



## How Foothills County Facility Became a Leader in Energy Innovation

### PROJECT INFORMATION

**Client:** Scott Seaman Sports Rink (SSSR)

**Engineer:** King Engineering and Consulting

**Contractor:** AK Brown, Evolsolar

**Manufacturers:** EC Power, ICE Western, Grundfos, NTI Tankless Water heater

**Date completed:** 2025

### TECHNICAL INFORMATION

**Electricity Produced:** 72 kW (CHP) + 40 kW (Solar PV)

**Heat Produced:** 234 kW (CHP)

**System Efficiency:** 95%+

**Footprint:** Significantly reduced grid demand and fossil-fuel reliance

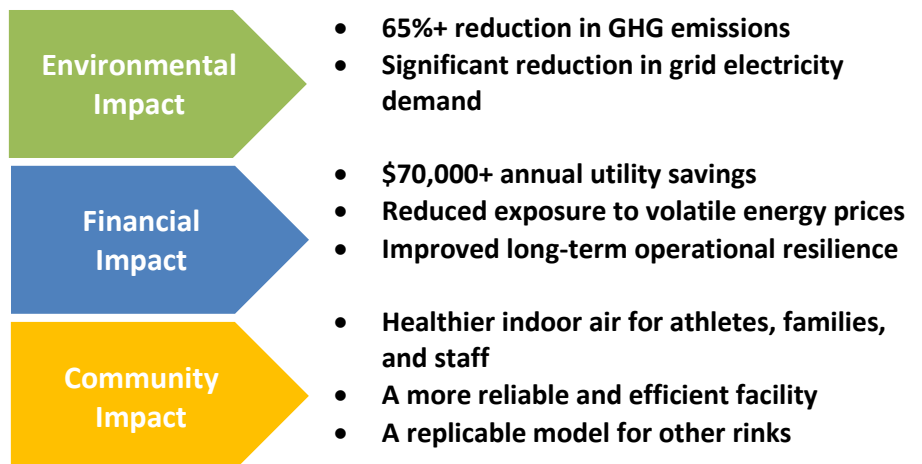
### Project Overview

The Scott Seaman Sports Rink (SSSR) in Foothills County, Alberta, has emerged as a benchmark for sustainable recreation infrastructure. Driven by a comprehensive design strategy from King Engineering, the facility has undergone a major modernization that integrates:

- A Cogeneration / Combined Heat and Power (CHP) system
- Rooftop solar photovoltaic system
- Demand control ventilation with energy recovery fresh air unit upgrades
- Intelligent building automation

Together, these upgrades are projected to deliver transformative environmental, financial, and community benefits.

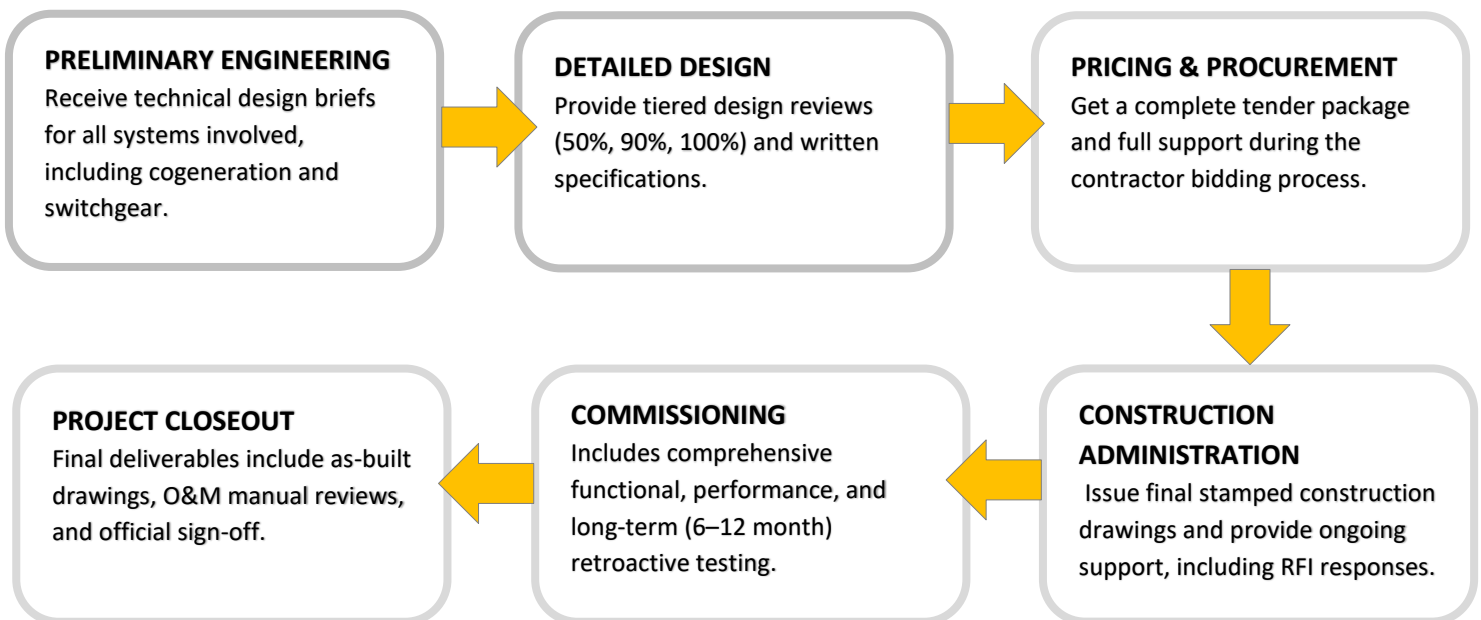
### Project Impact



Supported by the Green and Inclusive Community Buildings (GICB) program, the project demonstrates how rural recreation facilities can dramatically reduce operating costs while improving environmental performance and community well-being.

## Integrated Project

King Engineering played a central role in the transformation of the Scott Seaman Sports Rink. Chosen over several of Canada's largest firms, their proposal stood out for its proven expertise, innovative thinking, and strong track record in sustainability across Western Canada. Their involvement extended well beyond traditional engineering, guiding Foothills County through every stage of the project:



## A Multilayers Strategy for Energy Innovation

Foothills County faced rising energy costs, aging mechanical systems, and increasing expectations for healthy indoor air—all while relying on an increasingly strained provincial electrical grid. The challenge was to modernize the rink into a resilient, energy-efficient facility that could serve as a scalable model for communities across Alberta.

King Engineering's solution combined energy generation, energy recovery, and intelligent building controls into a unified, high-performance system.

### 1. Combined Heat and Power (CHP) System

- Central to the upgrade is a high-efficiency CHP system producing 114 kW of electricity and 234 kW of heat
- CHP technology generates electricity and heat from a single fuel source, operating 40%–90% more efficiently than conventional power plants
- The system achieves over 95% total efficiency with an estimated 65% reduction in GHG
- Integrated hot water storage ensures nearly all recovered heat is captured and fully utilized
- Demonstrates strong retrofit potential, as noted by contractor John Brown of AK Brown “Completing this project demonstrates the efficacy of CHP systems and their ability to be retrofitted into existing infrastructure.”



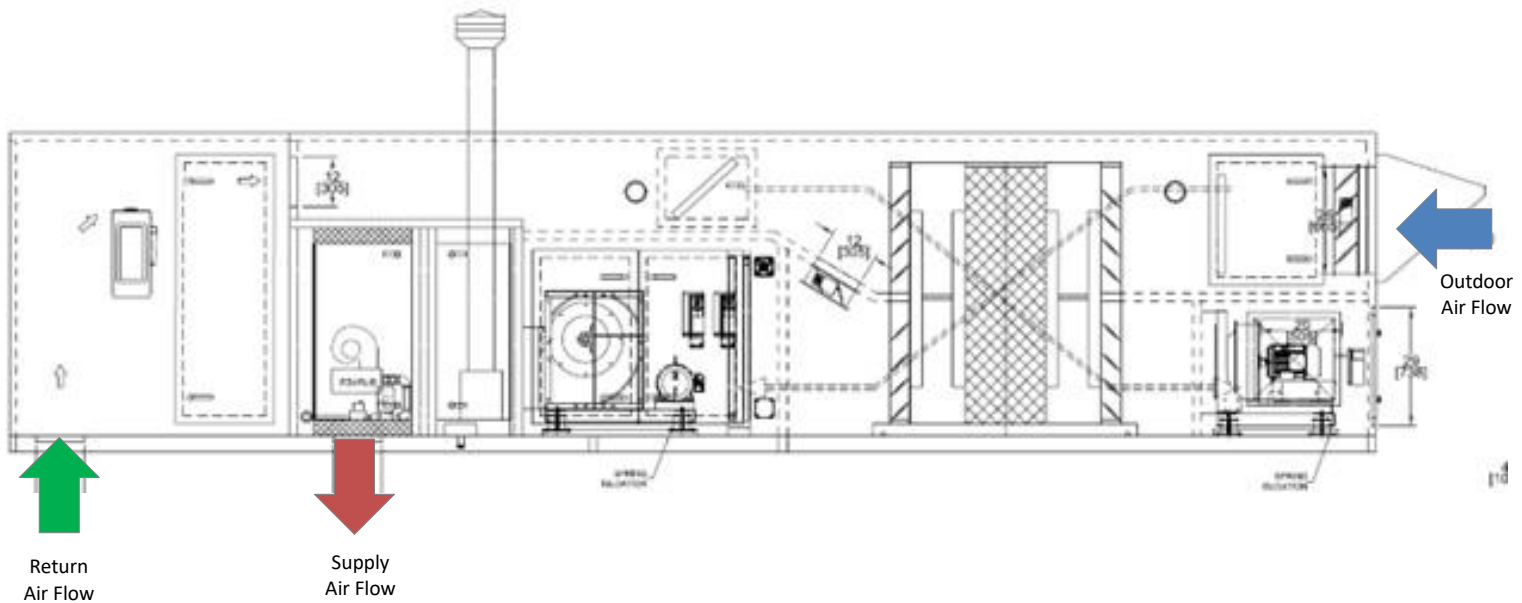
### 2. Rooftop Solar Photovoltaics (PV)

- Installed a 40 kW DC solar PV system with 65 rooftop panels rated at 610 W each by Evolsolar
- Generates an estimated 41,493 kWh annually, reducing reliance on the electrical grid
- Lowers long-term electricity costs and decreases the facility's carbon footprint
- Maximizes use of unused rooftop space through efficient solar placement
- Establishes a strong platform for future solar expansion, including potential parking-lot structures



## 3. Advanced Ventilation & Indoor Air Quality (IAQ) Upgrades

- High-efficiency ventilation energy recovery system was custom made in Calgary by ICE Western. A regenerative energy recovery system by Polybloc of Switzerland was included to maximize energy and humidity savings
- 91% burner efficiency and a 35:1 heating turndown ratio support precise, low-waste operation
- A modernized Building Automation System (BAS) monitors CO<sub>2</sub> levels and coordinates intelligent control of 11 Carrier rooftop units outside air dampers. Conditioning of the air occurs only when fresh air is required, improving indoor air quality while reducing energy use
- Upgrades align with the latest ASHRAE Standard 62.1 and 241



### Conclusion

The Scott Seaman Sports Rink shows what's possible when a municipality truly invests in innovation, sustainability, and long-term planning. Thanks to the forward thinking of Adeniyi Adeaga, Manager of Energy Services, the project moved from vision to completion with a clear focus on performance and community impact. By integrating CHP, solar PV, and advanced ventilation, Foothills County has created a facility that is environmentally responsible, economically efficient, health-focused, and built for the future. More than a local achievement, SSSR underscores King Engineering's leadership in energy-smart community infrastructure and offers a practical blueprint for Alberta rinks aiming to cut costs, boost performance, and strengthen resilience.

