

Energy Conservation and Demand Management Plan 2024

1. Commitment

1.1. Declaration of Commitment

The Township of Russell will allocate the necessary resources to develop and implement an Energy Conservation and Demand Management Plan as required under Ontario Regulation 25/23. Council supports energy planning because it will help avoid cost increases, improve service delivery, and support local industry while protecting human health and the environment.

Our Energy Conservation and Demand Management Plan will reduce our energy consumption and its related environmental impact as outlined in our overall target. Staff and Council will ensure that the objectives presented in this plan are achieved and that progress towards those objectives is monitored on an ongoing basis. Staff and Council will update the plan as required under Regulation 25/23 or any subsequent legislation.

1.2. Vision

We will strive to continually reduce our total energy consumption and associated greenhouse gases -GHGs- through wise and efficient use of energy and resources, while still maintaining an efficient and effective level of service for our clients and the general public. This will involve a collaborative effort to increase the education, awareness, and understanding of energy management within the municipality.

Total energy consumption includes electricity, natural gas, and oil. This vision can be achieved through the integration of energy efficiency facility infrastructure, operational efficiencies, and building the foundation for a culture of energy awareness and knowledge within the municipality. While commitment from Council and Senior Management is crucial, everyone has a role in the wise use of energy and to showcase appropriate leadership within corporate facilities and operation.

1.3. Policy

The Township of Russell will incorporate energy efficiency into all areas of our activity including our organizational and human resources management procedures, procurement practices, financial management and investment decisions, and facility operations and maintenance. As a major component of the operating costs of municipal facilities and equipment, energy costs will be factored into the lifecycle cost analysis and asset management analyses and policies of the municipality. All departments have clear links to some or all of the goals and objectives of the Energy Conservation and Demand Management Plan.

1.4. Goals

The Township of Russell Energy Conservation and Demand Management Plan was completed to help achieve the following goals:

- Maximize fiscal resources and avoid cost increases through direct and indirect energy savings;
- Reduce the environmental impact of the municipality's operations;
- Increase the comfort and safety of the staff managers of the municipality's facilities;
- Create a culture of conservation within the municipality;
- Improve the reliability of the municipality's equipment and reduce maintenance.

1.5. Overall Target

We will reduce our overall municipal energy consumption (from all facilities) by 5% from 2024 to 2029 according to the baseline data developed using the LAS EPT.

1.6. Objectives

In order to meet the strategic goals of the Energy Conservation and Demand Management Plan, there are a number of goals and objectives that align with its development and implementation:

- Ensure energy efficiency consistency across municipal facilities;
- Monitor and report on energy consumption in quarterly intervals. Staff will monitor and verify ROI to enable reinvestment in energy projects and report on energy consumption four times per year;
- Better analyze energy costs and look for savings opportunities. This will include looking at energy commodity procurement options and taking advantage of all available resources and funding for energy projects;
- Raise staff and Council awareness around energy efficiency. This will include communicating successes to both internal and external stakeholders;
- Strengthen partnerships with external stakeholders such as electric and gas utilities;
- Identify and seize renewable energy generation opportunities.

2. Organizational Understanding

2.1. Our Municipal Energy Needs

The Township of Russell requires reliable, low-cost, sustainable energy sources delivering energy to the most efficient facilities and energy-consuming technology feasible. The municipality applies a triple bottom line approach to energy management.

Triple bottom line -TBL- accounting expands the traditional reporting framework to take into account social and environmental performance in addition to financial performance. A TBL municipality conceives a reciprocal social structure in which the well-being of corporate, labour and other stakeholder interests are interdependent.

A triple bottom line municipality does not produce harmful or destructive products such as weapons, toxic chemicals or batteries containing dangerous heavy metals. A triple bottom line municipality derives economic value after deducting the cost of all inputs, including the cost of the capital tied up. The triple bottom line approach prioritizes a lifecycle cost analysis of products and services procured by the municipality wherever possible.

2.2. Stakeholder Needs

Internal stakeholders -Council, CAO and staff- need to be able to clearly communicate the corporate commitment to energy efficiency, and to develop the skills and knowledge required to implement energy management practices and measures. External stakeholders -the Province, community citizens and groups- need the municipality to be accountable for energy performance and to minimize the energy component of the costs of municipal services.

2.3. Municipal Energy Situation

Our assessment of organizational capacity for energy management with respect to energy policy, organizational structure, employee awareness, skills and knowledge, energy information management; communications, and investment practices indicates the following issues:

- Energy use and costs continue to increase and are forecast to increase further;
- Energy is not visible to municipal decision makers such as Council, senior management, front-line staff, and members of the public. This leads to a lack of understanding of the costs of energy and the opportunities for energy efficiency;
- Occasional efforts are made to raise general staff awareness about energy;
- Additional municipal responsibilities and services have had an important impact on existing facilities and several of these facilities can no longer operate under the existing physical conditions;
- The requirement for this Energy Conservation and Demand Management Plan provides an opportunity to build upon current initiatives such as the Asset Management Plan, Municipal Facility Accommodations Review, Strategic plan and the Official Plan.

2.4. How We Manage Energy Today

The management of our energy is a combination of energy data management, energy supply management, and energy use management.

- Energy Data Management
Our municipal energy data is managed through the Treasurer. The data is received via supplier invoices, then tracked and/or monitored using the LAS Energy Planning Tool: Invoices are entered into the EPT, consumption/trends are analyzed, and reports are generated.
- Energy Supply Management
Our municipal energy is supplied via a number of providers as outlined below: Electricity is supplied by Hydro One and Embrun Hydro and natural gas by Enbridge Gas on an as needed basis and is priced at the standard rates offered by the provider. Municipal staff will investigate a hedging strategy for purchasing electricity and natural gas through LAS.
- Energy Use Management
Day to day management of energy has historically happened in an ad-hoc manner. To aid in our efforts to track and reduce energy use the Township of Russell plans to utilize the LAS EPT in an ongoing manner and to generate and share reports as required.

2.5. Summary of Current Energy Consumption, Cost and GHGs

The current energy usage by building is detailed in Appendix A. Our energy usage is updated monthly in the EPT and reported annually to the Ministry of Energy.

2.6. Summary of Current Technical Practices

Our assessment of operations and maintenance practices, facility and equipment condition, and energy performance indicators establishes the following priorities:

- Development of standard operating procedures incorporating energy efficiency optimization
- Enhancement of preventative maintenance procedures
- Apply for funding to make lighting efficiency upgrades in our Community Centres and Arenas.

2.7. Renewable Energy Utilized or Planned

Renewable energy is energy which comes from natural sources such as sunlight, wind, and geothermal heat. Utilizing renewable energy can generate a revenue source through the Provincial Feed-in Tariff –FIT- Program or significantly reduce the energy requirements of a building along with the associated greenhouse gases.

The Township of Russell aspires to show leadership in the promotion and development of renewable energy systems that are compatible with our asset management and land use planning objectives.

3. Strategic Planning

3.1. Links with other municipal plans

The Township of Russell will:

- Develop and implement energy policies,
- Organize for energy management,
- Develop the required skills and knowledge,
- Manage energy information,
- Communicate with our stakeholders,
- Invest in energy management measures.

As an integral component of the management structure, the Energy Conservation and Demand Management Plan will be coordinated with:

- The municipality's budget planning,
- The strategic plan,
- The purchasing policy,
- The preventative maintenance plans,
- The environmental management plan,
- The asset management plan,
- The policy development process.

4. Structure Planning

4.1. Staffing requirements and duties

The Township of Russell will incorporate energy budget accountability into its corporate responsibilities and energy efficiency into standard operating procedures and the knowledge requirement for operational jobs.

4.2. Consideration of energy efficiency for all projects

The Township of Russell will incorporate life cycle cost analysis into the design procedures for all capital projects. Typically equipment to be considered for this process includes:

- HVAC equipment: boilers, chillers, pumps, motors, etc.;
- Lighting and controls;
- Building envelope: roofs, insulation, windows and doors, etc.;
- Water use: pools, toilets, water reclaim etc.;
- Building automation system -BAS- controls;
- Process improvements;
- Back-up generators;
- Any other energy consuming device.

Projects generally follow 5 steps:

- Project Identification & Feasibility;
- Energy Audits, Feasibility Analysis or through detailed Condition Assessments;
- Planning & Budgeting - Project Financing, Incentives, Business Case & Approvals;
- Implementation: Tender, Project Execution, Project Management, Commissioning;
- Monitoring & Verification: Measure and Verify Results, Reporting Achievements

The intent is to make this LCA analysis part of the municipality's normal course of business for all facility and operational retrofits, including capital renewal and life cycle replacements projects. Success means incorporating energy efficient options at the initial stages of a project design. This ensures that options for improving energy efficiency are considered, evaluated and quantified in terms of life cycle costing analysis, including cost, maintenance and emission reductions.

5. Resources Planning

5.1. Energy Leader

The Asset Manager will be our energy leader with responsibility for corporate energy management.

5.2. Energy Team

We will identify staff members and personnel from our critical service providers who carry significant responsibility for energy performance or who can make essential input to energy management processes.

5.3. Internal Resources

We will develop criteria to determine if internal resources can be utilized for the implementation of energy projects.

5.4. External Consultants and Suppliers

We will establish criteria in our Procurement Policy based on our energy goals and objectives for the selection of external consultants and energy suppliers. These criteria will employ triple bottom line principles and ultimately include a lifecycle cost analysis of desired products and services whenever possible.

5.5. Energy Training

The Township of Russell will develop and deliver energy training for relevant staff and Council members. This training will not be limited to operators and maintainers with "hands-on" involvement with energy consuming equipment but will also include others since they also make energy consumption decision in their daily work. Training focused on the energy use and conservation opportunities associated with employees' job functions will be utilized whenever possible.

Energy management training will be incorporated into employee orientation and future training opportunities offered through Human Resources. All such energy management training opportunities are integrated into ongoing staff training and designed to allow for the internal capacity building necessary to ensure that staff are making informed decision and reducing the need for costly external assistance. The Township of Russell will utilize both internal and external resources to provide this training as much as resources allow.

6. Procurement Planning

6.1. Energy Purchasing

In addition to the conservation of energy, the procurement of energy is equally as important. Proper energy procurement includes:

- Rate optimization,
- Utility account management,
- Supplier choice and evaluation,
- Supply reliability and quality,
- Demand/supply optimization and
- Risk management.

The Township of Russell will develop a procedure for the negotiation of energy purchase contracts that appropriately addresses our cost considerations, available energy services, energy quality and reliability, and other performance factors. A primary objective of this policy will be to provide price stability by fixing future prices. A key deliverable will be to investigate and report back to senior management and Council on energy commodity purchasing programs available to the municipality.

Quarterly meetings will be held to review any cost and consumption variances as well as to project the upcoming annual cost per commodity for budgeting and consumption load profiles. Monthly billing analysis also provides an opportunity to identify and recover any billing errors, or usage that requires further investigation.

6.2. Consideration of energy efficiency of acquired equipment

Our purchasing procedures will be modified as required to incorporate energy efficiency into the criteria for selection of materials and equipment.

7. Implementation Planning

7.1. Building Standards

Township of Russell staff will develop criteria for the design and/or acquisition of new buildings that include energy performance factors and that use as appropriate the principles embedded in performance standards such as LEED and the Model National Energy Code for Buildings. LEED -Leadership in Energy and Environmental Design- is a green building certification tool administered by CaBGC -Canada Green Building Council-, which provides a framework for constructing green/ energy efficient buildings. The LEED rating system addresses the performance of commercial and institutional buildings.

Many municipalities have adopted standards such as minimum LEED Silver rating for all new municipally owned new construction projects. Considering LEED for new construction and major renovations makes good business sense, in that a high performance green building vs. conventional inefficient buildings can reduce energy consumption by 25% to 75%, water use reduction by 20% to 50% and reduced environmental greenhouse gas -GHG- emissions by as much as 60%. The Township of Russell will investigate adopting such a standard for new buildings and will incorporate any such standard into our revised Energy Conservation and Demand Management Plan.

7.2. Communication Programs

Township of Russell staff will develop a communication strategy that creates and sustains awareness of energy efficiency as a corporate priority among all employees, and conveys our commitment and progress to our stakeholders. Activities could include circulating reminder stickers to turn lights off, putting up energy conservation displays, promoting home energy audits, hosting lunch and learns, and conducting Natural Step training.

8. Investment Planning

8.1. Internal Funding Sources

We will develop and/or clarify as necessary the financial indicators that are applied to investment analysis and prioritization of proposed energy projects, taking due consideration of the priority given to energy efficiency projects versus other investment needs -life cycle versus simple payback-. Energy and operating costs savings, physical asset renewal, improved employee comfort and service delivery, and enhanced environmental protection are all quantifiable benefits of energy conservation and demand management and will be factored in accordingly.

8.2. Creative Approaches

Township of Russell staff will investigate, document, and communicate funding sources for energy projects, including government and utility grants and incentives.

9. Implementation Planning

9.1. Business Procedures

Municipal staff will carry out a comprehensive review of all business processes and modify them as necessary in order to incorporate energy efficiency considerations. The Township of Russell will include depreciation of all assets as part of its Asset Management and Capital Planning and will undertake a Lifecycle Cost Analysis of potential new products and services to ensure operating costs are factored into our plans and analyses. Municipal governments apply Lifecycle Cost Analysis as a basis for policy and regulatory development.

Current applications include:

- Helping to prioritize programs based on life cycle information;
- Making policies consistent among material suppliers, service contractors, and internal departments;
- Reducing the impact that government operations have on the environment
- Promoting pricing products and services to accurately reflect "true" costs

10. Projects Execution

10.1. Municipal Level

The administration and implementation of this Energy Conservation and Demand Management Plan will be the responsibility of the Asset Manager. Since we all use energy in our daily activities, it will also be the responsibility of all municipal staff to be aware of their energy use and work towards a culture of conservation. Through staff training and web base energy management tools, staff will be able to see the results of their efforts, and benchmark between corporate facilities and with industry standards.

10.2. Asset Level

In order to sustain a corporate culture of conservation, staff must be engaged in an effective awareness and education program. Although facilities staff has the lead responsibility in ensuring facilities operate efficiently, all municipal staff should be familiar with and utilize energy efficient measures where possible. The first step in implementing an energy management program is the completion of energy audits for corporate facilities.

Audits involve a technical review of a facility and its operations, the development and analysis of a baseline energy profile for the facility and identification of energy management opportunities and savings. Audits have been conducted on municipal facilities as part of this initial planning exercise and should continue to occur on a regular schedule in the future for new and existing facilities component of an energy management program is the re-commissioning.

Over the life cycle of a facility, the mechanical building automation and distribution systems are adjusted from day-to-day to suit user room temperature requirements. Moreover, mechanical distribution or building controls instrumentation is sometime over-looked when renovations take place. Re-commissioning involves examining the original mechanical design and operating specification against any building renovations and recalibrates the settings to suit today's energy efficient standard practices. It also ensures that mechanical operating practices are current and appropriate to maximize building system efficiencies.

The use of renewable energy measures can also help reduce overall corporate greenhouse gas emissions by lessening our demand for fossil fuel generated energy: oil, gas or coal. The investment for these types of measures can be significantly greater than conservation initiatives and therefore, should be considered on a case-by-case basis through a cost and environmental benefits analysis. However, it is acknowledged that the use of technologies such as wind, solar and geothermal can show community leadership and help raise awareness of the benefits of utilizing renewable energy.

11. Review

11.1. Energy Plan Review

As part of any energy management strategy, continuous monitoring, verification, and reporting are essential tools to track consumption and dollar savings and/or avoidance as the result of implemented initiatives. Township of Russell staff will develop an annual progress report with energy consumption data and initiatives undertaken within the calendar year.

This report will be made publicly available as required under Ontario Regulation 25/23. The Energy Plan will be reviewed and updated annually to reflect new projects, progress towards targets, and any changes in legislation or organizational priorities. By regularly monitoring and reporting consumption and dollar savings and/or avoidance to Departments, the outcomes of their participation in energy management initiatives can be demonstrated and feedback can be obtained for any new ideas. This monitoring and reporting will also align with the requirements of Ontario Regulation 25/23 and any subsequent legislation related to energy management.

11.2. Discussion of Progress

Quarterly energy performance summary reports will be generated to apprise Council of the progress made towards our corporate energy goals and objectives. The general public will be apprised of energy performance of municipal facilities and the impact of implemented energy management measures where appropriate.

12. Evaluation Progress

12.1. Energy Consumption

We will review and evaluate our energy plan, revising and updating it as necessary, on an annual basis as based on the Energy Consumption Reports that are submitted to the Ministry of Energy on an annual basis as required under Ontario Regulation 25/23.

12.2. Green House Gas Emission

Governments at all levels are moving to address emissions of greenhouse gases (GHGs), in light of scientific evidence on how human activities are affecting the world's climate. For more information on the science, see <http://www.ipcc.ch/>.

The combustion of fossil fuels in buildings is a major source of GHG emissions that fall under local government influence. Municipalities can lower emissions by improving energy efficiency of buildings and using more renewable energy.

The Township of Russell is committed to both objectives through the development and implementation of this Energy Conservation and Demand Management Plan (CDM). We will continue to track and report on GHGs as part of our regular reporting on energy consumption and will evaluate progress in this area against our overall reduction target.

13. Public Reporting and Accessibility

13.1 Public Reporting and Accessibility

In compliance with Ontario Regulation 25/23, the Township of Russell will ensure that our Energy Conservation and Demand Management Plan, along with annual reports on energy consumption, GHG emissions, and progress towards conservation targets, are made publicly available. This will be achieved by publishing these documents on the township's official website and ensuring they are accessible to all stakeholders.

14. Programs, Processes and Projects

14.1. Existing Energy Conservation Measures

Program Description	Facility	Contact	Details	Due date	Status
energy awareness to management meetings	All	AM	Energy reports to be distributed to directors and managers on a quarterly basis. Expected Annual Savings = 1-2%.	Ongoing	
New Employee Orientation	All	HR	As part of Orientation Program: provide new staff with energy management training.	Ongoing	
Energy Leader	All	AM	<p>The Asset Manager has been designated as the Energy Champion within the Township of Russell. The Energy Champion is responsible for:</p> <ul style="list-style-type: none"> - Installing a culture of energy conservation within their respective workplaces with each occupant and piece of equipment; - Developing conservation strategies with facility staff for implementation within each given facility; - Sharing best practices, lessons learned, and innovative energy practices with other team members; - Monitoring progress towards energy conservation goal and ensure that there is no backsliding. 	Ongoing	

AM: Asset Management

HR: Human Resource

14.2 Current Energy Conservation Measures

Process Description	Facility	Contact	Details	Start	End	Status	Cost	Save ekWh/yr	Save \$	ROI
Appliance Usage	All	AM	<p>Appliances are often left on in municipal offices because staff feel their individual impact is insignificant, however, when totaled across the municipality across a given year the impact can run in the hundreds of dollars for a municipality the size of Russell.</p> <p>Turn off all electronic devices such as coffee makers, printers, calculators, phone chargers, etc. at night and on weekends. Reduce phantom power wherever possible.</p> <p>Phantom energy sucks extra energy from the grid when you aren't looking and you don't need it. Many gadgets, electronic devices and appliances draw power even when they're switched off or not in use, just by being plugged in, and though it may seem trivial, it can add up over time.</p> <p>Reduce the usage of portable electric heaters. While this will need to occur concurrently with recommended energy projects to tackle employee comfort issues, this should be a priority issue given the large number of these appliances in use in every municipal facility.</p> <p>The Energy Champion will develop a series of messages at regular intervals throughout the month to remind staff to reduce appliance use and eliminate phantom power.</p>							

14.3 Proposed Energy Conservation Measures

1. Energy Efficiency Projects

Project Description	Facility	Contact	Details
Building Envelope Improvement	All	AM	Upgrade insulation, windows, and doors Seal air leaks to reduce heating and cooling losses

2. Renewable Energy Projects

Project Description	Facility	Contact	Details
Solar panels installation	Land	PW	-investigated to installation of solar panel on township land

3. Operational and Behavioral Projects

Project Description	Facility	Contact	Details
Energy Audits	all	AM	-conduct regular energy audit
Energy management System	All	AM	Install energy management system to monitor and control energy

4. Transportation

Project Description	Facility	Contact	Details
Fleet policy	All	PW	-green policy promote greener fleet with the purchase of electric and hybrid vehicles

5. Water and Wastewater projects

Project Description	Facility	Contact	Details
---------------------	----------	---------	---------

Pumping station Upgrades	Pumping Station	PU	-replace pumps with energy-efficient models in water and wastewater facilities
Leak detection	Water system	PU	-implement a comprehensive program to detect and repair leaks in water distribution system.

Project Description	Facility	Contact	Details
Pumping station Upgrades	Pumping Station	PU	-replace pumps with energy-efficient models in water and wastewater facilities
Leak detection	Water system	PU	-implement a comprehensive program to detect and repair leaks in water distribution system.

**all proposed element will be insvestigate further prior to be included in the budget of implementation