Community Planning & Development

City of Colwood

The Solar Colwood program is led by the City of Colwood, demonstrating whole community change towards energy conservation and use of renewable clean energy. Its goal is for 1,000 Colwood residents and businesses to save energy and reduce greenhouse gas (GHG) emissions through energy efficiency and renewable energy upgrades. To date, residents and businesses in Colwood have implemented nearly 600 energy saving and renewable energy actions, saving 365 tCO2e of GHG emissions annually. Solar Colwood is a comprehensive partnership that includes the federal and provincial governments, BC Hydro, the Chamber of Commerce, Royal Roads University, Camosun College, the T'Sou-ke Nation, and local businesses and developers. The program supports several pilot tests, including ductless split heat pump systems, use of the BC Hydro Power Smart Home Loan, a new Smart Home/Home Energy Monitoring System, and "PV4EV" charging of electric vehicles using photovoltaics. Colwood has been named as Canada's second "Canadian Solar City" and was one of the three Canadian finalists in the 2013 international Earth Hour City Challenge.

City of Surrey

To demonstrate climate action leadership, the City of Surrey is charging forward with district energy (DE) implementation. Surrey is currently developing four DE systems in its rapidly growing City Centre, an area 50% larger than downtown Vancouver. The first system, based on geoexchange technology, will start delivering thermal energy to the new City Hall and City Centre Library in the fall of 2013. This DE system is the first step towards an ambitious vision for the area.

Beginning in 2014, separate DE systems will also be constructed near three existing skytrain stations, eventually connecting to create an integrated system. At build-out, this DE system may be one of the largest networks in North America. The system is anticipated to result in GHG savings of approximately 30,000 tonnes/year by 2045, equivalent to taking 5,500 cars permanently off the road. Within the next 30 years, it is projected that approximately 500,000 tonnes of GHG savings will be realized.

These DE systems create a sustainable foundation for Surrey's City Centre, an area that is experiencing a remarkable transformation into a high-density, transit-oriented and renewable-energy based community. In the past two years, the successful development and implementation of DE in Surrey has included a number of milestones such as creating a new energy utility, a City Centre DE connection bylaw and related financial assistance policy. The bylaw mandates compatible hydronic systems throughout City Centre while also mandating connection to the City's DE system within a core service area.

District of North Cowichan

The Climate Action & Energy Plan is a comprehensive plan containing recommended actions to reduce GHG emissions and adaptive measures to reduce climate change impacts in the community. It utilizes GHG Proof, an open source model used by more than twenty communities in BC, to undertake the analysis, building on Community Energy and Emissions Inventory (CEEI) data by including solid and liquid waste emissions, agricultural production, and forests, to establish a more accurate picture of North Cowichan's GHG emissions. The OCP target of 33% emissions reduction over 2007 levels by 2020 was modified by the results of the CAEP scenario model to 33% by 2025.

A Marginal Abatement Curve was used to depict the cost or savings per tonne of GHG emissions reduced by each strategy (investment or net financial savings). An analysis of the Social Cost of Carbon

was performed to capture additional benefits including employment, reduced air pollution, health benefits, and quality of life improvements.

The estimated collective investment of $25 million per year by 2050 was modelled; based on the suite of recommendations, North Cowichan will save about $130 million in energy costs when it achieves the 80% reduction of carbon emissions in 2050 (a savings of $4 000 per household in today's dollars). The CAEP estimates 613 new jobs will be created through implementation of recommendations.

More than 400 people participated in the CAEP's development, including Council's Climate Change Advisory Committee, a municipal staff advisory group, and community members via public consultation events and online engagement strategies.

Corporate Operations

City of Coquitlam

The City of Coquitlam signed the Climate Action Charter in 2007 and passed a resolution to reduce corporate greenhouse gas (GHG) emissions by 30%. In 2010, the City completed a comprehensive Energy Study and prepared a plan to fully achieve the City's GHG reduction target.

The key to achieve the target was to integrate all areas of energy conservation including: improving energy-efficiency of existing buildings, addressing staff behaviours related to energy through education and outreach, developing a Staff Energy Conservation Policy, conducting operational audits of existing buildings, training key building staff in energy conservation, coordinating communications of GHG and energy information to staff, and creating an internal Climate Action Reserve Fund to provide annual funding for investment in ongoing GHG reduction projects to offset expected future growth in infrastructure.

The City has achieved a reduction in corporate GHG reductions of 17% to date while accomodating growth of City infrastructure and is on track to meet its target by 2015. Retrofits in 14 of the City's largest buildings is being implemented in 2013 and is expected to save an additional 11% which is approximately 600 tonnes of equivalent CO2.

City of Duncan

The City of Duncan achieved corporate carbon neutral status in 2012 due, in significant part, to the municipality's participation in an innovative pilot project involving a new, locally driven carbon credit program with tremendous potential for replication in communities throughout British Columbia.

The Community Carbon Marketplace (www.communitycarbonmarketplace.org) is an initiative of the Cowichan Energy Alternatives Society, a non-profit organization based in Duncan. What makes the program unique in the carbon marketplace is that it functions as a "micro-exchange" - offsetting dollars are directed to local carbon reduction projects. In enthusiastically signing on as a pilot project community, the City of Duncan was exceptionally pleased to be able to achieve carbon neutral operations knowing that the municipality's carbon credits were directly supporting community-based projects spearheaded by local organizations.

The Community Carbon Marketplace ensures that the environmental, economic and social impact of carbon offset spending by local governments, businesses and individuals can be leveraged and enjoyed locally. The community can be engaged to a much greater extent than if credits were purchased elsewhere - projects are initiated by local organizations and are highly visible in the local community, which helps to improve public trust as well as local government transparency and accountability.

The City of Duncan is honoured to have been the first municipality to have participated in the Community Carbon Marketplace, and will continue to actively promote it as an exciting, innovative and truly community-minded alternative for carbon offset spending.

City of Richmond

The City of Richmond, B.C. is committed to reducing its corporate greenhouse gas emissions and to the incorporation of renewable technologies throughout its organization. Both of these corporate priorities have been achieved through the integration of an innovative sewage heat recovery system at the City owned Gateway Theatre, which is the first installation of its kind in North America.

Gateway Theatre is a dynamic facility that supports and fosters growth in the theatrical arts. Its continued operational success is very important for the cultural viability of the City of Richmond. The facility was identified as a good candidate for this significant energy retrofit project due to its remaining serviceable life; its existing water based heating system; and the proximity to a sanitary pump station.

The integration of this new system at the theatre is anticipated to reduce annual natural gas use by

900 gigajoules (GJ) and greenhouse gas (GHG) emissions by 45 tonnes of CO2e, which represent 35% reductions for the building. These reductions are expected to decrease the building's annual operational costs by approximately $8,000.

The City of Richmond is proud to incorporate this new technology into an existing building, with the goal of evaluating the potential of using this system elsewhere and sharing installation and system results information with interested parties. The City is committed to reducing its corporate carbon footprint and helping other organizations to do the same, and it is through new and innovative technology, such as this, that the City believes great progress can be made.

City of Surrey

To demonstrate climate action leadership and meet its GHG reduction targets, the City of Surrey is charging forward with district energy (DE) implementation. The first DE system, based on geoexchange technology, will start delivering thermal energy to the new City Hall and City Centre Library in the fall of 2013. The system is anticipated to decrease energy consumption by approximately 60% relative to the base case. This translates into a GHG savings of approximately 1,200 tonnes/year, equivalent to taking 218 cars permanently off the road.

This DE system creates a sustainable foundation for Surrey's City Centre, an area that is experiencing a transformation into a high-density, transit-oriented and renewable-energy based community. The remarkable changes have been driven by a clear vision for the area and major public sector investment to catalyze development. Surrey's new stunning public plaza, and the geoexchange system below, will be a primary hub of this downtown revitalization movement, pumping life and heat into the community.

In the past two years, the successful development and implementation of DE in Surrey has included a number of milestones such as creating a new energy utility, a City Centre DE connection bylaw and related financial assistance policy. The bylaw mandates compatible hydronic systems throughout City Centre while also mandating connection to the City’s DE system within a core service area.

Village of Telkwa

Hankin Corner Building is highly visible commercial building located in the downtown core of Telkwa, BC. The Village of Telkwa acted upon the recommendations in their Integrated Community Sustainability Plan (ICSP) when it purchased the Hankin Corner Building in 2011, as a way of utilizing available and unoccupied buildings in the downtown core. The Village of Telkwa relocated their municipal offices into a small portion of the larger Hankin Corner building. The Village of Telkwa partnered with Omenica Beetle Action Committee and Green Heat Initiatives to research the feasibility of a District Energy Green Heat system housed in the Hankin Corner Building. Again, the municipality showed leadership by considering the community led Official Community Plan and ICSP and the long term wood supply as well as the impacts upon the larger environment. Based on the postive feasibility report, the municipality researched, applied for and received a $644,320 Gas Tax Innovation Fund to retrofit the Hankin Corner Building envelope and install a biomass boiler and ancillary equipment for a district energy system. The district energy system will service the Hankin Corner Building, the Telkwa Elementary School, nearby residences and a business. The estimated CO2 reduction is 141 tonnes. The Village of Telkwa is a small northern community of 1,350 people. We are proud of our leadership in green corporate operations and anticipate increased private investment as a result of our municipality "Greening Hankin Corner Building" .

Public Sector Collaboration

City of Campbell River

In a four year ongoing partnership with School District 72 (SD72), backed by collaboration on the development of the Community Energy and Emissions Plan and the School District's commitment to the community Energy Pledge, the City and the School District have jointly accomplished significant energy retrofits to facilities helping to reduce GHG emissions in Campbell River.

As a major participant in the City's Task Force on Energy and Emissions during the development of the community energy and emissions plan, SD72 has been a key collaborator with the City to action GHG reduction initiatives. This partnership has resulted in joint participation in the Solar BC program and the installation of solar hot water at Timberline Secondary School as well as on four municipal facilities, wind energy assessments to explore the feasibility of a wind turbine at Phoenix Middle School or Robron Park, and most recently, installation of two Level 2 electric vehicle charging stations at the Timberline Secondary/North Island College site and at three City facilities.

These efforts combined with extensive lighting and HVAC energy retrofits to several school facilities have resulted in a decrease in SD72's GHG emissions by 556 tonnes and 19.5% from 2009 levels, significantly helping toward the City's target of a 25% reduction in community-wide greenhouse gas emissions from 2007 levels by 2020.

These efforts are also creating a community of energy ambassadors through outreach and engagement of students and the broader community to conserve energy. As co-signatories to the Youth Action Charter, which is a vision document for the future developed by the City's Youth Action Committee, SD72 and the City have committed to an ongoing partnership to focus on climate action, environmental protection and youth engagement.

Capital Regional District

Ready, Set, Solve: The Student Climate Challenge is an applied learning program that connects teams of undergraduate students with municipalities and non-profit organizations across the Capital Region to help solve real-world energy and climate challenges. Hosted by the CRD Climate Action Service, in partnership with BC Hydro, the Ready, Set, Solve program was first piloted in 2011 with 8 teams and 32 students participating. In 2013, the program grew to engage 18 teams and 68 students, demonstrating an increase in demand and popularity from both post-secondary students and challenge hosts.

Ready, Set, Solve matches one team of students with a host organization to solve a specific energy or climate challenge. Students have two months, on their own time, to organize themselves and deliver a solution. At the end of the program, teams submit their results and are evaluated by their host as well as an external judging panel. The program concludes with an awards ceremony for participants and prizes for top placing teams. Winning teams receive a combination of tuition and campus book-store credits along with prizes from local businesses.

This program is unique because of the inter-disciplinary nature of both the challenges and the teams. Ready, Set, Solve encourages host organizations to submit diverse challenges related to corporate operations, community planning, and stakeholder engagement. Students come from a variety of academic background including engineering, biology, geography, professional writing, and business. The program is based on a recognition of diversity, creativity and teamwork to solve the climate challenge.

Ready, Set, Solve is an innovative partnership between the CRD and BC Hydro. It has proven to be a successful way to engage young people in municipal priorities, provide tangible learning opportunities, and advance regional climate action.

Metro Vancouver

The development of *An Illustrated Guide to Community Energy* is a novel project that aims to foster awareness of low-carbon energy options in Metro Vancouver communities.

The project leveraged the academic research capacity of a university for the benefit of regional and municipal governments. In turn, local governments provided real world feedback to university researchers, enhancing the relevance and impact of their work. The overarching aim of this project was to engage communities – through the use of powerful visual tools – in learning about new local energy technologies and concepts that are often unfamiliar yet are key to reaching our energy efficiency and greenhouse gas reduction targets.

The Guide is designed to complement existing outreach resources on alternative energy options at the neighbourhood scale. It is expected to be a valuable tool for planners and other practitioners who must prepare compelling information for public engagement related to energy and climate change.

This is a joint project between Metro Vancouver, local municipalities, and a team of UBC researchers (in the Collaborative for Advanced Landscape Planning (CALP) and Elements Labs) with expertise in urban planning and visualization, with support from a number of foundations.

By taking this collaborative approach, it has been possible to bring together cutting-edge research on environmental communication and visualization, and combine that with real-world experience on public perceptions of energy and climate change. The *Illustrated Guide to Community Energy* is visually appealing and accessible, yet content-rich and thought-provoking. We believe it will stimulate discussion that leads to new energy policies, and spur meaningful action in the Metro Vancouver region.

City of Richmond (Earth Day)

The Richmond Earth Day Youth (REaDY) Summit is an annual youth-led and youth-oriented conference that promotes sustainability, empowers youth, and encourages more sustainable lifestyles through motivational speakers and inspiring workshops. This half-day conference is jointly presented by a unique partnership that includes the City of Richmond, Richmond School District and the David Suzuki Foundation.

Marking its second year, the 2013 Summit attracted participants of all ages from throughout greater Vancouver. Participants learned and shared best practices and sought solutions to environmental challenges in everyday life.

In its first two years, the conference has attracted more than 1,000 participants and featured over 40 sustainability exhibitors, workshops, and speakers including:

- Opening keynote presentation by David Suzuki Foundation's Sarika Cullis-Suzuki;
- Visualizing Climate Change workshops, by the University of BC;
- An interactive exploration of Community-scale Energy Use;
- "TravelSmart" interactive workshops on sustainable transportation choices;
- "Cook your way to a greener planet" demonstrations;
- Cantonese language workshops on "Green Homes" & "Reducing your Carbon Emissions"; and
- Water conservation, "Climate Change Showdown" and "Energy and You" workshops and exhibits.

The organizing students also strove to make this a sustainable event by hosting the event in an energy-efficient facility, providing incentive prizes for participants to use alternative transportation to the venue, offering tap water and locally-sourced healthy snacks as refreshments, and providing recycling and organics waste diversion stations on-site.