

**Metro Vancouver**

# Climate Action Revenue Incentive Program (CARIP) Public Report for 2011

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## General Information

Name of Local Government	<i>Metro Vancouver / GVRD</i>
Member of Regional District (RD)	<i>Metro Vancouver</i>
Regional Growth Strategy (RGS) in region	<i>Yes</i>
Population	<i>2,369,000</i>

## Community Wide Actions for 2011

### 1.1 Measure

#### Community Wide Measurement Actions

Question	Have you been using the Community Energy and Emissions Inventory (CEEI) to measure progress? What else have you been using instead of/in addition to CEEI?
Answer	Yes
Additional Information	<i>Yes, we receive and review the CEEI annually; however for a detailed, verified emissions inventory we conduct our own region-wide inventory every 5 years. The 2010 inventory is currently being developed and slated for completion spring 2012. We have previously completed emissions inventories for 1995 and 2005.</i>

### 1.2 Plan

#### Community Wide Targets

Question	Do your OCP(s) have targets, policies and actions to reduce GHG emissions, as per the requirements under the Local Governments Act (LGA)? If yes, please identify the targets set. If no or in progress, please comment.
Answer	No
Additional Information	<i>Not applicable.</i>

Question	If you are a Regional District, does your RGS have targets, policies and actions to reduce GHG emissions, as per the requirements under the Local Governments Act (LGA)? If yes, please identify the targets set. If no or in progress, please comment.
Answer	Yes

Additional Information	<ul style="list-style-type: none"> <li>• <i>Metro Vancouver’s new Regional Growth Strategy: Metro Vancouver 2040 – Shaping our Future was adopted on July 29th, 2011, after being unanimously accepted by all local governments in the region.</i></li> </ul> <p><i>It includes Strategy 3.3: Encourage land use and transportation infrastructure that reduce energy consumption and greenhouse gas emissions, and improve air quality. Metro Vancouver’s role is to implement the strategies and actions of the Regional Growth Strategy which contribute to regional targets to reduce greenhouse gas emissions by 33 percent below 2007 levels by 2020 and 80 percent below 2007 levels by 2050. Examples of strategies and actions contained in the Regional Growth Strategy to address climate change include: efficient goods movement; green infrastructure; protected and managed natural areas; mixed use, transit-oriented communities; low-impact development; work and play close to home; protected farmland; increasing share of trips by transit, cycling and walking; green buildings; and focusing growth in urban centres and transit corridors.</i></p>

### 1.3 Reduce

#### Supportive Community Wide Actions

Action Type	<b>Broad Planning</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• <i>Updated the regional Air Quality Management Plan (now known as the Integrated Air Quality and Greenhouse Gas Management Plan) to integrate GHG emissions reductions actions. <a href="http://www.metrovancouver.org/about/publications/Publications/IntegratedAirQualityGreenhouseGasManagementPlan-October%202011.pdf">http://www.metrovancouver.org/about/publications/Publications/IntegratedAirQualityGreenhouseGasManagementPlan-October%202011.pdf</a></i></li> <li>• <i>Initiated the ICLEI (International Council for Local Environmental Initiatives) Climate Adaptation Initiative which has the goal of completing a regional adaptation plan within two years.</i></li> <li>• <i>MOE approval of the Integrated Liquid Waste &amp; Resource Management Plan requires regional and municipal liquid waste GHG inventories and development / implementation of liquid waste GHG reduction programs through the Environmental Management Act.</i></li> <li>• <i>MOE approval of the Integrated Solid Waste and Resource Management Plan which commits Metro Vancouver and member municipalities to waste reduction initiatives that will lead to reduced GHG production.</i></li> <li>• <i>Metro Vancouver (along with several municipalities) became a signatory to the Mexico City Pact and registered its commitments and actions in the Carbons Cities Climate Registry. <a href="http://carbons.org/">http://carbons.org/</a></i></li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• <i>Initiate GHG mitigation actions in the Integrated Air Quality and Greenhouse Gas Management Plan.</i></li> <li>• <i>Year 2 of the ICLEI (International Council for Local Environmental Initiatives) Climate Adaptation Initiative.</i></li> </ul>

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Action Type	<b>Energy Generation</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• <i>Effluent Heat Opportunities: Conducted technical and economic feasibility assessment of building a heat extraction facility that could meet both on-site needs and serve the district energy system, in conjunction with the City of Richmond.</i></li> <li>• <i>Held four Future of the Region Sustainability dialogues and one post-dialogue forum on the topic of Energy Resiliency: Meeting the Challenge, where panellists and dialogue participants alike were challenged to think of how to increase energy resiliency against a backdrop of unpredictable energy prices and climate change.</i></li> <li>• <i>Held the 2011 Sustainability Congress on June 25, 2011, which attracted 400 participants, from such diverse sectors as business, government, academia, NGOs and local residents, including youth, to discuss the challenging path to sustainability based on five current and future global uncertainties, including climate change and energy.</i></li> <li>• <i>Hosted the International Regions Benchmarking Consortium, Building Future Cities TODAY conference from September 20-22, 2011, where delegates representing metropolitan regions across the globe came together to discuss new ideas and leading-edge solutions in three broad topic areas, including energy.</i></li> <li>• <i>Held community breakfast on Powering the Future - Getting Charged Up About Electric Vehicles on September 14, 2011.</i></li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• <i>Continue to deliver Future of the Region Sustainability Dialogues on topics of regional sustainability, such as energy and climate change.</i></li> <li>• <i>Partner with Sustainable Cities International to host the Sustainable Cities International Network Annual Symposium from May 1 – 3, 2012, to discuss accelerating innovation for sustainability in three broad topic areas, including energy.</i></li> </ul>

Action Type	<b>Green Space</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• <i>In October 2011, the Board adopted the Regional Parks Plan. In the plan we emphasize that a network of connected protected spaces is necessary in order to maintain a natural system that is resilient to disease and the possible impacts of climate change.</i> <a href="http://www.metrovancouver.org/services/parks_lscr/ParksManagementPlan/Documents/Regional%20Parks%20Plan%20Final%20Oct%2028%202011.pdf">http://www.metrovancouver.org/services/parks_lscr/ParksManagementPlan/Documents/Regional%20Parks%20Plan%20Final%20Oct%2028%202011.pdf</a></li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• <i>In 2012, we plan to prepare and begin implementing a plan to improve public transit access to regional parks.</i></li> </ul>

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Action Type	<b>Water/Sewer</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• A sewer heat model was developed in 2011, and heat data are being collected to improve the model's value. This will allow Metro Vancouver to better explore and coordinate such opportunities with municipalities, utilities, and private firms, and to contribute to energy and greenhouse gas emission targets under Metro Vancouver's Sustainability Framework and Action Plan.</li> </ul>
Proposed Actions for Next Year	

Action Type	<b>Other Actions</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• Initiated a second year of the Small-Medium Enterprises GHG Management training program for 2011 with a target of 200 businesses.</li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• Explore establishment of a regional climate action fund dedicated to funding a range of measures that will reduce regional GHG emissions and energy consumption.</li> </ul>

### Direct Community Wide Actions

Action Type	<b>Waste</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• Six municipalities have implemented food waste collection and composting for single family residents.</li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• It is expected that all 22 municipalities will have food waste collection and composting for single family residents.</li> </ul>

## 1.4 Community Wide Innovation

Question	<b>Is there any activity that you have been engaged in over the past year(s) that you are particularly proud of and would like to share with other local governments?</b>
Answer	<ul style="list-style-type: none"><li>• 2011 marked the completion of Metro Vancouver's compendium of regional management plans which is based on the vision, mission, values, and sustainability imperatives and principles found in the Sustainability Framework. <a href="http://www.metrovancouver.org/planning/Pages/ManagementPlans.aspx">http://www.metrovancouver.org/planning/Pages/ManagementPlans.aspx</a></li><li>• Metro Vancouver adopted a new Non-Road Diesel Engine Emission Regulation Bylaw, which will lead to reductions in emissions of black carbon, a significant short-lived climate forcer. <a href="http://www.metrovancouver.org/nonroaddiesel/Pages/default.aspx">http://www.metrovancouver.org/nonroaddiesel/Pages/default.aspx</a></li></ul>

## Corporate Actions for 2011

### 2.1 Measure

#### Corporate Measurement Actions

Question	What steps has your local government taken toward completing its corporate emissions inventory (e.g. corporate assets gathered related to energy and fuel data and calculated GHG emissions from energy use)?
Answer	<ul style="list-style-type: none"> <li>• <i>Completed annual corporate energy and emissions inventories for years 1997, 2005, 2006, 2007, 2008, 2009 and 2010.</i></li> </ul>

Question	What tool are you using to measure, track and report on your corporate emissions (e.g. SMARTtool, other tools including excel spreadsheets)?
Answer	<ul style="list-style-type: none"> <li>• <i>We are using internally developed spreadsheets appropriate to the breadth of activities that generate GHGs from our corporate activities. Metro Vancouver assisted in the testing of the SMARTtool.</i></li> </ul>

### 2.2 Reduce

#### Supportive Corporate Actions

Action Type	<b>Broad Planning</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• <i>Development of an implementation plan for Metro Vancouver's Corporate Climate Action Plan.</i></li> <li>• <i>Roll-out (year 1) of Strategic Energy Management Plan including energy audits at 9 facilities and implementation of employee energy awareness program.</i></li> </ul>
Proposed Actions for Next Year	

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Action Type	<b>Building and Lighting</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• Completed audits of buildings associated with Iona Island and Northwest Langley Wastewater Treatment Plants, Westburnco, Harbour and Cloverdale Pump Stations and the Lake City Operations Center has been completed.</li> <li>• Completed 2-year study of the technical and economic efficacy of the solar hot water heating system installed at Metro Vancouver head office at 4330 Kingsway in Burnaby.</li> <li>• Completed energy assessments at three Metro Vancouver Housing Corporation complexes which identified potential savings of up to 200 tonnes of CO2 from four buildings.</li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• Annacis Sustainability Academy aims to achieve LEED Gold Certification.</li> <li>• Facilitate three energy management 101 workshops</li> <li>• Complete a corporate energy use baseline</li> <li>• Complete several feasibility studies for various energy savings opportunities identified during energy audits</li> </ul>

Action Type	<b>Energy Generation</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• Water System Energy Recovery Study - Evaluated the economic and technical feasibility of installing energy generating equipment within the water transmission system at locations where, at times, energy can be recovered by taking advantage of changes in water pressure. Potential sites include reservoirs and pressure-reducing valve locations. Energy at these sites can be used to generate electricity.</li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• Completion of Water System Energy Recovery Study anticipated for January 2012 and implementation steps.</li> </ul>

Action Type	<b>Waste</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• New North Shore WWTP: Integrated Biogas and Biosolids Use Analysis - In preparation for design of the new North Shore wastewater treatment plant, an analysis was undertaken comparing the relative benefits and disadvantages of a variety of options for managing biogas and biosolids. The options included co-generation, upgrading biogas to biomethane, and drying biosolids. The results will inform the North Shore WWTP design process that will be undertaken in 2012. Energy use and recovery design at the new plant will have large implications on Metro Vancouver's SRI energy and greenhouse gas emission targets.</li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• North Shore WWTP design process will be undertaken in 2012.</li> </ul>

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Action Type	<b>Water/Sewer</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• <i>Microsludge and Green Biomethane Project</i> A series of studies were completed in 2011, leading to authorization by the Metro Vancouver Board for the installation of MicroSludge biogas-enhancement equipment and biogas upgrading equipment at Lulu Island WWTP. The upgraded biogas (green biomethane) will be sold to FortisBC for distribution throughout the region. Grant funding will be provided by the Innovative Clean Energy (ICE) Fund and by funding from the Union of British Columbia Municipalities. Contract negotiations are underway with the two relevant parties.</li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• <i>Microsludge and Green Biomethane Project design work will commence in 2012.</i></li> </ul>

Action Type	<b>Other Actions</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• <i>Established an internal valuation for CO2 of \$150/tonne in order to better make the business case for emissions reductions and to support the carbon neutral goals.</i></li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• <i>Work on landscaping plans (that will enhance ecological services on selected MV sites) will be initiated in 2012 in addition to work necessary for identifying and creating a green infrastructure network (a contiguous network of lands providing ecological services). To contribute to the project evaluation process, a tool that provides an estimation of the ecological services (including carbon sequestration) will be developed for use by MV staff.</i></li> </ul>

Direct Corporate Actions

Action Type	Building and Lighting
Actions Taken this Year	<ul style="list-style-type: none"> <li>• <i>Lighting in all common areas of several Metro Vancouver housing complexes was upgraded with more efficient lights.</i></li> <li>• <i>Seymour Capilano Filtration Plant (SCFP) earned a LEED Gold certification in November.</i></li> <li>• <i>The Waste-to-Energy (WTE) facility earned a LEED Platinum certification in February for several features of the building, including but not limited to:</i> <ul style="list-style-type: none"> <li>- <i>Use of natural ventilation for at least 90% of regularly-occupied spaces.</i></li> <li>- <i>Use of heat from the Facility to heat the building.</i></li> <li>- <i>Installation of dual-flush toilets, waterless urinals, and rainwater harvesting which resulted in a 64% reduction of potable water use</i></li> <li>- <i>Recycled materials were used to construct the building and construction waste was reduced by 98%</i></li> <li>- <i>Use of concrete with high recycled fly ash content for all floors and walls</i></li> <li>- <i>Use of regionally manufactured and extracted building materials, including large wooden beams extracted from a local warehouse that was demolished</i></li> <li>- <i>Use of low-emitting materials including paints, carpets, and composite wood products that contain no added urea-formaldehyde.</i></li> </ul> </li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• <i>Implement an energy use real-time dashboard display for several major facilities</i></li> <li>• <i>Complete the installation of new and improved variable frequency drives (VFDs) for the pumps at Iona Island WWTP</i></li> <li>• <i>Upgrade lighting at the Lake City Operations Center and Annacis Island WWTP</i></li> </ul>

Action Type	Fleet
Actions Taken this Year	<ul style="list-style-type: none"> <li>• <i>Full implementation of a “Vehicle &amp; equipment Right-Sizing” program for all Fleet procurements and corporate vehicle use (which had been introduced as a pilot program in 2010). This program ensures that the most appropriate vehicle is booked for the purpose it is required for, considering such factors as number of passengers, payload, etc.</i></li> <li>• <i>All Fleet procurements include an emissions assessment as part of a life cycle costing (total cost of ownership) formula that looks to reduce the total amount of emissions from our fleet, improve air quality and reduce air quality related health impacts</i></li> <li>• <i>Purchased two all-electric Azure/Ford Transit Connect vans</i></li> <li>• <i>Purchased two Chevrolet Volt cars (electric with gasoline engine for extended range)</i></li> <li>• <i>Purchased two all-electric Smart fortwo cars (delivery expected before end of 2011)</i></li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• <i>Plan to purchase two all-electric 4-door cars (such as Nissan Leaf or similar)</i></li> <li>• <i>Installation of Level 2 charging for our electric vehicle program</i></li> <li>• <i>Investigation of other (non electric) “cleaner technologies” for implementation into the Fleet replacement program</i></li> </ul>

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Action Type	<b>Waste</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• Expanded landfill gas collection system at closed Coquitlam landfill to reduce release of GHG emissions. Works included system replacement and installation of 34 vertical extraction wells. Also installed an enclosed flare. Landfill gas was used by a nearby business for seven months until business closure.</li> <li>• Introduced food waste collection for composting throughout head office building.</li> </ul>
Proposed Actions for Next Year	<ul style="list-style-type: none"> <li>• Will complete landfill gas collection system upgrade by installing laterals, headers and pumps. Will actively pursue finding new landfill gas users and explore opportunities to generate energy from captured landfill gas.</li> </ul>

Action Type	<b>Water/Sewer</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• Completed the Co-Digestion Pilot Project at Annacis Island Wastewater Treatment Plant in April 2011. This full-scale pilot project is now completely operational. The technology involves the direct feed of high-strength organic wastes with sludge that has settled from sewage treatment facilities to the existing anaerobic digesters. The purpose of co-digestion is to generate biogas, increase energy production and reduce GHGs by replacing natural gas use at the WWTP.</li> </ul>
Proposed Actions for Next Year	

Action Type	<b>Green Space</b>
Actions Taken this Year	<ul style="list-style-type: none"> <li>• Metro Vancouver purchased almost 67 hectares of forested property on the western flank of Sumas Mountain for park land.</li> </ul>
Proposed Actions for Next Year	

### 2.3 Corporate Innovations

Question	<b>Is there any activity that you have been engaged in over the past year(s) that you are particularly proud of and would like to share with other local governments?</b>
Answer	<ul style="list-style-type: none"><li>• <i>Metro Vancouver adopted the corporate Ecological Health Action Plan in October 2011. The plan will expand on Metro Vancouver plans and operations maintain and enhance ecological services, including the sequestering of carbon.</i> <i><a href="http://www.metrovancouver.org/planning/development/ecologicalhealth/Pages/default.aspx">http://www.metrovancouver.org/planning/development/ecologicalhealth/Pages/default.aspx</a></i></li><li>• <i>The Metro Vancouver Sustainability Academy: Annacis Wastewater Centre opened on October 21, 2011. The Annacis Wastewater Centre is the first Academy to be built and is part of a defined network of proposed Sustainability Academies that Metro Vancouver is pursuing.</i></li></ul>