


City of Terrace

Community Energy & Emissions Plan

January 23-24, 2013

THE CITY OF TERRACE

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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)
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

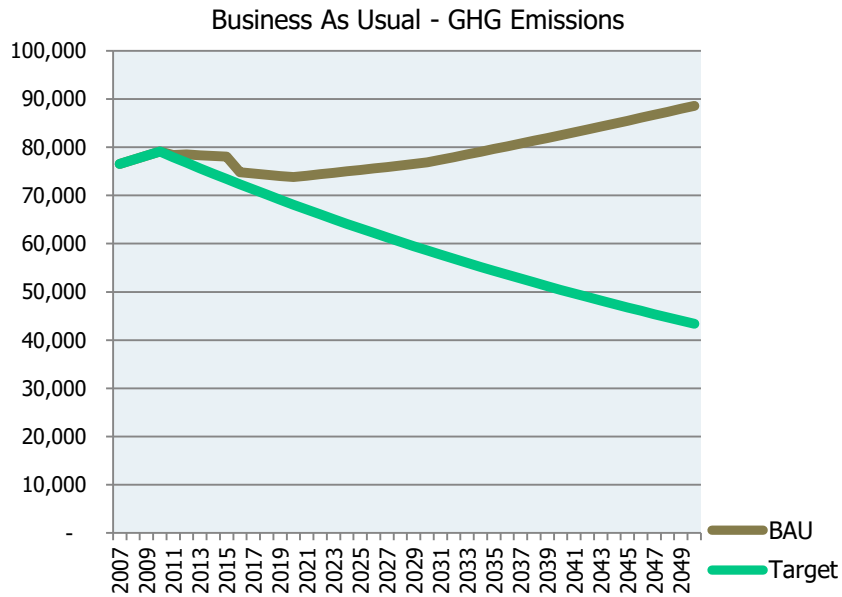
Executive Summary

On the 23rd & 24th of January 2013, a workshop was held with Council and staff from the City of Terrace, the Regional District of Kitimat-Stikine, and community representatives, 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 each community. This report describes the plan for Terrace.

Community energy & emissions – current status & business as usual

For the modelling process, the workshop group decided on an annual community population growth rate of 0.8%. The targets in the OCP are to reduce emissions 5% below 2007 levels by 2015, 11% below 2007 levels by 2020, and 80% below 2007 levels by 2050. The targets the Province has set for BC as a whole are more stringent in the short & medium term with 6% reduction by 2012, 18% by 2016, and 33% by 2020, but the same in the long term with 80% by 2050.

In 2007 total community annual energy expenditure was approximately $38 million, and GHG emissions were approximately 81,964 tonnes. 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. With no action plan, but taking into account Provincial policies, community emissions are predicted to change according to the following chart (the target line is set to meet the 2015 & 2020 community GHG targets as set out in the 2011 OCP):



Action Plan

The action plan decided on by the workshop group is shown below:

STEP 2 - SELECT ACTIONS AND TIMING - Terrace City	Year					
Actions	ALREADY DONE	2013	2014	2015	2016	2017
1 Buildings Basics						
1.1 Promote BC Hydro DSM programs		x				
1.5 Improve building code enforcement	x					
2 Buildings High-Growth Measures						
2.1 Sustainability checklist for buildings		x				
2.3 Density bonus for energy performance			x			
2.4 Expediting permit approvals, fee rebates, other financial incentives	x					
2.5 Tax exemption bylaw			x			
2.6 Development cost charge (DCC) reductions or waivers for GHG's (M)			x			
3 Residential Buildings						
3.1 Sign on to solar-ready building code provision			x			
3.2 Education to developers - renewable energy technologies and efficiency		x				
3.3 Efficient wood stove program	x					
3.4 Green heat program (M)			x			
4 Commercial / Institutional Buildings and Transportation						
4.1 Promote free LiveSmart BC energy assessments for businesses		x				
4.2 Eco-industrial networking assessment (M)			x			
4.3 Natural gas vehicle collaboration (M)					x	
5 LDV Transportation Urban Form						
5.1 Land use suite "lite"			x			
5.2 Land use suite "enhanced"	x					
5.3 Street design	x					
5.4 Flow RGS, OCP, and local area plans through to zoning			x			
6 LDV Transportation – Infrastructure & Collaboration						
6.1 Active transportation planning	x					
6.2 Improve walking infrastructure		x				
6.3 Cycling & alternative transportation infrastructure improvements		x				
6.4 Special event planning		x				
6.5 Collaborate with major employers on work-related transportation (M)				x		
6.7 Ride-sharing and guaranteed ride home programs (M)				x		
6.8 Intercommunity transit services	x					
6.9 Low carbon and electric vehicle suite		x				
6.10 Encouraging transit - under 17's, seniors, college & UNBC students		x				
7 Waste						
7.1 Organics diversion		x				
8 Enabling Actions						
8.1 Organizational structure for climate action		x				
8.3 Identify green economy opportunities		x				
8.4 Leverage Local Government assets into community change		x				
8.5 Long-term, deep community engagement (culture change)			x			
8.6 UBCM resolution - residential tenancy act change to allow potential renters access to energy bills		x				
8.7 Promoting typical Terrace energy benchmark data for houses, by house type, primary fuel source, etc		x				
8.8 Community Energy Diet (e.g. Rossland Energy Diet) (M)			x			
8.9 Corporate - Lead by example - GHG & lifecycle costing include in decision making processes			x			

The actions marked with a '(M)' were categorised as 'maybes' in the workshop.

The numbers of the actions listed above correspond to their numbers in the CEEP QuickStart Action Guide, which contains further detail about each of them (apart from new actions which were created – 6.10, and 8.6 - 8.9). For further detail on BC Hydro DSM program incentives consult the BC Hydro Power Smart programs sheet.

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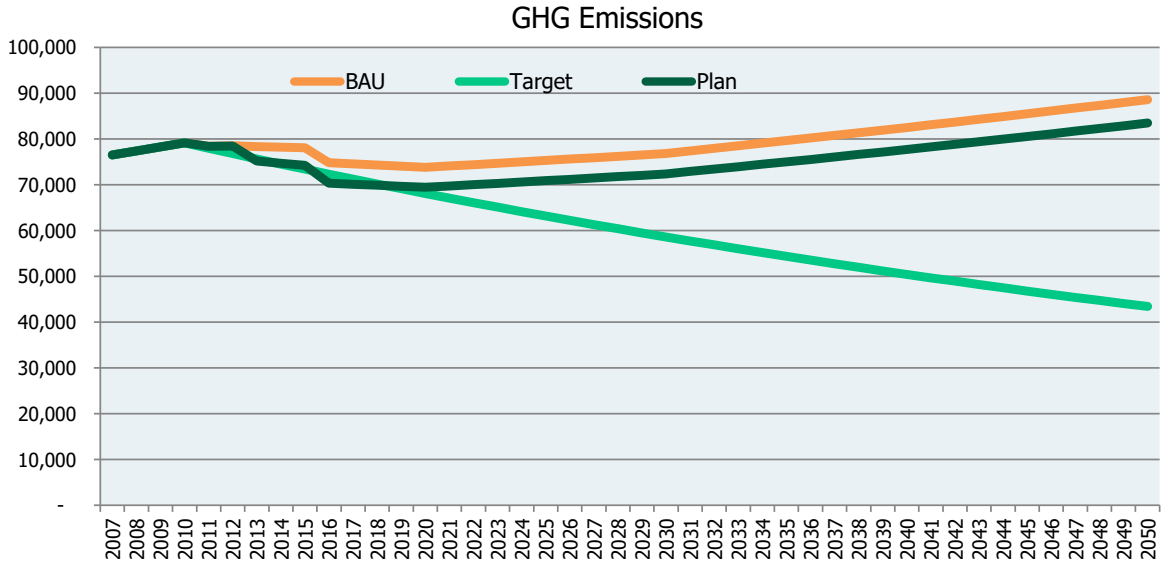
The workshop included discussion of the following opportunities:

- 1.1 – Promotion of BC Hydro DSM programs (low income residential programs, & business)
- 3.2 – Education for developers
- 6.10 – Encouraging transit to choice riders, e.g. under 17's, seniors, college & UNBC students

Results

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.



It should be noted that under Business as Usual, electricity consumption for 2020 and 2050 are estimated at 465,000 GJ/yr and 574,000 GJ/yr respectively. Under the plan, electricity consumption for 2020 and 2050 are instead estimated to be 422,000 GJ/yr and 397,000 GJ/yr.

The major actions, listed by impacts in terms of annual GHG savings are:

- Land use suite "enhanced" (already done) – 16,019 tonnes/year
- Land use suite "lite" – 5,126 tonnes/year
- Natural gas vehicle collaboration (action is a maybe) – 4,816 tonnes/year

Next Steps to Finalizing the Community Energy & Emissions Plan

1. Achieve Terrace Council 'Buy-in' by submitting a report on the BC Hydro Power Smart CEEP Quickstart (QS) workshop held January 23-24, 2013. Report to Council: CEEP-QS workshop description and participation, DRAFT results and DRAFT report language
2. Conduct community engagement for feedback & ideas
3. Submit final Terrace Community Energy & Emissions Plan (CEEP) to Council for approval
4. Where applicable, integrate Community Energy and Emissions Plan actions into statements in the OCP and future planning activities
5. Where applicable, include the CEEP in Financial and other plan discussions
6. 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 approximately 11,500 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.

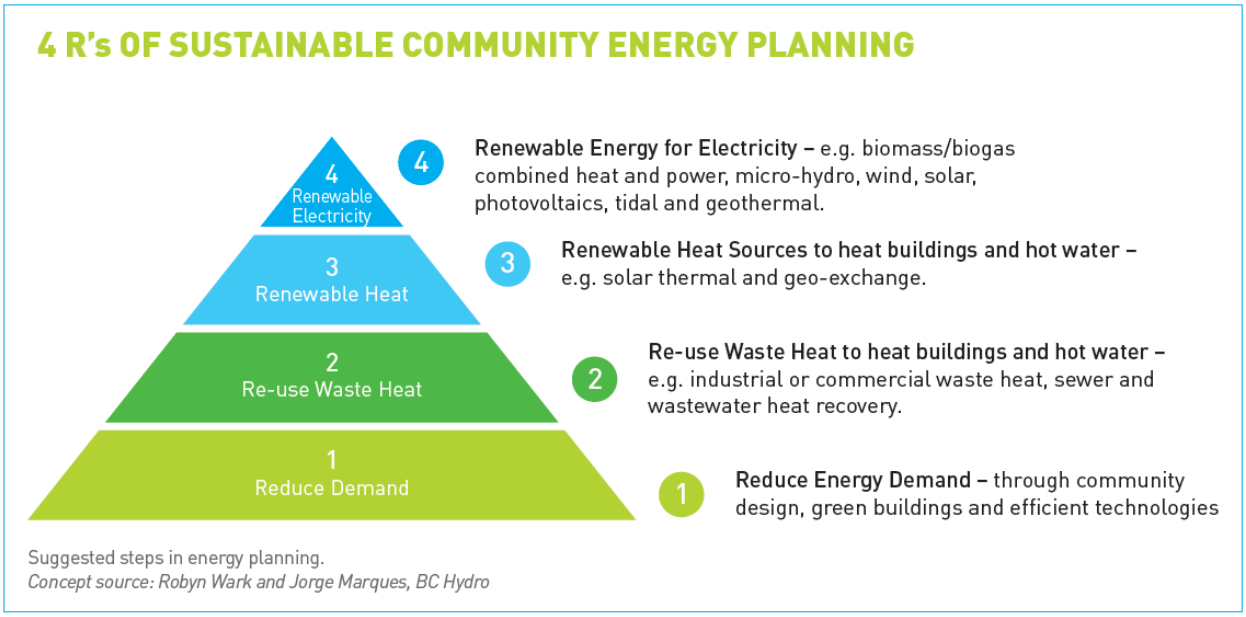
Community Energy & Emissions Planning

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.

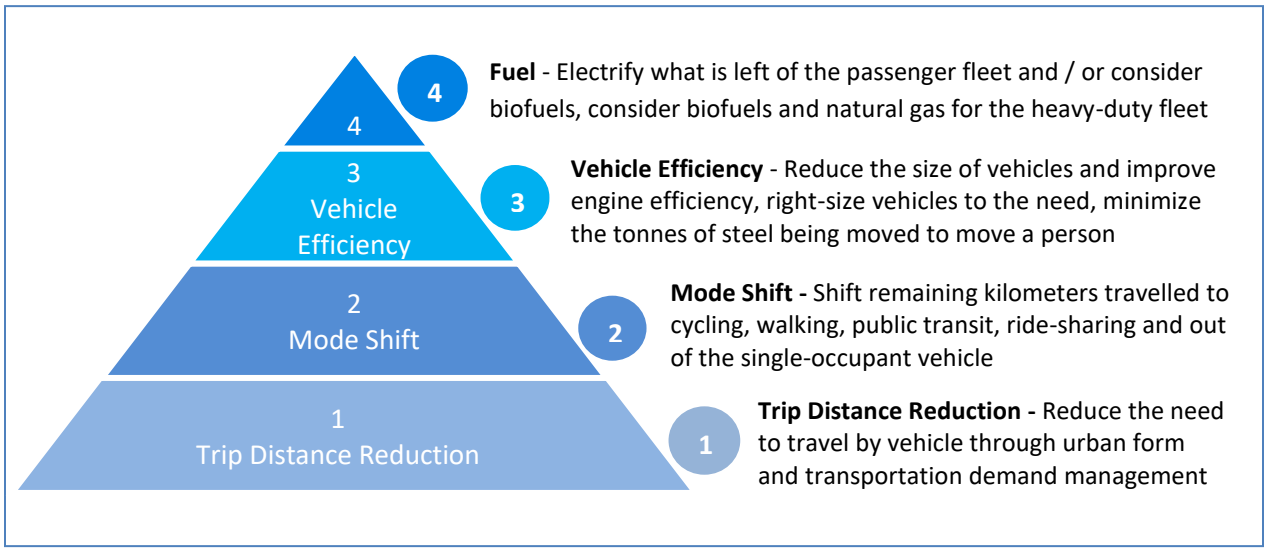
Most GHG emissions within a local government's jurisdiction result from energy consumption and the burning of fossil fuels. With this relationship it makes sense to combine greenhouse gas emissions and energy planning into one integrated plan. While some communities have completed stand-alone energy 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.

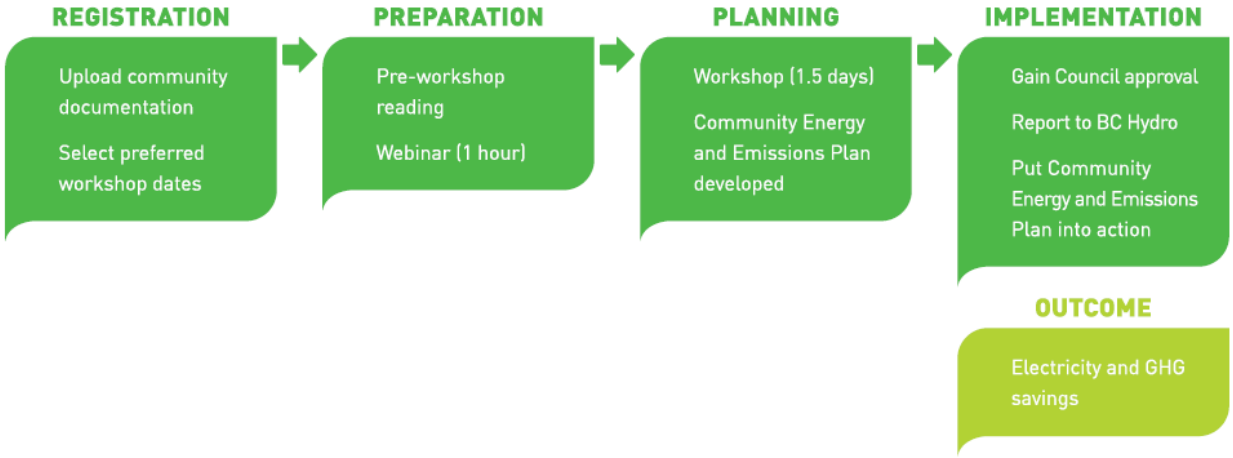


A similar hierarchy can be applied to the transportation sector. The image below is similar to the steps towards energy planning. In the transportation sector, the easiest step to take is to reduce vehicular trip distances through appropriate urban form (planning) and transportation demand management.



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:



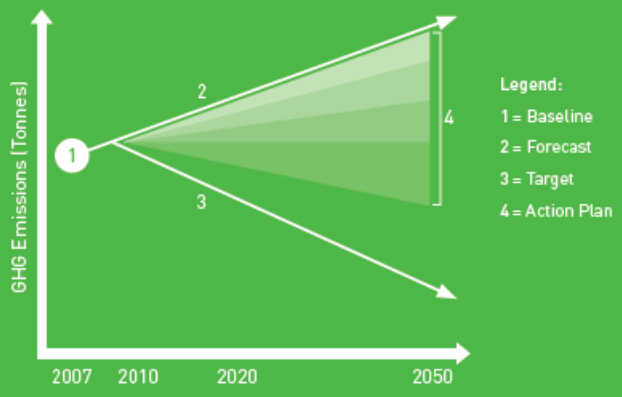
The graphic below explores the 'planning' step in the CEEP process as well as the benefits of developing a CEEP, ultimately leading to an action plan.

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:

1. **Baseline:** 2007 Energy and Emissions from CEEI (Province of BC)
2. **Forecast:** Population forecast (BC Stats and local government)
3. **Target:** From Official Community Plan (legal requirement for GHG reduction target)
4. **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 23rd & 24th of January 2013, a workshop was held with Council and staff from the City of Terrace, with the Regional District of Kitimat-Stikine and community representatives, 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 each community. This report describes the plan for Terrace.

To assist with pre-workshop preparation, reading material was distributed to workshop participants beforehand. This reading gave participants background information on how energy planning initiatives can influence long term carbon emissions while also providing economic opportunities. In addition, a short preparatory webinar was held.

At the workshop the facilitators gave a brief presentation and introduced a GHG reduction assessment tool that has been provided to staff for use in further analysis. This tool 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. In this way a consensus on an action plan was arrived at by the workshop participants.

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.

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 81,964 tonnes of greenhouse gases through the use of electricity, natural gas, gasoline, diesel, propane, and heating oil. Community wide energy spending was approximately $8.1 million in 2007. (Note that there are reservations about the accuracy of the Province's data except with regards to electricity and natural gas. The data should be taken as a guide and not an absolute truth.) 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 the growth rate given in the 2011 OCP of 0.8%.

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 2015 & 2020 GHG targets.)

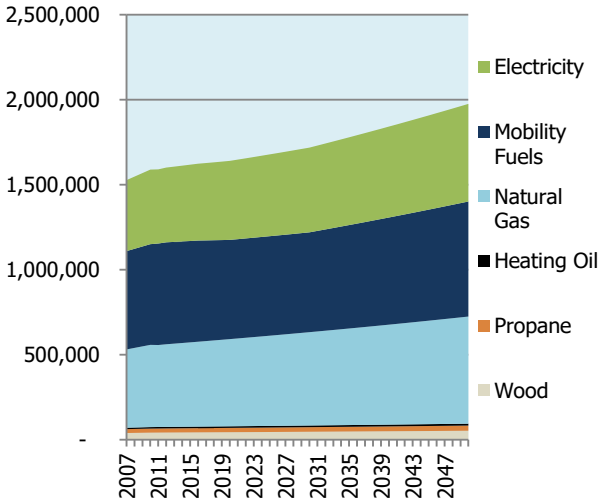
"Business As Usual" Projections & Target Overview	
Community	Terrace City
Annual % target change in ghg	-1.49%
Population growth	0.80%
Default population growth	0.30%
2007 Population	11,357
Start-year for actions	2012

Emissions Summary		
2007 Emissions		76,531
2010 Emissions (not from CEEI)		79,129
2007 Total Energy Expenditure	$	37,537,994
2007 Per-capita energy cost	$	3,146
2007 Per-capita emissions		**6.63**

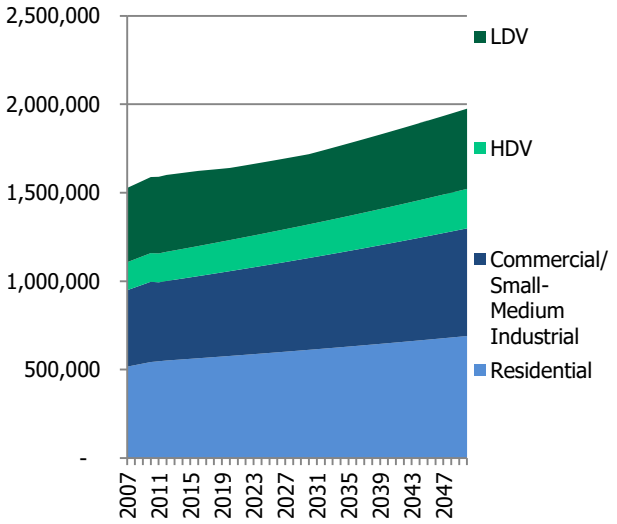
Targets Summary	2016	2020	2030	2050
Total reduction	-5.5%	-11%	-23%	**-43%**
Per-capita reduction	-13%	-21%	-37%	-60%
Total GHG	72,313	68,098	58,606	43,406
Per-Capita GHG	5.8	5.3	4.2	**2.6**

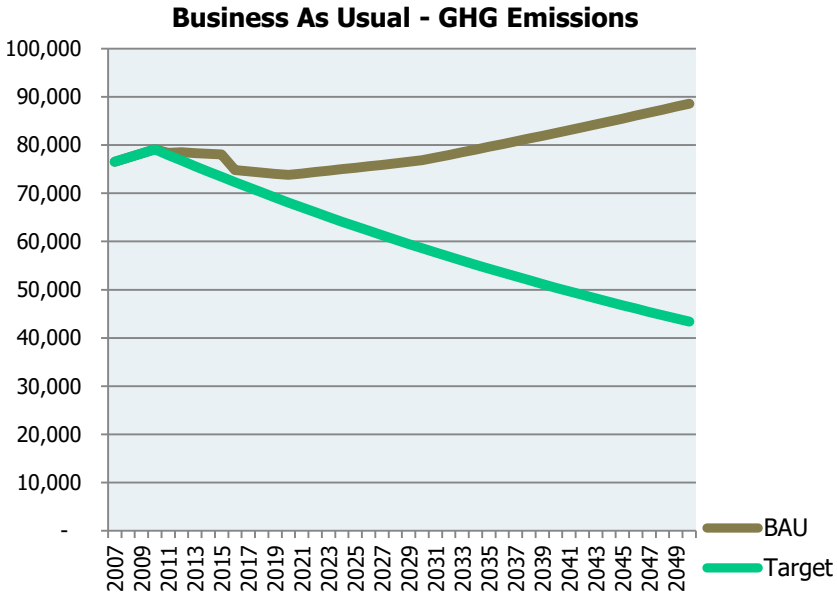
Business as Usual (BAU) Summary	2016	2020	2030	2050
GHG's	74,816	73,815	76,847	88,603
GHG growth	-2%	-4%	0%	16%
Population	12,515	12,921	13,992	16,410
Pop growth	1,158	1,564	2,635	5,053
Pop Grow %	10%	14%	23%	44%
Per capita emissions	5.98	5.71	5.49	5.40

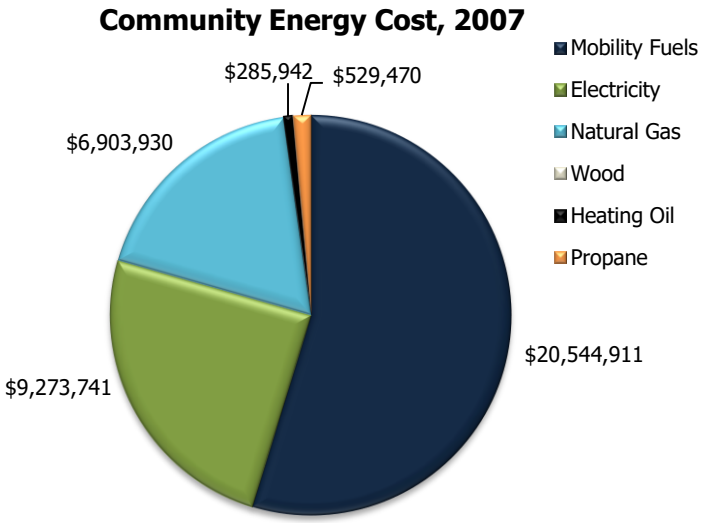
Business as Usual GJ by Fuel



Business as Usual GJ by Sector







Action Plan

The action plan decided on by the workshop group is shown below. Actions that were considered to be inapplicable are not included in the plan. Some actions were already being implemented by the community. The actions in the plan were categorised according to what year it was believed that they could be implemented.

STEP 2 - SELECT ACTIONS AND TIMING - Terrace City	Year					
Actions	ALREADY DONE	2013	2014	2015	2016	2017
1 Buildings Basics						
1.1 Promote BC Hydro DSM programs		x				
1.5 Improve building code enforcement	x					
2 Buildings High-Growth Measures						
2.1 Sustainability checklist for buildings		x				
2.3 Density bonus for energy performance			x			
2.4 Expediting permit approvals, fee rebates, other financial incentives	x					
2.5 Tax exemption bylaw			x			
2.6 Development cost charge (DCC) reductions or waivers for GHG's (M)			x			
3 Residential Buildings						
3.1 Sign on to solar-ready building code provision			x			
3.2 Education to developers - renewable energy technologies and efficiency		x				
3.3 Efficient wood stove program	x					
3.4 Green heat program (M)			x			
4 Commercial / Institutional Buildings and Transportation						
4.1 Promote free LiveSmart BC energy assessments for businesses		x				
4.2 Eco-industrial networking assessment (M)			x			
4.3 Natural gas vehicle collaboration (M)					x	
5 LDV Transportation Urban Form						
5.1 Land use suite "lite"			x			
5.2 Land use suite "enhanced"	x					
5.3 Street design	x					
5.4 Flow RGS, OCP, and local area plans through to zoning			x			
6 LDV Transportation – Infrastructure & Collaboration						
6.1 Active transportation planning	x					
6.2 Improve walking infrastructure		x				
6.3 Cycling & alternative transportation infrastructure improvements		x				
6.4 Special event planning		x				
6.5 Collaborate with major employers on work-related transportation (M)				x		
6.7 Ride-sharing and guaranteed ride home programs (M)				x		
6.8 Intercommunity transit services	x					
6.9 Low carbon and electric vehicle suite		x				
6.10 Encouraging transit - under 17's, seniors, college & UNBC students		x				
7 Waste						
7.1 Organics diversion		x				
8 Enabling Actions						
8.1 Organizational structure for climate action		x				
8.3 Identify green economy opportunities		x				
8.4 Leverage Local Government assets into community change		x				
8.5 Long-term, deep community engagement (culture change)			x			
8.6 UBCM resolution - residential tenancy act change to allow potential renters access to energy bills		x				
8.7 Promoting typical Terrace energy benchmark data for houses, by house type, primary fuel source, etc		x				
8.8 Community Energy Diet (e.g. Rossland Energy Diet) (M)			x			
8.9 Corporate - Lead by example - GHG & lifecycle costing include in decision making processes			x			

The actions marked with a '(M)' were categorised as 'maybes' in the workshop.

The numbers of the actions listed above correspond to their numbers in the CEEP QuickStart Action Guide, which contains further detail about each of them. Further detail about action next steps specific to Terrace can be found in the 'Unpacking actions' section. For further detail on BC Hydro DSM program incentives consult the BC Hydro Power Smart programs sheet.

Unpacking actions

The main workshop day on the 23rd of January included discussion of the following opportunities:

- 1.1 – Promotion of BC Hydro DSM programs (low income residential programs, & business)
- 3.2 – Education for developers
- 6.10 – Encouraging transit to choice riders, e.g. under 17's, seniors, college & UNBC students

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.

Action	Yr	Effort	Comments
1.1 Promote BC Hydro DSM programs	1	Low	Communications initially, staff to connect with BC Hydro to obtain program information and leaflets to distribute. Provision of information to local media. Promotion through school newsletters. Have a section on the City website, with links to BC Hydro PowerSmart and LiveSmartBC. BC Hydro's Low Income Program, Product Incentive Program, and New Home Program (links to action 3.2) could be of particular community benefit. (Team Power Smart is already being promoted.) For residential incentives consult with City staff to determine feasibility of property tax inserts, and for Low Income Programs consult with appropriate social program service providers to promote energy saving kits & determine partners to conduct the action with. For programs relevant to businesses, staff to work with the Chamber of Commerce (see also action 4.1). Staff also to get BC Hydro incentive information in business licence renewal / application (Building Department to lead on this). Multi-year action.
2.1 Sustainability checklist for buildings	1	Low	Sustainability checklist draft already underway. Review and update required. Sustainability checklist is intended to be as much of an educational tool as a suggested standard for more efficient development within the community. Have CEA look at material and suggest appropriate material to include. Then the City to look at having a workshop with developers to consult with them. To be combined with action 3.2.
2.3 Density bonus for energy performance 2.5 Tax exemption bylaw	2	Moderate	Links to action 5.4. Consider inclusion of energy / GHGs in the new zoning bylaw. Density bonus (unrelated to energy & GHG's) in place since 1995 with minimal uptake. Challenges in encouraging higher density in the community.
2.6 Development cost charge (DCC) reductions or waivers for GHG's (M)	2	Moderate	There are currently no DCC's, and it is unlikely the municipality will implement them for the foreseeable future. Another form of incentive to encourage more sustainable new housing is possible, although any municipal incentive $ may be better spent on existing homes.
3.1 Sign on to solar-ready building code provision	2	Low	Solar ready building code provision has regular rounds of intakes for new communities that are interested. Terrace Council would need to pass a resolution in favour of signing on, and then advise the Province of this.
3.2 Education to developers - renewable energy technologies and efficiency	1	Moderate	Building Inspector to coordinate meeting(s) with builders, and bundle messages (e.g. code improvements, CEEP, BC Hydro incentives – link to action 1.1). Can use other scheduled meetings to do this.
3.4 Green heat program (M)	2	Low	Action is a maybe. Determine if Green Heat Program has funding to come to Terrace and determine prefeasibility for bioenergy retrofits of larger buildings. Potential to collaborate

			with TEDA (Terrace Economic Development Authority), and SINCERE.
4.1 Promote LiveSmart free Energy Assessments for small businesses	1	Low	Contact to be made with appropriate contacts (listed on LiveSmartBC Small Business Program website) by either the Chamber of Commerce or the City. Note that current funding for LiveSmartBC is only confirmed until the end of March 2013. Staff to screen confirm to what level this program has already been marketed and implemented in the community.
4.2 Eco-industrial networking assessment (M)	2	Low	Action is a maybe. To be encouraged by the City if opportunities come to the City. The City will not initiate this.
4.3 Natural gas vehicle collaboration (M)	4	Moderate to High	School buses in the City already use compressed natural gas. Further use of natural gas vehicles can be encouraged, with the existing natural gas refuelling infrastructure. Terrace was discussed for BC Transit's natural gas buses pilot, but lifespan of existing buses was not conducive. City owned vehicles (e.g. waste management) may be feasible, but to be followed up when there are an increasing number of success stories from around the Province. To work with natural gas utility.
5.1 Land use suite "lite"	2	Moderate	Links with action 5.4. New OCP has this information in it, but zoning bylaw dates to 1995, and will be redone, with 2014 as a target date.
5.4 Flow RGS, OCP, and local area plans through to zoning	2	Moderate	Links with actions 2.3, 2.5, and 5.1. Regional District does not have a Regional Growth Strategy (RGS), but the OCP will flow through to zoning with new zoning bylaw. 2014 target date.
6.2 Improve walking infrastructure	1	Moderate	Follows through from Active Transportation Plan. Ongoing process.
6.3 Cycling & alternative transportation infrastructure improvements			
6.4 Special event planning	1	Moderate	The City is already looking for opportunities to encourage transit or active transportation to special events, as a strategy to reduce car travel. One suggestion is to work with event organisers to have free transit as part of an admission ticket. Another suggestion to work with local soccer league.
6.5 Collaborate with major employers on work related transportation (M)	3	Moderate	Car-pooling already conducted to Kitimat. Some employers use crew buses. Myriad of shift schedules creates an issue. People that work in Kitimat already well aware of car-pooling so limited role for the municipality. Municipality may be able to promote ride-sharing in general. One Sky in Smithers runs a car co-op, and is interested in opening a franchise in another community. Municipality may be able to play a supporting role.
6.7 Ride-sharing and guaranteed ride home programs (M)			
6.9 Low carbon and electric vehicle suite	1	Moderate	City looking at electric vehicle charging stations through Provincial funding. All stations will be on land owned by private businesses, but City playing supporting role. Access to existing City owned electric vehicle charging point at City Hall is already allowed.

6.10 Encouraging transit ridership among discretionary (those that have a choice) riders	1	Moderate	Action to encourage additional transit ridership will help meet carbon reduction goals, and will lead to direct taxpayer benefit. For every additional $ in transit fees obtained, reduces a $ in municipal transit subsidisation. Three groups in particular can be targeted: • Seniors, advising them of lower senior rates and existing accessible buses, and encouraging their independence. BC Transit has an existing toolkit on its website to assist with encouraging seniors. • College & UNBC students. Asking the College & UNBC staff to match class times with bus schedules so that it's effective for students. Monthly pass means that transit can reduce student costs. • Children aged approximately 11-17, to reduce evening shuttle trips that their parents must make for them. BC Transit's representative for Terrace may be able to provide some support in implementation (e.g. toolkit materials).
7.1 Organics diversion	1	Moderate	In progress.
8.1 Organizational structure for climate action	1	Low	Complete. Development Services was determined to be the plan owner in the workshop. Plan implementation is however a team effort by all parts of the municipality.
8.3 Identify green economy opportunities	1	Low	Ask Economic Development Officer if they can provide added focus to green economy opportunities where possible.
8.4 Leverage Local Government assets into community change	1	Low	Continue doing this. Energy efficiency measures conducted in City buildings could be more effectively promoted to the community. The City has achieved significant $ savings through its retrofits, and so could residents.
8.5 Long-term, deep community engagement (culture change)	2	Moderate	City has already conducted a wide range of activities to achieve this. Climate Change Showdown, Provincial Bike to Work week, Earth Hour, Sustainability Strategy & OCP public meetings. Staff time & resources to conduct these activities are challenging. A potential next step is to engage High School students to man an occasional booth at the farmer's market and educate people on climate change, and promote BC Hydro incentives (links to action 1.1). This can contribute to their required volunteer time. This to be discussed later, with other potential opportunity ideas.
8.6 UBCM resolution – residential tenancy act change to allow potential renters access to energy bills upon request	1	Moderate	To be directed to Housing Committee for further consideration.
8.7 Promoting average Terrace energy benchmark data for houses, by house type, age,	1	Low	CEA can obtain existing data, or nearest comparable existing data and provide it to the City of Terrace. Residents will then be able to use the data to compare their home against the average. Data to be in $ per square foot, specific to Terrace or

and primary fuel source			the region, and to be slit by house type, age, and primary fuel used for heating.
8.8 Community Energy Diet (e.g. Rossland Energy Diet) (M)	2	Moderate to High	Action is a maybe. To be conducted if sufficient resources can be found, or if another organisation can find the resources. Toolkits for how to conduct Energy Diets may be released by 2014.
8.9 Corporate – lead by example – GHG & lifecycle costing to be included in decision making processes	2	Low	CEA has a sample template Green Purchasing Policy that can be provided to the City.

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. A time & resource efficient engagement approach is to put the document on the website and invite public comment, and to send it to other key community stakeholders that were not present at the workshop. Another effective engagement approach is to host a community Open House. There are many ways of implementing an event, and the level of engagement will depend on the resources available (budget and staff time). 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.

Next Steps to Finalize Community Energy & Emissions Plan

1. Achieve Terrace Council ‘Buy-in’ by submitting a report on the BC Hydro Power Smart CEEP Quickstart (QS) workshop held January 23-24, 2013. Report to Council: CEEP-QS workshop description and participation, DRAFT results and DRAFT report language
2. Conduct community engagement for feedback & ideas
3. Submit final Terrace Community Energy & Emissions Plan (CEEP) to Council for approval
4. Where applicable, integrate Community Energy and Emissions Plan actions into statements in the OCP and future planning activities

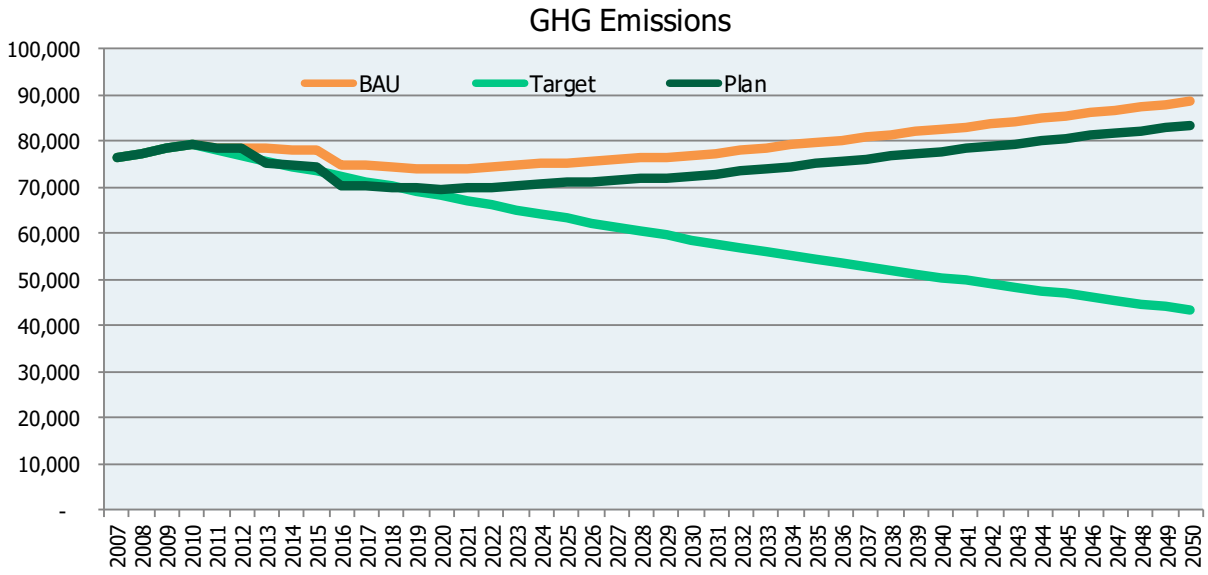
5. Where applicable, include the CEEP in Financial and other plan discussions
6. Begin plan implementation

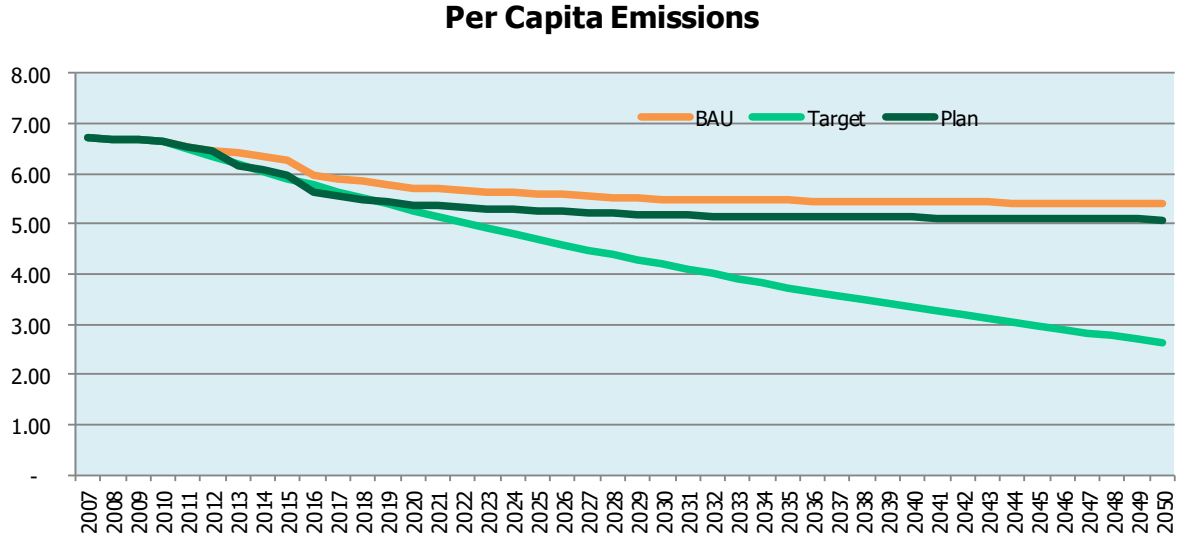
Results of Actions

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.

It should be noted that under Business as Usual, electricity consumption for 2020 and 2050 are estimated at 465,000 GJ/yr and 574,000 GJ/yr respectively. Under the plan, electricity consumption for 2020 and 2050 are instead estimated to be 422,000 GJ/yr and 397,000 GJ/yr.

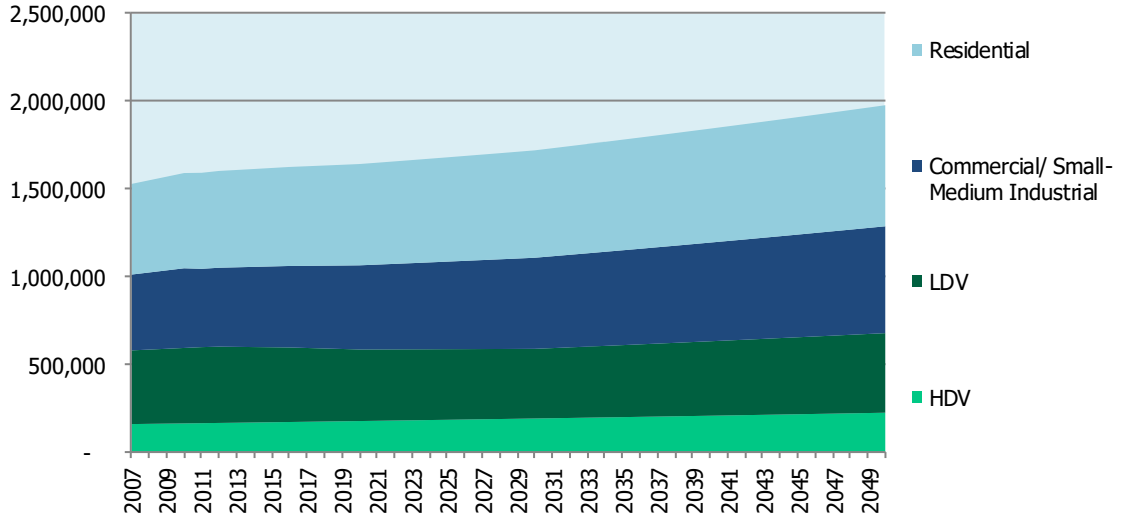
Overview



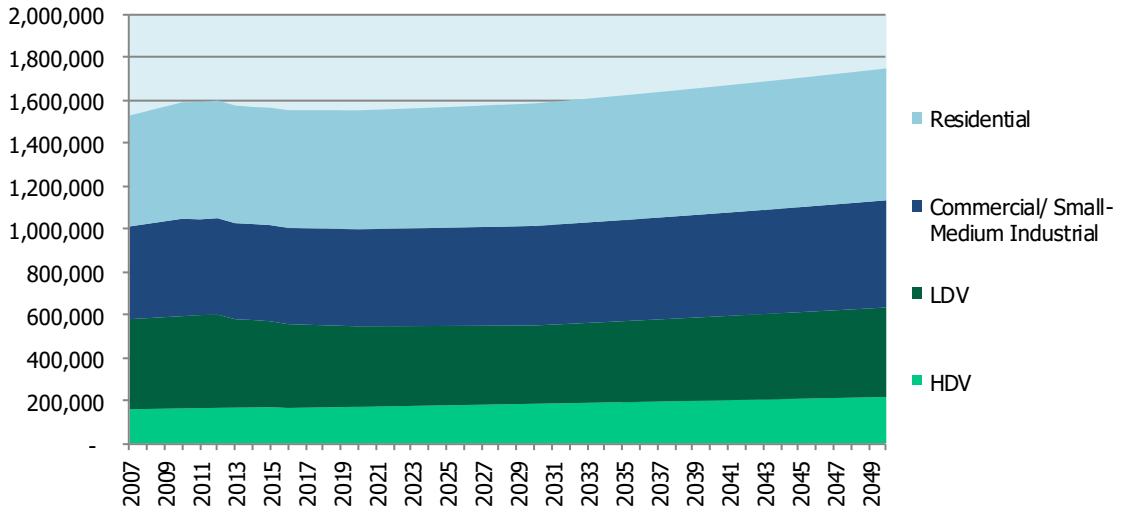


Energy Use by Sector

BAU Energy Use by Sector, GJ/year

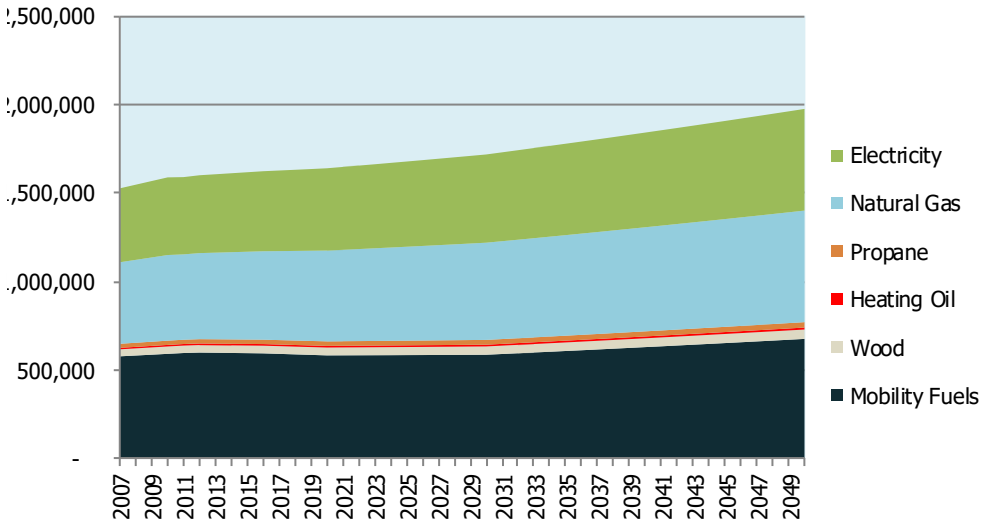


Planned Energy Use by Sector, GJ/year

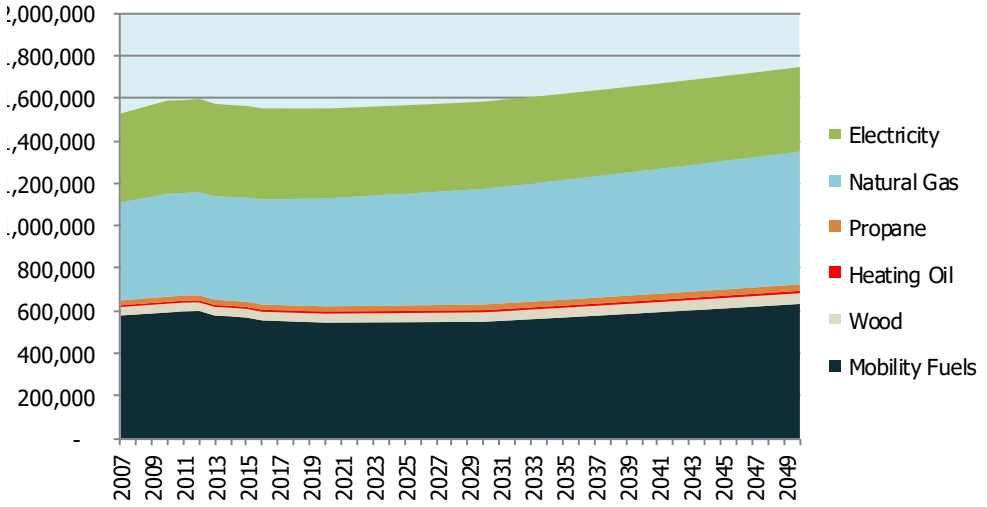


Energy Use by Fuel

BAU Energy Use by Fuel, GJ/year

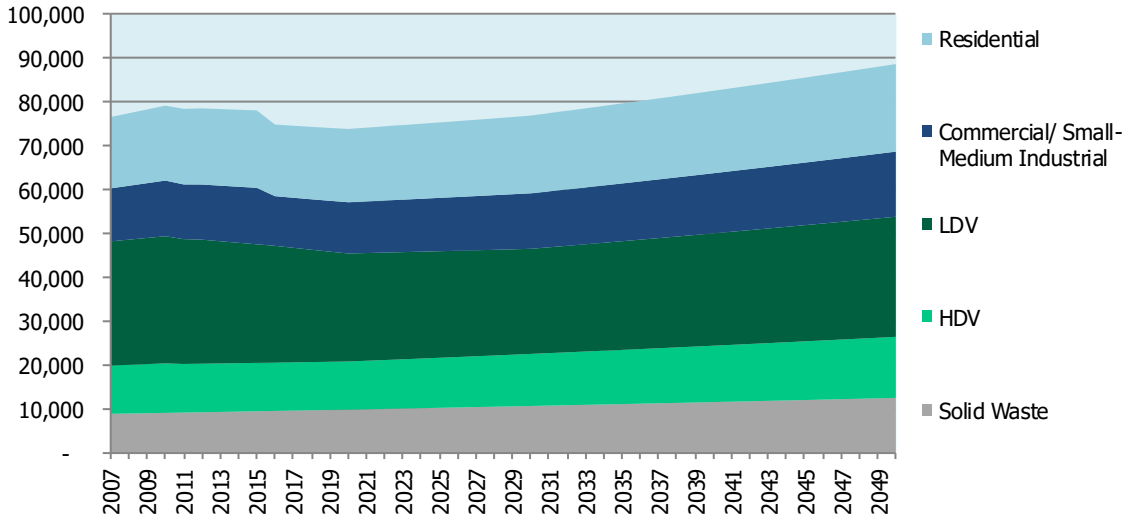


Planned Energy Use by Fuel, GJ/year

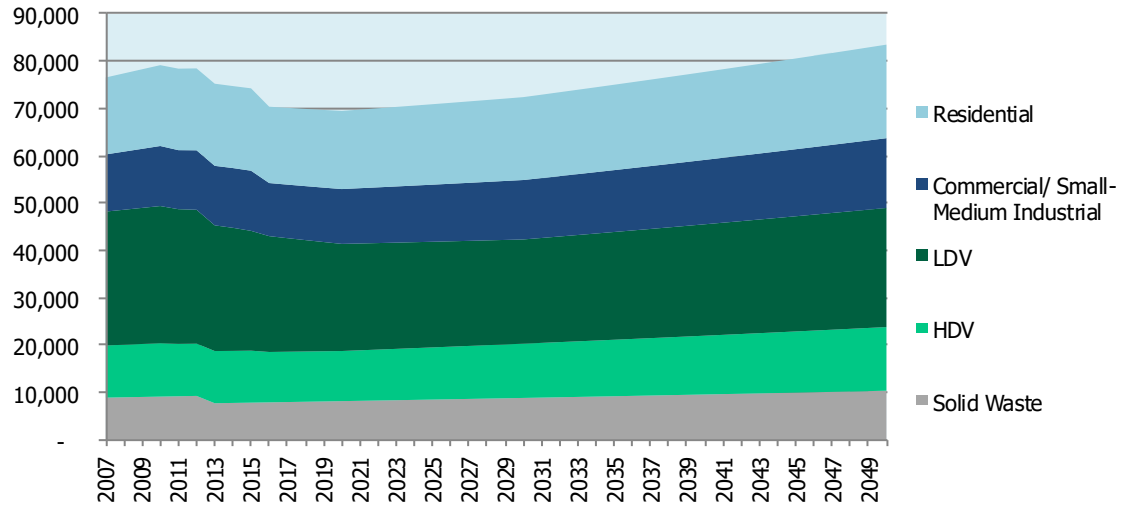


GHGs by Sector

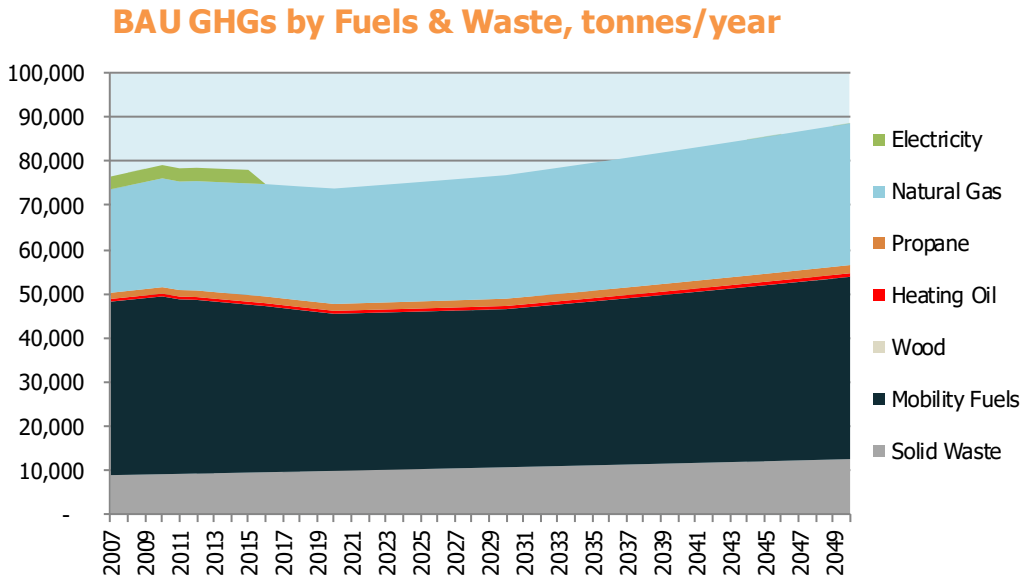
BAU GHGs by Sector, tonnes/year

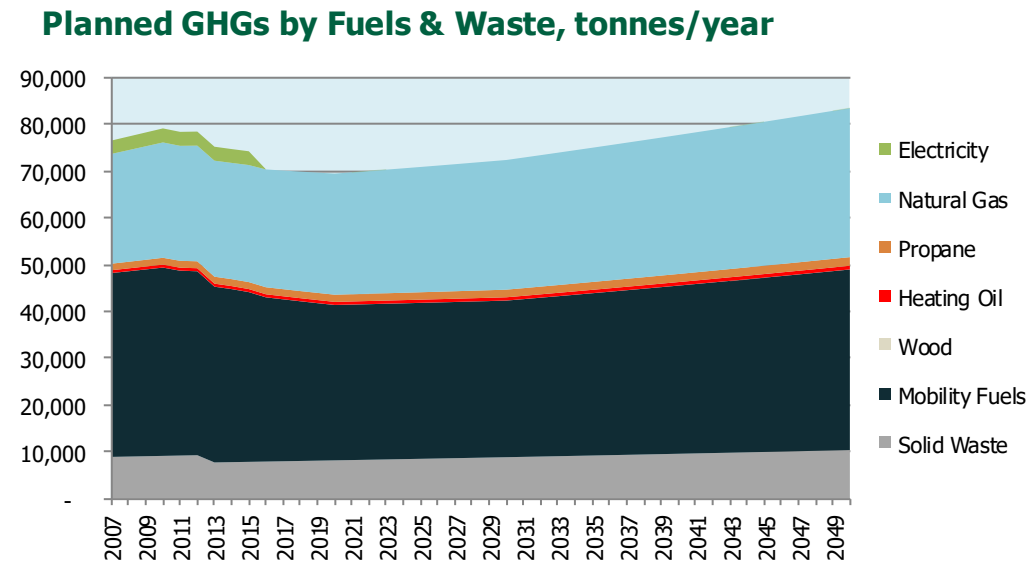


Planned GHGs by Sector, tonnes/year



GHGs by Fuel

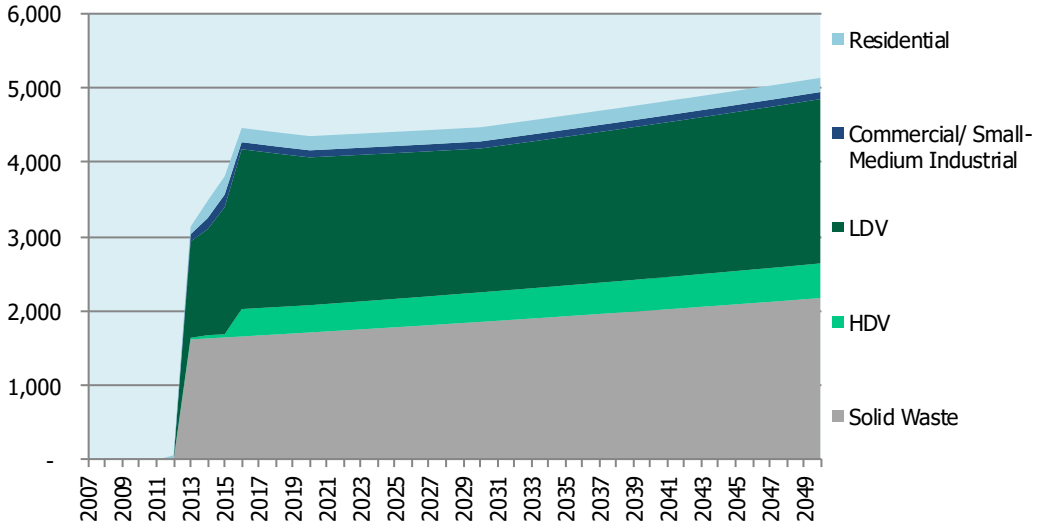




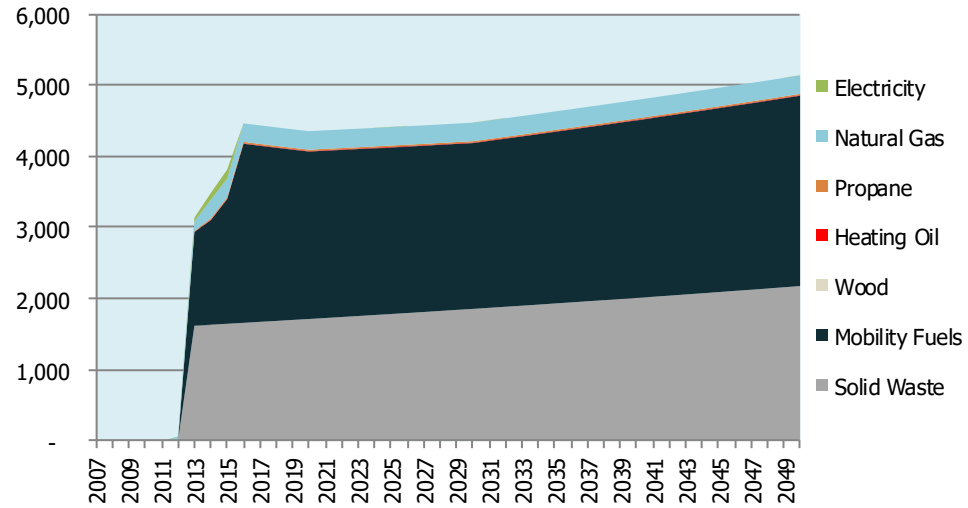
Note that the Province of BC has committed to a carbon-neutral electricity grid by 2016. In the model electricity emissions become zero from 2016 and remain there for the duration of the projected period.

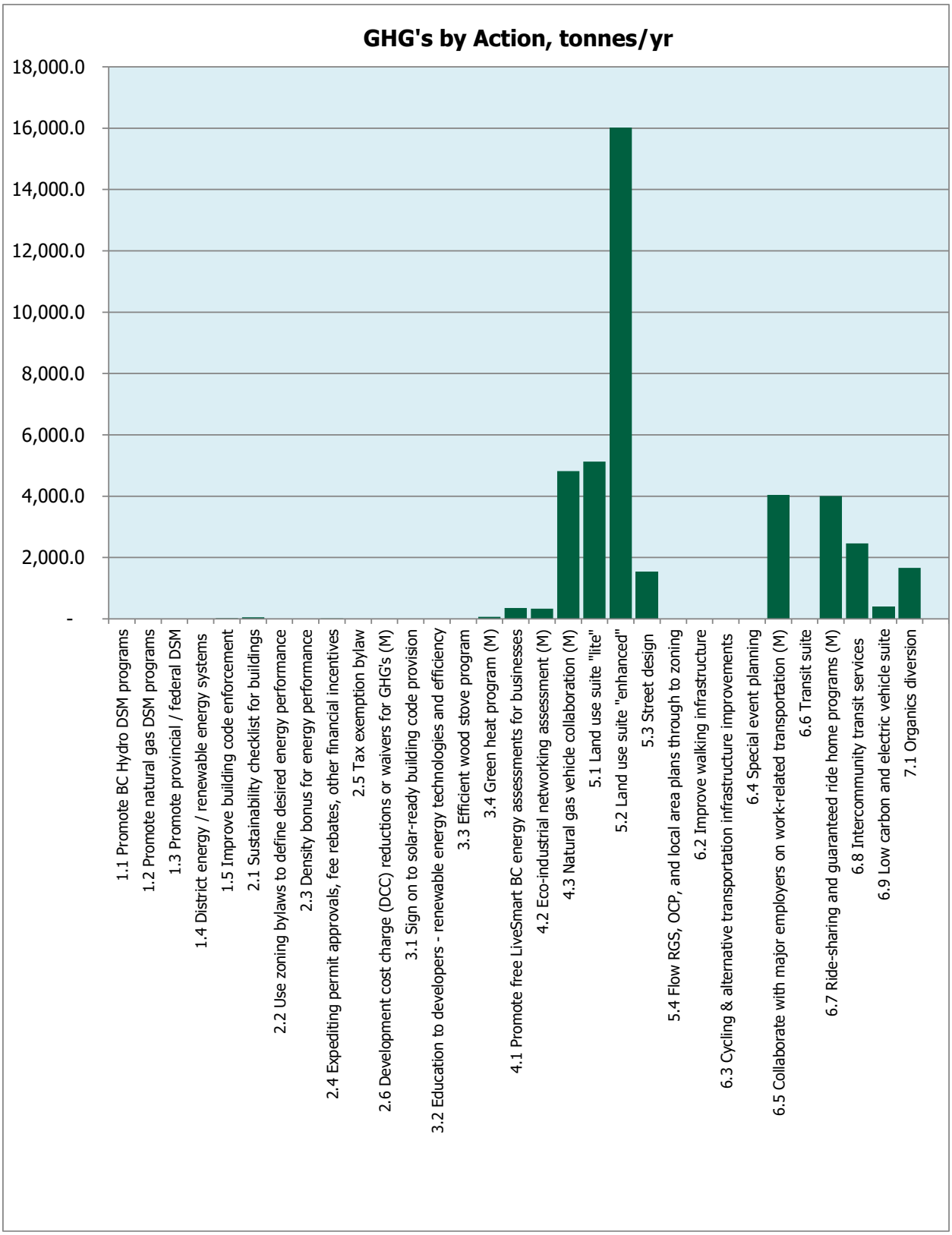
Plan GHG impacts

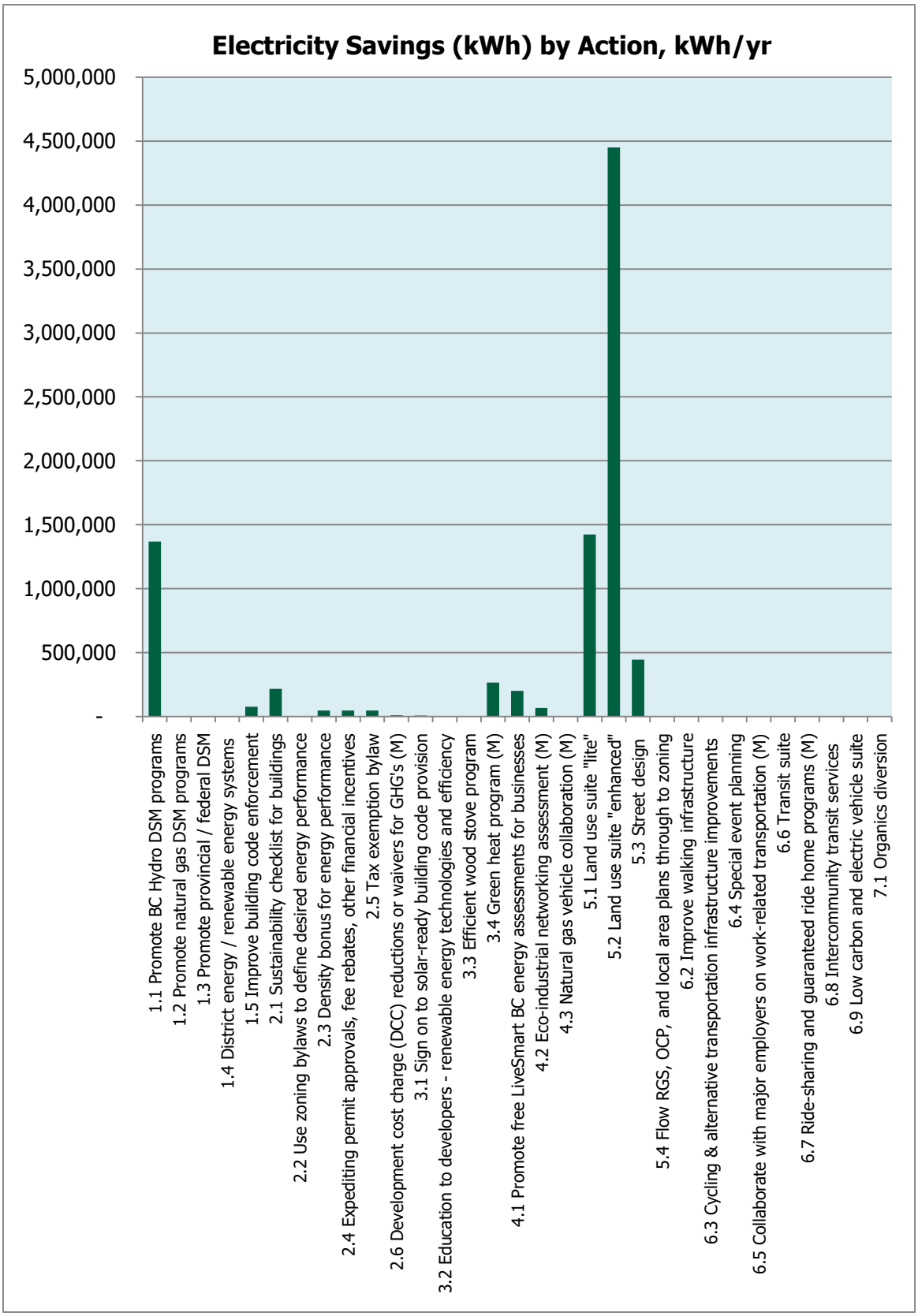
GHG Impacts of Plan by Sector, tonnes/year



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




GHG's by Action, tonnes/yr
18,000.0
16,000.0
14,000.0
12,000.0
10,000.0
8,000.0
6,000.0
4,000.0
2,000.0
-
1.1 Promote BC Hydro DSM programs
1.2 Promote natural gas DSM programs
1.3 Promote provincial / federal DSM
1.4 District energy / renewable energy systems
1.5 Improve building code enforcement
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 (M)
3.1 Sign on to solar-ready building code provision
3.2 Education to developers - renewable energy technologies and efficiency
3.3 Efficient wood stove program
3.4 Green heat program (M)
4.1 Promote free LiveSmart BC energy assessments for businesses
4.2 Eco-industrial networking assessment (M)
4.3 Natural gas vehicle collaboration (M)
5.1 Land use suite "lite"
5.2 Land use suite "enhanced"
5.3 Street design
5.4 Flow RGS, OCP, and local area plans through to zoning
6.2 Improve walking infrastructure
6.3 Cycling & alternative transportation infrastructure improvements
6.4 Special event planning
6.5 Collaborate with major employers on work-related transportation (M)
6.6 Transit suite
6.7 Ride-sharing and guaranteed ride home programs (M)
6.8 Intercommunity transit services
6.9 Low carbon and electric vehicle suite
7.1 Organics diversion


Electricity Savings (kWh) by Action, kWh/yr
5,000,000
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
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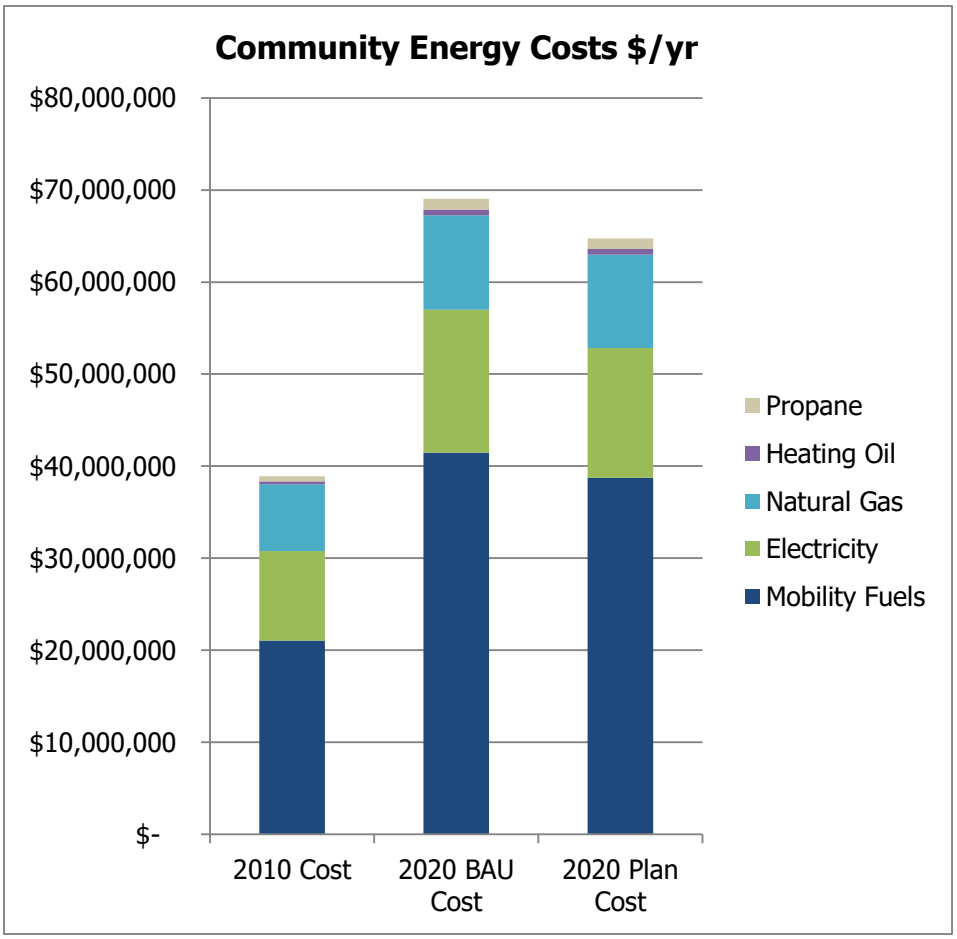

The model assumes that energy costs for all forms of energy will increase between 2013 and 2020.