



CITY OF VANCOUVER

ADMINISTRATIVE REPORT

Report Date: June 24, 2008
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Meeting Date: July 10, 2008

TO: Standing Committee on City Services and Budgets

FROM: General Manager of Parks and Recreation

SUBJECT: Green House Gas Reductions (Corporate Climate Change Action Plan):
- Report Back on Phase 2 - Park Board Energy Performance Contract

RECOMMENDATION

That Council receive this report for information.

CITY MANAGER'S COMMENTS

The City Manager concurs with the recommendation.

COUNCIL POLICY

On April 23, 2002, Council adopted the Definition and Principles of Sustainability to guide, prioritize and improve the sustainability of City actions and operations.

On May 2, 2002, Council approved the motion proposed by the Federation of Canadian Municipalities to support the Canadian Government's ratification of the Kyoto Protocol.

On March 25, 2003, Council approved an emission reduction target of 20 percent from 1990 levels for the City of Vancouver, subject to evaluation of the implications of the target to ensure it is realistic. On this same date, Council created the Cool Vancouver Task Force and requested that it report back with a report on the components of a Greenhouse Gas Reduction (GHG) Action Plan for both the corporation and the community.

On June 24, 2003, Council received the Cool Vancouver Task Force's Discussion Paper on GHG Reduction Planning and approved a process to develop GHG Reduction Plans for both the City (Corporate) and the City (Community).

On December 2, 2003, Council:

- received and accepted the Corporate Climate Change Action Plan (CCCAP) from the Cool Vancouver Task Force;
- affirmed and approved the 2010 target of a 20 percent reduction in Corporate GHG's;
- requested that Corporate Services and Engineering Services report back by January 2004 on the opportunities that Energy Performance Contracts may offer the City to reduce emissions from its building and facilities; and
- approved the hiring of an Energy Projects Coordinator to assist in developing and implementing energy performance contracts.

On February 24, 2004 Council directed staff to issue a Request for Proposals for energy performance contracting in order to achieve Council's mandated target of 20 percent reduction in GHG by 2010 for a report back on the selection of contractors. Subsequently, Ameresco Canada was selected to be the Energy Performance Contractor for City owned and managed facilities. Staff directed Ameresco Canada Inc. undertake an energy audit of City Hall Campus and to recommend energy-savings and GHG reduction measures.

On September 22, 2005 the City entered into a contract with Ameresco Canada Inc. for energy savings and GHG reduction measures work on City Hall Campus facilities. The total value of the contract is \$1.82 million with a resulting GHG reduction of 320 tonnes CO₂ or about 89% of the 360 tonne CO₂ average target outlined in the policy adopted by Council on March 25, 2003.

On March 1, 2007, Council approved Phase 2 of the CCCAP. The City entered into an Energy Service Agreement with Ameresco Canada Inc. to cover Phase 2 on 15 May 2007. The Park Board subsequently entered into a contract with Ameresco Canada Inc. on 14 June 2007 for one hundred and twenty energy savings and GHG reduction measures in thirty facilities within the Park Board. The total value of the contract is \$8.64 million and the resulting GHG reduction is 2,240 tonnes of CO₂ representing 102% of the target outlines for these specific buildings.

PURPOSE

The purpose of this document is to report the status on Phase 2 implementation as of May 2008.

BACKGROUND

Reducing greenhouse gas emissions from the City's own facilities is an important part of the City's commitment to reduce its corporate greenhouse gas emissions by twenty percent of 1990 levels by 2010 (a 9,000 tonne reduction). This will be achieved by undertaking capital upgrade projects that retrofit Civic and Park Board facilities with more energy-efficient technologies, resulting in a more energy-efficient operation.

DISCUSSION

Phase 2: Board of Parks and Recreation Facilities

This phase of the programme includes:

- replacing old and inefficient boilers
- upgrading lights
- improvements to control systems
- upgrading and replacing HVAC
- one solar heating project (swimming pool)
- heat recovery at some ice rinks
- installing water conservation, building on the ongoing work that both City and Park Board are engaged in.

at 30 existing Park Board facilities.

New PB facilities are being built to LEED Gold standards and these achieve greater savings in energy.

Overview

The Phase 2 project:

- Reduces greenhouse gas emissions by 2,240 tonnes each year
- Reduces electrical consumption by 1,148,278 kWh each year
- Reduces natural gas consumption by 4,196 GJ each year
- Reduces water consumption by 15,080 m³ each year
- Generates annual savings of approximately \$543,166 (based on 2007 utility rates);
- Represents a total investment by the City of \$8.64 million
- Results in a simple payback of 15.3 years
- Has a positive net present value of \$2,015,749
- Contains a total of one hundred and twenty energy savings and GHG reduction measures in thirty Park Board facilities

Status

The implementation of the entire project has been planned in detail, with a scheduled completion date of March 2010. It is intended that the majority of the installation will be accomplished by the end of 2009, followed by a period of final optimisation.

Detailed design work commenced in May 2007, followed by project schedules. In order to access maximum material discounts the boilers and the lighting material were tendered as complete packages during Q3 & Q4 of 2007 and subsequently procured.

Table 1 of Appendix A summarizes the status (as of May 2008) of the work contained in Phase 2.

There is not yet sufficient utility billing information available to establish the impact of the work completed so far.

Table 2 of Appendix A identifies the GHG reduction associated with each project. The measures completed by the end of May 2008 have reduced GHG emissions by 494 tonnes per year (CO₂). Kitsilano Pool, which was completed in 2005, is included to keep track of GHG reduction.

The goal is to install half the boilers this year; this is an aggressive but achievable target and is important as boilers constitute a significant part of the overall GHG reduction. Recreation staff have worked hard to accommodate the timing of the required facility disruptions and partial closures which mostly have to occur during summer and early fall in order to minimise impact on facility usage.

The lighting work was the first work to start, completion is scheduled for Q4 this year. Installation contracts are based on geographic areas to minimise the contractor's travel and logistic issues.

Several buildings have already received control system upgrades. Installation contracts are for smaller groups of buildings than lighting, due to the complexity of the work.

Water conservation measures are a relatively small fiscal component of the contract. Park Board Plumbing is handling some of the installation.

Initiatives

A poster campaign has been launched in consultation with the City's Sustainability group (see Appendix B for the generic poster). The goals are to inform patrons about the specific work that is occurring in their facility, publicise the 'One Day' logo and encourage them to access the Park Board web site for further information. A green frog has been selected as a suitable 'green' logo; the frog is often used as an example of the 'canary in the cage' for environmental issues.

An environmental section within the Park Board web site is in progress. Pilot pages are now nearing launch on the internal site, with the intention of then rolling these out into the public site.

It is anticipated that the close working relationship that community centres have with their communities will provide an opportunity to broadcast the conservation message and staff should be provided with an ability to fully respond to enquiries. The public web site will be the primary source of information for both staff and the public. It will contain copies of the posters and more detailed information on the work in each facility as well as information on conservation strategies in new facilities. The site will have links to other sustainability sites including key City sites.

An additional education component might come from the ability to publicise the conservation work to local schools through the Park Board web site.

The long term success of the project will require regular monitoring of energy consumption. An existing position will be responsible for this. An additional component of the duties will be regular visits to all facilities; broadcasting the energy conservation message, supporting

operations staff, orienting new staff on energy conservation issues in their specific facility and optimising building control systems to accommodate changes in recreational programming.

A key element in the long term strategy of minimising energy consumption is encouraging staff to be aware of their energy footprint and to be able to see the result of conservation measures. The internal web site will be used to publish energy and water consumption within the Park Board. This will allow staff to see a comparison of monthly consumptions across multiple years, similar in format to Hydro and Terasen bills. Water consumption will be added once the energy component has advanced beyond the initial development phase.

FINANCIAL IMPLICATIONS

The principal source of the internal financing is the Capital Financing Fund, with repayment from energy savings over the term of the loan (under 20 years). There are two further sources:

- grants from external agencies (BC Hydro and NRCan) based on energy savings. BC Hydro has confirmed that their grant will be \$245,730 (initial estimate \$175,347). NRCan has provided a grant of \$14,828 for the Templeton Solar Hot Water system (25% of project cost).
- funding from the Park Board 2006-2008 capital plan (\$310,000) for three of the measures recommended.

The payback calculations used to support the project were based on 2007 rates. Increases in electricity, natural gas and water pricing will improve the simple payback for the project.

ENVIRONMENTAL IMPLICATIONS

The following are the annual improvements to the environment as a result of this project;

- GHG reduction of 2,240 tonnes

CONCLUSION

This report confirms that the Phase 2 project is in progress and on track to meet the goal of completion in Q1 2010.

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DEPARTMENTAL APPROVAL AND REPORT CONCURRENCES

General Mgr./Dept. Head:

Report Date: June 24, 2008

Author: Piet Rutgers/Ian Harvey

Date: June 24, 2008

Phone No.: 604.257.8463

This report has been prepared in consultation with the departments listed to the right, and they concur with its contents.

Concurring Departments:

Appendix A

Project implementation dates & GHG reductions

Facility Name	Status/Estimated Completion				
	Lighting	Controls	Boilers	HVAC/Mech	Water
Pools					
Kitsilano Pool	Nov-07	Not in project	Installed 2005	Not in project	Not in project
Lord Byng Pool	Dec-07	Q3 2008	Q3 2008	Not in project	Not in project
New Brighton Pool	Nov-07	May-08	May-08	Not in project	Not in project
Second Beach Pool	Dec-07	May-08	May-08	Not in project	May-08
Templeton Pool	Dec-07	May-08	May-08	May-08	Not in project
Vancouver Aquatic Centre	Q3 2008	Q3 2009	Q3 2009	Q3 2009	Q3 2009

Rinks					
Kerrisdale Arena	Q2/Q3 2008	Q3 2009	Not in project	Q3 2009	Q3 2009
Kitsilano Arena	Q2/Q3 2008	Jun-08	Jun-08	Jun-08	Jun-08
Kitsilano Community Centre	Q2/Q3 2008	Jun-08	Not in project	Jun-08	Not in project
Parks Administration Building	Q2/Q3 2008	Q2/Q3 2008	Q2/Q3 2008	Not in project	Q2/Q3 2008
West End Community Centre	Q2/Q3 2008	Jun-08	Not in project	Jun-08	Jun-08
Sunset Arena	Q2/Q3 2008	Q4 2009	Q3 2009	Q4 2009	Q4 2009

East CCs					
Fraserview Golf Course	Mar-08	Jan-08	Not in project	Not in project	Not in project
Kensington Community Centre	Mar-08	Q3 2008	Q3 2008	Q3 2008	Q3 2008
Champlain Heights Community Centre	Mar-08	Not in project	Not in project	Not in project	Not in project
Langara Golf Course	Apr-08	Q3 2008	Q3 2008	Not in project	Not in project
McCleery Golf Course	Apr-08	Q4 2008	Not in project	Not in project	Q4 2008
Hastings Community Centre	Apr-08	Q3 2009	Q3 2009	Not in project	Q3 2009
Marpole-Oakridge Community Centre	May-08	Q3 2008	Not in project	Not in project	Q3 2008
Ray-Cam Community Centre	May-08	Q3 2008	Not in project	Not in project	Not in project
Renfrew Park Community Centre	Jun-08	Q3 2009	Q3 2009	Q3 2009	Q3 2009

West CCs					
Douglas Park Community Centre	Q3 2008	Q2 2009	Not in project	Q2 2009	Q2 2009
Dunbar Community Centre	Q3 2008	Q4 2008	Not in project	Not in project	Not in project
False Creek Community Centre	Q3 2008	Q3 2008	Not in project	Q3 2008	Not in project
Kerrisdale Community Centre	Q3 2008	Q2 2009	Q2 2009	Not in project	Q2 2009
Roundhouse Community Centre	Q3 2008	Q4 2008	Central Steam	May-08	Not in project

Other					
Bloedel Conservatory	Q4 2008	Q3 2008	Q3 2008	Not in project	Not in project
Evans Yard	Q4 2008	Apr-08	Not in project	Not in project	Not in project
Sunset Nursery	Q4 2008	Q4 2009	Q3 2009	Q4 2009	Not in project
VanDusen Education Centre	Q4 2008	Not in project	Not in project	Not in project	Not in project
VanDusen Floral Hall (Admin.)	Q4 2008	Not in project	Not in project	Not in project	Not in project

Facility Name	Greenhouse Gas Reduction (Tonnes)					
	Lighting	Controls	Boilers	HVAC/Mech	Other	Total
Pools						
Kitsilano Pool	0	0	142	0	0	142
Lord Byng Pool	1	3	40	0	0	44
New Brighton Pool	0	6	69	0	0	75
Second Beach Pool	0	12	142	5	0	159
Templeton Pool	1	3	65	104	0	173
Vancouver Aquatic Centre	16	98	77	11	0	202
Rinks						
Kerrisdale Arena	2	12	0	54	0	68
Kitsilano Arena	3	17	40	36	8	104
Kitsilano Community Centre	2	3	0	7	0	12
Parks Administration Building	2	7	16	0	0	25
West End Community Centre	5	0	0	70	4	79
Sunset Arena	2	17	37	36	0	92
East CCs						
Fraserview Golf Course	1	3	0	0	0	4
Kensington Community Centre	3	16	59	74	0	152
Champlain Heights Community Centre	2	6	0	0	0	8
Langara Golf Course	0	2	31	0	0	33
McCleery Golf Course	0	13	0	0	0	13
Hastings Community Centre	2	23	35	0	0	60
Marpole-Oakridge Community Centre	3	13	0	1	0	17
Ray-Cam Community Centre	2	11	0	0	0	13
Renfrew Park Community Centre	1	16	64	186	0	267
West CCs						
Douglas Park Community Centre	2	9	0	2	0	13
Dunbar Community Centre	4	4	0	0	0	8
False Creek Community Centre	1	17	0	16	0	34
Kerrisdale Community Centre	4	8	4	0	0	16
Roundhouse Community Centre	2	22	0	15	0	39
Other						
Bloedel Conservatory	2	7	71	0	0	80
Evans Yard	2	1	0	0	0	3
Sunset Nursery	0	0	105	182	0	287
VanDusen Education Centre	3	0	0	0	0	3
Total Reduction	68	349	997	799	12	2225

Appendix B

Sample Poster



green like me

Park Board takes a leap to a greener future!

Green Like Me is a Vancouver Park Board program that works toward reducing greenhouse gas (GHG) emissions in its facilities. It's part of the City's *Corporate Climate Change Action Plan* to cut back on GHG 20% by 2010.

Reducing energy needs can be as simple as turning the lights off or using more energy efficient ways of heating, ventilating and air conditioning.

What's happening at Park Board facilities?

From now until the end of 2009, we'll be undertaking many improvements to reduce energy consumption.

- ❁ Upgrading boilers and heat exchangers to heat building and pools more efficiently.
- ❁ Improving the efficiency of lighting and installing daylight sensors.
- ❁ Replacing older control systems and increasing our ability to control heating and ventilation based on building occupancy.

Why are we doing this?

- ❁ We will save money on electricity and gas bills.
- ❁ GHG emissions will be reduced by 2,240 tonnes per year, equivalent to driving a compact car nearly 10 million kms.

For more information on what you can do in your own life to reduce energy use, visit: onedayvancouver.ca



vancouverparks.ca

Vancouver's many Park Board facilities have been identified as consuming large amounts of energy. By reducing consumption in a variety of ways, we can meet our goals for a greener future.