



Burdensome Ideology

The Cost to Canada of Climate Regulations

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THE COST TO CANADA OF CLIMATE REGULATIONS

EXECUTIVE SUMMARY

In this article, I will try to identify and estimate the value of the regulations imposed by the federal government that indirectly raise consumers' costs.

There is no generally-accepted and authoritative list of the climate policy-related regulations imposed by federal, provincial and municipal governments in Canada. Similarly, there is no authoritative estimate available of the cost to Canadians of the regulations that have been implemented and planned.

The most costly and pervasive regulations would appear to be these:

- The Clean Electricity Standards – estimated costs of at least \$58 billion
- Emissions Cap on the Oil and Gas Sector – estimated costs of \$2.3 billion
- EV Sales Mandate– estimated costs of \$25.5 billion
- Net-Zero Building Code by 2030 – Estimated costs unknown but up to \$902 billion
- Impact Assessment Mandating Attainment of Net-Zero – estimated costs unknown but potentially over \$350 billion

In 2022, the Royal Bank Of Canada published a [study](#) entitled *The \$2 Trillion Transition* on the “costs of decarbonization”. As indicated by the title, the bank estimated that the total cost of expenditures needed to attain the net zero goal was \$2 trillion. In its March 2022 Budget¹, the federal government published projections that the total private and government investments needed to attain net zero

¹ Budget 2022, Chapter 3, page 24; Projection attributed to *Climate Finance Markets and the Real Economy* (2020) by Global Financial markets Association and Boston Consulting Group

would be between \$125 billion and \$140 billion per year from 2023 to 2050, or somewhere between \$3.4 trillion and \$5.2 trillion.

Thus, the range of estimates published to date is between \$2 trillion and \$5.2 trillion. That is an almost unimaginable amount of money. \$2 trillion is \$50,000 for every one of Canada's 40 million residents now, or \$118,000 for every household. \$5.2 trillion is \$130,000 for every resident, or \$306,000 for every household. **Averaged over 27 years, \$2 trillion would cost every one of today's residents about \$1,850 per year; averaged over 27 years, \$5.2 trillion would cost every one of today's residents \$11,330 per year.**

Leaving aside the question of whether net-zero emissions is an attainable goal by 2050, the costs that can already be anticipated fall into a range that would impose unprecedented costs on the Canadian economy and harm the future income growth and standard of living of all Canadians. The story needs to be told to the general public as well as to the politicians making the choices for us.



Consumer choice is, fundamentally, an exercise in freedom, to which regulators rarely if ever assign any economic value.

To others, it is priceless.

-Robert Lyman



THE COST TO CANADA OF CLIMATE REGULATIONS

In a recent article, I offered the most recent information available on the financial cost to Canadians of the federal government's climate policy-related tax and expenditure measures. Those measures increase costs in two ways – by increasing the amount of revenue that Canadians pay in taxes and by increasing the prices of the energy that people use.

In this article, I will try to identify and estimate the value of the regulations imposed by the federal government that indirectly raise consumers' costs.

AN OVERVIEW

Climate policy-related regulations take many different forms. They include requirements for the sale and/or design of goods, usually to reduce their greenhouse gas emissions intensity (i.e. the amount of emissions produced per unit of output); restrictions limiting the purchase, sale or use of certain goods; codes governing the specifications of buildings or products; and mandates, which require that businesses or government organizations purchase a minimum percentage of certain types of products. A milder form of regulation would be the imposition of voluntary standards or limits on which products may be advertised for sale. There are public “education” programs that promote climate policy objectives. A more general but equally important form of regulation concerns the requirements for environmental and social impact assessments that must be carried out before major infrastructure or energy production projects can be approved, the politicization of public interest review processes, and the absolute prohibition of energy production or transportation activities in certain regions.

In almost every case, **the goal of the regulations is to discourage energy production, transportation or consumption behavior that people would otherwise engage in** – in other words, to alter people's choices in according with the government's preferences.



There is no generally-accepted and authoritative list of the climate policy-related regulations imposed by federal, provincial and municipal governments in Canada. Similarly, there is no authoritative estimate available of the cost to Canadians of the regulations that have been implemented and planned.

The most costly and pervasive regulations would appear to be these:

- The Clean Electricity Standards
- Emissions Cap on the Oil and Gas Sector
- Light Duty Vehicle Emissions Standards
- EV Mandate – Sales Target
- Net-Zero Building Code by 2030
- Impact Assessment Mandating Attainment of Net-Zero

CLEAN ELECTRICITY STANDARDS

Clean Electricity Regulations



<https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/clean-electricity-regulation.html>

The Canadian electrical energy system resembles more a loosely connected series of regional systems than an integrated national one. Each of the provinces has adopted a different system for the generation of electrical energy, using the generation sources most suitable to provide an affordable and secure supply. In 2022, the composition of electricity generation by source was almost unchanged from the previous year: hydro (61.3%), nuclear (12.9%), fossil fuels (19.2%) wind (6.1%) and solar (0.5%). Thus, non-hydrocarbon sources provided 81.8% of electricity generated. Still, Alberta, Saskatchewan, Nova Scotia and Nunavut produce most of their electricity from hydrocarbons. The decarbonization of electricity generation will impose proportionately higher costs on those jurisdictions than on others.

In its modelling of the Canadian Electricity Regulations intended to achieve decarbonization of the electricity system by 2050, **Environment and Climate Change Canada (ECCC) projected that the net costs would be \$58 billion, of which \$35 billion (60%) would be borne by Alberta.**

The province of Alberta and some other sources consider that ECCC significantly under-estimates the costs of the CER. The costs arise from many sources, notably the use of renewable energy generation to replace current supply, the addition of back-up generation to cope with the inherent intermittency of renewables, the costs of either bulk battery storage or carbon capture and storage or some combination of them, the stranded costs of existing generation capacity that would no longer be used, and the costs of additional transmission lines. This is without considering the additional costs to distribution systems, co-generators and individual firms and residences. The [Friends of Science](#), a non-profit organization that includes many retired engineers and scientists among its members, estimated decarbonization of Canada's electricity system would entail capital costs of \$4 trillion.

Alberta's analysis and that of Electricity Canada, the voice of the electricity industry, suggest that **complete decarbonization of the electrical energy system by 2050 may not be possible at any cost, as it is unfeasible.** Most important, the technologies and supply chains to replace fuel-based generation are not yet commercially available and at scale. This comment relates specifically to Small Modular Reactors and battery storage. ECCC assumes that new transmission ties linking regions will be built, but even the much-promised Atlantic Loop has been cancelled.

Alberta has especially criticized the CER's proposed imposition of an inflexible performance standard of 30 tonnes per gigawatt hour (t/GWh) with a flexibility of 40 t/GWh for the first four years. The Province considers this to be too stringent and too inflexible to encourage investment. It also objects to what it considers unduly demanding requirements for 95 per cent capture rate for natural gas with carbon dioxide capture and storage (CCUS). Alberta has deemed "ridiculous" ECCC's assumption that the new projects needed to meet the CER requirements could be designed, approved, sourced and built within a ten-year window. Perhaps worst of all, the ECCC's use of criminal penalties for non-compliance under the Canadian Environmental Protection Act will deter companies from even starting the projects.

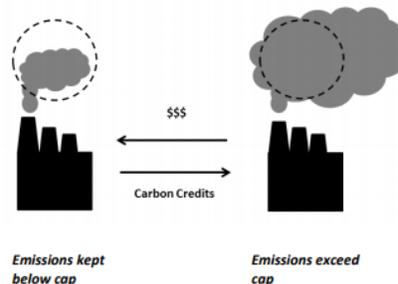


<https://laws-lois.justice.gc.ca/eng/acts/c-15.31/page-1.html>

The federal government has announced that before the end of 2025 it will implement regulations under the *Canadian Environmental Protection Act* (i.e. involving penalties under criminal law for non-compliance) to require reductions in GHG emissions from the oil and gas sector. The introduction of an emissions cap system on the oil and gas industry seeks to reduce emissions from the industry by 42 per cent by 2030. This will be done through establishment of a national “cap and trade” system; in other words, a system whereby a maximum level of industry-wide emissions in a given year will be set by regulation based on ECCC’s judgment as to what is “technically achievable”. Companies subject to the emissions cap will be able to attain the required level either through improvements in emissions intensity or by purchasing trading permits from other qualified sellers. It thus entails a “market-based” approach to achieving a specific emissions reduction target, with the target decreased every year until “net-zero” emissions are achieved. The GHG emissions covered would include carbon dioxide, methane, nitrous oxide and others.

2 OVERVIEW OF CARBON TRADING

The carbon market is also commonly referred to as a “cap-and-trade” regime. A limit (or “cap”) is set for countries or companies on the total amount of greenhouse gas emissions they can emit. If they exceed the limit they are required to buy carbon credits from others. Those with spare carbon credits may sell surplus credits to emitters that require more (the “trade”).



The Province of Alberta in January 2024 published a [report](#) by the Conference Board of Canada on the *Economic Impacts of a Greenhouse Gas Emissions Cap in the Oil and Gas Sector*. The Conference Board examined the possible economic effects of the regulations to 2030 under three scenarios based on different levels of abatement, especially of methane emissions, from those that occurred in 2012. The federal target for methane emissions reduction by 2030 is 75 per cent; lower levels of methane emissions (i.e. 60% or 45%) would require more reductions in oil and gas production. **In the mid-range scenario (involving methane emissions of 60%), there would be a \$2.3 billion decline in income from oil and gas extraction, and a \$9.9 billion reduction in revenue to the federal and provincial governments.**

The report did not address the probable loss of revenues from production reductions in the period to 2050. It did note that real GDP in the oil and gas sector alone would be reduced between 2030 and 2040 by between \$14.22 billion and \$25.7 billion on average per year from a baseline scenario, depending on the level of methane reductions achieved. The report states:

“In general, each Mt of GHG emissions that needs to be reduced through production cuts in the oil and gas sector will result in a decline of real GDP of \$1.2 to \$1.3 billion. In nominal terms, each tonne of emissions reduced through production cuts will reduce GDP by \$1,800 to \$2,100 and combined federal and provincial government revenues between \$600 and \$700 per tonne of CO₂e emissions”.

GHG emissions from the oil and gas upstream sector in 2019 were 171 million tonnes (Mt). **According to the Conference Board’s estimates, cutting those by 100 Mt by 2050 would reduce real GDP by \$120 billion to \$130 billion per year.**

EV MANDATE/SALES TARGET

Government of Canada / Gouvernement du Canada | Canada.ca | Services | Departments | Français

Justice Laws Website

Family Law ▾ Criminal Justice ▾ Funding ▾ Canada's System of Justice ▾ Laws ▾

Home → Laws Website Home → Consolidated Regulations → SOR/2010-201 - Table of Contents

Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations (SOR/2010-201)
 Full Document: [HTML](#) (Accessibility Buttons available) | [XML](#) (325 KB) | [PDF](#) (706 KB)

Regulations are current to 2024-05-01 and last amended on 2023-12-15. [Previous Versions](#)

Enabling Act: [CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999](#)

Notes: • See coming into force provision and notes, where applicable.

<https://laws-lois.justice.gc.ca/eng/regulations/sor-2010-201/index.html>

In December 2022, the federal government published its proposed *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations*. These included provisions implementing the government's policy on zero-emission vehicles. In that policy, the federal government set a mandatory target for 100% of new light duty vehicle sales to be zero-emission by 3035. The standards will be phased in, starting in model year 2026 at 20% of sales and rising steadily in each model year thereafter. The regulations include a compliance credit system, so that vehicle manufacturers that do not meet the minimum sales target may do so by purchasing compliance units (or credits) from other companies or by contributing to certain other activities, such as funding the construction of EV recharging infrastructure.

The regulations are only the latest in a long series of government measures to reduce GHG emissions from light duty vehicles. These include not only the carbon dioxide pricing system but also EV purchaser subsidies of up to \$5,000 per vehicle (plus additional subsidies from some provincial governments), subsidies of over \$1.2 billion to build electric vehicle public chargers, over \$43 billion in subsidies to battery manufacturers, stringent GHG emissions standards for internal combustion vehicles and subsidies for transit system investments in most major cities. The number of measures already in place to reduce light duty vehicle emissions makes it extremely difficult to calculate the marginal emissions reduction effects of the new regulations.

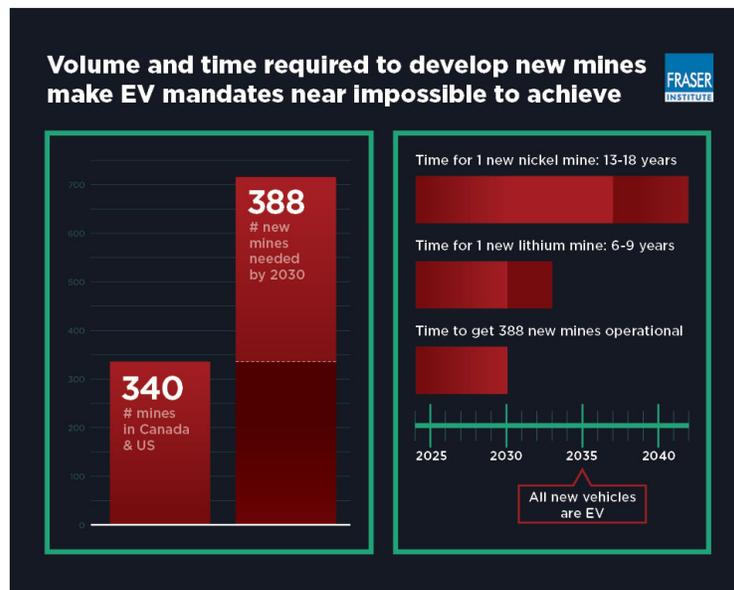


In ECCC's regulatory impact analysis statement, the department estimated that the new EV regulations would have incremental costs of \$25.5 billion, while saving \$33.9 billion in energy costs. The alleged benefits come from ECCC's high estimates of the value of the reduced oil consumption, the estimated value of emissions reduction in terms of climate and health effects, and a discount rate of 3 per cent. There is not enough room here to debate the validity of this methodology.

There are good reasons, however, to question whether the ECCC analysis includes all the costs. For example, it places no value on the loss of consumer choice as to which vehicle to purchase. **Consumer choice is, fundamentally, an exercise in freedom, to which regulators rarely if ever assign any economic value. To others, it is priceless.**

It is doubtful that the ECCC analysis takes into account the impact of the regulations and the subsidies on the competitive viability of the Canadian motor vehicle industry. The prices of EVs until recently were about US \$13,000 per vehicle more than the comparable internal combustion engine vehicle. According to some reports, however, the “early adopter” market for EVs is almost saturated; sales are slowing and EV manufacturers have had to lower their prices in an attempt to stimulate sales. Tesla may be the only profitable EV maker outside of Asia. According to recent industry [reports](#), Ford lost more than \$130,000 for each EV it made in the first quarter of 2024. Meantime, BYD Company, a Chinese firm, has become the global leader in EV sales.

Several firms are competing for increased market share, with the real risk that heavily-subsidized Chinese firms will drive most traditional North American and European firms out of the EV markets. If the federal government does nothing about this, it may face the loss of an important domestic manufacturing capability along with several related industries. Its recourse (i.e. choosing massively to subsidize the domestic EV manufacturers) would just add more to the costs of the proposed “transition”.



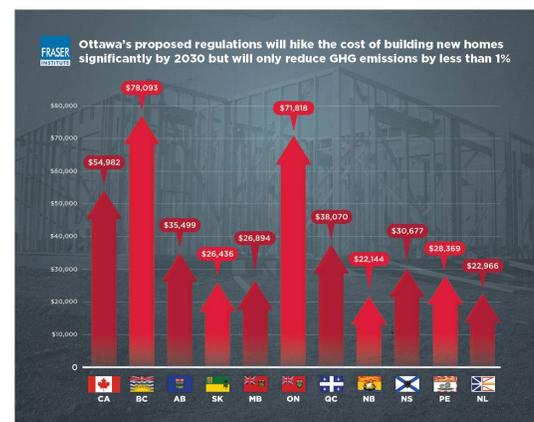
<https://www.fraserinstitute.org/file/ev-series-3-can-metal-mining-match-speed-of-planned-ev-transition-infographic-optipg>

Beyond this, there are unresolved questions concerning the feasibility of a complete conversion of the vehicle fleet from internal combustion vehicles to electric ones in the period to 2050. For example, it is far from clear that the world will have enough of the minerals (lithium, nickel, manganese, cadmium, graphite, and other rare-earth elements) needed for a rapid increase in EVs. According to a recent [study](#) by the Fraser Institute, by 2030 (i.e. six years from now) the world would need 50 new lithium mines, 60 new nickel mines, 17 new cobalt mines, 50 new mines for cathode production, 40 new mines for anode materials, 90 new mines for battery cells, and 80 new mines for EV bodies and motors, **for a total of 388 new mines worldwide**. As it usually takes at least 10 -15 years to bring a new mine into production (assuming no major opposition), this is simply impossible.

There are many other issues concerning the cost and feasibility of Canada completely replacing its light duty vehicle fleet with electric vehicles by 2050. The MacDonal Laurier Institute has published an excellent [paper](#) that reviews these issues.

THE NET-ZERO BY 2030 BUILDING CODE

As part of its 2030 Emissions Reduction Plan (Building Energy Efficiency, or BEE, components), the federal government plans to increase the energy efficiency of new and existing buildings. To do this it has proposed new building codes with the goal of achieving a 65% reduction in energy consumption for new residential buildings and a 59% reduction for new commercial buildings compared to 2019 levels, by 2030. The code changes will require increased efficiency in the building shells to reduce heating-related emissions; higher efficiency standards for all equipment (i.e. appliances) except refrigerators; and higher efficiency requirements for all lighting systems and motors. The goal is that new homes use 61% less energy (compared to 2019) by 2025 and 65% less by 2030. For commercial buildings, the goals are to use 47% less energy by 2025 (compared to 2019) and 59% less energy by 2030.



<https://www.fraserinstitute.org/file/economic-impacts-of-new-federal-building-energy-efficiency-mandates-infographic-optipg>

The Fraser Institute [analyzed](#) the effects of the new codes on home construction costs and Canada's GDP. It projected that the BEE requirements would increase home construction costs by an average of about 8.3% by 2030, adding up to \$55,000 to the average cost of new homes in Canada. **The costs vary**

by province ranging from a low of \$22,144 in New Brunswick up to \$78,093 in British Columbia. The GDP loss against the base case as of 2030 is only 1.8%, with the construction sector hit hardest (a reduction of 6.8% relative to the baseline, and labour demand falling by 82,000 workers). The study estimates that the effects of the new building code will be very small – five megatonnes of carbon dioxide equivalent per year in 2030, equal to about 0.7% of current annual emissions.

Achieving “net-zero” GHG emissions in the building sector by 2050 will require major changes in energy use by all existing as well as new buildings. Writing in *Construct Connect*, a journal of the building construction industry, John Clinkard [quoted](#) projections by the Pembina Institute that it will be necessary to retrofit 11.4 million homes and the equivalent of 32 million square feet of commercial property. The Institute estimates this will cost \$21 billion a year, for a total of \$357 billion, over the next 17 years. To put this in perspective, in 2022 all Canadian business investment (residential and non-residential) totaled \$350 billion.

Michael Kelly, an engineer in the United Kingdom, [estimated](#) that **the average cost to achieve an 80% reduction in emissions from the existing building stock there would be about 50,000 pounds Sterling, or Canadian \$85,500.** As much of the housing stock in the UK is much older than that in Canada, the estimate of \$55,000 per house in Canada seems reasonable, if perhaps low. Statistics Canada estimates that there are now 16.4 million residences in Canada. **At \$55,000 per residence, the capital cost of achieving net zero by retro-fitting the existing building stock would be \$902 billion.** It is unlikely all homeowners could afford that expenditure.

IMPACT ASSESSMENT IN THE REGULATORY REVIEW OF MAJOR ENERGY PROJECTS

Since it was elected in late 2015, the Trudeau government has implemented a series of policies harmful to Canada’s energy industries. This included notably the “modernization” of the National Energy Board process for review of projects and its replacement by the Canadian Energy Regulator, including a more politicized approach to review and certification of new pipeline projects.



Three major pipeline projects that had spent years undergoing regulatory review were blocked or delayed by governmental decisions and inertia plus deliberate obstruction by well-funded environmental and indigenous groups and some provincial governments. Three major liquified natural gas projects in British Columbia were so delayed that the sponsors gave up in frustration and decided to invest elsewhere – the Aurora LNG project, Prince Rupert LNG project and WCC LNG project. Together, these projects would have entailed \$67 billion in investment. The Teck Resources Frontier oil sands mine was cancelled after eight years of regulatory review; it would have offered \$20.6 billion in new investment, provided \$70 billion in revenues to governments, and created 2,500 long-term jobs.



Devon Page
@DevonPage5

Follow

Victory! Another pipeline project is dead. Read about TransMountain's decision to scrap Energy East:



TransCanada cancels its \$15 billion dollar Energy East pipeline

Low oil prices, regulatory hurdles and fears project would contaminate nearly 3,000 lakes and rivers seen as reasons for axing the plan.

news.vice.com

10:40 AM - 5 Oct 2017



Devon Page was so excited and happy he confused the name of another project with the company related to Energy East.

Until the recent completion of the Trans Mountain Oil Pipeline Expansion Project, Canada had only slightly more pipeline capacity to deliver crude oil to export markets that it did in 2016. The absence of adequate “takeaway” capacity has depressed prices for Canadian heavy crude oil in US markets. Over the 2014 to 2018 period alone, Canadian producers’ revenues declined by \$40.6 billion due to discounted heavy crude prices. By comparison, during the same period the United States added thousands of miles of new oil pipeline capacity.

Canada lost \$100 billion of investment in energy projects in two years, according to the C.D. Howe Institute. New planned investments in the energy sector fell from \$146 billion in 2015 to \$35 billion in 2018; this represents 4.5% of Canada’s GDP.

In 2016 and 2018, the Trudeau government imposed and then expanded its moratoria on northern onshore and offshore oil and gas drilling, thus preventing the companies with 63 existing exploration and discovery licences from moving to develop the resource potential in the North. In June, 2019, based on no evidence whatsoever, it imposed an indefinite moratorium on the movement of crude oil by tanker off the northern coast of British Columbia.

Bill C-69, the so-called “no more pipelines” Act politicized the regulation of pipelines in Canada, doubled the scope of assessment and increased the opportunities for opponents to delay and block new pipeline construction. It also changed the system of environmental assessment and review so that almost all new infrastructure in the economy must be consistent with the net-zero emissions by 2050 objective. The

Supreme Court recently ruled that much of the legislation is “*ultra vires*”, or unconstitutional where it applies to projects exclusively within provincial jurisdiction, but it left intact the federal government’s authority on federal lands and over inter-provincial and international infrastructure.

In 2019, the federal government published its revised requirements for project sponsors related to the consideration of climate change issues when the sponsors of designated projects undergo environmental assessment. Under the Impact Assessment Act, each project on the designated project list must undergo first a review in principle to ensure its compliance with the federal government’s climate policy framework and indigenous reconciliation goals before undergoing a more traditional project review that examines the specific local environmental impacts. The actual reviews are to be carried out either by the Impact Assessment Agency of Canada (IAAC) or the “lifecycle regulators” such as the Canada Energy Regulator (the successor to the National Energy Board), the Canadian Nuclear Safety Commission (CNSC) and the Offshore Petroleum Boards.

The regulations demand not only that a proponent identify the carbon-dioxide equivalent greenhouse gas emissions directly associated with the construction and operation of the project, but impose additional emission-related information requirements related to upstream emissions, downstream emissions, “net emissions”, acquired energy GHG emissions, carbon dioxide captured and stored, avoided domestic GHG emissions, and offset credits.

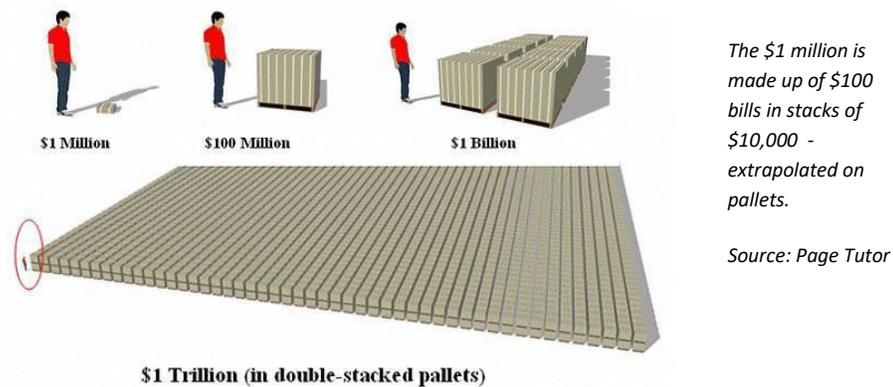
The project list includes the construction, operation, decommissioning and abandonment of many kinds of projects in the energy, mining, and transportation industries. The same review process requirements can potentially apply to an oil pipeline, a diamond mine, a new powerplant, an airport or a railway, or significant additions to any of these. Impact assessment thus has become a potential road block to all major infrastructure construction that does not meet the federal government’s “clean growth” definition.

There have been no major studies done on the likely economic consequences for Canada’s production of conventional oil and natural gas if present net-zero policies continue. A [study](#) produced by Rystad Energy on behalf of the Canadian Energy Centre projected that **under a net-zero scenario by 2050, the federal government’s plan would essentially wipe out the net present value of Canada’s oil sands holdings. They would fall from USD301 billion to minus USD 55 billion. Oil sands capital expenditures would fall from US \$8 billion in 2022 to under \$370 million in 2050.** That’s a 95% decline. On a cumulative basis, between 2020 and 2050, almost \$720 billion that governments take from taxing the oil sands industry would be placed at risk.

This article and a previous one concerning the costs to Canadians of climate-related taxes and government expenditures have attempted to provide information about different components of the cost of attaining the federal government’s goal of net zero emissions by 2050.

Only a few estimates have been published that offer some insights into what those costs might be.

In 2022, the Royal Bank Of Canada published a [study](#) entitled *The \$2 Trillion Transition* on the “costs of decarbonization”. As indicated by the title, the bank estimated that the total cost of expenditures needed to attain the net zero goal was \$2 trillion. In its March 2022 Budget², the **federal government published projections that the total private and government investments needed to attain net zero would be between \$125 billion and \$140 billion per year from 2023 to 2050, or somewhere between \$3.4 trillion and \$5.2 trillion.**



Other sources have focused on the extraordinary costs of decarbonizing the electrical energy system and then electrifying the entire economy. The [Conference Board of Canada](#) put the cost of the “clean electricity transformation” at \$1.7 trillion. These are estimates by sources that support the expenditures. The Friends of Science, an organization that takes a skeptical view of the science and economics underpinning Canadian climate policy, published a [letter](#) refuting the Royal Bank study and drawing upon the expertise of the electrical engineers who are members of the organization. The

² Budget 2022, Chapter 3, page 24; Projection attributed to *Climate Finance Markets and the Real Economy* (2020) by Global Financial markets Association and Boston Consulting Group

Friends of Science estimate was that the complete decarbonization of electricity alone could entail a capital cost of \$4 trillion and ongoing operating costs of \$320 billion per year. None of these studies attempted to estimate the costs of the economic opportunities, especially in the oil sands, foregone as a result of the regulations, or to put a price on consumers' loss of choices.

Thus, the range of estimates published to date is between \$2 trillion and \$5.2 trillion. That is an almost unimaginable amount of money. To help readers understand the magnitude, consider these points:

- Canada's GDP in 2022 was just over \$2.1 trillion, so the range of decarbonization costs is between one and two and a half years of Canada's entire income.
- \$2 trillion is \$50,000 for every one of Canada's 40 million residents now, or \$118,000 for every household. \$5.2 trillion is \$130,000 for every resident, or \$306,000 for every household.
- Averaged over 27 years, \$2 trillion would cost every one of today's residents about \$1,850 per year; averaged over 27 years, \$5.2 trillion would cost every one of today's residents \$11,330 per year.
- If you were to spend \$40 per second, it would take you 1,584 years to spend \$2 trillion. At \$40 per second, it would take you 4,118 years to spend \$5.2 trillion.

CONCLUSION

Leaving aside the question of whether net-zero emissions is an attainable goal by 2050, the costs that can already be anticipated fall into a range that would impose unprecedented costs on the Canadian economy and harm the future income growth and standard of living of all Canadians. The story needs to be told to the general public as well as to the politicians making the choices for us.



Vancouver Olympics 2010 vs Canada NetZero 2050

ABOUT THE AUTHOR

Robert Lyman is an economist with 27 years' experience as an analyst, policy advisor and manager in the Canadian federal government, primarily in the areas of energy, transportation, and environmental policy. He was also a diplomat for 10 years. Subsequently he has worked as a private consultant conducting policy research and analysis on energy and transportation issues as a principal for Entrans Policy Research Group. He is a frequent contributor of articles and reports for Friends of Science, a Calgary-based independent organization concerned about climate change-related issues. He resides in Ottawa, Canada. [Full bio.](#)

ABOUT FRIENDS OF SCIENCE SOCIETY

Friends of Science Society is an independent group of earth, atmospheric and solar scientists, engineers, and citizens that is celebrating its 21st year of offering climate science insights. After a thorough review of a broad spectrum of literature on climate change, Friends of Science Society has concluded that the sun is the main driver of climate change, not carbon dioxide (CO₂).

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