

2012 Climate & Energy Action Awards – Application Executive Summaries

Corporate

Corporation of Delta: Delta Recreational Facilities Energy and GHG Emission Reduction Program: Two Leisure/Recreation Centre Retrofits and Solar Hot Water Installation

Population: 100,100

Delta's recreation facilities consume the largest amount of energy and emit the greatest GHGs. In response to this, Delta undertook a study to identify opportunities and priorities for GHG reductions at our recreation facilities.

- In 2010, a \$790,000 retrofit was implemented at Sungod Recreation Centre to reduce energy consumption and GHG emissions. As a result, Delta was able to reduce annual emissions by 476 tonnes of GHG, which represents a 27% reduction for Sungod Recreation Centre and 6% of Delta's 20% reduction goal.
- A similar GHG emission reduction retrofit was recently completed at the Ladner Leisure Centre. This \$745,000 project reduces GHG emissions by 360 tonnes or 34% annually; this equates to a 5% reduction in Delta's overall corporate GHG emissions. The retrofit project included energy efficiency measures, heat recovery, solar hot water, and geoexchange.
- In February 2012, Delta received a \$348,000 grant under the Federal Gas Tax Innovations Fund to install solar hot water systems at our two outdoor pools and the Ladner Leisure Centre. This project will showcase solar hot water technology and reduce GHG emissions by a further 33 tonnes annually.

The retrofits Delta has undertaken reflect our steadfast commitment to reducing our contribution to climate change and demonstrate leadership amongst the community in our implementation of innovative, quantifiable energy and GHG saving measures. The reduction of GHG resulting from these projects along with fleet and other GHG reduction projects currently underway, are projected to reduce Delta's corporate GHG emissions by 18% at the end of 2012.

Town of Golden: Golden's Corporate Energy and Emissions Reductions Project

Population: 3,935

This project description is about a deliberate change in corporate culture and measurable results.

Golden is a 2008 signatory to the BC Climate Action Charter and a founding member of the Columbia Basin Trust Carbon Neutral Kootenays Initiative - which received an Honourable Mention in the 2011 Climate & Energy Action Awards (Public Sector Organization and Local Government Collaboration). In 2009 we assigned corporate energy and emissions reductions to a single person (which, by 2012, evolved into the part-time role of Corporate Energy Manager). As required by the amended Local Government Act, we adopted community-wide emissions reductions targets in our OCP, but we also voluntarily added a corporate target of a 20% reduction in corporate carbon emissions by 2020.

By the end of 2010 we had reduced our corporate emissions by 169 tonnes of CO₂e, or 27% from the 2008 baseline - i.e. since becoming a signatory to the Climate Action Charter, and without yet developing a cohesive long-term plan, we had changed our behaviour sufficient to surpass what was originally considered a very aggressive corporate target. The objectives are now integrated into our financial planning process, daily operations and higher-level Asset Management plans, and the reductions continue to accumulate.

District of Maple Ridge: The W.A.T.T.S. UP Workplace Conservation Awareness Program

Population: 77,400

What's Up? A simple and popular phrase quoted by a famous rabbit, advertisements and people alike has been redefined, turned into an acronym and used to name the latest energy reduction initiative implemented at the District of Maple Ridge. To address the behavioural side of energy conservation, the District of Maple Ridge, with support from BC Hydro, created and implemented a Workplace Conservation Awareness program. The W.A.T.T.S. UP? (Working Actively Together to Save) initiative is an employe-led program designed to engage staff in reducing energy consumption by focusing on changing day to day

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behaviours. By overcoming barriers, misconceptions and other behaviours, the W.A.T.T.S. UP? goal is to encourage all staff to participate in energy conservation. In the first six months of the program, the W.A.T.T.S. UP? Team has hosted a variety of initiatives, communicated energy conservation information and given away prizes as incentives. The events include: making an energy reduction commitment, ugly sweater day, take the stairs challenge, energy myths shattered information campaign, monitor shutdown, unplugged initiative and a 'day in the dark'. In addition, the W.A.T.T.S. UP? Team created an online video presentation to communicate the importance of sustainability and illustrate the things staff can do at work and home to conserve energy and reduce their carbon footprint. The presentation resides on the corporate intranet, where the W.A.T.T.S. UP? program is featured. As an example, the W.A.T.T.S. UP? Team is making progress at changing behaviour as there has been a seventy-five percent (75%) improvement in monitor shutdown behaviour since the program commenced in late 2011.

Village of Nakusp: Nakusp's Path to Reduced GHG Emissions and Energy Consumption: Waste Heat, Solar Power, Micro-Hydro and Other Initiatives

Population: 1,530

The Village of Nakusp is very proud of the work it has done in our Corporate Operations in order to reduce our own energy and GHG emissions. The Village has signed on to the Climate Action Charter and worked with the Carbon Neutral Kootenay project measuring emissions, compiling an inventory and developing a Carbon Neutral plan for council to adopt.

The Village has undertaken many innovative retrofit projects which have created significant energy savings and have used waste energy in their buildings to capture heat for the facilities. The Hot Springs project included the installation of heat exchange units to capture latent heat from the natural Hot Springs water to heat domestic hot water and floors--drastically reducing the use of oil. The Arena project included installation of 6500W of solar power--approximately \$3,000/year in generated power, installation of digitally controlled ice plant with scheduling to shut the plant down when not in use, and an entire lighting retrofit for auditorium and arena.

The Water Plant Hydro Project is nearing completion and the 50KW hydropower generator will run 24/7 and generate about 440,000 KWh of electricity in a year. Smaller projects have also been accomplished--such as installation of solar lights in the beach washrooms, purchase of a chipper to reduce burning of wood waste and promote the production of mulch/soil. Council has adopted a Purchasing Policy which ensures that vehicles and equipment chosen by the Village considers fuel efficiency, carbon footprint, and overall sustainability; implementation of a year round Watering Restriction Bylaw and a Anti-Idling Bylaw. Public Works routes for snowplowing, and garbage pickup have been redesigned to be more efficient. The Mayor and Council have been very proactive in looking for ways that these innovative projects can be implemented despite the initial high costs.

City of Nanaimo: 'Greening the City' with Clean Energy Vehicles and Alternative Fuels

Population: 86,970

Technology has made it possible for a vehicle to be both environmentally and economically viable. Electric vehicles driven in BC can produce 40 times less greenhouse gas (GHG) than gasoline cars. According to Nanaimo's most recent Community Energy and Emissions Study, 56% of the City's total emissions are from passenger cars. Clearly, transportation is one of the key areas that could lead to significant emission reductions.

The City was one of the first municipalities to add clean energy vehicles to the corporate fleet, which currently includes three electric Nissan Leafs, three hybrid Toyota Prius passenger cars, as well as two converted electric pickup trucks. In addition, the City recently purchased two dual fuel 1-ton pickup trucks, which run on compressed natural gas and gasoline. To reduce emissions associated with motor-powered vehicles, the City utilizes biodiesel and other alternative fuel sources. In addition, the City uses other innovative methods to reduce its environmental impact, including finding ways to recycle and reuse antifreeze, and recycle used oil filters.

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The City is committed to reducing GHG emissions by providing both corporate and community support for clean energy vehicles. Nanaimo was one of the first municipalities in BC to provide electric vehicle charging stations to the public. Currently, the City has already funded and installed four public “Level 2” charging stations. There are also infrastructure plans for up to 12 additional charging stations in Nanaimo through the Plug in BC program.

Regional District of Nanaimo: Memorandum of Agreement: Regional Emission Reduction Projects for Carbon Neutral Operations

Population: 150, 630

The Regional District of Nanaimo, in partnership with its municipal counterparts, has developed a Memorandum of Agreement to develop and implement valid, quantifiable emission reduction projects for the purpose of achieving carbon neutral operations.

The rationale behind this agreement stems from the recognition that achieving carbon neutral operations represents a cost to local taxpayers. The Regional Board of Directors and Municipal Councils intend to ensure this cost contributes directly to the social, economic and environmental well being of the communities they represent. This means that regional emission reduction projects must occur within the region and provide tangible benefits to the residents of the region.

This cannot be achieved by any one of the region's local governments acting alone. Individual local governments' emissions inventories are insufficient to support economically viable, validated emission reduction projects, or local jurisdictions are too geographically constrained to support a diverse range of projects of the necessary scale to generate the needed reductions. By acting together, both of these constraints can be overcome, and this Memorandum of Agreement formalizes a commitment to act together, and lays out the obligations and process for doing so.

Specifically, this MOA requires each partner to consolidate its corporate emission inventory into a Regional Local Government Inventory; to establish, by statute, a reserve fund for the purpose of investing in regional emission reduction projects, to identify and share potential regional emission reduction projects, and to collaborate on the implementation of mutually beneficial projects.

Presently, this Agreement has the support of all parties.

Village of Sayward: Reducing Greenhouse Gas Emissions and Carbon Footprint in Very Small Community: Corporate Upgrades, Green Task Force and Carbon Sinks

Population: 340

To date we have accomplished the following:

Installed a new H.V.A.C. system in our Village recreation centre. This has greatly reduced use of propane needed to heat the building and indoor pool. The heating system and low energy lighting system are computer controlled; this along with all lighting changed to high efficiency bulbs have together greatly lowered our carbon footprint.

A Green Task Force Committee has been formed. This group of three members has researched several good ideas and tips on methods for the average individual to do their part in reducing their carbon footprint. The Committee has been diligent in keeping the community involved by asking for their input and thoughts on the subject. The task force has published several good ideas and hints in our local newsletter. The publications are on-going and the Sayward News is delivered to 375 homes in the Village and Valley twice a month.

Village Council has passed and Idle Free Zone By-law within the Village Boundaries

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The Village budgeted the purchase of evergreen trees; these were planted in front of the sewage lagoon by many volunteers. The effect of 152 new trees in the town site, 102 planted last year and 50 more planted this year, will form a small carbon sink and help cut our green house gas emissions.

All municipal buildings, offices, public works and schools have changed over to the new high efficiency lighting.

Community

City of Kelowna: Kelowna's Community Climate Action Plan

Population: 121,850

City Council endorsed Kelowna's Community Climate Action Plan on May 28, 2012. Two years of extensive consultation and development resulted in a Plan that outlines how the City, senior government, utilities, businesses and residents can work together to meet Kelowna's OCP's goal of reducing community greenhouse gases by 33% below 2007 levels by 2020.

The Plan is comprised of 87 actions to reduce emissions from transportation, building, and waste. The City will lead the implementation of 59 of those actions, and letters have been sent requesting the provincial and federal government, utility companies and other stakeholders lead the implementation of the remaining actions.

The biggest opportunity for reduction is getting people to drive 20% less, which can achieve nearly one third of the reduction needed to reach the 33% goal. Other transportation reductions include right sizing vehicles, reduced idling, and emission compliant vehicles. Opportunities to reduce greenhouse gas emissions in buildings range from increasing efficiency in new and existing buildings as well as implementing district energy and using landfill biomethane. Urban planning plays a vital role in creating a low carbon community. Planning mixed use, higher density and pedestrian friendly communities with thriving urban forests can significantly lower emissions.

While the City, senior government and stakeholders can implement infrastructure, policies and incentives, the key to success will be a public shift in behaviors embracing the new opportunities that will be offered over the next decade. Ultimately Kelowna's Community Climate Action Plan will make Kelowna a stronger, healthier, more resilient community.

District of Maple Ridge: Town Centre Investment Incentive Program

Population: 77,400

Maple Ridge's relative affordability within the region has drawn steady growth to the community, and Town Centre population is forecast to double within ten years. Accommodating this growth in a sustainable manner can be achieved by increasing density within the Town Centre, where transit and amenities are close at hand, and ensuring that local employment opportunities are balanced with residential growth.

The Town Centre Investment Program was developed to encourage accelerated private sector investment in residential and commercial projects in the Town Centre to help achieve the community vision of balanced growth in a compact urban form. The incentives are proposed to accelerate the implementation of the award-winning Smart Growth on the Ground plan, and the award-winning Town Centre Area Plan. The intent is to stimulate growth and density and enhance the quality and sustainability of new and existing development, guided by comprehensive development guidelines. The program communicates to the investment community that Maple Ridge strongly supports the creation of a strong heart and soul for the community.

As a necessary foundation to support the increased density, the District, along with senior government partners, invested nearly \$100 million in facilities and infrastructure in the downtown. The comprehensive incentive program was developed to alleviate both front-end development costs, and those first years of operating costs, to encourage the development community

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to accelerate investments in the Town Centre. Incentives include fee reductions, property tax exemptions, priority processing, grants, rebates, and renewable energy incentives.

The resulting investment to date has been over \$65 million in residential (393 units) and commercial building permits, and in excess of that value in pending development applications and exploratory discussions.

City of Nelson: EcoSave Energy Retrofits Program: A Key Strategy of Nelson's Low Carbon Path to 2040

Population: 9,800

The City of Nelson signed the BC Climate Action Charter in 2007. Sustainability was identified by citizens of Nelson as the most important priority for Council during the 2009 Citizen Survey. Council has followed through with an overarching sustainability plan ("Path to 2040").

This submission focuses on one of the 18 priority strategies outlined in the Community Energy and Emissions Action Plan, to reduce energy use and carbon emissions within the community, through the Home and Business Energy Retrofit Program. The plan addresses all aspects of energy use in the community including; land use, transportation, buildings, energy supply and solid waste.

Nelson Hydro, a department within the City of Nelson, contracted an Energy Retrofits Coordinator in December 2011 to develop and implement EcoSave, the energy retrofits program. EcoSave is a pilot program for 2012 and 2013 that was launched in April 2012. The objective of the program is to influence building owners to reduce greenhouse gas emissions by retrofitting their buildings to become more energy efficient. The City of Nelson, through its municipal electrical utility, Nelson Hydro, has been in the energy business for over 114 years and has over 9,800 customers. With the core structure in place including the billing systems, staff, information systems and management, the City of Nelson is well positioned to offer on-bill financing for energy retrofits. EcoSave Participants can access financing for energy retrofits and the costs can be repaid on their Nelson Hydro utility bill.

Nelson is the first municipality to offer this unique financing system in British Columbia and among the pioneers in on-bill financing for North America. The City has removed the financial barrier for many residents who would not otherwise be able to move forward with energy efficiency retrofits.

City of North Vancouver: Energy Efficient Buildings Density Bonusing Initiative

Population: 51,080

The City of North Vancouver has adopted an innovative approach to energy efficiency, succeeding in reducing the energy consumption of all new buildings and homes constructed in the City. In 2010, the City of North Vancouver became the first municipality in B.C. to use density bonusing provisions of the Local Government Act (i.e., Section 904) to require all new buildings and homes – regardless of zoning designation or location – to meet higher energy requirements. The City's amended Zoning Bylaw incentivizes enhanced energy performance for all new buildings such that they must attain a minimum of ASHRAE 90.1 - 2007 or EnerGuide 80, above what is presently required by the B.C Building Code. Significantly, the City of North Vancouver's revised Zoning Bylaw does not increase the allowable density on a property, rather, it permits additional floor area over a small base threshold of permitted density, up to the maximum densities specified in the City's Official Community Plan. The Zoning Bylaw also requires that energy modeling be performed, provision of a Performance Bond of 1% of construction value, and proof of compliance to the cited energy standards. Mayor Mussatto and the Members of City of North Vancouver Council adopted and unanimously endorsed these zoning bylaw amendments that require energy performance. These amendments came into full effect on January 1, 2011. The uptake by the development industry has been 100% to date, and

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modelling estimates that our small municipality will save at least 441 tonnes of greenhouse gas emissions from the bylaw adoption.

City of Pitt Meadows: The Going Green Business Awards: Reducing Emissions by Working with Businesses

Population: 18,360

In order to achieve our greenhouse gas emissions reduction goals established under the City of Pitt Meadows Energy and Greenhouse Gas Emissions Plan, we knew we needed to engage our citizens and businesses. The Going Green Business Awards encourage local businesses to look at their operations and find ways to save energy, reduce costs, and become greener overall. Winners are presented with a Green Star Business Award (a glass plaque made from recycled windshield glass) at a televised and streamed Council Meeting after a short reception, and their businesses are featured in a press release and on our social media sites. By highlighting these successful businesses efforts in reducing GHG's, the word is spreading and other business can learn to reduce as well. The highlighted businesses also have the benefits of being prominent green leaders in our community, encouraging local patronage.

Kathryn Poulin, Executive Director from Egis Projects Canada Inc. said, "The Green Star Business Award has generated tremendous pride amongst our employees at Egis Projects Canada. They are proud that we have been recognized for the collective effort we all put forth daily to reduce our impact on the environment." She also said, "Yes we have measured our savings. Our finance department tracks the savings and we have saved \$4000 in paper costs by reducing our usage." In saving paper, Egis has also saved energy through reduced printing and copying.

District of Saanich: Reducing GHG Emissions by Reducing Water Use: The Tap by Tap Energy and Water Saving Fixture Exchange Pilot Project

Population: 114,000

The Tap By Tap Energy and Water Saving Fixture Exchange (Tap By Tap) distributed low-flow showerheads, kitchen faucet aerators, and bathroom faucet aerators to 986 households in the District of Saanich. The purpose of this pilot project was to lead a community climate action project in Saanich and to create a replicable model for low-flow fixture exchanges in British Columbia (BC). This supported Saanich's efforts to target building retrofits that reduce energy consumption and BC's high per capita water use.

Tap By Tap was a partnership of the District of Saanich, City Green Solutions, the Capital Regional District (CRD), and FortisBC, with additional funding from the BC Ministry of Community and Rural Development and the federal Department of the Environment. All partners contributed funding, with City Green Solutions leading implementation, the District of Saanich hosting the exchange, and the District of Saanich, the CRD, and FortisBC all providing program design input. Fixtures were distributed through two streams: a public pick up exchange and a facilitated installation program for multi-unit residential buildings (MURBs).

This first-of-its-kind project resulted in a highly successful community energy and water saving program that experienced a high level of uptake and environmental benefit. The estimated annual savings from Tap By Tap project was 2,026,000 kWh of energy (7,291 GJ), 39,090,000 liters of water, and 323.2 tonnes of CO₂e. The program has now been replicated in 10 other BC communities including some of the Province's most water-challenged regions. A Final Report for the project, which provides extensive details about the program, has been submitted with this application.

City of Surrey: Surrey City Centre: Building a Vibrant Downtown

Population: 473,240

Walking through Surrey's City Centre one can see and feel the transformation of the area into a high-density, complete and transit-oriented community. The remarkable changes have been driven by a clear vision for the area, and significant public sector investment to catalyze development.

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Over the past 10 years a downtown core has emerged, starting with the opening of Simon Fraser University's Surrey campus that was integrated with the Central City Shopping Centre and a 550,000 square foot triple A office tower. In the past 5 years Surrey has invested in a 29 acre urban park, a LEED Silver central library that opened in 2011, and a LEED Gold City Hall and geothermal district energy system that will be completed in fall 2013.

Public sector investment and especially the SFU campus has created centre of gravity and provided an injection of energy that is attracting residential development, which is increasing density and providing an opportunity to re-shape the area with a finer-grained road network and greenways to enable walking and cycling. To help build a sense of community, the City hosts a number of free public events throughout the year in the City Centre including Fusion Fest. Fusion Fest is a two-day cultural celebration that features 40 musical acts and attracts over 90,000 people.

Private sector investment has responded. Over 4,100 new residential units have been built in the past 10 years and the area has approximately 10 million square feet of office and commercial space. There are currently over 40 major projects in-stream in City Centre.

Collaboration

City of Campbell River: Energy Ambassadors in the City and Schools: Creating a Conservation Community

Population: 30,450

The City of Campbell River and School District 72 are actively collaborating to create a conservation community in Campbell River, reduce greenhouse gas emissions and promote awareness around climate and energy issues. The School District has been an active participant in the City's Task Force on Energy and Emissions. Our partnership approach has been: 1) to engage students as climate and energy ambassadors and 2) to collaborate at the staff level on strategic planning initiatives such as a Community Energy and Emissions Plan, Task Force on Energy and Emissions, and Sustainable Official Community Plan. Initiatives underway which exemplify this partnership include co-participation in the Solar BC Solar Communities Program with installation of solar hot water on Timberline Secondary School and four municipal facilities; partnership on a wind energy assessment to determine the viability of installing a small scale wind turbine at Phoenix Middle School or Robron Park; and youth outreach on climate, energy and environment through a Youth Action Committee and school Green Teams. The City and School District also co-host an annual Earth Week Film Festival focused on energy, conservation, environmental protection and waste reduction. Both the City and School District are actively measuring and working on initiatives in our own operations to reduce greenhouse gas emissions. In recognition of their outstanding initiatives, School District 72 won the Energy Conservation Category in the City of Campbell River's Stewardship Awards. Collectively these efforts are helping to work toward our community-wide greenhouse gas emission reduction targets of 25% by 2020 and 35% per capita by 2020.

City of North Vancouver: Heat Recovery and Geo-exchange at ESC/AFK District Energy Plant

Population: 51,085

The Education Services Centre/Artists for Kids Gallery (ESC/AFK) of the North Vancouver School District No. 44 (NVSD44) is connected to the Lonsdale Energy Corporation (LEC) district energy (DE) system. NVSD44 funded upgrades to LEC's DE mini-plant at the AFK/ESC site to support its Climate Action objectives and to assist with attaining LEED Gold certification for the building. NVSD44 financial contribution funded the implementation of a geo-exchange system.

This collaboration has resulted in an important innovation by providing the opportunity to LEC to own, operate and integrate in its DE system, for the first time, the following components:

- heat pumps to recover and recycle energy from the institutional building for use in the district energy system, and
- a geo-exchange system for heating and cooling.

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NVSD44 has demonstrated a strong commitment to increased environmental awareness the promotion of conservation. Successful NVSD44 programs include the self-funded Outdoor School in Squamish, the Green Team, and the District's enthusiastic participation in BC Hydro's Energy Ambassador's student mentorship and leadership program.

Created under the leadership of the City of North Vancouver and wholly owned by the City, LEC plays an important role in the sustainability efforts of the municipality. LEC's vision is to build a flexible DE system to ensure that the most appropriate, available energy source is used at all times. The ESC/AFK project showcases to students and the wider community a district energy project using a geothermal heat pump system that takes advantage of the constant temperature of the earth through a heat-transfer process. It also shows how a district energy system can recycle surplus heat between various building types. This project serves as a model to school districts as well as municipalities and communities throughout in the province.

City of Rossland: Rossland's Energy Diet

Population: 3,560

The program was facilitated by the City of Rossland and the Energy Task Force of Rossland's Sustainability Commission. Those two groups catalyzed the involvement of FortisBC Inc., whose active collaboration was key to the project, the Columbia Basin Trust and the Nelson and District Credit Union. The Energy Diet aimed to address Rossland's high per capita use of electricity, attributable largely to its older housing stock and mountain climate.

The Energy Diet involved both residential and commercial initiatives. Residents signed up for free energy audits (funded by FortisBC, conducted en masse) which gave them recommended energy saving options. Grants were available under the Federal EcoENERGY Program, FortisBC's rebates and LiveSmart BC at up to \$19,000 per household, and homeowners were able to apply for low-interest loans to bridge the financing until the rebates came in. On the commercial side, FortisBC funded free audits of Rossland's small businesses and installed free lighting retrofits as part of its FLIP Program. A free CFL light bulb exchange and blanket distribution of energy savings kits targeted non-participants.

The results are not final yet -- homeowners have until March 2013 to conduct their final audit and claim grants -- but even preliminary results are impressive: 22% of homes signed up (257 dwellings), and 12% of the community's homes have already accessed grants. Essentially all of Rossland's small businesses (35) participated. All actions totaled resulted in an estimated annual savings of 2,220 GJ natural gas and 1,478,000 kWh electricity, with all the associated avoided GHG emissions.