



March 4, 2019

MEMO TO : Park Board Commissioners

FROM : Malcolm Bromley
General Manager, Vancouver Board of Parks and Recreation

SUBJECT : **Renewable Energy Strategy for Park Board Facilities – Board Briefing**

Dear Commissioners,

The purpose of this memo is to provide a progress update on the Renewable Energy Strategy building retrofits for Park Board facilities and specifically the Second Beach Pool solar retrofit, which is currently at the building permit stage.

The [Greenest City Action Plan](#) “Goal 2: Green Buildings” sets a goal to reduce energy use and greenhouse gas (GHG) emissions in existing buildings by over 20% over 2007 levels. The Park Board has already surpassed this goal within its own facilities. As of the end of 2018, the Park Board achieved a 24% reduction in GHG emissions compared to 2007 and 42% compared to 1990, and is working on achieving much more aggressive targets as set out by the [Renewable Energy Strategy](#). Renewable energy retrofits can significantly reduce greenhouse gas (GHG) production. GHGs are the key contributor to global warming and climate change. In Vancouver, approximately 60% of the city’s overall GHG production comes from building energy use.

Renewable Energy Strategy for Park Board Facilities

The Renewable Energy Strategy for Park Board Facilities is the master plan used to prioritize renewable energy projects within Park Board facilities. It was developed to show internal leadership in response to the broader city-wide Renewable Energy Strategy. Targets are set to achieve 100% renewable energy and 100% GHG reduction in all Park Board facilities by 2040, ten years ahead of the broader city-wide Renewable Energy Strategy target of 100% renewable energy by 2050.

The strategy contains eight pillars focused on reducing GHG emissions and increasing the use of renewable energy in new and existing facilities. They include:

- 1) Constructing all new facilities to a zero emissions standard;
- 2) Renewal of existing facilities to a zero emission standard;
- 3) Connecting facilities to low carbon district energy systems such as Park Board owned Neighbourhood Energy Utility;
- 4) Energy retrofits and energy optimization for buildings and facilities;
- 5) Conversion of gas fired building systems to high efficiency electric;
- 6) Low thermal demand building envelope retrofits;
- 7) Installation of on-site renewable energy system such as solar; and
- 8) Purchase of renewable natural gas.

Renewable energy and energy retrofit projects underway or recently completed at parks and recreation facilities include:

- 1) Kitsilano Community Centre and Arena ice rink heat recovery gas to heat pump conversion;
- 2) Second Beach Pool solar thermal;
- 3) Bloedel Conservatory coloured lighting LED conversion and gas boiler to heat pump heating conversion;
- 4) Hillcrest Community Centre ice rink heat recovery optimization and hot water gas to heat pump retrofits;
- 5) Sunset Community Centre ground source heat pump optimization;
- 6) Ice rink LED lighting conversions at the Kerrisdale, Killarney, Kitsilano, Sunset, and West End arenas;
- 7) Killarney Community Centre ice rink heat recovery optimization;
- 8) Mount Pleasant Community Centre ground source heat pump optimization;
- 9) Kerrisdale Community Centre building control system replacement and optimization;
- 10) Roundhouse Community Centre gas to heat pump rooftop unit replacement;
- 11) Dunbar Community Centre building control system replacement and optimization; and
- 12) Creekside Paddling Centre Sheds solar PV.

Second Beach Pool Solar Thermal Project

REFM has tendered a design build project to install solar thermal panels on the roof of the concession stand at Second Beach Pool to reduce GHG emissions from operation of the pool as part of the Renewal Energy Strategy for Park Board Facilities. The renewable energy from the solar thermal panels will partially offset the use of fossil fuels used to heat the pool.

As shown in Figure 1, the solar panels will be installed on the concession roof. The panels will be unglazed thin mat solar collectors sitting flat on the roof. In case they need to be re-located for future construction projects, they are being designed to be easily disconnected from the piping and then can be rolled-up and moved.

Energy savings are estimated to be approximately 300 GJ of gas per year, which equates to approximately 15 tons per year of GHG emission reduction. The project is currently at the building permit stage and construction will start once the building permit is issued.

The outdoor pools at New Brighton and Kitsilano were also considered for renewable energy retrofits, however the New Brighton pool-house roof condition and slope precluded it from an energy retrofit at this point, and the lack of suitable roof space at Kitsilano was a limiting factor.

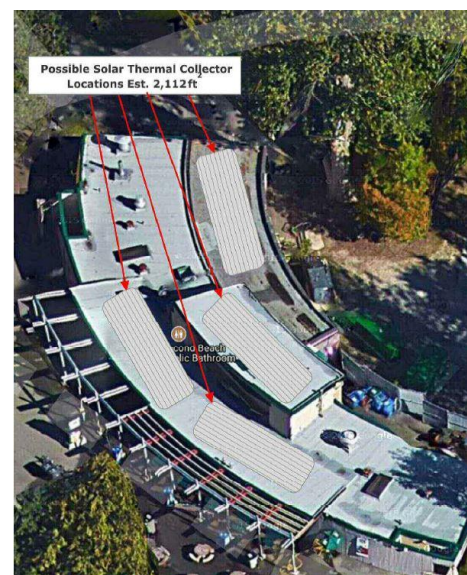


Figure 1: Second Beach Pool – Solar Thermal Project



There may still be future opportunities provided through the VanSplash Aquatics Strategy, such as adding shade structures (which rated high in Phase 1 engagement) that could be adapted for solar collection. Outcomes from VanSplash will also assist in providing direction for future pool renewals and optimizing conditions for transition to renewable energy retrofits.

Regards,

A handwritten signature in black ink that reads "Malcolm Bromley". The signature is written in a cursive, flowing style.

Malcolm Bromley
General Manager - Vancouver Board of Parks and Recreation

/dd/ce/clc

Copy to: PB Senior Leadership Team
PB Communications
Danica Djurkovic, Director, Facilities Planning and Development, REFM
Craig Edwards, Manager, Energy and Utilities, REFM