



The Corporation of the Town of Moosonee



Energy Conservation & Demand Management Plan

Ontario Regulation 507/18

5 Year Plan - 2019



Energy Conservation & Demand Management Plan

The Corporation of the Town of Moosonee is committed to allocating the necessary resources to develop and implement an energy conservation and demand management plan that will reduce our energy consumption where possible, and improve the related environmental impact.

Purpose & Commitment

The Ontario government's Green Energy and Green Economy Act requires all Broader Public Sector organizations to prepare energy conservation and demand management plans. This planning requirement results in the need to enhance current practices and develop new approaches to energy conservation and demand management within the municipality. To meet this need the Town of Moosonee will design a comprehensive program for collecting and analyzing monthly energy billing information, and ensuring staff is informed about energy consumption. This effort will produce an energy costs and consumption database that will be used for monitoring variations, targeting facility follow-up evaluations, and highlighting areas that could be candidates for improved conservation. These monitoring enhancements will improve the Town's understanding of energy consumption and will impact energy management.

Vision

The Town of Moosonee will continue to reduce energy consumption where possible, while maintaining an efficient and effective level of service to our residents. We will increase education, awareness, and understanding of energy management with the corporation. This vision can be achieved through facility infrastructure improvements, operational efficiencies, and building awareness and knowledge within the corporation. At the organizational level, commitment from Council and Management will ensure the Energy Plan is implemented and improvements are made annually.

Background

The Town of Moosonee continues to face rising costs to maintain and repair aging infrastructure, to deliver core services to the community and to obtain the necessary energy to power our facilities and fleet of vehicles. The generation and use of energy also contributes to climate change through greenhouse gas (GHG) emissions. The development of a comprehensive energy conservation and management plan will



ensure that energy conservation and efficiency is a key consideration in the Town's facility rehabilitation plans. The implementation of conservation measures will reduce municipal GHG emissions and to the extent possible, may reduce energy costs for Town-owned facilities through decreased energy consumption. Measures such as lighting retrofits may result in short payback periods of less than ten years. Longer payback periods may be experienced for larger capital investment items such as HVAC improvements (heating, ventilation & air conditioning). The success of the energy management program can only be determined through the measurement of consumption savings. The measurement of cost savings is not an accurate reflection of improvements, as rates to purchase energy are always increasing (at a much higher rate in the north), and rates are established by suppliers.

The implementation of an energy tracking tool can help the corporation monitor progress, provide constant and consistent reports to provide opportunities for efficiencies in facility operations, identify successful retrofits that can be replicated in other facilities, highlight problem areas or facilities, as well as track and report on greenhouse gas emissions. In order to sustain a corporate culture of conservation, staff must be engaged in an effective awareness and education program. Although managers have the lead responsibility in ensuring Town facilities operate efficiently, all town staff should be familiar with and utilize energy efficient measures where possible.

The issue of an adequate and reliable supply of electricity to the Town of Moosonee and our area in general, continues to be a concern, and our community is occasionally impacted by the excessive demand during extreme weather events experienced elsewhere in the province, over the past several years. Energy conservation and demand management (reducing energy usage during periods of peak demand) are important measures to help safeguard against an already strained transmission system and to reduce pressure on peaking generating stations.

Goals & Objectives

The Town of Moosonee's Energy Conservation & Demand Management Plan was established to help achieve the following goals:

- Maximize fiscal resources through direct and indirect energy savings
- Reduce the environmental impact of the Town's operations
- Increase the comfort and safety of staff and patrons of Town-owned facilities
- Improve the reliability of Town equipment and reduce maintenance.



The primary objective of this plan is to improve the management of the Town’s energy consumption. Part of this objective is setting a conservation target that will see the Town of Moosonee reduce its overall energy consumption by 5% by the end of 2024 (compared to 2017 consumption rates). In the event scarce capital dollars are allocated to physical infrastructure energy improvements or grants are received to undertake improvements, efficiencies and savings may be higher, but without infrastructure improvements the municipality will be relying on small changes to reduce energy consumption. It is also the objective of this plan to improve the Town’s understanding of energy consumption which is essential for the Town to meet its corporate energy management goals.

Proposed Measures & Overall Targets

The Town of Moosonee’s Energy Conservation & Demand Management Plan will help achieve the following targets:

- To continue completing energy audits on all municipal facilities during the next five years;
- To reduce total energy consumption in municipal facilities, under normalized to weather conditions, by about 1% per year over the next five years

The forecasted cost savings for consumption savings achieved are difficult to estimate. The municipality’s reliance upon third party energy provision, and the ever increasing cost of these services – often at significantly higher rates than inflation – make it difficult to achieve actual cost savings. We do not anticipate that these proposed measures will result in financial savings, but we will work towards a reduction in energy consumption and the resulting Greenhouse Gas emissions.

Renewable Energy Utilized or Planned

The Town of Moosonee will consider the development of renewable energy systems that are compatible with our asset management and land use planning objectives. As a result, we will investigate the potential to utilize renewable energy systems as facilities are improved during their useful life or replaced.

The municipality does not currently harness ground source energy, solar energy, heat pump technology, or thermal water technology. To the extent possible, renewable energy options will be explored when the municipality designs and/or acquires new buildings, property, vehicles and/or equipment.



Resources Planning

The Town of Moosonee has designated that each Manager is responsible for energy management and planning processes, with respect to the assets under their department. This includes facilities/buildings, properties/land, vehicles and equipment. Managers are responsible for reporting annual consumption and the actions taken to improve energy conservation & consumption for their departments. This information is provided to the CAO, for final reporting and presentation to municipal Council.

As an integral component of resource planning, the energy management plan is coordinated with the municipality's budget planning process, preventative maintenance plans, and the overall asset management plan. Managers are encouraged to will incorporate energy efficiency into standard operating procedures and the knowledge requirements for operational jobs, wherever possible.

Plan Execution

The administration and implementation of this plan will be responsibility of the Management Team, and indirectly, all municipal employees. Municipal employees use energy in their daily activities, and it will be responsibility of all Town staff to be aware of their energy use and work towards a culture of conservation. Through staff education, and training on improved standard operating procedures, staff will be able to see the results of their efforts on an annual basis.

The Town of Moosonee's Energy Conservation & Demand Management Plan will be updated and reviewed annually in accordance with Ontario Legislation.

Evaluation

Council & Management will review and evaluate our energy plan, revising and updating it as necessary, on an annual basis within our corporate planning process. We will review our progress towards corporate goals and objectives, and update those goals and objectives accordingly.

In accordance with Ontario Regulation 507/18, the municipality shall publish this plan, with annual updates, on our municipal website on or before July 1st, each year. The plan shall also be available to the public in printed form at the Town Office, for review during regular business hours.



Summary of Current Energy Consumption, Cost and GHGs

The management and monitoring of energy consumption and the energy performance of our facilities and equipment are the responsibilities of each Department Manager.

The Town of Moosonee's 2017 total annual energy consumption in municipal operations was 1,793,327.00 ekWh, at a cost of \$495,685.59 for the year and GHG emission of 306,844.19 kg/year eCO₂.

The Town of Moosonee's 2016 total annual energy consumption in municipal operations was 1,867,997.00 ekWh, at a cost of \$479,191.84 for the year and GHG emission of 204,471.50 kg/year eCO₂.

The Town of Moosonee's 2015 total annual energy consumption in municipal operations was 2,899,256.00 ekWh, at a cost of \$629,326.12 for the year and GHG emission of 279,765.29 kg/year eCO₂.

Summary of Results from 2014-2019 EC&DM Plan

As the above numbers show we have reduced the energy consumption of the town Greatly since the 2014 plan was implemented, and we have exceeded our 2014 goal of 5% total kWh reduction plan over 3-year average. The Town of Moosonee will continue to strive to maintain or reduce our energy usage, while also continue to offer as many services as we can to better our Municipality.

In 2014 the 3-year average kWh was 4,108,171.82, in 2019 the 3-year average has been reduced substantially to 2,186,860 kWh.

Staff and Managers continue to come forward with ideas for how to reduce energy usage while being able to offer equal or greater services to the citizens of Moosonee.



Town Hall – Corporate Operations

PREPARED BY: SHELLEY PETTEN, CLERK-TREASURER

TOWN HALL – 5 FIRST STREET

Type of Operation Conducted:

Conduct daily Cash Receipts, Receivable, Payables, Taxes, Payroll, Finance, Council, Administration duties, daily contact with the public.

A description of the days and hours in the year during which the operation is conducted and, if the operation is conducted on a seasonal basis, the period or periods during the year when it is conducted.

245 days a year and 1715 hours a year

Building Description

50 x 50 building

Oil Furnace, central air, LED Lighting

The types of energy purchased for the year and consumed in connection with the operation and any changes made in usage, or move to a more efficient energy type.

Energy Projects or Modifications Completed in 2018

N/A

Energy Processes Implemented in 2018

We have heating system with temperature controls for day and night and central air with temperature controls for day and night. LED lighting with motion sensors in every room. Computers and printers are turned off at night. Photocopier has auto sleep mode. Coffee pot is on a timer.

Energy Programs Completed in 2018

N/A

Planned Energy Improvements & Conservation Measures

In the process of reviewing potential cost and energy saving by converting to pellet stove operated furnace system, and continue with current conservation measures.



Fire Hall – Protective Services

PREPARED BY: STEPHEN CROWN, PROTECTIVE SERVICES MANAGER

FIRE HALL – FERGUSON ROAD

Type of Operation Conducted: Regular office hours are Mon – Fri 0800 to 1700 hrs.

On average 8 hours per day, twenty days per month, 12 months a year excluding holidays, =1920 hours which is man hours consisting of office work, computers, basic lighting.

Building Description

Main Floor- (truck bays & bunker bay) Heated by forced air furnace on average 7 months per year no cooling, lighted on average 200 hours per year based upon meetings for Volunteers.

Second Floor- (dispatch room, kitchenette, office heated by forced air furnace. Office & kitchenette cooled by portable air conditioner on average 2.5 months per year. Lighted on average 1920 hours per year.

Second Floor- training room/gym room heated by electric baseboard heat on average 4 months a year. Cooled by portable air conditioner 2.5 months a year. Lighted on average 100 hours per year.

Two main types of energy consumed; Hydro & Furnace Fuel.

Energy Projects or Modifications Completed in 2018

Replaced all fluorescent bulbs with T8 tube lights for greater energy efficiency.

Energy Processes Implemented in 2018

Ensure all lighting is off in areas when not in use, this includes all office areas when leaving building during regular operating hours.

Energy Programs Completed in 2018

NIL

Planned Energy Improvements & Conservation Measures

Current furnace is 30+ years old and is from a time before energy efficiency was as important as it is now. The town is reviewing potential replacements with energy efficiency being one of the main criteria for assessment. In the process of reviewing potential cost and energy saving by converting to pellet stove as fuel, instead of furnace fuel oil.



Airport Operations

PREPARED BY: SHELDON ROSS, AIRPORT MANAGER

AIRPORT TERMINAL BUILDING – 1 AIRPORT ROAD

Type of Operation Conducted:

07:00-20:00 13 Hours Week-days & 6 Hours Week-end days.

Total hours per week are approximately 80 Hours

The Air Terminal is opened from these hours with Tenants and Airport Administration.

Heated and partial lights all winter and afterhours.

Building Description

Total Floor Area (heated/cooled/lighted): 4000 Square Feet

Energy Projects or Modifications Completed in 2018

All lights converted to LED fixtures, with motion sensors for auto shutoff when not in use for each room.

Entered into 5 year agreement with Toromont to provide maintenance and evaluation of power systems to ensure ongoing efficiency and reduce waste.

Energy Processes Implemented in 2018

None

Energy Programs Completed in 2018

None

Planned Improvements & Conservation Measures

In the process of reviewing potential cost and energy saving by converting to pellet stove operated furnace system.



AIRPORT MAINTENANCE GARAGE – 9 AIRPORT ROAD

Type of Operation Conducted:

Hours of operation (occupancy) 8 hours per day week-days and average of 2 hours per week-end day.
Approximately – 45 hours/week (occupied)

Heated and partial lights all winter and afterhours.

Building Description

Total Floor Area (heated/cooled/lighted): 4200 Square Feet

Windows all replaced with efficient double glazed and weather stripping replaced on main garage doors.

Energy Projects or Modifications Completed in 2018

Entered into 5 year agreement with Toromont to provide maintenance and evaluation of power systems to ensure ongoing efficiency and reduce waste.

Energy Processes Implemented in 2018

None

Energy Programs Completed in 2018

None

Planned Improvements & Conservation Measures

In 2019 the garage will undergo the same process as the terminal did in 2018- all lighted will be converted to energy efficient LED with motion sensor for auto shutoff. In the process of reviewing potential cost and energy saving by converting to pellet stove operated furnace system.



AIRPORT SAND STORAGE – 12 AIRPORT ROAD

Type of Operation Conducted:

Describe operation

Hours of operation (occupancy) 8 hours per day week-days and average of 2 hours per week-end day.

Approximately – 45 hours/week (occupied)

Heated and partial lights all winter and afterhours.

We've ensured that the temperature in the sand storage facility has been lowered to just above freezing.

Building Description

Total Floor Area (heated/cooled/lighted): 3500 Square Feet

No purchases

Energy Projects or Modifications Completed in 2018

Convert to LED lighting on motion sensors for auto shutoff.

Entered into 5 year agreement with Toromont to provide maintenance and evaluation of power systems to ensure ongoing efficiency and reduce waste.

Energy Processes Implemented in 2018

Lowering heat to lowest acceptable level for sand.

Energy Programs Completed in 2018

None

Planned Improvements & Conservation Measures

In the process of reviewing potential cost and energy saving by converting to pellet stove operated furnace system.



Public Works

PREPARED BY : PUBLIC WORKS MANAGER

PUBLIC WORKS GARAGE – 76B MISTIK BLVD.

Type of Operation Conducted:

The building is operated 260 days per year or 2080 hours.

Building Description

Total Floor Area is 8000 square feet. Interior is electrically lit and there are additional propane burners to heat the entire building.

Energy Projects or Modifications Completed in 2018

Spray foam insulation completed, this will reduce heat loss in winter months.

Entered into 5 year agreement with Toromont to provide maintenance and evaluation of power systems to ensure ongoing efficiency and reduce waste.

Energy Processes Implemented in 2018

Nil

Energy Programs Completed in 2018

Nil

Planned Improvements & Conservation Measures

In the process of reviewing potential cost and energy saving by converting to pellet stove operated furnace system.

PUBLIC WORKS COLD STORAGE GARAGE – 76A MISTIK BLVD.

Type of Operation Conducted:

Cold storage of sand and various pieces of heavy equipment. Minimum heat on during winter months to protect heavy equipment.

Building Description

Total Floor Area is 8000 square feet and it is heated using propane heaters and electrical lights.

Energy Projects or Modifications Completed in 2018

Nil

Energy Processes Implemented in 2018

Nil

Energy Programs Completed in 2018

Nil

Planned Improvements & Conservation Measures

This building is currently rented out and the heating and electricity costs are those of the tenants.



PUBLIC WORKS – MUNICIPAL STREETLIGHTS

Type of Operation Conducted:

Operation of approximately 200 street lights.

Building Description

Nil

Energy Projects or Modifications Completed in 2018

Switched light source to high efficiency LED bulbs.

Energy Processes Implemented in 2018

Nil

Energy Programs Completed in 2018

Nil

Planned Improvements & Conservation Measures

Continue to monitor for high efficiency bulbs with low energy usage.

Wastewater (Sewage)

PREPARED BY : TREVOR KEEFE, WATER TREATMENT PLANT MANAGER

WASTEWATER - LIFT STATIONS

Type of Operation Conducted:

10 Liftstations pump sewage to the lagoons 365 days per year. Some lines have heat tracing wires.

Building Description

Various construction - Cement and steel. Average 150 Square feet.

Energy Projects or Modifications Completed in 2018

Entered into 5 year agreement with Toromont to provide maintenance and evaluation of power systems to ensure ongoing efficiency and reduce waste.

Energy Processes Implemented in 2018

Nil

Energy Programs Completed in 2018

Nil

Planned Improvements & Conservation Measures

Nil



Drinking Water

PREPARED BY : TREVOR KEEFE, WATER TREATMENT PLANT MANAGER

WATER TREATMENT PLANT – 241 FERGUSON ROAD

Type of Operation Conducted:

Water treatment and distribution system for the town using various chemicals.

Building Description

Total floor area is 6325 square feet and is heated by electric heat.

Energy Projects or Modifications Completed in 2018

Entered into 5 year agreement with Toromont to provide maintenance and evaluation of power systems to ensure ongoing efficiency and reduce waste.

New boiler and air makeup system that are more energy efficient

Energy Processes Implemented in 2018

None

Energy Programs Completed in 2018

Shut off lights and turn heat down in the evening.

Planned Improvements & Conservation Measures

Have gotten a quote for LED and will be budgeting for this improvement at next opportunity. Had a Comprehensive Plant Evaluation done and a 5 year plan developed for what could result in greater efficiencies. High priority would be variable speed pumps that automatically reduce their output during low flow times, rather than running at constant speed always.



Recreation & Tourism

PREPARED BY: BRYAN NAHRGANG, RECREATION & TOURISM MANAGER

ARENA & COMMUNITY HALL – 42 FIRST STREET

Type of Operation Conducted:

Our operations include, but not limited, to community, private and sporting events during the year. Most of the major events occur on weekends from 1 to 3 days. Hour of operation varies with each event and the demand for lighting and heating varies as well. The Community Hall has heaters, lighting, fridges and stoves that are used. When there are no events the lights are left off and fridges are unplugged. Arena operations vary from bookings as well. The arena pad arena is not heated but we do operate an artificial ice plant during the in ice season from October to March.

Building Description

The Arena and Community Hall areas are fairly large areas and the only areas that are heated are the Community Hall and Arena Lobby Areas. All areas have lighting and they are turned on when we have bookings or we require lighting for work in these areas. I will be looking into changing the old Heaters to more energy efficient ones in the next 2 years.

Energy Projects or Modifications Completed in 2018

Converted to T8 energy efficient tube lights, and upgraded old electric heaters to Elmore energy efficient heaters.

Entered into 5 year agreement with Toromont to provide maintenance and evaluation of power systems to ensure ongoing efficiency and reduce waste.

Energy Processes Implemented in 2018

My staff continue to turn off lights not in use and turn off the exhaust fans when there is no one in the facility or before they close up in the evenings.

Energy Programs Completed in 2018

Nil.

Planned Improvements & Conservation Measures

In the process of reviewing potential cost and energy saving by converting to pellet stove operated furnace system.



FITNESS CENTRE – 42 FIRST STREET

Type of Operation Conducted:

The Curling Club has been converted to a fitness centre and daily use has skyrocketed. Along with this comes additional energy usage so improvements are being made to reduce this impact. Overall energy consumption is still lower than when this facility was used daily as a curling club.

Building Description

The Lounge area is heated when required and all parts of the Curling Club have lighting.

Energy Projects or Modifications Completed in 2018

Converted to T8 energy efficient tube lights, and upgraded old electric heaters to Elmore energy efficient heaters.

Entered into 5 year agreement with Toromont to provide maintenance and evaluation of power systems to ensure ongoing efficiency and reduce waste.

Energy Processes Implemented in 2018

My staff continue to turn off lights not in use and turn off the exhaust fans when there is no one in the facility or before they close up in the evenings.

Energy Programs Completed in 2018

Nil

Planned Improvements & Conservation Measures

In the process of reviewing potential cost and energy saving by converting to pellet stove operated furnace system.

MUSEUM / HERITAGE BUILDING – 28 REVILLION ROAD

Type of Operation Conducted:

This building is not in operation.

Building Description

The building has lighting and heating but they are not turned on.

Energy Projects or Modifications Completed in 2018

Nil

Energy Processes Implemented in 2018

Nil

Energy Programs Completed in 2018

Nil

Planned Improvements & Conservation Measures

No current plans.



RECREATION - BALLPARK – FERGUSON ROAD

Type of Operation Conducted:

Various sporting and community events are held in this outdoor facility.

Building Description

No formal building structure that requires heating. The playing area can be lighted during the night time for events that require lighting.

Energy Projects or Modifications Completed in 2018

Nil

Energy Processes Implemented in 2018

The lights are only accessible by the Recreation Department Staff. The lights and breakers are turned off after use.

Energy Programs Completed in 2018

Nil

Planned Improvements & Conservation Measures

Nil