



To: Mayor and Councillors **Date:** June 4, 2007
From: Philip James Hogg **File:** 06-2000-01/2007-Vol 01
Manager, Facilities Operations and
Maintenance
Re: **Update Energy Management Program**

In 2003 the City of Richmond became the first Power Smart Certified Municipality in BC. To retain our certification the City committed to reduce hydro energy use in all major facilities by an additional 15% over the next four years. This spring we achieved our goal of 15% energy savings one year ahead of schedule. Richmond remains the only Power Smart Certified Municipality in BC and our new goal is to reduce energy by an additional 7% over the next three years. To achieve this the City will explore lighting retrofits with T5 high-output lighting and controls in several locations and a staff awareness program. With BC Hydro we propose to facilitate pilot projects for web based control for outdoor sports fields lighting, LED parking lot lighting and LED street lighting. We are also moving forward on our proposed sustainable district utility for the Oval site. Attached for review is our list of future initiatives. (Attachment #1)

Also attached for your review are the following information spreadsheets:

- Energy conservation projects completed with information on capital costs, grant funding and predicted savings. (Attachment #2)
- Projects underway that will be completed later this year. (Attachment #3)
- Information on our annual budgets for hydro and gas utilities, annual expenditures and savings. (Attachment #4)

In April the City's hydro energy savings achievements were featured in the Vancouver Sun news Paper, on bus shelters "B" line transit busses and were featured in this years Power of Business publication. On May 9, 2007 the City of Richmond was presented one of two Power Smart Excellence Awards for Excellence in Energy Management at the 15th Annual BC Hydro Power Smart Awards.

Philip James Hogg
Manager, Facilities Operations and Maintenance

pc: TAG
Robert Gonzalez, P.Eng., Director, Engineering

Richmond Energy Management Program Initiatives 2007 – 2008

Proposed Pending BC Hydro Approval. Attachment #1

Facility/Site	Account # / Address	Initiative	Start Date	Finish Date
Minoru Pavilion	7191 Granville Avenue 019433130261	Lighting & controls	June 07	
Gateway Theatre	6500 Gilbert 0194331500001	Lighting & controls	June 07	
SCC Tennis Courts	9020 Williams Road 019445365022	T5 HO lighting	Aug 07	
TCC Gym	6671 Lynas Lane	T5 HO lighting	Sept 07	
Minoru Arenas	7551 Minoru Gate 019433180011	T5 HO lighting	Aug 07	
Minoru Sports Field	7191 Granville Avenue 019433130261	Web based lighting control Pilot	June 07	
ERC Hall	12360 Cambie Road 019462500181	Lighting & controls	Aug 07	
CH Parkade	6911 # 3 Road 000000742484	T5 HO lighting	Aug 07	
LCC Parkade	7700 Minoru Gate 019475100542	T5 HO lighting	Aug 07	
LED Street Lighting	East Richmond	Pilot Program Test	TBA	
LED Parking WY	5501 Westminster Hwy 0194239082221	Pilot Program Test	TBA	
SAC Hall	9020 Williams Road 019445365022	Lighting & controls	TBA	
Lang CC	#140 8279 Saba Road 019443702321	Lighting & controls	TBA	
Staff Awareness Pgm	All location	Staff behavioural changes	TBA	
Steveston CC	4111 Moncton St 019426599011	Re-audit	TBA	
South Arm CC	8880 Williams Road 019445114802 019445114812 019445100042	Re-audit	TBA	
Oval Site		District Utility	Nov/06	

The City Of Richmond's Energy Management Program

Energy Savings Initiative Projects, Savings and Incentives, January 2, 2004 –March 2007,
Attachment #2

Initiative	Project Cost	Energy Saving	Annual Cost Saving	Simple Payback Years
City Hall Lighting	\$ 5,685	93,447 kWh	\$ 5,607	1.02
Vending Misers & Lighting Controls	\$ 17,020	57,510 kWh	\$ 3,410	5
LED Decorative Lighting	\$ 60,402	483,904 kWh	\$ 29,034	2.1
Minoru Aquatic	\$ 31,161	112,024 kWh	\$ 6,721	4.7
SACC	\$ 9,465	16,018 kWh	\$ 961	10
SCC	\$ 7,510	17,587 kWh	\$ 1,055	7.2
TCC	\$ 28,097	54,990 kWh	\$ 3,299	8.6
Watermania	\$ 2,503	8,995 kWh	\$ 540	4.7
WRCC	\$ 5,085	9,593 kWh	\$ 576	8.9
WY Site	\$ 16,122	38,356 kWh	\$ 2,301	7
RIC Re-Lamp	\$ 6,075	34,000 kWh	\$ 2,040	3
RIC Low E ceilings, Pony Pumps, Lighting c/w controls Low flow shower heads	\$ 238,000	743,410 kWh 195.2 GJ	\$ 44,605 \$ 1,400	6.56
Minoru Arena lighting controls. pony motors	\$ 93,442	347,832 kWh	\$ 20,870	3
PSB 6931 Granville lighting	\$ 23,606	36,936 kWh	\$ 2,216	9
Energy Audits	\$ 27,400			
Sub Total	\$ 448,450			
BCH Grants	(\$237,978)			
NRCAN Grants	(\$ 6,000)			
Total Net Cost	\$ 358,414	2,054,602kWh 195.2 GJ	\$ 124,676 Annual Saving	3 years

The City Of Richmond's Energy Management Program (Work in Progress)
Attachment #3

Initiative	Project Cost	Energy Savings	Annual Cost Savings	Scheduled Completion	Simple Payback
RIC Dehumidification & Heat Recovery	\$269,000	4,976 GJ	\$39,514	Sept./07	6.81 years
Minoru Aquatic Centre Dehumidification & Heat Recovery	\$416,000	10,835 GJ	\$83,002	Aug./07	5.01 years
Library Cultural Centre, Heat Recovery	\$31,500	1,100 GJ	\$8,900	Sept./07	3.5 years
Watermania, Mechanical System Upgrade Dehumidification & Heat Recovery	\$640,000	7,268 GJ	\$98,121	Oct./07	6.52 years
Total	\$1,356,000	24,179 GJ	\$229,537		
NRCan grant initiative	(\$109,000)				
Canada BC Infrastructure grant	(\$67,000)				
Net Capital Cost	\$1,180,000		\$229,537		5.14 years

NRCan Energy Retrofit Assistance for Project Implementation (ERA-I) Grant: \$109,000
Canada BC Infrastructure Program (CBCIP) Grant: \$67,000

Utility Budgets and Expenditures Summary beginning 2004 – end of 2006 Attachment #4

Natural Gas

Year	Budget App.	Expenditures	Balance
2004	\$1,182,400	\$1,008,618	\$173,782
2005	\$1,285,200	\$1,193,591	\$ 91,609
2006	\$1,396,500	\$1,219,209	\$177,290
		Net Difference	\$422,681

Natural gas is budgeted using Terasen gas prices. The City has contracts with a vendor for its larger gas using sites. This along with DDC programming and equipment upgrades have resulted in a net cost savings. The reader should also consider the impact weather /temperatures impact utility consumption. A mild winter can reduce consumption of natural gas.

Hydro

Year	Budget App.	Expenditures	Balance
2004	\$1,133,300	\$1,455,977	\$322,627
2005	\$1,540,000	\$1,194,735	\$345,265
2006	\$1,552,400	\$1,363,345	\$189,054
		Net Difference	\$211,692

In 2004 the hydro budgeted figure was based on prorated calculations that unfortunately didn't consider all aspects of this utility. FM calculates budgets using historical average costs plus any increases in utility rates. In 2005 BCH increased hydro rates for the first time in 10 years. The savings achieved in 2004 and 2005 are attributed mostly to energy conservation initiative retrofits which include lighting, mechanical and controls. The reader should also consider the impact of weather/temperatures impact utility consumption. A milder summer can reduce hydro consumption as HVAC systems don't run as long or as often.