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June 9, 2017

B.C. Sustainable Energy Association
c/o William J. Andrews, Barrister & Solicitor
1958 Parkside Lane
North Vancouver, B.C.
V7G 1X5

Attention: Mr. William J. Andrews

Dear Mr. Andrews:

Re: FortisBC Energy Inc. (FEI)

Project No. 3698899

2016 Rate Design Application (the Application)

Response to the B.C. Sustainable Energy Association and Sierra Club of British Columbia (BCSEA) Information Request (IR) No. 1

On December 19, 2016, FEI filed the Application referenced above. In accordance with the British Columbia Utilities Commission Order G-30-17 setting out the Regulatory Timetable for the review of the Application, FEI respectfully submits the attached response to BCSEA IR No. 1.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties

1.0 Topic: Climate Leadership Plan

Reference: Exhibit B-1, 5.4 Government Policy, p.5-3, pdf p.77

"One of the major developments since FEI's rate design proceeding in 2001 is the implementation of the provincial government's climate action and energy policies. The overall thrust of these policies for FEI is twofold: (i) to promote energy efficiency and conservation through demand side [management] and tax measures to curb GHG emissions; and (ii) to promote the role of natural gas in the transportation sector."

BC issued a Climate Leadership Plan in August 2016:

https://climate.gov.bc.ca/app/uploads/sites/13/2016/10/4030_CLP_Booklet_web.pdf

The Climate Leadership Plan is not mentioned in the Application.

1.1 Please file a copy of the Province's Climate Leadership Plan.

Response:

Please refer to Attachment 1.1 for a copy of the Province's Climate Leadership Plan.

1.2 Please confirm that the Climate Leadership Plan is a component of the government policy framework applicable to FEI's rates and rate design. Alternatively, please explain.

Response:

Confirmed that the Climate Leadership Plan is a component of the government policy framework. Please refer to the responses to BCSEA-FEI IRs 1.1.3 and 1.1.5 for discussion of the applicability of the Climate Leadership Plan to FEI's rate design.

1.3 FEI describes one of the two thrusts of the government's climate and energy policies as being "to promote energy efficiency and conservation through demand side [management] and tax measures to curb GHG emissions." Does FEI agree that the Climate Leadership Plan heightens the support in government

policy for low-carbon electrification (aka low-carbon fuel switching) as a method of reducing GHG emissions?

Response:

Yes. More specifically, the Climate Leadership Plan discusses "*using electricity to power natural gas production and processing*" facilities, providing incentives for zero emission vehicles as well as working with BC Hydro and Power Authority (BC Hydro) "*to advance efficient electrification*" by expanding the mandate of its DSM programs to include investments that increase efficiency and reduce GHG emissions.

1.4 Does FEI consider that rate design evaluation requires consideration of any change would affect the opportunities for low-carbon electrification?

Response:

The recent amendments to the Greenhouse Gas Reduction (Clean Energy) Regulation by Order in Council 101/2017 represent the first measure by government on low carbon electrification. FEI's initial assessment of the implications of low carbon electrification for FEI's rate design is that they are similar to other government policy and legislation already in place. For example, the issues raised by low carbon electrification for rate design are similar to those from previously existing policies and legislation with respect to utilities pursuing energy efficiency and conservation. While the development of low carbon electrification initiatives is in very early stages, FEI believes that at this time it has given appropriate consideration to government policy and legislation issues in the development of its rate design proposals and that the advent of low carbon electrification initiatives do not change the balance of considerations that need to be given to these areas.

The low-carbon electrification action plans described in BC Climate Leadership Plan are more associated with BC Hydro's revenue requirement and rate design than FEI's rate design. As mentioned in the response to BCSEA-FEI IR 1.1.3, the BC Climate Leadership Plan specifically discusses using electricity to power natural gas production and processing facilities as well as working with BC Hydro to advance efficient electrification. The evidence recently provided in BC Hydro's 2017-2019 Revenue Requirement proceeding clearly indicates that the electrification of upstream natural gas facilities is the most significant near-term (pre-2030) potential for electrification and that BC Hydro is already working with government and stakeholders to explore program initiatives in this area. FEI does not own any upstream natural gas facilities and as a result has no interest in this most significant portion of low-carbon electrification opportunities.

FEI notes that other local government initiatives such as Vancouver Renewable City Strategy, which was published before the Climate Leadership Plan, mainly focus on non-price mechanisms such as rezoning bylaws to limit customer choice and/or to force customers to switch from natural gas to less economic options. FEI's Rate Design Application does not have any impact on these non-price factors.

1.5 In FEI's view, what are the implications of the Climate Leadership Plan for FEI's rate design application?

Response:

As explained in the response to BCSEA-FEI IR 1.1.4, the implications of low-carbon electrification action plans on FEI's rate design are fairly limited since the actions required are more related to electric rate design and revenue requirement than FEI's rate design. As for other sections of the Climate Leadership Plan, such as the emphasis on natural gas for transportation in marine vessels or increased share of renewable natural gas (RNG) in FEI's gas supply portfolio, FEI's initial assessment is that they are similar to other government policy and legislation already in place. For instance, any expansion of the current RNG program is expected to follow the regulatory framework (such as cost and revenue treatment for the RNG program) that is already in place. Similarly, expansion of natural gas for transportation to the marine industry is expected to follow the same regulatory and business frameworks already created for existing NGT program(s). As explained in Section 5.4 of the Application, the cost recovery frameworks for these programs have been determined by government's directive or legislation and, therefore, are out of scope of this rate design application.

2.0 Topic: Inclining block rate structures

Reference: Exhibit B-1, p.7-1, pdf p.126

"FEI conducted a full review of the rate design for the residential rate class, which takes service under RS 1, RS 1U, RS 1X and RS $1B_{102}$ (collectively referred to in this section as RS 1), guided by the legal context, rate design principles, government policy, and informed by FEI's data analysis, jurisdictional comparisons and feedback from the stakeholder engagement process. FEI's review of the RS 1 rate design considered the potential rate structure options for residential customers (i.e., flat, declining or inclining block) and the possible blends of fixed and volumetric charges."

2.1 Please provide the results of FEI's jurisdictional comparisons regarding residential conservation-oriented rate design options such as inclining block rate structures.

Response:

EES Consulting provides the following response.

Please refer to Exhibit B-1, Appendix 6.1 (pages 27-29) and the table provided in Appendix 7.2.

2.2 Please provide the results for other customer classes if available.

Response:

EES Consulting provides the following response.

Please refer to Exhibit B-1, Appendix 6-1 (pages 27-29), Appendix 8 and Appendix 9-1.

2.3 Please explain FEI's rationale for not pursuing a conservation-oriented inclining block rate structure for residential, commercial and industrial customer classes.

Response:

FEI's proposed rate design strikes a balance among different competing rate design considerations. Inclining block rate structures may provide a slightly better alignment with government policy for some customer groups, but provides less desirable results in terms of

other rate design considerations such as customer awareness and understanding, economic efficiency and cost causation, customer bill impact or rate and revenue stability. The following is a more detailed evaluation of the inclining block rate structure compared to FEI's existing flat rate structure:

- **Economic efficiency, fairness and cost justification**: As explained in Table 7-2 of the Application, the natural gas distribution industry is widely considered to have economies of scale, meaning that as the size of the utility increases (i.e., increased consumption), the total average cost of the utility decreases. In other words, for a natural gas utility like FEI, the marginal delivery cost of an additional unit of consumption is less than the average cost[1]. Therefore, there is no cost basis to justify inverted block rates for natural gas utilities. In addition, depending on how the block rate is implemented (the level of basic charge, the consumption threshold for the first block as well as the rate difference between each block), inverted rates may send inefficient price signals, as low volume customers could be significantly subsidized.

- **Customer understanding and awareness:** Customer awareness and understanding is a critical component of a rate design implementation process. A review of BC Hydro's residential inclining block evaluation report indicates that close to 50 percent of residential customers were unaware of their rate structure[2]; meaning they did not know that an inclining rate structure is applied to their bills (indeed a total of 31 percent of customers believed they were charged under a flat rate and 17 percent did not know). This can be compared with results of the Sentis residential survey which states that 84 percent of respondents have a very clear or somewhat clear understanding of how their natural gas bill is calculated. Furthermore, those who know that they are charged under inclining block rates may not know at what level of consumption and at what time of a month their consumption may go over the first block, leading to higher customer dissatisfaction.

- **Customer acceptance**: The lower awareness and customer understanding for Inclining block rates may result in a lower level of customer acceptance. For instance, customers living in northern regions of FEI's service territory with longer and colder winters may feel that they are being punished for factors which are outside of their control. This may lead to increased complaints and customer dissatisfaction. The Sentis survey indicates that flat rates are the most preferred rate structure among residential customers.

- **Customer bill impact**: The transition from existing flat rates to any other rate structure will lead to two different rate impacts: (i) the rate impact of incremental costs needed to implement the transition from existing rates such as billing cost, communication cost, customer service cost, etc. which will be shared by all customers; and (ii) a potential

[1] For more information regarding FEI's marginal delivery cost please refer to EES Consulting study provided in Appendix 4-4 of the Application.

[2] BC Hydro; Power smart Evaluation: "Evaluation of the Residential Inclining Block Rate F2009-F2012", p. vii

significant bill impact on a large group of customers, depending on the portion of costs recovered in each block as well as the consumption threshold in each block.

- **Stability of rates for customers**: Compared to flat rates, other rate structures such as inverted rates may provide less stability. Depending on the design of the inverted rates, the impact of volume variances on revenue and rates can be more significant than variances under flat rates. This is because different blocks of consumption have different rates. For instance, if the actual throughput in the second block is more than the forecast volume by 2 GJ, the impact of this 2 GJ variance on revenue surplus is more significant than a similar 2 GJ variance under flat rates because the rate in the second block is higher.

- **Impact of price on consumption levels**: Third party price elasticity studies indicate that natural gas customers (in particular residential customers) have low price elasticity of demand. This means that price mechanisms such as inclining block rates may not have a significant impact on customers' consumption. Indeed, BC Hydro's evaluation of its RIB rates states that "*Customers who correctly identified that their household's consumption of electricity was charged on an inclining block rate were no more likely to have participated in BC Hydro's Power Smart programs, and were less likely to have purchased and installed energy-efficient lamps – such as CFLs and LEDs*"[3]. Industrial customers with back-up facilities are generally more sensitive to price changes. Inclining block rate structures may lead some industrial customers, such as cement producers, to replace some of their natural gas consumption with other more GHG intensive fuel sources; therefore, for some industrial clients, inverted rates may lead to more GHG emissions.

[3] BC Hydro; Power smart Evaluation: "Evaluation of the Residential Inclining Block Rate F2009-F2012", p. vi.

3.0 Topic: Residential basic charge

Reference: Exhibit B-1, 7.8.1, p.7-22

FEI proposes a one time 5% increase in the residential basic charge and a corresponding decrease in the residential volumetric delivery charge in order to "[i]mprove[] the alignment between the fixed costs allocated to the residential rate schedule and the fixed charges recovered from residential customers."

FEI says that:

> "...a one time 5% increase in the Basic Charge is not significant enough to discourage customers from engaging in energy savings activities. This is because a significant portion of FEI's costs continue to be recovered through volumetric charges and FEI proposes that future revenue requirement increases will continue to be allocated to the volumetric Delivery Charge."

3.1 Does FEI acknowledge that, directionally, the proposal to increase the residential basic charge runs counter to the objective of promoting conservation and efficiency? Alternatively, please explain.

Response:

Yes. Directionally, increases in the fixed charge reduce energy conservation incentives. However, the proposed 5 percent revenue-neutral increase in the residential Basic Charge is not significant enough to have a material impact on customers' consumption behavior.

3.2 Please confirm that FEI has not provided empirical evidence that the one-time 5% increase in the basic charge would not significantly reduce conservation and efficiency measures.

Response:

The proposed 5 percent revenue-neutral increase to the Basic Charge increases the monthly Basic Charge by less than 60 cents per month. For a majority of customers this will be partially or completely offset by the decrease in the volumetric delivery charge. As stated in the pre-filing rate design workshop, residential natural gas customers have a low price elasticity of demand[4]. This means that a small change in a customer's monthly natural gas bill does not result in a significant change in a residential customer's consumption level. The 5 percent revenue neutral

[4] The estimated elasticity numbers in various studies change with the applied methodology; however, the estimates for residential natural gas customers are usually around - 0.2.

increase to the basic charge would therefore not have a significant impact on customers' behavior. Further, a significant portion of FEI's costs continue to be recovered through the volumetric charges. This includes the Delivery Charge, but also the commodity costs on customer bills and the provincial carbon tax of $1.4898 per gigajoule. These variable costs provide a pricing signal to encourage energy conservation and efficiency, and means there is potential for customers to reduce their bills through conservation and efficiency measures.

3.3 Please confirm that the proposed increase in the basic charge would increase the bills of the customers whose consumption is below a breakeven point would reduce the bills of customers whose consumption is above the breakeven point.

Response:

Confirmed. As stated in Section 7.8.1 of the Application, average use customers would experience no change in their annual bills. Customers with consumption above average would experience a decrease of 0.04 percent to 0.64 percent in their annual bill amounts. Customers with consumption below average would experience an increase of 0.06 percent to 5.0 percent in their annual bills depending on their consumption level. Lower use customers (customers with annual consumption less than 30 GJ per year) will experience the slightly higher bill impact (ranging from approximately $5 to $7 annually depending on the level of annual consumption). In all cases, customers will pay rates more closely matched to their allocated cost of service.

3.4 Would FEI object to a suggestion that the residential basic charge not be the subject of a one-time 5% increase at this time? If so, please explain why.

Response:

FEI's proposed rate design changes reflect a balancing of various competing rate design considerations. FEI has sought to be objective in determining the appropriate balance, recognizing the impacts to various interested parties. FEI believes that the proposed 5 percent revenue neutral increase to the residential Basic Charge achieves the appropriate balance, and should be approved by the Commission.

4.0 Topic: Cost of Service, Allocation

Reference: Exhibit A2-2, Elenchus Research Associates, Review of FortisBC Energy Inc Cost of Service Allocation Studies for the 2016 Rate Design Application, pp.21-22

"There are three approved projects that FEI expects to have in service in 2018 for which their costs have been included in the COSA study:

- Lower Mainland Intermediate Pressure System Upgrade
- Coastal Transmission System Upgrade
- Tilbury Expansion

Only the Tilbury project has associated revenues and FEI has used a ten year levelized margin approach to reflect the impact of the project on FEI's customers."

"The 10 year horizon used by FEI in its COSA study to reflect the impact of the Tilbury Expansion project is not consistent with standard practice. Utilities undertake new investments on an ongoing basis and as a result, the revenue requirement in any year includes costs for older assets that have a diminished impact on the total revenue requirement as well as new assets that have a high initial impact. Except in extraordinary cases, it would be inconsistent to levelize the costs of a single project while not levelizing the costs associated with other investments. Elenchus is not aware of any unique aspects of the Tilbury Expansion Project that make its impact on customers generally, or any class of customers, that justify exceptional treatment of this project in the form of levelizing its costs for purposes of the COSA."

4.1 What is FEI's response to the comment by Elanchus quoted above?

Response:

A levelized approach is reasonable for the Tilbury Expansion Facility because it is the only project amongst the known and measurable changes that has particular revenues associated with it and these revenues are forecast to increase over time. By using a levelized approach for the inclusion of costs and revenues for the Tilbury Expansion, the COSA reflects a longer term view of the impact that the Tilbury Expansion Project will have on customers. Applying the standard practice to the Tilbury Expansion in the COSA would result in revenues being included in the COSA that reflect only the earliest year of the project and the least revenue expected over its life. A levelized approach is superior to the standard approach in this case, as it would reflect the revenues associated the project in the medium term. Please refer to the response to BCUC-FEI IR 1.9.2.

Using an approach consistent with how FEI treated the CTS and LMIPSU projects in the COSA would have minor effects on cost allocations and resulting R:C ratios. Please refer to the responses to BCUC-FEI IRs 1.9.3 and 1.9.3.1 for more information.

4.2 Has FEI determined what would be the effects on the cost of service results of not levelizing the costs of the Tilbury Expansion project? If so, please describe the effects. If not, please explain why not.

Response:

Please refer to the responses to BCUC-FEI IRs 1.9.3 and 1.9.3.1.

5.0 Topic: Bypass agreements

Reference: Exhibit B-1, p.2-2; Exhibit A-8, BCUC IR 25

5.1 FEI's bypass agreements are approved by the Commission. Please clarify whether renewals of bypass agreements are approved by the Commission.

Response:

FEI is required to file for Commission endorsement and approval renewal notification for eight of the ten bypass tariff supplements. Please refer to the table below which outlines the following:

- the bypass agreement tariff supplement;
- the bypass tariff supplement title;
- the current expiry date;
- the BCUC approval requirement for tariff supplement renewals; and
- the form of customer notification for renewal (if required).

For additional information, please refer to the response to BCUC-FEI IR 1.25.10, Attachment 25.10, which provides copies of the Commission approved bypass tariff supplements.

FEI Bypass Tariff Supplement (TS) BCUC Renewal Requirements

Bypass TS No.	Title	Initial Term[1]	Current Expiry Date	Commission Approval Required for TS Renewal (Yes/No)	Form of Customer Notification for Renewal (If Required)
Rate Schedule 25					
E-2	Dunkley Lumber Ltd., Prince George, BC	November 1, 2004 to November 1, 2014	November 1, 2018	Yes.	Customer letter to FEI requesting TS renewal, filed with the Commission for endorsement
E-5	Tolko Industries Ltd., Soda Creek Division, Williams Lake, BC	November 1, 1993 to November 1, 1999	November 1, 2017	Yes.	Customer letter to FEI requesting TS renewal, filed with the Commission for endorsement
E-6	Tolko Industries Ltd., Quesnel, BC	November 1, 1993 to November 1, 1999	November 1, 2017	Yes.	Customer letter to FEI requesting TS renewal, filed with the Commission for endorsement
E-8	West Fraser Mills Ltd., Williams Lake, BC	November 1, 1993 to November 1, 1999	November 1, 2020	Yes.	Customer letter to FEI requesting TS renewal, filed with the Commission for endorsement

Bypass TS No.	Title	Initial Term[1]	Current Expiry Date	Commission Approval Required for TS Renewal (Yes/No)	Form of Customer Notification for Renewal (If Required)
Rate Schedule 22A					
G-5	Canadian Forest Products Ltd., Prince George, BC	November 1, 1993 to November 1, 1997	November 1, 2017	Yes.	Customer letter to FEI requesting TS renewal, filed with the Commission for endorsement
G-6	West Fraser Mills Ltd., Quesnel, BC	November 1, 1993 to November 1, 1997	November 1, 2017	Yes.	Customer letter to FEI requesting TS renewal, filed with the Commission for endorsement
G-7	Canadian Forest Products Ltd., Prince George, BC	November 1, 1993 to November 1, 1997	November 1, 2017	Yes.	Customer letter to FEI requesting TS renewal, filed with the Commission for endorsement
G-8	Cariboo Pulp & Paper Co., Quesnel, BC	November 1, 1993 to November 1, 1997	November 1, 2017	Yes.	Customer letter to FEI requesting TS renewal, filed with the Commission for endorsement
Rate Schedule 22					
G-10	West Fraser Mills Ltd. (WestPine), Quesnel, BC	November 1, 1996 to November 1, 2016	As per Section 3.02, the term will continue from year to year after the expiry of the initial term unless cancelled by either FEI or West Fraser Mills upon not less than 6 months' notice prior to the end of the contract year then in effect.	No	Not applicable
G-20	Husky Energy Marketing Inc., Prince George, BC	February 1, 2006 to November 1, 2016	As per Section 3.02, the term of the agreement extends year to year unless Husky provides FEI 12 months written notice with desire to terminate prior to current termination date.	No	Not applicable

[1] *From bypass tariff supplement amendment and reinstatement, if applicable.*

5.2 Please provide a table showing the renewal year for each of the bypass agreements.

Response:

Please refer to the response to BCSEA-FEI IR 1.5.1.

6.0 Topic: Fort Nelson, Renewable Natural Gas

Reference: Exhibit B-1-1-1, p.13-21, pdf p.27

"The unbundling of rates allows customers to see on their bill the different components that are set out in the rate schedules (i.e. commodity, midstream and delivery), including changes in a particular component from one period to the next. Unbundling the rates in this manner provides transparency into the different components of customers' bills and provides Fort Nelson customers with the ability to participate in other services that require unbundled rates in the future, such as the Renewable Natural Gas program (subject to Commission approval on a potential separate future application)."

An "Effective Date" of June 1, 2018 is indicated on the proposed Biomethane rate schedules: Rate Schedule 1B (Residential Biomethane Service), pdf p.86, Rate Schedule 2B (Small Commercial Biomethane Service), pdf p.104, Rate Schedule 3B (Large Commercial Biomethane Service), pdf p.122, Rate Schedule 5B (General Firm Biomethane Service), pdf p.191, and Rate Schedule 11B (Biomethane Large Volume Interruptible Sales Agreement), pdf p.289.

"FEI is seeking to implement its proposed rate design changes effective June 1, 2018." [Exhibit B-1, p.2-5]

BCUC IR 1.1 asks about a potential August 1, 2018 effective date. [Exhibit A-8]

6.1 What is FEI's current thinking about the timing of implementation of biomethane rate schedules for Fort Nelson (on the assumption that the Commission approves the proposed unbundling)?

Response:

FEI has sought approval of the housekeeping and other amendments to the Fort Nelson Gas Tariff as set out in Appendix 13-6, effective June 1, 2016.[5] Although dependent on a number of factors, including the timing of the Commission Decision on the Application, the implementation of the Decision, and the Commission Decision itself, it is FEI's intention to file an FEI Fort Nelson Gas Tariff amendment application to include biomethane rate schedules approximately six months after implementation of the Decision on the Application. A six-month period is consistent with the timing used for similar tariff changes for Vancouver Island and Whistler. FEI's view is that six months allows enough time for customers to understand unbundled rates prior to introducing the concept of Renewable Natural Gas.

[5] Application, page 13-1.

6.2 Is it FEI's objective to have the rate changes (associated with the rate design changes) and the availability of the biomethane program occur on the same date?

Response:

Please refer to the response to BCSEA-FEI IR 1.6.1.

6.3 How long after the Commission provides a decision on the Rate Design Application would FEI anticipate filing an application for approval of biomethane rates for Fort Nelson?

Response:

Please refer to the response to BCSEA-FEI IR 1.6.1.

Attachment 1.1

Climate Leadership Plan

AUGUST 2016

BRITISH COLUMBIA

Climate Leadership Plan

AUGUST 2016

For more information visit the website:
gov.bc.ca/ClimateLeadership

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Table of Contents

B.C.'s Vision for Climate Leadership

British Columbians are proud to be recognized worldwide as leaders in the fight against climate change. We have proven that you can cut emissions while creating jobs.

In 2008, the Province released our Climate Action Plan and the world took notice. Since then it has provided us with the foundation we needed to reach our first target to reduce greenhouse gas (GHG) emissions to 6 per cent below 2007 levels by 2012.

We knew then that carbon pricing had to be central to any plan to fight climate change. That is why British Columbia was the first jurisdiction in North America to introduce a broad-based, revenue-neutral carbon tax. We knew we had to get our own public sector emissions in order before asking industry and the general public to do the same, so we implemented our Carbon Neutral Government legislation. Along with California, we were also the first to implement a low carbon fuel standard.

Our plan recognized that there were fundamental policies that everyone had to get going on — like addressing the emissions that come from our built environment, helping buyers afford low-emission, electric and hydrogen fuel cell vehicles, and preparing our province for climate change with an adaptation strategy.

Since 2011, I have had the honour to serve as British Columbia's Premier, and I am proud to say we have continued this passionate commitment to fighting climate change through actions such as: renewing the Clean Energy Vehicle program; expanding the Carbon Neutral Capital Program to health authorities and public post-secondary institutions; providing funding for energy efficiency improvements in our local governments and First Nations; and working with partners here in Canada and the U.S. on initiatives to fight climate change.

Through these actions and others, British Columbia has demonstrated that we can reduce emissions while continuing to grow the economy and create jobs. We are already seeing proof — our province now has over 60,000 clean economy jobs.

Today, we continue to build on the work we started in 2008 by launching our new Climate Leadership Plan. While our 2008 strategy laid the foundation for large scale change, we are now developing a strategy to add targeted, coordinated, sector-specific actions. We started by consulting with experts and listening to British Columbians. Now we are taking action with an approach that recognizes that real sustainability means balancing environmental concerns with social and economic issues, such as affordability and job creation.

B.C. has the highest and most comprehensive carbon tax in North America. As climate leaders, we know we can achieve more working together with Canada's provinces, territories and the federal government, while respecting each other's jurisdictions. We support the adoption of B.C.'s price on carbon as a national benchmark, and increasing that price together in an effective and affordable way, once others catch up.

Revenue neutrality remains the core principle of British Columbia's carbon tax. The carbon tax can only increase if every dollar is returned to citizens in the form of tax relief. In that way, we tax the pollution we don't want and use the money for what we do want — money in people's pockets, jobs and opportunity.

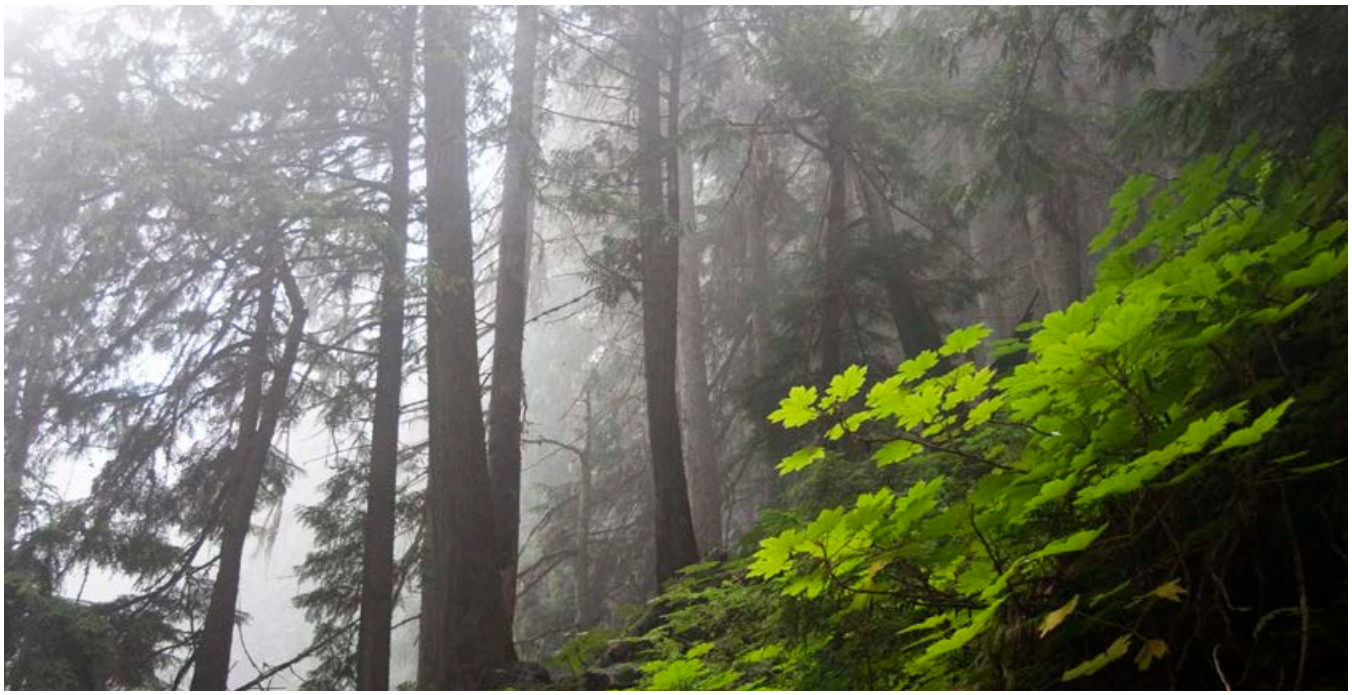
The Province will also protect jobs by ensuring B.C.'s global competitiveness. As our Climate Leadership Team recommended, we will design a mechanism to protect the competitiveness of our industries that depend on energy and trade.

> *"British Columbia has the highest and most comprehensive carbon tax in North America."*

Carbon pricing is one of several key tools to tackle climate change. Technological breakthroughs and innovations are also required, as well as targeted actions to reduce greenhouse gas emissions, like the ones we are announcing today.

We are taking action across key areas where emissions are created, including upstream methane emissions mitigation, new transit options and energy-efficient building improvements. We are ensuring that we develop industries like liquefied natural gas in ways that are cleaner than competing jurisdictions, allowing us to ship it to other nations where it can reduce their reliance on higher carbon energy sources like coal and oil. By seizing the opportunity of a low carbon economy and securing global trade partnerships, we can create thousands of green jobs in areas like clean technology and clean energy, contributing to reductions in emissions not just here at home, but around the world.

Photo Credit: Adam Ryder/World Bank (https://creativecommons.org/licenses/by-nc-nd/2.0/legalcode)



B.C.'s Climate Leadership Plan must be a living, breathing strategy. It has to grow as we work with our partners across Canada to align policies to produce the most effective results. It must also engage our industry, communities and First Nations to find ways to achieve our goals together. This first set of actions cannot solve all of the issues we face — many will require complex strategies that account for a wide range of related factors. So we need to take the time to get them right.

B.C. is committed to reaching our 2050 target to reduce GHG emissions to 80 per cent below 2007 levels. That means continuing to update our plan, which we will do over the course of the following year and every five years after that.

This document will help you learn about the first new steps we are taking, as well as the ways that industry, First Nations, communities and individuals can participate in our mission to fight climate change.

The world is moving towards a lower carbon future and B.C. is well positioned to continue to lead this movement. With over 200 clean tech companies, abundant clean energy and natural resources, and a strategy to support innovation across all sectors, B.C.'s green economy is creating jobs today and the foundation for a secure tomorrow.

We applaud the federal government's renewed commitment to the fight against climate change, and look forward to working with them on the Pan-Canadian Framework. This is a critical issue that requires every level of government working together, alongside industry and communities, to create an integrated strategy to achieve our climate action goals. Our province is committed to being at the forefront of this fight and continuing to demonstrate climate action leadership.

We hope that you will join us in this important mission.

Sincerely,

HONOURABLE CHRISTY CLARK
PREMIER OF BRITISH COLUMBIA

Climate Leadership Plan at a Glance

The Climate Leadership Plan is British Columbia's next step to fight climate change. This plan highlights the first set of actions we are taking to help meet our 2050 emissions reduction target of 80 per cent below 2007 levels, while building a clean economy.

These actions are expected to reduce annual greenhouse gas emissions by up to 25 million tonnes below current forecasts by 2050 and create up to 66,000 jobs over the next ten years.

Natural Gas

Natural gas offers an opportunity to grow British Columbia's economy, while helping other jurisdictions reduce their carbon footprint by transitioning to this cleaner burning fuel.

We are taking action in three key areas:

- ☑ Launching a strategy to reduce upstream methane emissions by 45 per cent;
- ☑ Developing regulations to enable carbon capture and storage; and
- ☑ Investing in infrastructure to power natural gas projects with British Columbia's clean electricity.

This action area is expected to reduce annual emissions by up to 5 million tonnes by 2050.

Transportation

Transportation is essential to keep British Columbia moving, but a significant source of our emissions.

The Province is launching new actions to reduce the impact of transportation, including:

- ☑ Increasing the requirements for our Low Carbon Fuel Standard;
- ☑ Amending regulations that encourage switching commercial fleets to renewable natural gas;
- ☑ Expanding support for zero emission vehicle charging stations in buildings; and
- ☑ Expanding the Clean Energy Vehicle program to support new vehicle incentives and infrastructure.

This is in addition to our 10-year transportation plan that will:

- ☑ Invest in infrastructure to reduce congestion;
- ☑ Create new rapid transit lines; and
- ☑ Shift more public transit to low carbon fuels.

In total, this action area is expected to reduce annual emissions by up to 3 million tonnes by 2050.

Forestry & Agriculture

Forestry and agriculture are foundational industries in British Columbia's economy. Our forests also offer incredible potential for storing carbon, so we are taking further action to:

- ☑ Rehabilitate under-productive forests;
- ☑ Recover more wood fibre; and
- ☑ Avoid emissions from burning slash.

Additionally, we are expanding a nutrient management program that will help improve the environmental performance of B.C.'s farms. This action area is expected to reduce annual emissions by up to 12 million tonnes by 2050.

Industry & Utilities

B.C.'s industrial sectors create good jobs for British Columbians, but they also require significant amounts of energy to power production. That is why we are taking action to reduce these emissions, including:

- ☑ Developing new energy efficiency standards for gas fired boilers;
- ☑ Enabling further incentives to promote adoption of efficient gas equipment; and
- ☑ Facilitating projects that will help fuel marine vessels and commercial vehicles with cleaner burning natural gas.

We are working with utilities on their demand-side management programs to make electrification projects and natural gas equipment more efficient. We are also committing to making B.C.'s electricity 100 per cent clean or renewable, with allowances to address reliability. These actions are expected to reduce annual emissions by up to 2 million tonnes by 2050.

Communities & Built Environment

Communities across B.C. play a critical role in the fight against climate change, particularly in the areas of buildings, waste, and planning. To build on progress already made in our communities, we are:

- ☑ Working with local governments to refresh the Climate Action Charter;
- ☑ Identifying tools to focus growth near transit corridors; and
- ☑ Supporting more resilient infrastructure.

We are also amending regulations to promote more energy efficient buildings, developing requirements to encourage net zero ready buildings, and creating a strategy to reduce waste and turn it into valuable resources. This action area is expected to reduce annual emissions by up to 2 million tonnes by 2050.

Public Sector Leadership

B.C.'s public sector is already leading the way in demonstrating how climate action can help reduce emissions. To continue this leadership, we are taking action with new strategies, including:

- ☑ Promoting use of low carbon and renewable materials in public sector buildings; and
- ☑ Mandating the creation of 10-year emissions reduction and adaptation plans for provincial public sector operations.

This action area is expected to reduce annual emissions by up to 1 million tonnes by 2050.

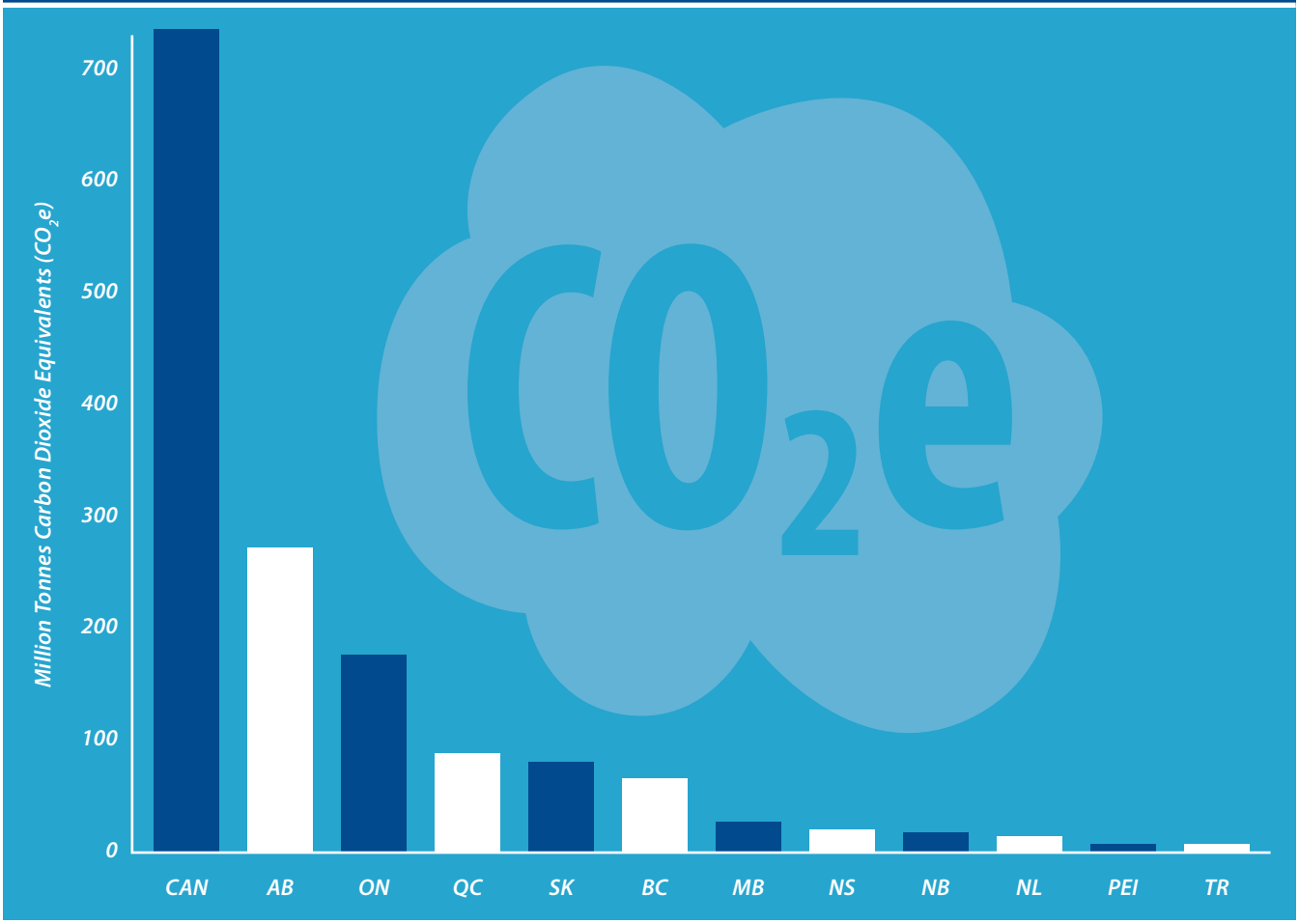
This set of 21 actions targets key areas we can act on now. The Climate Leadership Plan will be updated over the course of the following year as work on the Pan-Canadian Framework on climate action progresses.

Pathway to the Plan

The strategic actions included in this document represent the first steps the B.C. government is taking to update our climate action plan to work towards our 2050 goal. This plan is informed by the recommendations of our Climate Leadership Team, as well as our public engagement with British Columbians, industry, First Nations, communities and key stakeholders.

As we work with the federal government and our provincial and territorial partners to establish and implement a coordinated climate action plan, more actions will be announced. In this section you will learn what has driven the development of the actions being taken today, as well as a report on our progress to the 2050 target to date.

CANADIAN 2014 GREENHOUSE GAS EMISSIONS



Climate Change is Happening

Climate change is one of the most critical issues humanity faces. It is an important battle that all governments need to demonstrate leadership on.

This year in Canada, we saw its impacts happening in real time, as out-of-control wildfires in British Columbia and Alberta displaced thousands of workers, families and residents. The evidence is in front of us — we have already seen considerable climate change in British Columbia over the past century.

ENVIRONMENTAL CHANGE IN B.C. LOOKING BACK

TEMPERATURE:
Average temperature has increased over all of B.C. since 1900 (1.4˚C per century).*

PRECIPITATION:
Average precipitation has increased over most of southern B.C. (1900 – 2013).

GLACIERS:
All glaciers in British Columbia have retreated from 1985 to 2005.

SEA LEVEL RISE: Average sea level has risen along most of the B.C. coast over the past 95 years.

* *Winter is warmer on average than it was 100 years ago. Higher temperatures drive other climate systems and affect our environment and ecosystems.*

The impacts of climate change will become more pronounced as we head towards 2050. That is why it is critical we continue to work to achieve our climate action goals. We must take action to mitigate these impacts today.

LOOKING TO 2050

TEMPERATURE

» By 2050, B.C. is projected to be at least 1.3˚C warmer and may be as much as 2.7˚C warmer than in recent history.

» Growing seasons will be longer; species ranges will shift; the winter tourism season will be shorter.

PRECIPITATION

» By 2050, average annual rainfall may increase from 2 per cent to 12 per cent, with the potential for increased frequency of drier summers and increases in extreme rain events.

» Dry conditions contribute to forest fire season severity; heavy rain impacts buildings and infrastructure.

GLACIERS

» By 2100, B.C. is projected to lose up to 70 per cent of its glaciers.

» This will impact the timing and volume of river flow, drinking water quality and quantity, agriculture and winter alpine tourism.

SEA LEVEL RISE

» Sea level will continue to rise at most locations on the B.C. coast.

» Coastal flooding frequency and magnitude is expected to increase.

Sources: Plan2Adapt, Pacific Climate Impacts Consortium; http://www.plan2adapt.ca; Relative Sea-level Projections in Canada and the Adjacent Mainland United States; Geological Survey of Canada. James, TS, et al, 2014; and Projected Deglaciation of Western Canada in the 21st Century; Nature, Clarke et al, 2015.

British Columbia is Taking Action

Increasing knowledge of the impacts of climate change is what drove the launch of our world-leading Climate Action Plan in 2008. This plan included a wide range of large-scale policies designed to reduce British Columbia's impact on the environment, and was foundational in driving us to reach our first target to reduce GHG emissions to 6 per cent below 2007 levels by 2012.

To read the original plan in detail, go to: http://www2.gov.bc.ca/gov/content/environment/climate-change/policy-legislation-programs.

By the end of 2012, all of the actions outlined in the first plan were underway or complete, including more than $1 billion in climate action programs and tax incentives to encourage cleaner choices.

Since 2012, British Columbia has continued to invest in the innovation and infrastructure that will help us reach our 2050 target.

To date, an additional $1.9 billion has been dedicated to keeping British Columbia on the path to a lower carbon economy, including investments such as:

- » $50 million in clean energy and technology;
- » $831 million for clean transportation;
- » $300 million for transportation infrastructure;
- » $24 million to improve the energy efficiency of homes and businesses; and
- » $704 million for clean electricity infrastructure.

In 2016, British Columbia has continued engagement on climate action by participating in initiatives that align our climate action goals with our neighbours within Canada and internationally, including:

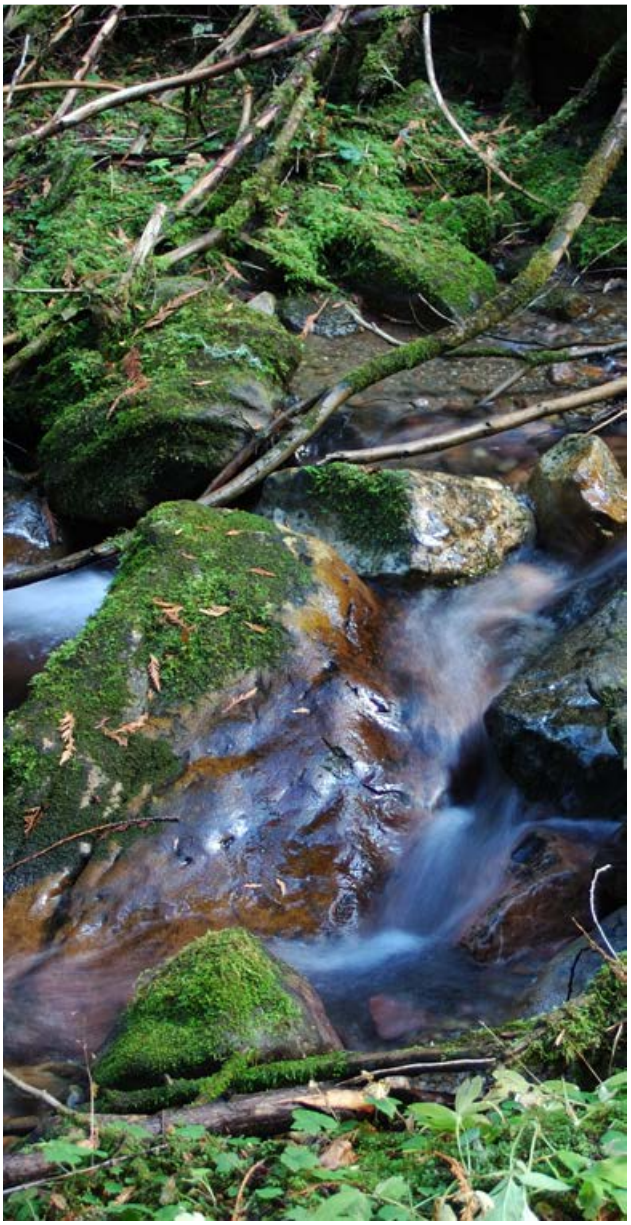
- The ***Vancouver Declaration on Clean Growth and Climate Change***;
- The ***Carbon Pricing Leadership Coalition***;
- ***Under 2 MOU*** (Subnational Global Climate Leadership Memorandum of Understanding);
- ***Pacific Coast Collaborative*** Climate Leadership Action Plan;
- ***RegionsAdapt*** Initiative; and
- ***International Zero-Emissions Vehicle Alliance***.

Now, the actions presented in this document outline the first steps we are taking under our new Climate Leadership Plan. This plan, which we will continue to update over the course of the following year and every five years after that, is creating strategies, programs, infrastructure, initiatives and incentives that will help us reach our 2050 target.

The Climate Leadership Team

In 2015, Premier Christy Clark challenged the world to meet or exceed the standard B.C. has set for climate action. She also announced that work was beginning to build on B.C.'s world-leading plan, including the formation of a Climate Leadership Team (CLT), made up of diverse leaders from British Columbia businesses, First Nations, local governments, communities, academia, and the environmental sector.

Through a series of collaborative working sessions, this team was asked to develop recommendations for actions that would maintain B.C.'s climate leadership. The CLT recommendations largely address carbon pricing and taking action to reduce emissions across the industry, transportation and built environmental sectors, while maintaining a strong economy.



The actions presented in this plan are driven by the hard work of the CLT. Throughout the action area descriptions, we have identified where they align with the CLT's recommendations. While they do not represent a full-scale implementation of all the CLT recommendations, we will continue to work on ways to take further action on their recommendations, particularly as our work with the federal government progresses and more funding opportunities for climate action become available.

To review the CLT's recommendations in detail, please visit: http://engage.gov.bc.ca/climateleadership/.

Public and Stakeholder Engagement

To inform the Province and the CLT's work, B.C. launched a public engagement campaign to invite input on the values and priorities British Columbians wanted to see in B.C.'s new climate action plan. We also conducted sector-specific engagements with stakeholders in B.C.'s various industries. Across two engagement periods we received considerable feedback, and affirmed the passionate commitment of British Columbians to fighting climate change.

Our engagement results to date include:

- 27,000+ website visits;
- 7,600+ feedback forms completed;
- 300+ detailed submissions;
- 7,400+ discussion guide downloads;
- 8,200+ emails received; and
- Input from over 300 organizations, local governments, and businesses via webinars, meetings, teleconferences, and email.

The initial survey presented four visionary goals for climate action, and asked British Columbians to prioritize which areas were most important to take action on, as well as priorities within each of those areas.

VISIONARY GOALS FOR CLIMATE ACTION

THE WAY WE LIVE:

- Focus: buildings, communities, and waste.
- Goal: communities are thriving and resilient in the face of climate change.

THE WAY WE TRAVEL:

- Focus: movement of people and goods.
- Goal: people and goods move efficiently and reliably, using clean transportation.

THE WAY WE WORK:

- Focus: business, industry, products and services.
- Goal: B.C.'s economy remains strong, and jobs continue to be created, while greenhouse gas emissions fall.

WHAT WE VALUE:

- Focus: how we consider the cost of climate change to society when making decisions.
- Goal: the cost of climate change to society is considered whenever British Columbians make important decisions.

Overall, the importance of a number of themes were repeated across the two engagement periods, particularly on issues such as transportation, clean technology and clean energy, the carbon tax, communities, climate adaptation and employment.

To see a summary of results from our consultations, go to: http://engage.gov.bc.ca/climateleadership/.

To achieve our goals, we need a shared vision that unites British Columbians in this important battle. That is why we listened to the priorities identified by British Columbians when developing this plan — fighting climate change must be a collaborative effort across government, industry, First Nations and communities.

The Province of British Columbia would like to thank all of the stakeholders that contributed to the development of this plan, from the Climate Leadership Team, to the individuals, communities, First Nations, businesses and organizations that participated in our public engagement campaigns.

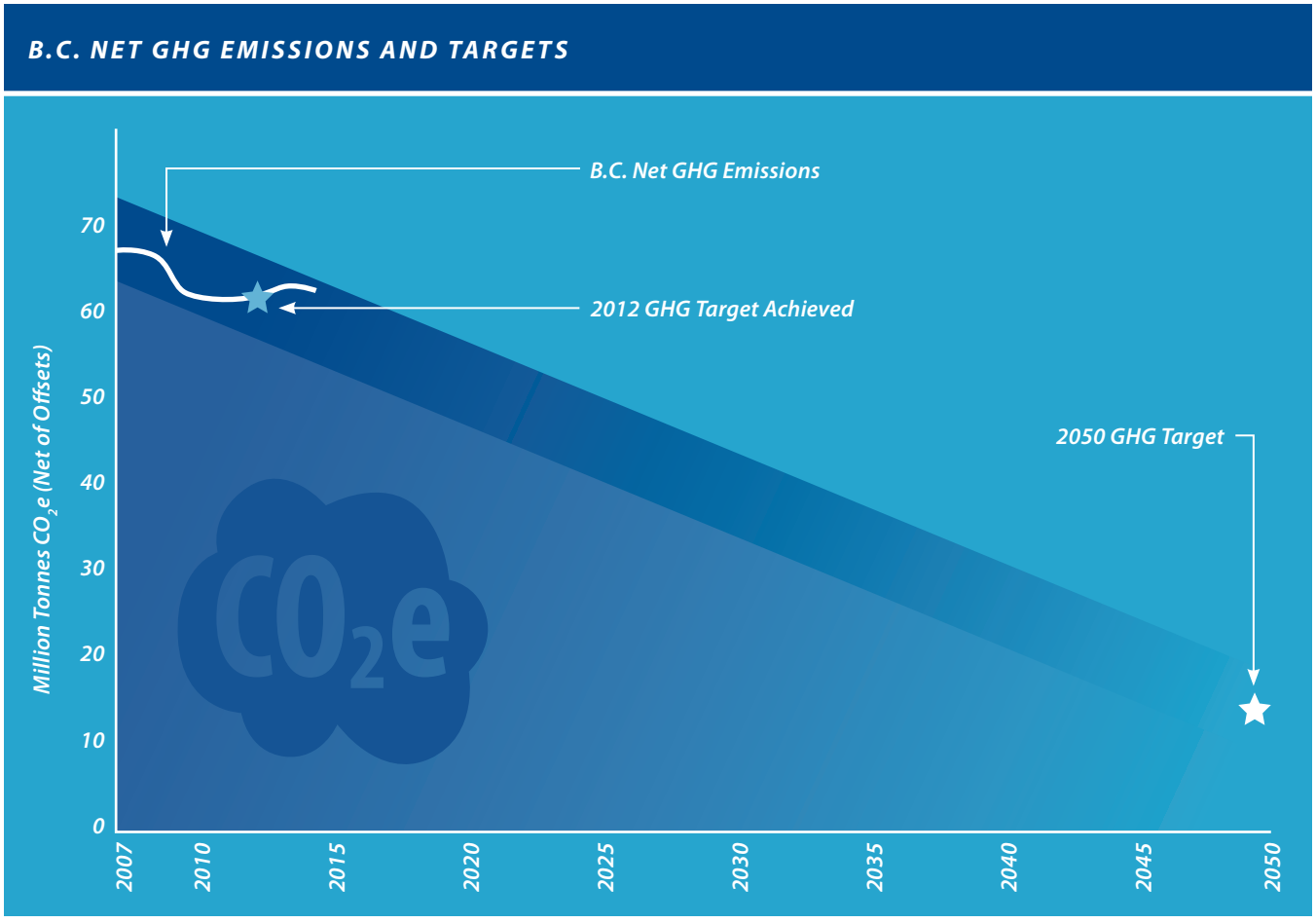
Fighting climate change is one of the most critical issues our world faces today, and any plan to combat it requires we listen to the voices of all those affected.

Progress to 2050 Target

Across all of this hard work and valuable contributions, one thing has clearly emerged — B.C. is committed to reaching our 2050 target of reducing GHG emissions to 80 per cent below 2007 levels. We have already made considerable strides towards that goal. In 2012, we reached our first interim target to reduce emissions to 6 per cent below 2007 levels.

Since that time, B.C.'s emissions levels have remained relatively unchanged. B.C.'s greenhouse gas emissions in 2014 were 62.7 million carbon dioxide equivalent tonnes (tCO_2e), including 1.8 million tonnes CO_2e in offsets from forest management projects, for a net reduction of 5.5 per cent since 2007. The 2014 greenhouse gas inventory for British Columbia can be viewed online at: http://www2.gov.bc.ca/gov/content/environment/climate-change/reports-data/provincial-ghg-inventory.

B.C. NET GHG EMISSIONS AND TARGETS



Without renewed action, emissions may begin to rise again. So we are taking action starting with the release of this plan.

Beyond overall GHG emissions reductions, further proof that our plan is working is evidenced in the way that carbon pollution is decoupling from Gross Domestic Product (GDP) growth. In their recommendations, the CLT noted that:

> *"This past year, global carbon pollution from fossil fuels levelled off, even as GDP continued to grow. It was the first time in nearly half a century that carbon pollution decoupled from GDP globally. The International Energy Agency, which reported the finding, cited policy action on energy efficiency and renewable energy as the main factor driving the change.*
>
> *It was a remarkable signal and — as the impacts of climate change become increasingly visible and acute — it telegraphed a clear message to governments: Your efforts are essential, and you are making a difference. Keep going."*

In B.C., both GDP and population have been growing at rates comparable to the national average. Between 2007 and 2014, population growth in B.C. has been 8.1 per cent. Real GDP growth has been 12.4 per cent. With relatively stable emissions, this demonstrates a reduction in GHG intensities, both per capita and per dollar of economic output.

This decoupling shows that British Columbia has the ability to continue growing our economy and creating jobs, without a proportional increase in GHG emissions. However, we must be cautious in our approach, and each policy we implement must be tested before it is put into place to ensure that it is both environmentally and economically sustainable.

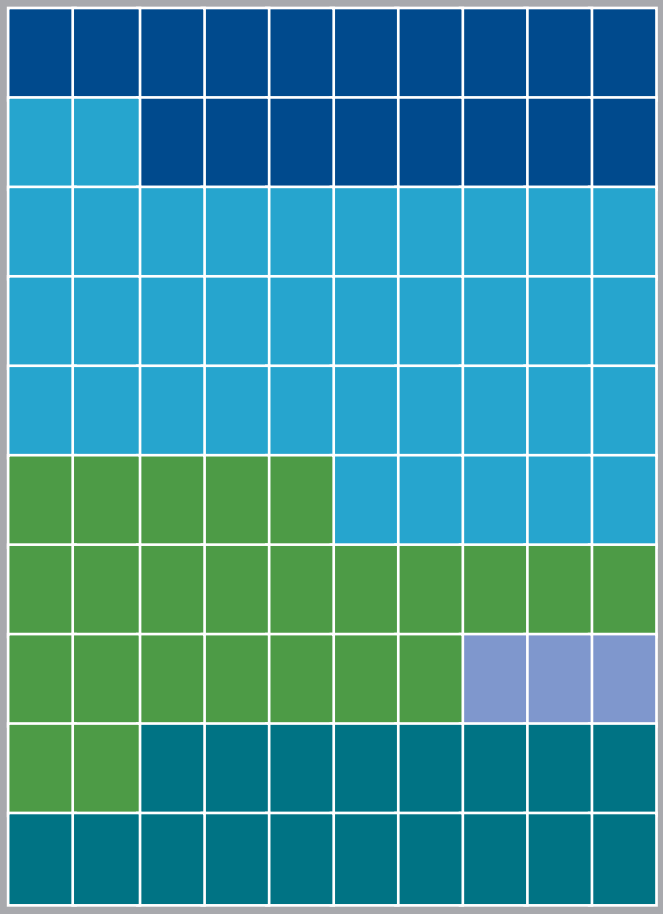
B.C.'s emissions per capita and per unit of GDP are well below the national average. Going forward, the rate of this decoupling needs to accelerate to hit our target. However, this information sends a clear message — our plan is working.

Action Areas

In the following sections of British Columbia's Climate Leadership Plan, we have identified the key areas where we can take action today: natural gas; transportation; forestry and agriculture; industry and utilities; communities and built environment; and public sector leadership.

While further actions will be announced over the course of the following year, these areas represent critical priorities where B.C. can take action to reduce GHG emissions that are not dependent on the work we are undertaking with the federal government on a Pan-Canadian Framework to fight climate change.

2014 GHG EMISSIONS BY SECTOR



INDUSTRY & UTILITIES 18%

- » Electricity 1%
- » Cement 3%
- » Mining and smelting 3%
- » Forest products 3%
- » Manufacturing 8%

TRANSPORTATION 37%

- » Commercial transport 23%
- » Personal transport 14%

BUILT ENVIRONMENT 24%

- » Residential buildings 6%
- » Commercial buildings 4%
- » Waste 9%
- » Deforestation 5%

AGRICULTURE 3%

OIL & GAS 18%

Note: In 2014, British Columbia's emissions were 62.7 million tonnes CO_2e, including 1.8 million tonnes CO_2e in offsets from forest management projects.

Action Area: Natural Gas

WHY NATURAL GAS MATTERS

Natural gas is a growing industry in B.C. that can secure our economy for generations to come, while creating good jobs for our citizens. Natural gas is also the cleanest burning fossil fuel, representing an opportunity to shift global economies off GHG-intensive fuels like coal and oil to reduce worldwide emissions. The sector is reducing emissions intensity as it grows and currently contributes about 18 per cent of B.C.'s total emissions.

B.C.'s climate action strategy and implementation of new technology by the natural gas industry has already contributed to a 37 per cent decrease in emission intensity per unit of production since 2000. We have also eliminated all routine flaring at oil and gas wells and production facilities. Our carbon tax, together with offset payments, has encouraged improved efficiency in the sector, including waste heat recovery, methane leak reduction and electrification of facilities.

Yet we must still do more. B.C.'s natural gas sector needs to meet the challenge of becoming one of the world's cleanest producers and distributors of this fuel, so that the benefits of this cleaner burning fuel can contribute to global GHG reductions when we ship it to markets seeking to transition away from more emissions intensive fuels.

Almost 40 per cent of the natural gas sector's emissions come from non-combustion sources such as venting and leaks. Establishing standards for these processes that will lead in North America will help the sector to curb emissions as operations continue.

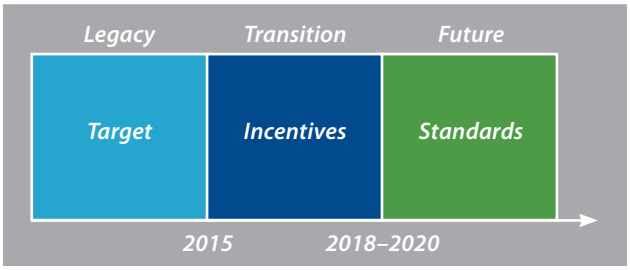
TAKING ACTION: LAUNCHING A STRATEGY TO REDUCE METHANE EMISSIONS

Oil and gas production accounts for approximately 11 million tonnes of annual GHG emissions in our province. Approximately 2.2 million tonnes of that total come from fugitive and vented methane emissions released during the production process.

As such, the CLT recommended that B.C. should set a goal to reduce fugitive and vented methane emissions by 40 per cent within five years, through regulating best practice leak detection and repair activities, as well as developing methane reduction and reporting best practices. They also recommended that after five years we determine if a more ambitious action is necessary.

Our first action for the natural gas sector is a methane emissions reduction strategy. This strategy is targeted at producing real, tangible reductions in emissions, while ensuring the industry remains competitive and has room to grow. B.C. will tackle methane emissions in three phases, using a combination of tools.

THE THREE PHASES



» The legacy phase will include targets for reducing fugitive and vented emissions from extraction and processing infrastructure built before January 1st, 2015. This will include:

- A 45 per cent reduction of these emissions by 2025, estimated at an annual reduction of 1 million tonnes for 2025; and
- A midpoint check in fall 2020 to determine progress towards this target, establish what happens if the target is not attained by 2025, and make adjustments if the target is not technically feasible.

» The transition phase will offer incentives to drive methane emissions reductions for all applications built between 2015 and 2018, and to help tackle legacy infrastructure retrofitting. Incentives will include:

- A Clean Infrastructure Royalty Credit Program, which will help stimulate investments in new technology to convert current infrastructure to less carbon intensive machinery. The pilot program will provide royalty deductions of up to 50 per cent of the cost of developing infrastructure that reduces fugitive or vented methane emissions from oil and gas; and
- A new offset protocol to further encourage innovative projects that reduce methane emissions.

» The future phase will establish standards that will guide the development of projects after the transition phase. This will include:

- Developing and enforcing standards to reduce methane emissions for all applications; and
- Making leak detection and repair mandatory, with protocols to be developed and enforced in alignment with other jurisdictions.

» Coordination with western Canadian provinces and the federal government will also be a key part of our methane emissions reduction strategy, to ensure regulatory alignment, while allowing for flexible provincial approaches accounting for resource base and individual provincial needs.

GET INVOLVED: SWITCH YOUR TRUCK FLEET TO NATURAL GAS

Cleaner burning natural gas can help you reduce the environmental impact of your industrial truck fleet.

FortisBC will cover up to 90 per cent of the cost to convert your medium/heavy duty fleet to compressed natural gas or liquefied natural gas.

Check out the full range of transportation fuel incentives available: https://www.fortisbc.com/NaturalGas/Business/NaturalGasVehicles/Howwecanhelp/Incentives/Pages/default.aspx.

MORE EFFICIENT ENGINES MEAN FEWER EMISSIONS

REM Technology Inc. is helping the natural gas industry lower its emissions through the use of two innovative new technologies called REMVue® AFR and SlipStream®. The REMVue® AFR is an engine management system used to control natural gas engines that compress natural gas from well-sites to processing plants. The system enables these engines to run more efficiently and reliably, while lowering the emissions created in the process. SlipStream® is designed to capture vented hydrocarbons like methane, and utilize them as fuel, either for a natural gas engine or process burner. Not only does this technology significantly reduce greenhouse gases, it reduces fuel costs for the engine or burner by up to 50 per cent. B.C.'s provincial offset standards and carbon pricing are helping drive these innovative offset projects.

TAKING ACTION: REGULATING CARBON CAPTURE AND STORAGE PROJECTS

Another important area where we have taken action to reduce the impact of natural gas development on climate change is Carbon Capture and Storage (CCS). CCS involves using innovative technology to capture waste carbon dioxide from industrial facilities and then transport it to a storage site, such as an underground geological formation, so it will not enter the atmosphere.

The Ministry of Natural Gas Development has developed a CCS regulatory policy framework to guide CCS development, ensure it is done safely, and provide transparency. In fall 2015, the first piece of legislation needed to enable CCS was passed. The Province is now collaborating with the BC Oil and Gas Commission to complete the regulatory policy framework and develop the additional legislative changes needed to allow CCS projects to proceed.

TAKING ACTION: USING ELECTRICITY TO POWER NATURAL GAS PRODUCTION AND PROCESSING

B.C.'s planned liquefied natural gas projects will create thousands of jobs and require additional volumes of natural gas production. The Province is committed to capitalizing on this opportunity while minimizing its carbon footprint. Production and processing (referred to as the "upstream" natural gas sector) typically requires the use of natural gas and diesel as fuel for industrial processes. Replacing those fuels with B.C.'s clean electricity could contribute to significant GHG reductions.

Capital funding will be necessary to develop upstream electrification of several key projects:

- Peace Region Electricity Supply Project;
- North Montney Power Supply Project; and
- Other upstream electrification infrastructure.

Electrification of natural gas developments in the Montney formation in Northeast B.C. is currently proceeding with existing infrastructure to avoid GHG emissions by up to an estimated 1.6 million tonnes per year. Full electrification of the Montney Basin could avoid up to 4 million tonnes of emissions per year, minimizing the GHG footprint of upstream natural gas development to ensure that B.C. has the cleanest LNG in the world.

Broader electrification of the Montney formation will require considerable capital investments in electricity transmission from both the federal government and B.C. It will also require the design of programs to make electricity costs comparable to natural gas costs for upstream applications. To support this action, the B.C. government is in dialogue with the federal government to provide the necessary capital to develop the required infrastructure. Programs are also being developed to close the gap between electricity and natural gas costs. Construction of this infrastructure would begin once LNG companies make their final investment decisions.

Action Area: Transportation

WHY TRANSPORTATION MATTERS

Transportation is essential to our economy and way of life. It also accounts for 37 per cent of B.C.'s total emissions, making it a key area where climate action can make a significant impact.

Climate action in the transportation sector must focus on supporting interconnected communities and the efficient movement of goods and people. That means: encouraging adoption of efficient vehicles and creating associated cost savings; supporting innovation in clean vehicles and fuels that improve our air quality, while creating new jobs in the clean tech industry; and working to guide the development of safe and reliable transportation infrastructure that is built to withstand extreme weather events.

We have already made significant progress in this action area. Our low carbon fuel requirement is driving innovation and growing the diversity of commercially available low carbon fuels, leading to the avoidance of over 2.3 million tonnes of GHG emissions between 2010–2012.

B.C.'s 10-year transportation plan includes a commitment to one third of the funding for new rapid transit projects and expanding compressed natural gas fleets. Building on the success of the 2009 rapid transit Canada Line, the new Evergreen rapid transit line will link the communities of Burnaby, Port Moody and Coquitlam with Vancouver, increasing transit integration and capacity in Metro Vancouver.

We have also invested in an incentive program for clean energy vehicles, supported by aggressive charging infrastructure installations, which has led to the purchase of 2,700 electric and hydrogen fuel cell vehicles and the development of over 1,100 charging stations in the province. We now lead the country in clean energy vehicle sales per capita.

As our economy grows, so will our transportation needs. It is imperative that we maximize the efficiency of the entire goods movement chain, to lower our impact on the environment and ensure the competitiveness of our economy.

We also need to provide more transit alternatives to British Columbians, to reduce the overall rate of vehicle kilometres travelled per capita.

REDUCING DIESEL USE IN NANAIMO

Public transit helps people get where they need to go, while lowering the number of emission-producing vehicles on the road.

The Regional District of Nanaimo (RDN) is taking this a step further by committing to switching its remaining diesel-powered buses to buses powered by compressed natural gas (CNG) by 2017.

This switch will cut greenhouse gasses and make the RDN Transit the first conventional fleet in Canada to be completely CNG powered. The co-benefits of CNG buses include lower fuel costs and quieter engines.

Photo Credit: BC Transit

TAKING ACTION: INCREASING THE LOW CARBON FUEL STANDARD

British Columbia's Low Carbon Fuel Standard is reducing the carbon intensity of transportation fuels by 10 per cent by 2020, relative to 2010.

The Climate Leadership Team recommended that we increase this requirement in the future to continue to drive greenhouse gas reductions.

We are now taking action to increase British Columbia's Low Carbon Fuel Standard to 15 per cent by 2030. This action is expected to achieve up to a 3.4 million tonne reduction in annual greenhouse gas emissions.

TAKING ACTION: INCENTIVES FOR USING RENEWABLE NATURAL GAS

Natural gas is considered renewable when it is produced from sources of biogas such as organic waste or wastewater. B.C. will be amending the Greenhouse Gas Reduction Regulation to encourage emission reductions in transportation. This amendment will allow utilities to double the total pool of incentives available to convert commercial fleets to natural gas, when the new incentives go towards vehicles using 100 per cent renewable natural gas. The program will also:

- Promote investments in natural gas fuelling stations at customers' facilities; and
- Support the production of renewable natural gas resources through increased demand.

MOVING PEOPLE WITH TRANSIT

Transit is the backbone of a low carbon community and an integral part of a healthy built environment. That is why the Province is working to improve public transportation infrastructure in Metro Vancouver and in BC Transit communities across the province. This will include the purchase of more SkyTrain cars, improvements to bus exchanges and SkyTrain stations, enhanced SeaBus service, initial work towards new major rapid transit in Vancouver and Surrey, and the modernization of a variety of TransLink's transit infrastructure. Outside of the Lower Mainland, the Province will build new maintenance yards and bus depots, and purchase new, cleaner and more efficient buses. Combined with contributions from federal and local governments, these improvements will benefit residents across the province opening up more affordable, transit-friendly communities.

TAKING ACTION: INCENTIVES FOR PURCHASING A CLEAN ENERGY VEHICLE

B.C.'s Clean Energy Vehicle program is designed to encourage the use of zero emission vehicles (ZEVs) throughout the province. Residents, businesses, organizations and local governments that purchase or lease qualifying new ZEVs are eligible for incentives off the pre-tax sticker price for battery electric, fuel cell electric, plug-in hybrid electric, and hydrogen fuel cell vehicles. These incentives can be combined with B.C.'s SCRAP-IT program to get older, higher emission vehicles off the road.

The Clean Energy Vehicle program is being expanded to support new vehicle incentives and infrastructure, as well as education and economic development initiatives.

GET INVOLVED: BUY A CLEAN ENERGY VEHICLE

Thinking of buying a clean energy vehicle? Learn about point-of-sale incentives that are available to help you purchase one through the Clean Energy Vehicle Program: www.gov.bc.ca/cleanenergyvehicleprogram.

Also, if you have an old gas guzzler that needs to be scrapped, see how we can help at: scrapit.ca.

If you're purchasing a clean energy vehicle and scrapping a gas guzzler, you could be eligible for both incentive programs.

TAKING ACTION: SUPPORTING VEHICLE CHARGING DEVELOPMENT FOR ZERO EMISSION VEHICLES

Since vehicles represent such a significant portion of our emissions profile, policies that facilitate the adoption of zero emission vehicles like electric cars can make a significant impact in the fight against climate change. A major challenge for adoption of these vehicles is ensuring that owners can access charging stations.

That is why we are taking action to support the development of charging stations across the province. These actions include:

» Developing regulations to allow local governments to require new buildings to install adequate infrastructure for electric vehicle charging; and

» Developing policies to facilitate installing electric vehicle charging stations in strata buildings and developments.

TAKING ACTION: 10-YEAR PLAN TO IMPROVE B.C.'S TRANSPORTATION NETWORK

B.C. on the Move is our 10-year plan to improve the province's transportation network that is already underway. It includes a comprehensive set of strategies that were driven by engagement of the public and key stakeholders, including actions that will help drive GHG reductions in a number of areas.

» Transitioning to low carbon fuels:

- Increasing the number of B.C. Transit compressed natural gas (CNG) buses and fuelling stations; and
- BC Ferries is investing in 3 new vessels and conversion of 2 large vessels to dual fuel capable ferries that can run on either liquefied natural gas or ultra-low sulphur diesel.

» Expanding transit:

- Supporting the construction of new rapid transit in Vancouver; and
- Developing rapid transit in Surrey.

» Reducing congestion:

- Replacing the George Massey Tunnel to reduce idling; and
- Optimizing movement through Canada's Pacific Gateway.

To review the entire B.C. on the Move plan, visit: https://engage.gov.bc.ca/transportationplan/.

GET INVOLVED: RIDE THE HOV LANE AND FIND A CHARGING STATION

Did you know B.C. allows approved electric vehicles to use high occupancy vehicle (HOV) lanes? Getting around in your electric vehicle has never been easier — especially with an ever growing network of charging stations. To find a station, go to: http://pluginbc.ca/charging-stations/finding-stations/.

CLEANING UP WASTE COLLECTION IN SURREY

In 2012, the City of Surrey mandated that its waste collection services be carried out using compressed natural gas vehicles. As a result, the city's contractor, Progressive Waste Solutions (PWS), launched a state-of-the-art CNG fleet for waste collection in Surrey, helping reduce emissions while diverting waste from landfills. These trucks emit 23 per cent less carbon emissions and 90 per cent less air particulates compared to diesel trucks. The city is also developing the first fully integrated organic waste biogas processing facility in North America that will be completed in 2017. The facility will turn organic waste collected at curbside into biogas and nutrient rich compost. The biogas will in turn be used to fuel the waste collection fleet, while the compost will be used by local farmers to produce fruits and vegetables. It is another step Surrey is taking to close the loop and become a zero-waste city.

Action Area: Forestry and Agriculture

WHY FORESTRY AND AGRICULTURE MATTER

Forestry and agriculture are foundational sectors of the B.C. economy, and areas that offer significant opportunities to take action against climate change.

Agriculture accounts for about three per cent of our emissions, arising from manure management, agricultural soils, and the methane produced when animals such as cattle and sheep digest food.

Greenhouse gas emissions from vehicles and mills used in forestry are counted as a component in the transportation and industrial sectors. The level of carbon stored in British Columbia's forests fluctuates from year to year based on natural factors such as fires, pests or weather.

In 2014, forestry offset projects alone removed 1.8 million tonnes of CO_2 from the atmosphere, creating jobs and unlocking new revenue streams for First Nations, communities, forest companies and private owners.

In the agriculture sector, changes in fertilizer use and soil management hold the promise of reducing greenhouse gas emissions. Many greenhouse growers are taking innovative steps to reduce their use of fossil fuels by incorporating clean tech solutions such as biomass boilers, thermal curtains and heat storage systems. Provincial offset standards and carbon pricing are making these changes more economically viable, driving their adoption in the sector.

Furthermore, many farmers in B.C. are also reducing emissions while creating new business opportunities by maximizing the value of agricultural byproducts, turning their waste into valuable resources and demonstrating the way one of our oldest industries is adapting to climate change.

PRINCE GEORGE'S WOOD INNOVATION AND DESIGN CENTRE

The award-winning Wood Innovation and Design Centre in Prince George was designed to demonstrate the way that innovative forms of wood production and use can lead to a more sustainable and beautiful future.

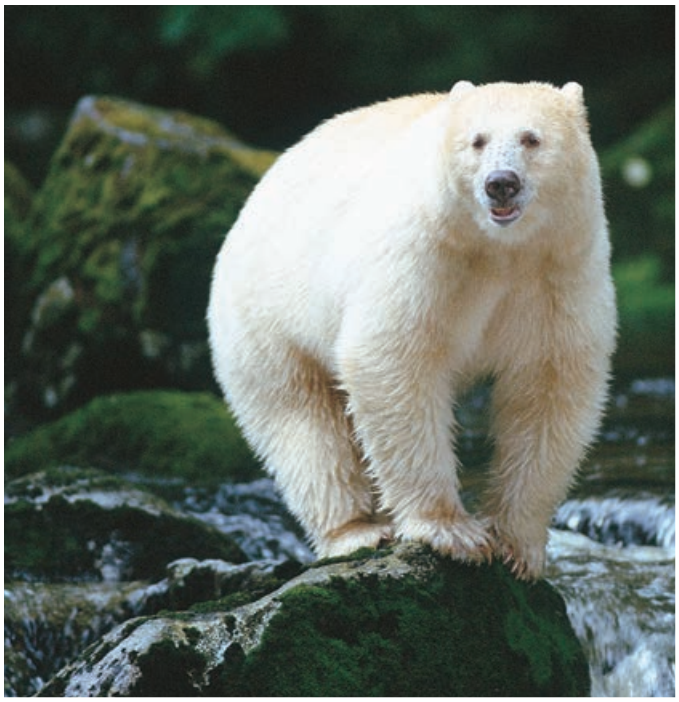
It makes use of mass timber, a wood product made from laminating together many smaller pieces of spruce, pine or fir. This centre showcases how British Columbia forest products can be made to order with powerful structural properties, while having a much smaller carbon footprint than steel or concrete.

Most recently, it was awarded the Governor General's Medal in Architecture in 2016 for its use of innovative and sustainable building technologies, the highest honour that can be given to an architectural project in Canada.

PROTECTING THE GREAT BEAR RAINFOREST TO REMOVE GREENHOUSE GASSES

The Great Bear Rainforest is one of British Columbia's most spectacular natural wonders — and an effective means of removing significant GHG emissions from the atmosphere. Great Bear's North and Central Mid-Coast, South Central Coast and Haida Gwaii forest carbon projects use ecosystem-based management practices that protect areas of the forest that were previously slated for logging.

These projects were enabled through the British Columbia Forest Carbon Offset Protocol and atmospheric benefit sharing agreements, developed in collaboration with First Nations leaders. In addition to reducing emissions, they also support the area's biodiversity and cultural heritage, while creating local economic opportunities.



TAKING ACTION: ENHANCING THE CARBON STORAGE POTENTIAL OF B.C.'S FORESTS

B.C.'s forest ecosystem covers more than 54 million hectares and provides us with significant potential for climate change mitigation.

We can harness this opportunity to sequester atmospheric carbon dioxide in this tremendous public asset through intensive forest management practices and storing carbon in long-lived wood products. That is why the Climate Leadership Team recommended that we update current forest policy and regulation to increase carbon sequestration.

So we are taking action to do even more to harness the incredible power of our forests through the new Forest Carbon Initiative, which will:

» Enhance the carbon storage potential of British Columbia's public forests; and

» Increase the rate of replanting and fiber recovery by 20,000 hectares per year.

This initiative will focus on enhancing the carbon sequestration of Mountain Pine Beetle and wildfire impacted sites — capturing the carbon benefits of new reforestation, while avoiding emissions from burning slash. This work will build on existing forest management programs, such as the recently announced Forest Enhancement Society and Forest for Tomorrow.

The Forest Carbon Initiative will rehabilitate up to 300,000 hectares of impacted sites over the first five years of the program. By 2050, the ten-year program is expected to lead to an annual reduction in greenhouse gas emissions of up to 11.7 million tonnes.

IMPROVED WOOD FIBRE USE

B.C.'s Fibre Action Plan is helping to generate more value and less greenhouse gas emissions from the province's forest resources. Through a pilot project with primary harvesters and Zellstoff Celgar Pulp Mill in Castlegar, approximately 500,000 cubic metres of residual wood (the equivalent of over 12,000 loaded logging trucks) that would once have been left in the forest were utilized as a source of fibre for the mill over the past three years. This not only helped to decrease the risk of wildfire, it saved approximately 185,000 tonnes of CO_2e from reduced slash pile burning. Additionally, the project created new jobs and economic benefits for the forest sector.

THE CHEAKAMUS COMMUNITY FOREST

The Cheakamus Community Forest carbon offset project is located adjacent to the Resort Municipality of Whistler, within the traditional territories of the Squamish and Lil'wat Nations.

The project retains more carbon in the forest by using ecosystem-based management practices that include increasing protected areas and using lower-impact harvesting techniques. Revenues from this B.C. offset project help overcome barriers to balancing environmental and economic sustainability, boosting additional uses for the forest such as recreation, tourism, and habitat protection.

Photo Credits: Bob Brett

TAKING ACTION:
DEVELOPING A NUTRIENT MANAGEMENT PROGRAM TO REDUCE EMISSIONS

In the agriculture sector, a nutrient management program is being developed to demonstrate best practices to reduce fertilizer use and GHG emissions, and is expected to lead to a nearly 100,000 tonne reduction of annual GHG emissions. This Nutrient Management Program will include:

- Expanding trials to develop and demonstrate nutrient management best practices to the agriculture industry;
- Increasing funding to the sector to implement Beneficial Management Practices that will promote better nutrient management and further reductions in GHG emissions; and
- Scaling up monitoring of nutrient management benefits and developing longer term performance indicators to measure their success.

GET INVOLVED:
ADAPT YOUR FARM FOR CLIMATE CHANGE

The Farm Adaptation Innovator Program supports projects that help build capacity for British Columbia farmers to adapt to climate change. Learn more about this and other resources to enhance agriculture's ability to adapt to climate change: www.bcagclimateaction.ca/farm-level/adaptation-innovator-program/.

GET INVOLVED:
BECOME A MORE SUSTAINABLE FARM

Farming sustainably is good for the planet and good for business. The Environmental Farm Plan Program supports farm operations to complete agri-environmental risk assessments. After completing an Environmental Farm Plan, farmers can apply for funding to implement Beneficial Management Practices that help to increase agricultural and environmental sustainability. Learn more at: https://www.bcac.bc.ca/ardcorp/program/environmental-farm-plan-program.

CREATING RENEWABLE NATURAL GAS FROM MANURE AND ORGANIC WASTE

Expanding agricultural production in the Lower Mainland requires solutions to the issue of manure produced by the large numbers of dairy cattle. With support from the Ministry of Agriculture's innovation program, Seabreeze Farms in Delta has built an anaerobic digester that is turning manure and other organic waste into biogas, digestate (organic fertilizer) and bedding for cows.

The biogas is created by capturing methane that would otherwise have gone into the atmosphere. The biogas is cleaned and upgraded into renewable natural gas that displaces conventional natural gas with a renewable energy source.

Photo Credit: Delta Farmers Institute

Action Area: Industry and Utilities

WHY INDUSTRY AND UTILITIES MATTER

B.C. industry creates thousands of good jobs, but requires significant amounts of energy to drive their production systems. These large-scale users of energy represent almost 18 per cent of our total emissions.

We are already driving innovation in this area with our carbon tax, which covers approximately 60 per cent of the emissions in this sector. As the world shifts to a low-carbon economy, B.C.'s low-carbon electricity has become a competitive advantage for B.C.'s businesses, driving industry to create green jobs and products that are helping the world reduce GHG emissions.

The portion of BC Hydro's power generation portfolio that comes from clean or renewable resources is currently 98 per cent, already above the 93 per cent requirement in B.C.'s Clean Energy Act. Furthermore, B.C.'s abundant supply of clean burning natural gas represents enormous potential to shift our industrial sectors and global partners off the use of more GHG intensive fuels, particularly in areas such as fuelling marine transportation vessels.

British Columbia has also established the Innovative Clean Energy Fund, through which we have invested over $70 million to support the development of clean energy and energy efficiency technologies in the electricity, alternative energy, transportation and oil and gas sectors.

TAKING ACTION: MAKING B.C.'S ELECTRICITY 100% RENEWABLE OR CLEAN

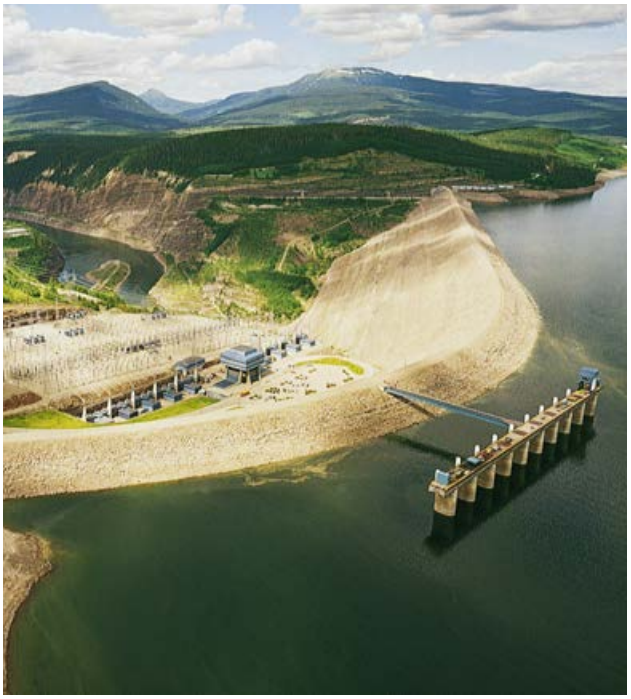
B.C.'s clean electricity supply is activating numerous opportunities to reduce GHG emissions across our industrial sectors. When an industry switches to electricity instead of fossil fuels, their emissions go down. The CLT recommended that we increase the target to 100 per cent clean energy on the integrated grid by 2025, while allowing for the use of fossil fuels for reliability. BC Hydro will focus on acquiring firm electricity from clean sources.

Going forward, 100 per cent of the supply of electricity acquired by BC Hydro in British Columbia for the integrated grid must be from clean or renewable sources, except where concerns regarding reliability or costs must be addressed. Acquisition of electricity from any source in British Columbia that is not clean or renewable must be approved by government through an Integrated Resource Plan, where it will be aligned with the specific reliability or cost concerns.

TAKING ACTION: EFFICIENT ELECTRIFICATION

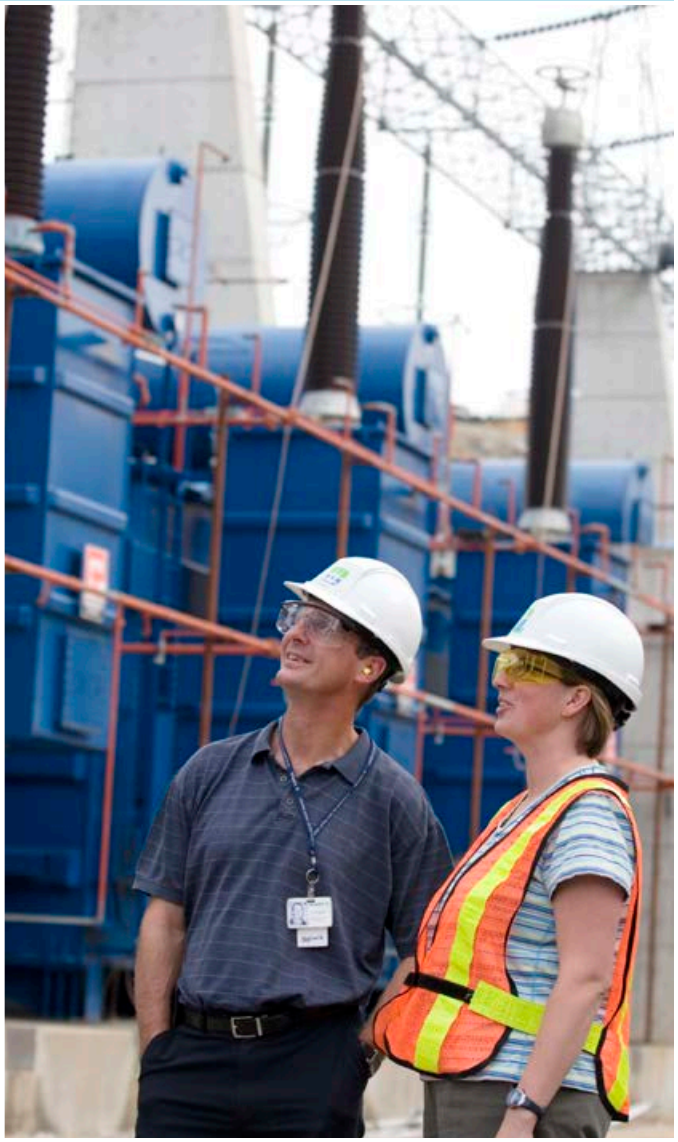
Demand-side management (DSM) programs help customers reduce energy bills by fostering awareness of energy use and providing incentives to increase energy efficiency. These programs can take on an expanded role in climate leadership, helping customers to understand their GHG emissions and providing incentives for efficient electric technologies to reduce GHG emissions.

To advance efficient electrification, we are taking action by working with BC Hydro to expand the mandate of its DSM programs to include investments that increase efficiency and reduce GHG emissions.



RENEWABLE ENERGY IS CREATING GREEN JOBS

British Columbia's clean energy producers have reported investment of more than $6 billion in First Nations communities and local economies, while fighting climate change and creating thousands of jobs throughout the north and interior regions. This growing sector has to date supported 15,970 direct, full-time equivalent (FTE) person years of construction employment in every region of the province, with another 4,543 FTE person years of employment projected for forthcoming projects. Furthermore, renewable power companies now employ 641 people in operational roles around the province, and new projects now under construction will support an additional 165 positions once completed. About 25 per cent of BC Hydro's energy supply now comes from independent power producers. The Province is also working with our neighbours in Alberta to investigate the opportunity for greater integration of our power systems, which would allow British Columbia to deliver more clean electricity to Alberta to reduce their reliance on fossil fuels to power industrial processes, thereby reducing their climate impact. British Columbia is truly demonstrating the business opportunity of renewable energy, while lowering our impact on the environment in the process.



SOLAR-POWERED T'SOU-KE

In 2013, T'Sou-ke Nation became the first Aboriginal community in the world to be designated a solar community. They have installed three solar demonstration projects. One demonstrates how remote 'off grid' communities can economically switch from diesel to solar. Another demonstrates how to be 'Net Zero' — which means no more electricity bills. Solar panels on their reservation are used to power all the administrative buildings, while sending their excess solar power back to the grid to contribute to British Columbia's clean energy profile. On sunny days, that excess can be up to 90 per cent of the power produced.

The profits of selling this power back to B.C. Hydro offsets their power bills during darker months. The project received $400,000 in funding from the Province's Innovative Clean Energy Fund. Solar programs in Colwood, the Capital Regional District and several First Nations throughout B.C. have been modelled after T'Sou-ke's leadership. T'Sou-ke is now working on harnessing the energy of the wind and waves to create more clean energy for their community and the province. T'Sou-ke Eco Tourism has been boosted by this project, with over 2,000 people from all over the world visiting each year for solar tours and workshops.

TAKING ACTION: FUELLING MARINE VESSELS WITH CLEANER BURNING LNG

B.C.'s abundant supply of natural gas represents a significant opportunity for industry to lower their impact on the environment. For example, B.C. can help the world replace high-emission marine transport fuels with cleaner burning natural gas, leading to global reductions in GHG emissions.

The Greenhouse Gas Reduction Regulation allows utilities to invest in clean transportation and infrastructure to reduce GHG emissions by replacing the use of higher emitting diesel with natural gas in a variety of sectors.

In particular, FortisBC has been expanding the use of compressed natural gas (CNG) and liquefied natural gas (LNG) in the heavy duty transportation sector since 2012, under its Natural Gas for Transportation initiative. Since 2012, FortisBC has committed $48 million in incentive funding towards the purchase of CNG and LNG vehicles.

These incentives translate to 485 CNG vehicles, 138 LNG vehicles, 6 mine haul trucks and 7 marine vessels that are in operation currently or will be in operation soon. These efforts will result in the reduction of over 74,000 tonnes of GHG emissions annually.

Recent amendments to the regulation will allow utilities to provide further incentives for the marine, mining and remote industrial power generation sectors. It is expected that by 2022 there will be an additional reduction of at least 300,000 tonnes of annual GHG emissions.

GET INVOLVED: MINIMIZE YOUR CARBON FOOTPRINT WITH AN ENERGY MANAGEMENT SYSTEM

Companies that implement energy management systems reduce energy costs and increase business competitiveness, while also minimizing their environmental impacts. The ISO 50001 Implementation Incentive offers up to $80,000 of assistance to implement energy management projects that help facilities pursue compliance with the ISO 50001 standard. Learn more at: www2.gov.bc.ca/gov/content/industry/electricity-alternative-energy/innovative-clean-energy-solutions/innovative-clean-energy-ice-fund/iso-50001-implementation-incentive.

LNG FOR THE GLOBAL MARINE SECTOR

FortisBC is proposing to facilitate new investments in LNG marine bunkering in order to further transform the adoption of LNG as a marine fuel. This will also help position B.C. as a global marine bunkering centre on the west coast capable of providing LNG to a large number of natural gas vessels. The current level of global GHG emissions from ships coming into British Columbia is 70 million tonnes per year — higher than the total GHG emissions attributed to British Columbia in its entirety.

TAKING ACTION: NEW ENERGY EFFICIENCY STANDARDS FOR GAS FIRED BOILERS

Gas fired package boilers are used in industrial systems across the province, contributing to B.C.'s overall emissions profile. New technologies can be used to improve the efficiency of these boilers, which will reduce emissions and operating costs. As such, the Province will develop a regulation to be implemented by 2020 that will set energy efficiency requirements for new and replacement gas fired package boilers, driving down emissions across a number of industries.

GET INVOLVED:
SAVE YOUR BUSINESS MONEY BY BECOMING MORE ENERGY EFFICIENT

Reduce the operating costs of your business by making energy efficiency upgrades. BC Hydro and FortisBC offer a variety of programs to help you improve your business' energy efficiency, including incentives for upgrades and opportunities to learn from experts. Find out more at: https://www.bchydro.com/powersmart/business/programs.html *and* https://www.fortisbc.com/Rebates/RebatesOffers/Pages/default.aspx.

TAKING ACTION: EXPANDING INCENTIVES TO PROMOTE ADOPTION OF EFFICIENT GAS EQUIPMENT

Gas fired equipment is used for a variety of purposes, from space and water heating in industrial processes, to home fireplaces and commercial cooking equipment. FortisBC offers incentives to promote adoption of more efficient gas equipment for the residential, commercial and industrial sectors.

Now the Province is taking action to amend the Demand-Side Measures Regulation and allow FortisBC to expand their incentives by at least 100 per cent, to encourage further adoption of technologies that reduce the emissions of gas fired equipment.

MINING THE SUN IN KIMBERLEY

The City of Kimberley launched an innovative project to convert Teck's former Sullivan Mine Concentrator site into a solar energy project called SunMine. It includes 4,032 solar-cell modules, mounted on 96 solar trackers that follow the sun's movement to maximize the amount of energy captured. This has made it B.C.'s largest solar project and Canada's largest solar tracking facility. It was also the first solar project in British Columbia to begin selling power back to the BC Hydro grid. This important project was made possible through the Province's Innovative Clean Energy Fund, as well as an investment from Teck, who provided the land and site infrastructure, as well as a $2 million contribution. SunMine is a community owned project that is well suited to capitalize on Kimberley's clear and sunny conditions.

Photo Credits: City of Kimberley

Action Area: Communities and Built Environment

WHY COMMUNITIES AND BUILT ENVIRONMENT MATTER

Communities and our built environment are key factors in the fight against climate change. While the built environment is a significant contributor to our overall emissions profile, it also represents a real ongoing opportunity for change.

From the way we construct buildings to the way we develop communities and manage our waste, our built environment is a significant area where new innovations are demonstrating what a sustainable future could look like. However, we must balance our choices, to ensure that our climate solutions are affordable.

Emissions from the built environment (including buildings, deforestation and waste) represent 24 per cent of British Columbia's total emissions. Yet emissions in this area are down 9.4 per cent since 2007, due to climate action in community planning, building regulations and waste diversion.

Changes in the realm of communities and the built environment have been driven by policies such as Official Community Plans and Regional Growth Strategies, the Climate Action Charter, and the Climate Action Revenue Incentive Program, which returns the carbon tax to local governments to support GHG reduction projects.

The Building Code and Energy Efficiency Act have improved standards for residential and commercial buildings, while programs like LiveSmart BC and the Home Energy Retrofit Offer have promoted efficiency upgrades. In the area of waste, B.C.'s Landfill Gas Management Regulation has required landfill operators to increase the amount of methane they capture. 60 per cent of British Columbians have access to curbside organic diversion programs that are helping us reduce the amount of methane that will be emitted from waste we send to landfills every year.

With life spans of 50–100 years, today's buildings and infrastructure will impact our energy use and emissions for the next century. Incorporating climate action in planning and development leads to less energy and infrastructure spending. Over time, these actions will result in lower emissions and reduced congestion, as well as improved air quality, liveability and health.

NORTH VANCOUVER'S CLIMATE ACTION LEADERSHIP

The City of North Vancouver has shown how communities can make impressive strides to lead in the fight against climate change. It prides itself on being a compact community that puts pedestrians, cyclists, and transit first, and for reducing its corporate emissions by 19 per cent since 2007. Overall community emissions have decreased by 6 per cent between 2005 and 2010. The city has made this progress through initiatives that focus on sustainable energy, development planning that enhances public transit, building bike and pedestrian routes, and making upgrades to city buildings to make them more energy efficient.

TAKING ACTION: REGULATIONS FOR MORE ENERGY EFFICIENT BUILDINGS

Combustion of fossil fuels for heating in buildings accounts for the majority of building emissions. When we use fossil fuels, we need to make sure we are using them as efficiently as possible.

With 98 per cent of electricity generated in British Columbia coming from clean sources, promoting the efficient use of electricity represents another opportunity to cut emissions further. At the same time we must ensure that we do not intensify issues around housing affordability. That is why we are amending the energy efficiency standards regulation to include:

- Increased efficiency requirements for gas fireplaces and air source heat pumps, effective in 2018; and
- High-efficiency technology requirements for natural gas space and water heating equipment, effective in 2020 and 2025 respectively.

GET INVOLVED: USE THE FIRST NATIONS CLEAN ENERGY TOOLKIT

First Nations in British Columbia are well placed to take advantage of the clean energy sector.

The British Columbia First Nations Clean Energy Toolkit is a step-by-step manual designed to inform First Nations about the kinds of clean and renewable energy sources available, how to begin looking into doing a clean energy project, and where to find resources.

Check it out at: https://www.cleanenergybc.org/wp-content/uploads/2016/04/BC-FN-Toolkit.pdf.

TAKING ACTION: ENCOURAGING DEVELOPMENT OF NET ZERO BUILDINGS

Cleaner, more energy-efficient buildings can save owners and tenants money in the long run by lowering energy costs and avoiding carbon costs. Additionally, improved building envelopes and efficient technologies such as new heat pumps can make significant improvements in buildings. As such, we are implementing a number of policies to encourage the development of net zero buildings, including:

- Accelerating increased energy requirements in the BC Building Code by taking incremental steps to make buildings ready to be net zero by 2032;
- Developing energy efficiency requirements for new buildings that go beyond those in the BC Building Code, called Stretch Codes, that interested local governments could implement in their communities; and
- Creating innovation opportunities and financial incentives for advanced, energy-efficient buildings, including an increase in funding for design and innovation.

The international Passive House standard is one of the most rigorous and advanced building performance standards in the world, achieving reductions in heating energy of up to 90 per cent compared to other buildings. Through a partnership between the Province's Innovative Clean Energy Fund and the Canadian Passive House Institute, architects, builders and building inspectors are receiving training in Passive House design principles.

GET INVOLVED:
LEARN ABOUT PASSIVE HOUSING DESIGN

Take a passive house design course and find out about training subsidies for building professionals at: http://canphi.ca/passive-house-courses/.

TAKING ACTION: REFRESHING THE CLIMATE ACTION CHARTER FOR COMMUNITIES

The Climate Leadership Team recommended that British Columbia update the Climate Action Charter to align provincial and community goals. In response, we are refreshing our actions under the Climate Action Charter this year, which sets out a framework for British Columbia communities to become carbon neutral and to create complete, compact, energy-efficient urban and rural communities.

The Province will work with local governments to expand the progress made to date on reducing GHG emissions. The goal is to establish a plan for community action that takes advantage of provincial and federal actions, to maintain momentum at the community level through policies, programs and regulations that will:

- Focus growth near major transit corridors for large urban communities;
- Increase the use of decision support tools that provide the information needed to create more resilient green infrastructure; and
- Strengthen the ability of communities to adapt to the impacts of climate change.

GET INVOLVED:
UPGRADE YOUR HOME'S ENERGY EFFICIENCY

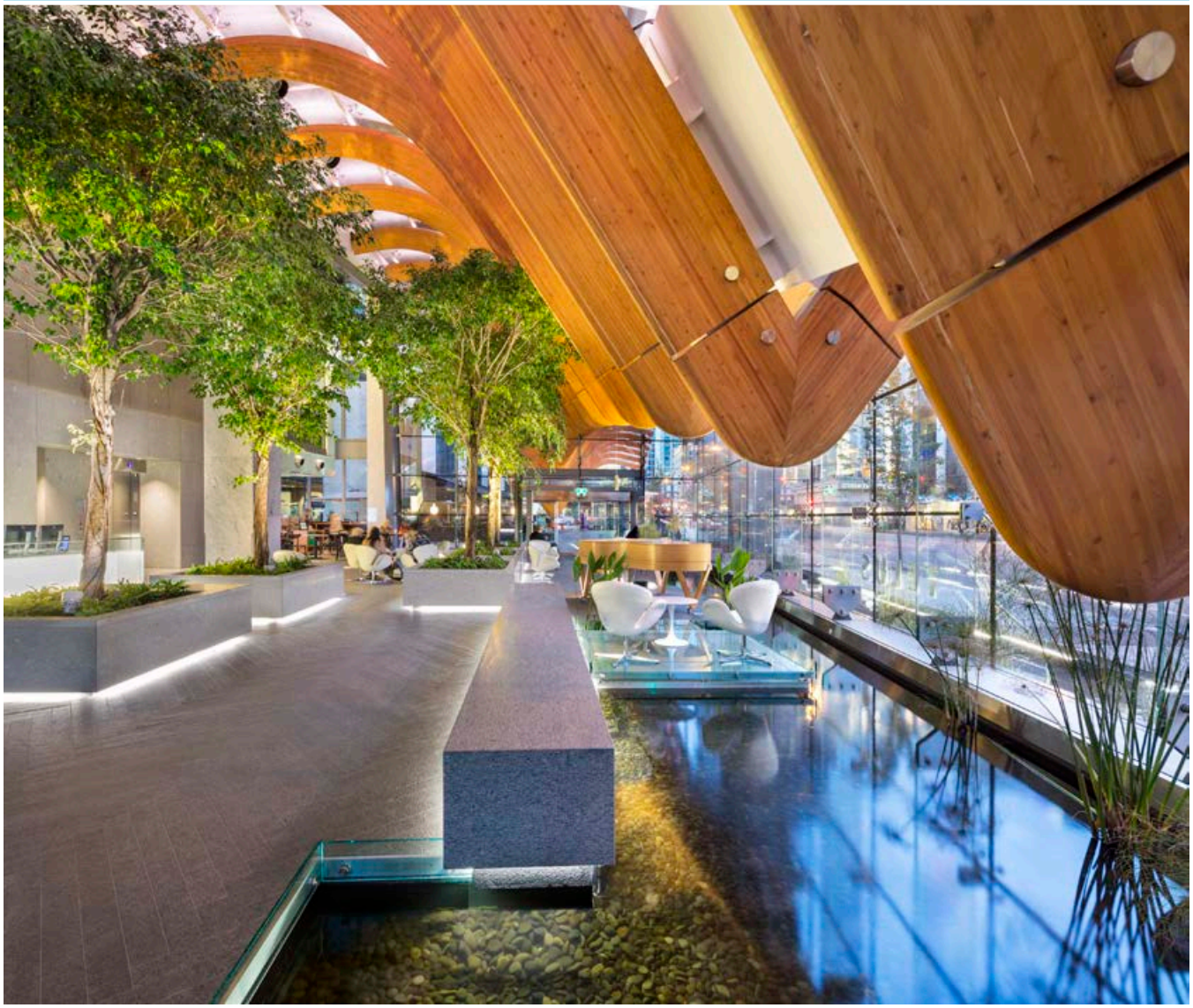
Home energy efficiency upgrades are a great way to save money and protect the environment. Did you know you can receive a rebate of up to $1,700 for upgrading from oil heating to an electric heat pump?

For more information on this and other programs, check out British Columbia's energy efficiency programs: www2.gov.bc.ca/gov/content/industry/electricity-alternative-energy/energy-efficiency-conservation/programs.

TELUS GARDEN AWARDED LEED PLATINUM CERTIFICATION

TELUS Garden, the company's new office in downtown Vancouver, is one of North America's greenest buildings. That is why the Canada Green Building Council awarded it the prestigious Leadership in Energy and Environmental Design (LEED) Platinum certification and it also received the impressive 2016 Architizer A+ Award for Office High Rise. Its innovative design includes: a district energy system that recovers energy that would normally be wasted and uses it to heat and cool air and water for both the office and residential towers, as well as the retail space; Vancouver's largest solar panel array; a rainwater capture system to irrigate its 10,000 sq. ft. of garden terraces; high-efficiency motion sensor lighting; charging stations for electric vehicles; and numerous other design elements that improve its environmental performance.

These sustainability features will contribute to a reduction in carbon emissions of more than 1,000 tonnes annually. Its innovative design was inspired by nature and advances the company's mission to create a healthier, more sustainable future, demonstrating what the built environment of the future could look like.



TAKING ACTION: CREATING A STRATEGY TO TURN WASTE INTO RESOURCES

Landfill waste is a significant source of emissions, and an area where significant opportunity for improved performance on GHG emissions exists. The CLT recommended that British Columbia create a waste-to-resource strategy that reduces GHG emissions from organic waste. In response, we are taking the following actions:

- Supporting materials exchange pilot projects that create innovative uses for waste products;
- Creating a waste-to-resource strategy to reduce waste sent to landfill; and
- Establishing a food waste prevention target of 30 per cent and increasing organics diverted from landfills to 90 per cent.

These actions are expected to reduce annual GHG emissions by up to 1.4 million tonnes.

TURNING WASTE INTO ENERGY

Emergent Waste Solutions (EWS) is a B.C. business that is deploying clean tech solutions to turn waste into valuable products and reduce greenhouse gas emissions, without using incineration.

Using a process called thermolysis, EWS's technology produces carbon from waste, such as wood fibre, rubber and plastics, for a wide variety of applications including biochar for agricultural uses, activated carbon for filtration, and carbon black for rubber product applications. The energy byproducts are syngas, used primarily to power its own operations, as well as bio oil and light diesel fuel, which can be used for home heating and other applications. Beyond the potential applications of this technology in B.C., EWS is opening a plant in Alberta, helping our neighbours turn their waste into valuable resources.

Action Area: Public Sector Leadership

WHY PUBLIC SECTOR LEADERSHIP MATTERS

Public sector operations are present in almost every community in the province, through schools, universities, colleges, crown corporations, health care services and others. B.C.'s public sector is also a significant buyer of clean tech goods, equipment and services.

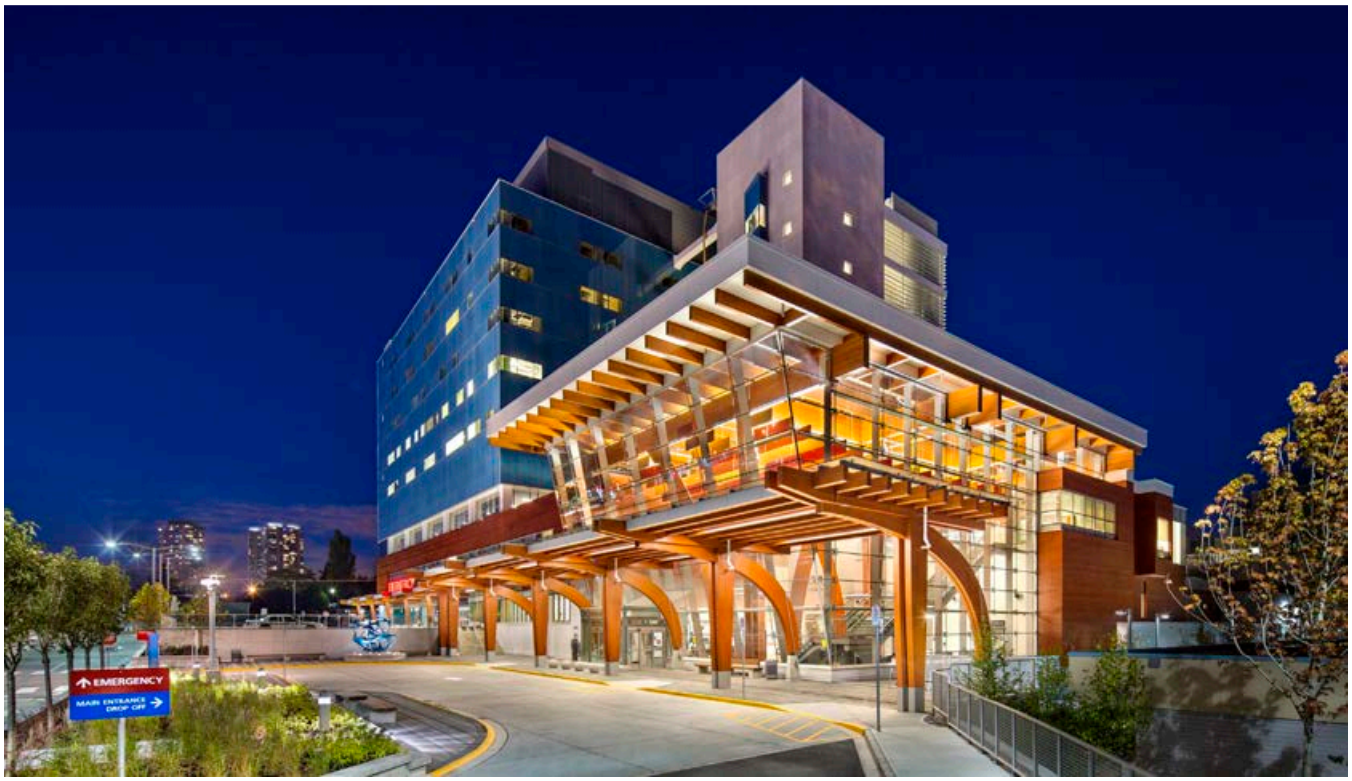
As such, the Province is well positioned to serve as a catalyst for climate action at both the community and provincial levels. Public sector leadership engages 300,000 public servants to take action on climate change, and in turn reaches the two million British Columbians that work, learn or visit government buildings each year. Buildings account for almost 77 per cent of B.C.'s provincial public sector emissions.

That is why as of 2010, the Greenhouse Gas Reduction Targets Act has required all public sector organizations (PSOs) to operate at carbon neutral. The Carbon Neutral Government commitment is achieved by measuring and reducing PSO emissions and offsetting the remainder by purchasing carbon offsets.

Over the first six years of this commitment, the provincial public sector has successfully achieved carbon neutrality each year, reducing a total of 4.3 million tonnes of emissions through reduction activities and investment of $51.4 million in offset projects.

SURREY'S HIGH PERFORMANCE HOSPITAL

In 2014, the Fraser Health Authority partnered with Integrated Team Solutions to deliver a state-of-the-art critical care tower at Surrey Memorial Hospital. Recently LEED Gold certified, the eight storey tower incorporates efficient and sustainable design solutions, including air-to-water heat pumps, central lighting controls and electric vehicle charging stations. The tower, with estimated annual emissions of less than 1,100 tonnes $C0_2e$, is predicted to save nearly 4 GWh equivalent of energy each year compared to a standard building.



PhotoCredit: Ed White Photographics

TAKING ACTION: PROMOTING USE OF LOW CARBON AND RENEWABLE MATERIALS IN INFRASTRUCTURE

Public sector infrastructure represents a considerable portion of B.C.'s built environment and is an area where the Province is demonstrating leadership in taking action to reduce GHG emissions. That is why we are developing policies to increase the use of low carbon and renewable materials in all public sector infrastructure, including:

- Approving use of Portland-limestone cement in public sector infrastructure. This material reduces GHG emissions associated with existing cement manufacturing by approximately 10 per cent, while producing concrete with similar strength and durability. This cement has been popular in Europe for over 25 years now, but is new to Canada; and
- Increasing use of B.C.'s wood products that store carbon and reduce emissions, through our Wood First program that drives innovation in forestry products, while promoting climate-friendly construction and supporting our forest-dependent communities.

GET INVOLVED: IMPROVE YOUR ENERGY MANAGEMENT PRACTICES

Looking for ways to improve the energy efficiency of your organization?

Check out FortisBC's Commercial Custom Design Program to learn about natural gas upgrade opportunities and their Custom Business Efficiency Program for electricity upgrade opportunities for customers. Learn about the full range of energy management programs for BC Hydro customers.

Find out more at: https://www.fortisbc.com/Rebates/RebatesOffers/Pages/default.aspx?type=business *and* https://www.bchydro.com/powersmart/business/programs/partners.html.

TAKING ACTION: REDUCING EMISSIONS AND PLANNING FOR ADAPTATION IN THE PUBLIC SECTOR

It is important for the Province to lead the way on developing emission reductions and adaptation planning strategies, and demonstrating them through our public sector operations. Not only does it reduce the overall emissions profile of our province, it helps industry and individuals understand how they can join the fight against climate change. These areas were clear priorities for public sector leadership that were identified in the CLT's recommendations.

To continue capitalizing on this opportunity, the Province is committing to:

- Developing guidelines for public sector operations to reduce emissions and plan for climate change adaptation; and
- Mandating the creation of 10-year emissions reduction and adaptation plans for provincial public sector operations.

CANADA'S GREEN UNIVERSITY

A forestry seedling greenhouse started the University of Northern British Columbia (UNBC) on the road to using renewable energy. Now the Prince George university is the first in Canada with its own wood-fuelled district heating system and has been branded as "Canada's Green University." This system, designed by Vancouver-based clean tech company Nexterra, uses wood pellets made from wood waste such as sawmill shavings from Prince George's local forestry industry to create bioenergy. This energy is then used to heat water, which is circulated to the existing hot water district heating system that heats the UNBC campus. This has reduced fossil fuel consumption at UNBC by 72 per cent, avoiding 3,700 tonnes of carbon emissions every year. This has shown both the City of Prince George, as well as visiting students and faculty, what is possible when you use wood waste as a fuel.

GOING SOLAR AT THE COLLEGE OF THE ROCKIES

The College of the Rockies has installed solar panels on the roof of the Cranbrook campus' Kootenay Centre, which will allow it to generate electricity year-round. This solar technology will produce 109,000 kilowatt-hours per year of electricity, enough to power 14 houses in the region for a year. It will also act as a teaching tool for students, both during construction and once the system is running. This project will continue the college's mission to be leaders in alternative energy, having already installed solar technology to power the heating system for their residence building, and a solar wall at Pinnacle Hall that draws heat into the building, improving air quality and reducing heating costs.

Next Steps on Climate Leadership

Taking action on climate change is a critical priority for the Province of British Columbia and the citizens we serve. In B.C., we know that climate action is necessary to protect our environment, while seizing the opportunity of a low carbon economy that creates good jobs for British Columbians.

We are committed to achieving B.C.'s goal of reducing GHG emissions to 80 per cent below 2007 levels by 2050. However, the pathway to that goal is not always clear, as true sustainability means balancing environmental, economic and social concerns. An action that improves environmental performance cannot be considered sustainable if it works against our economic competitiveness, driving jobs and emissions to other jurisdictions, or if it raises the cost of living so that British Columbians struggle to make ends meet. There is no silver bullet here — real climate action demands careful planning, a flexible approach, and coordination with our partners here in Canada and around the world.

The federal government has signalled a reinvigorated commitment to climate action, and we look forward to the opportunity to help develop a Pan-Canadian Framework later this year, which will align provincial policies to work together to achieve our GHG reduction goals.

While there are areas we know we still need to take action on, many are dependent on our work with the federal government, whether that means identifying additional available funding opportunities or developing policies that align with our provincial and territorial partners to protect B.C.'s economic competitiveness.

A key area that we know will require further action is carbon pricing. Our carbon tax already leads the country — now we must work with our provincial and federal partners to develop a carbon pricing model that works for all. It is a complex issue that will require extensive coordination to ensure that it is effective.

We know that First Nations are interested in ensuring their communities are prepared to adapt to climate change, and are able to capture the economic benefit of mitigation activities, including reforestation and clean energy projects. With the establishment of this new framework for provincial action on climate change, the Province will be seeking the participation of First Nations in the economic and adaptation opportunities we have identified. We look forward to collaborating with them to capitalize on these new opportunities.

Another key area where you can expect to hear more in the coming year is adaptation. In 2010, the Province created a comprehensive strategy to address the changes we will see in B.C. as a result of climate change. We are now working with the federal government and other Canadian jurisdictions to improve our management of the risks associated with a changing climate.

The Province is also collaborating internationally through the Regions Adapt Initiative and the Pacific Coast Collaborative. Recent investments in flood protection and forest stewardship here in British Columbia will also increase our resilience to a changing climate.

Adapting to a changing climate depends on action by all levels of government, the private sector and civil society. As we move forward on climate action, we will look to maximize opportunities to extend our leadership in responding to the impacts of a changing climate.

While the actions we have outlined here represent what we can do today, it is important that we lay the foundation to support solutions with the potential to make an even bigger impact. That is what programs like British Columbia's Innovative Clean Energy (ICE) Fund are designed to do.

A recent investment from the ICE Fund is generating a lot of excitement — Carbon Engineering Ltd. has built the world's first direct air capture plant in Squamish. This technology captures atmospheric carbon dioxide right out of the air, and targets emissions that traditional fluestack carbon capture cannot reach. Their demonstration plant is already capturing and purifying a tonne of CO_2 every day. Carbon Engineering is looking at ways to turn the captured CO_2 into fuels like gasoline and diesel, which upon combustion would simply return the carbon to the air.

These innovations, along with continued deployment of clean and renewable electricity generation, could allow for the mass production of low carbon fuels, helping the world become less reliant on fossil fuel production and consumption. The technology represents an enormous opportunity for B.C. to bolster its economy while fighting climate change.

The Province will continue to identify opportunities where we can reduce GHG emissions today, while working with our partners to plan for the future, and investing in innovative projects that can help us reach our 2050 target even sooner. Additionally, our Climate Leadership Plan will be updated over the course of the following year as work on the Pan-Canadian Framework on climate action progresses.

We hope that you will get engaged, do your own part where you can, and continue to work with us on this important mission. If we want to ensure a great future for our children and grandchildren, then climate action must be a key priority. Join us in imagining what this bright future looks like and in taking action to make it a reality.

Sincerely,

HONOURABLE MARY POLAK
MINISTER OF ENVIRONMENT

Photo Credit: Stephen Hui

Appendix

Summary of Action Areas

The table on the following page summarizes the 21 climate actions across 6 sectors.

Emission reductions have been forecast through economic modelling or direct calculation by the responsible ministries. Input/output modelling was used to forecast cumulative direct and indirect economic activity (Gross Domestic Product) and jobs resulting from policies, except forest sector policies, which were forecasted by the Ministry of Forests, Lands and Natural Resource Operations.

The input/output modelling was undertaken using relevant economic and jobs factors provided by BC Stats.

All numbers in the following table are forecasts and subject to final policy decisions and budgets.

* *25,000,000 tonnes CO_2e is equal to 8.3 million new cars off the road for a year.*

An average B.C. house creates 2 tonnes CO_2e per year. 25,000,000 tonnes CO_2e is equal to the emissions from 12.5 million B.C. homes in one year.

Action Areas	Emission Reductions in 2050 (Millions of tonnes CO_2e)	Job Creation	Economic Activity ($ Millions)
NATURAL GAS	**5**	**4,043**	**527**
» Strategy to Reduce Methane Emissions » Regulating Carbon Capture and Storage » Electricity to Power Natural Gas Production and Processing			
TRANSPORTATION	**3**	**41,525**	**4,573**
» Increasing the Low Carbon Fuel Standard » Incentives for Renewable Natural Gas » Incentives for Purchasing a Clean Energy Vehicle » Charging Stations for Zero Emission Vehicles » 10-Year Plan to Improve B.C.'s Transportation Network			
FORESTRY & AGRICULTURE	**12**	**19,942**	**681**
» Enhancing the Carbon Storage Potential of B.C.'s Forests » Nutrient Management Program			
INDUSTRY & UTILITIES	**2**	**554**	**53**
» Making B.C.'s Electricity 100% Renewable or Clean » Efficient Electrification » Fuelling Marine Vessels with Cleaner Burning LNG » New Energy Efficiency Standards for Gas Fired Boilers » Expanding Incentives for Efficient Gas Equipment			
BUILT ENVIRONMENT	**2**	**230**	**19**
» Regulations for More Energy Efficient Building » Encouraging Development of Net Zero Buildings » Refreshing the Climate Action Charter for Communities » Strategy to Turn Waste into Resources			
PUBLIC SECTOR LEADERSHIP	**1**	**3**	**–**
» Promoting Use of Low Carbon and Renewable Materials in Infrastructure » Reducing Emissions and Planning for Adaptation in the Public Sector			
TOTAL	**25***	**66,297**	**5,853**

Notes

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FOR MORE INFORMATION VISIT THE WEBSITE:

GOV.BC.CA/CLIMATELEADERSHIP

BRITISH COLUMBIA