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MEASURING ENERGY CONSUMPTION IN RECREATION FACILITIES

Canmore Recreation Centre
in Canmore, Alberta

Situated in the eastern Rocky Mountains, the Town of Canmore offers unparalleled recreation opportunities both outdoors and in, including at its Canmore Recreation Centre. This centre as well as other municipal buildings are included in the Town's efforts to reduce greenhouse gas (GHG) emissions by 50 percent by 2030 while also decreasing operational costs and improving efficiency.

Land acknowledgement

The Town of Canmore is located within the Treaty 7 region of southern Alberta, which includes the traditional Treaty 7 territory and oral practices of the Îyârhe Nakoda (Stoney Nakoda)—comprised of the Bearspaw First Nation, Chiniki First Nation and Goodstoney First Nation—as well as the Tsuut'ina First Nation and the Blackfoot Confederacy comprised of the Siksika, Piikani and Kainai. This land is also home to the Rocky View Métis District 4 within the Battle River Territory.

We acknowledge the many First Nations, Métis and Inuit people whose footsteps have marked these lands for centuries and whose presence continues to enrich our vibrant communities. We make this acknowledgement as an act of reconciliation and gratitude and as part of our commitment to pursuing an inclusive, collaborative and respectful path to building stronger communities.



CANMORE RECREATION CENTRE

The Canmore Recreation Centre offers a variety of sport and leisure opportunities for all ages. The facility has two ice rinks, two multipurpose rooms (one with a kitchen server), two meeting rooms, a gymnastics facility and a gym available for private hire. Outdoor amenities include a skate park and a sports field. Originally built in 1983, the

Canmore Recreation Centre was updated in 2019 with a focus on lifecycle maintenance, building code upgrades and modernization of the arenas, gym, changing rooms, lobbies and community spaces. The refrigeration plant and building systems were also updated. These retrofits should ensure that the facility lasts for another 30 years.

The Town of Canmore has installed a monitoring system within the Canmore Recreation Centre to track and improve the building's energy performance. The system includes internet-connected amp clamps that continuously monitor and log the facility's real-time power usage, providing granular insights into its energy consumption.

The monitoring system will allow Canmore to benchmark the facility's energy usage on a month-to-month basis. It will provide clarity and real-time data to help staff

monitor equipment health, identify opportunities for improvement and better understand how energy is being used.

Retrofitting community buildings gives local governments an opportunity to improve energy performance, lower operating and maintenance costs and transition to cleaner energy solutions. The Town of Canmore spends approximately \$1.8 million annually on natural gas and electricity for its facilities and operations, with the Canmore Recreation Centre being one of the most energy-intensive and costly buildings to operate.

ENERGY BENCHMARKING 101

Energy benchmarking is a process used to evaluate a building's energy performance by comparing current energy use with historical performance, similar building types or a set of standards. Energy benchmarking typically includes the following steps:

1. Gathering data on a building's energy consumption.
2. Normalizing the data for factors like building size, occupancy and weather.
3. Benchmarking. Common tools and standards include Energy Star Portfolio Manager and RETScreen.
4. Completing comparative analysis to identify areas of high energy consumption or inefficiency.
5. Identifying energy management opportunities.
6. Implementing energy management opportunities.
7. Ongoing monitoring and evaluation, as a continuous improvement practice.

Canmore Recreation Centre roof mount solar PV system

In 2021, the Town of Canmore installed a 400.5 kW solar photovoltaic system on the Canmore Recreation Centre's roof. The system consists of 890 solar modules and is conservatively estimated to generate 367,800 kWh per year. The project is helping the Town lead by example by producing renewable energy and reducing its carbon footprint while supplying 22 percent of the facility's electricity consumption. The project was funded in part by the Government of Alberta through the Municipal Climate Change Action Centre's Alberta Municipal Solar Program.



Here are Canmore's recommendations for energy monitoring projects:

1

START WITH TARGETS— AND A PLAN

Over the past decade, the Town of Canmore has focused on environmental sustainability through several council-approved plans and actions on the corporate and community scale. The municipality leads by example in working to reduce emissions associated with energy use in all municipal buildings. Having a climate action plan and emission reduction targets in place helps the Town prioritize actions, build internal buy-in and break down departmental silos. Canmore's climate action plan provided the strategic foundation to support building-level energy monitoring initiatives.

In turn, ongoing monitoring and detailed energy consumption data can inform progress, long-term planning and performance improvements. By integrating energy monitoring into climate action planning processes, communities can accelerate progress towards a low-carbon, resilient and sustainable future.

“Our climate plans provide a roadmap for upgrading our aging buildings and opportunities to improve resiliency and reduce operating costs.”

—Amy Fournier,
*Energy and Climate Action
Coordinator, Town of Canmore*



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BUILD A TEAM

Municipal administration is often divided into departments, each with distinct mandates and responsibilities. Successful energy monitoring projects require bringing multiple departments to the table to complete the project and use the data in a meaningful way. Canmore was able to get its project started thanks to involvement by staff from facilities and sustainability. Working together in this manner to coordinate efforts offers many benefits such as maximizing impact and increasing visibility to and influence on policymakers, stakeholders and the public.

3

FIND FUNDING OPPORTUNITIES

External funding helps municipalities adopt climate solutions faster. Canmore's energy monitoring project was made possible by funding from the Green Municipal Fund's Community Building Retrofit Initiative. This program supports all stages of project development, helping communities of all sizes to significantly reduce their GHG emissions while also extending their asset's life cycle. Receiving the grant pushed Canmore to invest more time and effort into finding innovative opportunities to reduce energy use and emissions.

“Consider upfront how projects will be operationalized and resourced in the long term. To succeed, these projects need to be part of a longer-term commitment to monitoring and analysis and acting on the information, not a ‘one and done’ thing.”

—Jeff Thom,
Facility Maintenance Technician,
Town of Canmore

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COMMUNICATE BENEFITS

The energy monitoring project will provide several benefits to the Canmore Recreation Centre, including the ability to:

- Better monitor day-to-day power use.
- Identify opportunities to reduce power consumption, the associated GHG emissions and operating costs.
- See tangible results of energy efficiency initiatives.
- Better monitor equipment health.
- Make more-informed decisions related to energy use and occupant comfort.
- Inform future initiatives to reach Council's target of reducing GHGs by 50 percent by 2030.
- Use this technology for other facilities in the future.

Effective communication about the benefits of energy monitoring is essential to engage the stakeholders needed to make building retrofits happen. By highlighting these benefits, municipalities can foster a culture of energy efficiency and sustainability.

Produced by the Municipal Climate Change Action Centre for the Green Municipal Fund. The Municipal Climate Change Action Centre is a partnership of Alberta Municipalities, Rural Municipalities of Alberta and the Government of Alberta.