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Response to the Government of B.C.'s Clean Growth Intentions Papers

Prepared by the David Suzuki Foundation

Introduction

The Government of British Columbia's Clean Growth Intentions Papers describe several important policies that, if implemented, could play a role in achieving meaningful reductions in greenhouse gas emissions and moving B.C. to the forefront of climate action in Canada. These intentions papers are part of a broader clean growth strategy that combines the climate plan, energy roadmap and an economic strategy. **It will be critical to ensure these various initiatives work in an integrated manner to shift the province to a prosperous, low-carbon future.**

The summer of 2018 made the world come face to face with the impacts of climate change, with heatwaves, fires and other extreme weather. Here in British Columbia, as we drafted this document, forest fires burned throughout the province, with little rain in the forecast and an air quality index of 10+ in Metro Vancouver and many other cities, indicating hazardous conditions for the population at large. We are confronted with the reality that greenhouse gas levels are already too high and our ambition has been too low. It is time to ramp up our ambition.

This response to the B.C. Climate Intentions Papers focuses on the transportation and industry papers, in addition to offering several recommendations on broader policies that are needed to create a stronger long-term framework for climate action in the province.

1. Raising the bar with B.C.'s carbon tax

B.C. has shown leadership in Canada and the world with its carbon tax. The province has benefited from its position as a climate leader through strategic partnerships with other leading jurisdictions, as well as by attracting cutting-edge clean tech businesses for more than a decade. As the provincial government acknowledges in its Clean Growth Intentions Papers, of the 10 Canadian firms named to the 2018 Global Clean Tech 100 list, seven are headquartered in B.C. This is due, in no small part, to the province's reputation as a leader in building a clean growth economy.

The federal government's mandated carbon pricing backstop of \$50/tonne of carbon emissions by 2022 means that, very soon, every province and territory will be at the same level with regard to ensuring that polluters to pay for their emissions. Presently, the provincial government's plan to increase the carbon tax goes only so far as meeting the federal government's minimum requirement. As the province rolls out a new suite of climate action policies, the David Suzuki Foundation recommends a **commitment to increasing the carbon tax beyond 2021 through a carbon pricing plan.** The sooner a long-term

carbon pricing plan is announced, the sooner businesses can incorporate the carbon price into business investment decisions, develop strategies to reduce emissions and identify new business opportunities.

2. Improving accountability

Accountability is critically important to creating effective climate action policy. In B.C., across Canada and around the world national and subnational governments have historically had no problem setting emissions-reductions targets; the challenge has been in achieving them.

In particular, the idea of monitoring and reporting short-term goals on the way to longer-term ambitions has begun to gain traction as an effective policy tool. The United Kingdom has embraced this idea successfully. Through a process of setting emissions-reductions targets over five-year terms and reporting on progress annually via “carbon budgets” and independent third-party audits of actual emissions, the U.K. has emerged as a leader in demonstrating and achieving emissions reductions. Carbon emissions in the U.K. now sit at 40 per cent below 1990 levels. This achievement should serve as a model for all levels of government wanting to take climate change seriously.

To adopt this approach in B.C., several important steps need to be taken. First, **annual reporting of actual emissions must be streamlined to minimize or ultimately eliminate the lag between the end of a year and the date that emissions for that year are reported.** Appropriate forecasting of year-over-year action that the province must take to achieve its emissions-reductions goals is presently impossible given that the last year for which emissions data are currently available is 2015. Identifying approximate trends in emissions is difficult under the current system, meaning that we do not know the impact — positive or negative — of any climate policy enacted in B.C. over the past three years.

Provincial reporting of emissions must also include accurate measurement of fugitive and vented methane emissions from the oil and gas sector, since methane is such a potent gas, and research demonstrates that emissions from this sector have been greatly underestimated. The importance of action on methane emissions is discussed in more depth below in the section commenting on the “A Clean Growth Program for Industry” intentions paper.

Concurrently with measures to improve provincial reporting of emissions, **B.C. should introduce a model of four- or five-year carbon budgets**, per the approach adopted by the U.K.¹ Under this scheme,

¹ <https://www.gov.uk/guidance/carbon-budgets>; <https://www.theccc.org.uk/tackling-climate-change/reducing-carbon-emissions/carbon-budgets-and-targets/>

the province would be restricted to a given total of emissions over the four- or five-year time frame. If emissions go up in one sector, they would need to be reduced elsewhere to comply. Similar to reporting on financial revenue and expenditures for the province, the carbon budget process would be supported by annual reporting on policies, measures and investments made to mitigate emissions; emissions by sector; and projected future emissions. Each successive carbon budget period would be more stringent than the previous period, providing a pathway to meet legislated targets while allowing for some minor fluctuations in annual emissions due to changes in economic conditions or other influences. These periods would be in better alignment with provincial election cycles, enhancing political accountability. This approach will allow the public to see and evaluate the effectiveness of government policies.

The province should introduce sectoral emissions-reductions targets for 2030 and beyond.

Sectoral targets help ensure that all sectors are doing their fair share to achieve the emissions reductions that are needed to meet provincial targets.

3. Clean transportation

Following the recent transportation funding agreements and a funding mechanism for the Metro Vancouver region, the B.C. government now has an opportunity to strengthen its provincewide plan for clean transportation. By prioritizing active transportation; increasing service and reliability levels for public transit and setting timelines to achieve a zero-emission bus fleet; supporting car shares and carpooling and accelerating the transition to zero-emissions vehicles; and strengthening and ratcheting up ambition around the province's current Low Carbon Fuel Standard, the provincial government can make substantial progress in reducing emissions from this important source.

Cleaning up B.C.'s transportation sector is not only important for climate reasons but also to improve public health. Vehicle emissions harm human health, resulting in increased morbidity and health care costs and lost worker productivity,² to say nothing of diminished quality of life. Shifting from internal combustion vehicles to zero-emissions vehicles thus improves human health, supports B.C.'s climate targets and improves quality of life.

The widespread availability of driverless or autonomous vehicles in coming years will have a transformative effect on transportation and opens up new possibilities for rethinking urban form. Autonomous vehicles have the potential to exacerbate congestion or to free up space on public streets.

² Brauer, M., Reynolds, C., and Hystad, P. (2013). Traffic-related air pollution and health in Canada. *CMAJ : Canadian Medical Association Journal*, 185(18), 1557–1558. <https://doi.org/10.1503/cmaj.121568>

The ultimate outcome will depend on appropriate government policy and municipal oversight.³ **The province should work proactively with municipalities to identify required regulatory, policy and land-use planning changes required to ensure that the benefits from autonomous vehicles are maximized and the downsides minimized.**

3.1 Support for zero-emissions vehicles

The transition to ZEVs is already underway, but to successfully take advantage of the emission-reductions potential inherent in this technology, the government of B.C. must build on its current demand-focused policies and strengthen supply within the province.

The provincial government has a history of providing financial and non-monetary incentives to help increase demand for electric and other low-emissions vehicles. Rebates of \$5,000 for new battery electric vehicles and \$6,000 for hydrogen fuel-cell vehicles have helped accelerate adoption of these new technologies. The Clean Growth Intentions Paper addressing clean transportation pledges to continue this demand-side approach. **Rebates should be maintained until ZEVs reach 7.5 per cent of new vehicle sales and then phased out over a two-year period.** This would ensure there is no decline in momentum toward a cleaner car fleet.

The largest shift, and the one most likely to lead to the rapid acceleration of ZEV sales in the province, however, is the proposal to implement a ZEV mandate for automobile manufacturers to guarantee supply of low-carbon mobility options. Following the lead of jurisdictions such as California and Quebec, the B.C. government has proposed a policy that ensures 10 per cent of new vehicles sold in the province will be ZEVs by 2025 and 30 per cent by 2030.

A ZEV mandate, combined with the financial incentives that already support demand, should be implemented in B.C. This approach is in line with recommendations made by Simon Fraser University's Sustainable Transportation Action Research Team, which found that a strong ZEV mandate is the most effective, low-cost and transformative policy.⁴ Without such a mandate in B.C., manufacturers will continue to prioritize shipping their output of ZEV vehicles to jurisdictions with a ZEV mandate, a phenomenon that has impeded the City of Vancouver's ability to green its fleet.⁵ For example, the Ford

³ Bracewell, Dale. 2018 Vancouver's Mobility Future: "Automating" Policy into Sustainable Results, Vancouver City Council, January 30, 2018. <https://stephenrees.files.wordpress.com/2018/02/rr3presentation.pdf>

⁴ Aksen, Goldberg and Melton, 2016, Canada's Electric Vehicle Report Card <https://sfustart.files.wordpress.com/2016/11/canadas-electric-vehicle-policy-report-card.pdf>

⁵ Electric Vehicle Ecosystem Program Update, report to council on March 14, 2018. <https://council.vancouver.ca/20180314/documents/cfsc3.pdf>

Focus Electric is listed as only being available from dealers in Quebec. Clearly in B.C. there is plenty of pent up demand but inadequate supply.⁶

We believe the **targets for the proportion of ZEVs sold in the province should be even more ambitious and target 40 to 45 per cent by 2030**. Car manufacturers are already expecting half to two-thirds of sales to be hybrid or zero emission in the short term.⁷ Norway, for example, expects that by 2025, 100 per cent of new vehicles purchases will be ZEVs.⁸ According to Bloomberg's Electric Vehicle Outlook 2018, China will likely see 19 per cent ZEV penetration in new vehicle sales by 2025, Europe will reach 14 per cent and even the U.S. will outpace the current B.C. ZEV mandate target with 11 per cent share of new vehicles sold.⁹ For this policy to be most effective, the uptake requirement should go beyond what market trends suggest is likely to happen anyway.

In addition to adopting a provincial ZEV mandate, the B.C. government should **advocate for a federally legislated requirement for the increased supply of ZEVs**. The provincial government should look for opportunities to work with the federal government to ensure that all Canadians have dependable access to current model ZEVs.

Additional considerations for the development of a comprehensive ZEV policy for B.C. are non-monetary incentives such as those used in Norway, including fee exemptions for road tolls, tunnels usage, ferry rides, parking, charging and use of bus lanes.¹⁰ However, such incentives need to be designed in a way that does not undermine other efforts to prioritize active and public transportation over personal vehicles.

The Intentions Paper proposes that internal combustion engines could be banned by 2040. This is too late a date, given that vehicles remain in the fleet for 15 years and that other jurisdictions are banning ICEs at an earlier date. **B.C. should prioritize a strategy for a “made-in-B.C.” approach to transition off of ICEs.**

⁶ <http://canada.autonews.com/article/20180507/CANADA/180509850/canadas-growing-ev-market-dogged-by-product-shortage>

⁷ <https://www.engadget.com/2018/04/25/volvo-aims-half-of-sales-fully-electric-2025/> and <https://www.reuters.com/article/us-honda-strategy/honda-aims-for-green-cars-to-make-up-two-thirds-of-line-up-by-2030-idUSKCN0VX0TT>

⁸ <https://cleantechnica.com/2018/02/12/norway-ready-100-evs-2025-please-dont-charge-thursday-nights/>

⁹ <https://about.bnef.com/electric-vehicle-outlook/#toc-download>

¹⁰ <https://qz.com/400277/norway-electric-car-incentives-were-so-good-they-had-to-be-stopped/>

Finally, a dramatic increase in the use of ZEVs in B.C. will result in greater and more distributed electricity supply needs. **The province needs a strategy to modernize the electricity system and pricing structure to accommodate the shift to electric transportation.** For example, time-of-use pricing is much more suited to encouraging the transition to a clean economy than the tiered-rate structure used in B.C., which can actually penalize the shift to electrification and EV adoption. While electricity supply is not expected to be an issue in the immediate future, when the need for new power does arise, preference for new generation projects should be given to renewable options such as wind and solar. In particular, the provincial government should do what it can to guarantee clean, low-impact power throughout the province by supporting community-owned renewable energy projects.

With regard to commercial fleets such as long-haul freight and drayage, the challenge of electrification is even greater, but there is a vital need to deploy effective policies to reduce emissions and to help position British Columbia for a key market.

3.2 Cleaner fuels

Given that not all vehicle sectors are equally able to adopt ZEV technology on the same timetable, it makes sense for a comprehensive climate strategy to include policies limiting the harm caused by fossil fuels while they are still in use. **The Low Carbon Fuel Standard to mitigate the damage caused by burning fossil fuels for transportation should continue to be a priority for B.C. until the transition to zero emission vehicles is complete.**

The government of B.C. intention paper proposes that by 2030 the LCFS should be improved to require a 15 per cent reduction in the carbon intensity of fuels by 2030, but also mentions that a 20 per cent reduction is possible following a review in 2020. **B.C. should adopt this increased level of ambition today by requiring a 15 per cent reduction by 2025 and a 20 per cent reduction by 2030.** This approach would reduce the decade-long stagnation in the proposed timeline and introduce a midterm target by which to measure progress toward a more ambitious outcome.

It is important that the provincial LCFS be comprehensive by covering solid, liquid and gaseous fuels used in aviation, marine applications and overland freight, as well as those used in stationary generation and heating across both industrial applications and individual building use. These are the sectors with the greatest need to continue to burn fossil fuels, so LCFS policy should target them as opportunities for the greatest reductions. The LCFS obviously must continue to be applied to light-duty vehicles as well, but the focus for carbon reductions should first be electrification and the transition to ZEVs outlined above.

Also important to the effectiveness of the LCFS is sourcing biofuels from sustainable sources that do not undermine conservation objectives, biodiversity or local environmental quality. If these low-carbon alternatives are to make up a greater share of the fuel the province uses for transportation, production of these fuels cannot come at the expense of local environmental quality where they are produced. The well-established problems that go along with monoculture crops aimed at producing the greatest amount of biofuels at the lowest cost should be avoided by considering mechanisms to support conservation efforts that complement the LCFS.

3.3 Clean transportation systems

Arguably the most important policy area to focus on with respect to improving the day-to-day lives of British Columbians is creating a clean transportation system. While the shift to ZEVs and cleaner fuels is a critical aspect of this goal, it is the manner in which transportation options interact with human behaviour that will ultimately change how people think about moving themselves and the goods they purchase from one place to another and subsequently determine the potential for emissions reductions from transportation.

Metro Vancouver, for example, has turned a corner in this regard. Over the past 20 years, the proportion of people choosing to commute using personal vehicles has declined throughout the region at a rate higher than the national average, in spite of a rapidly growing population.¹¹ The credit for this shift lies in the region's focus on prioritizing active transportation and public transit and the need to improve the frequency and reliability of public transit. The City of Vancouver has made impressive strides in implementing policies that enable shared mobility through bicycle and car shares, allowing many families to forgo owning a second car, or even any car. Municipal planners have increasingly recognized that increased density focused on transit-oriented development improves the viability and usage of transit infrastructure. Nevertheless, despite the Climate Action Charter¹², far too many municipal councils are approving developments that entail sprawl that locks in future emissions and that undermine the viability of public transit. Renewed emphasis on getting municipalities to develop and strengthen green growth plans is essential.

¹¹ <https://vancouver.sun.com/news/local-news/2016-census-transit-use-increases-among-metro-vancouver-commuters>

¹² See for instance Section 5 a) (iii) "creating complete, compact, more energy efficient rural and urban communities (e.g. foster a built environment that supports a reduction in car dependency and energy use, establish policies and processes that support fast tracking of green development projects, adopt zoning practices that encourage land use patterns that increase density and reduce sprawl."
https://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/local-governments/planning-land-use/bc_climate_action_charter.pdf

A critical component to ensure that municipalities can build out the necessary active transport, public transit and low-carbon transportation infrastructure is a predictable source of funding. In the case of Metro Vancouver, the Mayors' Council struggled for too many years to develop a new funding mechanism that would allow the municipalities to contribute their share to capital projects matched by provincial and federal funding. Despite the recent breakthrough in funding agreements that secured \$7.1 billion towards the Mayors' Council's 10-year plan, funding options for Translink remain limited.

Furthermore, despite this historic investment, the region will still be faced with congestion. The Mayors' Council has begun investigating a mechanism that has demonstrated effectiveness in reducing congestion in cities like London, Stockholm and Singapore: congestion pricing.¹³ One benefit of some congestion-management schemes is that they generate funds that can be used to improve public transit. **The Foundation recommends that the province should foster and enable creative approaches to addressing congestion that draw on best practices around the globe.**

With the loss of Greyhound bus service reducing regional transportation options for many of B.C.'s small communities, there is an opportunity to develop creative approaches to support the transportation needs of those who do not have access to or choose not to use cars. This could include fostering regional and long-distance ride-matching tools¹⁴ and enhanced support for long-distance bus routes.

All new transportation projects that make use of provincial funds should be considered through a "climate lens" insofar as the projects that lead to the greatest reduction or avoidance of carbon emissions should be given funding priority and those that lock in future emissions should be rejected. Future projects should put greater emphasis on demand-side management, active transportation and enhancing transportation options. An "electric first" policy for new transit projects or for investments in the bus fleet should be part of this approach to ensure cleaner air, reduced emissions and that the province makes full use of its hydroelectric advantage. **Likewise, the province should require BC Ferries to develop an aggressive electrification strategy.**

Unfortunately, recent bus fleet acquisitions have relied on compressed natural gas vehicles ¹⁵ in spite of the severe upstream methane emissions problem plaguing the oil and gas industry and the fact that burning natural gas entails CO₂ emissions. The intentions paper acknowledges that zero emissions

¹³ Mobility Pricing Independent Commission. (2018). Metro Vancouver Mobility Pricing Study Findings and Recommendations for an Effective, Farsighted, and Fair Mobility Pricing Policy. Retrieved from https://www.itstimemv.ca/uploads/1/0/6/9/106921821/mpic_commission_report_-_final_-_digital_version.pdf

¹⁴ <https://www.kamloopsthisweek.com/news/ride-sharing-startups-eye-void-to-be-left-by-greyhound-1.23365985>

¹⁵ <https://vancouver.sun.com/news/local-news/translink-adds-compressed-natural-gas-buses-to-surrey-fleet>

battery electric buses have a great potential to reduce emissions, yet refers to BC Transit's first electric bus being put into service this summer as a pilot. The time for pilot projects has long passed. Electric buses are a proven transit option and are already being used extensively in other jurisdictions. China, for example, adds 9,500 electric buses to its transportation fleet every five weeks, improving urban air quality and reducing demand for diesel fuel.¹⁶ Bloomberg has documented that cities around North America are investing in EV buses while Translink or BC Transit limit themselves to very small-scale pilots with no timeline announced for phasing out their fossil fuel dependent fleet.¹⁷ The research and development phase for this technology is over. **B.C. should take advantage of the testing done elsewhere by fully supporting the accelerated deployment of electric buses in cities throughout the province.**

This same focus on a shift toward electrification and away from natural gas should guide action for commercial vehicles, which are discussed separately on the government's website. Again, priority should be given to solutions with the greatest potential for reducing carbon emission. B.C. is fortunate to have access to an enormous supply of hydroelectric power, which needs to be given first preference. Fossil fuels like natural gas should only be considered when no other option is practical, and then these fuels must be subject to an ambitious LCFS.

The intention paper also mentions the use of LNG to reduce carbon emission from marine vessels. This raises important questions about the sources of natural gas and full accounting of the emissions associated with its production. The provincial government is in the process of drafting regulations to address methane emissions associated with natural gas production in B.C. Any **use of LNG in the creation of clean transportation systems must consider the full carbon footprint of these fuels.** A more detailed discussion of considerations regarding B.C. LNG production is included in the section below regarding the Clean Growth for Industry intentions paper.

4. Clean growth for industry

The Foundation strongly agrees with the intentions paper that the opportunities in the low carbon global economy for B.C. industry are extraordinary and that "being the cleanest is its best competitive advantage." Furthermore, industry benefits from the province's low emissions hydropower infrastructure and diverse renewable energy options. Success also requires appropriate partnerships with Indigenous

¹⁶ <https://www.bloomberg.com/news/articles/2018-04-23/electric-buses-are-hurting-the-oil-industry>

¹⁷ See Chapter 6 of <https://about.bnef.com/electric-vehicle-outlook/>

Peoples that respect Indigenous rights and title and create economic opportunity while protecting conservation values.

Strategies to reduce carbon emissions and shift the province to a clean economy are more likely to be successful when all players know what to expect and can plan accordingly. When climate action policies are fair, comprehensive and effective, industry has shown a commendable willingness to make the necessary investments and to take advantage of emerging clean economy opportunities. As evidence of this, several leading oil and gas manufacturers have emerged in recent years as champions of policies like carbon pricing. When governments demonstrate strong, clear intentions about the direction in which they want their economic development to go and lay out reliable timelines for achieving goals, successful companies can adapt and reshape their business models and focus. That is the kind of leadership that B.C. needs. One key component of providing clear direction would be to set a sectoral target for B.C. industry specifying a 30 per cent reduction in emissions from 2007 by 2030.

4.1 Industrial Incentive and Clean Industry Fund

The Clean Growth for Industry intentions paper is built on the reality that some large B.C. companies compete in global markets, and that in some instances their competitors are in jurisdictions that do not yet price carbon or have yet to implement regulations to mitigate emissions. **The David Suzuki Foundation supports the principle that carbon pricing mechanisms can be designed to minimize the danger of leakage**, whereby carbon pricing inadvertently creates an incentive for emissions-intensive trade-exposed companies to move production abroad to a jurisdiction without carbon pricing. Addressing leakage removes an impediment to future increases in the carbon price. However, the manner this is done is critical. This intentions paper applies to industrial operations with emissions greater than 10,000 CO₂e, though smaller firms would have the option of opting in if they compete with firms that already participate in the program.

From experience and the literature on addressing mitigation in EITE sectors, a few principles emerge that should guide the design of EITE climate policies:

- The policies should only apply to firms that are in fact emissions-intensive and trade exposed, and the threshold to be an EITE should be defined based on material concerns over the impact of carbon pricing on competitiveness with firms in other jurisdictions.
- EITE firms must continue to face a price signal that incentivizes ongoing investments and efforts to mitigate emissions.
- The program needs to be transparent (data and analysis establishing competitiveness concerns should be publicly disclosed) and designed for ease of administration and compliance.

- Given that climate policies and carbon pricing are increasing in stringency around the globe, EITE concessions must be transitional in nature, with a timeline for being phased out such that industry eventually faces the full carbon price for all of its emissions (which will have substantially reduced due to the design of the incentive program).

The Foundation is largely satisfied that the direction for EITE sectors laid out in the intentions paper satisfies the above requirements, but with some caveats. We also believe that the fact that the proposed programs will keep 100 per cent of the incremental carbon tax revenues in the industrial sector will help the industry to prosper while accelerating its evolution toward a zero-emissions model.

The Industrial Incentive program is intended to reduce the carbon tax burden for firms that meet emissions benchmarks based on the best performing facility globally. A firm that meets the standard of the cleanest performer would receive all of its incremental carbon tax payments above \$30 per tonne.¹⁸ Firms would have to meet or exceed the eligibility benchmark to qualify for a pro-rated incentive. However, **the intentions paper is vague on how this eligibility benchmark might be set, and this needs to be clarified and the approach used needs to be made consistent across sectors.**

Funds that are not returned to industry under the Industrial Incentive program will flow to the sector through the Clean Industry Fund. Any EITE industrial operation covered by the Industrial Incentive program will be eligible to access the fund. This fund is intended to improve the business case for investments to mitigate emissions, using technologies and improved processes. This fund also has considerable potential to drive investments that will draw on technologies and expertise from B.C.'s clean tech sector.

To ensure the Clean Industry Fund is properly capitalized such that ambitious investments in mitigation can be made, **the Industrial Incentive eligibility benchmark must be set at a sufficiently ambitious level (or must not be overly accommodative). Both benchmarks need to be adjusted over time as the level of emissions per unit of output at the cleanest facility globally is reduced over time.**

Given that other jurisdictions are implementing carbon pricing or equivalent regulations that do not allow carbon pollution to be externalized and that technological innovation is pushing cleaner production methods, **the clean growth program should be transitional and should be phased out over time** to ensure that by 2050 at the very latest, industry faces the full carbon tax to ensure emissions from the sector are Paris-compliant. An earlier phase-out schedule should be implemented if carbon pricing and

¹⁸ On April 1, 2018, the carbon tax began rising again by \$5 per year from \$30 until it reaches \$50. The industrial incentive only applies to that portion of the carbon tax above \$30.

regulation becomes the norm internationally, if border adjustment taxes for exports from high-emitting jurisdictions can be put in place.¹⁹

The intentions paper is not clear on how these two incentive programs apply to the B.C. oil and gas sector with its very significant vented and fugitive methane emissions problem. Separately, the province has committed to apply its carbon tax to methane emissions. **The Foundation strongly supports this commitment and believes the tax should be applied to the oil and gas sector in a way that both incentivizes and enables mitigation of methane emissions.** Given that individual oil and natural gas operations are often quite small, eligibility in this sector should be determined based on a firm's total emissions across all wells and facilities.

4.2 Reducing B.C.'s methane emissions

One of the largest opportunities to cut B.C.'s carbon emissions from industry is one that is not addressed in the Clean Growth Intentions Papers. The oil and gas sector is B.C.'s largest industrial polluter, and recent research has demonstrated that fugitive methane emissions from B.C.'s oil and gas sector are at least 2.5 times greater than reported.²⁰ More than 85 per cent of active oil and gas wells in B.C. Montney Basin are venting methane into the atmosphere and around 35 per cent of all abandoned and inactive or suspended wells exhibit measurable and, in some cases, significant leakage of methane.

Methane is an extremely potent greenhouse gas that traps 86 times as much heat in the atmosphere as carbon dioxide over a 20-year time frame. Leading scientists estimate that methane pollution alone is responsible for 25 per cent of the already observed changes to Earth's climate. Actions to reduce these emissions are generally considered to be some of the cheapest, easiest, most effective ways for

¹⁹ Rocchi, P., Serrano, M., Roca, J., and Arto, I. (2018). Border carbon adjustments based on avoided emissions: Addressing the challenge of its design. *Ecological Economics*, 145, 126–136. <https://doi.org/10.1016/j.ecolecon.2017.08.003>

²⁰ See <https://davidsuzuki.org/science-learning-centre-article/fugitives-midst-investigating-fugitive-emissions-abandoned-suspended-active-oil-gas-wells-montney-basin-northeastern-british-columbia> and Atherton, E., Risk, D., Fougère, C., Lavoie, M., Marshall, A., Werring, J., Minions, C. (2017). Mobile measurement of methane emissions from natural gas developments in northeastern British Columbia, Canada. *Atmos. Chem. Phys.*, 17(20), 12405–12420. <https://doi.org/10.5194/acp-17-12405-2017>

governments and industry to combat climate change quickly.²¹ Indeed, the International Energy Agency has found that half or more of global oil and gas methane emissions can be reduced at no net cost.²²

It is absolutely paramount to accurately measure these emissions. Systematic underreporting and a lack of emissions auditing has created a situation where the provincial government does not know what the total methane emissions from the oil and gas industry are, but is committed to reduce them by 40 to 45 per cent.

The Government of Canada has recently passed benchmark regulations intended to achieve 40 to 45 per cent reduction of methane emissions below 2012 levels by 2025 across the country. The Canadian regulations generally meet best practices for methane emissions reductions, including frequent leak detection and repair, site-specific venting limits and transition to low-emitting equipment.

Alberta has published draft regulations, but analysis shows they are not equivalent to the Canadian regulations and will fail to achieve the 45 per cent target²³ and they will leave the industry vulnerable as the market pays more attention to life-cycle implications of natural gas use. Unfortunately, Alberta's draft regulations do not offer a suitable template for B.C. as they do not have an equivalent effect to the Canadian regulations.²⁴ U.S. states such as California, Colorado, Ohio, Pennsylvania and Wyoming have shown that strong methane regulations do not deter oil and gas sector investment in future production capacity.

B.C. is in the process of drafting methane regulations. These regulations will be critical to the success of any program to reduce the climate impact of industry as a whole. **To be credible, achieve the emissions reduction target and meet federal equivalency, B.C. should draw on best practices from the Canadian regulations and leading U.S. jurisdictions.**

With respect to methane emissions, we recommend the following actions:

²¹ ICF (2014). *Economic Analysis of Methane Emission Reduction Opportunities in the Canadian Oil and Natural Gas Industries*. Fairfax, VA: Environmental Defense Fund. Goehner, A. (2017). *Methane Abatement Costs: Alberta*. Report for the Alberta Energy Regulator. Ottawa: Delphi Group.

Warner, E., Steinberg, D., Hodson, E., & Heath, G. (2015). *Potential Cost-Effective Opportunities for Methane Emission Abatement*. Joint Institute for Strategic Energy Analysis.

²² IEA Energy Outlook 2017,

http://www.iea.org/publications/freepublications/publication/WEO2017Excerpt_Outlook_for_Natural_Gas.pdf

²³ See <https://d36rd3gki5z3d3.cloudfront.net/wp-content/uploads/2018/05/Joint-ENGO-AER-Methane-Submission.pdf>

²⁴ <https://d36rd3gki5z3d3.cloudfront.net/wp-content/uploads/2018/05/Joint-ENGO-AER-Methane-Submission.pdf>

- The province should ensure that the regulations developed by the B.C. Oil and Gas Commission meet and exceed federal regulations to mitigate fugitive and vented methane emissions, drawing on regulatory best practices from jurisdictions across North America. Key components of such regulations include mandating zero emissions equipment, conservation of natural gas, quarterly leak detection and repair, robust monitoring and reporting.
- The Government of B.C. should set a Canadian best practice on methane emissions by proceeding with its commitment to apply the carbon tax to all sources of fugitive (vented and leaked) methane emissions from the oil and gas sector.
- The province should accelerate plans to pursue electrification of upstream natural gas infrastructure.

4.3 LNG

B.C.'s proposed LNG export industry threatens progress on climate. The province's legislated targets signal that emissions in 2050 be reduced to 13 Mt (an 80 per cent reduction from 2007 levels). Proceeding with the LNG Canada proposal to export 12 Mt annually in phase one and 24 Mt in phase two would commit the province to over nine Mt of emissions to power the liquefaction facility and from upstream gas infrastructure. With both the smaller Woodfibre LNG and LNG Canada proceeding, this sector would emit 10.2 Mt, leaving little room for the rest of the economy.²⁵ B.C. would either miss its legislated targets or the pressing technical challenges in decarbonizing the remainder of the economy would be greatly accentuated. All this for a very small number of full-time jobs. There is little evidence to support the claims that B.C.'s LNG exports would enable reduced emissions in Asia by reducing reliance on coal. There is a very real risk that in receiving markets, this LNG could deter investments in renewables,²⁶ and limiting warming to well below 2 C per the Paris Agreement entails rapid reduction in reliance on natural gas globally. Finally, there is a risk that LNG investments in B.C. will be stranded as the need to take bolder action on climate change becomes more and more evident.

4.4 Just transition for workers

Important in any discussion of clean growth for industry is consideration for individuals who work in industries that are emissions-intensive. In 2018, the goal of climate action policy has shifted from

²⁵ Heerema, D and Kniewasser, M. 2017. Liquefied natural gas, carbon pollution, and British Columbia in 2017 Pacific Institute for Climate Solutions and Pembina Institute. <http://www.pembina.org/reports/lng-carbon-pollution-bc-2017.pdf>

²⁶ Horne, M. and MacNab, J. 2014. LNG and Climate Change: The Global Context. Pembina Institute <http://www.pembina.org/pub/lng-and-climate-change-the-global-context>; Gilbert, A. Q., and Sovacool, B. K. 2018. Carbon pathways in the global gas market: An attributional lifecycle assessment of the climate impacts of liquefied natural gas exports from the United States to Asia. *Energy Policy*, 120, 635–643. <https://doi.org/10.1016/j.enpol.2018.05.063>

encouraging a transition to a cleaner economy against strong opposition to ensuring that the transition that is already underway happens in a manner and at a pace that minimizes the negative impact on people and the economy. Ultimately, some industries will play a diminishing role in the economic future of the province. Companies that demonstrate a willingness to adapt by transitioning to low-carbon processes and products will thrive, and those that do not keep pace with societal change will not. However, regardless of which companies succeed and fail, British Columbians must be given the opportunity to provide for themselves and their loved ones and contribute to the economy. With that in mind, **a proportion of carbon tax funds should be set aside to develop programs to aid workers in carbon-intensive industries to get retrained in fields such as clean tech and renewable energy.** By ensuring the province has an available workforce with in-demand skills, the B.C. government can support the growth and success of clean technology companies.

The provincial government should also consider developing programs to support community-owned renewable energy projects, especially in remote communities. Community-owned renewable energy projects address three opportunities at once: they provide energy security to communities that are not serviced by BC Hydro or that experience unreliable service, they create jobs that foster development of skills that will only become more valuable as the province and country transition to a zero-carbon economy and they provide economic opportunity for areas that have historically relied on boom-and-bust resource industries.

5. The road ahead

The Clean Growth Intentions Papers represent a positive shift in the provincial government's approach to climate action. Combined with the commitment to increase the carbon tax, the policies outlined in the Clean Growth Intentions Papers offer a foundation from which the province could reclaim its status as a climate leader on the Canadian and world stage. Such leadership is critical to mitigate our emissions and seize opportunities in the clean economy, and also to prompt other jurisdictions to put effective climate policies into place to ensure that the quality of life, the environment and the values we cherish in British Columbia are not overwhelmed by a destabilized climate. We encourage the provincial government to seize that opportunity, and we look forward to the actions yet to come.

Summary of key recommendations

1. An integrated approach to ensure the climate strategy, intentions papers, energy road map and economic strategy are mutually reinforcing and put B.C. on an aggressive pathway to a low carbon economy that reflects the urgency of climate action.
2. A commitment to increasing the carbon tax beyond 2021 through a carbon-pricing plan.
3. Annual reporting of emissions.
4. Implement a model of four- or five-year carbon budgets.
5. Sectoral emissions-reductions targets for 2030 and beyond.
6. The province should work proactively with municipalities to identify required regulatory, policy and land-use planning changes required to ensure that the benefits from autonomous vehicles are maximized and the downsides minimized.
7. Maintain the current new vehicle purchase incentive until ZEVs reach 7.5 per cent of new vehicle sales and then phase it out over a two-year period.
8. Introduce a ZEV mandate of 40 to 45 per cent by 2030.
9. Encourage and support a federally legislated requirement for increased supply of ZEVs.
10. Develop a strategy for a “made-in-B.C.” approach to transition off of ICEs.
11. A strategy to modernize the electricity system and pricing structure to accommodate the shift to electric transportation.
12. The Low Carbon Fuel Standard should be increased to 15 per cent by 2025 and 20 per cent by 2030.
13. Biofuels must be sourced from sustainable sources that do not undermine conservation objectives, biodiversity or local environmental quality.
14. The province should foster and enable creative approaches to addressing congestion that draw on best practices around the globe.
15. All new transportation projects that make use of provincial funds should be considered through a “climate lens.”
16. B.C. should take advantage of the pilots elsewhere to accelerate the deployment of electric buses in cities throughout the province.
17. Any use of LNG in the creation of clean transportation systems must consider the full carbon footprint of these fuels.
18. The Industrial Incentive eligibility benchmark must be set at a sufficiently ambitious level (or must not be overly accommodative). Both benchmarks need to be adjusted over time as the level of emissions per unit of output at the cleanest facility globally is reduced over time.
19. The clean growth program should be phased out over time.
20. Apply the carbon tax to methane emissions from the oil and gas sector in a way that both incentivizes and enables mitigation of methane emissions.

21. Draw on best practices from the Canadian regulations and leading U.S. jurisdictions to develop B.C. methane regulations.
22. Ensure that the positive outcomes by the intentions papers are not undermined by development of an LNG industry that takes up most or all of the emissions under the provincially legislated targets or that forces overly abrupt change on other sectors of the economy.
23. A proportion of carbon tax funds should be set aside to develop programs to aid workers in carbon-intensive industries to get retrained in fields such as clean tech and renewable energy.

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