



CLIMATE CHANGE ACTION COMMITTEE MEETING

October 2, 2014 at 3:30 pm
Location: Council Chambers
2205 Otter Point Road, Sooke, BC

AGENDA

| | <i>Item</i> | <i>Page #</i> |
|-----|--|---------------|
| 1. | Call to Order | |
| 2. | Approval of Agenda | |
| 3. | Approval of the Minutes: June 5, 2014 | 1 |
| 4. | BC Climate Action Charter – 2013 Recognition | 5 |
| 5. | Corporate Energy and Emissions Planning (CEEP) – Stakeholder Feedback | 7 |
| 6. | Carbon Tax Rebate Reserve Fund – June 23, 2014 Council Resolution | 53 |
| 7. | Corporate Carbon Neutrality – Waste Management Strategy | 55 |
| 8. | Public Input | |
| 9. | Schedule Next Meeting - TBD | |
| 10. | Adjournment | |

DISTRICT OF SOOKE

CLIMATE CHANGE ACTION COMMITTEE MEETING

Meeting held Thursday, June 5, 2014 at 3:30 pm
in the Council Chambers
2205 Otter Point Rd

Committee Members Present:

Mayor Wendal Milne
Brent Blackhall, Deputy Director of Finance
Bonnie Sprinkling, Corporate Officer
Laura Hooper, Parks & Environmental Services Coordinator
Katherine Lesyshen, Planner II
Andrew Moore, T'Sou-ke Nation

Public: Michael Tacon, Sooke Transition Town

Recorder: Sarah Temple, Finance and Administration Assistant (recorder)

Absent: Councillor Kevin Pearson (Chair)
Councillor Bev Berger
Steve Sorensen, Fire Chief

Action

1. **Call to Order**
Mayor Milne called the meeting to order at 3:37 p.m.
2. **Approval of Agenda**
The agenda was approved as circulated.
3. **Approval of Minutes: December 5, 2013**
MOVED and seconded to approve the minutes of December 5, 2013 as circulated.
CARRIED
4. **CRD Climate Action Update**
Laura Hooper provided an update on the CRD intermunicipal climate action working group:
 - Solar Colwood has changed to Solar CRD, which makes the program available to all residents of CRD. Further information is available at www.solarcrd.com
 - The CRD is advocating for the LiveSmartBC *small business* program to be extended. The LiveSmartBC *residential* program has now ended.
 - CRD is also advocating for the Tap by Tap program to be extended.
 - The CRD Intermunicipal Climate Action Working Group will be providing feedback on the Regional Sustainability Strategy – which aims to update the previous 2003 strategy.
 - The CRD has sent out the preliminary Sea Level rise risk assessment results to staff. It is projecting a 0.5 m rise in sea levels by 2050, 1m rise by 2100 and 2 m rise by 2200. There were 2 key areas of the Sooke Region that were mapped, the Sooke River Flats and the area around Gordon's beach. This

information will inform future planning and development areas.

MOVED and seconded to accept the verbal report as presented.
CARRIED

5. **Community Climate Action Strategy
Corporate Energy and Emissions Plan (CEEP)**

Laura Hooper provided an overview of the Corporate Energy and Emissions Plan (CEEP):

- Three public information sessions were held to allow citizens to provide feedback on CEEP. The March 25 Public Open House, the April 9 Awareness Film and the May 3 Rotary Auction.
- The top three items people want to see the District of Sooke take action on are demand side-management (home retrofits), improvement of walking infrastructure and organics diversion from the Hartland landfill.
- Green waste (yard waste) management was also a popular topic. People want a free drop off place for yard waste.
- Further discussion on organic waste (both kitchen and yard waste) will take place at the CRD level.

ACTION: Create a communications strategy to promote existing home-retrofit grant programs.

**LAURA
HOOPER
/BONNIE
SPRINKLING**

ACTION: Host a Climate Action themed Fall Community Open House, with all third party organizations that offer home retrofit grants and other Climate Action initiatives, such as composting and water saving programs, invited to participate.

Committee discussion:

- District of Sooke walking trails pamphlet to be produced in time for distribution at upcoming open house.
- Andrew Moore shared some success stories that the T'Sou-ke Nation have had with their composting programs.
- After receiving public feedback on the CEEP, the next step is to solicit feedback from formal stakeholders.

MOVED and seconded to receive the Community Climate Action Strategy Corporate Energy Emissions Plan (CEEP) report for information.

CARRIED

6. **Climate Action Revenue Incentive Program (CARIP) Report**

Brent Blackhall provided an overview of the CARIP report. The District tracks yearly emissions, as well as contracted service provider emissions and reports to the Province, earning incentive rebates based on results. The rebate amount for this year is roughly the same as last year.

Committee discussion:

- A historical comparison would be helpful to see how we are doing year over year.

ACTION: Draft a three year historical comparison of rebate amounts.

MOVED and seconded to receive the 2013 Climate Action Revenue Incentive Program (CARIP) report for information.

CARRIED

7. **Corporate Carbon Neutrality**

Laura Hooper provided an overview of Corporate Carbon Neutrality efforts within the District. The UBCM Green Communities Committee has a multi-level program that gives local government recognition for carbon initiatives and offsetting. Sooke has achieved “level 2” recognition in the past. In order to achieve total Corporate Carbon Neutrality and “level 3” recognition, the District could reinvest the CARIP carbon tax rebate into carbon offsets.

Committee discussion:

- Discussion on where money invested in carbon offsetting actually goes. According to Brent Blackhall, funds from the purchase of carbon offsets go mainly to cover the direct costs of the offset project with a small amount going to the provider of the offsets for administration costs.
- Discussion of investing carbon offset money into local or regional projects.

MOVED and seconded to recommend that Council confirm its commitment under the BC Climate Action Charter and become carbon neutral in its operations annually;

AND establish a Carbon Tax Rebate Reserve fund for the carbon tax rebates received to be used for initiatives to reduce carbon emissions in the District of Sooke.

CARRIED

8. **Public Input**

Michael Tacon, representing the Sooke Transition Town Society stated that he is encouraged by the work that is being put into the issue of Climate Action by the committee

Andrew Moore shared that there is a Chinese delegation coming to Sooke on June 23rd, brought by the provincial government. They are touring the T'Sou-ke First Nation Solar facilities, as well as other provincial initiatives.

9. **Next Scheduled Meeting:** September 11, 2014

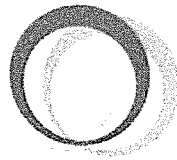
10. **Adjournment**

The meeting adjourned at 4:35 p.m.

Kevin Pearson
Chair

Bonnie Sprinkling
Corporate Officer

COPY



GREEN COMMUNITIES
COMMITTEE

District of Sooke
AUG 19 2014
Received

Ref: 156222

August 14, 2014

His Worship Mayor Wendal Milne and Members of Council
District of Sooke
2205 Otter Point Road
Sooke, BC V9Z 1J2

| Original Document to File No. 5270-01 | | | |
|---------------------------------------|-------------------------------------|--------|-------|
| For Action by: | CC | Agenda | Other |
| Mayor/Council | <input checked="" type="checkbox"/> | | |
| Council Reader File | <input type="checkbox"/> | | |
| CAO | <input checked="" type="checkbox"/> | | |
| Corp Services | <input type="checkbox"/> | | |
| Engineering | <input checked="" type="checkbox"/> | | |
| Finance | <input type="checkbox"/> | | |
| Planning | <input type="checkbox"/> | | |
| Fire | <input type="checkbox"/> | | |
| Other | <input type="checkbox"/> | | |

Dear Mayor Wendal Milne and Councillors:

On behalf of the joint Provincial-Union of BC Municipalities (UBCM) Green Communities Committee (GCC), we would like to extend our congratulations for your successful efforts to measure and reduce your corporate greenhouse gas emissions for the 2013 reporting year.

As a signatory to the Climate Action Charter (Charter), you have demonstrated your commitment to work with the Province and UBCM to take action on climate change and to reduce greenhouse gas emissions in your community and corporate operations.

Climate change is a global challenge. The work that your local government has undertaken to measure and reduce its corporate emissions demonstrates strong climate leadership and sets the stage for broader climate action in your community. This leadership and commitment is essential to ensuring the achievement of our collective climate action goals.

As you are likely aware, the GCC was established under the Charter to support local governments in achieving their climate goals. In acknowledgement of the efforts of local leaders, the GCC is again recognizing the progress and achievements of local governments such as yours through the multi-level Climate Action Recognition Program. A description of this program is attached to this letter for your reference.

As a Charter signatory who has completed a corporate carbon inventory for the 2013 reporting year and has demonstrated familiarity with the Community Energy and Emissions Inventory, you have been awarded Level 2 recognition – 'Measurement.'

In recognition of your achievements, the GCC is very pleased to provide you with 'green communities' branding for use on official websites and letter heads. An electronic file with the 2013 logo will be provided to your Chief Administrative Officer. Also included with this letter is a 2013 Green Communities window decal, for use on public buildings.

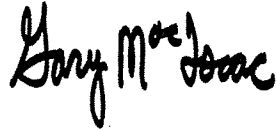
.../2

Congratulations again on establishing your corporate emissions inventory and your overall progress. We wish you continued success in your ongoing commitment to the goal of corporate carbon neutrality and your efforts to reduce emissions in the broader community.

Sincerely,

A handwritten signature in black ink, appearing to read "Jay" followed by a long horizontal stroke.

Jay Schlosar
Assistant Deputy Minister
Local Government Division

A handwritten signature in black ink, appearing to read "Gary MacIsaac" in a cursive style.

Gary MacIsaac
Executive Director
Union of British Columbia Municipalities

Enclosures



File No. 5270-01

DIRECTION REQUEST
Climate Change Action Committee
Meeting Date: October 2, 2014

To: Gord Howie, Chief Administrative Officer
From: Engineering
Re: **Community Climate Action Strategy**
Corporate Energy Emissions Plan (CEEP)

SUGGESTED ACTION:

THAT the Climate Change Action Committee receive this report for information;

AND recommend to Council to endorse the CEEP and direct staff to implement the priority objective of the plan.

1. Executive Summary:

Through the Official Community Plan (OCP) the community has set a goal to reduce community greenhouse gas emissions (GHG) to 33% below 2006 levels by 2020.

On April 4, 2013 Council gave approval for staff to work with the BC Hydro to develop a Corporate/Community Energy Emissions Plan (CEEP) via the Quickstart Program to aide in the achievement of the goals of the OCP. This program enables local government to analyse, rank and plan for future climate-related efforts tailored to their unique circumstances and to accomplish the goals set out in their Official Community Plan (OCP).

In early October, 2013 members of Council, staff and community stakeholders participated in a webinar and workshop facilitated by BC Hydro. The attached document is the draft CEEP developed with the results of these workshops.

In December, 2014 Council gave staff direction to schedule input meetings with stakeholders and the public. Public input occurred on via the District's open house on March 25 and via the Sooke Awareness Video presentation on April 9, 2014. Staff sent the draft document to will stakeholders including:

- T'Sou-ke Nation
- Transition Town Sooke
- BC Transit
- Fortis BC
- School District 62
- SEAPARC

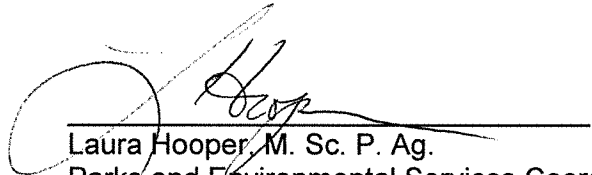
- Community Association
- EPCOR
- Mainroad South Island

Feedback was very supportive of the draft plan. The following initiatives are listed in the order of priority as a result of this feedback:

1. Promote home retrofits and demand side management (DSM) programs to reduce energy consumption (30%).
2. Improve walking infrastructure (sidewalks connecting central schools) (26%).
3. Organics diversion from Hartland Landfill (22%).
4. Land use - designate growth areas and set minimum lot sizes outside the growth area; apply mixed-use zoning for downtown (11%).
5. Land use - urban containment boundaries could be established to further force where development occurs (11%).

Attached Documents:

1. Sooke CEEP Draft



Laura Hooper, M. Sc. P. Ag.
Parks and Environmental Services Coordinator

District of Sooke
Community Energy and Emissions Plan
DRAFT

October 7, 2013





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List of Acronyms

| | |
|-----------------|---|
| BAU | Business As Usual |
| CEEI | Community Energy and Emissions Inventory (inventories created by the Province for each local government) |
| CEEP | Community Energy and Emissions Plan |
| CO ₂ | Carbon Dioxide |
| DCC | Development Cost Charge |
| DSM | Demand Side Management (name for measures used to reduce energy consumption) |
| GHG | Greenhouse Gas (there are several different anthropogenic GHGs and they have different relative impacts. When tonnes of GHGs are stated in the document the standard practice of stating this in equivalent of tonnes of carbon dioxide is followed. Carbon dioxide is the most important anthropogenic GHG.) |
| GJ | Gigajoules (one of the standard measures of energy) |
| HDV | Heavy Duty Vehicles (i.e. commercial vehicles, like trucks) |
| ICSP | Integrated Community Sustainability Plan |
| kWh | kilowatt hours (standard measure of energy, typically used with electricity) |
| LAP | Local Area Plan |
| LDV | Light Duty Vehicles (i.e. the types of vehicles driven by ordinary people) |
| OCP | Official Community Plan |
| RGS | Regional Growth Strategy |

Executive Summary

On October 7, 2013, a workshop was held with staff and stakeholders from the District of Sooke facilitated by BC Hydro and the Community Energy Association. The workshop group looked at the energy and emissions data for their community as a whole and decided on an action plan for the community. The following document provides an overview of the workshop outcomes, and presents a vision for energy reductions that will be brought to the community for consultation in (Spring 2014).

Community Energy and Emissions – current status and business as usual

The 2010 Sooke Official Community Plan (OCP) sets community reductions targets at 33% total emissions reduction by 2020 compared to 2006. For the purpose of the Community Energy and Emissions plan (CEEP) the workshop participants decided these goals were demonstrated to be unachievable with a population growth rate at or near 3.58% since this would equate to an 86% reduction in per-capita emissions within seven years.

For the modelling process the group decided it was prudent to use the GHG targets set in the Official Community Plan however also utilized the projected annual community population growth rate of 3.6% so that the reduction goals were practical and attainable. This translated into a target reduction of 1% annually that would result in a 24% per-capita reduction by 2016, 36% per-capita by 2020, 60% by 2030 and an 84% overall per-capita reduction in GHG emissions by 2050 at 0.6 tonnes per person.

The Community Energy and Emissions Inventory (CEEI) produced by the Province of British Columbia in 2010, calculated Sooke's total community annual energy expenditure to be approximately \$26 million, and GHG emissions were approximately 41,000 tonnes. The annual energy expenditure is calculated to save \$6.24 million annually by 2020 if this plan is implemented successfully.

Action Plan

An action plan developed by the workshop group by prioritizing actions from each of the following categories:

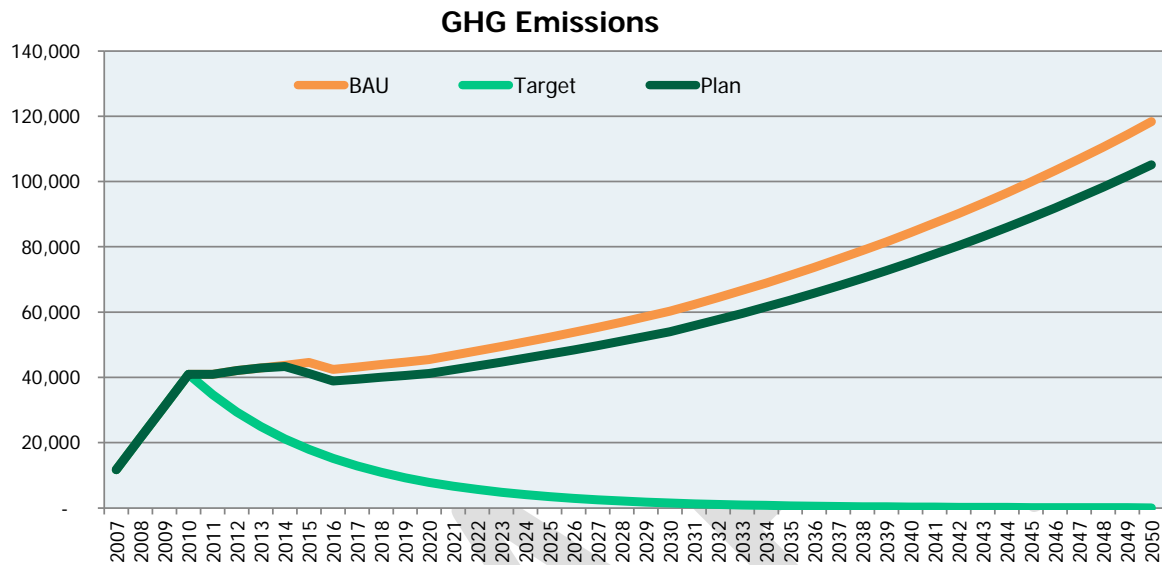
1. Building basics,
2. Building high-growth measures,
3. Residential buildings,
4. Commercial/institutional buildings and transportation,
5. Light-duty vehicle (LDV) transportation urban from,
6. LDV transportation infrastructure and collaboration,
7. Waste, and
8. Enabling actions.

The numbers of the actions listed above correspond to their numbers in the CEEP QuickStart Guide (see Appendix), which contains further detail about each. The workshop focused in-depth discussion of the following opportunities:

- 6.2 Walking infrastructure for three central schools
- 1.1, 1.2, 1.3 Promoting demand side management / home retrofits through integrated program

Results

The proposed CEEP sets a target of 1% annual reductions in GHG emissions against a 2010 base year, resulting in a 36% per capita reduction by 2020 or 0.6 tonnes per person. The estimated impact of the plan on the community greenhouse gas emissions (in tonnes of GHGs per year) is shown below.



Significant emissions reductions will be achieved. The target trajectory will be reached for 2020.

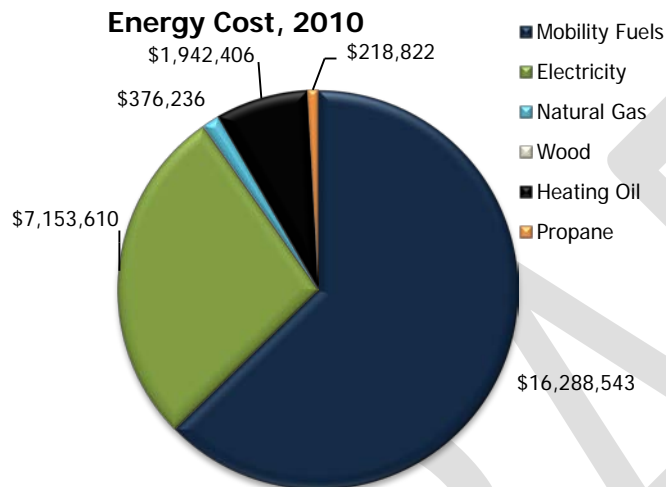
Under business as usual (BAU), electricity consumption for 2020 and 2050 are estimated at 136 gigawatt hours and 182 gigawatt hours respectively. Under the plan developed in this report, 7.3 gigawatt hours are saved by 2020, resulting in \$514,000 community-wide savings (assuming a \$0.07/kwh price).

The major actions identified in the workshop and outlined in this plan are in line with Council's Strategic Plan and are currently underway. They are listed below by impacts in terms of annual GHG savings in 2020:

| Action | Annual GHG Savings |
|--|--------------------|
| 5.2 Land use suite "enhanced" (beyond "land use suite lite", urban containment boundaries could be established to further force where development occurs) | 2,995 tonnes |
| 7.1 Organics diversion from Harland Landfill | 2,969 tonnes |
| 5.15.1 Land use suite "lite"(designate growth areas and set minimum lot sizes outside the growth area; apply mixed-use zoning for downtown) | 2,411 tonnes |
| 6.2 Improve walking infrastructure (sidewalks connecting central schools) | 2,272 tonnes |
| 1.1, 1.2 and Promote home retrofits and demand side management (DSM) programs to reduce energy consumption | 1,533 tonnes/year |

Community Energy Economics

For the District of Sooke, only a small percentage of the energy dollars spent within the community remain within the community. Therefore, a significant co-benefit of implementing this plan to reduce energy consumption and emissions is that reducing the energy dollars spent will contribute to community economic development.



It is estimated that \$26 million was spent in 2010 in the District of Sooke on energy. The chart to the left indicates that mobility fuels are the primary fuel being consumed.

The overall impacts of the plan are summarized in this report, comparing 2010 and 2020. The model assumes that energy costs will increase to 2020. Community energy costs are projected to be reduced by approximately 3% through plan implementation, corresponding to **\$1.5 million per year in 2020**.

Next Steps to Finalizing the Community Energy and Emissions Plan

1. Report to Council on the BC Hydro Power Smart CEEP Quickstart (QS) workshop held October 7, 2013. Include CEEP-QS workshop description and participation, DRAFT results and DRAFT report
2. Submit final Sooke Community Energy and Emissions Plan (CEEP) to Council
3. Where applicable, integrate CEEP actions, into future planning activities
4. Where applicable, include the CEEP as part of inter-departmental annual planning
5. Begin plan implementation

Introduction

Through Bill 27, the local government is required to make efforts towards reducing the greenhouse gas emissions of the community. In addition, considering the energy and emissions from the community can give opportunities for increased efficiency and local economic development for this community of close to 12,000 people. The figures in this report are based on 2007 energy and emissions information (the most recent non-draft energy and emissions inventory data currently available from the Province), and 2013 energy costing data.

Bill 27 background

Through the Local Government (Green Communities) Statutes Amendment Act, also known as Bill 27, municipalities and regional districts are required to include targets, policies, and actions towards reducing greenhouse gas emissions from their communities in their Official Community Plans and Regional Growth Strategies.

Community Energy and Emissions Planning

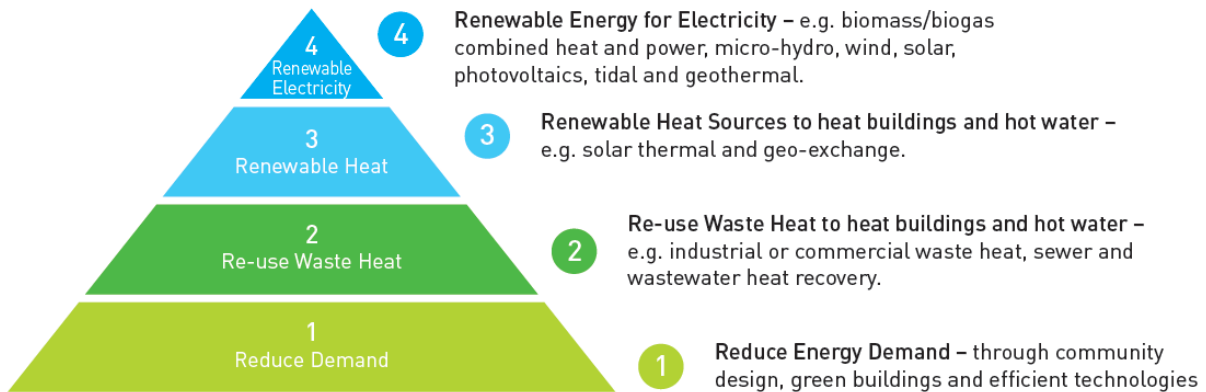
A community energy and emissions plan (CEEP) evaluates a community's existing energy use and greenhouse gas (GHG) emissions in order to reduce energy consumption and emissions, improve efficiency, and increase the local renewable energy supply. A CEEP encompasses land use and transportation planning, building and site planning, infrastructure (including solid and liquid waste management), and renewable energy supply. It provides guidance to a local government in planning future developments and in long-term decision making processes.

Most GHG emissions within a local government's jurisdiction result from energy consumption and the burning of fossil fuels. With this relationship it makes sense to combine greenhouse gas emissions and energy planning into one integrated plan. While some communities have completed stand-alone energy or GHG action plans, the close linkages between energy and GHG emissions suggest that a combined plan is preferable. In this guide the term community energy and emissions plan (and the acronym CEEP) is intended to incorporate both energy and GHG emissions, but not other emissions such as particulates or criteria air contaminants.

Energy Planning Hierarchy

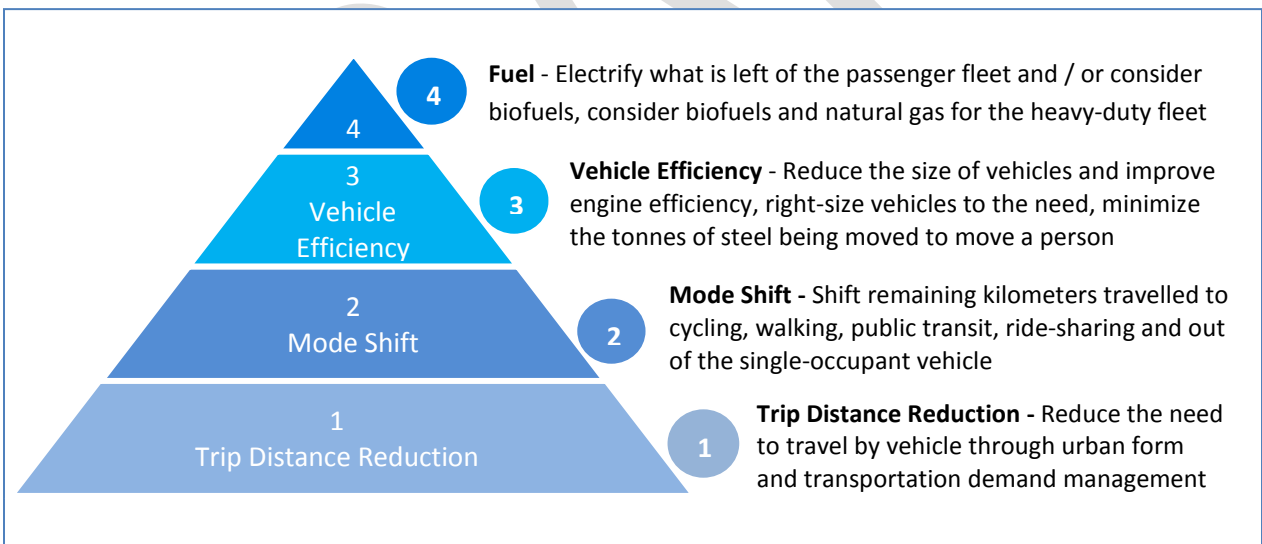
Not all opportunities to influence energy and emissions across a community are created equally. It makes sense to reduce demand as much as possible first, since there is often significant opportunity to reduce energy and emissions.

4 R's OF SUSTAINABLE COMMUNITY ENERGY PLANNING



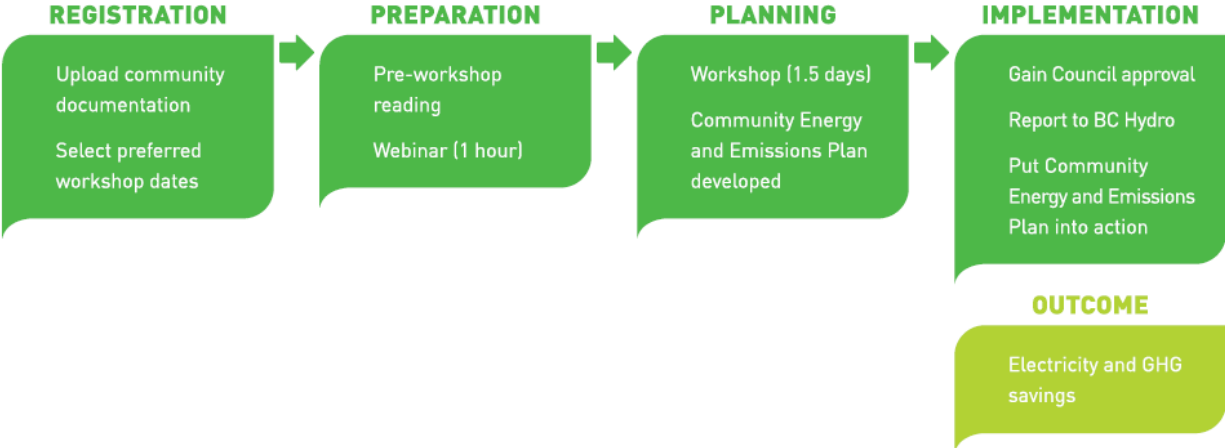
Suggested steps in energy planning.
 Concept source: Robyn Wark and Jorge Marques, BC Hydro

A similar hierarchy can be applied to the transportation sector. The image below is similar to the steps towards energy planning. In the transportation sector, the easiest step to take is to reduce vehicular trip distances through appropriate urban form (planning) and transportation demand management.



CEEP QuickStart Overview

The Community Energy and Emissions Planning (CEEP) QuickStart program is designed to provide a cost-effective way for small to mid-sized local governments to rapidly develop a practical CEEP including an implementation timeline. The CEEP process is depicted in the graphic below:



The graphic below explores the ‘planning’ step in the CEEP process as well as the benefits of developing a CEEP, ultimately leading to an action plan.

WHAT IS A CEEP?

A Community Energy and Emissions Plan is a comprehensive, long-term plan to improve energy efficiency, reduce GHG emissions, and foster local green energy solutions in your community.

There are 4 elements to a CEEP:

- Baseline:** 2007 Energy and Emissions from CEEI (Province of BC)
- Forecast:** Population forecast (BC Stats and local government)
- Target:** From Official Community Plan (legal requirement for GHG reduction target)
- Action Plan:** List of actions and approaches, developed by quarter, spanning several years, to estimate impacts and locally specific opportunities

BENEFITS OF DEVELOPING A CEEP:

- **Reduce GHG emissions:** Energy planning helps local government effectively manage GHG emissions. This contributes to mitigating climate change, and helps manage costs associated with carbon taxes and offsetting
- **Reduction of energy costs:** Energy planning improves budgeting and save money
- **Creation of jobs and stimulation of the local economy:** a CEEP can highlight opportunities for community development
- **An opportunity to demonstrate leadership:** Your CEEP contributes to a smart community plan, more efficient infrastructure, more livable neighbourhoods, and protection of the environment, showing leadership on multiple fronts

Action Plan

On the 7th of October 2013, a workshop was held with staff and stakeholders from the District of Sooke facilitated by BC Hydro and the Community Energy Association. The workshop group looked at the energy and emissions data for their community as a whole and decided on an action plan for the community.

To assist with pre-workshop preparation, a short preparatory webinar was held to give participants background information on how energy planning initiatives can influence long-term carbon emissions while also providing economic opportunities.

At the workshop a brief presentation was held and a GHG reduction assessment tool was introduced. The tool has been provided to staff for use in further analysis, and is populated with data derived from calculations developed to assess the impact that various actions and strategies may have on GHG emissions into the future. The tool shows the final results in user friendly charts and graphs.

Then the workshop group was provided with a collection of actions, and each action was discussed within the group and placed in one of four categories: “yes”, “no”, “maybe”, and “already done”.

The actions were placed on a chart in order to create a plan that covered the years from 2013-2016. Each member of the workshop group was invited to look at the plan and provide input as to the timing and sequencing of the actions.

Following this, some of the key actions were “unpacked”, meaning that they were discussed in detail, with appropriate steps highlighted, likely impacts, and other considerations.



ONE GJ IS ABOUT THE SAME ENERGY AS:

- 3-4 DAYS HOUSEHOLD NATURAL GAS HEATING
- A TANK OF GAS FOR A SMALL CAR
- 10 DAYS OF HOUSEHOLD ELECTRICITY USE
- 2 BBQ PROPANE TANKS
- 3,000 HOURS OF HARD PHYSICAL LABOUR

Current Emissions and 'Business As Usual' Projections

The Province of BC has calculated the total energy use and greenhouse gas emissions from the community for 2007 through the Community Energy and Emissions Inventory (CEEI). In 2007 the people, organizations, and businesses in the community emitted approximately 41,000 tonnes of greenhouse gases through the use of electricity, natural gas, gasoline, diesel, propane, and heating oil. Community wide energy spending was approximately \$26 million in 2010. Further detail on the current energy and emissions for the community can be found in the Community Energy and Emissions Inventory (CEEI), produced by the Province.

There was discussion before and during the workshop on reasonable population growth projections. The annual growth figure for population for the purpose of this plan was set at 3.6%.

With no action plan, but taking into account the population projection and Provincial policies, community emissions are predicted to change according to the tables and charts in the rest of this section. (In the charts, the target line is set to meet the 2020 and 2050 GHG targets set out in the OCP.)

"Business As Usual" Projections & Target Overview

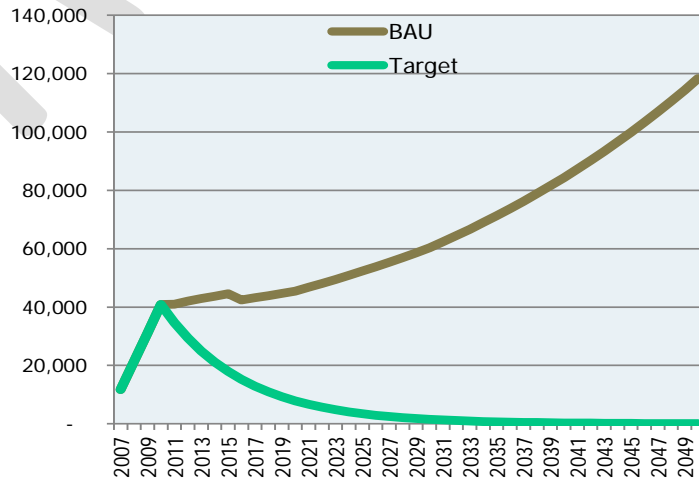
| Community | Sooke District Municipality |
|-------------------------------|-----------------------------|
| Annual % target change in ghg | -15.20% |
| Population growth | 3.6% |
| Default population growth | 3.58% |
| 2007 Population | 10,333 |
| Start-year for actions | 2013 |

| Emissions Summary | |
|---------------------------|---------------|
| 2007 Emissions | 11,739 |
| 2010 Emissions | 40,915 |
| Total Energy Expenditure | \$ 26,105,029 |
| Per-capita energy cost | \$ 2,400 |
| 2010 Per-capita emissions | 3.76 |

| Targets Summary | | | | |
|----------------------|--------|-------|-------|--------------|
| | 2016 | 2020 | 2030 | 2050 |
| Total reduction | 29.6% | -33% | -87% | -100% |
| Per-capita reduction | -70% | -86% | -98% | -100% |
| Total GHG | 15,214 | 7,868 | 1,513 | 56 |
| Per-Capita GHG | 1.1 | 0.5 | 0.1 | 0.0 |

| Business as Usual (BAU) Summary | | | | |
|---------------------------------|--------|--------|--------|---------|
| | 2016 | 2020 | 2030 | 2050 |
| GHG's | 42,463 | 45,472 | 60,276 | 118,318 |
| GHG growth | 262% | 287% | 413% | 908% |
| Population | 13,432 | 15,461 | 21,978 | 44,413 |
| Pop growth | 3,099 | 5,128 | 11,645 | 34,080 |
| Pop Grow % | 30% | 50% | 113% | 330% |
| Per capita emissions | 3.16 | 2.94 | 2.74 | 2.66 |

Business As Usual - GHG Emissions



Action Plan

The action plan developed by the workshop group is shown below. Actions that were considered to be inapplicable are not included in the plan. Many actions were already being implemented by the community. The actions in the plan were categorised according to what year it was believed that they will be implemented (note that some actions have already been implemented but are ongoing).



| STEP 2 - SELECT ACTIONS AND TIMING - Sooke District Municipality | | Years reduction occurs in | | | | | | |
|--|----------|---------------------------|------|------|------|------|------|--------|
| Actions | PLANNED? | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | Annual |
| 1 Buildings Basics | | | | | | | | |
| 1.1 Promote BC Hydro DSM programs | 2 | | 1 | | | | | 1 |
| 1.2 Promote natural gas DSM programs | 2 | | 1 | | | | | 1 |
| 1.4 District energy / renewable energy systems | 0 | | | | | | | |
| 1.5 Improve building code enforcement | 1 | | 1 | | | | | |
| 1.6 SK Solar Colwood promotion | 0 | | | | | | | |
| 2 Buildings High-Growth Measures | | | | | | | | |
| 2.1 Sustainability checklist for buildings | 0 | | | | | | | |
| 2.2 Use zoning bylaws to define desired energy performance | 0 | | | | | | | |
| 2.3 Density bonus for energy performance | 0 | | | | | | | |
| 2.4 Expediting permit approvals, fee rebates, other financial incentives | 0 | | | | | | | |
| 2.5 Tax exemption bylaw | 0 | | | | | | | |
| 2.6 Development cost charge (DCC) reductions or waivers for GHG's | 1 | | 1 | | | | | |
| 3 Residential Buildings | | | | | | | | |
| 3.1 Sign on to solar-ready building code provision | 1 | | | | 1 | | | |
| 3.2 Education to developers - renewable energy technologies and efficiency | 1 | | 1 | | | | | |
| 4 Commercial / Institutional Buildings and Transportation | | | | | | | | |
| 4.1 Host climate-smart program delivery | 0 | | | | | | | |
| 4.2 Eco-industrial networking assessment | 0 | | | | | | | |
| 4.3 Natural gas vehicle collaboration | 0 | | | | | | | |
| 5 LDV Transportation Urban Form | | | | | | | | |
| 5.1 Land use suite "lite" | 1 | 1 | | | | | | |
| 5.2 Land use suite "enhanced" | 1 | 1 | | | | | | |
| 5.3 Street design | 1 | | | 1 | | | | |
| 5.4 Flow RGS, OCP, and local area plans through to zoning | 1 | 1 | | | | | | |
| 6 LDV Transportation – Infrastructure & Collaboration | | | | | | | | |
| 6.1 Active transportation planning | 1 | | | 1 | | | | |
| 6.2 Improve walking infrastructure (sidewalks connecting central schools) | 1 | | | 1 | | | | |
| 6.3 Cycling & alternative transportation infrastructure improvements | 1 | | | 1 | | | | |
| 6.5 Collaborate with major employers on work-related transportation | 0 | | | | | | | |
| 6.6 Transit suite | 1 | | 1 | | | | | |
| 6.7 Ride-sharing and guaranteed ride home programs | 1 | | | | | 1 | | |
| 6.8 Intercommunity transit services | 1 | | | 1 | | | | |
| 6.9 Low carbon and electric vehicle suite | 1 | | | | 1 | | | |
| 6.10 SK Galloping goose trail improvements with CRD | 1 | | | 1 | | | | |
| 7 Waste | | | | | | | | |
| 7.1 Organics diversion | 1 | | | 1 | | | | |
| 8 Enabling Actions | | | | | | | | |
| 8.1 Organizational structure for climate action | 1 | | 1 | | | | | |
| 8.2 Establish a regional energy co-operative | 0 | | | | | | | |
| 8.3 Identify green economy opportunities | 1 | | | | 1 | | | |
| 8.4 Leverage Local Government assets into community change | 1 | | 1 | | | | | |
| 8.5 Long-term, deep community engagement (culture change) | 0 | | | | | | | |

The numbers of the actions listed above correspond to their numbers in the CEEP QuickStart Guide (see Appendix), which contains further detail about each of them. Further detail about action next steps can be found in the 'Unpacking actions' section. For further detail on BC Hydro DSM program incentives consult the BC Hydro Power Smart website, <http://www.bchydro.com/powersmart.html>.

Unpacking actions

The main workshop day on the 7th of October included discussion of the following opportunities:

- **6.2 – Walking Infrastructure:** Based on the existing walking / sidewalk infrastructure and the location of Sooke Elementary, Poirier, and Journey schools the team estimated kilometer and fuel savings. The three schools are centrally located in Sooke and have a combined student population approaching 1,200. A trip pattern often seen in the community is driving to school, then home and back to school to pick up at the end of the school day and come back home. This is a total of up to 4 trips per day per enrolled student or 4,800 trips in total every day. The average trip distance assumed was 2 kilometers (9,600 km per day). Assuming 200 school days per year, this results in 1.9 million kilometers per year. This may sound like a lot, but it is only 2.3% of the total 84,000,000 kilometers that passenger vehicles registered in Sooke travel every year. The team assumed that with 1-2 kilometers of sidewalk infrastructure to fill in gaps in the existing network and active promotion of walking to school, perhaps 25% may shift to walking from driving. This would result in reducing vehicle kilometers by **480,000km** (0.6% of total kilometers) per year and saving residents **\$91,000** per year based on current fuel economy of vehicles in Sooke and assuming a price of \$1.40 per liter for gasoline.
- **1.1, 1.2, 1.3 Promoting Demand Side Management Programs:** The discussion on this option centered on an “energy diet” approach like the one piloted in Rossland and adapted to all West Kootenays, East Kootenays, and Okanagan as well as Campbell River. This action involves partnering with utilities and LiveSmart BC to take a community-based social marketing approach to encouraging home energy efficiency retrofits. This can be done for relatively low cost if a program is designed well. Rossland achieved 20% up-take across single detached homes and over 50% implemented at least one energy improvement. Subsequently during the broader Kootenay Energy Diet which includes Rossland, a further 5% took advantage of discounted energy assessments and retrofit opportunities. Preliminary results from the Rossland Energy Diet indicate that approximately **\$1.6 million** was invested locally by homeowners and businesses that implemented retrofit projects. This is in addition to the ongoing money saved by the energy efficiency improvements. Enhancing the local economy provides economic stability, job opportunities and creates a resilient community. In Sooke, there is also the opportunity to integrate Solar Colwood incentives for solar hot water. We conservatively estimated that annually, 10% (520) of the approximately 5,200 households could be reached and that 50% (**260**) would proceed through the program achieving 15% electricity savings and 30% natural gas savings. The Livesmart program is under review and the design of the program in the future will affect the potential for this program. There may also be an opportunity to collaborate with other western communities on a joint program and increase program attractiveness for potential partners. This program would require some marketing collateral developed specifically for the market here, a website, active promotion to contractors and at community events as well as other gatherings. With a regional program there may be the opportunity to count the ghg savings against the municipality’s carbon neutral operations commitment.

During the full day and half day workshops, ways to proceed with the actions were discussed, and are outlined in the table on the next page.

Potential Community Engagement Opportunities

Community engagement provides an opportunity for the local government to not only present the CEEP, but to highlight some of the actions that have already been taken by the municipality to save energy and reduce emissions. This demonstrates commitment and leadership, and sets a positive example for the community. Additional suggested approaches are provided below:

- Invite local experts or relevant businesses/organizations to set-up a booth at your event to share the services or products they offer that will support GHG emission reductions and energy efficiency
- Encourage input into the CEEP through an interactive wallchart timeline of energy and emissions actions – invite participants to add their own ideas or commitments to the timeline
- Invite BC Hydro to share information about incentives or other programs that are available to encourage efficiency
- In addition, the local government may wish to engage the Chamber of Commerce, the local developers, local interest groups or specialists in applicable fields (i.e. alternative energy specialists, home energy assessment consultants, etc.), and other individuals.

| Actions | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | Annual | Effort | Comments |
|--|------|------|------|------|------|------|--------|--------|----------|
| | | | | | | | | | |
| 1 Buildings Basics | | | | | | | | | |
| 1.1 Promote BC Hydro DSM programs | | 1 | | | | | 1 | | |
| 1.2 Promote natural gas DSM programs | | 1 | | | | | 1 | | |
| 1.4 District energy / renewable energy systems | | | | | | | | | |
| 1.5 Improve building code enforcement | | 1 | | | | | | | |
| 1.6SK Solar Colwood promotion | | | | | | | | | |
| 2 Buildings High-Growth Measures | | | | | | | | | |
| 2.1 Sustainability checklist for buildings | | | | | | | | | |
| 2.2 Use zoning bylaws to define desired energy performance | | | | | | | | | |
| 2.3 Density bonus for energy performance | | | | | | | | | |
| 2.4 Expediting permit approvals, fee rebates, other financial incentives | | | | | | | | | |
| 2.5 Tax exemption bylaw | | | | | | | | | |
| 2.6 Development cost charge (DCC) reductions or waivers for GHG's | | 1 | | | | | | | |
| 3 Residential Buildings | | | | | | | | | |
| 3.1 Sign on to solar-ready building code provision | | | | 1 | | | | | |

| | | | | | | | | | |
|--|---|---|---|---|--|--|--|--|--|
| 3.2 Education to developers - renewable energy technologies and efficiency | | 1 | | | | | | | |
| 4 Commercial / Institutional Buildings and Transportation | | | | | | | | | |
| 4.1 Host climate-smart program delivery | | | | | | | | | |
| 4.2 Eco-industrial networking assessment | | | | | | | | | |
| 4.3 Natural gas vehicle collaboration | | | | | | | | | |
| 5 LDV Transportation Urban Form | | | | | | | | | |
| 5.1 Land use suite "lite" | 1 | | | | | | | | |
| 5.2 Land use suite "enhanced" | 1 | | | | | | | | |
| 5.3 Street design | | | 1 | | | | | | |
| 5.4 Flow RGS, OCP, and local area plans through to zoning | 1 | | | | | | | | |
| 6 LDV Transportation – Infrastructure & Collaboration | | | | | | | | | |
| 6.1 Active transportation planning | | | 1 | | | | | | |
| 6.2 Improve walking infrastructure (sidewalks connecting central schools) | | | 1 | | | | | | |
| 6.3 Cycling & alternative transportation infrastructure improvements | | | 1 | | | | | | |
| 6.5 Collaborate with major employers on work-related transportation | | | | | | | | | |
| 6.6 Transit suite | | 1 | | | | | | | |
| 6.7 Ride-sharing and guaranteed ride home programs | | | | 1 | | | | | |
| 6.8 Intercommunity transit services | | | 1 | | | | | | |
| 6.9 Low carbon and electric vehicle suite | | | | 1 | | | | | |
| 6.10SK Galloping goose trail improvements with CRD | | | 1 | | | | | | |
| 7 Waste | | | | | | | | | |
| 7.1 Organics diversion | | | 1 | | | | | | |
| 8 Enabling Actions | | | | | | | | | |
| 8.1 Organizational structure for climate action | | 1 | | | | | | | |
| 8.2 Establish a regional energy co-operative | | | | | | | | | |
| 8.3 Identify green economy opportunities | | | | 1 | | | | | |
| 8.4 Leverage Local Government assets into community change | | 1 | | | | | | | |
| 8.5 Long-term, deep community | | | | | | | | | |

| | | | | | | | | | |
|-----------------------------|--|--|--|--|--|--|--|--|--|
| engagement (culture change) | | | | | | | | | |
|-----------------------------|--|--|--|--|--|--|--|--|--|

Next Steps to Finalize Community Energy and Emissions Plan

- 1. Report to Council on the BC Hydro Power Smart CEEP Quickstart (QS) workshop held October 7, 2013. Include CEEP-QS workshop description and participation, DRAFT results and DRAFT report
- 2. Submit final Sooke Community Energy and Emissions Plan (CEEP) to Council
- 3. Where applicable, integrate CEEP actions, into future planning activities
- 4. Where applicable, include the CEEP as part of inter-departmental annual planning
- 5. Begin plan implementation

DRAFT

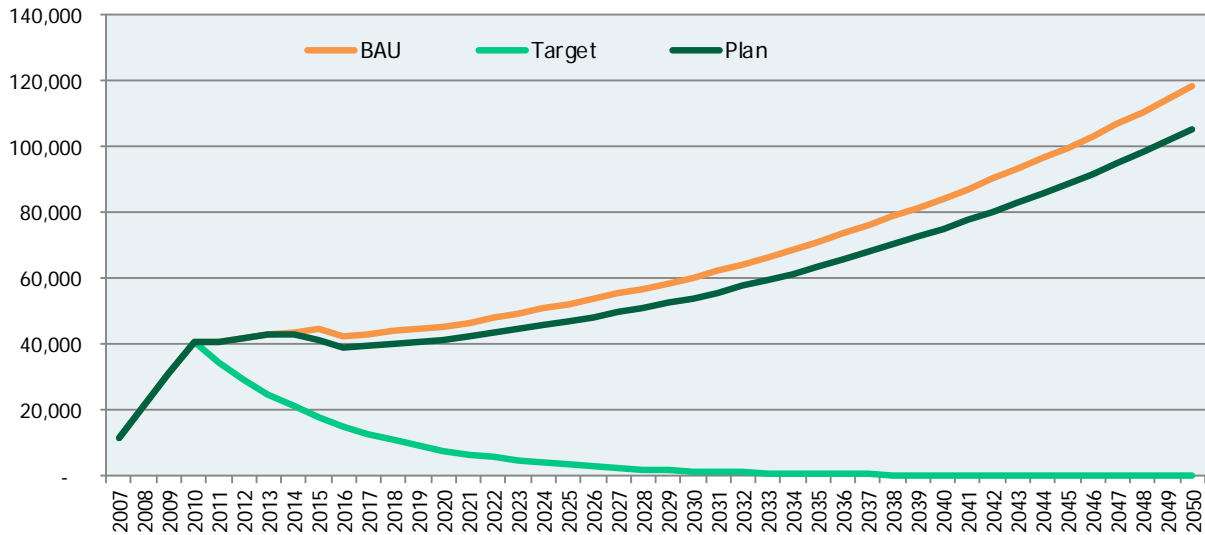
Results of Actions

The anticipated results of the action plan, and the unpacked actions, are shown in the charts below. Significant greenhouse gas emission savings are feasible by implementing the actions.

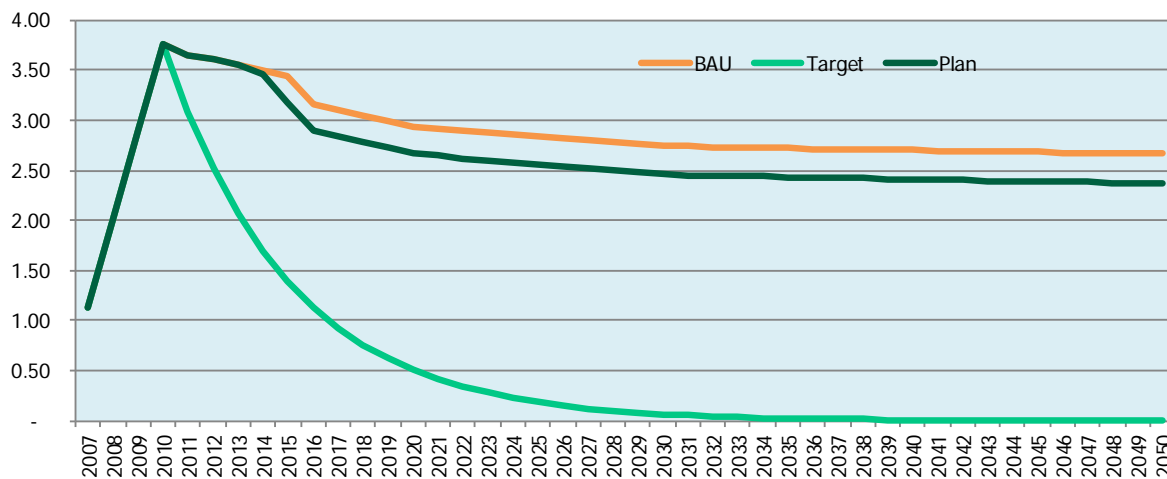
Under Business As Usual, electricity consumption for 2020 and 2050 are estimated at 136 gigawatt hours and 182 gigawatt hours respectively. Under the plan, 7.3 gigawatt hours are saved by 2020, resulting in \$514,000 community-wide savings (assuming a \$0.07/kwh price).

Overview

GHG Emissions

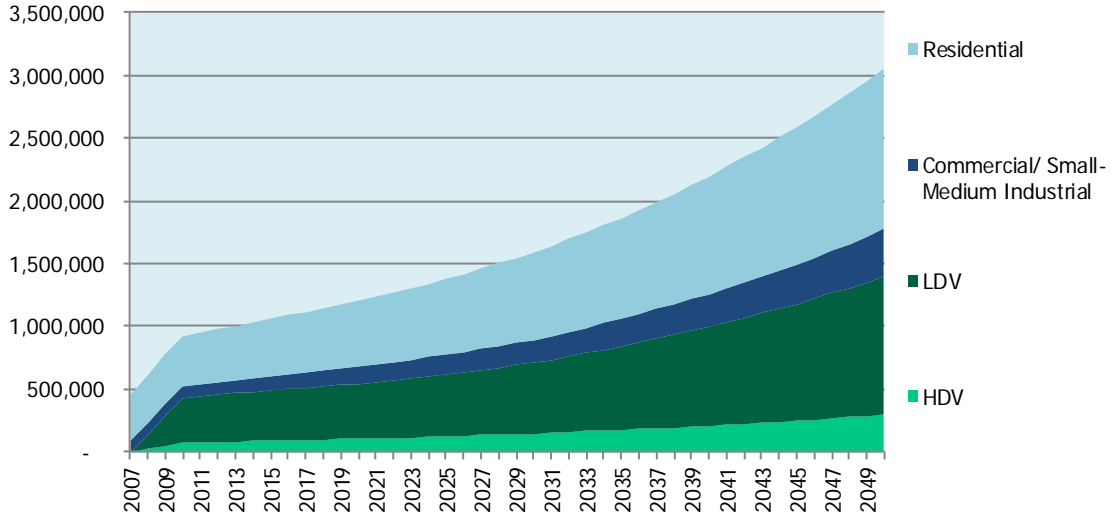


Per Capita Emissions

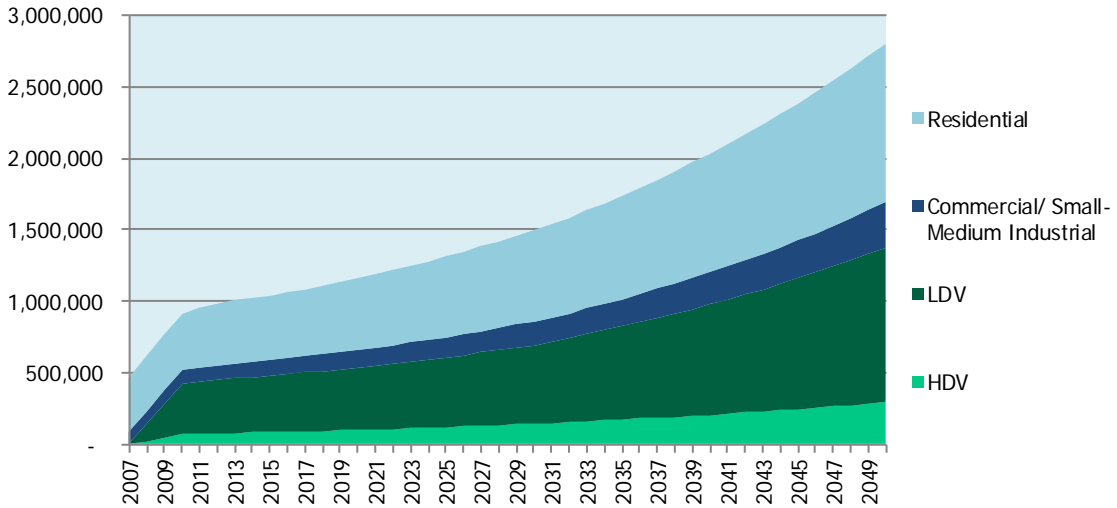


Energy Use by Sector

BAU Energy Use by Sector, GJ/year

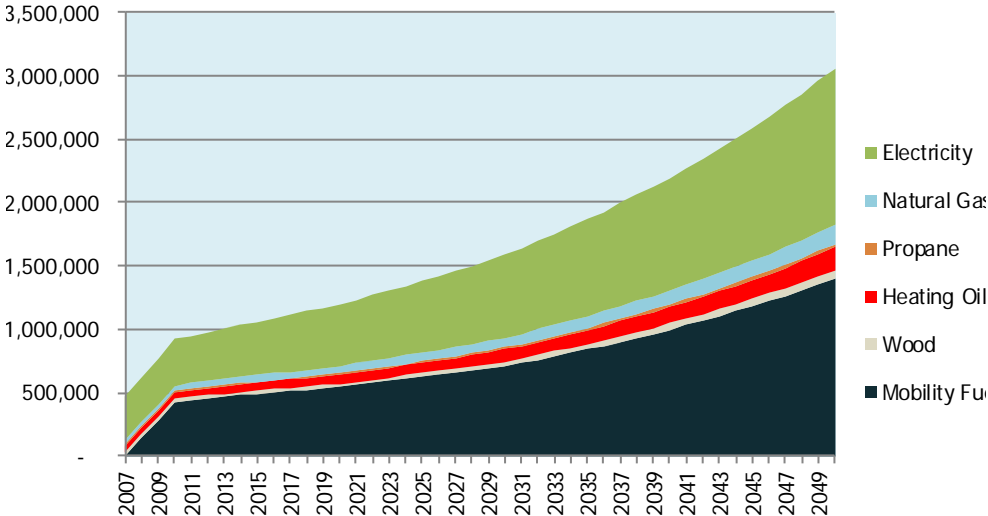


Planned Energy Use by Sector, GJ/year

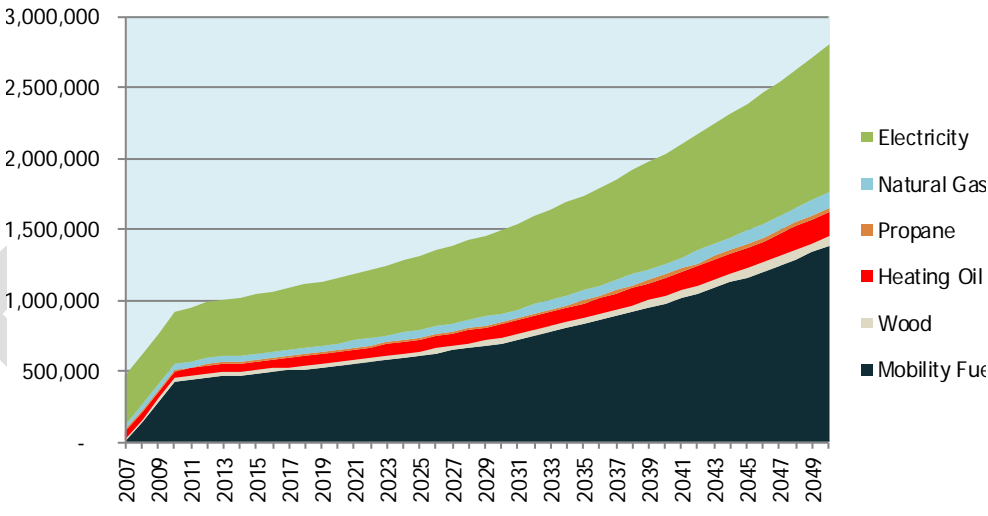


Energy Use by Fuel

BAU Energy Use by Fuel, GJ/year

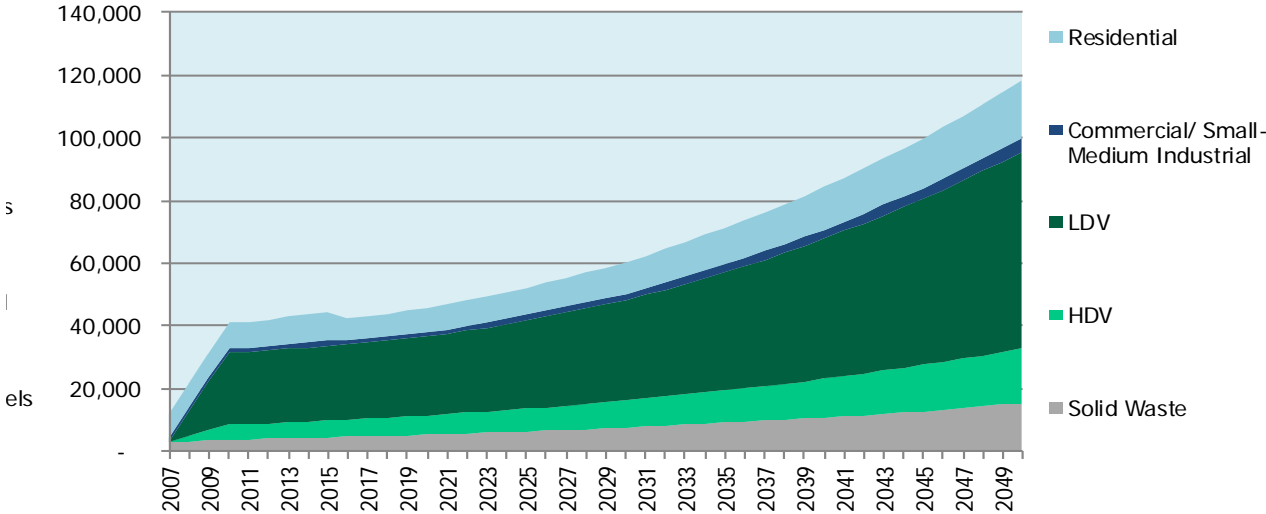


Planned Energy Use by Fuel, GJ/year

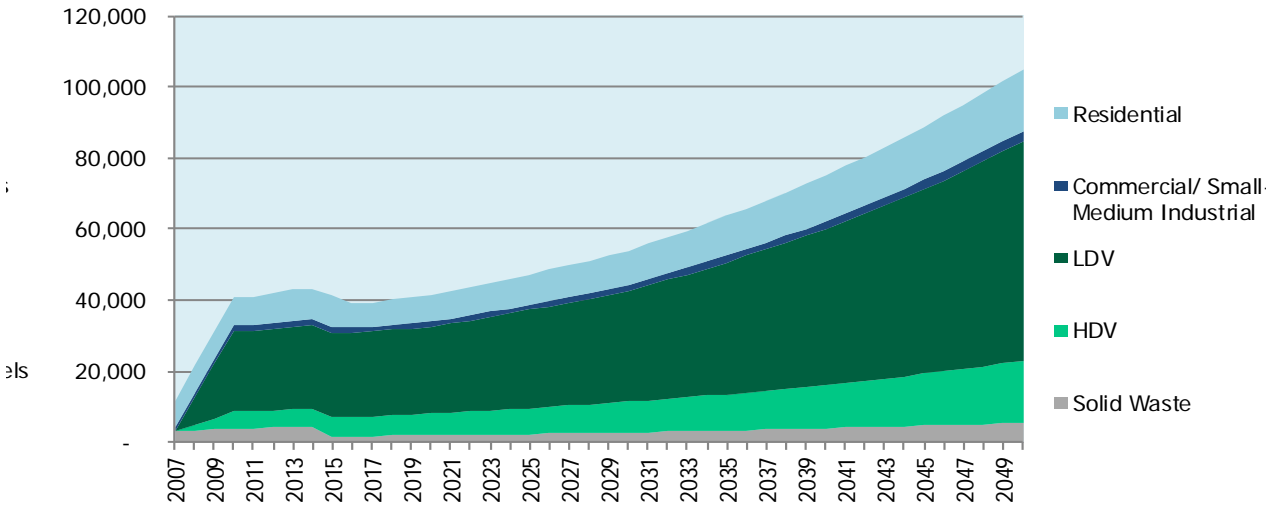


GHGs by Sector

BAU GHGs by Sector, tonnes/year

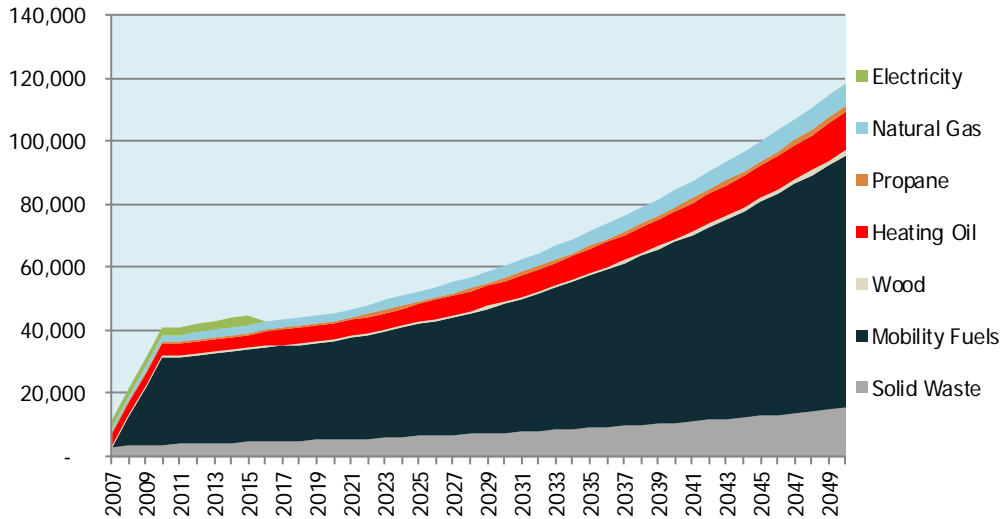


Planned GHGs by Sector, tonnes/year

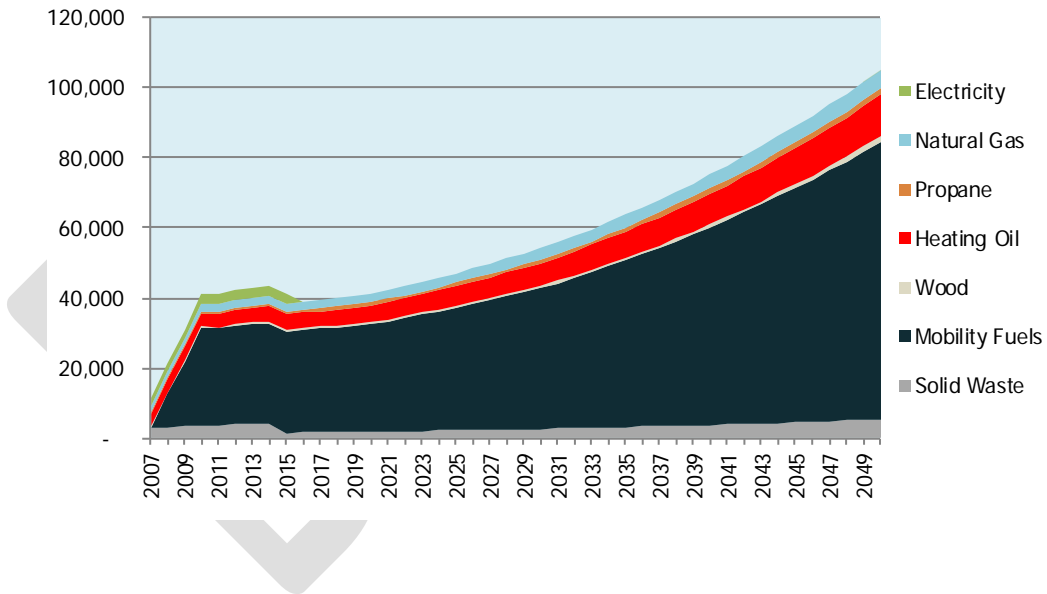


GHGs by Fuel

BAU GHGs by Fuels & Waste, tonnes/year



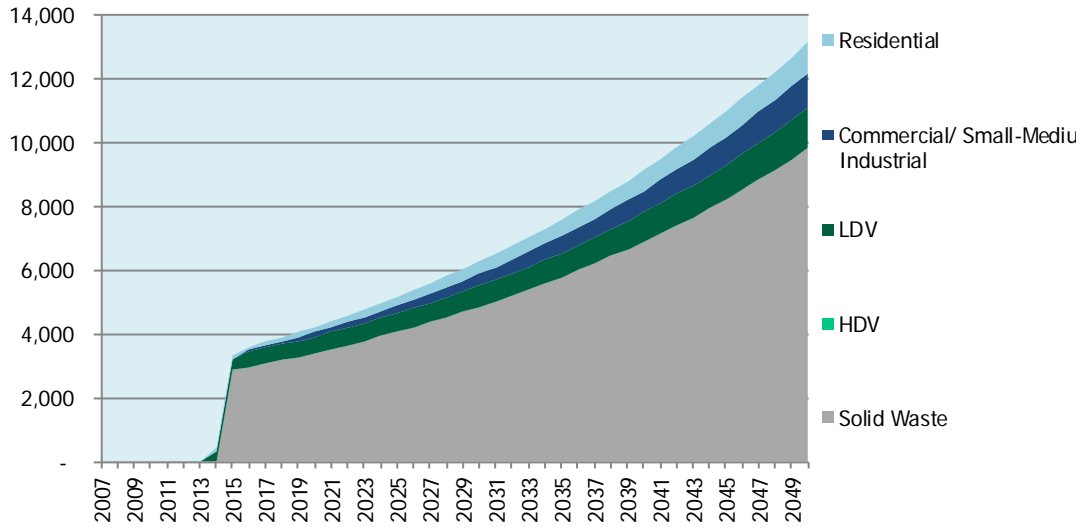
Planned GHGs by Fuels & Waste, tonnes/year



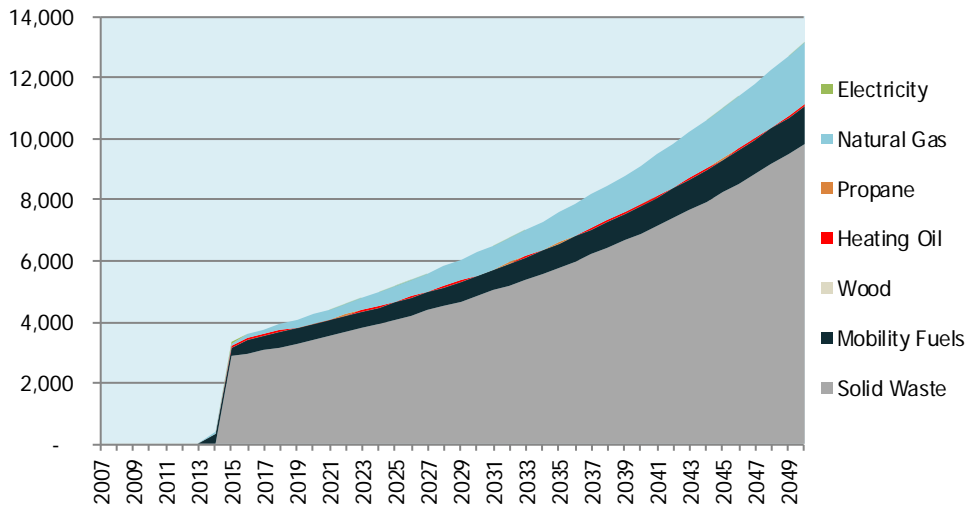
Note that the Province of BC has committed to a carbon-neutral electric grid by 2016. In the model electric emissions become zero from 2016 and remain there for the duration of the projected period.

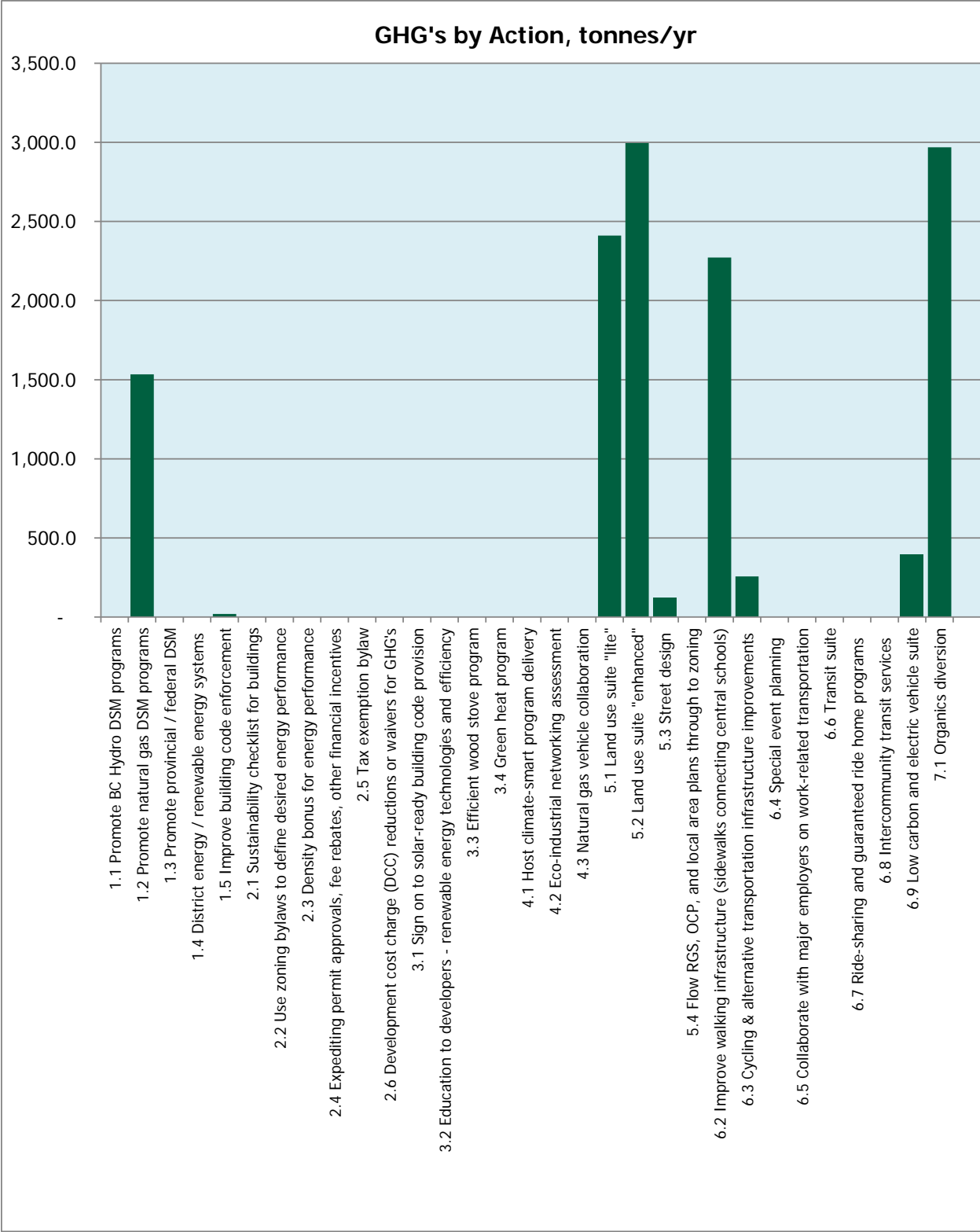
Plan GHG impacts

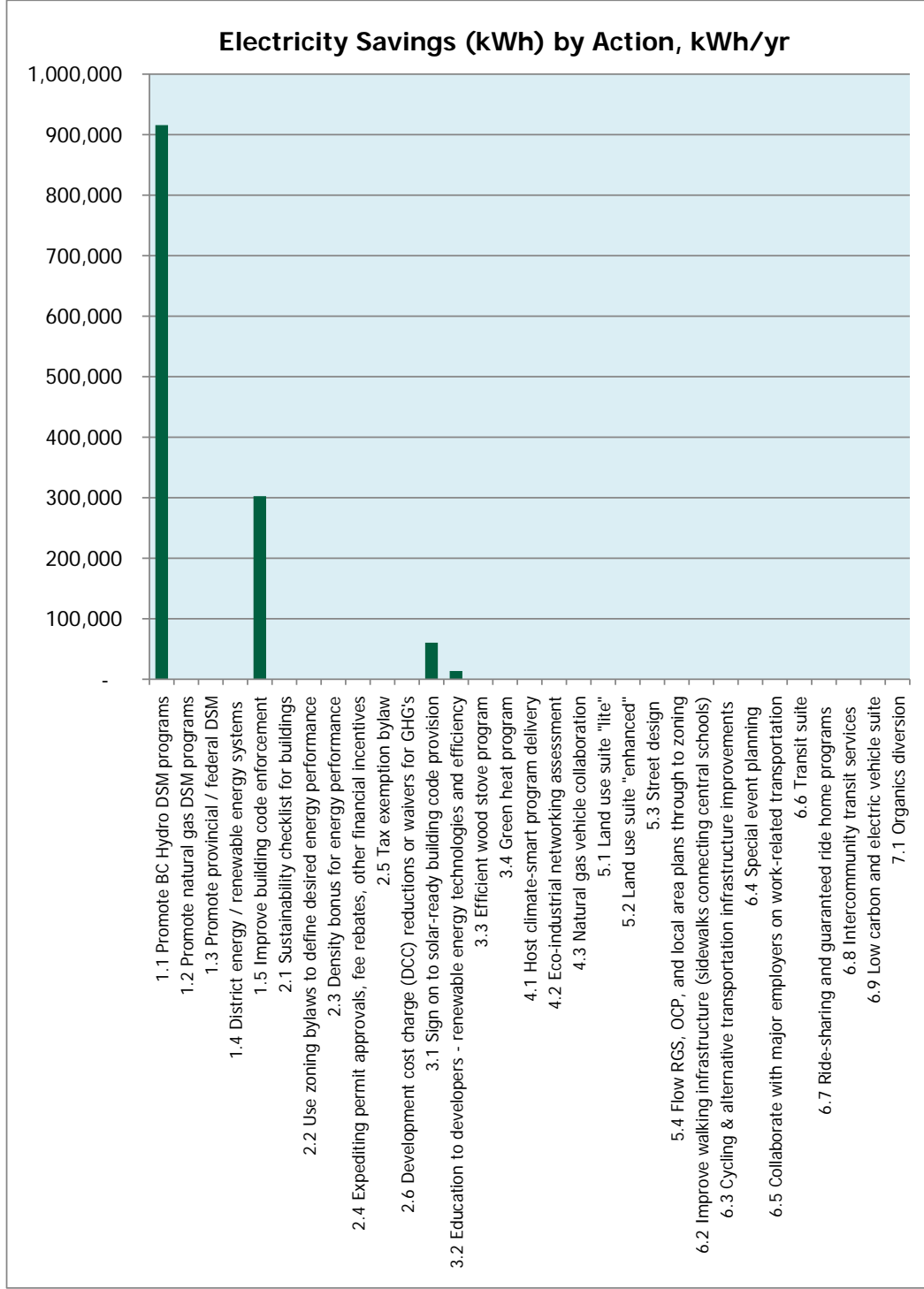
GHG Impacts of Plan by Sector, tonnes/year



GHG Impacts of Plan by Fuels & Waste, tonnes/year

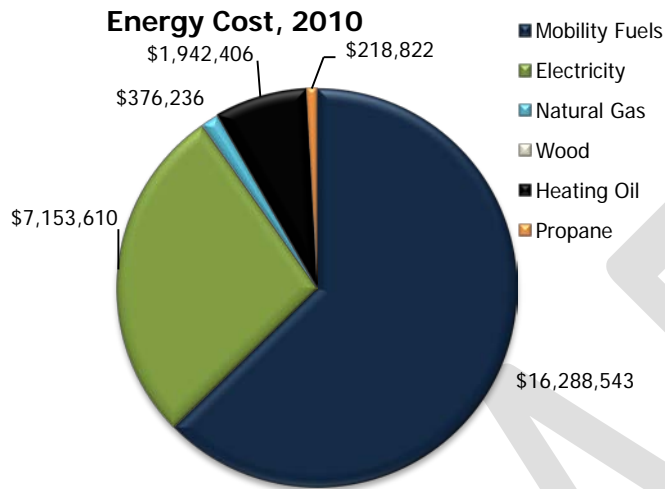






Community Energy Economics

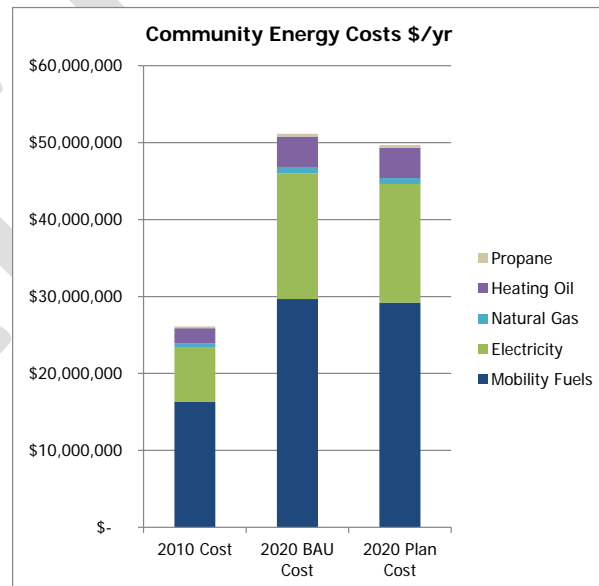
For the District of Sooke, only a small percentage of the energy dollars spent within the community remain within the community. Therefore, a significant co-benefit of implementing this plan to reduce energy consumption and emissions is that reducing the energy dollars spent will contribute to community economic development.

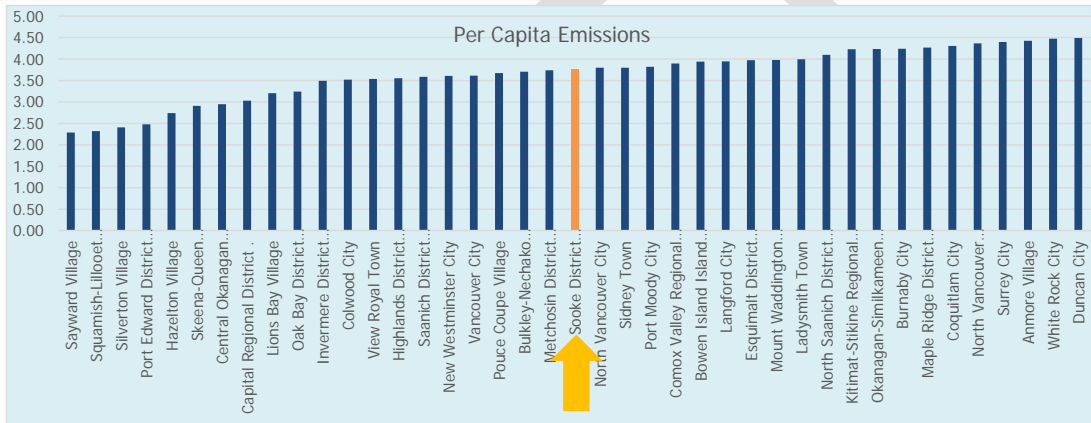
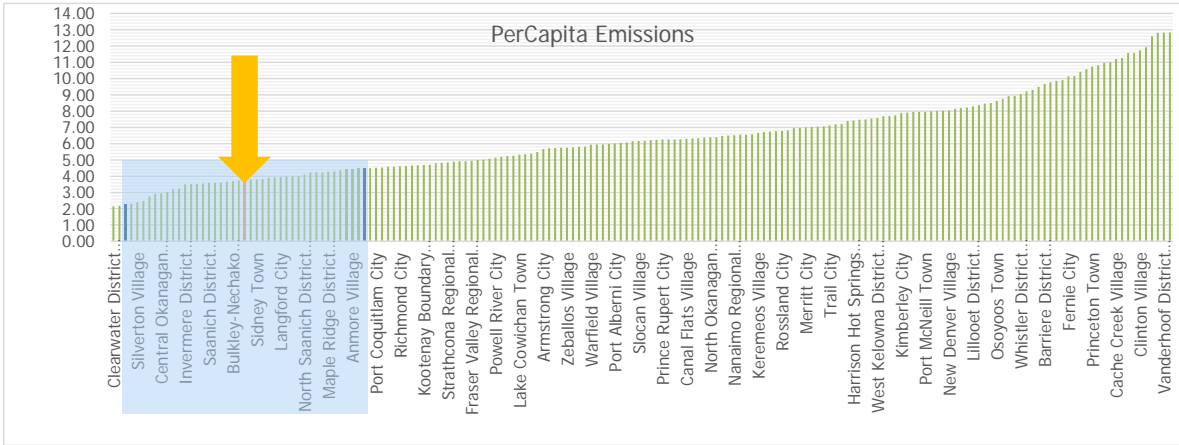


The following chart shows the \$26 million of community energy expenditures made in 2010, split by fuel type.

The overall impact of the plan are shown in the

following chart, comparing 2010 and 2020. The model assumes that energy costs will increase to 2020. Community energy costs are projected to be reduced by approximately 3% through plan implementation, corresponding to **\$1.5 million per year in 2020**.





Appendix – Actions Descriptions

The descriptions below are taken from the CEEP QuickStart Guide.

1. BUILDINGS - BASICS

These actions are recommended for all local governments unless there is a compelling reason that a particular measure should not be implemented. Energy-efficiency retrofits in buildings can yield 25%-50% savings in total energy use. Retrofits through the LiveSmart program averaged 31%.

| ACTION | DESCRIPTION |
|--|--|
| <p>1.1 PROMOTE BC HYDRO DEMAND SIDE MANAGEMENT PROGRAMS</p> <p>Type: Social</p> | <p>Key Question: This action is recommended unless there is a reason why it cannot be done.</p> <p>Description: BC Hydro offers many electricity conservation programs branded as PowerSmart (PS). Local governments can assist in promotion of these programs, increasing awareness and encouraging local participation in residential and commercial sectors (e.g. communicating about PowerSmart programs during building permit application processes), so residents and businesses can save electricity and money.</p> <hr/> <p>% Energy Savings Calculation: Commercial = $a*b*c$, Residential = $d*e*f$</p> <ul style="list-style-type: none"> a. % of commercial customers reached b. % of reached commercial that engage with PS c. average % improvement from engaging with PS d. % of residential customers reached e. % of those reached that engage with PS f. average % improvement from engaging with PS <p>Example: $[a*b*c] = [90\% * 5\% * 30\%] = 1.4\%$ [commercial buildings sector] $[d*e*f] = [90\% * 5\% * 30\%] = 1.4\%$ [residential buildings sector]</p> |
| <p>1.2 PROMOTE NATURAL GAS DEMAND SIDE MANAGEMENT PROGRAMS</p> <p>Type: Social</p> | <p>Key Question: This action is recommended unless there is a reason why it cannot be done.</p> <p>Description: Natural gas providers offer natural gas conservation programs. Local governments can assist in promotion of these programs, increasing awareness and encouraging local participation in residential and commercial sectors (e.g. during building permit application processes), so local residents and businesses can save natural gas and money.</p> <hr/> <p>% Energy Savings Calculation: Commercial = $a*b*c$, Residential = $d*e*f$</p> <ul style="list-style-type: none"> a. % of commercial customers reached b. % of reached commercial that engage with programs c. average % improvement from engaging with programs d. % of residential customers reached e. % of those reached that engage with programs f. average % improvement from engaging with programs <p>Example: $[a*b*c] = [90\% * 5\% * 30\%] = 1.4\%$ [commercial buildings sector] $[d*e*f] = [90\% * 5\% * 30\%] = 1.4\%$ [residential buildings sector]</p> |
| <p>1.3 PROMOTE PROVINCIAL / FEDERAL DEMAND SIDE MANAGEMENT PROGRAMS</p> <p>Type: Social</p> | <p>Key Question: This action is recommended unless there is a reason why it cannot be done.</p> <p>Description: Federal and Provincial governments offers many energy conservation programs. Local governments can assist in the promotion of these programs locally, increasing awareness and encouraging participation in residential and commercial sectors (e.g. including program information in regular communications and in building permit application processes), so local residents and businesses can conserve energy and save money.</p> <hr/> <p>% Energy Savings Calculation: Commercial = $a*b*c$, Residential = $d*e*f$</p> <ul style="list-style-type: none"> a. % of commercial customers reached b. % of reached commercial that engage with programs c. average % improvement by energy type (elec, gas, ...) from engaging with programs d. % of residential customers reached e. % of those reached that engage with programs f. average % improvement from engaging with programs energy use by type in residential <p>Example: $[a*b*c] = [90\% * 5\% * 30\%] = 1.4\%$ [commercial buildings sector] $[d*e*f] = [90\% * 5\% * 30\%] = 1.4\%$ [residential buildings sector]</p> |

| ACTION | DESCRIPTION |
|---|---|
| <p>1.4 DISTRICT ENERGY / RENEWABLE ENERGY SYSTEMS</p> <p>Type: Infrastructure</p> | <p>Key Question: Is there a source of waste heat (rink, industry, sewer pipes, wastewater treatment plant, ...) near to heat demand (pool, hospital, ...) OR are several public-sector (municipality, regional district, provincial ministry, health authority, school district, ...) facilities located close to each other?</p> <p>Description: Development permit area (DPA) guidelines can be used to require renewable energy systems external to buildings, such as a renewable district energy system. DPA's can enable the maximization of passive solar opportunities. District energy (DE) example: Revelstoke Community Energy Corporation.</p> <p>Calculation: Existing Residential = $a*b*c$, New Residential = $a*d*c$, Existing Commercial = $e*f*g$, New Commercial = $e*f*h$</p> <ol style="list-style-type: none"> % of energy used for heating & cooling for residential (77%) % of existing residential connected to DE % reduction of energy from DE for residential (66%, based on Coefficient of Performance of 3 (COP 3); i.e. energy output is 3 times energy input (3 times more efficient than electric baseboard) use 66% for electric baseboard displacement, higher for natural gas / heating oil displacement % of new residential connected to DE % of energy for heating and cooling in industrial/commercial/institutional (ICI) (63%) % reduction in heating / cooling from DE for ICI (66%, based on COP 3) % of existing ICI connected to DE % of new ICI connected to DE <p>Example: Energy improvements in indicated sectors: $(a*b*c) = (77\% * .5\% * 66\%) = 0.3\%$ (existing residential buildings sector) $(a*d*c) = (77\% * 5\% * 66\%) = 2.5\%$ (new residential buildings sector) $(e*f*g) = (63\% * 66\% * 1\%) = 0.4\%$ (existing commercial sector) $(e*f*h) = (63\% * 66\% * 10\%) = 4.2\%$ (new commercial sector)</p> |
| <p>1.5 IMPROVE BUILDING CODE ENFORCEMENT</p> <p>Type: Operations</p> | <p>Key Question: Would buildings be more energy efficient with better building code enforcement and inspection?</p> <p>Description: Greening the Building Code is an ongoing provincial initiative. The current focus is on reducing buildings energy and water use, improving energy performance of new housing to the equivalent of EnerGuide 80, and including solar hot water ready homes (where practical). BC Building Code EnerGuide standard may not be reflected in some buildings due to lack of sufficient inspection and enforcement. Local governments can facilitate installation of high quality renewable energy systems by:</p> <ul style="list-style-type: none"> Ensuring that building inspectors are familiar with Council support for renewable energy, and know where to go for information about renewable energy. Creating guidelines, and passing a resolution endorsing them, to provide clear interpretation of building code issues with respect to specific technologies. Increasing the number and training of inspectors. <p>% Energy Savings Calculation: New Residential = $a*b$, New Commercial = $c*d$</p> <ol style="list-style-type: none"> % new residential buildings captured by improved enforcement % improvement in new commercial buildings by energy type through better enforcement % new commercial buildings captured by improved enforcement % improvement in new residential buildings by energy type through better enforcement <p>Example: $(a*b) = (80\% * 15\%) = 12\%$ (new residential buildings) $(c*d) = (80\% * 5\%) = 4\%$ (new commercial buildings)</p> |

2. BUILDINGS - HIGH GROWTH MEASURES

These measures typically have the greatest applicability in communities that are growing rapidly or are land-constrained. Communities with a low/no growth rate may also find some measures useful.

| ACTION | DESCRIPTION |
|--|---|
| <p>2.1 SUSTAINABILITY CHECKLIST FOR BUILDINGS</p> <p>Type: Social</p> | <p>Key Question: Is the community expected to grow rapidly?</p> <p>Description: Developers can be required to complete a sustainability or smart growth checklist as part of development permit or rezoning application processes. The checklist might include, for example, questions about sustainable energy features incorporated into new developments. Checklist measures are not compulsory; the aim of the checklist is to highlight local government sustainability and clean energy objectives, and to educate developers about the potential for including energy efficiency measures or renewable energy technologies in new buildings.</p> <hr/> <p>% Energy Savings Calculation: New Buildings = a*b*c, Existing Buildings = d*e*f</p> <ul style="list-style-type: none"> a. % new buildings exposed to checklist b. % of those in (a) who improve performance c. Average % impact in new buildings by energy type d. % major renovations exposed to checklist e. % of existing buildings doing major renovations f. Average % impact by energy type for major renovations <p>Example: (a*b*c) = (90%*20%*15%) = 2.7% new buildings (d*e*f) = (90%* 1%*15%) = 0.7% existing buildings</p> |
| <p>2.2 USE ZONING BYLAWS TO DEFINE DESIRED ENERGY PERFORMANCE</p> <p>Type: Regulatory</p> | <p>Key Question: Is the community expected to grow rapidly?</p> <p>Description: Council can adopt a rezoning policy that encourages developments that incorporate renewable energy. Any development that requires a rezoning must be approved by Council, which can consider benefits to the community as part of its decision. While the OCP lays out general expectations of the community, Council can also adopt a rezoning policy, which provides a clear statement of attributes that Council will seek in making rezoning decisions. It is important to note that a rezoning policy cannot set requirements for rezoning, because Councillors are required to approach rezoning hearings with an 'open mind.' However, if a development does not meet stated expectations of Council, it is unlikely to be recommended by staff or approved by Council. The rezoning policy must be designed carefully to be legal and effective. Example: Bowen Island Municipality.</p> <hr/> <p>% Energy Savings Calculation: (a*b*c)</p> <ul style="list-style-type: none"> a. % new buildings covered by policy b. % of those in (a) who improve performance c. Average % impact in new buildings by energy type <p>Example: (a*b*c) = (30% * 90% * 30%) = 8% for new buildings</p> |
| <p>2.3 DENSITY BONUS FOR ENERGY PERFORMANCE</p> <p>Type: Financial</p> | <p>Key Question: Is the community expected to grow rapidly?</p> <p>Description: Density bonusing means that a developer may be allowed to build to a higher density than is normally permitted in the zone (in terms of floor space ratio, site coverage or buildings per parcel) in exchange for the provision of amenities. It is possible that this could be used to promote renewable energy, if GHG reduction, energy security, improved air quality and economic benefits from the use of renewable energy are considered community amenities. The BC Office of Housing and Construction Standards has produced some guidance on the use of density bonuses, and drafted a model bylaw, available at: http://www.toolkit.bc.ca/tool/density-bonusing</p> <hr/> <p>% Energy Savings Calculation: (a*b*c)</p> <ul style="list-style-type: none"> a. % new buildings covered by policy b. % of those in (a) that improve performance c. Average % impact in new buildings by energy type <p>Example: (a*b*c) = (25% * 75% * 25%) = 4.7% for new buildings</p> |

| ACTION | DESCRIPTION |
|---|--|
| <p>2.4 EXPEDITING PERMIT APPROVALS, FEE REBATES, OTHER FINANCIAL INCENTIVES</p> <p>Type: Financial</p> | <p>Key Question: Is the community expected to grow rapidly? Description: Expedited approvals provide strong incentive for developers. Example: District of Saanich</p> <hr/> <p>% Energy Savings Calculation: (a*b*c) a. % new buildings covered by policy b. % of those in (a) who improve performance c. Average % impact in new buildings by energy type Example: (a*b*c) = (25% * 75% * 25%) = 4.7% for new buildings</p> |
| <p>2.5 TAX EXEMPTION BYLAW</p> <p>Type: Financial</p> | <p>Key Question: Is the community expected to grow rapidly? Description: Tax exemptions provide significant financial incentive. A Revitalization Tax Exemption (RTE) program may be designed to encourage energy efficient development in a small area or throughout a jurisdiction. This tool could allow property owners to make energy improvements to their property and apply for a tax exemption. The benefit of a RTE is tied to the property. Example: District of Maple Ridge.</p> <hr/> <p>% Energy Savings Calculation: (a*b*c) a. % new buildings covered by policy b. % of those in (a.) who improve performance c. Average % impact in new buildings by energy type Example: (a*b*c) = (25% * 75% * 25%) = 4.7% for new buildings</p> |
| <p>2.6 DCC REDUCTIONS OR WAIVERS, FOR GHG'S</p> <p>Type: Financial</p> | <p>Key Question: Is the community expected to grow rapidly? Description: A development cost charge (DCC) reduction or exemption provides financial incentive for developers, with costs directly borne by the local government.</p> <hr/> <p>% Energy Savings Calculation: (a*b*c) a. % new buildings covered by policy b. % of those in (a) who improve performance c. Average % impact in new buildings by energy type Example: (a*b*c) = (5% * 90% * 25%) = 1.1% for new buildings</p> |



3. RESIDENTIAL BUILDINGS

The following actions may be applicable to residential buildings.

| ACTION | DESCRIPTION |
|--|---|
| <p>3.1 SIGN ON TO SOLAR-READY BUILDING CODE PROVISION</p> <p>Type: Regulatory</p> | <p>Key Question: This action is recommended unless there is a compelling reason not to implement. Description: The Province of BC has developed a model solar-ready bylaw (link below) http://www.housing.gov.bc.ca/building/consultation/shwr/qanda.htm that local governments can sign on to and implement in their jurisdictions. This bylaw reduces the cost of installing solar hot water (SHW) after construction at minimal cost at construction time. Domestic hot water is approximately 30% of residential energy use. Solar hot water can provide up to 50% - 60% of domestic hot water use. Applies to residential only. Further calculations available in "Option 1C: Project Profile Solar Thermal (Hot Water) Retrofits" at the 'how' tab of http://www.toolkit.bc.ca/carbon-neutral-government. The deadline has passed but a future opportunity is likely.</p> <p>% Energy Savings Calculation: (a*b*c) a. % of new residential that is single family b. % of new residential that installs SHW c. Average % reduction on total household fuel use by fuel type from SHW (typically 30% of household energy use is hot water, typical SHW installations cover 50% of domestic hot water) Example: (a*b*c) = (60% * 20% * (30% * 50%)) = 1.8% for new buildings</p> |
| <p>3.2 EDUCATION FOR DEVELOPERS</p> <p>Type: Social</p> | <p>Key Question: This action is recommended unless there is a compelling reason not to implement. Description: Developers make key decisions as projects are being developed, that affect the energy performance of buildings over their lifecycle. While some developers pursue high performance buildings and renewable heating/cooling systems, many lack awareness of these systems and view them as increasing cost and risk. Education and showcasing can build awareness that leads to action. Applies primarily to residential development.</p> <p>% Energy Savings Calculation: (a*b*c) a. % of development community reached b. % of those in (a) who integrate energy improvements into their developments c. Average % impact by energy type of improvements Example: (a*b*c) = (20% * 10% * 20%) = 0.4% for new buildings</p> |
| <p>3.3 EFFICIENT WOOD STOVE PROGRAM</p> <p>Type: Financial</p> | <p>Key Question: Do many residents use inefficient wood fireplaces / stoves? Description: The Provincial Wood Stove Exchange Program encourages residents to change out their older, smoky wood stoves for low-emission appliances — including new CSA-/EPA-certified clean-burning wood stoves. Offered at the community level, the program involves funding and incentives to promote the exchange and replacement of old wood stoves. It also delivers education to help people operate their wood-burning appliances efficiently. In the Skeena region, communities contributed between \$7,000 and \$15,000 to offer their residents extra incentives. In addition, permit fees for installation of new appliances were waived, and additional incentives were established in the form of bylaws requiring mandatory removal of old wood stoves. Note: assumes increased efficiency of burning, results in less wood being consumed, and has little impact on fossil fuels and GHGs (since wood-burning is considered GHG-neutral).</p> <p>% Energy Savings Calculation: (for wood fuel only) = (a*b) a. % of wood-stoves changed as a result of the program b. Average % improvement in efficiency per stove Example: (10%*40%)= 4% for wood fuel for existing buildings</p> |

| ACTION | DESCRIPTION |
|--|---|
| <p>3.4 BIOMASS HEATING</p> <p>Type: Social, Financial</p> | <p>Key Question: Is there a local or regional biomass supply that could be used for heating?</p> <p>Description: Communities heating primarily with propane, heating oil, or in some cases electricity may have a strong financial case for conversion to automated forms of bioenergy such as wood pellet and woodchip.</p> <p>Green Heat Initiative (http://www.greenheatinitiative.com/) is an unbiased non-profit resource that local governments can draw upon to further assess feasibility.</p> <p>The reasons that some homes may not have yet converted to wood pellet, despite the substantial cost savings in energy include:</p> <ul style="list-style-type: none"> • Knowledge • Individual difficulties with handling of pellets – delivery & storage • Capital costs, particularly for those on fixed incomes <p>The knowledge barrier could be covered quite easily, with an information campaign that describes the economic and environmental factors.</p> <p>The local government could help to coordinate bulk purchases of wood pellets for the community, which could help to further reduce the cost of wood pellets. Purchasing pellets in loose bulk is the cheapest option.</p> <p>To assist with the difficulties of handling pellets including for the elderly could involve automated systems such as hoppers that could be filled by an operator(?). Outdoor storage options that a pellet stove could suck or auger pellets from could also be filled by an operator(?). Alternatively, when the hopper needs refilling, the resident could use a small container to transfer the pellets from the bag into the hopper.</p> <p>Financing of pellet stove: It is estimated that the installation cost of a wood pellet stove might be approximately \$5,000, although this cost might be reduced if several pellet stove installations were coordinated together as a bulk order. Cost savings compared to propane, heating oil and electric in small villages could result in a simple payback of the order of 5 years, with the estimated lifespan of a wood pellet stove (provided it is properly cleaned and maintained) to be at least greater than 10 years.</p> <p>Benefits to the project include reducing community energy expenditures, a substantial reduction in community greenhouse gas emissions, and some potential for local economic development.</p> <p>Similar benefits can be achieved in southwestern BC’s temperate climates with the use of air-source heat pumps.</p> <p>Further calculations available in “Option 1B: Project Profile Energy Efficient Building Retrofits and Fuel Switching” at the ‘how’ tab of http://www.toolkit.bc.ca/carbon-neutral-government.</p> <hr/> <p>% Emissions Savings Calculation = (a*b*c*d)</p> <p>a. % existing buildings exposed to program</p> <p>b. % of those exposed who convert</p> <p>c. % of building GHG’s associated with space heating</p> <p>d. % of heat load that biomass covers</p> <p>Example: (a*b*c*d) = (100%*40%*70%*80%) = 22.4% existing residential buildings</p> |

4. COMMERCIAL / INSTITUTIONAL BUILDINGS AND TRANSPORTATION

The following measures apply to the commercial / institutional sector. Note that there are likely other specific opportunities to engage this sector in specific communities.

| ACTION | DESCRIPTION |
|--|--|
| <p>4.1 HOST CLIMATE-SMART PROGRAM DELIVERY</p> <p>Type: Social</p> | <p>Key Question: Are there small and mid-sized businesses that would engage in climate training if offered?</p> <p>Description: ClimateSmart provides training, tools, and technical assistance to small and mid-sized businesses. This includes three, four-hour training sessions. Each session is run by experts experienced in advising small and medium-sized enterprises on best practices of managing and reducing GHGs. Groups consist of 10-15 enterprises, with training sessions scheduled over a ten-week period. Local governments can sponsor ClimateSmart to come to their community.</p> <hr/> <p>% Energy Savings Calculation: for commercial sector buildings = (a*b) and for commercial sector transportation= (c*d)</p> <ul style="list-style-type: none"> a. % of commercial sector participating in climate smart b. % improvement in buildings as a result of participating in the program c. % of commercial sector participating in climate smart d. % improvement in buildings as a result of participating in the program <p>Example: (a*b) = (2% * 15%) = 0.3% for existing commercial buildings Example: (c*d) = (2% * 10%) = .2% for commercial transportation</p> |
| <p>4.2 ECO-INDUSTRIAL NETWORKING ASSESSMENT</p> <p>Type: Social</p> | <p>Key Question: Are there industrial / commercial operations that may benefit from collaboration (shipping co-ordination, waste as input, sharing heat, ...)</p> <p>Description: Eco-industrial networking is a relationship-building process that aims to minimize waste and create efficiencies among industrial and other buildings. For example, an eco-industrial network might involve locating a building with a high waste-heat output, such as an ice rink, next to a major heat consumer, such as a swimming pool, thus capturing the value of what was previously wasted. Local governments are well placed to identify and promote opportunities for eco-industrial networking. Local governments can also specifically zone for eco-industrial uses and location of uses: for example, District of Ucluelet has established the Ucluelet Eco-Industrial Park zone, a comprehensive development zone.</p> <hr/> <p>% Energy Savings Calculation: commercial sector buildings= (a*b) and for commercial sector transportation= (c*d)</p> <ul style="list-style-type: none"> a. % of commercial sector included in eco-industrial networking b. % improvement as a result of participating in the program c. % of commercial sector included in eco-industrial networking d. % improvement as a result of participating in the program <p>Example: (a*b) = (1% * 10%) = 0.1% for existing commercial buildings Example: (c*d) = (1% * 20%) = 0.2% for commercial transportation</p> |



| ACTION | DESCRIPTION |
|---|---|
| <p>4.3 NATURAL GAS VEHICLE COLLABORATION</p> <p>Type: Social, Financial</p> | <p>Key Question: Are there heavy-duty fleets that could refuel where local government fleets refuel?</p> <p>Description: Gasoline and diesel have approximately 140% of the emissions per unit of energy as natural gas. Natural gas refuelling stations need a critical mass of return-to-base heavy duty vehicles (often ten or more) to be viable. The local government may have some fleet vehicles that could be converted to natural gas from diesel to meet its carbon-neutral operations commitments. Collaborating with other local return-to-base fleets (such as BC Transit, school board, waste haulers, and commercial operators) could provide the critical mass to make a refuelling station viable. This can lower the emissions from all of the participating entities.</p> <p>Further calculations available in "Option 1A: Project Profile Low Emission Vehicles" at the 'how' tab of http://www.toolkit.bc.ca/carbon-neutral-government.</p> <p>% Emissions Savings Calculation = (a/b)*c , where:</p> <ul style="list-style-type: none"> a. Number of heavy duty vehicle-kilometers traveled from vehicles converting to natural gas b. Total number of heavy duty vehicle-kilometers traveled c. % difference in emissions from original configuration to natural gas configuration (efficiency and carbon intensity) <p>Example: $(a/b)*c = (10,000/100,000) * 30\% = 3\%$ of emissions from existing heavy duty commercial vehicles</p> |

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5. LIGHT DUTY VEHICLE TRANSPORTATION – URBAN FORM

Urban form including smart growth and street design offer the greatest single opportunity for many communities to reduce emissions.

| ACTION | DESCRIPTION |
|---|---|
| <p>5.1 LAND USE SUITE LITE</p> | <p>Key Question: Recommended for communities wherever politically practical. Description: Designate growth areas and set minimum lot sizes outside growth area; apply mixed-use zoning for downtown. This can preserve the rural character outside of downtown while enabling more residents to live in proximity to services. This can reduce transportation needs while developing areas that are most economically maintained by the local government (rather than sprawling infrastructure). Specific zoning is required for primary and secondary growth areas as well as areas outside the designated growth areas. Conservation covenants (such as through land trusts) may also be considered for agricultural lands or natural habitats.</p> <hr/> <p>% Energy Savings Calculation: for Light Duty Vehicle sector= (a*b*c) a. % of community in downtown b. Degree to which the area in (a) will exhibit the full implementation of supportive land use c. % reduction in transportation emissions (see Background section for guidance on emissions reduction potential) Example: (a*b*c) = (20% * 20% * 30%) = 1.2% for LDV sector</p> |
| <p>5.2 LAND USE SUITE ENHANCED</p> | <p>Key Question: Recommended for communities seeking significant GHG reductions Description: This measure extends 'Land use suite lite'. Beyond designating growth areas, urban containment boundaries could be established to further enforce where growth occurs. Also, the type of growth could be further defined through establishing zones for transit-oriented development or pedestrian-oriented development. An industrial/commercial land strategy may also be required to facilitate eco-industrial networking, transit provisioning and mobility.</p> <hr/> <p>% Energy Savings Calculation: for LDV sector = (a*b*c) a. % of community covered by program b. Degree to which the area in (a) will exhibit the full implementation of supportive land use c. % reduction in transportation emissions (see Background section for guidance on emissions reduction potential) Example: (a*b*c) = (50% * 25% * 30%) = 3.8% for LDV sector</p> |
| <p>5.3 STREET DESIGN</p> | <p>Key Question: This action is recommended for all communities unless there is a reason why it should not be implemented. Description: Reconfigure streets to be 'living streets' / 'complete streets' - including formalizing hierarchy (pedestrian - bike - transit - truck - car). Typically this is a policy decision, followed by street reconfiguration as streets are regularly scheduled for resurfacing / reconstruction for pavement maintenance or installation of utilities. If new streets are required, design to support a grid pattern.</p> <hr/> <p>% Energy Savings Calculation: for LDV sector = (a*b*c) a. % of community covered by program b. Degree to which the area in (a) will exhibit the full implementation of supportive land use c. % reduction in transportation emissions (see Background section for guidance on emissions reduction potential) Example: (a*b*c) = (5% * 25% * 30%) = 0.4% for LDV sector</p> |
| <p>5.4 FLOW RGS, OCP, AND LAP THROUGH TO ZONING</p> | <p>Key Question: Recommended for all communities. Description: It is important to flow climate and energy-related statements from the RGS or OCP through to local area / neighbourhood plans and zoning. Often good statements in the RGS/OCP just need to be implemented all the way through in a rigorous way.</p> <hr/> <p>% Energy Savings Calculation: N/A – depends on OCP policies.</p> |

6. LIGHT DUTY VEHICLE TRANSPORTATION - INFRASTRUCTURE & COLLABORATION

| ACTION | DESCRIPTION |
|--|--|
| <p>6.1 ACTIVE TRANSPORTATION PLANNING</p> | <p>Key Question: This action is recommended for all communities considering transportation demand management.</p> <p>Description: Active transportation planning processes can lead to future policy and infrastructure changes. A number of communities have researched, developed and planned active transportation initiatives through funding grants offered by the Built Environment and Active Transportation (BEAT) initiative of the BC Recreation and Parks Association (BCRPA) and UBCM. Many of these communities are small yet have started ambitious active transportation plans. Such programs can kick-start a transportation demand management (TDM) program for small or mid-size communities, especially those with little or no public transit.</p> <hr/> <p>Calculation: N/A - this is a planning process which will not produce direct results itself, but may lead to projects that will produce savings.</p> |
| <p>6.2 IMPROVE WALKING INFRASTRUCTURE</p> | <p>Key Question: Are there major trip destinations (commercial services, schools, hospital, employers, etc.) less than 3km from a significant number of residences?</p> <p>Description: Local governments can easily promote walking. Tips on promoting walking have been developed by the Central Okanagan Regional District: www.kelowna.ca/CM/Page1056.aspx Other communities could create a similar resource page on their website or as a printed handout. Walking is suitable for trips in small and mid-size communities where distances in town are short. Most people can walk a kilometre in 10 minutes and can walk for 30 minutes, or approximately 3 km, during good-weather months. It is reasonable to target distances of 3 km or less for the promotion of active transportation (if combined with strategies to change people's perception of the time and effort it takes to walk).</p> <p>One walking-infrastructure opportunity available in many communities is a walking school bus. A Walking School Bus or Bicycle Train consists of a group of children walking or cycling to school with one or more adults. It can be informally planned when two or three families take turns walking or cycling with their children to school, or more formally developed and organized with specific stops, designated participants and volunteer Walking School Bus or Bicycle Train leaders.</p> <hr/> <p>% Energy Savings Calculation: for LDV sector= (a*b*c)/d</p> <ol style="list-style-type: none"> Number of walking trips/year % of trips that would have been by car average walking trip length Total LDV vehicle kilometers travelled (VKT) (estimation can be derived from CEEI data) <p>Example: (a*b*c)/d = (36,500 * 20% * 1.5) / 200,000,000 = 0.01% LDV emissions</p> |



| ACTION | DESCRIPTION |
|---|---|
| <p>6.3 CYCLING & ALTERNATIVE TRANSPORTATION INFRASTRUCTURE IMPROVEMENTS</p> | <p>Key Question: Are there trip destinations within 5-8km of a significant number of residences?</p> <p>Description: Cycling is perhaps the fastest way to make a trip of less than 5 km. It is reasonable to target distances of 5 to 8 km for cycling in an active transportation strategy.</p> <p>Cyclists travelling 8 km or more value shower facilities at their final destination, and all cyclists value safe, secure storage for their bikes. These facilities can be installed at various sites of employment in a community, such as public institutions, businesses and regional district or municipal offices. A major barrier to increasing the number of cycling trips to workplaces is lack of secure bike lock-ups and change-room facilities. Requiring these basic facilities can be made part of the development process through a community's planning bylaw.</p> <p>A US tool to estimate demand for bike routes is available at: http://www.bicyclinginfo.org/bikecost/step1.cfm . It is tailored for use in the US, but can be used by BC communities. Information required includes population density in the area surrounding the bike route, and the percentage of total trips in the area already made by bicycle. Where this is not known, use the BC average figure of 2%.</p> <p>More detailed guidance on methods for estimating the likely number of users is available from the governments of New Zealand, US, UK and Australia. However, these tend to be lengthy documents; guidance from New Zealand may be of most direct use.</p> <p>Other important parameters include percentage of cyclists using the bike route that would otherwise have driven, and average bike trip length. Where locally-specific data are not available, the following benchmarks may be used:</p> <ul style="list-style-type: none"> • % of non-recreational cyclists who would have driven, if they were not cycling: 50%. • Average BC cycling commuter distance: 5km each way, 10km return trip. <hr/> <p>% Energy Savings Calculation: for LDV sector = $(a*b*c)/d$</p> <ol style="list-style-type: none"> a. Number of cycling trips/year b. % of trips that would have been by car c. average walking trip length d. Total LDV vehicle kilometers travelled <p>Example: $(a*b*c)/d = (36,500 * 30% * 5) / 200,000,000 = 0.03\%$ LDV emissions</p> <p>This calculation methodology is only relevant where bicycle facilities are constructed on commuter routes, or to other major destinations to which people travel by car. Recreational bike paths will not lead to a reduction in emissions, and may even lead to an increase in emissions, since people may drive to them.</p> |
| <p>6.4 SPECIAL EVENT PLANNING</p> | <p>Key Question: Are large special events planned?</p> <p>Description: Local governments often promote transit for transportation to major community or sporting events in their area. There are direct benefits to having people try alternative modes of transportation during large events. Experience has shown that people will be more likely (at worst, less reluctant) to use transit after having a good experience at a special event. This was the case in Victoria in 1994 when a 12-day major sporting event saw record modal splits for transit (50% and up), which set the stage for an impressive five-year growth in ridership.</p> <hr/> <p>% Energy Savings Calculation: for LDV sector = $(a*b*c)$</p> <ol style="list-style-type: none"> a. % of LDV travel associated with travel to/from event b. % of travel population in (b) affected by action a. Average % reduction in vehicle kilometers travelled by population in (c) <p>Example: $(a*b*c) = (.1\% * 20\% * 10\%) = 0.002\%$ LDV sector</p> |

| ACTION | DESCRIPTION |
|---|---|
| <p>6.5 COLLABORATE WITH MAJOR EMPLOYERS ON TRANSPORTATION</p> | <p>Key Question: Is there major employer(s) in the community? Description: Collaboration with major employers such as industries, schools and hospitals can uncover opportunities to reduce commuting-related transportation emissions. Uvic achieved a 27% reduction in campus parking during a 30% growth in student population and major new building activity in the past 16 years. Single-occupant vehicle traffic to campus plunged from 58% in 1992 to 37.5% in 2008, while parking rates soared from minimally priced to market-rate priced.</p> <p>% Energy Savings Calculation: for LDV sector = (a*b*c) b. % of LDV travel associated with travel to/from employer/institution c. % of travel population in (b) affected by action d. Average % reduction in vehicle kilometers travelled by population in (c) Example: (a*b*c) = (10% * 50% * 20%) = 1.0% LDV emissions</p> |
| <p>6.6 TRANSIT SUITE</p> | <p>Key Question: Are there major trip destinations beyond 8km that are not sufficiently served by transit? Description: There are 82 transit systems serving 50 communities in BC. Three types of transit service are operated through BC Transit: conventional transit, paratransit and custom transit.</p> <ul style="list-style-type: none"> • Conventional transit serves the general population using mid-size, large or double-decker buses with fixed routes and fixed schedules. Most buses are fully wheelchair accessible, with door ramps that lower. • Paratransit offers small-town, rural and suburban areas flexible routing and schedules for passengers using minibuses, taxis and vans. Many paratransit systems offer trips beyond their immediate community one or more days a week. • Custom transit serves those who cannot use conventional transit because of a disability. It operates vans and minibuses for dial-a-ride, door-to-door handyDART service. Service is also offered through contracted Taxi Supplement and Taxi Saver (discounted coupon) programs. <p>Many factors affect transit deployment, key ones being residential density and form.</p> <p>% Energy Savings Calculation: for LDV sector = (a*b) a. % of population affected by transit measures (within approx. 400 meters of stops) b. Average % reduction in vehicle kilometers traveled for population in (b) Example: = (20% * 5%) = 1% LDV emissions</p> |
| <p>6.7 RIDE-SHARING AND GUARANTEED RIDE HOME PROGRAMS</p> | <p>Key Question: Are there major trip destinations beyond 8km that are not sufficiently served by transit? Description: Carpooling is a simple way for local governments to begin TDM while saving money, reducing congestion and conserving energy along the way. Founders of the Nelson Carshare Co-op set up a ride-sharing system for longer-distance intercommunity travel where rides could be offered or sought for travel between communities. This ride-matching service is now run by the Kootenay Rideshare and is undergoing expansion; details can be found at www.kootenayrideshare.com. "With car sharing as a choice, Car Co-op members drive much less (1400 km/year) than the average driver (6,000-24,000 km/year) in the Lower Mainland." Source: Cooperative Auto Network. (75%-94% reduction but much of this cannot be directly attributed to a coop.)</p> <p>% Energy Savings Calculation: for LDV sector= (a*b) a. % of population affected by ride-share b. Average % reduction in vehicle kilometers traveled for population in (b) Example: = (10% * 10%) = 1% LDV emissions</p> |

| ACTION | DESCRIPTION |
|---|---|
| <p>6.8 INTERCOMMUNITY TRANSIT SERVICES</p> | <p>Key Question: Is there significant inter-community travel? Description: While trips between BC communities have typically relied on the private automobile, there are publicly funded transportation links between many communities, some covering distances of several hundred kilometres. These transportation links are usually established for a specific purpose and are not well known or publicized. The transit link between Vernon and UBC Okanagan in Kelowna is a key example, providing a long-distance transit link from one community to a post-secondary institution in another community. This practice is not common in small or mid-size communities and could be more widely implemented.</p> <p>Health Connections is a provincially funded program to address regional travel needs for rural residents who must travel long distances to access specialized nonemergency medical services. Regional health authorities have full discretion in how they seek to deliver this service. Service restrictions vary region to region, but many include intercommunity bus services.</p> <p>http://www.bctransit.com/health_connections/?p=2.list</p> <p>The Interior Health Authority provided an estimated 25,000 rides in 2008, with 35% of trips being medical in nature. Within the 200,000-square-kilometre Interior Health region, encompassing the East Kootenay, Kootenay-Boundary, Okanagan and Thompson Cariboo Shuswap areas, these trips are a largely untapped resource for the area's 700,000-plus residents. Few people know about this service because it is not well advertised outside of doctors' offices and the medical community. Promoting these services is an opportunity for local governments.</p> <hr/> <p>% Energy Savings Calculation: for LDV sector = (a*b*c)</p> <p>a. % of population affected by inter-community transit b. % of VKT related to inter-community travel c. % of LDV trips avoided</p> <p>Example: = (60% * 10% * 10%) = 0.6% LDV emissions</p> |
| <p>6.9 LOW CARBON AND ELECTRIC VEHICLE SUITE</p> <p>Type: Social, Financial</p> | <p>Key Question: Can adequate resources be allocated to implement these recommended actions? Description: Low carbon and electric vehicles can play a significant role in reducing emissions from light duty (passenger) vehicles. Local governments can play an enabling role in this transition. Measurement may be difficult, but without this suite of support or a similar one, the local transition to low carbon and electric vehicles may be delayed by many years.</p> <p>Battery electric vehicles may be appropriate in some communities, with current models that travel on highways and can travel for over 100km. In other areas, plug-in-electric-hybrids (PHEV) may be a more practical option. With PHEVs, most travel within the community can be done on electricity and the gasoline engine can provide power to the batteries for extended highway driving. Some models have an option to heat the cabin up before unplugging.</p> <p>There are several specific actions all local governments can take to prepare for low carbon and electric vehicles.</p> <ul style="list-style-type: none"> • Sign on to provincial 'EV-Ready' bylaw when it is available. Analysis indicates 80% of charging will be done at home. • Include EV charging infrastructure in sustainability guidelines • Ensure permitting processes (for renovations particularly) are set up to smoothly address electric vehicle charging infrastructure • Consider low carbon vehicles (see action 4.3) and electric vehicles for the local government fleet to demonstrate the viability of the technology • Set up a charging station at a highly visible location <p>For higher growth communities, a requirement for alternative fuelling could be established for new gas stations. Surrey City Council passed an innovative new fuel initiative. All new service stations in Surrey will be required to provide at least one alternative fuel source, such as hydrogen, compressed natural gas, or electric vehicle recharging, in addition to conventional gasoline, diesel and propane energy.</p> <hr/> <p>% Emissions Savings Calculation: N/A – unquantifiable at this time, however given national and international projections, with supportive measures as outlined above, electric vehicles (split between PHEV and battery electric vehicles) could comprise 1% of passenger vehicles on the road by 2016 and up to 2% by 2020.</p> |

7. WASTE

| ACTION | DESCRIPTION |
|--------------------------------------|---|
| <p>7.1 ORGANICS DIVERSION</p> | <p>Key Question: Is a significant amount of organics going to landfill that could be economically diverted?</p> <p>Description: GHG emissions from landfills are primarily from the decomposition of buried organics.</p> <p>Create a comprehensive composting program:</p> <ul style="list-style-type: none"> • Encourage grass swapping and back-yard composting. • Create a public compost pick-up site and program. • Support existing and new capacity for reusable resources, including Free Swaps, Share Sheds, free-store for unwanted goods, and building materials depot. <p>Organics make up approximately 43 percent of solid waste in Metro Vancouver according to the Recycling Council of BC, which also states that on average, each British Columbian generates over 600 kilograms of waste annually. By diverting organics, each of us has the opportunity to remove approximately 200 kilograms from the solid waste stream every year.</p> <p>Further calculations available in "Option 1D: Project Profile Household Organic Waste Composting" at the 'how' tab of http://www.toolkit.bc.ca/carbon-neutral-government.</p> <hr/> <p>% Energy Savings Calculation for municipal solid waste sector = (a - c)*b</p> <ol style="list-style-type: none"> % of landfill GHG's from organics % of organics diverted annually Average % of emissions over planning period (to 2050?) from organics currently in landfill under BAU scenario <p>Example: (a - c)*b = (80% - 25%) * 10% = 35% waste emissions</p> |

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8. ENABLING ACTIONS

| ACTION | DESCRIPTION |
|---|--|
| <p>8.1 ORGANIZATIONAL STRUCTURE FOR CLIMATE ACTION</p> | <p>Key Question: Are there questions about who is accountable within council / board as well as within staff for climate action?</p> <p>Description: Climate action crosses all departments and levels within a local government. Establishing decision-making, communication, accountability, and resourcing structures that are appropriate for the size and culture of the local government has repeatedly been proven to be critical to implementing actions in a cost-effective manner and achieving results. Taking time up-front to establish such structures is a worthwhile investment in setting implementation up for success. Key questions to answer include:</p> <ul style="list-style-type: none"> • Who makes which decisions regarding climate action? • Who is expected to do what and how are they held accountable? • What new / different communication / planning is required to enable implementation of actions, some of which may be cross-departmental? • What organizational structure changes are required to operationalize this? Some examples include: Council climate committee, cross-departmental working group, updated job descriptions, resource allocation to include climate action and new positions. • How will capital, operating and human resource elements of the CEEP be funded? <p>Calculation: This enabling action does not have direct impacts itself, however it may be critical to achieving results from other actions.</p> |
| <p>8.2 ESTABLISH A REGIONAL ENERGY COOPERATIVE</p> | <p>Key Question: Is there strong interest in clean energy in the community?</p> <p>Description: Energy co-operatives are companies owned by their members, rather than by shareholders, with each member having an equal vote. Community energy cooperatives have provided an important vehicle for development of local renewable energy in Denmark, the Netherlands and Germany. In Germany, 200,000 people own shares in local wind turbines. City of Dawson Creek played an important role in establishment of the Peace Energy Cooperative, providing advice and other forms of non-financial support.</p> <p>Calculation: Impacts from this enabling action will be dependent on actions and investments of the co-op. This can provide funding and a sense of community and buy-in to climate actions.</p> |
| <p>8.3 IDENTIFY GREEN ECONOMY OPPORTUNITIES</p> | <p>Key Question: This enabling action is recommended to all local governments who want to achieve economic development / diversification benefits from climate action.</p> <p>Description: British Columbians pay on average \$4200 per person annually for energy in their communities (i.e. electricity, natural gas and transportation fuels), not including energy consumed by industry, airlines, ferries, etc. For most communities, 70-80% of money spent on energy leaves town, going to utilities, oil companies, and provincial and federal taxes. Local clean energy development and energy efficiency can be drivers of economic diversification in rural BC, presenting opportunities for communities to transition to a green economy, thereby generating long-term economic and community development benefits. A "green economy" is characterized by low carbon (with renewable energies replacing fossil fuels), low resource depletion and low environmental degradation. A guide to achieving economic development potential of climate action is <i>Clean Energy for a Green Economy</i> available at http://www.communityenergy.bc.ca/node/692</p> <p>Calculation: This enabling action will assist in moving other actions forward.</p> |

| ACTION | DESCRIPTION | | | | | | | | |
|--|--|-----------|-------------------------|--|--|--|---|--|---|
| <p>8.4 USE LOCAL GOVERNMENT ASSETS TO CREATE EXPERTISE AND COMMUNITY-WIDE CHANGE</p> | <p>Key Question: Are actions being taken in local government (LG) operations that could be leveraged to support community-wide action?</p> <p>Description:</p> <table border="1" data-bbox="524 363 1409 989"> <thead> <tr> <th data-bbox="524 363 745 405">LG ACTION</th> <th data-bbox="748 363 1409 405">COMMUNITY OPPORTUNITIES</th> </tr> </thead> <tbody> <tr> <td data-bbox="524 409 745 737"> <p>BUILDINGS</p> <ul style="list-style-type: none"> - District energy systems - Building energy efficiency retrofits - New green buildings </td> <td data-bbox="748 409 1409 737"> <p>Awareness: Increasing public awareness of clean energy and conservation, leading to a greater willingness to explore clean energy and conservation, particularly if corporate actions are deployed in a way to maximize public visibility.</p> <p>Association: Visible actions that others are implementing clean energy and conservation.</p> <p>Action: Local governments across BC are exploring district energy systems with their own buildings as the first buildings that provide critical mass for the system. Many local governments are also connecting public sector organizations in BC which all have carbon neutral commitments. These systems then extend to the surrounding community.</p> </td> </tr> <tr> <td data-bbox="524 741 745 831"> <p>FLEET</p> <ul style="list-style-type: none"> - Biofuels - Hybrids / EV's </td> <td data-bbox="748 741 1409 831"> <p>Agency: Improved access to fuels and mechanics who can service biofuel, hybrid, or electric vehicles.</p> </td> </tr> <tr> <td data-bbox="524 835 745 989"> <p>OTHER</p> <ul style="list-style-type: none"> - Carbon neutral actions </td> <td data-bbox="748 835 1409 989"> <p>Awareness and Association: Provides local government leaders (staff and elected officials) an opportunity to gain knowledge of clean energy and conservation so they can more confidently demonstrate community leadership by implementing them where appropriate in their own business or residence.</p> </td> </tr> </tbody> </table> <p>Calculation: Impacts of these enabling actions are highly dependent on specific actions planned for local government operations.</p> | LG ACTION | COMMUNITY OPPORTUNITIES | <p>BUILDINGS</p> <ul style="list-style-type: none"> - District energy systems - Building energy efficiency retrofits - New green buildings | <p>Awareness: Increasing public awareness of clean energy and conservation, leading to a greater willingness to explore clean energy and conservation, particularly if corporate actions are deployed in a way to maximize public visibility.</p> <p>Association: Visible actions that others are implementing clean energy and conservation.</p> <p>Action: Local governments across BC are exploring district energy systems with their own buildings as the first buildings that provide critical mass for the system. Many local governments are also connecting public sector organizations in BC which all have carbon neutral commitments. These systems then extend to the surrounding community.</p> | <p>FLEET</p> <ul style="list-style-type: none"> - Biofuels - Hybrids / EV's | <p>Agency: Improved access to fuels and mechanics who can service biofuel, hybrid, or electric vehicles.</p> | <p>OTHER</p> <ul style="list-style-type: none"> - Carbon neutral actions | <p>Awareness and Association: Provides local government leaders (staff and elected officials) an opportunity to gain knowledge of clean energy and conservation so they can more confidently demonstrate community leadership by implementing them where appropriate in their own business or residence.</p> |
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| <p>8.5 LONG-TERM, DEEP COMMUNITY ENGAGEMENT (CULTURE CHANGE)</p> | <p>Key Question: Do the other actions identified fall short of the desired change?</p> <p>Description: Overall, the purpose of social mobilization for British Columbia climate action is to:</p> <ol style="list-style-type: none"> 1. Engage residents in developing and implementing climate solutions through collective, 'bottom-up', informal, organizational and institutional initiatives. 2. Change collective behaviour to reduce carbon footprints. 3. Build public support for (and contributions to) low-carbon climate policies and actions focused on the green economy, ecological resilience and sustainable communities, in order to achieve GHG targets, short- and long-term, as well as other provincial climate change goals. 4. Build capacity and resilience to plan and respond to climate change adaptation and mitigation. <p>Active mechanisms can be established to pilot, replicate and monitor successful social engagement techniques, such as the Columbia Basin Community Adaptation program, and the UK Rural Community Councils community-led planning, which writes:</p> <p><i>People need ... information, a realistic assessment of the threat or diagnosis, a sense of personal control over their circumstances, a clear goal, an understanding of the strategies to reach that goal, a sense of support, and frequent feedback that allows them to see that they are moving in the right direction.</i></p> <p>A recent study found that reasonably achievable emissions reductions are approximately 20% in the US household sector in 10 years, if "most effective non-regulatory interventions are used," such as incentives and social marketing (Dietz, T., Gardner, G. T., Gilligan, J., Stern, P. C., Vandenberg, M. P.: Household actions can provide a behavioural wedge to rapidly reduce U.S. carbon emissions, in <i>Proceedings of the National Academy of Sciences</i>, 106: 44, 18452-18456, 2009).</p> <p>Calculation: Impacts can be substantial but are highly dependent on the specific program implemented.</p> | | | | | | | | |

REPORTS REQUIRING ACTION

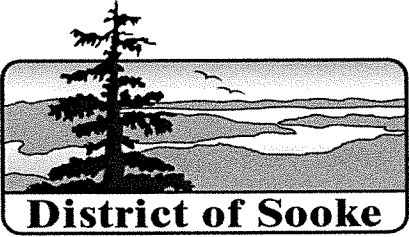
RA-6 Climate Change Action Committee recommendations from June 5, 2014 meeting:

Corporate Carbon Neutrality

MOVED and seconded to confirm the District of Sooke's commitment under the BC Climate Action Charter and become carbon neutral in its operations annually;

AND TO establish a Carbon Tax Rebate Reserve fund for the carbon tax rebates received to be used for initiatives to reduce carbon emissions in the District of Sooke.

CARRIED UNANIMOUSLY



File No. 5380-01

REQUEST FOR DECISION

Climate Change Action Committee
Meeting Date: October 2, 2014

To: Gord Howie, Chief Administrative Officer
From: Engineering
Re: **Corporate Waste Management**

RECOMMENDATION:

THAT THE CLIMATE CHANGE ACTION COMMITTEE recommend Council direct staff to implement a “zero-waste” corporate waste management strategy.

1. Executive Summary:

This report presents an option to the current corporate municipal waste disposal actions at the District of Sooke municipal office (includes the fire hall). The proposed “zero waste” strategy enables the District of Sooke to be in compliance with the impending ban on organics in the Hartland Landfill effective January 2015, allows for a broader spectrum of materials to be recycled, and will also result in annual disposal cost savings. Implementation of the “zero waste” strategy will also enable the District of achieve reductions in carbon emissions related to the reduction of waste.

2. Background:

By January 1, 2015 kitchen scraps will be restricted from the garbage that goes to landfill. Organic materials, such as kitchen scraps, constitute approximately 30% of the waste at Hartland landfill. Current recycling (such as the blue box program) and composting programs are diverting 46% of the waste stream from the landfill.

Currently, a local contractor provides garbage, cardboard, paper, and mixed containers (glass/metal/rigid plastic) recycling service to the District of Sooke municipal office. All organics generated in the building are currently landfilled with the exception of a small percentage of organics that are inconsistently composted.

A complimentary waste assessment was carried out for the District office in June 2014 and a resulting waste management strategy was developed to account for all of the waste generated in the building.

3. Analysis:

The table below summarizes the current and proposed waste management services and their associated costs:

| Waste Stream | Current Service | Proposed Service |
|---|------------------------|-------------------------|
| Garbage | X | X |
| Paper & Cardboard | X | X |
| Mixed Containers (glass/metal/rigid plastics) | X | X |
| Organics | | X |
| Soft Plastics & Styrofoam | | X |
| E-waste and Batteries | | X |
| Cooking Oil | | X |
| Annual Cost | \$4045.56 | \$2600.00 |

The proposed zero waste strategy would include the following components:

1. Supply of all containers (kitchen collection and outdoor storage)
2. Education seminar for staff;
3. Sanitized container replacement on service days;
4. Delivery of all compostable materials to a licensed composting facility;
5. Disposal of all other materials at licensed facilities;
6. Detailed records of how much weight has been diverted from the landfill and how much space it has saved.

Implementing this strategy by the District will result in the following benefits:

1. Reducing garbage collection and disposal fees
2. Helping meet local and province-wide waste reduction goals
3. Reducing greenhouse gas emissions
4. Demonstration of "green" leadership by the District of Sooke

4. Legal Impacts:

There are no legal impacts to implementing this strategy. The District of Sooke is not under contract with the current waste disposal company.

5. Strategic Relevance:

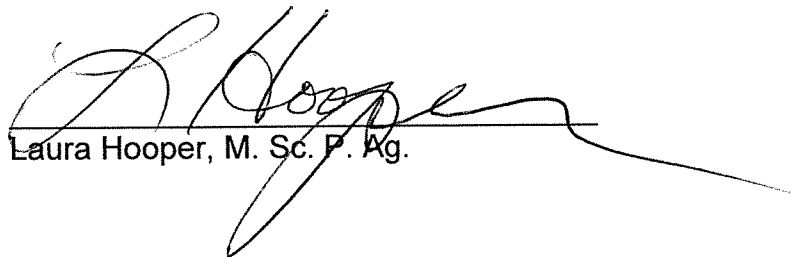
The District's Official Community Plan (OCP) has listed corporate carbon neutrality as a goal and that the District should aim for a zero carbon foot print. The Energy and

Climate Change component of the OCP sets solid waste diversion as an objective. The OCP also encourages individuals and the community to take responsibility for the appropriate handling and disposal of their waste.

6. Financial Impacts:

The proposed "zero waste" strategy can be accommodated within the existing waste removal budget. Given the estimated annual value of this service, request for quotes could be obtained instead of issuing a formal tender.

Respectfully,



Laura Hooper, M. Sc. P. Ag.

