

DATE OF MEETING March 18, 2020
AUTHORED BY SCOTT PAMMINGER, MANAGER, INFRASTRUCTURE PLANNING AND ENERGY

SUBJECT **ELECTRIFICATION AND GEOEXCHANGE OPTIONS FOR REDUCING GREENHOUSE GAS EMISSIONS**

OVERVIEW

Purpose of Report

To obtain Council's approval to use funds from the Emissions Reduction Reserve Fund to study the feasibility and potential options at each facility for upgrades to the heating plants at the Nanaimo Aquatic and Beban Park Recreation Centres, with the goal of significantly reducing greenhouse gas emissions.

Recommendation

That the Finance and Audit Committee recommend that Council:

1. direct Staff to proceed with studying the feasibility and potential options at each facility for upgrades to the heating plants at the Nanaimo Aquatic and Beban Park Recreation Centres with the goal of significantly reducing greenhouse gas emissions; and,
2. approve funding of \$50,000 from the "Emission Reduction Reserve Fund Bylaw 2019 No. 7298" to complete these studies.

BACKGROUND

Council's resolution of a state of climate emergency in April 2019 and creation of "Emission Reduction Reserve Fund Bylaw 2019 No. 7298" (Attachment A) to support projects, plans and initiatives that reduce the City's greenhouse gas (GHG) emissions demonstrate a strong commitment to environmental responsibility.

Of all the City's building facilities, the boiler plants at the Nanaimo Aquatic and Beban Park Recreation Centres produce the largest amount of emissions due to their consumption of natural gas for heating pool water, domestic hot water, and room spaces.

Reducing or possibly eliminating natural gas consumption would yield very significant reductions in the City's corporate greenhouse gas (GHG) emissions.

DISCUSSION

Through regular asset management and condition assessment practices, it has been identified that the three large boilers in the Nanaimo Aquatic Centre heating plant and the one remaining older boiler at Beban Park Recreation Centre are near end-of-life and will soon need replacing within the next two to four years.

Although natural gas fired boilers have traditionally been the lower cost heating source and have improved their efficiency dramatically in recent years, zero emissions electric boilers, heat pumps, and geo-exchange energy coupling are some of the possible options to consider.

In BC, electricity is considered almost carbon-free and is a clean renewable energy source. Switching to electrified solutions, where feasible, would provide the least emissions and impact on the environment but would yield higher than existing operating costs.

A study of the options and feasibility of heating plant upgrades (see Attachment B for scope of studies) will ensure appropriate solutions are implemented which consider operational, financial and environmental responsibility factors.

OPTIONS

1. That the Finance and Audit Committee recommend that Council:
 1. direct Staff to proceed with studying the feasibility and potential options at each facility for upgrades to the heating plants at the Nanaimo Aquatic and Beban Park Recreation Centres with the goal of significantly reducing greenhouse gas emissions; and,
 2. approve funding of \$50,000 from the "Emission Reduction Reserve Fund Bylaw 2019 No. 7298" to complete these studies.
- The advantages of this option are that these analyses demonstrate a corporate commitment which considers operational, financial and social responsibility aimed at less impact on the environment over time.
- The disadvantages of this option: The Emissions Reduction Reserve Fund would be depleted by \$50,000.
- Financial Implications: Funding of \$50,000 from the Emissions Reduction Reserve Fund is required for these studies. The current available balance in the fund is \$348,538. Approximately 14 percent of the funds would be allocated to these studies.

2. That the Finance and Audit Committee recommend that Council direct Staff to include funding through the 2021-2025 Capital Planning process for a study of the feasibility and potential options at each facility for upgrades to the heating plants at Nanaimo Aquatic Centre and Beban Park Complex with the goal of significantly reducing emissions.
 - a. The advantage of this option would be that funding for the study would not be drawn from the Emissions Reduction Reserve Fund, thereby leaving funds available for other climate action initiatives.
 - b. The disadvantages of this option: The studies would be delayed and earlier opportunities for potential financial incentives may be missed.
 - c. Financial Implications: Funding of \$50,000 for the study would need to be sourced from the 2021-2025 Capital Plan budget.
3. That the Finance and Audit Committee provide alternative direction. |

SUMMARY POINTS

- The City's natural gas boilers significantly contribute to corporate greenhouse gas emissions.
- Boilers at Nanaimo Aquatic and Beban Park Recreation Centres are near end-of-life and will need replacing within the next two to four years.
- Study funding from the Emissions Reduction Reserve will ensure options and feasibility for heating plant upgrades will consider operational, financial and environmental factors.
- An all-electric option can significantly reduce emissions but would yield higher operating costs.

ATTACHMENTS:

- Attachment A: "Emission Reduction Reserve Fund Bylaw 2019 No. 7298" |
- Attachment B: Terms of Reference for Nanaimo Aquatic Centre and Beban Park Complex – Study of Options and Feasibility for Heating Plant Upgrades

Submitted by:

Scott Pamminger
Manager, Infrastructure Planning and
Energy

Concurrence by:

Laura Mercer
Director, Finance

Art Groot
Director, Facility and Parks Operations

Richard Harding
General Manager, Parks, Recreation and
Culture