CASE STUDY **Foothills County - Scott Seaman Sports Rink**

Municipal Climate Change Action Centre

Feel the Power

Maybe it goes without saying, but recreation centres, like the Scott Seaman Sports Rink (SSSR) in Foothills County, require *a lot* of energy to operate.

THE CHALLENGE

Maintaining a high-quality ice surface while keeping spectators warm is an energy-intensive process that requires balancing opposing refrigeration and heating systems. This is why the SSSR is the largest consumer of electricity and gas throughout all County-owned facilities. In 2024, the SSSR incurred $110,000 in electricity and natural gas costs while consuming 720,000 kilowatt-hours of electricity and over 3,000 gigajoules of natural gas.

Growing communities need to provide recreational facilities but operating and maintaining them come with significant costs. The SSSR and its heavy utility load is typical for Canadian arenas, but Foothills County is not a typical county. They saw an opportunity with MCCAC's Municipal Energy Manager program and hired an energy management expert and began the journey to converting the SSSR into one of the most energy efficient arenas in the country.

THE SOLUTION

Foothills County leveraged grant funding to overhaul how energy is used in the SSSR. They approached the problem from two directions: incorporating systems that use energy more efficiently to do the same or better job than before and implementing on-site electricity generation. They accessed funding from a handful of different grants in these two categories. To bridge the efficiency and generation projects, they installed heavily insulated heat storage tanks that work in tandem with the ice plant heat recovery and combined heat and power (CHP) units, storing large amounts of heat until it is needed. This approach maximizes building performance.

"Having three modular CHP units allows the County to cycle maintenance between the three and prevent having to completely shut off the system."

—Adeniyi Adeaga, Manager of Municipal Energy Services

THE MUNICIPALITY

Located in southern Alberta, **Foothills County** *is adjacent to Calgary and covers 3,600 km² of scenic landscapes and rich agricultural land. The SSSR opened in 2013 as the County's first and only multi-purpose facility, featuring an NHL-sized ice rink, walking track, and multi-purpose activity rooms. With a growing population, the county knows that keeping facilities like the SSSR in working order is a priority for the community.*

With the CHP units, solar, heat recovery, REALice system, and electric ice resurfacer, the SSSR is one of the most energy efficient arenas in Alberta, if not Canada. With all the upgrades, annual GHG emissions are estimated to have decreased by almost 50% compared to the 2019 baseline.

The contractor AK Brown is based in Calgary and completed a similar CHP unit install within their own shop.

FUNDING

$1.9M

$730,000 from MCCAC programs and $1,173,000 from the Government of Canada via the Green and Inclusive Community Buildings Program

ACTION

9

energy conservation and electricity generation retrofits

SUCCESS

50% ↓

annual greenhouse gas emissions reduction compared to 2019 baseline

Quality ↑

improved ice quality and occupant comfort; reduced maintenance

$104k ↓

annual energy cost savings

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IMPROVING THE SSSR

Achieving energy and cost savings with energy conservation and electricity generation is not always easy. Foothills County has done exceptional work in energy efficiency and electricity generation upgrades.

ENERGY EFFICIENCY

- A **REALice** system which prepares cold water for flooding with their more efficient **electric ice resurfacer**
- Ice plant **heat recovery** which uses heat that would otherwise be vented outside and wasted
- A **building automation system** to control and optimize energy consumption
- **Variable frequency drives** on electric motors to throttle electric load
- **Demand control ventilation** to optimize air quality and energy use based on occupancy
- A new **make-up air unit** with energy recovery ventilation

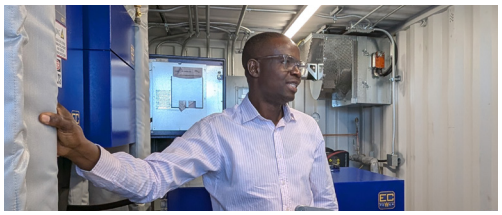
ELECTRICITY GENERATION UPGRADES

- A modular 72-kW (three 24 kW units) natural gas fired combined heat and power system that generates electricity and stores the waste heat
- A 39-kW DC roof mounted solar PV system consisting of 65 610 watt solar modules

FEEDBACK ON WORKING WITH MCCAC

"We at Foothills County are doing our best to identify and implement efficiency measures that will help reduce GHG emissions from our facilities and operations and save valuable public dollars. These newly completed projects are only a few of the many projects we have identified to help us achieve our efficiency goals and we thank the MCCAC for providing a substantial portion of funding to complete them."

—Delilah Miller, Reeve



THE MUNICIPAL ELECTRICITY GENERATION PROGRAM

The Municipal Electricity Generation Program (MEG) provides financial rebates to Alberta municipalities to install grid-connected alternative electricity generation systems, like solar PV or combined heat and power, on municipally owned facilities or land, thanks to a grant from the Government of Alberta.

The program was designed and delivered by the Municipal Climate Change Action Centre, a partnership of:

Alberta Municipalities Strength In Members

RMA RURAL MUNICIPALITIES of ALBERTA

Alberta