

# Memo



Date: December 2, 2009  
To: City Manager  
From: Director, Real Estate & Building Services  
Subject: Energy Management Plan Update  
Report Prepared by: M Johansen, Manager, Building Services

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## Recommendation:

THAT Council receive this report dated December 2, 2009 from the Director, Real Estate & Building Services for information.

## Background:

The purpose of this report and presentation (attached as Schedule "A") is to update Council on the progress of the Energy/Carbon Management Plan for civic facilities.

On March 31, 2008, Council received for information and subsequently endorsed an Energy/Carbon Management Plan directed at reducing both (a) energy consumption and (b) the environmental and climate change impacts of facility operations. A requirement of the approved recommendation is an update to Council prior to the 2010 budget deliberations.

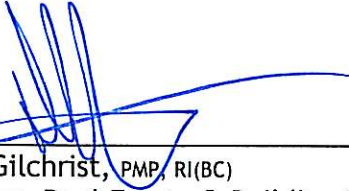
Since the Energy/Carbon Management Plan was endorsed a City-wide restructuring and staff reorganization has taken place. Responsibility for managing, reporting and execution of the Energy/Carbon Management Plan now falls within the scope of responsibility of the Building Services branch of Real Estates & Building Services.

## Considerations not applicable to this report:

Internal Circulation:  
Legal/Statutory Authority:  
Legal/statutory Procedural Requirements:  
Existing Policy:  
Financial/Budgetary Considerations:  
Personnel Implications:  
Technical Requirements:  
External Agency/Public Comments:  
Communications Considerations:  
Alternate Recommendation:

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Submitted by:



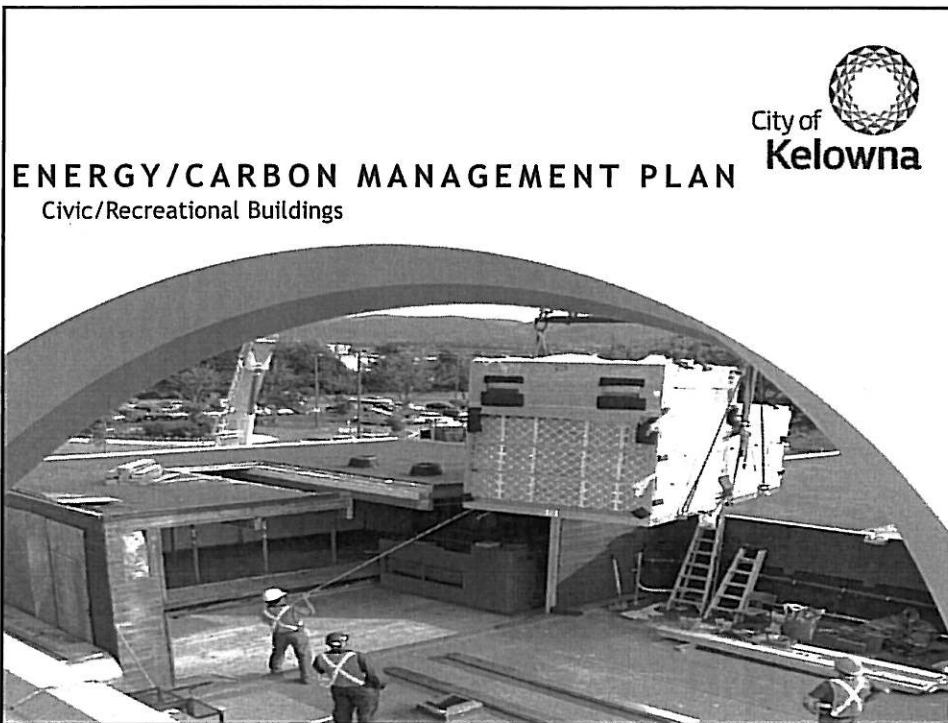
Doug Gilchrist, PMP, RI(BC)  
Director, Real Estate & Building Services

Approved for inclusion:



John Vos, General Manager, Community Services

cc: R. Cleveland, Director, Infrastructure Planning  
S. Bagh, Director, Policy and Planning



### **GOALS & OBJECTIVES**

- ▶ 15% reduction in Civic Properties water consumption from 2007 levels by 2012.
  - ✓ Target reached October 1, 2009
  
- ▶ 20% reduction in Civic Properties GHG emissions from 2007 levels by 2011.

**EXISTING UTILITY CONSUMPTION**

- ▶ Electrical - 30 million Kwh/y
- ▶ Gas Energy - 65,000 Gj/y
- ▶ Water Consumption - 260,000 m<sup>3</sup>/y
  
- ▶ Total cost annually - \$2.3 million
- ▶ Total GHG Emissions - 5009 Tonnes

**STRATEGIES**

- ▶ Turn off equipment when not needed
- ▶ Post occupancy commissioning
- ▶ Education
- ▶ Communication/Demonstration
- ▶ Energy retrofits
- ▶ Stand alone initiatives
- ▶ Energy initiatives for new construction

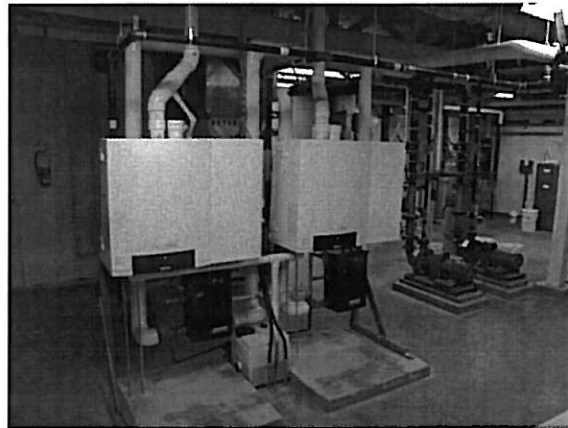
**COMPLETED PROJECTS**

- ▶ New control strategies, Library, Cityhall
- ▶ Boiler replacements, Art Gallery, Firehall, Rutland Arena
- ▶ Lighting, PRC, RCMP, Arenas
- ▶ Rutland Arena, New condenser/snow melt pit
- ▶ Post commissioning

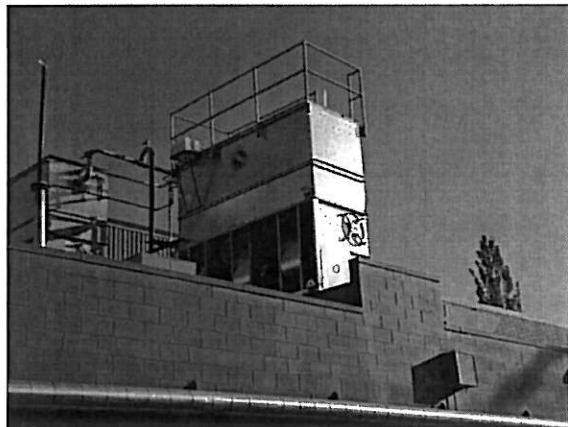
**#1 FIRE HALL BOILERS -**



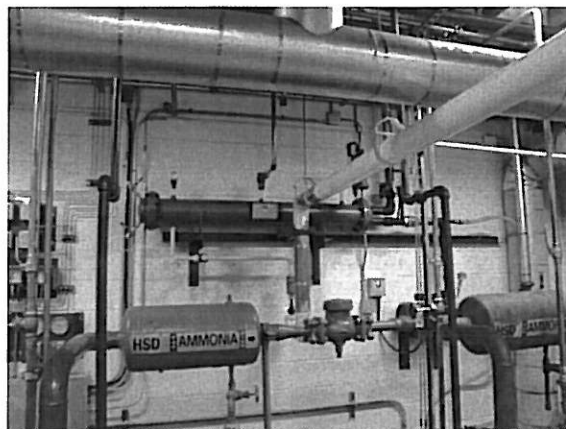
**ART GALLERY BOILERS**



**RUTLAND ARENA CONDENSER**



**RUTLAND ARENA HEAT EXCHANGER**



**RUTLAND ARENA SNOW MELT PIT**



**CARBON/ENERGY RESULTS TO DATE.**

- ▶ GHG Emission reductions - 312 Tonnes
- ▶ Kwh reductions - 1,033,943
- ▶ Water use reduction - 35,350 m<sup>3</sup>
- ▶ Utility savings - \$117,555
- ▶ Dollars invested - \$371,000
- ▶ Simple Payback - 3.2 years

**FUTURE PROJECTS - ATHAN`S POOL**

- ▶ Solar Hot Water/Mechanical Dehumidification
- ▶ Estimated cost - \$750,000
- ▶ GHG Reduction - 243 tonnes/yr
- ▶ Funding - Solar BC, Eco Energy, E/C Plan
- ▶ Annual savings - \$47,000/yr
- ▶ 250 m<sup>2</sup> Solar array, 100 panels/ DX Refrigeration/Controls



**ATHANS POOL SOLAR/DHW STORAGE TANKS**



**CHALLENGES AHEAD**

- ▶ Easy equipment Re & Re projects have been completed.
- ▶ Remaining building system upgrades are very costly.
- ▶ Energy use tracking is not in place to quantify post commissioning activities and changes to control strategies
- ▶ Clean electricity (small GHG component)