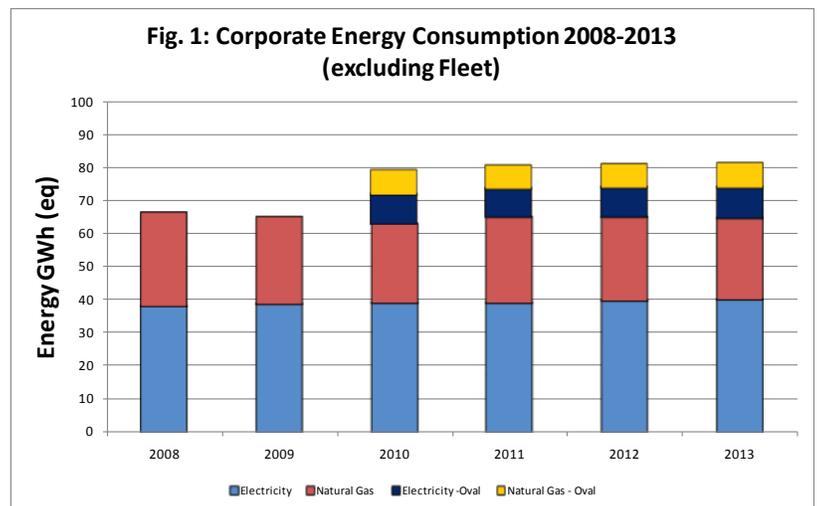
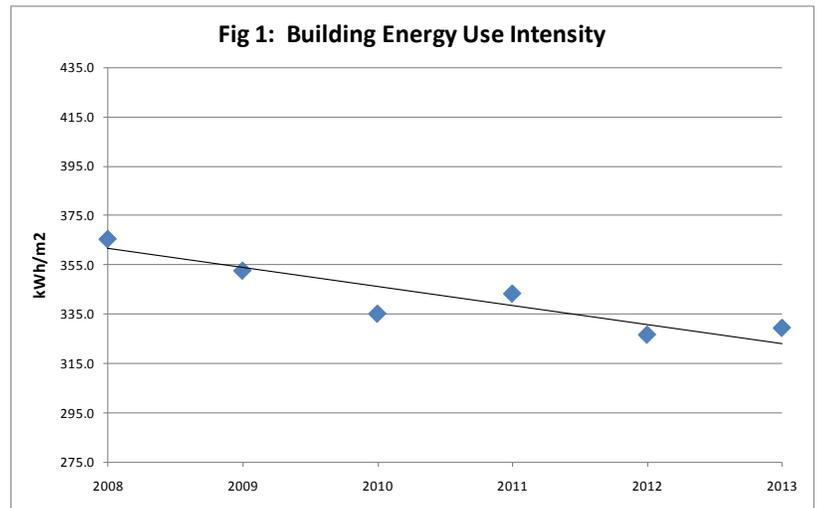


# Energy Update Report

## Summary 2013

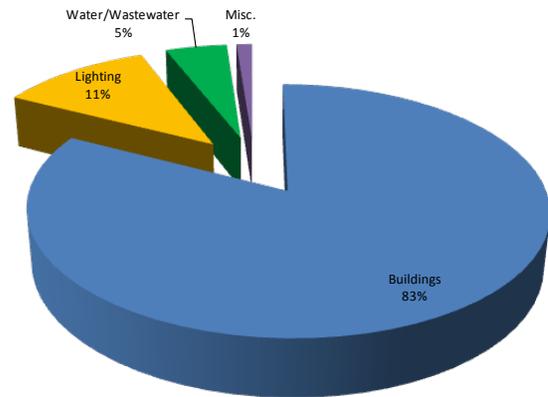


- Cost of energy in 2013 for the City of Richmond buildings, lighting, water and wastewater services = **\$6.0 million dollars** or **81.1 GWh** (this is equal to the average power consumed in **~2,300 homes** in BC in 1 year).
- As compared with the last three years, overall energy consumption for these civic assets has remained stable.
- Although overall energy use has not decreased as compared to the previous few years, our building energy use intensity (kWh/m<sup>2</sup>) has decreased. This indicates that corporate energy use efficiency is increasing.
- Cumulatively since 2007, energy conservation projects at the City have saved approximately **35.0 GWh** of energy (equal to the energy consumption in **~970 BC homes** per year), and over 5,000 tonnes of greenhouse gas emissions (equal to emissions from **~1,500 Richmond cars**)

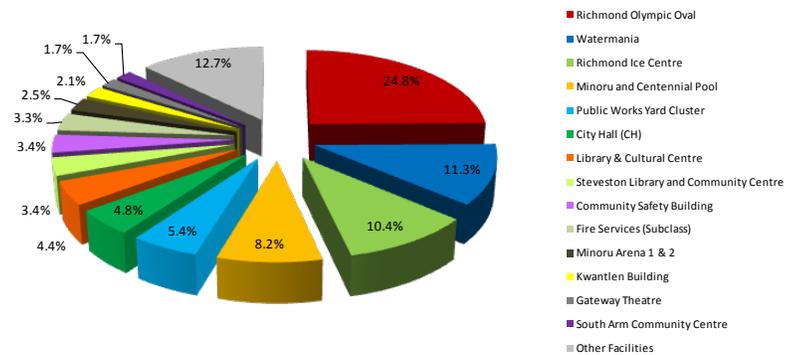


- In 2013, the majority of corporate energy use (excluding fleet services) was by buildings-83%, followed by lighting-11% and water/wastewater services-5%.
- Recreational pools and ice arenas are the City's highest energy consuming facilities - with Richmond Olympic Oval, Watermania, Richmond Ice Centre, Minoru Pools and Minoru Arenas accounting for approximately 57% of the energy used by civic buildings in 2013.
- Other larger energy consuming corporate buildings/complexes include Public Works Yard, City Hall, the Steveston Community Centre Complex, and the Community Safety Building.
- Planned upgrades to the building automation systems at select high consuming buildings and associated re-commissioning, is hoped to improve operational energy efficiency from between 10% to 20%.

**Fig 3: Overall Energy Use by Asset Class 2013**



**Fig 4: Building Energy Consumption Breakdown 2013**



## 2013 Highlights:

- Secured over \$100,000 of external funding to support the Energy Management Program.
- City of Richmond recently received three recognition awards for completed projects from BC Hydro, and has been nominated again as a BC Hydro PowerSmart Leader Award finalist for 2014.
- City achieved an estimated reduction of **1.2 GWh** in electrical and natural gas use and approximately **150 tonnes** of greenhouse gas emissions from a variety of projects in 2013.
- This energy reduction represents approximately **1.5%** of our current corporate annual energy use and the GHG emissions reduction is equal to removing approximately **45 vehicles** from Richmond roads each year.
- These energy reductions will result in approximately **\$85,000** in operational cost avoidance savings.



2012 POWER SMART  
**LEADER** | BC Hydro powersmart



## Showcase Projects:

- Increased parking lot lighting levels at City Hall, with approximately 30% less energy usage.
- Solar thermal air wall in operation at South Arm Community Centre.
- Reductions of approximately 45% and 55% in natural gas use at Gateway Theatre and Minoru Arena respectively.

## Policy Improvements:

- Council adopted the Corporate High Performance Building Policy, which targets LEED Gold construction for new buildings, improved energy performance for existing buildings, and long term goals of net zero energy and carbon neutral corporate buildings by 2030.

## New Technology:

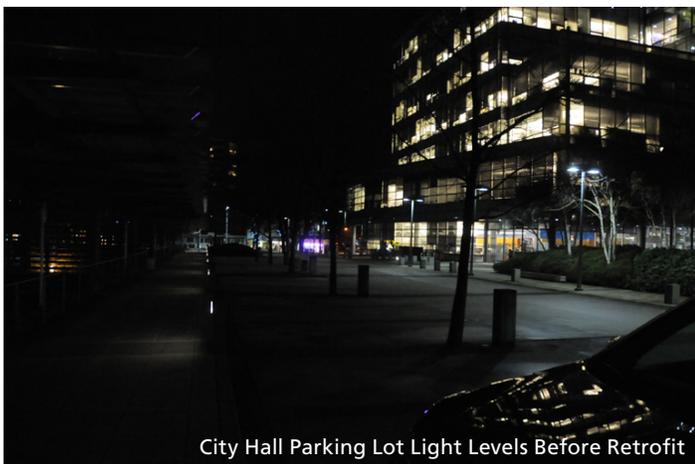
- Working with BC Hydro, City staff will help deliver a pilot project that will install high efficient light-emitting diode (LED) street lighting fixtures on BC Hydro poles, improving the lighting on high priority roadways.



South Arm Community Centre Solar Thermal Air Wall



Gateway Theatre Performance



City Hall Parking Lot Light Levels Before Retrofit



City Hall Parking Lot Light Levels After Retrofit

## Vision and Goals 2014

- Continue to support the City's Carbon Neutrality commitment, through corporate energy efficiency upgrades.
- Research and facilitate the maximizing of energy efficiency opportunities for new capital projects and replacement equipment, increasing operational efficiencies through building automation systems, and continuing to retrofit existing buildings for improved energy performance.
- Continue to increase energy use awareness within the organization and community.



## 2014 Action items:

- Major refrigeration plant and mechanical improvements at Richmond Ice Centre
- Completion of building automation system upgrades and improved energy monitoring capabilities at several civic facilities, including City Hall
- Lighting retrofits at various facilities, including Richmond Courthouse and the Minoru Park tennis courts
- Solar thermal pool heating system optimization at Steveston and South Arm facilities
- Launching of two community engagement programs to support energy efficiency and GHG emissions, entitled the Richmond Energy Challenge and Richmond Carbon Marketplace.

