

To: Regional and Corporate Services Committee

Date: 2018-12-11

From: Micha Gutmanis, Environmental Services Coordinator

File No: 1855-35

Subject: BC Hydro Grant Award and Energy Efficiency Study at Hope Recreation Centre

INTENT

This report is intended to advise the Committee that the Fraser Valley Regional District has been awarded a BC Hydro PowerSmart grant in the amount of \$43,000 to undertake an Energy Efficiency Study for the Hope Recreation Centre and adjoining Curling Rink. Staff is not looking for a recommendation and has forwarded this information should members want more clarification or to discuss the item further.

STRATEGIC AREA(S) OF FOCUS

Support Environmental Stewardship

Support Healthy & Sustainable Community

PRIORITIES

Priority #2 Air & Water Quality

BACKGROUND

The Fraser Valley Regional District (FVRD) continually strives toward a more sustainable future in every aspect of its operations. The Hope Recreation Centre, a facility providing space for recreation and community-building, happens to be the FVRD's largest greenhouse gas contributor. The sheer size of the buildings, as well as aging infrastructure, makes the Hope Recreation Centre Complex, which includes the Aquatic Centre, Library, Ice Arena, Conference Centre, and adjoining Curling Rink, a very energy intensive and expensive operation. A large amount of energy is required to provide heating and cooling of the buildings, creation and maintenance of ice, and for heating the swimming pool.

Energy efficiency upgrades in recreation centres are becoming increasingly important as a climate change mitigation measure and to reduce costs. While electricity is a clean source of energy in British Columbia, it is important to find efficiencies to reduce the overall electrical demand and operation costs in the buildings. Recreation centres throughout Canada that have implemented energy efficiency upgrades have both decreased their carbon footprint and realized substantial long-term financial savings.

The Hope Recreation Centre Complex is energy inefficient, with 1,868,000 kWh of thermal energy dissipated to the outdoor air through a cooling tower or through the municipal sewer system, and wastes domestic water. The buildings are heated with natural gas boilers or furnaces, and the

refrigeration plants in the facility produce about 34% more energy than is needed to heat the buildings per year.

Besides environmental and cost saving considerations, recent incidents at other ice arenas have highlighted that the safe use of ammonia is still a concern. Although the Hope Recreation Ice Arena has an outstanding safety record and follows recommended safe working protocol, the ammonia system is not the safest option available.

DISCUSSION

The FVRD has been successful in securing a \$43,000 grant from BC Hydro under its PowerSmart Program to undertake an Energy Efficiency Study at the Complex. The Energy Efficiency Study will include a comprehensive review of energy savings potential and introduce recommendations to improve the energy efficiency of the buildings. Not only will it look at the mechanical and electrical equipment, but the Study will also include a water audit which will analyze ways to reduce water usage. This study is expected to be completed in the Spring of 2019.

Earlier in 2018, the FVRD hired an engineering company to look into the feasibility of a Ground-Source Heat Pump system (geothermal heat pump) for the Hope Recreation Centre Complex. A Ground-Source Heat Pump is a central heating and/or cooling system that transfers heat to or from the ground. Closing the energy loop with a geothermal heat pump will effectively divert heat from the cooling tower and municipal sewer system to heat the buildings. This will eliminate the use of gas and reduce CO₂ emissions by approximately 290 tonnes (93%) annually. A geothermal heat pump retrofit will also eliminate the use of ammonia and ensure the Complex continues to be a safe and environmentally sustainable space for the community.

The FVRD is currently pursuing separate, additional grant funding to assist in energy upgrades that may be recommended from the BC Hydro Energy Efficiency Study and to implement infrastructure required for a potential geothermal heat pump retrofit of the entire Complex.

COST

The total cost of the BC Hydro Energy Efficiency Study, \$43,000, will be covered by the secured BC Hydro PowerSmart Program grant. Approval to proceed with any energy upgrades or a geothermal heat pump project will be sought from the Board once all anticipated costs are known.

CONCLUSION

As a signatory of the BC Climate Action Charter, the FVRD is committed to becoming carbon neutral in all of its operations. The BC Hydro PowerSmart \$43,000 grant that the FVRD has obtained will directly fund the Energy Efficiency Study for the Complex, and provide long-term energy efficiency strategies to implement in conjunction with a potential geothermal heat pump retrofit project.

COMMENTS BY:

Barclay Pitkethly, Director of Regional Programs

Reviewed and supported

Mike Veenbaas, Director of Financial Services

Reviewed and supported

Paul Gipps, Chief Administrative Officer

Reviewed and supported