Seizing Alberta's climate leadership opportunity

The David Suzuki Foundation's advice regarding the government of Alberta's Climate Leadership Discussion Document released August 2015

David Suzuki Foundation

SOLUTIONS ARE IN OUR NATURE

September 2015

Introduction

The David Suzuki Foundation is pleased to comment on the Alberta Climate Leadership Discussion Document and is encouraged by the government's will to advance strong climate polices within Alberta. Alberta has a truly historic opportunity to show international leadership on climate change while strengthening and diversifying the economy, creating jobs and improving quality of life for Albertans.

Establishing a provincial carbon emission reduction target will be a critical first step in making meaningful steps toward a strong, diversified clean-energy economy for the province. A reduction target will help guide the planning and policies needed to drive innovation and advance the use of clean technologies to address greenhouse gas emissions. Interim targets can be effective benchmarks to help adjust or rate policies as they progress.

We welcome the government of Alberta's decision to create the Climate Panel headed by Andrew Leach. We commend the government and panel for holding the public consultation process, including the online climate survey, for welcoming public comments and for holding many climate change panels and discussions throughout the province. Here at the David Suzuki Foundation we collaborate with Canadians from all walks of life, including government and business, to create sustainable economic opportunities for Canadians that diversify the economy, conserve our environment and improve our quality of life through science-based research, education and policy work. Our mission is to protect the diversity of nature and our quality of life, now and for the future.

Albertans are already feeling the impacts of climate change, which are beginning to cost us heavily. We will continue to see impacts, but we can avoid the worst-case scenario if we act now. The severity of climate impacts are not a matter of chance. Our future will be determined by the choices we make now, and prioritizing clean energy and phasing out coal-based electricity can complement many of the goals listed in the Climate Leadership Discussion Document. Climate change is no longer solely an environmental issue. It is an economic, food security and human security issue. Alberta has an opportunity to make a significant difference in the battle against climate change while the economy thrives and jobs are created in the transition to a more innovative, clean-energy economy.

Phasing out coal electricity in the province, accelerating renewable energy development through policy, modernizing an energy-efficiency standard for buildings and advancing a provincewide carbon tax incentive will would place Alberta in a leadership position to diversify the economy and realize significant and substantial carbon emission reductions.

Leadership: Carbon reduction goals

Alberta can show a true commitment as a global partner to fight climate change by matching other international, national and provincial targets for emissions reductions. Alberta should consider setting the following targets for emission reductions:

Carbon emissions will be at least 35 per cent below 2005 levels by 2030 and 80 per cent below 2005 levels by 2050.

These emission reduction goals are ambitious for an energy-producing province such as Alberta. The technological sophistication that exists in Alberta's energy industry will be a great resource to drive innovation and overcome any challenges in moving toward a low-carbon economy. The proposed targets for Alberta will not be the most stringent in the country but will be challenging nonetheless in the province that currently produces the greatest amount of emissions. The following emission reduction commitments include G7 commitments and the proposed targets for Quebec as comparisons for the proposed Alberta targets.

Emission reduction targets as follows:

Canada
17 per cent below 2005 levels by 2020
30 per cent below 2005 levels by 2030
Decarbonization by 2100

Ontario
15 per cent below 1990 levels by 2020
37 per cent below 1990 levels by 2030
80-90 per cent below 1990 levels by 2050*

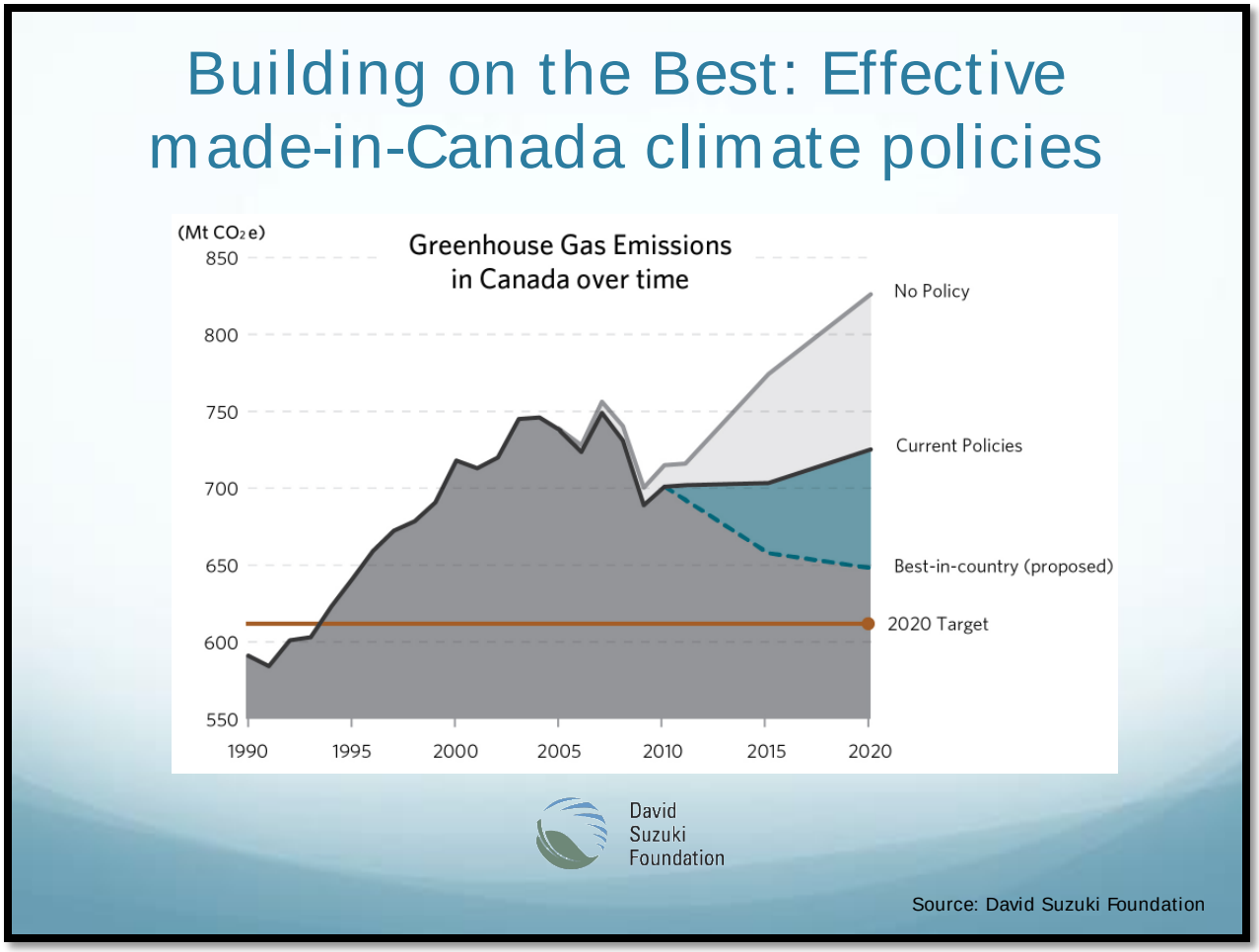
British Columbia
33 per cent below 2007 levels by 2020
80 per cent below 2007 levels by 2050
80-90 per cent below 1990 levels by 2050*

Quebec
37.5 per cent below 1990 levels by 2030
80-90 per cent below 1990 levels by 2050*

* Signatories to the Under 2.0 MOU that commits regions to an 80-90 per cent reduction in emissions from 1990 levels by 2050 or two tonnes per capita of emissions.

Canada has a significant opportunity for knowledge sharing and implementation of climate policy. For example, adopting best-in-Canada policies on renewable energy, staged phase-out of coal power and pricing carbon pollution in Saskatchewan and Alberta would be three times more effective in reducing carbon pollution than current policies.

As shown in the following graph produced from Navius Research for the David Suzuki Foundation, if Canada had adopted key, best-in-country policies in 2008, emissions would be 77 million tonnes lower in 2020 and within 5.6 per cent of reaching Canada's international emissions target for 2020. We encourage the Alberta government to adopt best-in-country policies by pricing carbon, phasing out coal and encouraging renewable energy development to meet its emissions reduction commitments once chosen.



Emissions reductions tools suggested for Alberta

- Accelerate clean-energy investment and innovation through an economy-wide carbon tax. Save lives and improve health through coal power phase-out legislation. Advance renewable energy deployment through smart market based regulation — Renewable Portfolio Standard (RPS).
- Achieve wiser use of energy through an improved Energy Efficiency Standard for buildings.
- Improve transportation choices and alleviate traffic congestion by investing in transit infrastructure and passing market-based performance standards for clean vehicles.

Accelerating clean energy investment and innovation through an economy-wide carbon tax

We suggest the broadest possible carbon tax incentive is the most effective and fair way to address climate change and reduce emissions in Alberta. It should be applied to the entire economy and society where greenhouse gas emissions are produced. This is the only way all provincial emissions sources will be identified and addressed, and it's the lowest-cost option for reductions.

B.C. has had a carbon tax for seven years and the results seem encouraging. In fact, B.C.'s carbon tax signal has been one of Canada's biggest economic and environmental success stories. While the carbon tax price signal was ramping up, fuel use and associated greenhouse gas emissions were reduced by 16 per cent while the rest of Canada had an increased fuel use of three per cent, all while economic growth in B.C. outpaced the national average[1]. The World Bank and OECD have called it an environmental and economic success story. We suggest that it can be a powerful tool in Alberta for mitigating carbon emissions.

The B.C. carbon tax is revenue-neutral, with all income from the tax returned to citizens and businesses through targeted tax cuts. This tax shift has been effective to lower personal and corporate taxes in that province. With the low-tax regime already established in Alberta, revenue from the carbon tax could be used to further climate change mitigation and adaptation goals. The revenue could be used to support research into climate solutions unique to Alberta, to support renewable energy development through Property Assessed Clean Energy financing or facilitating the shift to cleaner transportation options. The 2013-14 British Columbia budget shows the carbon tax generated $1.2 billion at $30 per tonne of emissions. Only combustion emissions in British Columbia fall under the carbon tax, and other emissions sources are exempt from paying the tax. If Alberta's emissions are four times greater than British Columbia's as stated in Canada's 2013 National Greenhouse Gas Inventory (2013 British Columbia = 64 Megatonnes, Alberta = 267 Megatonnes), then the revenue potential for Alberta could be between $4.8 to $8 billion annually at $30 per tonne of emissions. This equates to $.0667 per litre of gasoline and $.057 per cubic metre of natural gas. The David Suzuki Foundation recommends starting the provincial carbon tax at $30/tonne of emissions (in step with B.C.) and increasing by $10 annually for five years until further review.

This new carbon tax incentive would replace the current Specified Gas Emitters Regulation (SGER) and provide a clear price signal to prioritize industrial and consumer investment in cleaner technologies and more energy-efficient practices, so that emissions reductions are valued and realized in Alberta. This will help stimulate a clean technology industry with the potential for export around the world. Clean technology is Canada's fastest-growing sector

[1] Stewart Elgie and Richard Lipsey, Financial Post January 22, 2015 Found here: http://business.financialpost.com/fp-comment/b-c-s-carbon-tax-shift-works

and has quickly developed into one of the most promising elements of our country's economy. In 2012, the industry grew by nine per cent, a rate that outstrips that of any other Canadian sector, and generated $11.3 billion in total revenue[2]. A carbon tax is also supported by industry in Alberta over other forms of policies such as cap-and-trade for its simplicity and ability to gain social licence outside of the province[3].

A broad-based carbon tax is the only policy tool that will affect the entire emissions profile of Alberta equally and fairly. To ensure this fairness to all we suggest a low-income climate action tax credit be developed for the carbon tax, with increases in step with future carbon price increases. In British Columbia, the low-income climate action tax credit is provided with the federal goods and services tax/harmonized sales tax (GST/HST) credit. In 2014 the low-income climate action tax credit was $115.50 for adults and $34.50 per child ($115.50 for the first child in a single parent family). The income threshold to receive the credit is set at $32,445 for a single person or $37,852 if married or a single parent[4]. It is important to note that the Canadian Centre for Policy Alternatives (CCPA) identifies the B.C. carbon tax as becoming regressive over time. Large income tax cuts primarily benefited upper-income earners. "Combined tax cuts delivered an average of over $9,200 per year to the richest 10% of BC households and more than $41,000 to the top 1%. In contrast, lower income households received an average tax cut of $200 per year, and those in the middle got just over $1,200".[5]

Alberta requires a unique solution to its climate challenges and therefore we recommend the carbon tax be applied equally to all sectors within the economy, including non-combustion emissions, and that a portion of revenues be invested directly into clean-energy solutions and low-carbon infrastructure. This inclusion is critical to avoid the dash for gas in the electricity sector that has been identified as possible over the installation of renewable energy systems. Fugitive emissions from natural gas extraction, processing and delivery can have a significant impact on the climate system. Natural gas emits methane, a powerful greenhouse gas that the Intergovernmental Panel on Climate Change (IPCC) says is 25 times more potent at warming the atmosphere than carbon dioxide. There is concern that the upstream emissions in natural gas development may be higher than originally estimated. If this is the case, then the climate benefit from switching from coal to natural gas to produce electricity are diminished greatly. In the United States, the Environmental Protection Agency (EPA) has estimated upstream emissions to be 2.4 per cent of production[6]. If the methane released from fugitive emissions is greater than 3.2 per cent

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[2] http://www.bcic.ca/blog/2015/bc-clean-tech-companies-to-watch-for-at-greater-vancouvers-clean-tech-expo-on-january-28th

[3] Why would an oil company call for a carbon tax? Stuart Thompson, Edmonton Journal May 29, 2015. Found here: http://edmontonjournal.com/news/local-news/why-would-an-oil-company-call-for-a-carbon-tax?__lsa=d69b-d096

[4] British Columbia Low income climate action tax credit. Found here: http://www2.gov.bc.ca/gov/content/taxes/income-taxes/personal/credits/climate-action

[5] BC's regressive tax shift: A decade of Diminishing Tax Fairness, 2000 to 2010. Marc Lee, Iglika Ivanova and Seth Klein. Canadian Centre for Policy Alternatives. Found here: http://www.policyalternatives.ca/sites/default/files/uploads/publications/BC%20Office/2011/06/CCPA_BC_regressive_tax_shift.pdf

[6] U.S. Environmental Protection Agency *(2011) Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2009 (EPA Publication 430-R-11-005).*

then there are no emissions reductions or climate benefits from switching away from coal electricity plants to natural gas plants[7].

The government must investigate the upstream emissions from natural gas in Alberta. Once the true lifecycle emissions from natural gas extraction and delivery are known, informed decisions can be made about its use. It would be our preference to avoid any further fossil fuel generation investments and avoid the dash for gas in favour of renewable energies. As natural gas is a fossil fuel, we would encourage this natural gas bridge to be as short and narrow as possible. Renewable-energy systems or methane leak abatement technologies will be promoted and encouraged by the price signal the carbon tax will create on emissions. These technologies can also be exported around the world as natural gas extraction and use continues to increase globally.

Save lives and improve health through coal power phase-out legislation

The climate benefits of removing coal-fired electricity generation are tremendous. This form of electricity generation produces far more greenhouse gas emissions than almost any other source. In the U.S. coal accounts for 39 per cent of electricity generation but produces 77 per cent of all emissions from electricity generation[8]. Alberta burns more coal for electricity than the rest of Canada combined, and the pollution and air contaminants it produces are having major effects on Albertans.

In addition to climate benefits from phasing out coal, the David Suzuki Foundation strongly supports the health benefits that have been identified by the Canadian Association of Physicians for the Environment (CAPE), the Lung Association of Alberta and NWT, the Asthma Society of Canada, Public Interest Alberta and the Pembina Institute. This group produced a report, *A costly diagnosis: Subsidizing coal power with Albertans' health*, that outlined how more than 4,800 asthma symptom days — days when asthma sufferers must miss work or school due to their illness — are caused by coal each year. Experts estimate that long-term exposure to air pollution from coal plants is a contributing factor to the premature deaths of more than 100 Albertans each year[9]. The province of Ontario was able to phase out electricity produced from burning coal in 10 years. There are substantial differences between Ontario and Alberta's electricity generation systems. Alberta is a system of private owners and the Ontario coal systems were government-owned. Alberta has also recently added coal-fired generation in 2011 and a 10-year closure would mean substantial lost investment for the owners of Keephills 3. For these reasons we suggest a

[7] Greater focus needed on methane leakage from natural gas infrastructure. Alvarez, Pacala, Winebrake, Chameides, and Hamburg. Proceedings of the National Academy of Sciences of the United States of America. February 13, 2012. Found here: http://www.pnas.org/content/109/17/6435.full#ref-6
[8] Sources of Greenhouse Gas Emissions. Electricity Sector Emissions. United States Environmental Protection Agency. Found here: http://www3.epa.gov/climatechange/ghgemissions/sources/electricity.html
[9] A costly diagnosis: Subsidizing coal power with Albertans' health. March 2013. Found here: http://www.pembina.org/reports/pi-costly-diagnosis-26032013.pdf

15-year coal phase-out with a schedule set now to ensure time for operators to achieve similar carbon emission levels as gas or plan for closure by their scheduled dates.

Have 10 of 18 coal units shut down by 2020:
Battle River 3 at 50 years in 2016
Battle River 4 at 50 years in 2019
Battle River 5 at 39 years in 2020
Sundance 1 at 49 years in 2017
Sundance 2 at 46 years in 2017
Sundance 3 at 50 years in 2020
Sundance 4 at 50 years in 2020
Sundance 5 at 50 years in 2020
Sundance 6 at 49 years in 2020
Milner 1 at 47 years in 2017

Have 13 of 18 coal units shut down by 2025:
Keephills 1 at 38 years in 2021
Keephills 2 at 38 years in 2021

Complete the Alberta coal phase-out by the end of 2030:
Sheerness 1 at 38 years in 2024
Sheerness 2 at 38 years in 2028
Genesee 1 at 38 years in 2027
Genesee 2 at 36 years in 2030
Genesee 3 at 25 years in 2030
Keephills 3 at 19 years in 2030

Phasing out coal electricity in Alberta will be one of Canada's greatest emissions-reduction opportunities. It will place Alberta as a strong partner at the table for global climate action and can help restore the province's brand. In 2014, due in part to the coal phase-out in Ontario, Toronto had its first summer in 20 years without a smog alert[10]. The value of clean air goes beyond the climate and health benefits, and can be obtained in Edmonton and throughout the province if Alberta phases out coal-fired electricity generation.

Renewable energy development

The third installment of the Fifth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC) focuses on global changes that need to be made to protect human security, economic prosperity and food production from the impacts of climate change and extreme weather. It shows massive opportunities in the rapidly growing clean energy economy can be realized if the world triples or quadruples renewable energy production over the next 36 years, as is required to reduce atmospheric carbon emissions to safe levels. The job-creation and innovation opportunities for Alberta to develop solutions to climate change are enormous, but only if we choose to work with

[10] Canadian physicians' group blames coal power for Edmonton's poor air quality. CBC News. Found here: http://www.cbc.ca/news/canada/edmonton/canadian-physicians-group-blames-coal-power-for-edmonton-s-poor-air-quality-1.3032529

and join leaders from the international community in prioritizing clean energy solutions and knowledge.

We suggest two specific policies to encourage renewable energy in Alberta at the large industrial scale and the small residential or farm/community scale. A Renewable Portfolio Standard (RPS) is ideal for industrial electricity producers and a Property Assessed Clean Energy (PACE) financing system is good for smaller residential or farm-sized installations. The jobs created by clean energy can no longer be ignored. The total number of direct jobs in Canada supported by clean energy reached 23,700 in 2012. This compares to 23,340 direct jobs for the entire oil sands. Renewable energy in Alberta will create employment[11].

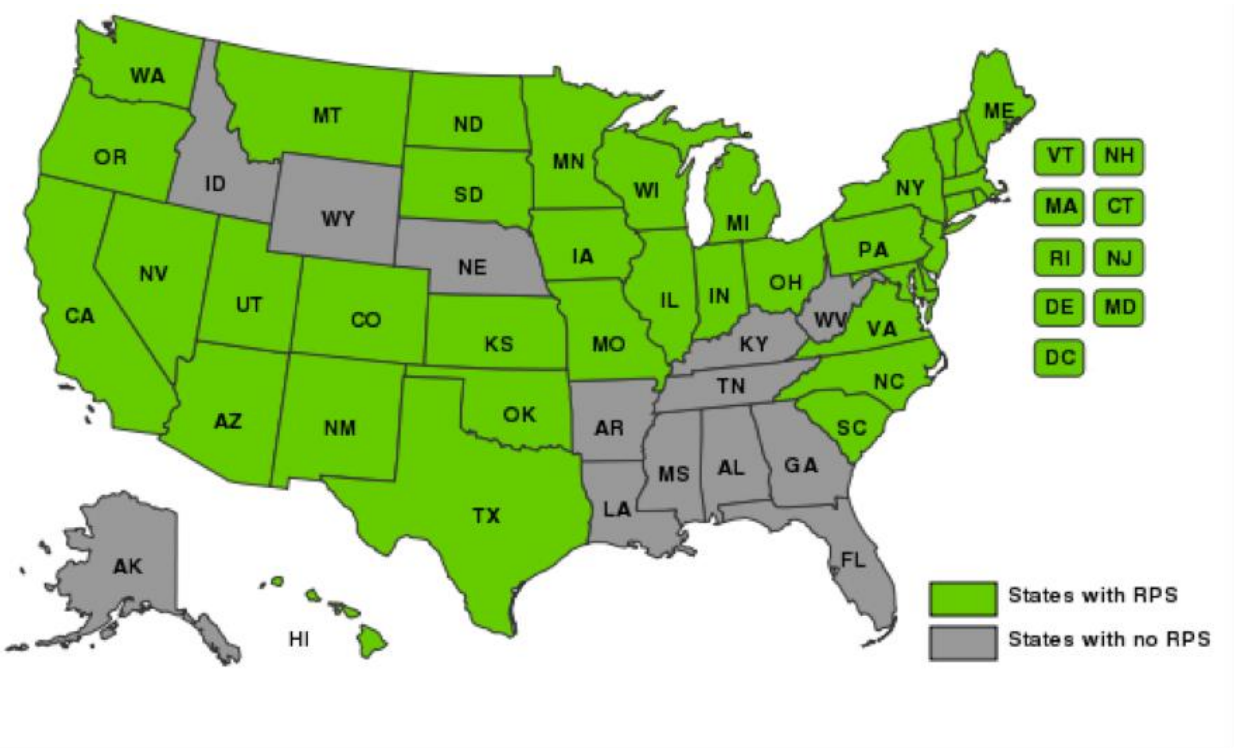
Advancing renewable energy deployment through smart market-based regulation — Renewable Portfolio Standard (RPS)

The David Suzuki Foundation suggests making an RPS an essential component of the coal phase-out in Alberta. An RPS will be key in ensuring that renewable energy creates a meaningful component of overall generation in the province. Renewables now only provide nine per cent of the province's electricity needs, and this number must increase as coal generation is removed. As noted in the Pembina Institute and Clean Energy Canada report *The Power to Change*, the province enjoys some of Canada's most abundant and reliable renewable resources[12]. The benefits of using natural gas as a bridge fuel are still uncertain but clean renewable energy systems create no greenhouse has emissions or air pollution. With the persistent low cost of natural gas the economic justification for a dash for gas exist and we encourage the government to ensure a mix of renewables as the electrical system in Alberta is updated. The following mandate is suggested for the Alberta RPS:

- 20 per cent renewables by the year 2020
- 35 per cent renewables by the year 2025
- 50 per cent renewables by the year 2030

As shown in the following figure from the U.S. National Conference of State Legislatures, RPS is gaining prominence in the U.S., with the vast majority of states in the country employing a renewable standard.

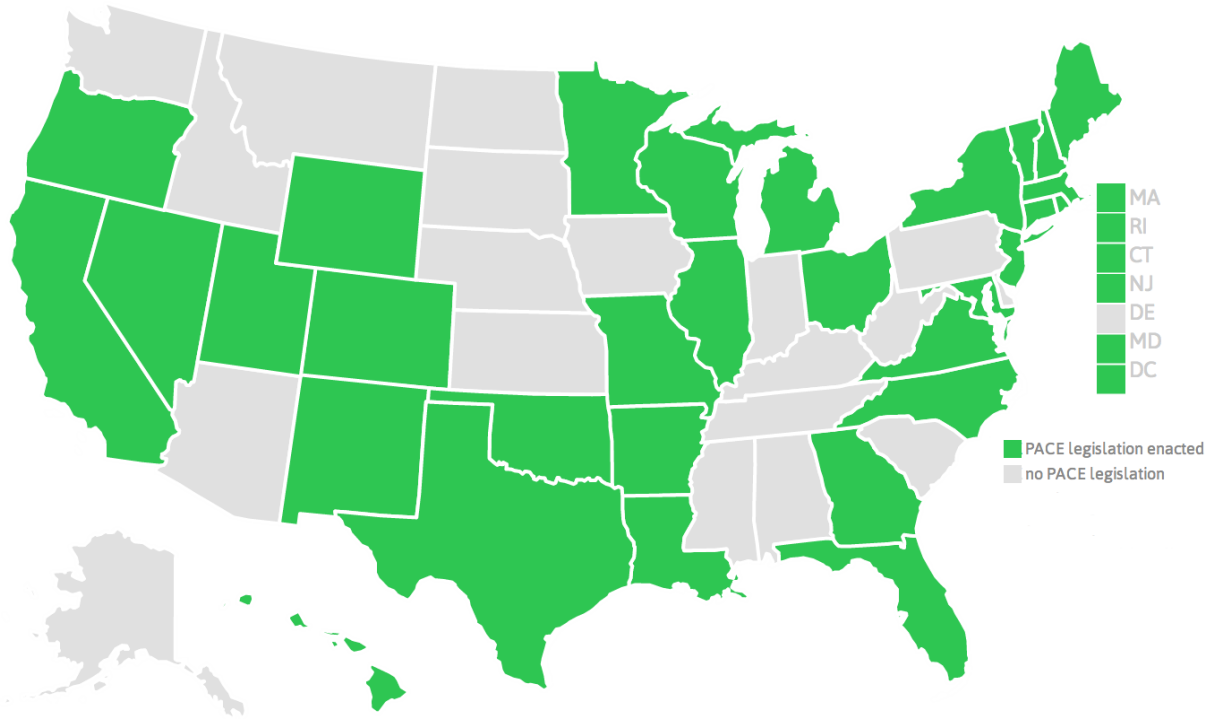
[11] Tracking the Energy Revolution. Canada Edition 2014. Clean Energy Canada. Found here: http://cleanenergycanada.org/wp-content/uploads/2014/12/Tracking-the-Energy-Revolution-Canada-.pdf
[12] The Power to Change: How Alberta can Green its Grid and Embrace Clean Energy. The Pembina Institute and Clean Energy Canada. May 2014. Found here: https://www.pembina.org/reports/power-to-change-pembina-cec-2014.pdf



Property Assessed Clean Energy Program

Develop a Property Assessed Clean Energy (PACE) financing system for homeowners. A PACE bond allows for financing of energy efficiency or renewable energy installations such as adding insulation or installing solar panels to a home. The loan is repaid over a number of years on the property taxes for the home, and the loan is attached to the house rather than the individual. For local governments, PACE can be used to reduce local greenhouse gas emissions, promote energy efficiency, make the shift to renewables more affordable and reduce energy costs for citizens. The David Suzuki Foundation has identified that local governments may be the optimal facilitators of such a program, so once again coordination with the province would be essential. Municipalities have the capacity to encourage neighbourhood-scale initiatives, thereby making installations more cost-effective and efficient. As well, community-wide programs would result in more proximate energy efficiency comparables, which could enhance the properties' appraised value[13]. The popularity of PACE is growing as shown below from a figure produced by the U.S. Business Council for Sustainable Development (USBCSD).

[13] http://www.davidsuzuki.org/publications/downloads/2011/Property-Assessed-Payments-for-Energy-Retrofits-recommendations-1.pdf



Energy Efficiency Standard

Albertans can benefit greatly from an energy efficient standard for the province. As one of the only jurisdictions in North America without one, the province has the potential to save citizens and businesses money and create more efficient building stock. Natural Resources Canada has regulations for efficiency of energy-using products but building standards are not covered. Energy efficiency standards for Alberta building codes could include:

1) A minimum energy efficiency rating for buildings and the equipment within them.
2) A minimum ventilation requirement for houses and apartments.

In addition to building code adjustments for efficiency we would encourage an education and outreach component to help citizens understand energy efficiency and reduce their own consumption.

Improve transportation choices and alleviate traffic congestion by investing in better transit infrastructure and passing market-based performance standards for clean vehicles

In Alberta, we need policy in two main areas: movement of people and movement of freight. To cut emissions from moving people, it is crucial to reduce the number of internal combustion automobiles on the road, especially when the driver is the only occupant. Three main strategies exist to do this: 1) greater use of public transit; 2) greater use of

active transit, including walking and biking; 3) greater use of high-occupancy vehicles. When coal-fired power is phased out over time, it will also be important to build up electric car infrastructure. This will include promoting electric charging stations, providing rebates for electric cars and hybrids, and increasing other incentives such as free parking and discounted insurance. It is critical to note that until coal is off the grid, electric cars will not result in meaningful emissions reductions in Alberta.

Government can also play a key role here by increasing the percentage the province pays for transit through its GreenTRIP program from 66 per cent to 80 per cent of capital costs. This would lower municipalities' contribution and make it easier for them to expand public transit. Walkable, transit-friendly communities have to be at the heart of regional planning. Government policy must put firm brakes on urban sprawl. To get people out of cars, we need to provide excellent public transit. That means transit that is frequent, reliable, inexpensive and headed where people want to go. To encourage ridership, low-income Albertans should be allowed to pay decreased fares. Developers of new housing complexes should be required to provide tenants with monthly transit passes. The province should consider road tolls, parking levies and motor vehicle registration fees to raise revenue for public transit and discourage unnecessary car use. To promote car-pooling, the province should roll-out High-Occupancy Vehicle (HOV) lanes, which offer a faster ride for cars with three or more passengers. Buses and light rail would benefit from dedicated corridors and signal priority. The International Association of Public Transport says, "The use of dedicated bus corridors and priority at traffic lights makes it possible to improve a bus' commercial speed by 10 or 15 percent or even 20 percent."

To cut freight emissions, we need to move more goods by rail and fewer by truck. A report produced by Sustainable Prosperity and the Pembina Institute called *Putting Transportation on Track in the GTHA* shows that moving freight by trucks contributes 12 times as much to GHG emissions and is five times as emissions-intensive as rail[14].

Conclusion

Alberta has the opportunity to be a true leader in the fight against climate change while maintaining a vibrant and strong economy. We encourage the Alberta government to adopt strong policies to address the challenges posed by climate change. An economy-wide carbon tax signal will address all emissions within Alberta fairly and consistently. Phasing out harmful coal power emissions will bring tremendous health benefits to Albertans but will also be one of the greatest single carbon reduction mandates in Canada. Prioritizing renewable energy development will ensure we are not exchanging one fossil fuel for another and are thinking long-term about our climate responsibilities. Both industrial producers and small consumers should be able to participate. Energy efficiency will mean the energy created is used as wisely as possible and may postpone additional generation in the province. Planning to reduce emissions from transportation will also be critical in the

[14] Putting Transportation on Track in the GTHA: A survey of road and rail emissions comparisons. January 2011. Sustainable Prosperity and the Pembina Institute. Found here: http://www.pembina.org/reports/putting-transportation-on-track-in-the-gtha-jan-2010.pdf

long term as this will demand land-use planning and a shift to active living. These Alberta-specific policies will enable the province to become a leader in addressing climate change while maintaining a vibrant economy and improved quality of life.

Considering the upcoming United Nations climate negotiations in Paris, future generations may very well look back on 2015 as the year that the world co-operated and acted together in the fight against climate change. We encourage the Alberta government to lead the shift to an innovative, clean-energy global economy.

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