

Report

Date December 4, 2024
Subject Energy Study of the Aquatic Centre

File:

PURPOSE

To seek Council approval to perform an energy conservation assessment of the Cowichan Aquatic Centre.

BACKGROUND

The project proposes an engineering analysis of the end-of-life mechanical equipment at the Cowichan Aquatic Centre. This analysis will determine the most cost-effective and holistic way of utilizing Fortis BC grant funding to upgrade the end-of-life equipment while reducing the facility's carbon emissions.

Council approved the [Climate Action and Energy Plan](#) in January 2022. This project supports goal 4 of this plan: "achieve net-zero emissions in municipal buildings by 2030". The [Climate Action and Energy Plan Reserve Fund Terms of Reference](#) provides guidance on fund expenditures, and this project would qualify as a corporate grant.

DISCUSSION

The Cowichan Aquatic Centre generates 65% of the emissions within the municipal building portfolio. Gas consumption and facility emissions have increased in 2023, reflecting less efficient plant operations due to end-of-life asset conditions for mechanical equipment. Of the 574 tonnes of greenhouse gas emissions generated in 2023, 550 t was from gas and 24 t from electricity consumption.

	Gas (GJ)	Electricity (kWh)	Emissions (tCO ₂ e)
2018	2,475	2,652,393	145
2019	5,147	2,579,158	278
2020*	4,314	1,518,983	231
2021*	3,595	2,178,629	202
2022	7,044	2,374,924	381
2023	10,953	2,149,120	574

*reduced operating hours and capacity due to COVID-19 operating restrictions.

The study will analyze the end-of-life air source heat pump, water-to-water heat pumps, domestic hot water systems, and air handling units. A building-wide energy model would be completed, and options for energy conservation measures will be presented to reduce the facility's energy consumption. These conservation measures could also include waste heat recovery, heat sharing, and building control optimization. A 5–8-year roadmap will be developed for capital expenditures, and implementing these measures will be a separate budget request.

A submission is being prepared for Fortis BC's Custom Efficiency Program. Should Fortis BC accept this submission, an agreement will be signed to provide assurance of end-of-project incentive amounts. The energy study would then start at a cost of \$32,785, and 75% would be reimbursed upon completion and acceptance of the study. If one or more energy conservation measures are completed, Fortis BC will also reimburse us the remaining 25% upon completion of that project.

The study costs are recommended to be allocated from the Climate Action and Energy Plan Reserve Fund. All reimbursements recovered from the completion of the energy study and the implementation of energy conservation measures will be returned to the Reserve Fund. While the study initially requires \$32,785, North Cowichan would have knowledge of an additional 75% of this cost reimbursement at the start of the project, and the additional 25% is highly likely to be recouped given early review of energy conservation measure options.

OPTIONS

1. **(Recommended Option)** THAT Council allocates up to \$32,785 from the Climate Action and Energy Plan Reserve Fund to complete the Cowichan Aquatic Centre energy study and direct any future reimbursements by Fortis BC incentives back to the Reserve Fund.
 - No amendments to the financial plan are required as the expenditures can be allocated from the 2024 Climate Action and Energy Plan Reserve budget.
2. THAT Council allocate up to \$32,785 to complete the Cowichan Aquatic Centre energy study from unallocated surplus.

IMPLICATIONS

Implications	Concerns or Impacts to North Cowichan
Social	<ul style="list-style-type: none"> • No significant impacts or concerns. Equipment replacements would improve facility comfort.
Environmental	<ul style="list-style-type: none"> • Completion of this study will present energy savings opportunities that can be pursued for the Cowichan Aquatic Centre.
Financial	<ul style="list-style-type: none"> • The study would pursue incentive funding from the Fortis BC Custom Efficiency Program to seek reimbursement of up to 100% of project costs. • Results would inform facility asset management planning.
Policy/Legislation	<ul style="list-style-type: none"> • No significant impacts or concerns.
Strategic Priority	<ul style="list-style-type: none"> • Climate Action and Energy Plan: Goal 4 "Achieve net-zero emissions in municipal buildings by 2030".
Communication	<ul style="list-style-type: none"> • No significant impacts or concerns.
Staffing Implications	<ul style="list-style-type: none"> • No significant impacts or concerns. Assessment work would be performed by a qualified mechanical engineering contractor.

RECOMMENDATION

THAT Council allocates up to \$32,785 from the Climate Action and Energy Plan Reserve Fund to complete the Cowichan Aquatic Centre energy study and direct any future reimbursements by Fortis BC incentives back to the Reserve Fund.

Report prepared by:



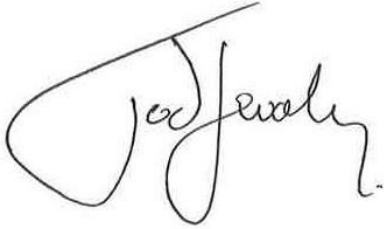
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