

**THE LIBERAL CLIMATE ACTION FORMULA:
A RECIPE FOR FAILURE**



A SCAN! Report

A Discussion Paper on the Liberal Government's Climate Action Plan, "A Healthy Environment and A Healthy Economy"

Written by David Robertson and Terry Moore for the Education Committee of Seniors for Climate Action Now! (SCAN!), March 2021



About SCAN!

Seniors for Climate Action Now! – SCAN! - is a recently formed climate action group based in Ontario. Our mandate is to inform and mobilize seniors around the climate emergency. Our goal is to build support for urgent and dramatic climate action in the hopes of preventing more climate catastrophes.

Canada was founded on the occupation of indigenous land and SCAN! will act in solidarity to support Indigenous Peoples' rights and sovereignty.

Young people are calling on governments to act decisively on the climate crisis. SCAN supports their leadership, will amplify their voices and add our own to the growing movement for climate action and climate justice.

SCAN! recognizes that climate action is also a demand for social justice and economic transformation — the opportunity, as well as the need to address racism and economic inequities.

Scan! is a seniors' climate action group that is democratic, accountable, equitable and participatory. We value each other's knowledge, experience and views. SCAN! initiatives and projects are decided at regular membership meetings and SCAN! committees and activities provide opportunities for varying levels of involvement.

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The Liberal Climate Action Formula: A Recipe for Failure

David Robertson and Terry Moore¹

Introduction

In the final months of 2020, the federal Liberal government announced a trifecta of climate initiatives. In rapid succession it introduced the Canadian Net-Zero Emissions Accountability Act and the Fall Economic Statement with its handful of climate programs. Then, to mark the fifth anniversary of the Paris Climate Accord, it released “A Healthy Environment and a Healthy Economy”.²

The Climate report met with a chorus of congratulations from a number of Big Green organizations, a louder chorus of derision from the right-wing media and howls of outrage from the climate denier Premiers Doug Ford and Jason Kenney.

It is not a satisfying read, nor a very convincing one.

To be sure there are some useful initiatives, hopeful promises, encouraging developments. As we are told. “A Healthy Environment and a Healthy Economy” contains 64 strengthened and new federal policies, programs and investments to cut pollution and build a stronger, cleaner, more resilient and inclusive economy. “³

But somehow it feels as if the Liberals are checking the appropriate boxes on a green initiatives checklist rather than developing the elements of a comprehensive climate action plan. Rather than a call to climate action it is a smorgasbord of initiatives that amounts to little more than a hoped-for success by a thousand wishes.

A number of the proposed initiatives are necessary but their scope and scale are insufficient to the task. Some would have made a useful contribution had they been in place ten years ago. There is a lot that is “too little too late”, and “not enough soon enough” and “more of the same old”.

But far more concerning is what is missing from the report. And more worrying still is the policy orientation, its unquestioned assumptions and its articulated goals.

¹ The authors would like to thank Moya Beall, Nick De Carlo, Ken Epps, Clare Mian and Alan Silverman for their insightful comments and helpful suggestions. Any inaccuracies or omissions are the responsibility of the authors.

² We will refer to the document as the climate plan. A Healthy Environment and a Healthy Economy, Environment and Climate Change Canada, December 2020.

https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/healthy_environment_healthy_economy_plan.pdf

³ Ibid page 9

Uncovering the Liberal Climate Action Formula

Informing the government's climate plan are the key elements in what we have called the Liberal Climate Action Formula.

It is never expressed but it is clear:

Carbon Pricing + Hydrogen + CCUS⁴ + Nuclear = Paris 2030 and beyond

The formula is both an economic strategy and a response to climate change. Behind this formula is arrayed a powerful set of forces—big oil and gas, the hydrogen lobby, the nuclear industry, the carbon storage companies, the big emitters. The framing of the climate plan is as much about capturing economic advantage as it is responding to the challenges of global warming.

“...Canada's trading partners and economic competitors... know that a cleaner economy will grow stronger and faster in an increasingly low-carbon global economy. Canada is well-positioned to be among the leaders in this area.”⁵

That is the goal. Not to be left behind. To be able to compete in a changing world. To be a global economic leader. Nowhere is there mention of a crisis nor a situation that requires an emergency footing, an emergency response.

The Liberal orientation and vision as expressed in the Healthy Environment and Healthy Economy report can be characterized as follows:

- There is climate change **not** a climate emergency.
- Economic growth is the overarching goal even for climate policy.
- Market players, responding to the right price signals, will solve the problem.
- Technological innovations with proper incentives will solve the problem.
- The oil and gas industry must be protected and supported.
- The new low-carbon era will strengthen Canada's export-led, extraction-based economic model.
- Canada will be a hydrogen superpower.

It is this problematic orientation together with a set of inadequate climate initiatives that will lead inevitably to more missed emission reduction targets and broken climate promises.

⁴ CCUS --Carbon Capture Utilization and Storage

⁵ https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/healthy_environment_healthy_economy_plan.pdf page 7

Alarming, there is a wide and growing gap between what the government is proposing and what needs to be done. The 2018 Intergovernmental Panel on Climate Change (IPCC) report calls for “rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems”. The IPCC recognizes that “these systems transitions are unprecedented in terms of scale” and point to the urgent need for “deep emissions reductions in all sectors.”⁶

In February 2021, the atmospheric concentration of CO₂ reached an alarming 415ppm.⁷ It is higher now than at any point in at least 800,000 years. It is 17% above the critical threshold of 350 ppm, the maximum level compatible with long-term sustainability of human civilization.⁸ It is imperative that we get those levels down as quickly as possible.

On February 26, 2021 the UN issued a report that assessed countries’ commitments to achieving the Paris targets. The U.N. General Secretary called it a “red alert” for the planet.⁹

But for Canada’s Liberal government there is no sense of urgency. There is to be no re-evaluation of our economic model. There are no bold, determined nor decisive actions. The Liberal government wants to incentivize, challenge, encourage, and invite industry to act differently at a time when we need to regulate and require dramatic reductions in emissions. The Liberals want to accomplish climate mitigation but avoid the necessary “deep emissions reductions in all sectors” at “unprecedented speed and scale.” When we know that the world’s climate scientists are telling us that preventing climate catastrophe requires action that has “no documented historical precedent”, we see just how inadequate the Liberal climate action formula is.

Evaluating the Liberal Climate Document

Our approach in this paper is to analyze the government’s climate document in two ways. The first is to discuss how the task is framed. What is the government saying about the climate crisis and its response? What is the model of climate action that is proposed? The second is to assess whether the initiatives are sufficient to accomplish the task. Simply put, are we confident the government can meet and exceed Canada’s Paris targets? More importantly, are we on track to do our part in limiting global warming to the critical 1.5 degree C threshold?

⁶ International Panel on Climate Change (IPCC) Global Warming of 1.5 degree C, United Nations, Summary for Policy Makers, Section C.2, p26.

⁷ See “The Keeling Curve”, CO₂ Tracking Site: <https://keelingcurve.ucsd.edu>

⁸ “Assessing Dangerous Climate Change: Required Reductions in Carbon Emissions to Protect Young People, Future Generations and Nature”, James Hansen et al, December 3, 2013: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0081648>

⁹ UNFCC NDC Synthesis Report, February 21, 2021, Executive Summary, p 11, p5: https://unfccc.int/sites/default/files/resource/cma2021_02_adv_0.pdf

Our central critique is that the government has adopted a ‘fossil first’ climate action plan instead of a ‘climate first’ approach. But before we get to this critical discussion, we review a number of specific initiatives, point to some that are missing, identify the plan’s core programs and then we analyze the climate action formula that drives the Liberal government’s approach to climate mitigation and adaptation.

Outline of the Report

This report is structured as a series of stand-alone but related sections. Parts 1 and 2 look at some specific initiatives in the government’s climate plan and some glaring omissions. Parts 3,4,5 and 6 unpack the Liberal government’s climate action formula by focusing in some detail on each element of the formula. Parts 7 and 8 complete the review of the government’s climate plan by first addressing the issue of resource extraction and then the emission reduction projections offered in the plan. Parts 9 and 10 complete the report with a review of the concept of carbon budgets and then a series of final observations. Taken together they provide a critique of the government’s climate action plan and suggest the need for a different approach.

Part 1 provides a brief review of three of the most prominent climate programs in the government’s plan—home energy retrofits, tree planting and zero emission vehicles. Individually and as a whole, these programs suffer from poor design, inadequate funding, targets that are not ambitious enough and a failure to link climate programs to expected emission reduction outcomes. These initiatives will provide little momentum to reaching our Paris commitments.

Part 2 exposes a major shortcoming of the government’s climate plan. There is little in the plan to support the development and expansion of wind and solar. Wind energy and solar power provide a very small portion of Canada’s energy supply. And in contrast to many other countries, annual investments in wind and solar in Canada are faltering. The government’s climate plan fails to address these issues. There is more support in the plan for biofuels than there is direct support for solar and wind. The fact that the federal government is content, on the one hand, to make only indirect and very modest investments in the renewable sector while nationalizing a fossil-fuel enabling pipeline at an enormous public cost, on the other, speaks volumes about its enduring commitment to fossil energy and fossil capital.

Part 3 begins to explain the Liberal Climate Action Formula and its problems. Carbon Pricing + Hydrogen + CCUS¹⁰ + Nuclear = Paris 2030 and beyond. This section focuses on the first element of the equation. Carbon pricing is the central plank in the government’s effort to address the climate crisis. The government has developed a two-pronged approach to carbon pricing—a fuel charge that will reach \$170 tonne by 2030 and a cap and trade program for big industrial emitters. Both parts are problematic. The fuel charge will not achieve the emission reductions required by the Paris Accord.

¹⁰ CCUS stands for “Carbon Capture and Underground Storage”

The treatment of big emitters puts in place a complicated system of emission intensity rules rather than emission reduction requirements and sets up a market for carbon credits and offsets that will likely encourage companies to 'game the system' rather than reduce actual GHG emission levels.

Part 4 continues to explore the Liberal climate action formula by focusing on the second element of the equation, the government's problematic commitment to fossil fuel hydrogen. On the heels of the climate plan the government released the Hydrogen Strategy for Canada which is more of an economic strategy than a climate strategy. In a remarkably short time, the hydrogen lobby has achieved the political support to launch a multi-decade hydrogen program.

The strategy commits Canada to develop, distribute and export fossil fuel hydrogen rather than clean hydrogen. In so doing the government has set a course to become a global hydrogen superpower. In the process another lifeline has been thrown to the fossil fuel industry. According to the strategy, hydrogen will comprise 30% of Canada's energy sources by 2050. That is a huge number that locks the country into a fossil fuel future. Fossil fuel hydrogen is the wrong strategy.

Part 5 focuses on the CCUS-carbon storage part of the climate formula and outlines a series of problems associated with relying so heavily on a future-tense technology. The fossil fuel hydrogen strategy is fully dependent on carbon storage. In order to produce and export fossil fuel hydrogen, Canada has to find a way to capture, transport and safely store millions of tonnes of carbon underground forever.

Despite a history of unmet expectations, carbon storage has the full support of the federal government. In addition to the problems associated with carbon storage there will be demands for massive public subsidies to develop the capacity and the infrastructure to store carbon. A case in point. On March 8, 2021 the Premier of Alberta requested \$30 billion from the federal government to "explore CCUS."

Part 6 completes the discussion of the fossil first climate action formula by reviewing the government's announced 'action plan' to support modular nuclear reactors. Shortly after the government released its climate plan it announced the Small Modular Reactor (SMR) Action Plan. The government is making two major energy commitments. One is to fossil fuel hydrogen and the other is to nuclear power.

The government sees SMRs as a great opportunity both in economic terms and in terms of climate action. SMRs are theoretically easier to build and set up but the problems of safety and the long-term storage of radioactive waste remain. The industry expects a great deal of regulatory and financial support from government. The industry wants a package of public financial supports which include "cost sharing" at the development stage, "loan guarantees" at the construction stage, and "power purchase agreements", "tax incentives" and "long term agreements" at the operating stage.

Part 7 ties together the government's climate and economic plans by focusing on the issue of resource extraction. The Liberal government's vision, as expressed in the "Healthy Environment and a Healthy Economy", is one in which climate initiatives and economic growth go hand in hand. The climate plan is by design both an economic document and a climate action document. When the government talks about a transition to a low-carbon economy it is an economy that mirrors the high-carbon economy. In fact, it is still based on fossil fuels.

The Liberal government wants a transition without a transformation. What underscores the economic plan are the twin goals of attracting international investment and expanding Canada's exports. Key to all of this is resource extraction. The liberal government wants to reduce the carbon intensity of oil and gas so we can export more fossil fuels; shift to 'blue' hydrogen so we can sell more fossil fuels; plant more trees to justify selling more wood, and capture the renewable energy wave so we can extract and sell more mineral resources.

Part 8 reviews the emission reduction numbers provided in the climate plan and concludes that it is highly unlikely that Canada will meet its Paris obligations. The federal government's claim is that Canada will not only achieve its Paris 2030 commitments, it will surpass them. The evidence for such a claim rests on computer modelling projections of both current and future emission numbers.

There are three important questions to consider when thinking about the numbers the government provides. Are the numbers believable? Are they enough to reach Paris 2030? Are the numbers behind Paris pledges ambitious enough to prevent us crossing climate red lines? Our assessment concludes that the numbers in climate plan are problematic and that the programs outlined by the climate plan will fail to achieve a 30% reduction in emissions by 2030 over the base year of 2005. Canada has missed all 9 previous climate targets. We are on our way to miss the most important one. But more worrying is that our Paris commitments fall far short of keeping global temperatures below the critical 1.5 degree C threshold.

Part 9 proposes the tool of carbon budgets as a more effective way of setting and achieving climate targets than what Canada has planned. On a global basis a carbon budget is the cumulative amount of carbon pollution that can be dumped into the atmosphere without pushing global average temperatures past a chosen limit. It focuses attention on the finite limits the planet is up against. National carbon budgets can be generated based on countries taking their "fair share" of the global GHG emission reductions required to keep temperature increases below that number.

The U.N. Intergovernmental Panel on Climate Change has recommended the adoption of carbon budgets but Canada has gone a different route. Instead of a carbon budget approach the government has introduced the Net Zero Emission Accountability Act which in its current draft form fails to hold the government accountable for setting and achieving climate targets in a transparent and timely manner. By the time the first audit is released under the

Accountability Act it in 2029, it will be too late to make any adjustments required to meet our Paris commitments.

Part 10 concludes that the Liberal government climate action formula is a recipe for climate failure and suggests some different starting points. This year, 2021, has to be a turning point. Once the pandemic is contained, (constrained) we will need to build massive public support for dramatic climate action. We need to take whatever actions are necessary, very quickly to achieve a 1.5 degree C limit.

The Liberal climate action formula is charting a course that will fail and in failing will make it more difficult to alter course in the future. We need a different strategy. Now.

The world is going to change one way or another. The choice we face is between climate calamity, on the one hand, or a social and economic transition to a society committed to operating within safe and sane ecological boundaries, on the other hand.

The federal government is committed to a “Fossil-First” climate action formula: Carbon Pricing + Hydrogen + CCUS + Nuclear = Paris 2030 and beyond.

There is a different starting point, a “Climate First” action formula: Fossil Fuel Phase-out + Hard caps + Clean Renewables + Electrification = Paris 2030 and System Change.

The climate crisis has reached emergency status. The time for tinkering in the margins is long past. Responding to the ‘red alert’ will require all the tools at our disposal.

As we work with others to develop and promote an alternative climate action formula our perspective is grounded in three commitments; a commitment to deep decarbonization; a commitment to climate justice and social and economic transformation and a commitment to a full suite of effective climate action programs.

Part 1: Review of Specific Initiatives

Home energy retrofits, tree planting and supports for Zero emission vehicles (ZEVs) are amongst the most prominent programs in the Liberals response to the climate crises. These initiatives are not new with the Healthy Environment and Healthy Economy report. The tree planting commitments were announced in the last election, the energy retrofits in the Fall Economic Statement and support for ZEVs are, for the most part, a continuation of existing initiatives. But the more important issue is not their 'new-ness' but whether or not they will be effective. Unfortunately, even a brief review raises serious questions about the programs design, scale, timing and implementation.

Home Energy Retrofits

Buildings account for a significant share of Canada's GHG emissions, between 13 and 18% depending on whether electricity used for cooling, appliances and lighting is included.¹¹ Despite energy efficiency improvements in the residential and commercial sectors, energy use is expected to increase between now and 2040. The government has expressed its intent to encourage a federal model building code to promote more energy efficiency.¹² Clearly that needs to be done. But the real problem is dealing with the existing housing stock. About 75 % of the houses that will exist in 2030 are already built.¹³

To effectively reduce the emissions from buildings requires wide-spread, and very expensive, deep retrofits. The government has announced a program of grants and loans that they must know is seriously underfunded. The building-retrofit plan consists of \$5,000 grants, which are to be used to improve the energy efficiency of an estimated 700,000 homes. The government will also develop a program of low-interest loans to support more extensive retrofits. This program will likely help individual homeowners a bit. But since the maximum grant is \$5,000 many homeowners will receive less than the full amount.¹⁴

The program is inadequate in three ways:

First, the government's commitment of \$2.7 billion over 7 years is not enough and not soon enough. Seven years starts bumping up against the target year of 2030. If the program is fully subscribed only 1 in 10 Canadian houses will receive retrofit assistance by that time.

Second, the amount of the grant is too low to accomplish the deep energy retrofits that are needed to effectively reduce GHG emissions. In announcing a companion low-cost loan

¹¹ Reducing Greenhouse Gas Emissions from Canada's Built Environment, Report of the Standing Senate Committee on Energy, the Environment and Natural Resources, Nov 2018

¹² Building codes are a provincial responsibility.

¹³ *ibid*

¹⁴ "A Healthy Environment and a Healthy Economy", *op.cit.*

program the government is tacitly admitting that the grant amount is inadequate. In a pre-budget consultation report the clean capitalist business group, Corporate Knights recommended a grant program of \$40,000 per house¹⁵. In addition, the Task Force for a Resilient Recovery, another business led group, estimated that a five-year \$27 billion program for building retrofits was required.¹⁶ That is ten times greater than what was announced. A low carbon pathway for Canada requires energy retrofits at a scale much greater than ever before. And yet the \$5,000 limit is the same level as it was in a similar program introduced in 2007. That same level of incentive provides a lot less retrofitting than it did 14 years ago. It is clear that the existing program will not support the deep retrofits that are necessary to drive down emissions in the building sector.

Third, the government has failed to quantify the expected impact of its initiative. If climate action is all about reducing GHG emissions then it is important to be able to assess the effectiveness of proposed initiatives in actually lowering emissions. The government doesn't provide any estimates. There are a couple of things that we do know. One is that buildings are responsible for about 111 MT of GHG. The second is the government's previously announced target of achieving a 21.6 Mt reduction in building sourced GHG by 2030.¹⁷ While the climate plan concludes that government actions will achieve those targets there is no assessment of the expected impact of the home retrofit program. In fact, it is more likely that the government will miss those targets.

Two of the rules of climate initiatives are first, what gets funded gets done. And second, if you can't measure a result you won't achieve it. And we could add a third, half-hearted efforts will result in halfway measures.¹⁸

Two Billion Trees

The government's climate plan identifies a number of nature-based climate initiatives. Chief amongst them is the oft-repeated promise to plant two billion trees. Although announced in the last election (2019) not one of those trees has been planted. In fact, if they start planting this year, they will have to plant over 600,000 trees every day of the year for the next 9 years. Some would argue that is still possible. After all, about 600 million trees are planted every year in Canada so planting a couple of hundred million more should be possible¹⁹. But here's the

¹⁵ Report: Building Back Better with a Bold Green recovery, Corporate Knights, June 29, 2020

¹⁶ Final Report, Bridge to the Future, Task Force for a Resilient Recovery, September 2020

¹⁷ Pan-Canadian Framework for Clean Growth and Climate Change (PCF).

¹⁸ Note to reader: The Liberal climate document also reports on existing initiatives to encourage municipalities to improve energy efficiency in municipal buildings (\$1.5B over three years) It also states that new federal buildings will be net-zero and that all major government building retrofits will be low-carbon. The Canada Infrastructure Bank is also providing \$2 billion over three years to help finance the upfront capital costs of commercial and large-scale building retrofits. We have not evaluated those initiatives.

¹⁹ Mia Rabson, CTV News, Nov 2, 2020 No Budget yet for Liberals Promise to plant two billion trees by 2030

problem. Even if the tree planting numbers are achieved it won't get us closer to the emission reduction targets.

Canada has 10 percent of world's forests. And we cut down our forests at an alarming rate — among the highest in the world. Over 20% of the world's total loss of primary forests typically occurs in Canada.²⁰ Excess logging is a huge source of carbon emissions. A tree takes a long, slow time to store carbon. Whereas a felled, mature tree might quickly release its stored carbon depending on how that tree is used. For example, if it is burned as biomass fuel.

While it seems counter intuitive, Canada's managed forests are a net emitter of GHG. They are not a carbon store. That has been the case for each of the past 15 or so years on record. The issue isn't just one of tree planting. It is about the entire ecosystems of our forests. A system that is currently stressed by over- cutting and the monoculture approach to forest management and renewal. Added to that are the damage caused by fires and pests, both exacerbated by the growing climate crisis.

The Canadian government has changed the way forest CO2 emissions are calculated and has effectively downplayed the numbers. According to the climate plan, forests provide carbon offsets that can be used against other emission sources. The reality, however, is dramatically different. Canada's forests are more a source of carbon than they are a carbon sink.²¹ Planting 2 billion more trees won't change that.

ZEV's (Zero Emission Vehicles)

There are a number of problems associated with battery electric cars. The excessive extraction of scarce mineral resources such as cobalt and lithium essential for battery production, is one of them. Others include the energy intensity of the production process itself and whether the charging source is clean electricity rather than fossil-fuelled or nuclear-sourced electricity. Without downplaying these issues, it remains the case that a rapid and large-scale shift away from Internal combustion engine vehicles is necessary.

A growing number of countries, regions and even cities are proposing to ban the sale of gasoline powered cars. For example, Norway plans to ban them by 2025. Paris by 2025. India, Ireland and Israel by 2030. Scotland by 2032. California by 2035. BC by 2040 and Quebec by 2035.²² Canada's federal government has refused to set a date for restricting the sale of

²⁰ Frederic Beaudry, Deforestation in Canada, Treehugger Jan 31, 2019

²¹ There is no space here for a detailed analysis of these issues. For a powerful critique see Barry Saxifrage, As Canada's Forests become carbon bombs, Ottawa pushes the crisis off the books, National Observer, March 30, 2020

²² Adam Chan, BC rolls out the rules to meet 100% electric vehicle target by 2040, CTV news, July 30 2020 Canada's second largest province joins BC in setting a ban on combustion vehicles. ; Electric Autonomy Nov. 16, 2020; EV volumes .com

internal combustion engine cars. This failure leaves a glaring omission in its approach to climate action.

In the first and second quarters of 2020, 3.5% of total new vehicles registered in Canada were zero-emission vehicles (ZEVs).²³ More than a decade ago the Electric Vehicle Technology Road Map for Canada (2009) announced a goal to get at least half a million electric cars on Canada's roads by the end of 2018. There are almost 23 million cars, SUVs and pick-up trucks registered in Canada. Only about 168,000 are zero emission.²⁴

Canada could do so much more. Electric vehicles made up 54.3% of all new cars sold in the Norway in 2020. A decade ago, the figure was 1%. Although Norway clearly stands alone, it shows what is possible.²⁵ Canada has previously announced a set of targets for the adoption of ZEV vehicles. The target is to have 100% of new vehicle sales to be ZEV by 2040.²⁶ The government's climate plan should have been an occasion to turn that wishful thinking into real actions by announcing, as other countries have done, a ban on gasoline powered cars. Instead, the climate plan doesn't even mention the previously announced soft targets.

Last November Canada's Energy Regulator in its annual report laid out a couple of scenarios for future energy use. In its more ambitious scenario, it estimated that by 2050 only half of new car sales in Canada will be electric.²⁷ The government's package of ZEV related initiatives is unlikely to alter that projection. Those initiatives include:

- an additional \$287 million over two years, to continue the \$5,000 Incentives for Zero-Emission Vehicles (ZEV) program until March 2022.
- An additional \$150 million over three years in charging and refuelling stations across the country.

On its own, the \$5000 incentive is insufficient to accelerate the to shift to ZEVs. Sales figures demonstrate that it is only where the federal incentive is combined with a provincial subsidy - such as in BC and Quebec-, are people more likely to buy electric vehicles. The vast majority of new car sales are in Ontario, where the Ford government eliminated the subsidy for electric vehicles. As a result, the shift in market share in Canada will be much slower than estimates suggest.

But more important than subsidizing individual vehicles is shifting government fleets, trucking fleets and buses from ICE to electric. The climate plan repeated the commitments to spend \$1.5 billion, through the Canada Infrastructure Bank, to help procure 5,000 zero emission public

²³ Electric Autonomy Canada, Q2 2020 EV sales.

²⁴ Electric Mobility Canada

²⁵ EV volumes.com

²⁶ Government of Canada invests in zero emission vehicles, Transport Canada news release April 17, 2019

²⁷ 2019-20 Annual Report of the Canada Energy Regulator

transit and school buses. The program was first announced two years ago and to date there are only about 120 electric buses that are either on the roads or ordered.²⁸

The largest battery-powered electric bus fleet in North America is the Toronto's transit system which is now running 60 electric buses. Toronto hopes to have 300 by the end of 2025.²⁹

If the largest transit authority plans to have 300 by the end of 2025 how will it be possible to fund 5000 electric school and transit buses by the end of 2024. But even if that was achieved it will still fall far short of what is needed. Keep in mind there are 30,000 school buses in Canada and another 15,000 buses in the public transit fleet.³⁰ Even the government's most recent announcement of \$14.9 Billion over eight years for transit and active transportation is not enough. Of that amount \$2.75 Billion is to be spent over five years to help support conversion to electric public transit.

It is estimated to cost as much as \$30-billion to electrify all of Canada's roughly 15,000 public-transit buses, including buying the buses and adding the infrastructure.³¹

On this basis it's hard to see how the government will reach any of its electrified vehicle targets.

The emission reductions targets for the transportation sector that are used in the climate plan are quite modest, amounting to a reduction of 10 Mt by 2030 over the 2005 base year.

It is highly unlikely that Canada will achieve those targets. The current pace of change in the transport sector is simply inadequate. The Government's programs to support the adoption of electric vehicles are failing. They suffer from three shortcomings. One is the government's preference for incentives rather than requirements. The second is while incentives are preferred, they are set at a level which fails to accelerate the shift they are intended to induce. And third there is not enough direct funding support to change the composition of public transit and school vehicle fleets.

²⁸ Emily Chung, Alice Hopton, Tashauna Reid, What cities can learn from the biggest battery-powered electric bus fleet in North America, CBC news Dec, 2, 2020

²⁹ TTC Sept 8, 2020

³⁰ StatsCan, Annual Passenger and Urban Transit Survey

³¹ The Canadian Urban Transit research and Innovation Consortium (CUTRIC)

Part 2: The Missing Renewables

Following ratification of the 2015 Paris Climate Agreement, virtually every country officially committed to reduce greenhouse gas emissions to a level that limited warming to no more than 2C and preferably 1.5C over pre-industrial levels.

In 2018, a UN Special Report concluded that to save ourselves from runaway climate change, investments in low-carbon energy technology and energy efficiency would need to be increased by a factor of six by 2050 compared to 2015 levels.³²

Other reports have drawn similar conclusions: The pace of investments in renewable power has to dramatically increase:

“On average over the next 30 years the world will need to build 5 to 6 times as much wind and solar power per year as in 2019”³³

In the face of these forecasts, projections, and a growing international consensus the Liberal government climate plan scarcely mentions renewable energy. There isn't a section of the report devoted to developments in wind and solar power capacity. There are no targets for the expansion of clean renewable energy supply. There is no commentary about the role wind and solar can play in the shift to electrification of our overall energy system and no new funding programs to support such a transition. In fact, renewable solar and wind energy stands as one of the most glaring omissions in the climate plan.

Over the decades since the climate crisis was formally recognized in 1992, the price of renewable solar and wind energy has dropped dramatically. Solar and wind power have reached price parity with fossil energy in many of the wealthiest countries on earth, including Canada.

But renewable price parity with fossils has not resulted in renewables replacing or displacing fossils from our overall energy mix. Renewables have been hard pressed to capture marginal increases in the share of the year-over-year increases in total energy demand. There is nothing in the Liberal climate action document that even acknowledges these issues.

Canada's Fossil-Dependent Energy System

Canada's electrical energy demand is met through a grid powered predominantly by relatively low-carbon energy sources such as hydro-electric and nuclear power. The relatively “green”

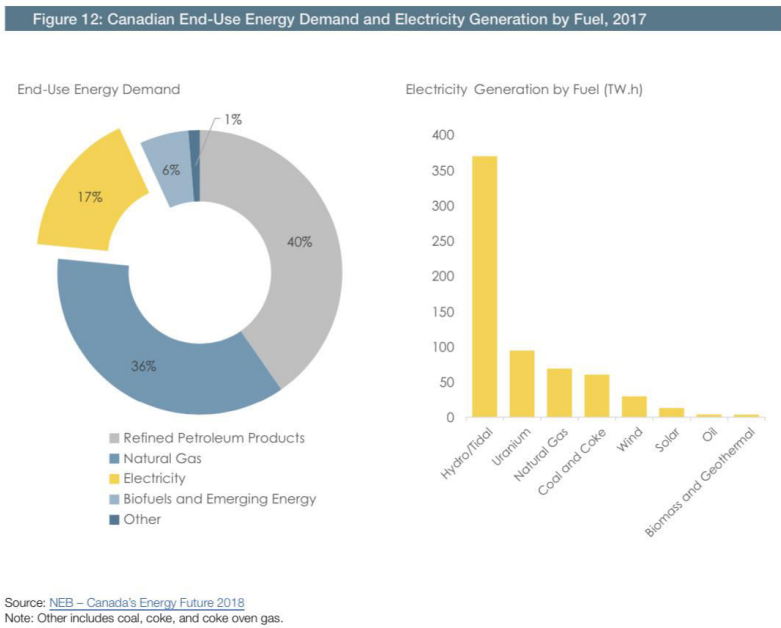
³² IPCC Special Report: Global Warming of 1.5C, Summary for Policy Makers, section C.2.6, p19.

³³ “Making Mission Possible: Delivering a Net-Zero Economy”, UK Energy Transitions Commission, September 2020: <https://www.energy-transitions.org/wp-content/uploads/2020/09/Making-Mission-Possible-Full-Report.pdf>, p. 42

nature of our electrical grid has lent credibility to the government’s assumed commitment to renewable energy. The government boasts that Canada is “the world leader in the production of energy from renewable resources”. It also notes that Canada is the second largest producer of hydroelectricity in the world.³⁴

Government web sites and documents repeatedly point out that wind and solar are the fastest growing energy subsectors. The implication is that Canada is on a fast track to a renewable energy future. This is simply not the case.

As can be seen from the chart below, Canada’s relatively low carbon electrical energy system only meets about 17% of Canada’s total energy demand while the lion’s share - 76% - is met by the high carbon-intensive oil and gas sector.



The attention focused on impressive sounding year-over-year increases in renewable energy capacity has obscured the fact that the vast majority of our total energy demand is still being met by the burning of fossils fuels.

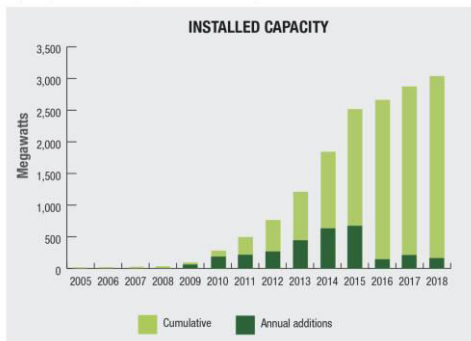
And, since 2015, according to Natural Resources Canada, annual additions to renewable energy generating capacity within Canada’s overall energy system has flat-lined, even as solar and wind power has become less and less expensive to produce.

As the charts below show, while installed capacity is trending upwards the annual investment in new capacity has stalled and is falling.

³⁴ About Renewable Energy, NRC Canada,

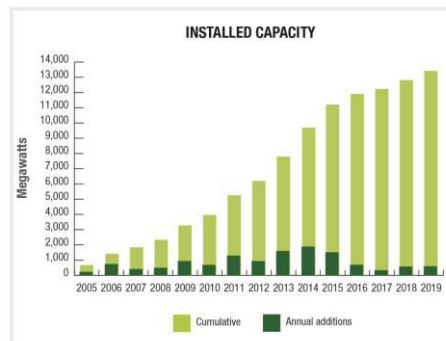
Solar PV in Canada

Most of the solar capacity in Canada is located in Ontario. In 2018, the capacity of the solar photovoltaic industry in Canada was 3,040 MW.



Wind Power in Canada

In 2018, Canadian generation of wind power was 32.9 terrawatt-hour (TWh). The total capacity of the Canadian industry was 13,417 MW as of December 2019.



New installed capacity for wind power in Canada has been falling since 2014. Its share of the electricity supply is stuck at 5.1%. For its part, solar has experienced a dramatic drop in additional new capacity since 2015 and has not recovered following the Ford government’s cancellation of 750 green energy contracts almost immediately after taking power in June of 2018.

The 2020 New Energy Outlook from Bloomberg New Energy Finance (BNEF) projects that wind and solar energy will grow from meeting 9% of global electricity demand today to an impressive 56% of global electricity demand by 2050. But here in Canada there has been more government focus on hydrogen from natural gas than there has been on wind and solar, despite the International Energy Agency’s (IEA) claim that solar power is now the cheapest source of electricity in history.

As of 2018, hydro-electricity accounted for 67.5% of Canada’s total renewable energy use, followed by solid biomass at 23.3%, wind at 5.2%, ethanol at 1.8%, renewable municipal waste and landfill gas at 0.8%, solar at 0.1%.³⁵

Canada gets more energy from captured municipal landfill gas (which is treated as “renewable”) than it does from photovoltaic solar energy.

When it comes to renewables the government’s preference is to support biomass initiatives over wind and solar energy. It has more measures in place to support the production and use of biofuels than it does to support solar power installations.

³⁵ Natural Resources Canada (NRCAN): <https://www.nrcan.gc.ca/science-data/data-analysis/energy-data-analysis/energy-facts/renewable-energy-facts/20069>

In 2010 the largest photovoltaic solar plant in the world was built near Sarnia, Ontario, a town synonymous with the oil and gas industry. Since then, Canada has been eclipsed by the rest of the world. Canada hasn't even secured a spot in the Top 50 world solar energy producers. Compare that to Germany where 8.6% of energy is supplied by solar, or Japan at 7.6% or the EU at 4.9%. Even the United States gets far more of its energy from solar than does Canada.

The Climate Plan and Renewables

In the climate plan the government commits to spend \$964 million over 4-years,

"... to advance smart renewable energy and grid modernization projects to enable the clean grid of the future. This includes support to increase renewable power generation capacity such as wind and solar, and the deployment of grid modernization technologies such as power storage."³⁶

While 'renewable generating capacity' is mentioned, it is clear that the vast majority of those funds will be earmarked for grid upgrading and grid interconnections. These are important initiatives in their own right but they do not constitute a renewable energy strategy.

Even if all those funds were to be used to support wind and solar energy generation projects the result would be very limited. The scale of this investment pales in comparison to the official \$12.7 billion (and counting) price tag for the federal government's nationalization of the TMX pipeline expansion project. That project will triple the existing pipeline's carrying capacity and has an expected lifespan of 50 years. It will enable the continued expansion of tar sands extraction and transport of high carbon-intensive bitumen thereby making the achievement of net zero carbon status by 2050 all that more difficult, if not impossible.

The fact that the federal government is content, on the one hand, to make only indirect and very modest investments in the renewable sector while nationalizing a fossil-fuel enabling pipeline at an enormous public cost, on the other, speaks volumes about its enduring commitment to fossil energy and fossil capital.

Back to the Future

Canada's Energy Regulator (CER), the agency that replaced the discredited National Energy Board (NEB) in 2019, publishes annual future energy supply and demand assessments based on two different levels of "climate policy ambition": a "business as usual" scenario (the Reference Case) in which assumes no new climate policy initiatives are adopted; and another (the Evolving

³⁶ "A Healthy Environment and A Healthy Economy", p21:
https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/healthy_environment_healthy_economy_plan.pdf

Scenario) predicated on a gradual incremental ratcheting up of governmental action to reduce the carbon intensity of our energy system - while minimizing the impact on GDP growth.

Under the Evolving Scenario, the CER computer modelling suggests that Canadian crude oil production increases steadily until peaking in 2039, while Canadian natural gas production increases even more until it peaks in 2040. Oil and gas production doesn't start to decline until sometime between 2040 and 2050 and then only slowly.³⁷

Like all computer modelling, the CER's future-gazing is based on a number of assumptions, the most important of which is the apparently non-debatable imperative for incessant increases in GDP.

The CER's predicted continuous increase in fossil energy production through 2040, flies in the face of what Canada and the rest of the world has been told by climate scientists needs to happen if humanity is to have an even chance of keeping global average temperature increases below 1.5C or 2C.

" ... emissions must drop 7.6 per cent per year from 2020 to 2030 for the 1.5°C goal and 2.7 per cent per year for the 2°C goal." ³⁸

While fossil fuel production begins to decline in the 2040s, the CER's Evolving Scenario still has fossil fuel consumption making up over 60% of Canada's fuel mix in 2050 and concludes that ...

"(A)chieving net-zero GHG emissions by 2050 will require an accelerated pace of transition away from fossil fuels."

Instead of initiatives or direct investment aimed at driving down fossil demand and replacing it with increased renewable capacity, the government's climate plan promotes the notion that Canada can achieve net zero status and fuel "green growth" at the same time by enabling private-sector carbon-intensity reduction investments, 'blue' hydrogen and modular nuclear.

³⁷ 2019-20 Canada Energy Regulator (CER) Annual Report: https://www.cer-rec.gc.ca/en/about/publications-reports/annual-report/2019/2019-20_Annual_Report_of_CER.pdf

³⁸ UN Emissions Gap Report 2019, p.13:
<https://wedocs.unep.org/bitstream/handle/20.500.11822/30797/EGR2019.pdf?sequence=1&isAllowed=y>

Part 3: Canada's Carbon Pricing System

Carbon pricing is the central plank in Canada's efforts to meet its climate targets. It is difficult to overstate its importance. Although the Healthy Environment and Healthy Economy talks about 64 new and improved climate initiatives, the one that counts the most is putting a price on carbon. It is the first element in the Liberal's climate action formula:

Carbon pricing + Hydrogen + CCUS + Nuclear = Paris 2030 and beyond

Carbon pricing was introduced in 2019 at \$20 per tonne. It increases by \$10 per tonne each year until 2022 when it will reach \$50 per tonne. The Federal government now intends to increase the carbon price by \$15/tonne per year from 2022 until 2030 when it will reach \$170 tonne (about forty cents a litre at the gas pump.)

The federal carbon pricing system has two parts.

1. a charge on fossil fuel (fuel charge) used to power vehicles, run appliances and machines, heat buildings etc.
2. a cap and trade system for large industry, known as the Output-Based Pricing System (OBPS)

The system by design, is revenue neutral. The money raised by the carbon levy is returned to Canadian families and businesses. Individuals will get rebates mailed to them every quarter at an amount that varies depending on the province where they live.

The federal government believes that carbon pricing will succeed in driving down emissions at the scale that is necessary to meet its Paris Accord commitments.

- It is convinced that by sending a strong signal to the market companies will invest in GHG reduction technologies and discharge less GHG.
- It is confident that adding an extra charge to fossil fuel will make cleaner alternatives more attractive for investors and competitive in price terms.
- It believes that a long and steady increase in the carbon price, will encourage corporations to plan for the future better and innovate more effectively.
- It believes that the money which is rebated to individuals will be used for climate abatement purchases.

The government's climate success is predicated on all the actors in the marketplace acting in the ways they are forecasted to act.

The Problems with Carbon Pricing

There are a number of problems with carbon pricing systems.

1. Carbon pricing is a market signal and often market signals don't work the way the textbooks predict.

2. The carbon price that Canada has set is not determined foremost by the need to act on a climate emergency. It is set at a level that will balance in some way emission reductions with economic growth. In its modelling annex to the Healthy Environment and a Healthy Economy report the government spends considerable effort to show that the carbon pricing won't negatively affect the rate of economic growth.
3. The expected impact of the carbon price in reducing GHG emissions is based on computer modelling. Even if the modelling is robust the projections are based on inputs shaped by various scenarios, a large number of assumptions, and historical data sets that are routinely revised. Scenarios aren't forecasts and forecasts aren't reliable predictions. And assumptions should be transparent and the subject of public discussion, not buried in opaque formulations.
4. The price of carbon will reach \$170 tonne by 2030. But is that high enough and soon enough to rapidly and drastically change individual purchasing habits, investor trends and corporate behaviour? Unlikely.
5. The revenue neutrality of the carbon price system for individuals is both a strength and a weakness. Its strength lies in fact that by rebating the proceeds of the levy back to individuals it avoids compounding income inequalities. And the weakness is that a huge amount of money that could be used to fund a range of important climate initiatives is forfeited in the hopes that people will use the rebates for climate related purchases. Most people will have to use the rebates to help pay the rent and buy the groceries.

Perspectives on Carbon Pricing

There is a debate about the effectiveness of carbon pricing. Some consider it the most effective and powerful tool to tackle climate emissions. Others worry that it is a wrongheaded approach that will fail.

The differences may have more to do with perspective than evidence.

There are two competing perspectives on responding to the climate crisis in Canada. One is a green capitalist model which argues that capitalist economic growth and environmental sustainability can go hand in hand. The Clean Prosperity group sums it up well:

“The task of reducing our emissions can best be accomplished if the government encourages and leverages the ingenuity and expertise of Canadian entrepreneurs and businesses. Government should focus on creating the right incentives for the private sector. Public investment should focus on market failures (e.g. early-stage research for

technology) or the need to provide infrastructure in the public interest (e.g. public transit).”³⁹

The other, which could be described as a ‘deep’ green new deal approach, argues that responding to the climate emergency requires much more than price signals and incentives. It argues instead for a rapid plan for decarbonization, an accelerated end to the age of fossil fuels, and an economic transformation that addresses economic inequality and racial injustice and commits to building an economy that puts people before profits.

The OBPS (Output based Pricing System)

In Canada 1700 emitters are responsible for about 40% of GHG⁴⁰. Amongst those are 17 large emitters, a mix of oil sands, steel, refining, and a pipeline, that cause about 78 million tonnes of emissions⁴¹. That is an amount greater than all the emissions of Canada’s agriculture. It is an amount that is equivalent to about 90% of the emissions from all the buildings in the country. As the climate plan points out: “Working with large final emitters is essential to Canada’s climate goals.”⁴²

To that end, the government has developed the OBPS. The system is designed to encourage large emitters to adopt newer technologies without compromising their competitiveness. It encourages them to grow and produce more but in a ‘cleaner’ manner.

The OBPS establishes a performance standard or cap on the volume of emissions allowed on a sector by sector basis. If a facility emits more GHG than the cap it has to pay for the excess emissions. The price it has to pay is the same amount that is established for the fuel charge. If the company pollutes less than the standard it earns a credit that can be used to offset future charges or which can be sold to another polluter. The standards are expected to tighten by 2% each year starting in 2022. The money that is raised in emission charges will be returned to industry. As the government points out:

“Proceeds from the federal Output-Based Pricing System (OBPS) for industry will support projects by industrial facilities to cut emissions and use new cleaner technologies and processes.”⁴³

³⁹ Creating Clean Prosperity, How Canada can reduce its emissions and increase its competitiveness, Clean Prosperity, Nov 2020.

⁴⁰ Greenhouse Gas emissions from large facilities, Government of Canada:
<https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gas-emissions/large-facilities.html>

⁴¹ Healthy Environment and a Healthy Economy report, p35

⁴² ibid p35

⁴³ See: <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/healthy-environment-healthy-economy/annex-modelling-analysis.html>, p.3

The government's precarious balancing act of ensuring private sector growth while paying attention to the climate has led to an overly complex arrangement; one that has a number of potential problems.

Emission Intensity

The OBPS applies a carbon price only to emissions above a certain threshold. Companies get a free ride for the share of their carbon emissions up to that level. In addition, while they have to pay the going carbon price on emissions beyond the standard, those levels are calculated as emission intensity not actual levels. This means that the standard is based on emissions per-unit of output for a given product or activity. The intensity rule gives companies a break. Here is how the government expresses it.

"The amount each facility pays depends on how much carbon pollution it emits to make one unit of product. If a facility finds a way to pollute less per unit, it will save money or earn credits."⁴⁴

If a company pollutes less per unit of production it can pollute as much or more as long as it does so in a more carbon efficient manner. There is a critical difference between absolute emission limits and intensity limits. This quote from a large fossil fuel company illustrates the problem:

"Cenovus is targeting to reduce its per-barrel GHG emissions by 30% by the end of 2030, using a 2019 baseline, and hold its absolute emissions flat by the end of 2030....the new 2030 GHG emissions targets are among the most ambitious in the world for an upstream exploration and production company."⁴⁵

The company is going to reduce emission intensity but not actual emissions. This means it will have the same volume of emissions in 2030 as it did in 2019. The atmospheric goal is to reduce emissions not to keep them at the same level. It is also going to use 2019 as the baseline for holding emissions flat rather than the Paris Accord baseline of 2005. The company also plans to produce more oil and gas that will be burned somewhere else and release carbon somewhere else. The government considers this outcome a climate action success.

A Market for Carbon Credits

The OBPS establishes a market for buying and selling emission credits. And like other markets this one will be subject to machinations, efforts to control and manipulate market price,

⁴⁴ See: <https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/industry.html>

⁴⁵ Cenovus sets bold sustainability targets, Nasdaq.com Jan 9, 2020: <https://www.nasdaq.com/press-release/cenovus-sets-bold-sustainability-targets-2020-01-09>

speculation, and busts. A company can use the credits it has earned or bought to pay for its emissions. The government argues that this market will provide an incentive to innovation and adoption of new technology. But it also provides an incentive for companies to find a way to buy credits that are cheaper than the price of their emissions. There is an incentive to game the system to reduce their carbon liability. This is what happened in the cap and trade program of the EU.⁴⁶

A Market for GHG Offset Credits

In addition to carbon credits there is also a new system of credits in the works-- the Federal Greenhouse Gas Offset System. These offset credits can be used to pay for emissions that exceed a company's limit. Instead of reducing its own emissions a company can invest in a clean energy source such as a solar or wind farm or could invest in a 'carbon sink' like saving a forest or planting trees. (see section on tree planting).

The government has promised that Canada's system will be sound. In its discussion paper on offset credits, it states: "it will only issue Offset Credits to project activities that represent real, quantified, verified and unique GHG reductions that are additional to what would have occurred in the absence of the project"⁴⁷ and that are in Canada.

The quote tacitly acknowledges the problems with existing offset systems. The global offset market, established over a decade ago, risks being overwhelmed by a surplus of older credits still in the system. It is possible for companies to buy and apply offset credits whose purpose is long gone but which retain market currency. (see box)

⁴⁶ See: <https://www.carbonbrief.org/experts-unconvinced-latest-reforms-will-save-the-european-carbon-market>

⁴⁷ Carbon Pollution Pricing: Options for a Federal GHG Offset System, Environment and Climate Change Canada, 2019: <https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/federal-offset-system/chapter-14.html>

Outdated carbon credits from old wind and solar farm threatening climate change efforts

“French global energy giant Total recently announced it had delivered its first shipment of carbon neutral liquid natural gas- Natural gas is, of course, a fossil fuel and so can’t itself be carbon neutral. Instead, emissions from transporting the cargo were partly “offset” by investing in a wind farm in China.”

But here’s the problem: that wind farm has been operating since 2011 and has already issued more than 2 million tonnes of these so-called “carbon credits”. A project like this clearly happened nine years ago without the additional funding from selling credits to Total, so it is highly unlikely that the recent purchases resulted in additional removal of carbon from the atmosphere.” (The conversation, Jan 14, 2021)

The problem with legacy credits together with the ability of ongoing projects to issue back credits has created an alarming situation. Currently the volume of credits in the global system far outstrips the demand for offsets. Many of these credits were issued at a time of “poorer quality controls”, some have dubious environmental merits and the sheer magnitude of them swamp any legitimate effort to offset emissions.⁴⁸

Voluntary Challenges and Large incentives

The OBPS sets a soft cap and then provides a number of ways for companies to avoid financial liabilities above the cap. In addition to these very flexible arrangements the government has proposed further voluntary measures and large incentives in the hopes of changing the practices of big emitters.

The climate plan announced the launch of a Net-Zero Challenge for large industrial emitters “to encourage and help them develop and implement plans to transition their facilities to net-zero emissions by 2050.”⁴⁹ And while it is not known how much money will be collected through the OBPS the government has announced its intention to spend \$5 billion over three years in a Net Zero Accelerator Fund to help pay for industrial projects to cut emissions. Municipalities get \$1.5 billion to help purchase zero emission buses Large emitters get \$5 billion over the same period.

The government has introduced a system which risks companies choosing to adopt a variety of ways to reduce carbon liabilities rather than carbon emissions. It is also giving big polluters a lot of money. The government is ostensibly trying to balance emission reductions and corporate

⁴⁸ Reforming the Global Voluntary market for Carbon Offsets, Jan 25, 2021, Trove Research and University College London

⁴⁹ Healthy Environment and a Healthy Economy report

growth in a way that achieves both. But when it comes to large emitters, requirements are better than balancing acts. The OBPS allows the country's large emitters to reduce overall emissions less and at a rate slower than what is required to prevent a climate catastrophe. Emission intensity rules, carbon credits, carbon offsets, and new trading markets can be used as a screen to let large emitters continue to extract and burn fossil fuels. The system the government has designed will force others to pick up the slack and the bill.

Part 4: The Fossil Hydrogen Future

Carbon pricing is the central plank in the HEHE report and the first component in the Liberal's climate action formula. It is a formula which, while never directly expressed in government documents, under-girds most of the government's new and improved climate action plan. The formula can be expressed as this:

Carbon Pricing + **Hydrogen** + CCUS + Nuclear = Paris 2030 and net zero 2050.

The same formula could more accurately be read as Round 2 in Canada's bid to energy superpower status.

The first such claim was back in 2006 when Prime Minister Stephen Harper articulated his vision. At the time Harper bragged about the sea of oil that was under the "muskeg" in northern Alberta and he was the man to sell it to the world. Canada was at the threshold of a new era, one that would see the country emerge as a global energy superpower.⁵⁰

Now with Trudeau at the helm of government, the rhetoric has been toned down but the infatuation remains. In this version Canada is at the threshold of a new era when the country will emerge as a hydrogen energy powerhouse.

The Hydrogen Strategy

In the Healthy Environment and a Healthy Economy report, the government commits Canada to a hydrogen future.

"Hydrogen is one of Canada's most exciting economic transformation opportunities to ...enable a new Canadian competitive advantage in a low-carbon economy...position Canada to become a world-leading supplier of hydrogen and hydrogen technologies, generating economic opportunities through exports and direct foreign investment."⁵¹

On Dec 16, 2020, a few days after the release of the new and improved climate action plan, the government launched its Hydrogen Strategy for Canada, a 141 page, "ambitious framework that seeks to position Canada as a global hydrogen leader."⁵²

Hydrogen will probably have a role to play in the energy mix of the future. But it is a role that should be far more limited than the grandiose ideas that have captured the imagination of the Liberal government.

⁵⁰ Are Harpers' dreams of Canada as Energy Superpower going up in Smoke Jeff Rubin Globe and Mail, June 2, 2014

⁵¹ Healthy Environment and a Healthy Economy report p. 40

⁵² Hydrogen Strategy for Canada, Seizing the Opportunities for Hydrogen, Dec 2020, nrcan.gc.ca

Hydrogen and fuel cells will help decarbonize certain transport sub-sectors not amenable to electric battery applications such as heavy trucking and shipping. But it is a far reach from there to the ubiquitous hydrogen presence the government envisions. In its view, hydrogen is used for everything; from fuelling cars to powering industry, from heating homes to use as a industrial feedstock, from storing renewables to fuelling heavy equipment, ships and airplanes.

In the Liberal government scheme, hydrogen is a huge fix. Domestically, it will transform flagging sectors into thriving industries. It will drive innovation and investment all across the economy. It will create hundreds of thousands of jobs (350,000). It will generate economic opportunities all across the country. It will revitalize Canada as a major energy exporter. It will provide opportunities for indigenous communities. It will harness the skill and technical expertise of a generation. It will fuel economic growth. It will be the path to net zero by 2050.

“The Strategy will utilize Canadian expertise to build new hydrogen supply that will power our country’s clean energy future.”⁵³

Clean and Dirty Hydrogen

At its core the Hydrogen Strategy is a plan to protect and support the oil and gas industry and prolong the reign of fossil fuels. The liberal climate action formula throws yet another lifeline to a climate -devastating oil and gas sector.

There are two major types of hydrogen. More accurately there are two major ways to make hydrogen. There is green hydrogen and blue hydrogen. Green hydrogen is produced through electrolysis, using renewable energy to convert water into hydrogen. Blue hydrogen uses natural gas as the feedstock to fuel a process called steam reforming, which breaks down methane into hydrogen and carbon dioxide. At this stage the hydrogen is called “grey hydrogen”. The grey hydrogen becomes blue hydrogen when the carbon released during the production is captured and stored. This is where the third element of the Liberals climate action formula comes into play—CCUS (carbon capture, utilization and storage).

Canada’s Hydrogen Strategy, while paying lip service to a variety of pathways to a hydrogen future, commits fully to a dirty hydrogen strategy and the efforts to greenwash it.

Hydrogen, the second element in the Liberal government’s climate action formula, is the new alchemy that magically turns dirty oil and gas into a clean energy source. Throughout the climate plan document and its companion piece, Canada’s Hydrogen Strategy, there is a steady and deliberate transformation of fossil fuels into clean energy. At first there is talk about “integrating **low emitting** hydrogen across the Canadian economy,”. Later it becomes “the use

⁵³ Canada’s Minister of Natural resources, press release, Dec 16, 2020

of **clean hydrogen** across the country”. It is described as “the **lowest carbon fuel**” and it is repeatedly emphasized that it is “**carbon-free** at the point of use”.

As the strategy notes:

“Canada is the world’s fourth largest producer and sixth largest exporter of natural gas. Canadian marketable resources of natural gas can sustain current production levels for up to 300 years...Hydrogen production from natural gas offers a unique opportunity to leverage Canada’s vast gas reserves...”⁵⁴

The Power of Oil and Gas

That Canada has a hydrogen strategy based on fossil fuels is testament to the power of the oil and gas industry in the country. That the Trudeau Liberals have become its champion isn’t surprising. When Trudeau was first running for election, he made a pitch to Canada’s ruling elite. He told them to give a little to get a lot. He marketed himself as the guy who could deliver for industry. Harper’s climate denialism wasn’t going to work for much longer. Instead, they needed Trudeau who would talk about climate change but get pipelines approved and buy failing ones, commit to Paris targets but provide billions annually in oil and gas subsidies.⁵⁵ And now provide the industry with a new lease on life by announcing Canada’s Hydrogen Strategy.

Through the lens of hydrogen, other pieces of the climate plan document take on additional meaning. The commitment to fund 5,000 buses is a way to showcase hydrogen fuel cells. The Clean fuel standard is an incentive to support the production and use of hydrogen. The net zero Challenge Fund a way to support hydrogen’s industrial applications. The climate plan document makes the point:

“The broad range of compliance strategies that will support the Clean Fuel Standard will also ensure Canada becomes a leader in carbon capture, utilization and storage, hydrogen production...”⁵⁶

The point is amplified by Canada’s Hydrogen Strategy.

“Canada’s recently announced Strengthened Climate Plan, including carbon pricing, the Clean Fuel Standard and the \$1.5 billion dollar Low-carbon and Zero-emissions Fuels Fund, is already putting in place foundational federal initiatives that will enable the broad suite of measures contemplated in this (hydrogen) Strategy.”⁵⁷

⁵⁴ Canada’s Hydrogen Strategy p. 25

⁵⁵ Martin Lukcas, *The Trudeau Formula: Seduction and Betrayal in the Age of Discontent*, Black Rose Press, 2019

⁵⁶ HEHE report p.39

⁵⁷ Hydrogen Strategy for Canada p.XI

In a remarkably short time, the hydrogen lobby has achieved the political, financial and regulatory support to launch a multi-decade hydrogen program. According to the Strategy, hydrogen will play an integral role in Canada's future energy mix. By 2050, up to 30% of Canada's end use energy will be hydrogen. That is a huge proportion. There is little doubt that most of it will be hydrogen produced by burning fossil gas as a feedstock. Hydrogen is critical to achieving a net-zero transformation for oil and gas industries.

“Canada has vast fossil fuel resources in the form of natural gas, crude oil, and bitumen. When combined with Carbon Capture, Utilization, Storage (CCUS), these resources can be converted into low CI hydrogen.”⁵⁸

Part of the Strategy's argument in favour of fossil hydrogen is how it preserves and repurposes the existing fossil fuel infrastructure and assets. By committing to fossil hydrogen, the existing energy infrastructure, such as the extensive network of gas transmission and distribution pipelines can be repurposed to act as large-scale energy storage and distribution networks for hydrogen. Similarly, 'depleted wells, saline aquifers and salt caverns' could be used to store CO2 and hydrogen.

The Problems with hydrogen

1. Hydrogen is not an energy source.

Hydrogen is not an energy source. It is an energy carrier. Hydrogen can store and distribute energy but hydrogen has to be produced by using energy. The problem arises with the choice and efficiency of the energy that is used to fuel the process to produce hydrogen. It can be cost-prohibitive, inefficient, or inappropriate (fossil fuels).

2. Green or clean hydrogen is the right kind but the wrong choice.

Green hydrogen is by far the best choice in the hydrogen rainbow of colours. It is clean and produces no green house gases. But it is expensive compared to hydro, solar and wind. Green hydrogen and fuel cells will probably play an important role in the heavy transport sector. The problem is promoting green hydrogen for general uses when it is cheaper and more efficient to use the energy directly produced from solar, wind and other renewables.

3. Hydrogen has properties that confound,

Hydrogen is the first element on the periodic table. For all its remarkable properties it also, has some troubling ones. For instance, it's molecules can escape containment and it makes metal brittle. These are not insignificant when hydrogen has to be stored and distributed.

⁵⁸ Hydrogen Strategy, op cit p.29. CI means “carbon intensive”

4. It's hard to make grey hydrogen blue.

To achieve Canada's net-zero by 2050 target, all hydrogen production will need to be carbon-neutral, which means that hydrogen produced from fossil fuels will need to be coupled with CCUS. The carbon capture and storage requirement for this magnitude of hydrogen production would represent an astronomical increase in CCUS activity (6,200 %). It would also require a lot of money and an act of faith that future technologies will emerge to solve the problems. It makes more sense to use renewable energy directly rather than convert fossil energy into hydrogen and then use the hydrogen.

5. To export clean hydrogen requires us to store the carbon waste here.

Canada's hydrogen strategy promotes an economic model of Canada as an extraction and export led economy. But there is a growing realization that the world might not be interested in our carbon intensive offerings. The solution is to transform fossil fuels into low CI hydrogen and sell 'clean' hydrogen to the world. In addition to the problem of reinforcing Canada's resource dependency and export orientation, there is the considerable problem of finding the safe capacity to store all the waste carbon here. An underside of the Hydrogen is Canada as a waste dump and landfill economy.

6. Hydrogen gives fossil fuels a new lease on life.

Responding to the climate emergency requires us to rapidly phase out the burning of fossil fuels. Canada's hydrogen strategy does just the opposite. It provides fossil fuels a new lease on life. As the Strategy notes "Natural gas ...will have declining demand if not used to produce hydrogen." On the other hand, if hydrogen comprises 30% of energy use by 2050 and if all the hydrogen came from natural gas, it would require a 178% increase in natural gas demand and a 62% increase in production.⁵⁹

7. Hydrogen and centralized power.

The anticipated growth in production and distribution of hydrogen perpetuates a model of centralized energy production, massive infrastructures and an energy system dependent on and controlled by a limited number of large companies.

There is an old quip that goes like this; "hydrogen is the energy of the future and always will be." Canada's hydrogen strategy intends to prove that wrong. Canada, we are told, is at the threshold of becoming a global hydrogen powerhouse. The risk however, is considerable. We might squander precious time and resources in a dubious effort of hype and boosterism to promote fossil hydrogen. Instead, we should use that time, as well as our skills, talents and resources, to directly address the climate emergency, to develop energy options, and to promote energy efficiency, conservation and reduced energy use.

⁵⁹ Hydrogen Strategy, fig 40, p105

Part 5: Carbon Capture, Utilization and Storage (CCUS)

As we have seen in previous sections, the Liberal climate action formula is this:

Carbon Pricing + Hydrogen + Nuclear + **CCUS** = Paris Targets and Beyond

The CCUS portion of that formula is a high priority for the Trudeau government. The climate plan r commits the government to:

“Develop a comprehensive carbon capture, use and storage (CCUS) strategy and explore other opportunities to help keep Canada globally competitive in this growing industry.”⁶⁰

The Liberal government climate plan relies heavily on technological innovation to achieve its climate targets. Unfortunately, the largest share of proposed emission reductions come from technologies that are at an exploratory stage or are not yet scalable.

CCUS or carbon capture, utilization and storage is one of these. It is a set of technological and policy responses that aims to prevent carbon dioxide from being discharged into the atmosphere. Filters are attached to smokestacks which remove the GHG from the industrial exhaust. Once captured, the CO₂ is then compressed into very high concentrations and then is either used or stored. If used, it is mixed with other chemicals and becomes a feedstock for other industrial processes and products. The bulk of its use is in a process known as enhanced oil recovery (EOR) where it is pumped into depleting oil fields to extract any remaining fossil fuel.

While there are a number of developments for the utilization of CO₂ it is carbon storage that is at the heart of CCUS. Once carbon is captured and liquified it is transported by pipeline or some other means to storage locations underground or under the ocean where it has to stay forever.

While CCUS has been around for decades and has been met with bouts of enthusiasm and skepticism it is currently enjoying renewed interest. The International Energy Agency (IEA), for example, has recently concluded “that reaching net zero will be virtually impossible without CCUS”.⁶¹

That is a conclusion that resonates well with the Liberal government. First because the government sees CCUS as the bridge between fossil fuels and low carbon intensive hydrogen. Second, because it is the technological fix, perhaps the “stealth solution”, that allows the tar

⁶⁰ Healthy Environment and a Healthy Economy p 38

⁶¹ CCUS in Clean Energy Transitions, flagship report 2020, IEA

sands to keep pumping and exporting. And third, it is one of the few current technologies that can address the abatement challenges of heavy industries such as steel and cement production.

On the last point, the government's climate plan states;

“For heavy industries – such as steel, aluminum, and cement – the growth opportunity lies in ensuring Canadian companies are the most competitive in a world where investors are increasingly considering carbon pollution a financial risk. To protect and grow jobs in the industrial sector, there is a need to help companies decarbonize their operations, with clean sources of electricity, using low-carbon fuels like hydrogen or new zero-emission technologies like small modular reactors, and capturing carbon at the source.”⁶²

CCUS and Hydrogen

The federal government is committed to manufacturing hydrogen by using natural gas. The production process known as “steam reforming” breaks down methane (natural gas) into hydrogen and carbon dioxide. The result is “grey hydrogen.” But if the carbon dioxide emissions released during production are captured and stored then the dirty hydrogen becomes “blue hydrogen.” In other words, ‘clean’ hydrogen can be produced from fossil fuels when combined with Carbon Capture Utilization, and Storage (CCUS).

The government is hoping that Canada's natural gas reserves combined with an expertise in pipeline construction together with storage assets such as depleted wells, salt caverns and other geological formations are all the ingredients needed to make Canada a world leader in CCUS.

As the Hydrogen strategy pointed out:

“The carbon capture and storage requirement for this magnitude of clean hydrogen production would be approximately 203 Mt CO₂ per year. Given Canada's current CCUS operational projects capture and store about 4 Mt of CO₂ per year, this would represent a very significant increase in CCUS activity.”⁶³

CCUS and Oil and Gas

As pressure has mounted to make urgent and dramatic cuts to greenhouse gas emissions, the fossil fuel industry has deflected growing pressure for hard and declining caps on their carbon pollution in a number of ways. One is by citing their efforts and successes in driving down the

⁶² Healthy Environment and a Healthy Economy p. 35

⁶³ Hydrogen Strategy, p

“carbon-intensity” of their emissions and another is by pointing to their investments and commitment to CCUS.

Both are overstated. On declining carbon intensity, the Pembina Institute, an independent energy research group concludes;

“Industry likes to celebrate the changes it implemented to reduce emissions and waste, but the greatest of those were one-off advances in emissions intensity nearly 20 years ago. Since then, the emission intensity from oilsands extraction increased nine per cent between 2004 and 2015 ...”⁶⁴

it is clear that the oil and gas sector intends to increase output by as much as the market will bear thereby increasing absolute CO₂ emissions growth. It is also clear that the federal and provincial governments are going to do whatever they can to enable that increased production as well as facilitating its transport to market.

Given this commitment to ever-increasing levels of production, a necessary element of the net zero 2050 math becomes the scaling up of carbon-capturing technologies.

Canada’s largest CCUS project is the Alberta Carbon Trunk Line (ACTL). The system is the world’s newest integrated, large-scale carbon capture, utilization, and storage (CCUS) system. It currently captures CO₂ at the North West Redwater Partnership (NWR) Sturgeon Refinery and Nutrien’s Redwater Fertilizer Facility, from which it is transported via a dedicated CO₂ pipeline to mature oil fields in Central Alberta for use in enhanced oil recovery (EOR). In other words, it is used to extract even more oil.

This project and an anticipated wave of similar initiatives on the horizon set the stage, according to the climate plan, when Canada,

“becomes a leader in carbon capture utilization and storage, hydrogen production and other technologies that will allow Canada to extract energy from its resources while significantly reducing and eventually eliminating carbon.”⁶⁵

The Problems with CCUS

There are a number of issues concerning the need for large scale deployment of CCUS technology. There are also a number of uncertainties associated with relying on it as a pathway to net zero by 2050. Here are some of them:

1. Storing carbon or reducing emissions?

⁶⁴ Pembina Institute

⁶⁵ Healthy Environment and a Healthy Economy p 39

CCUS involves a choice between storing carbon or reducing carbon emissions. Proponents of CCUS recognize it as an effort to tackle climate change within a context of growing fossil fuel production, export and consumption. But research suggests that CCUS will be prohibitively expensive and will likely not extend the demand for coal, oil and gas.

2. Delayed emissions rather than avoided emissions

Most carbon utilization projects are energy intensive. They set up a cycle of using carbon to produce carbon to use carbon. In utilization projects a large share of the emissions is only delayed rather than eliminated. Add to that, the realization that commercial scale CCUS facilities still exhaust about 10 percent of CO₂ into the atmosphere and we are left with some reasonable questions about the effectiveness of utilization projects.

3. A mind-boggling scale

If CCUS is to be successful at capturing growing carbon emissions there will have to be a tremendous increase in CCUS projects. There would need to be a mind-boggling increase in CO₂ capturing, transportation and storage capacity to close the gap between where we are now and net-zero emissions by 2050. The Global CCS Institute, a think tank and lobby group, concludes:

“Currently, some 40 mega tonnes of CO₂ are captured and stored annually. This must increase at least 100-fold by 2050 to meet the scenarios laid out by the IPCC. Clearly, a substantial increase in policy activity and private sector commitment is necessary to facilitate the massive capital investment required to build enough facilities capable of delivering these volumes.”⁶⁶

And this 100-fold increase (10,000%) in CCUS capacity to get to net-zero emissions by 2050 would have to be augmented, according to the Institute, by the uses of various Carbon Dioxide Removal (CDR) techniques to directly remove carbon from the atmosphere.

Canada’s hydrogen strategy report makes a similar point when it admits that, if fossil fuel hydrogen was used exclusively to reach the target of hydrogen providing 30% of Canada’s energy demand, it would require a 6,200% increase in CCUS capacity⁶⁷.

4. Unmet expectations

The history of CCUS is one of unrealized expectations. Organizations such as the IEA note that after years of slow progress about thirty commercial facilities have been announced over the last three years around the world. At the same time, they express concerns that the recent

⁶⁶ Global CCS Institute

⁶⁷ Hydrogen Strategy p 105

investment trajectory could be easily derailed. Analysts estimate that more than 2000 large scale CCUS facilities will be needed by 2040 to meet emission targets⁶⁸. The outlook is uncertain as to whether major emitters and the oil and gas industry will invest heavily in CCUS. By the time CCUS comes of age the damage will already be done. Relying on a speculative technology sometime in the future is a risky proposition.

While new CCUS investments cover a range of industries, the majority of CCUS projects are for enhanced oil recovery. As a recent Greenpeace report on Carbon Dioxide Removal (CDR) strategies being adopted by corporations with net zero 2050 emissions targets points out:

“CCS is more nascent: there are only 21 commercial-scale plants in existence worldwide, with capacity to capture 40 Mt/year (about 0.1% of total global CO₂ emissions). All but five of these are used for enhanced oil recovery rather than dedicated storage.”⁶⁹

5. Huge costs and uncertain prospects

CCUS means that huge amounts of carbon dioxide have to be transported and stored safely, reliably and permanently.

Due to the physical properties of CO₂, existing oil or gas pipelines can not be used to transport or store carbon. CCUS requires a massive new infrastructure and dedicated transportation system. Storage sites must be carefully chosen for their geological stability and ability to protect ground water supplies from any leakage.

The cost of capturing it, transporting it, storing it and ensuring that it remains safe and stable are costs the private sector is reluctant to assume.

6. Requires major public funding

CCUS won't develop without a massive underwriting by governments. CCUS proponents and their lobby groups are busy trying to line up the public supports that will be necessary to build the industry. These supports include the demand for direct financial support of early CCUS projects and the funding of demonstration projects. They include governments paying a higher proportion of the R&D costs, underwriting the cost of industrial hubs with shared CO₂ infrastructure, funding the pipeline infrastructure and introducing favourable financial incentives. One way or another CCUS requires major government financial commitments.

As the climate plan puts it,

⁶⁸ Mapping the Progress and Potential of Carbon Capture use and Storage, Third Way, June 1, 2020

⁶⁹ Greenpeace (reference in previous draft)

“... the Government of Canada will look to make strategic investments in large-scale industrial projects, and to enable the adoption of low-carbon technologies to support economic growth and decarbonization across all sectors in Canada.”⁷⁰

Responding to the climate emergency will require a full suite of initiatives. Amongst those, CCUS will probably play a limited but useful role. It can be used to offset emissions that cannot otherwise be avoided as we make the necessary transition to an energy system centred on renewables.

CCUS will likely be a transition technology in heavy industry but it is not a pathway to net zero by 2050. Reliance on wide-spread deployment of CCUS is being used as a justification for expanding fossil fuel production and extending the lifespan of Canada’s export-focussed oil and gas sector. The climate emergency requires a rapid decarbonization of Canada’s energy system through hard and declining emission caps. Reducing emissions directly offers a far better chance of achieving the required cuts than banking on the possibility that enough carbon can be captured and stored to make a difference.

⁷⁰ Healthy Environment and a Healthy Economy p 36

Part 6: The Commitment to Nuclear Power

Carbon Pricing + Hydrogen + CCUS + **Nuclear** = Paris 2030 and beyond

Small Modular Reactors

The Liberal government has a dilemma. How does it commit to climate action and at the same time support the tar sands and the entire oil and gas industry? Quite simply, the answer is technology. Technology is the alchemy of turning dirty hydrogen into blue hydrogen. Technology is what will allow us to capture and store and use waste carbon (CCUS). Technology is what we can't even imagine yet. And technology is the new generation of nuclear power.

The climate plan casts about for all manner of technological fixes to the climate crisis and the problems of the economy. One of its chosen pathways to the future is the Small Modular Reactor (SMR).⁷¹ A SMR is a small scale, modular nuclear reactor that can be built in a factory and assembled at site. Theoretically they can be used in a wide range of applications, from grid-scale electricity generation to replacing diesel generators in heavy industry, mines and remote communities.

The Liberal government's new and improved climate action plan committed Canada to "launch a Small Modular Reactor (SMR) Action Plan by the end of 2020". In December the government followed through. The Action Plan states:

"Canada is investing in the full suite of the energy technologies we will need to achieve net-zero emissions by 2050. Nuclear energy is part of achieving these objectives. "

"Small Modular Reactors (SMRs) represent the next great opportunity for Canada – helping us to phase out coal and electrify carbon-intensive industries such as mining and petroleum extraction."⁷²

The SMR Action Plan's goal is to portray SMRs as; "a source of safe, clean affordable energy opening opportunities for a resilient, low carbon future." The government is convinced that they will play a critical role in achieving net-zero by 2050.

The SMR Action Plan is the second stage in the SMR offensive. The first stage was the 2018 report, "A Canadian Roadmap to Small Modular Reactors"⁷³. The Roadmap paints an incredibly

⁷¹ A Call to Action: A Canadian Roadmap for Small Modular Reactors, Nov 2018: https://smrroadmap.ca/wp-content/uploads/2018/11/SMRroadmap_EN_nov6_Web-1.pdf?x64773

⁷² Canada's Small Modular Reactor Action Plan, nrcan.gc.ca: <https://www.nrcan.gc.ca/our-natural-resources/energy-sources-distribution/nuclear-energy-uranium/canadas-small-nuclear-reactor-action-plan/21183>

⁷³ "A Canadian Roadmap for Small Modular Reactors", NRCAN, Nov 2018: <https://smrroadmap.ca>

rosy picture for the future of SMRs and the economic benefits that will accrue to those countries who are first on the bandwagon.

But despite the “tremendous potential to expand safe nuclear technologies -in Canada and around the world” the report does acknowledge a few obstacles. It is aware that the nuclear industry has a bad rep. But more important are the problems of cost and nuclear waste.

The Roadmap goes to some length to prove that SMRs can be cost competitive when compared to other energy technologies. But after various machinations and permutations the best they can conclude is this: “SMRs can be competitive with alternatives including large nuclear power plants, diesel, natural gas, hydro, wind and solar.”⁷⁴ (Note the phrase “can be”)

The Roadmap report does admit the problem with cost. But it’s one that can be overcome with significant taxpayer support:

“Federal and provincial governments have a role to play in sharing the risk and reducing the cost of capital. Without government support, the private sector may not make the necessary investments to set the stage for an SMR industry in Canada.”⁷⁵

The industry wants a package of public financial supports which include “cost sharing” at the development stage, “loan guarantees” at the construction stage, and “power purchase agreements”, “tax incentives” and “long term agreements” at the operating stage.

The report further notes the importance of ensuring “the viability of SMR ...is not overwhelmed by disproportionate legislative or regulatory requirements.”⁷⁶

On the issue of nuclear waste, the Roadmap report notes that “the ultimate solution is long-term disposal in a safe repository.”⁷⁷ That solution does not exist.

In the meantime, the industry is concerned that “storage costs will increase and eventually become a competitive disadvantage for SMRs in Canada. The lack of both storage and disposal options for small scale producers, including SMRs, presents an economic uncertainty that could present a barrier...”⁷⁸

Sounds like more public support down the road. Despite all the serious problems associated with cost and nuclear waste the industry is convinced that “SMRs are an innovation story and a

⁷⁴ A Call to Action p.32

⁷⁵ Ibid p. 35

⁷⁶ Ibid p. 36

⁷⁷ Ibid p. 28

⁷⁸ Ibid p. 28

potential game-changer for our nuclear industry and Canada’s natural resource sectors more broadly.”⁷⁹

The Liberal government agrees.

Part 7: Resource Extraction

The Liberal government’s vision, as expressed in the Healthy Environment and a Healthy Economy, is one in which climate initiatives and economic growth go hand in hand. The climate plan is by design both an economic document and a climate action document. A Healthy Environment and a Healthy Economy, according to the government, “is a plan that achieves both our environmental goals and our economic hopes.”⁸⁰

The report talks about a transition to a low carbon economy and promises a clean growth and clean energy and clean technology future.

As the report notes: “This transformation will require close alignment between climate and industrial policies.”⁸¹ There are some hopeful signs. There is some talk about clean economy job creation, building domestic manufacturing capacity and more environmentally friendly products. There is even a chapter headed: “Building Canada’s clean industrial advantage.”

The problem is that these references are overwhelmed by a ramped-up business as usual approach to economic development. Tax breaks, incentives, subsidies, flexible standards and soft regulations, reducing investor risk and aligning government policy in support of the private sector.

Perhaps some of that is even necessary in an age of crisis. The problem is to what end.

When the government talks about a transition to a low-carbon economy it is an economy that mirrors the high carbon economy. In fact, it is still based on fossil fuels. The Liberal government wants a transition without a transformation.

Whether it’s the growing global demand for low CI hydrogen or the plan for a surge in clean technology exports, the Liberal government envisions a future economy that supports the same economic model of capitalist growth, speculation, accumulation and exploitation that has brought us to this alarming point.

What underscores the economic plan are the twin goals of attracting international investment and expanding Canada’s exports. As the report notes the government wants to “secure an

⁷⁹ *ibid*

⁸⁰ Healthy Environment and a Healthy Economy report, Forward

⁸¹ *ibid* p 31

outsized share of these investments” and the Liberals want to “position Canada as a global leader...”⁸²

On Hydrogen, we can lead the world. Forestry, we can lead the world, Small nuclear, we can lead the world. Low carbon intensity fossil fuels, we can lead the world. Mining scarce minerals and metals, we can lead the world.

Key to all of this is resource extraction. The Liberal government wants to reduce the carbon intensity of oil and gas so we can export more fossil fuels; shift to ‘blue’ hydrogen so we can sell more fossil fuels; plant more trees to justify selling more wood, and capture the renewable energy wave so we can extract and sell more mineral resources.

In fact, the rapid growth of renewable energy and the transition to battery electric vehicles has sharply increased the demand for metal and minerals. There is a global race for more lithium, graphite, nickel, cobalt, copper, platinum and rare earth elements.

The climate plan notes:

“Canada is one of only a few countries in the world with reserves of all the minerals required for lithium-ion battery production. And it has the rare earth elements used to make magnets for electric motors.”⁸³

Canada's mining sector is primed to meet the increasing demand. The first line of The Canadian Mineral and Metals Plan, Canada’s mining strategy, makes the point “Canada is a global mining powerhouse.”⁸⁴

The Liberals want to ensure Canada’s mining giants are allowed to explore, extract and expand. Canada has a huge mining presence and the Liberals want it bigger. All that is needed is a wash of pale green. The climate plan helps provide it. “Canada’s mining sector continues to be a constructive partner in the fight against climate change.”⁸⁵

There is little in the climate plan or Canada’s mining strategy to support that contention.

The mining strategy identified a number of areas for action but environmental stewardship and climate action weren’t high on the priority list. Instead, it was the usual big business nostrums: Streamline regulations, provide more tax and fiscal incentives, provide land access, increase public funding for geoscience mining supports, enable infrastructure needs in regions of high mineral development potential, open up more northern, remote and isolated areas and attract more foreign investment.

⁸² *ibid* p 23

⁸³ Healthy Environment and a Healthy Economy p. 73

⁸⁴ The Canadian Minerals and Metals Plan, p. 1, MinesCanada.ca, March 2019, nrcan.gc.ca

⁸⁵ Healthy Environment and a Healthy Economy report p. 34

Contrast those clear demands with the plans for action on the environment and the climate crisis. Here the areas for action are more tentative and only vaguely aspirational. We need to “study recycling capabilities”, “encourage industry” to plan for climate change, “recommend best practices” for a range of environmental problems.

There is a growing recognition that the generation of renewable power and the shift to battery electric transportation will put further pressure on the environment, natural ecosystems and indigenous communities adjacent to mine sites in Canada and around the world. A recent international conference held in Canada and organized by the public advocacy group; Mining Watch concluded:

“There is an emerging conflict between growing renewable energy generation and storage capacity – urgently needed to reduce anthropogenic carbon dioxide emissions – and the destructive social and environmental effects that mining the metals and minerals required to create that capacity can have.”⁸⁶

In some quarters the climate emergency has resulted in fulsome discussions about ways to reduce Canada’s energy demands and the appetite for scarce metal and mineral resources. The Liberal government has a different approach. The climate plan gives a nod to issues such as effective material efficiency, recycling and the circular economy. But the touchstone is economic growth in all its old metrics.

As the Healthy Environment and a Healthy Economy notes:

“Canada is one of the only jurisdictions in the western hemisphere that has reserves of all the minerals required to produce advanced batteries for electric vehicles, and fourteen of the nineteen metals and minerals required to produce solar panels are found or produced in Canada. Through a ‘mines to mobility’ approach, the Government will leverage Canada’s competitive advantage in mining...The responsible development of Canada’s mining sector will help Canada achieve economic growth and provide the materials for the world’s clean technology.”⁸⁷

Canada’s Mining Strategy takes the ‘competitive advantage argument’ a step further:

“The global minerals industry is looking to new frontiers—such as extreme climates, deep mining, offshore, and space—for exploration and development.”⁸⁸

⁸⁶ Turning Down the Heat: Can we Mine our Way out of the Climate Crisis, Mining Watch Canada, November 2020

⁸⁷ Healthy Environment and a Healthy Economy report p. 23

⁸⁸ The Canadian Minerals and Metals Plan p. 32

Part 8: By the Numbers

SECTOR	% SHARE
Oil and gas	26%
Transportation	25%
Buildings	13%
Heavy Industry	11%
Agriculture	10%
Electricity	9%
Waste and others	6%

Canada's GHG emissions by economic sector, 2018

The federal government's new and improved climate plan, we are told, will result in a dramatic reduction in carbon emissions. Enough so, that Canada will not only achieve its Paris 2030 commitments, but surpass them. The evidence for such a claim rests on computer modelling projections of both current and future emission numbers.

There are three sets of figures that are important to consider. One is the target numbers necessary to achieve our Paris Accord 2030 commitments. Another is what the forecasted increase in GHG emissions would be if we did nothing. And the final set is the anticipated reduction in emissions between 2005 (Paris base year) and 2030 as a result of climate action initiatives.

At the COP 21 meeting in Paris in December 2015 Canada pledged to reduce carbon emissions by 30% by 2030 when compared to what emission levels were in 2005. In 2005 emission levels amounted 730 million tonnes of carbon dioxide equivalent (Mt CO₂ eq). By 2030 they have to be no more than 511 Mt. The target of 511 MT means by 2030 our emissions have to be 219 MT less than what they were in 2005. A big task made even bigger by the realization that if no action was taken emission levels in 2030 would actually be much higher than they were in 2005. The government's latest estimate puts that number at 815 MT⁸⁹.

⁸⁹ Modelling and Analysis of A Healthy Environment and a Healthy Economy, Canada.ca; https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/annex_modelling_analysis_healthy_environment_healthy_economy.pdf

The task of climate action is to interrupt the business-as-usual growth trajectory on the one hand and to wrestle emissions down from the base year levels. In other words, the challenge is to reduce emissions by over 300 Mt from what they were likely to be in 2030 in the absence of climate action. That is a huge amount. It is equivalent to almost all the emissions of the entire oil and gas sector combined with the transportation sector in 2005.

Another way to think about the scale of the challenge is to look at some recent historical numbers. In 2018 Canada's emissions were 716 Mt but by 2030 they have to be below 511 Mt. That is a huge reduction to accomplish in just over a decade. In the 13 years between 2005 and 2018 Canada reduced its emissions by only 14 Mt. In the 12 years between 2018 and 2030 it has to reduce them by over 200 Mt.

It is a very serious challenge that needs dramatic and decisive climate action.

The Climate Plan Numbers

In an annex to the climate plan the government provides a limited breakdown of the numbers⁹⁰. It projects what 2030 emissions would be prior to the actions announced in the climate plan and forecasts what they will be once those actions are taken into account.

The numbers the government provides are aggregated into large swaths of the economy. The following chart provides some of the details. It shows on a sector-by-sector basis what emission levels were in 2005. The second column in the chart shows the estimated emissions in 2030 taking into account all the climate actions up to the government's latest announcements. The next column estimates the 2030 emission levels taking into account the actions described in the climate plan. The final column calculates the difference between 2005 and 2030 as a result of the Healthy Environment and a Healthy Economy, (HEHE) initiatives.

SECTOR	2005 (MT)	2030 without HEHE (MT)	2030 with HEHE (MT)	Difference 2005 -2030 (MT)
Oil and Gas	158	194	138	-20
Electricity	119	21	11	-108
Transportation	161	178	151	-10
Heavy Industry	87	82	61	-26
Buildings	86	82	65	-21
Agriculture	72	77	74	2
Waste and Other	46	41	31	-15

⁹⁰ ibid

LULUCF	n/a	-17	-27	-27
Total - LULUCF	730	675	531	
Total + LULUCF	730	658	503	-227

All the numbers on the chart derived from Modelling and Analysis of A Healthy Environment and a Healthy Economy, Canada.ca

According to the government, emissions will be 227 MT less in 2030 compared to 2005. Most of that change - 68% - is due to the initiatives in the climate plan. In acknowledging those numbers, the government is admitting that all its prior promises, programs, commitments and targets were largely ineffectual and seriously misleading.

The two largest categories of reductions, as indicated in the last column of the chart, are in the electricity sector and in the category labelled LULUCF (Land Use, Land Use Change and Forestry). Almost half of the estimated 227 MT reduction between 2005 and 2030, comes from the electricity sector (108 MT). This dramatic reduction is the direct result of phasing out coal fired electricity plants. It is a number which emphasizes the effectiveness of phasing out fossil fuels. In fact, if Canada did not phase out coal it would be impossible to achieve the expected emission reductions. Phasing out coal contributes more to final emission reduction levels than all government actions in all the other sectors combined.

The encouraging news from the chart is that major sectors like oil and gas, heavy industry, buildings and transportation are all expected to discharge less GHG in 2030 than they did in 2005. The risk is if they don't.

There are three important questions to consider when thinking about all these numbers.

1. Are the numbers believable?
2. Are they enough to reach Paris 2030?
3. Are the numbers behind Paris pledges ambitious enough to prevent us crossing climate red lines?

Are they believable?

The numbers are based on computer modelling with all its attendant problems. Similar computer modelling projections assured us that we were going to meet past targets. We never did. Our history of climate action is a path littered with broken promises and missed targets. Future numbers are understandably suspect. After all they are projections and forecasts. But there are also concerns with the historical data and current numbers.

Emission levels are not recorded they are estimated. They are not measured they are calculated. And there is growing evidence that the calculations are seriously underestimating the real level of emissions.⁹¹ What would increase confidence in the numbers is a strong

⁹¹ Measured Canadian Oil Sands CO2 emissions are higher than estimates made using internationally recommended methods, John Liggio et al., Nature Communications

alignment between the goals of various government climate initiatives and the expected end result. Unfortunately, none of the specific programs the government outlines in the climate plan are capable of achieving the required scale of emission reductions.

Are they enough to reach Paris 2030?

As the chart above indicates the numbers forecasted in the climate plan surpass the Paris targets. The end result, according to the government “represents about a 31% reduction below Canada’s 2005 emission.⁹²” The problem with this conclusion is buried in the category called LULUCF. Without LULUCF Canada fails to meet the Paris targets. The LULUCF contribution to the result is the second highest category of emission reduction after the phase out of coal fired electricity. In 2030 the emissions from all the named sectors amount to 531 Mt. That is 20 Mt higher than the Paris targets. When LULUCF is added to the numbers Canada reaches and surpasses the Paris target.

LULUCF stands for Land Use, Land-Use Change and Forestry. The government refers to the LULUCF numbers as an “accounting contribution”. Where all the other numbers are ‘forecasts’ the LULUCF numbers are basically made up. Not only are they made up, but as part of the accounting exercise the government discounts forestry GHG emissions and turns them into offsets and credits that can be used to make the numbers add up to Paris 2030.⁹³

Are the Paris pledges ambitious enough?

In 2018, the Intergovernmental Panel on Climate Change (IPCC) released a Special Report entitled Global Warming of 1.5°C. This report serves as an alarming wake-up call and stresses the need to go beyond the Paris 2030 targets. If every country achieved their Paris pledges the world would still be a long way from a 1.5 degree C world. The current Paris pledges aren’t enough to avoid crossing climate danger lines. They aren’t enough to keep temperatures below 2 degree Celsius. In fact, the world is on track to reach 3-3.5 degree increases by the end of the century. A level that scientists conclude will lead to climate devastation.

Canada is one of the worst climate offenders. We are ranked among the worst-performing countries. We have repeatedly set climate targets below what is needed and we have repeatedly missed those inadequate targets. Canada’s per capita GHG emissions are among the world’s highest and, unlike other G7 countries, we have failed to lower those levels. Our overall GHG emissions put us in the dirty dozen global GHG climate polluters.

⁹² Modelling and Analysis op. cit.

⁹³ The LULUCF category is recognized as a category by the IPCC for reporting emission reduction targets. The problem arises when, as in the case of Canada, the category fails to distinguish between carbon sources and carbon sinks.

When the Paris targets were announced it was known that the pledges weren't enough to safeguard the planet. But as part of the negotiations there was the provision that countries would strengthen their commitment every five years. The requirement is clear. Governments should be taking actions that will keep temperatures below the 1.5 degree C threshold. The climate plan fails to do so. Instead, it is unlikely that Canada will even meet its 2030 targets.

Part 9: Carbon Budgeting and a 1.5 Degree C Limit

Canada has missed every GHG emission target it has ever set. Every previous failure makes it even more difficult to meet future targets. In the past Canada was looking at cuts of 1-2% a year. Those days are long gone. Now we need much greater annual reductions. The Trudeau government in the climate plan has committed to meet or surpass the 2030 Paris targets. There are two problems with this commitment. First, is the likelihood of failing to achieve the target. Second, is the inadequacy of those targets in addressing the climate emergency.

The UN's Special 2018 Report argues very strongly for limiting global average temperature increases to 1.5C instead of the previous goal of 'not more than' 2C.

"This Special Report also shows that recent trends in emissions and the level of international ambition indicated by nationally determined contributions, within the Paris Agreement, deviate from a track consistent with limiting warming to well below 2°C. Without increased and urgent mitigation ambition in the coming years, leading to a sharp decline in greenhouse gas emissions by 2030, global warming will surpass 1.5°C in the following decades, leading to irreversible loss of the most fragile ecosystems, and crisis after crisis for the most vulnerable people and societies".

The goal of limiting further warming to a maximum of 1.5C has been officially adopted by the nations of the world under the United Nations Framework Convention on Climate Change (UNFCCC).

This requires all countries, including Canada to adopt far more ambitious programs of climate action. It also requires a different way to think about emission levels, limits and fair shares.

On a global basis a carbon budget is the cumulative amount of carbon pollution that can be dumped into the atmosphere without pushing global average temperatures past a chosen limit. It focuses attention on the finite limits the planet is up against. National carbon budgets can be generated based on countries taking their "fair share" of the global GHG emission reductions required to keep temperature increases below that number.

The best way to hold governments accountable for setting appropriate reduction targets and taking the required action is through clear, frequent and transparent "carbon budgets". Carbon budgets can illustrate the inconsistencies and shortcomings of government climate action plans in a timely manner. These shortcomings could then be addressed.

Governments present annual fiscal budgets largely focussed on the health of the economy and the goal of balancing revenues and expenditures over some reasonable time period. Carbon budgets provide a similar approach to the climate emergency.

Since CO₂ emissions remain and accumulate in the atmosphere for very substantial periods of time (from 100's to 1000's of years) climate scientists have been able to calculate the relationship between cumulative emissions and the climate system's temperature response to those emissions.

These estimates embody a considerable amount of uncertainty because the earth's climate system is complex, with increased temperatures capable of triggering so-called "feedback loops" of additional increases in GHG emissions. For example, temperature increases in the Arctic cause permafrost to melt which, in turn, causes methane (a much more potent GHG than CO₂) to be released into the atmosphere which in turn, causes more warming and on and on.

Despite these limitations, there have been serious efforts to create global and national carbon budgets consistent with limiting warming to 1.5C, and the Intergovernmental Panel on Climate Change (IPCC) has embraced the concept as a means of setting clear reduction targets and measuring progress towards them.

Track records and promises

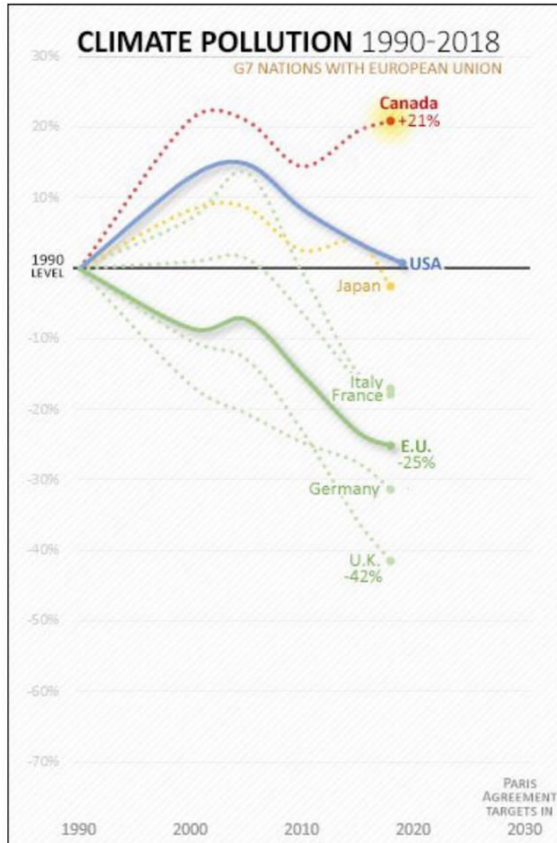
In order to have a reasonable chance (more than a 50% probability) of limiting warming to 1.5C global GHG emissions need to be reduced by approximately 45% by 2030 and to "net zero" by mid-century.⁹⁴ At a 50% probability of achieving the 1.5degree C threshold the global carbon budget from 2020 onwards is 65% smaller than for 2 degree C.⁹⁵

To date the total commitments by all governments under the 2015 UN Paris Climate Agreement will only get us about half-way there. Unless current emission reduction commitments can be effectively doubled governments are setting the stage for disastrous temperature increases in the 3 – 3.5C range.

It will fall to the world's wealthiest nations to lead the way toward achieving these targets. In that regard Canada trails the pack. While Canada continues to make progressive-sounding emission reduction commitments there is little to suggest that government actions will break with the long list of previously broken climate promises

⁹⁴ The IPCC refers to the need for net anthropogenic CO₂ emissions to decline by about 45% from 2010 levels by 2030.

⁹⁵ See: "Carbon Budgets: Where Are We Now", May 2020: <https://carbontracker.org/carbon-budgets-where-are-we-now/>



G7 EMISSIONS & TARGETS. Sources: Historical emissions data from OECD dataset of GHGs, Canada's National Inventory Report, and US EIA. The 2030 target details from ClimateActionTracker.org. Grey bullseyes are initial targets pledged in 2016. Purple bullseyes are updated targets pledged recently. "Needed globally" target is amount global GHGs need to fall to be on path to 1.5C according to IPCC 1.5C Special Report (note: global cuts of -45% of 2010 GHGs = -23% below 1990 levels). CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. Jan 2021.

As illustrated by the chart to the left, the gulf between Canada's "climate talk and its climate walk" is stark and embarrassingly clear in comparison to other members of the G7 club of the world's wealthiest countries.

In spite of repeated pledges by both Liberal and Conservative governments Canada has not only failed to cut emissions but between 1990 and 2018, it raised them by over 20%.

The contrast between Canada's and the UK's emission reduction record since 1990 stands in stark contrast.

The UK's record is, in part, due to the adoption of its Climate Change Act in 2008 (nick-named the "Carbon Budget Law") with mandatory emission reduction targets backed up by a requirement for regular carbon budgets tracking the progress (or a lack thereof) toward achieving those targets. An independent "Committee on Climate Change" (CCC) develops the carbon budget targets based on the best available science, submits them to the government and audits the government's track record in relation to those targets.⁹⁶

This system is not perfect but it does put the climate emergency and the scale of emission reductions required to address it front and centre in the country's national political discourse.

Canadian Net Zero Emissions Accountability Act

The Canadian Net Zero Emission Accountability Act was tabled to much fanfare by the Federal government on November 19, 2020. It has been welcomed by many as a first step toward addressing Canada's failure to meet any of its previous nine GHG emission targets.

While still working its way through Parliament, the Act for the first time, legally commits the Federal Government to achieving net zero GHG emissions by 2050. The Act compels the government to establish five-year emissions reduction plans and requires it to publish regular progress reports giving reasons for missing any targets. An external "Net Zero Advisory Body"

⁹⁶ For a discussion the UK Climate Change Act and its carbon budget component see "Canada's emissions rise, yet again. Can we please adopt UK Carbon Budget Law", Barry Saxifrage, National Observer, May 29, 2020: <https://www.nationalobserver.com/2020/05/29/opinion/canadas-emissions-rise-yet-again-can-we-please-adopt-uk-carbon-budget-law-now>

of up to 15 climate experts is mandated under the legislation to advise the government on how to meet its net zero targets and engage widely with Canadians on climate issues.

Climate activist organizations have proposed a series of necessary amendments to strengthen Bill C-12 as drafted. As it stands, external independent audits of emission reduction targets won't even start until 2030, the same year by which the best available science says global emissions must be reduced by 45%. The climate plan reduction targets fail to assume a fair share of emission cuts essential to addressing the scale of climate emergency. And there is no credible means for citizens to hold the government accountable for achieving even those inadequate targets in a timely fashion.

By the time the first audit is released under the Accountability Act in 2029, it will be too late to make any adjustments required to meet our Paris commitments.

Canada's fair share

In 2017, the Canadian Centre for Policy Alternatives, released a report which provides both a means of determining Canada's fair share of the required global emission reductions and a carbon budget framework for delivering on those targets.⁹⁷

Current UNFCCC accounting rules only hold countries accountable for emissions that take place within their national borders. Large energy exporters, like Canada, are not required to take any responsibility for emissions embodied in the fossil fuels they export for burning elsewhere. This system provides a perverse incentive for energy exporting countries such as Canada to get as much fossil fuel out of the ground and to market now, before it becomes "un-burnable" and therefore "stranded" below ground in the future.

Under the Paris Agreement's "territorial" carbon accounting rules, the only incentive Canada's political leaders have is to reduce extraction and processing emissions within the country. This paradox goes a long way toward explaining why Canadian governments embrace aggressive-sounding domestic climate policy, on the one hand, while simultaneously promoting new fossil fuel exports, on the other.

One is reminded of Justin Trudeau's famous 2016 comment after his government approved the Kinder-Morgan Pipeline: "I've said many times that there isn't a country in the world that would find billions of barrels of oil and leave it in the ground while there is a market for it."⁹⁸

The reality, though, is that if all energy exporting countries in the world took the same view the global carbon budget would be blown and the climate completely compromised.

⁹⁷ "Extracted Carbon: Re-examining Canada's Contribution to Climate Change Through Fossil Fuel Exports", Marc Lee, CCPA, January 2017: <https://www.corporatemapping.ca/extracted-carbon-re-examining-canadas-contribution-to-climate-change-through-fossil-fuel-exports/>

⁹⁸ <https://pm.gc.ca/en/news/speeches/2016/11/29/prime-minister-justin-trudeaus-pipeline-announcement>

A shift in approach is desperately needed. We need to account for all of our GHG emissions and adopt strategies to reduce them whether they are produced in Canada or are embedded in the country's carbon exports. Canada has about 3.3% of the world's fossil fuel reserves. If that number was used to estimate the limits that Canada would need to impose on future carbon extraction for both domestic and export purposes, we would need to reach net zero emissions in 20 years and not the 30 years committed to in the climate plan and the Net Zero Emissions Accountability Act.⁹⁹

The climate plan tacitly recognizes some of these issues. For example, the report notes the government's interest in talking with our European and north American trading partners to explore "the potential of border carbon adjustments". The government also recognizes that at some point in the future it will be harder to sell the world Canada's tar sands' oil. Rather than introduce hard caps on 'total' extracted carbon emissions the Liberal government prefers to promote fossil fuel hydrogen coupled with CCUS in an effort to keep exports flowing as the world looks to a low carbon-intensive energy future.

Instead of Paris 2030, Canada has to agree to much tougher targets. Next November the 26th Conference of the Parties (COP) under the UNFCCC will meet in Glasgow, Scotland. Many see this event as the critical point in the response to the climate emergency.

Canada has to commit to doing our fair share to keep world temperatures below the 1.5 degree C threshold. To provide even a 50% chance of keeping global temperatures below 1.5C, Canada's "fair share" carbon budget requires the country to keep most of its proven domestic fossil carbon reserves in the ground. The first step in that process is to introduce a carbon budget backed by an effective accountability system.

A carbon budget will require mandated reductions, regular reporting and assessment and new mechanisms of independent public oversight. The Legislated accountability has to be much stronger than what is currently proposed.

Emission reductions must be clear, measurable, transparent and enforced. This will require a dramatic shift in current government approaches to emission reductions. It will require a shift

- from passive market approaches to active economic interventions
- from tax write-offs and incentives to targeted and contractual financial supports
- from price signals to regulations
- from soft caps and flexible (intensity) limits to hard caps and enforcement
- from guidelines to rules

⁹⁹ See, "Extracted Carbon: Re-examining Canada's Contribution to Climate Change Through Fossil Fuel Exports", Marc Lee, CCPA, January 2017: <https://www.corporatemapping.ca/extracted-carbon-re-examining-canadas-contribution-to-climate-change-through-fossil-fuel-exports/>

- from promoting oil and gas to rapidly phasing out fossil fuels

Part 10: Conclusion

In the closing months of 2020, the federal government announced a series of legislative, financial and policy initiatives designed to address the escalating climate threat. On December 11, 2020 Trudeau announced that Canadian emissions would be reduced by 32 to 40% from 2005 levels by 2030, depending on the level of buy-in by provincial governments. At first blush it seemed hopeful --- more aggressive emission reduction targets, an escalating price on carbon, programs to support Canadians' shift away from fossil fuels and legislation to hold the government accountable on climate action.

Unfortunately, little in the Liberal government's new and improved climate plan stands up to scrutiny.

The promises are just that, promises. A review of the climate plan, its supporting documents and its policy appendages leads to that conclusion.

The federal government, once again, has failed to design a credible climate action plan. It has introduced a series of initiatives, a number of which look good but are "not enough soon enough". In climate action 'not soon enough' is a failure.

But the problem with the government climate plan is more than the inadequacy of particular initiatives or even the glaring omissions. The flaws in the central logic of the plan are what jeopardizes our future. Instead of driving down fossil demand and replacing it with renewables, the government's plan tries to convince us that Canada can achieve net zero status and keep growing GDP by pricing carbon, incentivizing carbon-intensity reduction technologies and investing in fossil fuel hydrogen, modular nuclear and carbon storage.

In this context Canada's Paris targets retreat out of reach and net zero 2050 seems more of a delusion to keep the fossil fires burning. The fossil fuel industries' changing game plan from outright denial to delay and doubt and now clamouring on board the net zero bandwagon has strong greenwashing support in Ottawa.

The Liberal government won't create any distance between itself and Big Oil. It has bowed to the economic pressure of the country's largest emitters. It has given priority to economic interests over climate action. At a time when we so desperately need climate and economic leadership, the Liberal government has failed to chart an economic recovery based on social and economic justice, resilience and climate sustainability. When the government talks about climate action and economic growth going hand-in-hand, it privileges economic growth over climate action.

The government is attempting to have it both ways. It is trying to support the powerful fossil sector and 'do something' about the climate threat, at the same time.

On the first anniversary of his initial election Trudeau boasted, “We’re actually able to approve pipelines at a time when everyone wants protection of the environment. We’re able to show that we get people’s fears and there are constructive ways of allaying them—and not just ways to lash out and give a big kick to the system.¹⁰⁰” As we learned later, that initial pipeline approval became a boondoggle of huge proportions as Trudeau spent billions to bail out the American owners of an unnecessary project.

Here is the basic dilemma. The Liberal government wants us to believe that the extraction, burning and exporting ever-greater amounts of fossil fuel is a problem that can be managed sustainably. It can’t be. We have to dramatically reduce the use of fossil fuels and keep the vast majority of the country’s extractable carbon in the ground.

Effective climate action isn’t about appeasing climate denying premiers. It isn’t about shoring up and supporting the oil and gas industry at all costs. It isn’t about hope and faith in future technology. It isn’t about knowing how to allay our fears. It has to be about decisive and dramatic action and the time is rapidly running out.

When we know that preventing ecological collapse requires action that has, according to the IPCC, “no documented historical precedent” then our response has to be commensurate with the seriousness of the emergency.

On February 26, 2021 the UN issued its latest Nationally Determined Contributions (NDCs) Synthesis Report¹⁰¹. The compilation is part of the Paris Agreement under which countries were to submit updated NDCs by the end of 2020. The report includes submissions from 78 of the 189 countries party to the agreement and responsible for about 30% of global GHG. Canada was not one of the countries who reported by the deadline.

The synthesis report is alarming. It concluded that pledges to reduce GHG emissions are only a fraction of what is needed to avoid climate disaster. On the release of the report the UN Secretary General, Antonia Guterres, stated:

“Today’s interim report is a red alert for our planet. It shows governments are nowhere close to the level of ambition needed to meet the goals of the Paris agreement. The major emitters must step up with much more ambitious reduction targets for 2030...”¹⁰²

The Executive Secretary of UN Framework Convention on Climate Change, Patricia Espinosa added this:

¹⁰⁰ As quoted in Martin Lukcas, op. cit.

¹⁰¹ Nationally Determined contributions under the Paris Agreement, Synthesis Report, United Nations Framework Convention on Climate Change, Feb 26, 2021

¹⁰² Secretary Generals statement on UNFCCC initial Nationally determined contributions synthesis report, UN Feb 26, 2021

“it is incredible to think that just when nations are facing an emergency that could eventually end human life on this planet many are sticking to their business as usual approach”¹⁰³

According to the UN’s Special Report on 1.5C, CO2 emissions need to decline by 45% from the 2010 level by 2030, reaching net zero by 2050.¹⁰⁴ The UN Initial synthesis report concludes that on the basis of the promises that have been submitted to date, emission reductions **will be less than 1%.**¹⁰⁵ **(emphasis added)**

This year, 2021, has to be a turning point. Once the pandemic is contained, (constrained) we will need to build massive public support for dramatic climate action. We need to take whatever actions are necessary, very quickly to achieve a 1.5 degree C limit.

The Liberal climate action formula is charting a course that will fail and in failing will make it more difficult to alter course in the future. We need a different strategy. Now.

Our task in writing this paper was a limited one - to review the federal climate action plan. But in the process of conducting that review we became more convinced of the need for a different, more effective, climate action strategy. We realize that to develop one will take a great deal of work and contributions from many people. We look forward to joining those discussions and the actions that will accompany them.

Our contribution for now is to suggest that any effective climate action plan must include, at least, the following three commitments.

First is a commitment to deep decarbonization.

We need to hold temperatures to 1.5 degree C and to do that we need ambitious emission reductions, clear and effective carbon budgets, the rapid phase out of fossil fuels and meaningful government accountability.

Rapidly weaning the economy from fossil fuels will require overall government planning and intervention, and sector by sector strategies. It will also require a very serious commitment of financial resources.

¹⁰³ *ibid*

¹⁰⁴ IPCC Special Report “Global Warming of 1.5C: Summary for Policy Makers, Section C.1 p18:
https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf

¹⁰⁵ UNFCCC NDC synthesis Report, February 21, 2021, Executive Summary, p 11, p5:
https://unfccc.int/sites/default/files/resource/cma2021_02_adv_0.pdf

As we rapidly scale back fossil fuels, we will have to ramp up clean renewables. There needs to be a major shift from fossil fuels to electrification. But clean renewables such as wind and solar and water will not be sufficient to offset the required reductions in fossil fuels. As a result, we will have to dramatically reduce our overall consumption of energy. Reducing energy use can impose disproportionate hardships unless it is accompanied by a program of social and economic transition and wealth and income redistribution.

Second is a commitment to climate justice and social and economic transformation.

Unrestrained economic growth, the unbridled right of business to produce whatever it can sell wherever it wants, an international trade system that ships a lot of unnecessary stuff like single use plastics all around the world, an economic logic that elevates the short-term pursuit of profit over any other value is clearly at odds with the future sustainability of the planet. Climate action and economic transformation do go hand in hand. It is that understanding that has Big Fossil nervous.

As we seriously respond to the climate crisis more and more questions will arise. If the private sector won't make the necessary investment in renewable energy, we may need to build an entirely different model of energy production. That may include accountable public utilities and more community control of distributed energy sources.

When indigenous Peoples find themselves on the front line of pipeline and mine expansion struggles, we should be there with them. After all, shouldn't indigenous Peoples' rights and sovereignty trump corporate interests?

Since racialized communities already bear the brunt of environmental injustice and are victimized by climate catastrophe, racial justice must be part of our climate action campaigning.

When workers are to be displaced from their jobs so we can help save the planet we must commit to having their backs. Workers must have income and job guarantees instead of vague promises of transition training.

The response to the climate emergency will require unprecedented commitments from governments and an incredible amount of financial backing which we must commit to finding and channelling toward saving the planet rather than making more billionaires.

The transition from climate emergency to economic sustainability needs to be a process of, not only restoring natural habitats, but also rebuilding human ecosystems. Confronting the climate emergency will require efforts to end systemic racism and Canada's colonial legacy, ensure environmental and climate justice, expand workers' rights and redress wealth and income inequality. The climate emergency is an opportunity to transition to an economy that values health, housing, food security, education, care, support and culture over the unrestrained production, trade and consumption of carbon intensive goods.

The need to restructure the economic system to a low carbon, sustainable one has a great potential to expand economic opportunities. There are many in our movement already thinking about how to eliminate wasteful, carbon intensive products, convert industrial facilities, expand local and domestic production, shorten supply chains, extend producer responsibility, build a circular economy and construct affordable, energy efficient housing. The low-carbon transition can be an opportunity to unleash all that creative energy and respond to a host of as yet unmet basic human needs.

Third is a commitment to develop a full suite of effective climate action programs.

The climate crisis has reached emergency status. The time for tinkering in the margins is long past. Responding to the 'red alert' will require all the tools at our disposal. Government resources and priorities, government revenues and spending, governments policy and programs need to be laser-focused on the climate emergency.

We need a host of effective government initiatives and programs that focus on both the supply side and the demand side. From hard caps on emitters to support for housing retrofits, from passive market approaches to active economic interventions, from clean fuel standards to support for public transit, from a ban on gasoline powered cars to support for zero emission vehicles and public transit. From support of renewable energy to subsidizing heat pumps, from sustainable forestry practices to more carbon-sequestering wood construction, from restorative agriculture to enhanced local food production, from restoring natural ecosystems to more parks and greenspace, and on and on and on.

Such programs will mean a massive recalibration of government tax and fiscal policy and fundamental shift in energy policy from massive fossil fuel subsidies to financing the renewable revolution that's required.

Our planet is in trouble. The current climate and economic trajectory is not sustainable. It is life-threatening.

It has been said that we are the first generations to have acquired an understanding of just how close our economic and social system has brought us to edge of ecological collapse and the last generations to be in a position to take a step back from that brink.

The world is going to change one way or another. The choice we now face is between climate calamity, on the one hand, or a social and economic transition to a society committed to operating within safe and sane ecological boundaries, on the other hand.

The federal government is committed to a "Fossil-First" climate action formula: Carbon Pricing + Hydrogen + CCUS + Nuclear = Paris 2030 and beyond.

There is a different starting point, a "Climate First" action formula: Fossil Fuel Phase-out + Hard caps + Clean Renewables + Electrification = Paris 2030 and System Change

There are some hopeful developments. Recent polls report that Canadians are ahead of their governments when it comes to supporting effective climate action. The recent poll by the UN reports similar results in countries around the world. It is also the case that workers are rightly worried about the economic and social consequences of addressing the climate emergency.

Which is why climate action, economic and social justice must go hand in hand.

Most importantly, there is a growing international climate justice movement, energized by a younger generation, that understands that their lives and the future of all life on the planet is at risk.

We view this paper as one small act of intergenerational solidarity with the Youth-Led Global Climate Justice Movement. You inspire us - every day.