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City of Lethbridge

ENERGY CONSERVATION PLAN & STRATEGY Lessons Learned and the Community



APRIL 2021

A Carbon
Neutral
Company



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member

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1 BACKGROUND & INTENT

The development of the Energy Conservation Master Plan & Strategy provided several lessons learned that could be utilized to develop communications relevant for the wider Lethbridge community. In addition to building an energy efficiency culture within the City of Lethbridge, these lessons learned can be used to develop an energy efficiency culture within the community. The City has the opportunity to set an example for the community to promote energy efficiency. Energy efficiency is one tactic to mitigate climate change and contribute to greenhouse gas (GHG) emissions reduction goals. Involving the community in energy efficiency conversations and decisions, as well as in the larger conversations around climate and sustainable services, can help build awareness around these issues and empower the community to take action.

Along with the initiatives targeting City operations in the Energy Conservation Masterplan and Strategy, best practices and initiatives were identified that can be recommended for the community to consider. These best practices and initiatives were compiled in an infographic, which can be shared with the general public ([Appendix A](#)). This infographic highlights energy efficiency practices in three areas: residential energy use, transportation energy use, and commercial and industrial energy use. The infographic aims to show members of the community the benefits of energy efficiency as well as examples of funding available to take advantage of energy efficiency opportunities.

2 RESIDENTIAL ENERGY EFFICIENCY PRACTICES

Energy efficiency practices for residential homes focus on fostering energy saving habits, home renovations, and upgrading appliances and electronics. Homeowners can:

Practice Energy Savings Habits

Lights and appliances can be switched off when they are not in use. Appliances can be unplugged to reduce passive energy use. Doors and windows can be checked to make sure they are firmly closed. Thermostats can be turned down when homeowners are away from home for an extended period. Water saving practices can be adopted to indirectly reduce energy use.

Replace Door and Window Seals

Drafts around windows and doors can be cut down by replacing seals. This can be a lower-cost alternative to fully replacing windows and doors.

Replace Old Doors and Windows

Old windows and doors can be replaced with the latest well-insulated windows and doors. This can include buying doors with double or triple-glazing or low emissivity glass, or buying doors made from materials with low heat conductivity and that have weather-stripping.

Improved Insulation

Heat can be kept inside in the winter and outside in the summer by re-insulating walls or roofs. As an added benefit, well-insulated homes can also help keep out moisture.

Smart Thermostats

Smart thermostats decrease energy use by automatically adjusting temperatures either on a schedule or in response to room occupancy.

Energy Efficient Appliances

Energy efficient furnaces, refrigerators, washing machines, and dishwashers can decrease energy and water use. Homeowners should look to purchase high-efficiency appliances that have been certified by Energy Star® or other energy efficiency rating organizations where possible.

Efficient Lighting

Electricity use can be reduced, and lights will need to be replaced less often by replacing incandescent bulbs with High Efficiency bulbs or LEDs. Consider installing lighting controls to automatically turn off or on lights as needed.

Home Solar

Rooftop solar panels can cut down electricity costs while powering homes with clean energy. The price of home solar is decreasing steadily, and utility companies like Enmax offer financing options for home solar installations. Homeowners in Lethbridge are in a particularly good position to take advantage of solar, given the high solar potential in the Southern Alberta region.

3 TRANSPORTATION ENERGY EFFICIENCY PRACTICES

Energy efficiency practices for in-community transportation focus on encouraging fuel shift away from fossil-fuel vehicles towards electric and hybrid vehicles, and shifting away from single-occupancy vehicles towards walking, biking, and transit. Commuters can:

Transition to Hybrid or Electric Vehicles

Switching to a hybrid or electric model can help commuters save money on fuel and maintenance while also decreasing emissions. While there are no rebates or subsidies for purchasing electric vehicles in Alberta, the costs of electric vehicles are steadily declining. This can be further supported by City actions to grow Lethbridge's electric vehicle charging network.

Carpool

Commuters can save money on fuel by commuting with others after the pandemic has ended.

Switch to Transit

Commuters can decrease costs and greenhouse gas emissions by taking advantage of transit.

Walk or Bike

Commuters can improve their health while cutting down on fuel use by walking or biking when possible. The City can support this action by continuing to invest in bike lanes and bike paths.

4 COMMERCIAL AND INDUSTRIAL ENERGY EFFICIENCY PRACTICES

Energy efficiency practices for commercial and institutional buildings focus on building renovations, and upgrading building systems and equipment. Business owners can:

Seal Building Envelopes

Sealing doors and windows can reduce air leaks and decrease heating and cooling costs. This can be a lower-cost alternative to fully replacing windows and doors.

Upgrade HVAC Systems

Energy efficient heating and cooling systems can save money while improving indoor air quality. In addition to upgrading HVAC systems, heating and cooling demands on HVAC systems can be reduced by installing heat recovery systems to recover waste heat rejected from building processes. Waste heat can be collected from ventilation systems, boilers, or refrigeration units. Captured and reused waste heat can reduce the need for natural gas through preheating.

Smart Heating and Lighting Systems

Smart control systems for heating and lighting can reduce energy use during times of low-occupancy.

Upgrade to Energy Efficient Equipment

Energy efficient equipment and electronics can be purchased where possible.

High Efficiency Lights

Electricity use can be reduced, and lights will need to be replaced less often by replacing incandescent bulbs with High Efficiency bulbs or LEDs.

Rooftop Solar

Rooftop solar panels can reduce electricity costs while powering businesses with clean energy. As with residential solar, the price of solar is decreasing steadily, and utility companies like Enmax offer financing options for solar installations for businesses. Business owners in Lethbridge are in a particularly good position to take advantage of solar, given the high solar potential in the Southern Alberta region.

Energy Assessments

Undertake energy assessments to understand and measure the energy use of a building to identify potential areas of improvement.

5 FUNDING

Homeowners and business owners can apply for funding and financing options to upgrade to energy efficient technologies. In Alberta, Energy Efficiency Alberta (EEA) previously offered a wider range of funding opportunities for homeowners; however, these have been recently discontinued when the Provincial government disbanded EEA

programs and integrated them into Emissions Reduction Alberta (ERA) and the Municipal Climate Change Action Centre (MCCAC) in 2020¹. There are several

Municipal Climate Change Action Centre (MCCAC)

In the near future, homeowners can apply for affordable, long-term financing to cover up to 100% of their project costs through the Municipal Climate Change Action Centre². This program has not yet launched, but is expected to begin in the Spring of 2021.



Emissions Reduction Alberta (ERA)

Small and medium-sized businesses can apply for up to \$250,000 of funding for energy efficiency projects through Emissions Reductions Alberta³.



Utility Providers

Utility providers, such as Enmax, provide opportunities to purchase home solar outright, or lease over a 15-year term⁴. Opportunities are available for businesses on a case-by-case basis⁵. Opportunities may be available through other utility providers as well.

Environment Lethbridge

Environment Lethbridge recently offered The Small Business Energy Efficiency Program, which provided free one-on-one individualized coaching with small businesses to identify and achieve their energy efficiency, waste reduction, and water conservation goals.



6 COMMUNITY ENERGY, ENVIRONMENT AND EMISSIONS PLANNING

Most communities opt to create broader community energy or energy and emissions plans, or nest energy and energy efficiency planning within larger community climate or plans. Starting with the broader vision of a sustainable, climate resilient community and working inwards to energy efficiency planning may help situate energy efficiency more firmly within complimentary, but on occasion competing, goals and priorities.

The City of Guelph and the Town of Newmarket both opted to create Community Energy Plans. Guelph's Community Energy Plan focused on engaging citizens to create a holistic vision for a sustainable energy future⁶. Guelph focused on energy and water use together throughout their plan. The Town of Newmarket's Community Energy plan also starts with engaging with citizens to create a vision, goals, and targets for energy use in the community, before turning to create a Community Energy Profile and energy maps. This allowed the Town of Newmarket to identify the areas of highest energy use in the community and focus their efforts on those areas.

¹ <https://efficiencyalberta.ca/>

² <https://mccac.ca/programs/clean-energy-improvement-program/>

³ <https://eralberta.ca/energy-savings-for-business/>

⁴ <https://www.enmax.com/home/renewable-energy/solar-options>

⁵ <https://www.enmax.com/business/solar/overview>

⁶ https://guelph.ca/wp-content/uploads/report_communityEnergyInitiative.pdf

Calgary is in the process of engaging the community on its Environment Strategy and Action Plan⁷. While the plan is still in the engagement phase, it aims to address both energy and the environment, and create actions and targets that reflect outcomes in each of those interconnected areas.

An advantage to focusing on energy, environment and emissions planning in addition to focusing on energy efficiency is that it would give the City the opportunity to engage a wider range of residents and undertake a wider range of projects with complimentary goals. As examples that extend beyond energy efficiency, the City of Markham's district energy project involved collaboration between the City of Markham and the business and residential community to provide district heating to buildings and residences⁸. The City of Victoria engaged with developers and the community to redevelop 15 acres of brownfield in the centre of Victoria. The project was focused from the ground-up on building a sustainable, low-energy community, and has since gone on to be a globally recognized project⁹. Understanding the linkages between energy efficiency and other sustainability goals and engaging with the community about a wider range of goals, can open up new projects and opportunities that may be missed if the focus is solely on energy efficiency.



⁷ <https://engage.calgary.ca/environment>

⁸ <http://www.markhamdistrictenergy.com/>

⁹ https://www.cagbc.org/CAGBC/Programs/LEED/LEEDv4/LEED_v4_Leaders/dockside_green.aspx

CLOSURE

This report was prepared for the City of Lethbridge to provide lessons learned relevant to the community from the recently completed Energy Conservation Master Plan & Strategy report.

The services provided by Associated Engineering Alberta Ltd. in the preparation of this report were conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made.

Respectfully submitted,
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APPENDIX A - ENERGY EFFICIENCY INFOGRAPHIC

The Benefits of Energy Efficiency

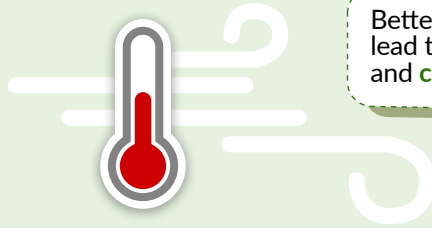


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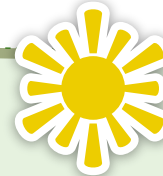
Looking to save money while helping the environment?
Here are things you can do at home, on the go, and at your place of work to reduce energy use.



Save money through lower heating and cooling bills



Better insulation and window and doorway sealing lead to a **more comfortable home** – warmer in the winter and cooler in the summer



Improved heating and ventilation systems lead to **better indoor air quality**

Saving Energy at Home

If you are considering home renovations, or just want to get some quick savings, make the most of the following ideas to improve your home comfort and reduce costs.

Automatically adjust temperatures with **smart thermostats**

Replace old appliances with **energy efficient furnaces, refrigerators, washing machines, and dishwashers**

Practice energy saving habits by **switching off lights and appliances** when you don't need them, making sure **doors and windows are firmly closed**, and by remembering to **turn your thermostat down** when you know you'll be away from the home



Consider **replacing old windows and doors** with the latest well-insulated windows and doors

Cut down drafts around windows and doors by **replacing seals**

Rooftop solar panels can cut down electricity costs while powering homes with clean energy

Keep the heat inside in the winter and outside in the summer by **re-insulating your walls or roof**

Replace **incandescent bulbs** with energy efficient alternatives, and consider installing **lighting controls** to automatically turn off or on lights as needed.

The Benefits of Energy Efficiency



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Saving Energy on the Go

Improve your health while cutting down on fuel use by **walking or biking** when possible

Cut down on costs and greenhouse gas emissions by **taking transit**

Save money on fuel by **carpooling with others**

Save money on fuel and maintenance by **switching to a hybrid or electric model**

Funding, Financing, and Other Resources

Take advantage of funding and financing options to upgrade to energy efficient technologies in homes and businesses

Starting in the Spring of 2021, home owners can apply for affordable, long-term financing to cover up to 100% of their project costs through the **Municipal Climate Change Action Centre**

<https://mccac.ca/programs/clean-energy-improvement-program>

Small and medium-sized businesses can apply for up to \$250,000 of funding for energy efficiency projects through **Emissions Reduction Alberta**

<https://eralberta.ca/energy-savings-for-business/>

Utility service providers may provide opportunities to purchase home solar outright, or lease over a 15-year term. Opportunities are available for businesses on a case-by-case basis.

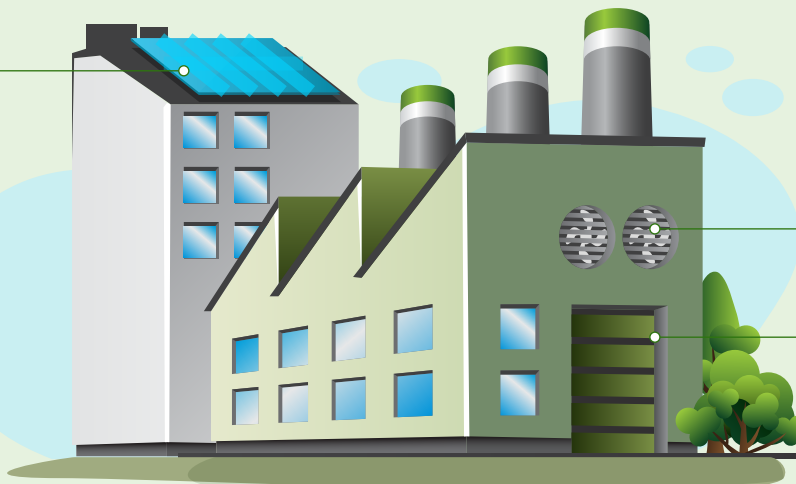
For more ideas on how to improve the energy efficiency of your business, check **Environment Lethbridge's Sustainable Business Guide** to self-certify your business. <https://environmentlethbridge.ca/sustainable-certification/>

Saving Energy at Work

Rooftop solar can reduce electricity costs while powering businesses with clean energy

Install **smart control systems** for heating and lighting to reduce energy use during times of low-occupancy

Measure the energy use of a building through **energy assessments** to identify areas of improvement



Energy efficient HVAC systems can save money while improving indoor air quality

Sealing doors and windows can reduce air leaks and decrease heating and cooling costs

Purchase **energy efficient equipment and electronics** where possible

Replace **incandescent bulbs** with energy efficient alternatives.

*This infographic was developed by
Associated Strategic Advisory Services*