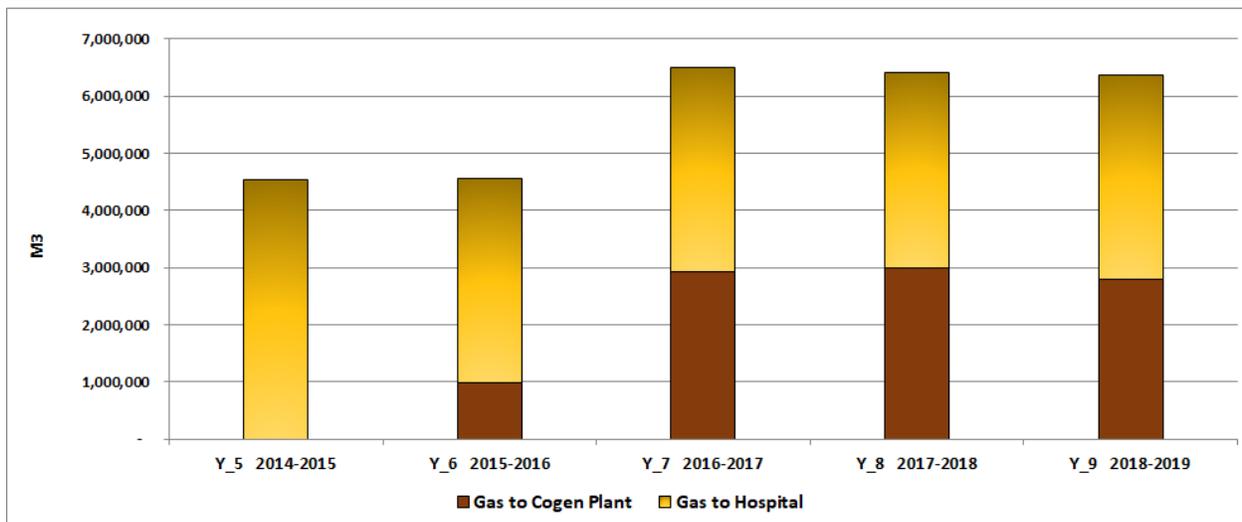
Fiscal Year (April to March)	Costs with Taxes [\$]	Costs with Taxes [\$]**	Total Cost of Electricity & Gas [\$]	Cost Avoidance [\$]
Y_5 2014-2015	\$ 2,638,639	\$ 1,578,021	\$ 4,216,660	
Y_6 2015-2016	\$ 2,897,949	\$ 1,288,588	\$ 4,186,536	\$ 30,124
Y_7 2016-2017	\$ 1,988,198	\$ 1,950,923	\$ 3,939,121	\$ 277,539
Y_8 2017-2018	\$ 1,213,640	\$ 2,049,179	\$ 3,262,819	\$ 953,841
Y_9 2018-2019	\$ 899,829	\$ 1,752,217	\$ 2,652,046	\$ 1,564,614
Total				\$ 2,826,118



The Historical Total Electricity Profile Showing the In-house Cogeneration Contribution:



The Historical Natural Gas Profile Showing the Gas Used for In-house Cogeneration Plant:





Energy Management Vision

We consider our facilities a primary source of giving care and an integral part of the healing environment. Key to this equation is the ability to use our facilities efficiently and effectively allowing us to direct more resources toward patient care. Also, by reducing our environmental footprint, we are doing our part to create a healthier environment, something that is essential to the people we serve and helps them to lead healthier lives.

North Bay Regional Health Center (NBRHC) is committed to energy conservation through ongoing evaluation and management of energy usage. Initiatives to identify areas of potential energy reduction and cost savings through Energy Benchmarking and monitoring are in progress. These initiatives will help NBRHC and the Province of Ontario to achieve demand savings and GHG emission reduction targets.

The design of the North Bay Regional Health Centre incorporated the philosophy of LEED® and the facility has been granted LEED® Certification by the USGBC. The design incorporates high efficiency equipment such as fan motors, boilers and lighting. All potential changes and renovations are required to take into consideration the whole impact on operations including possible implications to the building energy performance and longevity of the fixtures and finishes from a durability and lifecycle perspective. This philosophy of striving to minimize our environmental footprint is applied to all of our facilities.





Guiding Principles for Strategic Energy Management

North Bay Regional Health Centre's energy management will be guided by these principles:

Taking a Strategic Approach:

While NBRHC actively manages energy costs by implementing opportunities as they are identified, by acting strategically, NBRHC can significantly improve its energy-related performance. Internalizing energy management into our organization's every-day decision-making, policies, and operating procedures will help assure substantial and long-lasting reductions in energy, operating costs, and environmental impact.

Supporting Mission-Critical Goals:

Strategic energy management will directly support NBRHC's mission-critical goals of caring for the environment and the community, improving the healing and working environment, and improving the hospital's financial bottom line by reducing unnecessary energy costs. It will also serve to optimize the capacity of existing energy systems to meet current and expanding operational needs, while improving the operational resiliency of the organization. The impacts of NBRHC's energy management efforts on those goals will be tracked and reported wherever possible.

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 everyday practices and decision making. It also needs to be an integral part of the 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. Top management at NBRHC will work with Facilities and other key staff to ensure that adequate organizational support and resources are provided to maximize the benefits of energy management to NBRHC's Energy management will also be integrated into the strategic planning and capital budgeting processes.

Using Available Resources and Assistance:

Use of national, regional, and local sources of strategic, technical, and financial assistance to help to achieve the organization's energy management goals. These include utility, municipal, provincial and national government programs. It also includes established best practices through a community of practice approach.



The Business Case for Strategic Energy Management

Below are the central business arguments for North Bay Regional Health Centre'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 energy management, the hospital can provide leadership in promoting sustainable communities, efficient business practices, and environmental stewardship. Faced with a tough market environment that has forced cut backs on hospital support for community activities, 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 environmental control, and better indoor air quality and lighting. In new facilities more daylight and personal control of comfort contribute to a healing and patient-focused environment, for an improved environment of care. For instance, recent research has found that natural light eases surgical pain and contributes to substantial savings in pharmacy costs.

Improved Financial Health and Operating Cost Reduction

Strategic energy management presents a highly leveraged opportunity to reduce operating costs and positively impact North Bay Regional Health Centre's bottom line. Dollars of operating cost savings directly improve the operating margin. 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 reliably than savings or revenue increases expected from more variable investments.

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.



Energy Management Goals 2019 - 2024

Future Energy Overlook

North Bay Regional Health Centre's Energy Use Index has increased from the baseline value of **95.7 ekWh/ft²/yr** in Year 5 (2014-2015) to **126 ekWh/ft²/yr** in Year 9 (2018-19) due to factoring in the gas used for cogeneration plant. NBRHC is committed to energy efficiency and GHG reduction.

NBRHC is planning to reduce the energy use over the coming 5 years and contemplating implementing an effective energy efficiency project. To this end, NBRHC tasked Johnson Controls to conduct a preliminary energy audit to find out the low hanging fruits of energy savings measures that include room control optimization, lighting retrofit to LED, and chiller plant optimization. The preliminary feasibility study and measures are summarized in Table 4 below, yielding a project payback of 4.5 years.

Fiscal Year (April to March)	Electricity Savings		Gas Savings		Operational Savings [\$]	Total Savings [\$]	Project Cost [\$]	Project Payback [yr]	GHGs Reduction		
	[kWh]	[\$/yr]	[m ³]	[\$/yr]					Electricity CO ₂ [tons]	Natural Gas CO ₂ [tons]	Total CO ₂ [tons]
Room control optimization	3,000,000	\$ 218,513	273,534	\$ 75,231	\$ -	\$ 293,744	\$ 1,174,975	4.0	240	513.97	754
Lighting retrofit to LED	1,300,000	\$ 94,689	(8,170)	\$ (2,247)	\$ 41,000	\$ 133,442	\$ 680,555	5.1	104	(15)	89
Chiller plant optimization	500,000	\$ 36,419	-	\$ -	\$ -	\$ 36,419	\$ 218,513	6.0	40	-	40
Total	4,800,000	\$ 349,621	265,364	\$ 72,984	\$ 41,000	\$ 463,605	\$ 2,074,043	4.5	384	499	883

Table 4: Potential Energy Savings and GHGs Reduction from the Planned Energy Efficiency Project:

The above potential savings will be verified and revised via a detailed investment grade feasibility study and NBRHC will consider the various investment financing options to move to next steps.

The potential project benefits are summarized below:

- 20% Reduction in Electricity use.
- 4% Reduction in gas use.
- \$422,605 Reduction in energy bill.
- Additional O&M saving of \$41,000.
- Combined \$463,605 reduction in operating costs.
- 4.8 Million kWh decrease in electricity consumption.
- 265,364 m³ decrease in gas consumption of gas.
- 7.5 million ekWh reduction in energy use.
- 883 tonne emissions' reduction in carbon dioxide equivalent (tCO₂e).



The following are proposed measures for North Bay Regional Health Centre to implement:

Goal: Energy Conservation and Demand Management Plan Approval

1. Executive approval and resources (Senior Leadership and Board of Directors).
2. Support from key staff (Finance, Purchasing, Facilities, Plenary, Johnson Controls, and Owners of leased properties).
3. Creation of mechanisms/processes to make resources available.
4. Clarification and communication of staff roles and responsibilities, performance goals, and energy management reporting.

Goal: Implement Financial Practices and Decision-Making Processes

1. Ensure energy management projects are captured and managed through the Capital Plan.
2. Focus will be placed on Capital Projects that reduce energy consumption.
3. Examine energy management projects on a micro scale and commit to performing realistic energy initiatives each fiscal.
4. Decisions about energy management will be embedded in Facility Operations and discussed at quarterly Utility Management Meetings with External Partners.

Goal: Implement Strategic Energy Management Practices

Establish Purchasing Specifications for Energy Efficient Equipment & Services

1. Establish and consistently use purchasing specifications that minimize life-cycle costs for energy efficient equipment and services.
2. With Facilities Management team, establish efficiency specifications for standard equipment routinely replaced (e.g. lights, motors, and unitary HVAC equipment).
3. With Facilities Management team, establish efficiency guidelines that apply life cycle cost analysis for custom equipment purchases (e.g. chillers).
4. With Facilities Management team, establish efficiency standards for design and construction, and for building operations and maintenance services.

Improve Building Operating Performance

1. Equipment tune-up and improved operations and maintenance (O&M) will achieve the following results while supporting patient care, and facility comfort and safety.



- Working within CSA Z-317, investigate Air Handling Unit CFM reductions for the Facility.
- Ensure proper use of user overrides on Building Automation System.
- Ensure preventative maintenance for all equipment (HVAC, Boilers, and Chillers) are performed to optimize equipment performance.

Implement Cost-Effective Facility Upgrades

1. Implement equipment and system upgrades where justified by life-cycle cost analysis.
2. Expand use of qualified service providers as needed. Develop standard RFP documents, contract terms, and reporting standards.
3. Under life cycle, Johnson Controls to replace control systems for steam boiler in 2019. Energy savings will be seen.
4. Under life cycle, Johnson Controls to fully replace two boilers with energy efficient boilers in 2019. Energy savings will be seen.
5. Under life cycle, Johnson Controls will perform a thermographic roof scan of 50 College Drive in 2021. The scan looks at areas of the roof which may have heat loss so repairs can be planned.
6. Under life cycle, Johnson Controls will upgrade the GE Lighting Control System in 2020. Upgrading relays and lighting control sensors will have an energy saving impact.
7. Under life cycle, Johnson Controls replace exterior windows and doors which have broken seals/gaps.
8. Install occupancy sensors to control lighting in corridors, offices and washrooms.
9. Replace existing interior lamps with LED technology.
10. Replace existing exterior lighting with LED technology.
11. Install telemetry metering for natural gas to be eligible for Rate 20/25 billing.
12. Install insulating jackets:
 - Insulating jackets on all steam traps will achieve savings by reducing heat loss.
13. Reprogram AHU 17 (Auditorium) to automatically shut down every Friday afternoon and turn on every Monday morning. The auditorium is not in use on weekends.
14. Reverse Osmosis Water:
 - Investigate opportunities to reduce the amount RO water that is sent to drain.
 - Explore engineered designs to save/recycle wasted water.



Actively Manage Energy Commodity

1. Minimize utility costs and exposure to market risks. Utility costs include natural gas, electricity, water and sewer (using forward contracts).
2. Participate in the energy/utility regulatory process.
3. Voluntarily participate in Output-Based Pricing System (OBPS):
 - Under OBPS, NBRHC will have a specific annual emissions limit which is based on the relevant output-based standard for the product it produces and its level of production.
 - NBRHC will be subject to a carbon charge on the portion of emissions that exceed annual output based emissions limit.
 - NBRHC qualifies under 10,000 eTCO₂ category. Operational savings may be achieved based on the proposed methodology of peer comparison to the intuitional baseline with CHP present.
4. Utilize Emergency Generators for peak shaving:
 - Look at opportunities to bring online and utilize natural gas instead of diesel generators to reduce Global Adjustment Charges.
 - Current electrical rate structure prohibits using diesel generators to offset peak demand.
5. Rate Switching for Gas:
 - Currently at Rate 10 with Natural Gas, look at opportunities to switch rate to R20 or R25 (or blend of the two).
 - By NBRHC switching gas rates, there will be operational savings.
 - NBRHC will have to invest Capital funds for telemetry monitoring.

Goal: Monitor, Track, and Spread Awareness

1. Track progress on the CDM plan.
2. Track energy reductions quarterly through Utilities Management Subcommittee.
3. Continue annual energy audit reporting with Johnson Controls.
4. Continue to engage staff and community partners about energy saving initiatives.



Closing Comments

We consider our facility a primary source of giving 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 North Bay Regional Health Centre, we approve this Conservation & Demand Management Plan.

Paul Heinrich
President & CEO