



ROYAL **BC** MUSEUM

Where the past lives.

2011 Carbon Action Neutral Report



Royal BC Museum Corporation - 2011 Carbon Neutral Action Report

Executive Summary

This is the third Carbon Action Neutral Action Report prepared and submitted by the Royal British Columbia Museum Corporation (Royal BC Museum, RBCM). The report was prepared in accordance with the *Greenhouse Gas Reduction Targets Act* adopted in November 2007 by the Ministry of Environment's Climate Action Secretariat. It reflects our continued and ongoing commitment to acting responsibly on the environment and climate change action. In addition, we aim to educate and assist members of the Royal BC Museum community to understand and fulfill their responsibilities to practice environmental sustainability.



We consider ourselves a leader in sustainability initiatives. We've been practicing good environmental stewardship for decades. As the keeper of BC's environmental history, it's our business. Our staff and volunteers are committed and passionate about a culture of conservation and continued greening of our practices.

The Royal BC Museum has been practicing sustainability throughout its operation for many years. For example: we discontinued the use of tropical hardwoods for exhibit construction in the 1970's; upgraded lighting throughout the facilities to energy efficient models; installed power management software to shut down our workstations; completed a comprehensive water audit (in partnership with the Capital Regional District); are participating in the Continuous Optimization Program with BC Hydro and continue to work closely with BC Hydro as a Power Smart Partner on energy conservation initiatives.

We have a comprehensive recycling and composting program in place, are a "bottled-water" free zone for corporate sponsored meetings and events, have installed solar-powered trash compactors and recycling containers around the exterior of the building, have installed low-flush toilets and dual motion-sensor lighting, turn off all non-essential lighting at night, participate in Earth Hour (and encourage our staff to participate at home), purchase 100% recycled content paper for photocopiers and printers and have landscaped with low-water or native plants, to help reduce our water consumption.

As we move forward with our long term vision and strategic plan, we will continue to demonstrate leadership through implementing initiatives that support sustainable operations. The Royal BC Museum will continue its commitment towards sustainable awareness, sustainability, energy conservation/management through its research, employee performance and development plans, community outreach, and any other initiatives that will result in a reduction in greenhouse gas emissions and conservation of energy.

A handwritten signature in black ink that reads "Pauline Rafferty". The signature is stylized and cursive.

Pauline Rafferty

CEO

Overviews

2011 Greenhouse Emissions

As required by the *Greenhouse Gas Reduction Targets Act*, the Royal BC Museum's total greenhouse gas (GHG) emissions for 2011 Calendar Year from all sources covered by the Act are 177.30. In-scope sources include Mobile Fuel Combustion (fleet vehicle and other mobile equipment), Stationary Fuel Combustion and Electricity (buildings), and Supplies (paper).

Due to a 2010 GHG emissions reporting adjustment that was made in June 2011, after our final 2010 Carbon Action Neutral Report was filed with the Climate Action Secretariat, we have reported a 30.24 tonnes of GHG emissions adjustment and claimed a credit of \$840 on our 2011 Carbon Offset Purchase form that has been forwarded to the Pacific Carbon Trust.

Offsets Applied to Become Neutral in 2011

The Royal BC Museum's Offsets that have been applied to become Carbon Neutral in 2011:

- Total Offsets Purchased: 177.30
- Total Offset Investment: \$4,426.00 (excluding applicable HST)
- Emissions not requiring offset: 0.26

Under the Carbon Neutral Government Regulation of the Greenhouse Reduction Targets Act, some emissions do not require offsets and those emissions total 0.26.

It was estimated that stationary fugitive emissions from cooling (small air conditioner in Server Room) do not comprise more than 1% of the Royal BC Museum's total emissions and ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. For this reason, emissions from this source have been deemed out-of-scope and have not been included in the Royal BC Museum's total greenhouse gas emissions profile.

The Royal BC Museum has a contract in place with the Provincial Government (through Shared Services BC) for delivery of cooling in the summer months and supplementary steam for heating in the winter if the Royal BC Museum's electric boiler cannot supply enough heating to the precinct. Fugitive emissions from this source have not been reported as part of our greenhouse gas emissions profile in 2011 as it is currently unclear whether the associated emissions are in or out of reporting scope and discussions are underway with Shared Services BC and the Climate Action Secretariat to resolve the uncertainty. We believe it is out of scope since we are already paying the Provincial Government for the delivery of these utility services.

Actions Taken to Reduce Greenhouse Gas Emissions in 2011

In 2011, actions taken by the Royal BC Museum include:

- installing a dashboard flat screen (in partnership with BC Hydro and Pulse Energy) which shows our real time energy consumption;
- purchasing additional low flush toilets for Willies Café;
- continuing to be a bottled-water free zone and not purchasing bottled water for our meetings or events;

- using low VOC paint whenever possible;
- replacing hand washing soap in all washrooms with green certified hand wash;
- beginning the process of purchasing British Columbia made 100%- recycled fibre paper towels comprised of at least 88% post-consumer material for all washrooms and industrial work spaces;
- starting to purchase EcoLogo certified 100%-recycled toilet paper comprised of at least 88% post-consumer material for all washrooms;
- installing a new hot water tank in Mungo Martin House;
- purchasing 100% recycled photocopier and printer paper;
- analysing annually the computer software power management that was installed in 2009 and in 2011 there was annual energy savings of 92,618 kWh; and
- participating in Earth Hour on March 28, 2011 and we left off all non-essential lighting all night, not just for one hour.

In March 2011, we completed another phase of our multi-phase mechanical upgrade projects where state-of-the-art, energy-efficient heating, ventilation and air conditioning (HVAC) system was installed for our 3rd Floor First Peoples Gallery. This HVAC system creates an optimum environment for the preservation of the collections in our care.

Our Exhibitions and Visitor Experience Department refreshed and upgraded the Fraser Delta Diorama and began an upgrade of the Archeology exhibit. As part of our ongoing commitment to sustainability, the Royal BC Museum took a number of sustainable initiatives, including:

- All of the cases and counters for the new Archeology exhibit are being reused from Behind the Scenes;
- Lighting for the archeology exhibit re-uses light fixtures from previous exhibits and the halogen bulbs are being replaced with LED technology;
- 15 % of graphic output from Behind the Scenes was repurposed as site and office decorations;
- 95 % of the new lighting for the Fraser Delta upgrade uses LED technology and the lighting that was removed is being used in other areas of the building to improve overall light levels;
- 100 % of the wood for the Fraser Delta was sourced locally from a family run mill in Sooke;
- The laminated glass for the Fraser Delta was reused from previous exhibits;
- 75 % of the multimedia technology was reused from previous exhibits; and .
- 75 % of the fore ground material used in the cleaning of the forest diorama is natural and sourced locally, Victoria – Jordan River.

In the Behind The Scenes exhibition we also recycled 50% of the case exhibit glass from previous exhibits; 80% of the internal walls from previous exhibits; used low VOC paint for the wall; purchased eco-friendly furniture built by a Vancouver company; recycled 20% of the electronic components and 100% of the lighting

fixtures from previous shows; incorporated LED technology into the showcase design and consideration was given to future use of showcases to ensure they could be reused and recycled for future exhibitions.

We have a Sustainability Policy and a staff Sustainability Committee to keep us moving forward. Our people are passionate about sustainability, reducing emissions and continued greening of our practices. We look for ways to get people thinking about living sustainably through tips, newsletters, and project and staff meetings.

Operational Updates and Changes in 2011

Although we previously installed state-of-the-art energy-efficient heating, ventilation and air conditioning equipment (HVAC) in our temporary travelling exhibition gallery and have now completed the installation of a HVAC upgrade to our First Peoples Gallery, the preservation of the collections for future generations requires controlling the environment of the facility, including the temperature and humidity, where the artifacts and collections are exhibited or housed; which may impact on the energy requirements of the corporation.

To minimize impact on energy requirements, the new HVAC system installations have employed many innovative strategies for reducing the extra energy required for the fine humidity and temperature control. These included free cooling/humidification based on dew point, dehumidification coupled with fan speed, electronic air filtration, air cooled chiller, variable speed drives, and Direct Digital Control (DDC).

Action Plans to Continue Reducing Greenhouse Gas Emissions 2012 – 2014

The Royal BC Museum intends to continue with its sustainability programs and recognizes the importance of incorporating carbon actions planning into the organization's strategic plan. We will continue to undertake energy and other sustainability initiatives and improvement upgrades, replace existing toilets with low flush toilets and install other low-flow water fixtures; encourage recycling and composting within our facilities, remind staff to turn out lights off when not in use, provide energy tips for the home and continue to educate our staff (and visitors).

The Royal BC Museum has an exhibition that introduces climate and climate change including potential impacts. The Botany and Earth History Section in the Natural History department at the Museum is actively engaged in the dialogue and objectives of the Climate Action Secretariat within the Ministry of Environment. In addition to Dr. Hebda's role as a Technical Advisor, much of his research at the museum relates to describing climate changes in BC's ancient history and detecting their physical and ecological impacts. Factors affecting climate change in the distant past could apply to the present and advances on this research front will help us make more informed decisions about adapting to and mitigating climate change today.

Our partnership with BC Hydro is very important to us, and we wish to continue to foster that relationship and demonstrate that we "walk the talk" on sustainability activities within our own organizations. In the fall of 2010, we partnered with BC Hydro, Pulse Energy and our Energy Manager (Avalon Energy Management) to participate in the Continuous Optimization Program to improve the level of efficiency in our building operations and energy management programs. Throughout 2011, our energy baseline was captured and established. As of December 2011, the data was being analysed by our Energy Management Consultant and we will be providing our report to BC Hydro in early 2012 for review. In 2012, we will begin to undertake identified energy saving measures that have been identified by Avalon Energy Management and approved by BC Hydro.

To demonstrate its leadership in sustainable operations, the Royal BC Museum will:

- continue to commit to undertake economic and other measures to increase the organization's energy efficiency and resulting positive effect on sustainability;
- promote practices that are influenced by our academic and research activities. Priority will be given to identifying ways to improve the long-term quality and capacity of the environmental, social and economic systems that support the RBCM's activities and needs. These activities will include influencing use and acquisition of environmentally friendly/sustainable products in the development of exhibitions; goods and services that are consumed and/or sold on the site (e.g., by food services providers and shops) and the use of environmentally friendly products by staff and our property management services provider;
- minimize its consumption of non-renewable energy, minimize water consumption, and continue to grow its recycling program to include inclusion of compostable materials in other areas;
- landscape using environmentally friendly plants and reduce the water use on its grounds;
- implement sustainable building design and construction principles when renovating or constructing new buildings or exhibits;
- balance quality, cost and environmental sustainability in its purchasing and investment decisions including considering long term and life-cycle costs to achieve this balance;
- support the BC Government's Climate Action initiatives by assessing the sustainability impacts associated with its activities and report specific targets, priorities and timetables for achieving its renewed sustainability and energy management objectives;
- use its capacity and leadership role in the museum/archives community to promote and educate others about sustainability within and beyond the borders of the institution (e.g., through initiatives like the climate change gallery and research); and
- develop, adopt and promote environmentally sustainable practices and processes in all of its operations and in the greater community, including video and phone conferencing and internet meeting (e.g., LiveMeeting) instead of traveling to meetings.

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Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*.

| Action | Status (as of 12/31/11) | Performance to Date (as of 12/31/11) | Steps Taken in 2011 | Steps Planned for 2012 -2014 | Start Year | End Year |
|---|----------------------------|---|--|---|---------------------|--------------------------|
| Mobile Fuel Combustion (Fleet and other mobile equipment) | | | | | | |
| Vehicle fuel efficiency | | | | | | |
| Replace vehicles with more fuel-efficient models | In Development | | Unable to take action in 2011 as the current lease expires in 2013, we are analyzing options available | New fuel efficient vehicle should be in place by the end of 2013 | 2013 | No End Date (Continuous) |
| Replace larger vehicles with smaller models according to fleet "right-sizing" principles | In Development | | Unable to take action in 2011 as the current lease expires in 2013, we are analyzing options available | New fuel efficient vehicle should be in place by the end of 2013 | 2013 | No End Date (Continuous) |
| Perform regular fleet maintenance specifically to improve fuel-efficiency | Ongoing/In Progress | | Our vehicle is regularly maintained through the PHH program | Continue to maintain through the PHH program | 2006 | No End Date (Continuous) |
| Behaviour change program | | | | | | |
| Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages) | Ongoing/In Progress | | Provide all staff with anti-idling information document and request that they practice anti-idling when using the vehicle (i.e. Tips in newsletters) | Continue steps taken in 2011 | 2010 | No End Date (Continuous) |
| Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking) | Ongoing/In Progress | | We have bike racks on site, lockers and showers are available for all staff. Staff have the opportunity to purchase a bus pass through payroll deductions | Continue to practice other methods of travel | 2006 | No End Date (Continuous) |
| Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings) | | | | | | |
| Planning/management | | | | | | |
| Enrol in a building energy benchmarking program (e.g., GREEN UP) | Ongoing/In Progress | | An Energy Management Consultant reviews our energy program on an annual basis and we continue to participate in the IAMFA benchmarking program | Continue to have consultant review our organization and continue to participate in IAMFA benchmarking program | 2008 | No End Date (Continuous) |
| Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls) | Completed in 2011 | | Installed a Pulse Energy dashboard which shows our real time energy usage of our three BC Hydro meters. Dashboard is also accessible through our website. | Continue to monitor our energy consumption on an ongoing basis | 2010 | No End Date (Continuous) |
| Owned buildings | | | | | | |
| Establish energy performance baseline for owned buildings | Ongoing/In Progress | | Participating in the Continuous Optimization Program with our partner, BC Hydro. Monitoring our energy usage and establishing a baseline that will be used to move us forward with energy upgrades | Continue to review and implement energy upgrades as funding permits. Annual review by Energy Consultant | 2010 | No End Date (Continuous) |
| Incorporate integrated design process into new construction or during renovations of owned buildings | Ongoing/In Progress | | Construction activities are undertaken with new and current exhibitions. For facilities construction projects we have an RBCM employee to oversee/manage and coordinate with other branches to ensure all areas of concern are addressed and dealt with prior to occupancy permits or final project sign off | Continue to review and incorporate integrated design process where applicable. Continue to engage stakeholders. | 2003 | No End Date (Continuous) |
| Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions | Ongoing/In Progress | | One small air conditioning unit and two walk in coolers (fur storage and collections storage) under five tons are on site and regularly maintained | Continue to maintain including monitoring refrigerant. Work with government as required as the majority of the RBCM's cooling is received from the Central Cooling plant. | Started before 1995 | No End Date (Continuous) |

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| Action | Status (as of 12/31/11) | Performance to Date (as of 12/31/11) | | Steps Taken in 2011 | Steps Planned for 2012 -2014 | Start Year | End Year |
|--|----------------------------|---|---|---|---|------------|-----------------------------|
| Perform energy retrofits on existing, owned buildings | Ongoing/In Progress | | | Replaced 52 - 50 watt emergency exit lighting from incandescent light bulbs to 7 watt LED in the Fannin tower and Archives. Total of 2600 watts of power was reduced to 364 watts. Replaced 167 - 50 watt emergency spot lights in Exhibitions building and switched to either 7 watt par 20, or 10 watt par 30 lighting. | Continue to improve energy efficiency upgrades as funding permits. | 2004 | No End Date (Continuous) |
| Retrofitting owned buildings | | | | | | | |
| Upgrade mechanical systems (heating, cooling, ventilation) during retrofits | Ongoing/In Progress | | | Completed the project to replace old equipment with new equipment for the HVAC system. New system has many innovative strategies for reducing the extra energy required for the fine humidity and temperature control. Free cooling/humidification based on dew point, dehumidification coupled with fan speed, electronic air filtration, air cooled chiller, variable speed drive and an innovative and user friendly Direct Digital Control (DDC). | Begin Phase 4 of the HVAC upgrades as funding permits. | 2008 | No End Date (Continuous) |
| Upgrade lighting systems during retrofits | Ongoing/In Progress | | | Unable to take action in 2011 due to lack of funding available | Continue to upgrade lighting system as funding permits. | 2004 | No End Date (Continuous) |
| Upgrade/adjust control systems during retrofits | Ongoing/In Progress | | | Installed DDC system for HVAC project. | Continue to install DDC systems on other projects | 2008 | No End Date (Continuous) |
| Improve building insulation (including windows) during retrofits | Ongoing/In Progress | | | No action taken in 2011 due to lack of funding available | Will consider for future upgrades | 2003 | No End Date (Continuous) |
| Install an on-site renewable energy demonstration project | Ongoing/In Progress | | | Installed a Pulse Energy dashboard which shows our real time energy usage of our three BC Hydro meters. Dashboard is also accessible through our website. | Continue to showcase the Pulse Energy dashboard | 2006 | No End Date (Continuous) |
| IT power management | | | | | | | |
| Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices | Ongoing/In Progress | | | No action was taken in 2011 due to funding. | Replacements will continue as funding permits. | 2007 | No End Date (Continuous) |
| Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices | Ongoing/In Progress | 70 | % of devices have auto-sleep settings applied | Three multifunction devices and two printers were replaced with new units with lower power consumption and auto-sleep settings enabled. | More multifunction devices and printers will be replaced as funding permits. | 2001 | No End Date (Continuous) |
| Appliances and electronic devices | | | | | | | |
| Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases | Ongoing/In Progress | 96 | % of fridges are ENERGY STAR rated | No freezer or fridges purchased in 2011 | Continue to replace fridges as funding permits | 2006 | No End Date (Continuous) |
| Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases | Ongoing/In Progress | 97 | % OF freezers are ENERGY STAR rated | Removed and recycled freezer in the lab, and disposed of refrigerant. | Continue to replace additional freezers as funding permits | 2008 | No End Date (Continuous) |
| Behaviour change program | | | | | | | |
| Help staff reduce personal energy use through "workstation tune-ups" | Ongoing/In Progress | | | Non essential lights are turned off, computers are turned off, blinds are pulled and energy savings are noted in real kWh. Energy saving measures, good workstation habits, post it reminders are always in use. Helpful hints are mentioned in every issue of the Property Management and Operations newsletters (internally distributed through email and posted on our website). | Continue to practice all steps taken in 2009, 2010 and 2011 and any other energy saving measures that can be introduced | 2006 | No End Date (Continuous) |

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| Action | Status (as of 12/31/11) | Performance to Date (as of 12/31/11) | Steps Taken in 2011 | Steps Planned for 2012 -2014 | Start Year | End Year |
|--|----------------------------|---|---|---|------------|-----------------------------|
| Ask staff to unplug electrical equipment or switch off power bars when not in use | Ongoing/In Progress | | All workstations have power bars which are turned off when not in use | Continue to turn off power bars when not in use | 2008 | No End Date (Continuous) |
| Ask staff to close blinds at end of work day to reduce heating/cooling demands | Ongoing/In Progress | | Staff have been asked to shut blinds at the end of the day and when the sun is shining in (to reduce solar gain), and the Sustainability Committee go on energy saving walkabouts on a regular basis | Continue to shut blinds at the end of the day, and continue the Sustainability Committee walkabouts | 2008 | No End Date (Continuous) |
| Provide tips to staff on saving energy in the office while working outside of regular business hours | Ongoing/In Progress | | Raise awareness and promote and practice power smart measures | Continue to raise awareness and promote and practice power smart measures | 2008 | No End Date (Continuous) |
| Encourage use of stairs instead of elevators | Ongoing/In Progress | | Newsletters and emails to all staff are sent out frequently and we are currently offering a stair climbing competition with prizes. Staff are encouraged to reduce energy in the home as well as at work and tips on energy conservation are posted regularly in the Property Management and Operations newsletters which are sent to all staff and partners as well as volunteers and members of the RBCM | Continue to promote and practice | 2008 | No End Date (Continuous) |
| Provide reminders for turning off lights (e.g., signs, stickers, messages) | Ongoing/In Progress | | Turn off stickers have been used in all areas and Security also checks to ensure items are unplugged when they do their nightly rounds | Continue to use stickers and check to ensure items are unplugged at night | 2008 | No End Date (Continuous) |
| Promote hot water conservation | Ongoing/In Progress | | Tips about water conservation are included in the Property Management and Operations Newsletters | Continue to post tips in the newsletters | 2008 | No End Date (Continuous) |
| Other Stationary Fuel Combustion, Electricity, and Fugitive Emissions Actions | | | | | | |
| Solar powered trash compactors on site | Ongoing/In Progress | | Solar powered garbage compactors are in place around the exterior of the building. | Install additional compactors if required | 2008 | No End Date (Continuous) |
| Motion sensor lighting in public washrooms | Ongoing/In Progress | | Motion censored lights are used in the washrooms and the locker rooms | Continue to add during renovations and new construction and other areas as required | 2009 | No End Date (Continuous) |
| Supplies (Paper) | | | | | | |
| Paper Type | | | | | | |
| Purchase 30% post-consumer recycled paper | Ongoing/In Progress | | Some coloured paper is not available in 100% recycled, but is 30% recyclable. | Where 100% recyclable paper is not available, continue to order the 30% recycled paper | 2008 | No End Date (Continuous) |
| Purchase 100% post-consumer recycled paper | Ongoing/In Progress | | Corporate letterhead, envelopes and business cards are printed on Mohawk Options 100% PC white. They are made with wind power and are Green Seal Certified and acid free. They are also FSC (Forest Stewardship Council) Certified and contain 100% post consumer waste. All white photocopier paper is 100% recycled. Membership letterhead and envelopes purchased in 2011 are FSC Certifiable stocks, but not 100% PC content. | Continue to purchase 100% recycled paper supplies. Membership letterhead and envelopes will be purchased using 100% PC. | 2009 | No End Date (Continuous) |
| Printer/document settings | | | | | | |
| Switch networked printers and photocopiers to automatic double-sided | Ongoing/In Progress | | Continue to use double-sided copying practices | Continue to use double sided copying practices | 2008 | No End Date (Continuous) |
| Reduce default margin size in standard document templates (e.g., letters, briefing notes, forms, etc.) | Ongoing/In Progress | | Templates were designed and are being used through the shared drive | Continue to produce new templates designed with this format | 2008 | No End Date (Continuous) |

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|---|----------------------------|---|---|--|---------------------|--------------------------|
| Electronic media in place of paper | | | | | | |
| Use electronic document library for filing common documents | Ongoing/In Progress | | RBCM has always used this process - prior to having a shared drive, shared folders were used in Outlook. Also, printing out large documents is discouraged. All competition documents are saved in a shared project folder with restricted access to eliminate large print outs. | Continue following this practice and encourage people to consider the environment before printing | Started before 1995 | No End Date (Continuous) |
| Post materials online that were previously printed | Ongoing/In Progress | | RECM has always used this process (prior to having a shared drive, shared folders were used in Outlook. Printing is discouraged unless necessary. Many public documents are also posted on our website (i.e. Shareholder's letter, Annual Service Plan, Sustainability Policy, Newsletters, etc.) | Continue to post common documents in shared drive | 1995 | No End Date (Continuous) |
| Switch to an electronic payroll notification system in place of paper pay stubs | Ongoing/In Progress | | All staff are on electronic payroll and use the Employee Self Service system to access pay information | Continue this practice with all new staff | 2009 | No End Date (Continuous) |
| Behaviour change program | | | | | | |
| Encourage staff to hold paperless meetings or presentations (i.e., no handouts) | Ongoing/In Progress | | This is highly encouraged and in most instances is already in place | Continue to encourage paperless meetings and or presentations | 2008 | No End Date (Continuous) |
| Encourage re-use of scrap paper | Ongoing/In Progress | | This has been a practice for several years by many employees. Paper recycling bins are also used by all staff | Continue to reuse non-confidential paper for scrap and recycle | Started before 1995 | No End Date (Continuous) |
| Other Paper Supplies Actions | | | | | | |
| Membership newsletters are sent out via email to all those members with email addresses | Ongoing/In Progress | | Magazines and membership newsletters are sent out via email to all those members with email addresses, plus e-Bulletin updates are sent out rather than mail outs | Continue to send all mail outs by email when able to. Annual reports will be printed on 100% recycled paper. | 2009 | No End Date (Continuous) |

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Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to report on actions that will help British Columbia meet its provincial greenhouse gas reduction targets, engage the public, and improve environmental sustainability across all aspects of their organization.

| Action | Status (as of 12/31/11) | Performance to Date (as of 12/31/11) | Steps Taken in 2011 | Steps Planned for 2012 -2014 | Start Year | End Year |
|---|----------------------------|---|--|--|------------|-----------------------------|
| Education, Awareness, and Engagement | | | | | | |
| Team-building | | | | | | |
| Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement | Ongoing/In Progress | | Sustainability Committee and a sustainability policy has been endorsed by Executive and is posted on the website | Sustainability Committee to remain active and engaged | 2008 | No End Date (Continuous) |
| Provide resources and/or dedicated staff to support teams | Ongoing/In Progress | | Sustainability Committee projects are funded through base operations (Property Management and Operations) | The Property Management and Operations team will continue to be responsible for implementation of various sustainability initiatives | 2008 | No End Date (Continuous) |
| Providing behaviour change education/training to teams (e.g., community-based social marketing) | Ongoing/In Progress | | Staff have been educated on greener choices for supplies, and purchases although we have always looked at purchasing greener materials. RBCM is a participant in the Green Tote program with Queen's printer - supplies are delivered in a green tote and tote is returned to Queen's printer through BC Mail Plus. | Continue to purchase green materials and supplies, and participate in the Green Tote program. | 2008 | No End Date (Continuous) |
| Staff Professional Development | | | | | | |
| Support green professional development (e.g., workshops, conferences, training) | Ongoing/In Progress | | A report was prepared for material options/potential sponsors/design courses to education staff on greener choices for material and supply purchases. A Property Management and Operations team member has taken a Sustainable Building Advisory Program course and will continue to support other employees when sustainability learning are identified in their personal learning plans. All of the cases and counters for the new Archeology exhibit are being reused from Behind the scenes - Lighting for the archeology exhibit re uses light fixtures from previous exhibits and the halogen bulbs are being replaced with LED technology; 15 % of graphic output from behind the scenes was repurposed as office decorations; 95 % of the new lighting for the Fraser Delta upgrade uses LED technology and the lighting that was removed is being used in other areas of the building to improve overall light levels; 100 % of the wood for the Fraser Delta was sourced locally from a family run mill in Sooke - Wenstob timber resources ltd; The laminated glass for the Fraser Delta was reused from previous exhibits; 75 % of the multimedia technology was reused from previous exhibits; and 75 % of the fore ground material used in the cleaning of the forest diorama is natural and sourced locally, Victoria – Jordan River. | Continue to purchase green materials and supplies, and keep educated on greener choices available | 2008 | No End Date (Continuous) |
| Include green options in employee performance measurement system | Ongoing/In Progress | | Staff EPDP's reflected responsibility for environmental sustainability and staff were supported with their plans | Continue to support environmental sustainability and reflect it in EPDP's through learning opportunities | 2008 | No End Date (Continuous) |
| Staff awareness/education | | | | | | |
| Provide education to staff about the science of climate change | Ongoing/In Progress | | One of our staff is continuously involved in the climate change studies and we have audio sessions daily related to climate change | Continue to support climate change studies and practice and promote | 2007 | No End Date (Continuous) |

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|--|----------------------------|---|---|--|------------|--------------------------|
| Provide education to staff about the conservation of water, energy, and raw materials | Ongoing/In Progress | | Water conservation practices are outlined in issues of the Property Management and Operations newsletters. Mulch was added to gardens to reduce water consumption | Continue to add mulch as needed and promote water conservation practices in newsletters | 2009 | No End Date (Continuous) |
| Provide green tips on staff website or in newsletters | Ongoing/In Progress | | Tips are in the newsletters and posted for all to see on the website | Continue to practice and promote | 2008 | No End Date (Continuous) |
| Client/public awareness/education | | | | | | |
| Provide education to clients/public about the science of climate change | Ongoing/In Progress | | One of our staff is continuously involved in the climate change studies and we have audio sessions daily related to climate change | Continue to support climate change studies and practice and promote | 2009 | No End Date (Continuous) |
| Provide education to clients/public about the conservation of water, energy, and raw materials | Ongoing/In Progress | | Water conservation practices are outlined in issues of the Property Management and Operations newsletters. | Continue to promote water conservation practices in newsletters | 2009 | No End Date (Continuous) |
| Provide green tips on client/public website or in newsletters | Ongoing/In Progress | | Tips are in the newsletters and posted for all to see on the website | Continue to practice and promote | 2008 | No End Date (Continuous) |
| Other Education, Awareness, and Engagement Actions | | | | | | |
| Participate in Earth Hour Annually | Ongoing/In Progress | | Participated in Earth hour and reduced our consumption by 13%. Staff are also encouraged to participate and to share information with family and friends. Posted in newsletters. | Continue to participate and promote and influence our onsite partners | 2008 | No End Date (Continuous) |
| Other Sustainability Actions | | | | | | |
| Water conservation | | | | | | |
| Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models | Ongoing/In Progress | | Additional faucets were replaced | Continue to replace as funding permits | 2009 | No End Date (Continuous) |
| Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features | Ongoing/In Progress | | Landscaping includes native and drought resistant plants and more mulch was added to the gardens to conserve water | Continue to plant native and drought resistant plants and add mulch where necessary | 2009 | No End Date (Continuous) |
| Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales) | Ongoing/In Progress | | No action taken in 2011 | Continue to explore opportunities when renovations are required. Site development will be designed to meet LEED gold standards | 2009 | No End Date (Continuous) |
| Waste reduction/diversion | | | | | | |
| Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities | Ongoing/In Progress | | A recycling program is in place for wood, metal, glass, tin, plastics, cardboard, paper and compost. A no bottled water policy is in place. Further recycling centres have been added to the lobby for public use | Continue to ensure all options of recycling practices are used | 2008 | No End Date (Continuous) |
| Implement a hazardous waste reduction and disposal strategy | Ongoing/In Progress | | Hazardous waste is picked up and disposed of properly | Continue to review and arrange for pickup and/or proper disposal | 2009 | No End Date (Continuous) |
| Procurement (non-paper supplies) | | | | | | |
| Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.) | Ongoing/In Progress | | Green purchase practices are encouraged and practiced | Continue to encourage and use green purchasing practices | 2008 | No End Date (Continuous) |

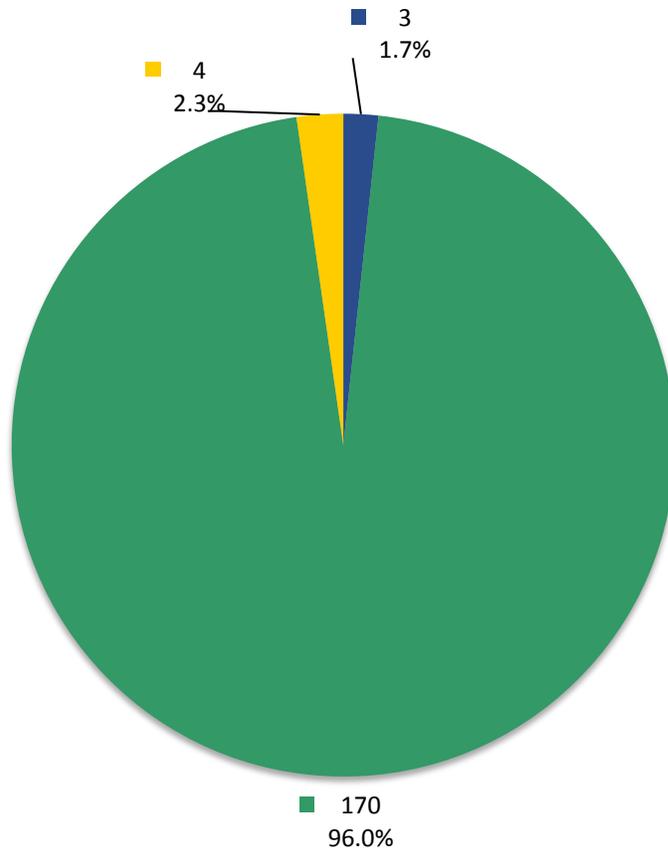
Royal BC Museum Corporation - 2011 Carbon Neutral Action Report

| Action | Status (as of 12/31/11) | Performance to Date (as of 12/31/11) | Steps Taken in 2011 | Steps Planned for 2012 -2014 | Start Year | End Year |
|---|----------------------------|---|--|--|------------|-----------------------------|
| Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.) | Ongoing/In Progress | | Chairs purchased this year - one contains up to 83% recycled content. Components are identified with recycling at the end of life and are greenguard certified and contribute to LEED criteria. One is the first in the industry to achieve MBDC Cradle to Cradle Gold Certification and is greenguard certified. Three chairs are greenguard certified and greenguard children and school certified, and contribute to LEED criteria. Also recycled eight old chairs through a chair recycling program - all non-salvageable parts will be broken down into metals, plastics, fabrics and delivered to an approved recycling depot, and all remaining parts will be assessed, then reconditioned for eventual donation to "not for profit" organizations. | Continue to replace furniture with green purchasing practices, as funding permits, and continue to recycle old furniture | 2010 | No End Date (Continuous) |
| Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags | Ongoing/In Progress | | Our on-site cleaning service provider is required to use biodegradable cleaning products and post consumer paper towels and toilet paper, which are essential for the safekeeping of our collections and being responsible stewards | Continue to practice using green cleaning products | 2003 | No End Date (Continuous) |
| Require a minimum purchase of sustainable, and organic food and beverages supplied by contracted food suppliers or caterers | Ongoing/In Progress | | Our preferred corporate caterer (Truffles Catering) is an Environmental Responsiveness Eco Star Award Winner. They have a strict sustainability practice in place. | Continue to work with onsite partners and caterers to provide and promote sustainability | 2007 | No End Date (Continuous) |
| Building construction, renovation, and leasing | | | | | | |
| Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities | Ongoing/In Progress | | All of the cases and counters for the new Archeology exhibit are being reused from Behind the scenes - Lighting for the archeology exhibit re uses light fixtures from previous exhibits and the halogen bulbs are being replaced with LED technology; 15 % of graphic output from behind the scenes was repurposed as office decorations; 95 % of the new lighting for the Fraser Delta upgrade uses LED technology and the lighting that was removed is being used in other areas of the building to improve overall light levels; 100 % of the wood for the Fraser Delta was sourced locally from a family run mill in Sooke - Wenstob timber resources ltd; The laminated glass for the Fraser Delta was reused from previous exhibits; 75 % of the multimedia technology was reused from previous exhibits; and 75 % of the fore ground material used in the cleaning of the forest diorama is natural and sourced locally, Victoria – Jordan River. | Continue to reuse and recycle in construction of Exhibitions and divert demolition debris from the landfill or incineration facilities | 2008 | No End Date (Continuous) |
| Incorporate lifecycle costing into new construction or renovations | Ongoing/In Progress | | All renovations noted in other areas of this report were in practice with lifecycle costing | Continue to encourage and practice | 2008 | No End Date (Continuous) |
| Indoor air quality | | | | | | |
| Enforce a scent-free policy (e.g., no strong perfumes, deodorants, etc.) | Ongoing/In Progress | | We have a scent free policy in place and reminders are sent out by Human Resources a few times each year. | Continue to support a scent free policy | 2003 | No End Date (Continuous) |
| Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture | Ongoing/In Progress | | Green purchasing practices are in place and low VOC products are being purchased and used | Continue to support the purchase and use low VOC products | 2008 | No End Date (Continuous) |
| Commuting to and from home | | | | | | |

Royal BC Museum Corporation - 2011 Carbon Neutral Action Report

| Action | Status (as of 12/31/11) | Performance to Date (as of 12/31/11) | Steps Taken in 2011 | Steps Planned for 2012 -2014 | Start Year | End Year |
|--|----------------------------|---|--|--|------------------------|-----------------------------|
| Introduce telework/work from home policy | Ongoing/In Progress | | Many of our staff have flexibility in their working hours, or work from home | Further evaluation and review by Executive to determine implementing opportunities for additional staff to work from home or have flexible working hours | 2008 | No End Date (Continuous) |
| Offer staff a compressed work week | Ongoing/In Progress | | Options are provided to staff to reduce their work week/hours when possible subject to operational requirements | Continue to support requests for reduced/compressed work week | 2003 | No End Date (Continuous) |
| Encourage commuting by foot, bicycle, carpool or public transit | Ongoing/In Progress | | Bus passes are made available through payroll deduction, and many staff bike to work | Continue to encourage biking to work, carpooling, or taking the bus | 2008 | No End Date (Continuous) |
| Provide shower or locker facilities for staff/students who commute by foot or by bicycle | Ongoing/In Progress | | Shower and locker facilities are available | Shower and locker facilities will continue to be available | Started before 1995 | No End Date (Continuous) |
| Provide secure bicycle storage | Ongoing/In Progress | | Bicycle storage is available for staff and bike racks for staff and public are located in various areas around the museum precinct | Continue to provide bicycle storage | Started before 1995 | No End Date (Continuous) |

**Royal BC Museum
Greenhouse Gas Emissions by Source
for the 2011 Calendar Year (tCO₂e*)**



Total Emissions: 177

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2011 (Generated May 18, 2012 10:29 AM)

Total offsets required: **177**. Total offset investment: **\$4,425**. Emissions which do not require offsets: **0** **

*Tonnes of carbon dioxide equivalent (tCO₂e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

** Under the *Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act*, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.