



**City of Richmond**

Facility Management, Engineering & Public Works

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**Memorandum**

**To:** Mayor and Councillors **Date:** December 3, 2004  
**From:** Philip James Hogg **File:** 06-2050-00/Vol 01  
 Manager, Facilities Operations and Maintenance  
**Re:** **The City of Richmond's Energy Management Program and Update on Richmond's Power Smart Certification**

The purpose of this memorandum is to provide an update on Facility Management Staff's work with Richmond's Energy Management Program.

In April of 2003, the City of Richmond received the designation of being the First Power Smart Certified Municipality in BC. Richmond was one of only five elite BC Hydro customers to receive this designation. This recognition was the result of our on-going commitment to effectively manage energy use and on-going reduction of energy consumption. An audit performed by BC Hydro in the spring of 2003 on energy use in Richmond from 1997 – 2002 identified an annual reduction of more than 32% in watts per sq. ft. in City buildings, a \$500,000 savings to the City. A total of 5 GWh of electricity or enough power to supply energy to 500 average sized homes for a year

On May 5, 2004, two Facility Management staff attended the annual BC Hydro Power Smart Awards dinner. Joining the original group of five Power Smart Certified customers this year is Kwantlen College, this years only recipient. The City of Richmond retains the designation of being the only Power Smart Certified municipality in BC. For our continued efforts and further additional reduction in hydro consumption the City received recognition in "The Power of Business" a supplement to BC Business publication and received a hand crafted glass platter made by local BC glass artist Patrick Symond for our continued effort and commitment to the Power Smart ethic. To retain our Power Smart Certified designation the City of Richmond has committed to further reduce energy consumption by an additional 15% over the next 4 years.

Initiatives facilitated during the last 8 months include the following:

- Lighting retrofits,
- New lighting controls,
- New HVAC control,
- Building automation systems enhancements and programming changes,
- Decorative and seasonal incandescent lighting upgrades to LED lighting,
- Vending Misers, for vending machines,
- Facility energy audits/studies,
- The testing of new technologies and
- Aggressively researching grant funding opportunities for energy conservation projects/initiatives.

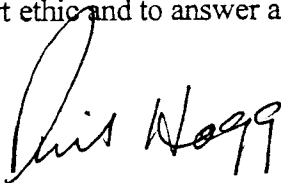


Annual energy cost savings from initiatives completed since January 2004 total \$58,345, a reduction of 982,024 kWh, enough energy to supply power to 98 average sized houses. A reduction of green house gas emissions by 353 tonne / year. Grant and incentive funding applied for and approved for completed projects this year total \$94,700.

A significant achievement for Richmond was receiving 100 % funding for an energy audit at Richmond Ice Centre with equal grant funding provided by BC Hydro and Natural Resources Canada, NRCAN.

For your review is a spreadsheet listing the specific initiatives, implementation costs, grant incentive funding received, energy reduction/cost and simple payback (Attachment 1).

The City of Richmond's Energy Management Program initiatives continue to result in energy savings and therefore forward Richmond in our vision to be the most appealing liveable and well-managed community in Canada. I will attend the December 12, 2004 Council Meeting to present the hand crafted platter received from BC Hydro in recognition of our commitment to the Power Smart ethic and to answer any questions.



Philip James Hogg  
Manager, Facilities Operations and Maintenance  
(Local 1243)

Attachments  
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**The City Of Richmond's Energy Management Program 2004**  
**Energy Savings Initiatives, January 2 – June 30, 2004**

Initiative	Project Cost	Energy Saving	Annual Cost Saving	Simple Payback Years
City Hall Lighting	\$ 5,685	93,447 kWh	\$ 5,550	1.02
Vending Misers & Lighting Controls	\$ 17,020	57,510 kWh	\$ 3,410	5
LED Decorative Lighting	\$ 60,402	483,904 kWh	\$ 28,750	2.1
Minoru Aquatic	\$ 31,161	112,024 kWh	\$ 6,650	4.7
SACC	\$ 9,465	16,018 kWh	\$ 950	10
SCC	\$ 7,510	17,587 kWh	\$ 1,045	7.2
TCC	\$ 28,097	54,990 kWh	\$ 3,265	8.6
Watermania	\$ 2,503	8,995 kWh	\$ 535	4.7
WRCC	\$ 5,085	9,593 kWh	\$ 570	8.9
WY Site	\$ 16,122	38,356 kWh	\$ 2,280	7
RIC Re-Lamp	\$ 6,075	34,000 kWh	\$ 2,040	3
City Hall W/F	\$ 500	55,800 kWh	\$ 3,300	
Energy Audit RIC	\$ 7,400			
Sub Total	\$ 196,525			
BCH Grants	(\$ 88,700)			
NRCAN Grants	(\$ 6,000)			
<b>Total Net Cost</b>	<b>\$ 102,325</b>	<b>*980,224 kWh</b>	<b>\$ 58,345</b>	<b>1.75 yrs</b>

*\* 980,224 kWh is enough energy to power 98 average size houses for a year.*

Also to be considered, but not factored into the above chart, is how these initiatives positively impact on-going maintenance costs.

In addition to the above grants BC Hydro has provided funding and resources to aid in Power Smart Awareness training for City staff, sponsoring Power Smart Day October 16, 2003 and for supplying staff to work at our Public Works Open House on May 15, 2004. Total cost for these initiatives, 100% funded by BC Hydro is estimated at \$8,000.

**Pending initiatives and those under consideration are:**

- Richmond Ice Centre energy upgrade
- Minoru Arena, lighting controls and upgrades, building automated system, pony pumps.
- Minoru Pavilion lighting retrofit and controls and building automated system.
- Study on outdoor sports lighting controls and costs.
- Study on Steveston Tennis Court lighting and heating systems.
- Compact fluorescent light retrofit.

**Summary of Energy Management Program Savings**

**Hydro Reduced Consumption and Savings**

Energy reduction initiatives facilitated on Richmond City infrastructure since 1997 now save in excess of 5.98 GWh. annually. Accumulated savings since 1997 are in excess of \$900,000.

**Natural Gas Cost Savings**

The City secured contracts for the supply of natural gas with Direct Energy in the fall of 2002 for the following sites: Watermania, Richmond Ice Centre, Minoru Aquatic Centre, The Works Yard, Library Cultural Centre, Steveston Community Centre, and Minoru Arena. These contracts have saved the City \$157,000 over the last 23 months, \$81,000.00 this year alone (Attachment 2).

**Point of Interest**

A press release dated June 24, 2004 from Honeywell, working with the City of Burnaby outline their energy efficiency program. The City of Burnaby will be spending \$6.4 million over the next 12.5 years to achieve annual savings of \$500,000. The \$500,000 annual savings referred to includes hydro, natural gas, water and maintenance. The City of Richmond's annual combined savings from natural gas and hydro energy efficiency initiatives is estimated at \$450,000.

<b>Cost Comparison Summary (2003 / 2004)</b>				
				24-Nov-04
<b>CITY OF RICH - WATERMANIA</b>				
		Annual Consumption	Average Cost per GJ	Annual Cost
TERASEN GAS	5	23,794.0	\$10.0780	\$239,798.72
DIRECT ENERGY	25	23,794.0	\$9.1450	\$217,606.01
<b>12 Month Difference</b>				<b>\$22,192.71</b>
<b>CITY OF RICH - ICE CENTRE</b>				
		Annual Consumption	Average Cost per GJ	Annual Cost
TERASEN GAS	5	17,653.0	\$10.0370	\$177,178.30
DIRECT ENERGY	25	17,653.0	\$9.1810	\$162,076.36
<b>12 Month Difference</b>				<b>\$15,101.94</b>
<b>CITY OF RICH - MINOR AQUATIC #2</b>				
		Annual Consumption	Average Cost per GJ	Annual Cost
TERASEN GAS	3	10,165.0	\$10.9680	\$111,487.99
DIRECT ENERGY	23	10,165.0	\$9.8890	\$100,522.33
<b>12 Month Difference</b>				<b>\$10,965.66</b>
<b>CITY OF RICH - MINOR AQUATIC #1</b>				
		Annual Consumption	Average Cost per GJ	Annual Cost
TERASEN GAS	3	6,476.0	\$11.0880	\$71,808.96
DIRECT ENERGY	23	6,476.0	\$10.0280	\$64,943.65
<b>12 Month Difference</b>				<b>\$6,865.31</b>
<b>CITY OF RICH - PUBLIC WORKS</b>				
		Annual Consumption	Average Cost per GJ	Annual Cost
TERASEN GAS	3	6,800.0	\$11.1310	\$75,693.53
DIRECT ENERGY	23	6,800.0	\$9.8670	\$67,094.56
<b>12 Month Difference</b>				<b>\$8,598.97</b>
<b>CITY OF RICH - CULTURAL CENTRE</b>				
		Annual Consumption	Average Cost per GJ	Annual Cost
TERASEN GAS	3	5,094.0	\$11.1470	\$56,781.44
DIRECT ENERGY	23	5,094.0	\$10.1610	\$51,759.38
<b>12 Month Difference</b>				<b>\$5,021.56</b>
<b>CITY OF RICH - STEVESTON LIBRARY</b>				
		Annual Consumption	Average Cost per GJ	Annual Cost
TERASEN GAS	3	4,547.0	\$11.2530	\$51,167.24
DIRECT ENERGY	23	4,547.0	\$10.0160	\$45,544.15
<b>12 Month Difference</b>				<b>\$5,623.09</b>
<b>CITY OF RICH - PUBLIC SAFETY BLD.</b>				
		Annual Consumption	Average Cost per GJ	Annual Cost
TERASEN GAS	3	4,274.0	\$11.2480	\$48,072.11
DIRECT ENERGY	23	4,274.0	\$10.1740	\$43,482.31
<b>12 Month Difference</b>				<b>\$4,589.30</b>
<b>CITY OF RICH - MINOR ARENA</b>				
		Annual Consumption	Average Cost per GJ	Annual Cost
TERASEN GAS	3	2,668.0	\$11.4830	\$30,635.75
DIRECT ENERGY	23	2,668.0	\$10.4730	\$27,941.44
<b>12 Month Difference</b>				<b>\$2,694.31</b>
<b>TOTAL DIFFERENCE</b>				<b>\$81,653.35</b>