CLEAN ENERGY CANADA

August 2018

SUBMISSION

Building a Clean Growth Future for B.C.
Comments and Recommendations

INTRODUCTION

Clean Energy Canada is a climate and clean energy think tank within the Morris J. Wosk Centre for Dialogue at Simon Fraser University.

We work to accelerate Canada's clean energy transition by sharing the story of the global shift to renewable energy sources and clean technology. We conduct original research, convene influential dialogues, inform policy leadership, and build citizen engagement.

We believe Canada—and British Columbia—is capable of developing one of the most advanced energy systems in the world, while significantly reducing carbon pollution by 2050 and building an innovative, growing economy, with good jobs and healthy communities and ecosystems.

For us, the term "clean energy" spans supply and demand and includes technologies and services that increase renewable energy supply; improve the infrastructure and systems that transmit, store, and use energy; enhance energy efficiency, delivering the same services with less energy; and deliver energy services—power, heat, and transportation—while reducing carbon pollution.

This submission contains comments and recommendations from Clean Energy Canada on (1) Creating a Strategy for a Clean Growth Future, (2) Clean Transportation and (3) Clean, Efficient Buildings and A Clean Growth Program for Industry.

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1. CREATING A STRATEGY FOR A CLEAN GROWTH FUTURE

The government's proposal to bring together its numerous efforts—on climate change, an energy roadmap, an economic development strategy, the #BCTech Strategy, and the Emerging Economy Task Force—is a welcome shift toward an integrated, all-of-government approach to capitalizing on the opportunities and benefits of the global transition to a clean economy.

That these opportunities exist shouldn't come as a surprise to British Columbians. We've demonstrated to the world how to grow our economy while cutting pollution. B.C. introduced North America's first revenue-neutral carbon tax and committed to ensuring the power grid remains overwhelmingly clean and renewable. Other policies, such as a Low Carbon Fuel Standard (LCFS) have lowered emissions and helped clear the air. Meanwhile, during this period of policy leadership, B.C.'s economic growth outpaced the Canadian average between 2008 to 2012.

What does "clean growth" look like?

- Clean power.
- Clean cars.
- Clean manufacturing and resource production.
- Efficient buildings.

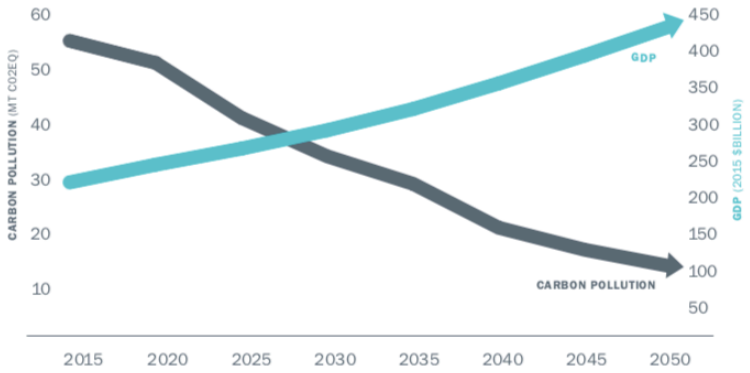
And what are the benefits?

- Less pollution.
- Healthier communities and lower healthcare costs.
- Lower energy bills and enhanced affordability for British Columbians.
- World-leading innovation in technology and services.
- More and better jobs.
- Globally competitive industries and businesses.

In 2015, we retained Navius to model the job creation and economic growth implications of meeting the province's 2020 and 2050 climate targets. While this modelling now needs to be updated—to include the new 2030 target and reflect ongoing innovation and clean energy technology cost trends—the results are nonetheless informative.

We found that with strong climate leadership, B.C. would see nearly one-million new jobs between now and 2050, with 270,000 of those positions created in the next 10 years. Provincial GDP would be expected to grow at the same rate it has historically, 2% a year. At this pace, B.C.'s annual GDP would nearly double to $340 billion by 2050, an increase of $40 billion in the next decade alone.

As carbon pollution falls, British Columbia's GDP climbs



Further, the results showed that efforts to reduce pollution would also lead to a future in which British Columbians—in both rural and urban areas—would be using less energy and spending less to power our homes and vehicles by 2030.

We believe the all-of-government approach to clean growth offers British Columbians a much bigger, more integrated vision for the future of the province. A vision that includes ensuring life is affordable for British Columbians, creating new jobs and opportunities throughout the province, spurring innovation and opportunity for B.C. businesses, cutting carbon pollution, and reconciliation with First Nations.

Doing so is no small task, and consequently we are supportive of approaching the strategy as a living document. The past decade has demonstrated how challenging it is to predict the rate of change—particularly when it comes to technology innovation and the cost of clean energy solutions—so an approach that is adaptive to change promises to serve B.C. well.

Clean growth will only be achieved through the rapid and deep decarbonization of our energy system. Consequently, our comments pertaining to specific sectors relate to four key transition strategies:

1. the decarbonization of power (where B.C. retains a significant advantage already) and extensive electrification,
2. the decarbonization of activities that cannot be cost-effectively electrified,
3. an accelerated improvement in energy productivity, and
4. an optimization of fossil-fuel use within carbon budget constraints (i.e. carbon capture and storage/use).

2. CLEAN TRANSPORTATION

With respect to clean transportation, our comments are focused on offering more choice and better access to cleaner vehicles and fuels.

British Columbia stands out as an early leader in public policy that supports the deployment of EVs. But while B.C. has numerous policies and programs in place—such as the Clean Energy Vehicle Incentive, education programs, and investments in electric vehicle charging infrastructure—EV uptake still lags the world's leading jurisdictions, meaning we're foregoing even greater economic and environmental benefits.

With regards to demand-side policies and programs discussed in the intentions paper, we offer the following recommendations regarding personal vehicles:

- A missing piece in B.C.'s Zero Emission Vehicle (ZEV) policy package to date, as acknowledged in the Clean Transportation intentions paper, is a ZEV Mandate. For our recommendations regarding the implementation of a mandate, please refer to our joint submission entitled, ***Support for introducing a Zero Emission Vehicle Mandate in British Columbia.***
- Sustaining consumer purchase incentives for ZEVs is vital given the early stage of adoption in the marketplace. The use of incentives to date has proven effective at helping close the price gap between ZEVs and internal combustion engine (ICE) vehicles, contributing to B.C.'s leadership in annual sales within Canada.
- **The proposal to end incentives when only 5% of sales is reached appears premature, relative to projections for when the cost differential between ZEVs and ICE vehicles will shrink.** To be successful in increasing ZEV deployment in B.C., the introduction of a ZEV mandate and the phase-out of purchase incentives will need to be carefully coordinated to ensure an optimal balance between supply and demand as the market continues to mature. We therefore recommend that criteria for a phase-out schedule be developed, which could include considerations such as model availability, the purchase price differential, and the total cost of ownership differential.
- That said, as the price of ZEVs drops—as witnessed to date and projected for the future—the need for the purchase incentive will diminish. We recommend adopting a predictable, multi-year phase-out period for incentives once it is determined—per the above criteria—that the market is sufficiently mature to ensure continued growth in deployment with a decreasing incentive.
- We also recommend that the government consider a new approach to the incentive that would reflect the income levels of British Columbian consumers, with the scale of the incentive adjusted by income—with more significant rebates for lower income British Columbians.
- In addition, we encourage the government to explore opportunities for a new, dedicated source of revenue to fund the purchase incentive. This could include using the low carbon fuel standard as an important potential source of revenues and/or a "feebate" system in which the most polluting vehicles face a dedicated tax at purchase, or a higher annual registration fee, with the ensuing revenues recycled into ZEV purchase incentives.
- While we support excluding luxury electric vehicles from the incentive program, we recommend B.C. follow Quebec's lead in eliminating the surtax on luxury vehicles if they are ZEVs. Doing so in B.C. will also make EVs more competitive at higher price points against

their polluting gasoline counterparts without the need to extend purchase incentives to the highest-priced EVs.

- Lastly, a provincial network of EV "discovery centres" (beginning with the Lower Mainland and southern Vancouver Island) modelled on the facility operated by Plug N Drive in Toronto would provide consumers with superior access to a diversity of EVs and consistent, high-quality information. Such a facility allows interested consumers to learn about EVs and take a variety of models out for a test drive. Because it's not a sales centre, consumers can find unbiased information about EVs, charging, and range without pressure to purchase a specific make or model.

There also exists a significant opportunity to look beyond personal ZEVs and consider policies and programs to encourage uptake of ZEVs for medium- (e.g. delivery trucks, farm vehicles and airport and port vehicles) and heavy-duty (e.g. trucks and buses) applications. We support the B.C. government's CEV Specialty-Use Incentive and recommend that this program be continued and scaled up over time.

Electric Bus Leadership in Canada*

A total of 40 e-buses are expected to hit Laval and Montreal roads by 2020.

In Alberta, Edmonton is on board to purchase 40 e-buses, and the tiny town of St. Albert will soon have seven e-buses.

The Toronto Transit Commission has committed to buying 60 e-buses by mid-2020.

In B.C., Victoria has one e-bus and TransLink has four e-buses. B.C Transit has no target for e-bus deployment.

**This is not an exhaustive list, but a representative sample of e-bus deployment across Canada.*

Considering B.C.'s strategic advantage of affordable, clean electricity, we lag considerably behind other jurisdictions across Canada and the United States when it comes to adoption of electric buses. The B.C. government should also focus on opportunities to electrify public transit throughout the province by working with B.C. Transit and TransLink to develop electrification strategies that span required charging infrastructure and fleet turnover and procurement.

B.C. Transit operates a fleet of 1,006 high-capacity, heavy-, medium-, and light-duty buses, and consumes roughly 23 million litres of fuel every year. **Over the next five years, B.C. Transit will be replacing up to 45% of its provincial fleet**, which presents a significant opportunity to reduce public-transit-related pollution and lower operating costs, while capitalizing on B.C.-produced electricity instead of relying on fossil fuel imports.

As B.C continues to consider ride-sharing, it should explore opportunities to design policies and incentives that enhance or complement public transit (rather than detracting from it).[1] For example, ride-sharing can be an effective substitute for more limited public transit late at night or can serve as a viable alternative to providing transit service to sparsely populated, low-density areas. We recommend the government work with B.C. Transit, TransLink, and ride-sharing providers to develop and pilot projects that offer these types of complementarity.

[1] For examples, see Daniel Sperling, Austin Brown and Mollie D'Agostino, *Could ride-hailing improve public transportation instead of undercutting it?* 2018. https://www.greenbiz.com/article/could-ride-hailing-improve-public-transportation-instead-undercutting-it

Cleaner Fuels

Cleaner fuels like electricity, hydrogen, liquid biofuels, and renewable natural gas are necessary to meet B.C.'s 2030 and 2050 targets. B.C.'s low-carbon fuel standard is the primary regulatory tool to set the ambition for these fuels, which can then be supported by other measures such as tax breaks, support for commercialization, and centres of excellence for cleaner fuels. British Columbia should pursue a 20% target for the its low-carbon fuel standard by 2030, supported by consultations in 2019.

B.C.'s Renewable and Low-Carbon Requirements Regulation (RLCRR) avoided 1.1 million tonnes (Mt CO_2eq) of emissions in 2016, equivalent to taking 280,000 cars off the road each year.[2] Since 2010, low-carbon fuel use in the province has nearly doubled to achieve these reductions.[3] These fuels include ethanol, renewable diesel, electricity, natural gas, and hydrogen. Many of these fuels are also getting cleaner. Between 2010 and 2016, the carbon intensity of ethanol declined by 26% and renewable diesel between 29% and 65%.[4] As British Columbia's fuels have become cleaner, and have been consumed in higher quantities, there is evidence the policy has sheltered consumers from cost increases,[5] and in general the public is supportive of the policy.[6]

Strengthening the regulation will be essential to B.C. achieving its intended 2030 targets. **Previous analysis and B.C.'s previous climate plan recommended the standard be increased to between 15% and 20% by 2030.[7] A 20% target would expand the B.C. clean fuels market by more than fourfold by 2030.**[8] This market may in part be served by local B.C. businesses like the clean energy sector, keeping jobs and spending in British Columbia. Consolidated Biofuels in Delta, for example,

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[2] Ministry of Energy, Mines and Petroleum Resources (2017*) Renewable and Low Carbon Fuel Requirements Regulation*. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/transportation/renewable-low-carbon-fuels/rlcf-007-2016.pdf

[3] IBID

[4] IBID

[5] Navius (2015) *Refining Margins in British Columbia*. http://www.naviusresearch.com/publications/refining-margins-british-columbia/

[6] Navius Research (2014) The Renewable and Low Carbon Fuel Requirements Regulation. http://www.naviusresearch.com/wp-content/uploads/2016/06/BC_RLCFRR_Communication_Brief.pdf

[7] Based on data from: Navius (2015) *A Plan for Climate Leadership in British Columbia*. http://cleanenergycanada.org/wp-content/uploads/2015/10/A-Plan-for-Climate-Leadership-in-BC-Final-Oct-27-12pm-2015.pdf, B.C. Climate Leadership Team (2015) *Climate Leadership Team* http://engage.gov.bc.ca/app/uploads/sites/116/2015/11/CLT-recommendations-to-government_Final.pdf . ,Government of British Columbia (2016) Climate Leadership Plan. https://climate.gov.bc.ca/app/uploads/sites/13/2016/10/4030_CLP_Booklet_web.pdf

[8] Based on data from: Navius (2015) *A Plan for Climate Leadership in British Columbia*. http://cleanenergycanada.org/wp-content/uploads/2015/10/A-Plan-for-Climate-Leadership-in-BC-Final-Oct-27-12pm-2015.pdf.

generates credits through the regulation.[9] The forestry sector is also poised to participate by converting residual fibres into clean fuels.[10]

The technologies and fuels needed to achieve a stringent 2030 low-carbon fuel standard target exist today. Available fuel supplies can expand to replace 400,000 barrels per day of oil use along the Pacific coast—more than enough fuel to meet current and future low-carbon fuel standard demand along the coast. These fuels include a mix of biofuels, electricity, hydrogen, and natural gas.[11] The standard can also be designed to incent the deployment of electric vehicle chargers and support B.C.'s target of achieving 5% new clean energy vehicle sales by 2020 using B.C.'s abundant renewable electricity. In California, more than $92 million was generated by utilities and electric vehicle station owners and providers to support vehicle electrification via the state's low-carbon fuel standard.[12]

Expanding the low-carbon fuel standard should be accompanied by a clean fuel strategy that helps enable broader clean fuel adoption. This could include, but is not limited to, removing carbon tax payments from renewable fuels, supporting the commercialization of cleaner fuels, ensuring B.C. is competitive for clean fuel investment, and creating a centre of excellence for cleaner fuels in British Columbia.

3. CLEAN, EFFICIENT BUILDINGS

We have reviewed the Pembina Institute's submissions on Clean, Efficient Buildings and wish to endorse their recommendations:

Labelling at time of sale and rental

1. Proceed with requirement for energy labelling at point of sale and rental for homes and buildings.

2. Work with NRCan to review best options for a universal labelling methodology that leverages available data to reduce costs and that integrates with existing national systems.

3. Allow energy advisors to offer energy retrofit services and set up integrated one-stop retrofit businesses. Manage possible conflict of interests through QA/QC process and professionalization of the industry.

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[9] Ministry of Energy Mines and Petroleum Resources (2017) *Approved Carbon Intensities*. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/transportation/renewable-low-carbon-fuels/rlcf-012.pdf

[10] Canfor & Licella (2016) Canfor Pulp Products Inc. and Licella Fuels Pty Ltd. Entre into a biofuels-biochemicals joint venture agreement. https://canfor.com/docs/default-source/news-2016/nr20160527_media_advisory_cppi_canforpulp-licella.pdf?sfvrsn=b4ae1791_0

[11] ICCT & E4tech (2015) *Potential Low-Carbon Fuel Supply to the Pacific Coast Region of North America*

[12] Union of Concerned Scientists (2018) *California's Clean Fuel Standard Boosts the Electric Vehicle Market*. https://www.ucsusa.org/LCFSandEVs#.WnpV8ZPwYWp

4. Require benchmarking of energy performance for large buildings, starting with larger buildings first and including smaller ones over time. Phase in disclosure within two years.

5. Consider how point-of-sale labelling and annual benchmarking can be integrated in a universal reporting system.

6. Relax how privacy laws apply to energy data to facilitate data collection in multi-tenant buildings, enable machine-learning-based research, and enable the use of energy data sets in apps for energy management and behavior change. Opening energy data would also support the innovation and growth goals of the #BCTech Strategy.

Stronger codes and standards

7. Proceed with proposed extension of the BC Energy Step Code to new building types and climate zones and support its implementation, in preparation for future regulation.

8. Target efficiency improvements aligned with Step 3 for multi-unit residential buildings in BCBC-2022 for climate zones 4 and 5.

9. Incorporate carbon emission intensity targets into the BC Energy Step Code as opt-in requirements for local governments.

10. Work with the federal government to add climate mitigation and climate adaptation as explicit objectives of the national building codes, and start to include climate protection metrics in the 2022 B.C. Building Code

11. Work with industry associations, training institutions, and centres of excellence to set an aspirational target for all builders, designers, and trades to have completed a net-zero ready project by 2025.

12. Adopt a schedule of retrofit requirements at time of renovation based on ASHRAE 100 for large buildings and ASHRAE 90.1 for small buildings.

13. Work with local governments to encourage enforcement of current energy codes at time of retrofit.

14. Work with the federal government to ensure that robust carbon objectives, along with other priorities (seismic resilience, adaptability, fire protection), are included in a federal model code for existing buildings.

15. Require depreciation reports to provide energy efficiency recommendations and information on upcoming regulations to inform strata council capital planning decisions.

16. Proceed with proposed schedule for equipment efficiency standards, based on the aspirational targets set at the 2017 conference of Energy and Mines Ministers.

17. Encourage the adoption of low-carbon heating equipment today through incentive programs and by adding greenhouse gas intensity targets in the Energy Step Code.

18. Introduce commissioning requirements for complex buildings in the next revision of the B.C. Building Code.

19. Support local governments in implementing recommissioning requirements for existing buildings. Seattle's 'building tune up' policy could be a blueprint.

20. Develop, as part of the energy roadmap process, a detailed strategy for clean transportation and on-site renewables

Financial incentives

21. Develop a green bonds program to provide ongoing funding for grants and low-cost loans for energy and resiliency retrofits.

22. Assess the potential for increased economic activity and public revenues resulting from these public investments.

23. Focus provincial incentives for heating equipment on low-carbon technologies; avoid incentives that lock in carbon-polluting technologies.

24. Work with local governments, financial institutions, and utilities to create a financing program using local improvement charges and/or on-bill financing to provide loans for energy, seismic, and fire retrofits. To improve the terms, the province should consider creating a loss-reserve fund, providing credit enhancement, or pairing the loans with grants. Increase the size of available loans and grants based on the level of carbon reductions expected.

25. Work with Canada Mortgage and Housing Corporation and federal partners to harmonize rules across the country for LIC programs and remove barriers to applicants (e.g. requiring lender consent).

26. Pilot the Metered Energy Efficiency Transaction Structure in a high-profile commercial building in B.C.

Low Carbon Buildings Innovation Program

27. Provide multi-year funding for the (soon to be launched) Better Building BC program, at a scale sufficient to showcase high-performance low-carbon buildings across a range of building types and regions.

28. Ensure upcoming provincial and federal investments in social housing retrofits are leveraged to accelerate the commercialization of deep energy retrofits.

Training and certification

29. Work with the federal government to create new trade accreditation programs for HVAC systems, for example through Red Seal certification for individuals or ACCA Residential Service & Installation certification for companies.

30. Partner with industry groups to encourage the use of Quality Installation standards for HVAC systems, such as the ACCA 5 Standard.

31. Work with local governments to improve permitting and inspection processes for HVAC systems (Kelowna and Burnaby's heating system permits could be a blueprint).

32. Support training in energy efficient envelope construction, such as that being delivered by the BCIT High Performance Building Lab

33. Develop an accreditation(s) for Certified Retrofit Professionals, and consider how such a program could support phased low-carbon retrofits

Construction workforce strategy

34. Develop a construction labour strategy that addresses skilled labour gaps and equity issues in the building industry. Integrate with emerging technology and innovation strategy to foster greater use of automation and prefabrication.

Public sector leadership

35. Undertake a review of public procurement policies and encourage greater use of Integrated Project Delivery for complex projects.

36. Replace or amend the current LEED Gold requirement for public buildings to require upper levels of the Energy Step Code (the new BC Housing construction standards could be a blueprint)

37. Establish a rotating loan fund for public sector organizations to address the capital budgets vs. operating budgets split incentive.

4. A CLEAN GROWTH PROGRAM FOR INDUSTRY

We have reviewed the Pembina Institute's submissions on A Clean Growth Program for Industry and wish to endorse their recommendations:

1. Maintain the overall structure of the Industrial Incentive, while focusing on maximizing contributions to the Clean Industry Fund and making the policy as easy to implement, comply with, and enforce as possible.

2. Ensure the Clean Industry Fund has sufficient capital by not setting the eligibility benchmark too high and making the Industrial Incentive needlessly accommodative.

3. Follow clear, consistent and easy-to-understand metrics for setting the eligibility benchmarks and calculating the pro-rated incentive.

4. Decrease the intensity of both the performance and eligibility benchmarks over time.

5. Add a trade exposure and trade risk variable to the Industrial Incentive formula.

6. Allow the Clean Industry Fund to be pooled across sectors and years

7. Focus on funding critical energy and climate solutions research across the innovation pipeline to help the entire B.C. cleantech industry.

8. Add an accountability mechanism for how the Clean Industry Fund is spent.

9. Establish a sectoral target for industry of a 30% reduction below 2007 by 2030.

10. Pursue additional emissions reductions in the industry sector, such as methane reductions and upstream electrification in the oil and gas sector.

CONCLUSION

Thank you for the opportunity to comment on the B.C government's clean growth intentions. Should you have questions about any of the comments or recommendations contained here, we would be happy to provide further clarification.

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