

Energy Update Report

Summary 2012/2013



- Cost of energy in 2012 for the City of Richmond buildings, lighting, water and wastewater services = **\$6.0 million dollars** or **80.6 MWh** (this is equal to the average power consumed in ~2,300 homes in BC in 1 year).
- Although overall energy use has not decreased as compared to 2011, our building energy use intensity (kWh/m²) continues to decrease. This indicates that **corporate energy use efficiency is increasing**.
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- Cumulatively since 2007, energy conservation projects at the City have saved approximately **28.4 GWh** of energy (equal to the energy consumption in ~790 BC homes per year), and over **5,000 tonnes** of greenhouse gas emissions (equal to emissions from ~1500 Richmond cars).



Fig 2: Building Energy Use Intensity

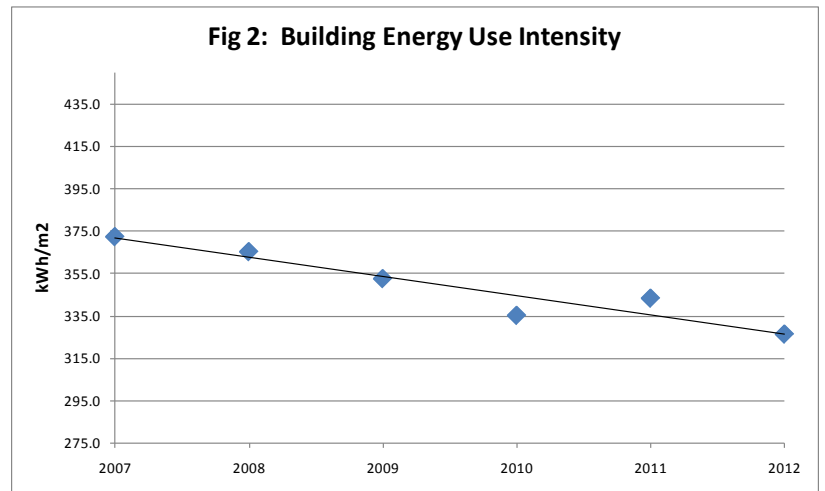
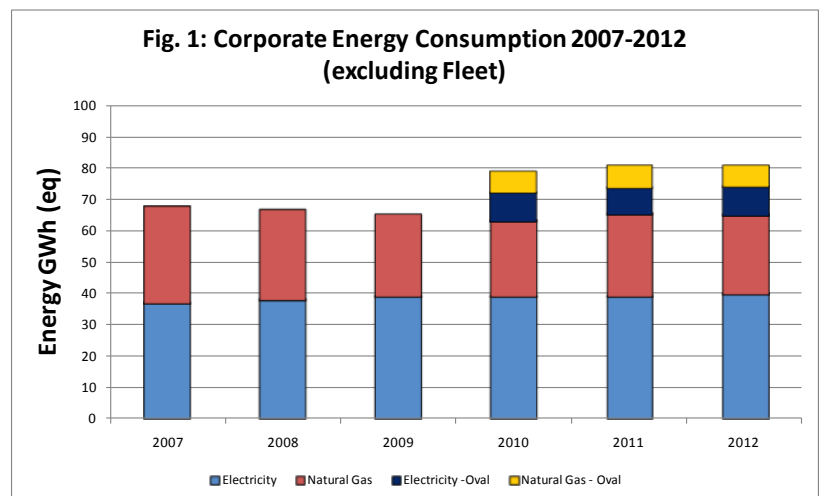
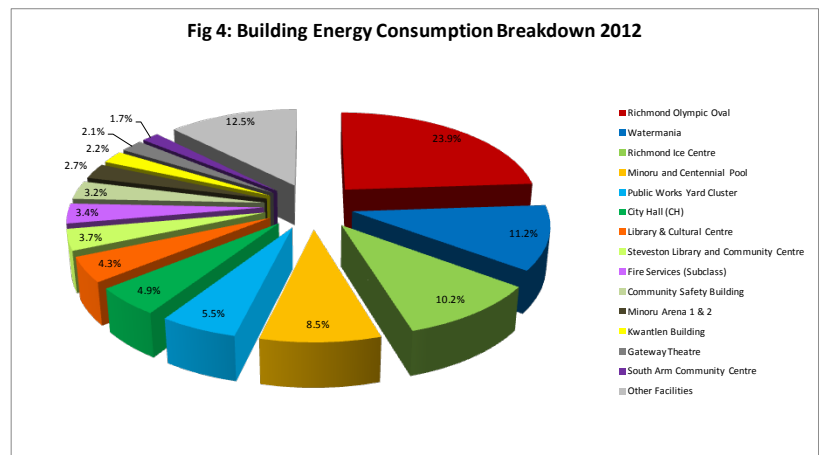
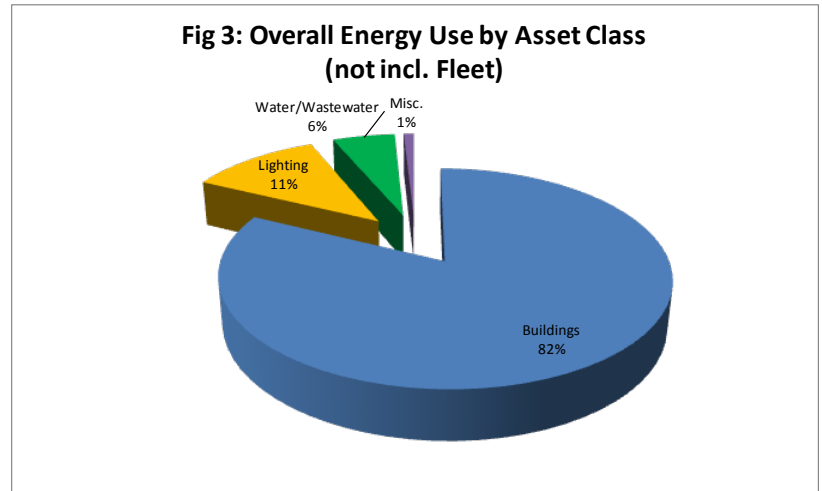


Fig. 1: Corporate Energy Consumption 2007-2012 (excluding Fleet)



- In 2012, the majority of corporate energy use (excluding fleet services) was by buildings-82%, followed by lighting-11% and water/wastewater services-6%.
- Recreational pools and ice arenas remain our highest energy consuming facilities - with **Richmond Olympic Oval, Watermania, Richmond Ice Centre, Minoru Pools and Minoru Arenas** accounting for approximately 56% of the energy used by civic buildings in 2012.
- This focus of energy usage on a smaller number of buildings has lead the Energy Management Program to continue to focus its assessment and auditing resources on the higher consuming buildings.
- A further three high consuming buildings, in addition to five that are already in the program, are participating in the BC Hydro continuous optimization (COp) program, which aims to increase energy efficiency by 5-20% through site energy investigations and operational changes.



- Secured over **\$100,000** of external funding to support the Energy Management Program.
- The City of Richmond remains the only Municipality recognized by BC Hydro for the City's energy efficiency and conservation work as being a **Power Smart Leader**.
- City is on course to achieving, by early 2014, an estimated reduction of **1.4 GWh** in electrical and natural gas use and approximately **170 tonnes** of greenhouse gas emissions from a variety of current projects.
- This energy reduction represents approximately **1.8%** of our current corporate annual energy use and the GHG emissions reduction is equal to removing approximately **50 vehicles** from Richmond roads each year. In addition, these energy reductions will result in approximately **\$100,000** in operational cost avoidance savings.



- **Energy Strategic Planning:** Development of a yearly building energy audit schedule that aligns with yearly building condition assessments.
- **Policy Review:** Facilitation of a working group to update the Corporate High Performance Building Policy, with emphasis on space functionality, operational and energy efficiency, and the incorporating of building energy use reduction targets.
- **Employee Engagement:** Completed Year 3 of a 4-year corporate energy awareness program with support of BC Hydro and staff “Energy Champions”, to promote energy conservation measures within the corporation.
- **Showcase projects:** Achieved higher than anticipated energy conservation results for two 2012 projects, a heat recovery installation at Minoru Arena and a lighting retrofit at Burkeville tennis courts. Completed “first of its kind” sanitary sewer heat recovery installation at Gateway Theatre.
- **New Technology Integration:** Continued feasibility work on the integration of new high efficient light-emitting diode (LED) street lighting fixtures into the City’s street lighting system to displace higher energy using high pressure sodium fixtures.



- Continue to implement and work towards corporate goals associated with the Sustainability Framework - Sustainable Resource Use-Energy Smart City and Climate Prepared City, and the Towards Carbon Neutrality Implementation Strategy.
- 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.
- Complete evaluation of the feasibility of connecting replacement facilities at Minoru Park to a district energy centre.
- Continue to increase energy use awareness within the organization and community.



Action Items include:

- Finalize the upgrading of our corporate energy use database, to improve energy reporting capabilities and corporate energy use information sharing.
- Finalize the establishment of corporate building energy use targets, to help drive energy efficiency goals within the corporation.
- Continue to align energy management project funding requests with upcoming building improvement projects to maximize co-benefits of coordinating project activities at the same time.
- Complete a building automation system integration plan for new and existing buildings, to increased building operational energy efficiency and analysis capability.

