Collapse & Catastrophe

Fundamental Flaw in Climate Scenario Risk Analysis – Responding to the Open Consultation on the OSFI's Standardized Climate Scenario Exercise (SCSE) Methodology

Contents

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Fundamental Flaw in Climate Scenario Risk Analysis

> *"RCP8.5 does not provide a physically consistent worst case [Business-as-Usual] BAU trajectory that warrants continued emphasis in scientific research. Accordingly, it does not provide a useful benchmark for policy studies."*
> *- Ritchie and Dowlatabadi* (2017)

Introduction

On Oct. 16, 2023, the Office of the Superintendent for Financial Institutions released is Standardized Climate Scenario Exercise (SCSE) methodology for consultation.

> "The SCSE aims to increase federally regulated financial institutions' (FRFIs) understanding of their potential exposures to climate-related risks. It also aims to build their capacity to conduct climate scenario analysis and risk assessments. As a fully standardized exercise, the SCSE will also give OSFI a comparable quantitative assessment of climate-related risks across FRFIs."

This report provides a response to that consultation prepared by Friends of Science Society.

Standardized Climate Scenario Exercise

There is ever more pressure on banks, financial institutions and corporations to report on climate risks related to their investments and operations, particularly as market pressures grow such as potential litigation for failing to properly report climate risk, ever more climate regulation – particularly on the fossil fuel sector, rising carbon prices and the advent of Carbon Border Adjustment levies in some jurisdictions.

Thus, the OSFI has developed this Standardized Climate Scenario Exercise (SCSE) to attempt to help financial institutions under its supervision to understand their climate risks and to provide a standardized tool.

OSFI describes the exercise as follows:

> "The SCSE aims to measure climate risks that are **arguably not reflected using traditional risk quantification techniques, e.g., models that use historical experience to measure risks**. The SCSE will consider characteristics associated with individual exposures that are not typically used in risk quantification today but may provide strong risk discrimination under future climate scenarios. The SCSE will not consider broad impacts of macroeconomic stresses since FRFIs' stress testing and capital requirements already consider the impact of a stressed macroeconomic environment." [Bold emphasis added]

Fundamental Flaw

The OSFI employs a series of computer simulated scenarios known as the "Representative Concentration Pathways" as baseline scenarios claiming that the RCPs 'describe future emissions patterns' and that 'each scenario makes a different assumption about global average temperatures.'

5.2 Physical climate scenarios

Climate scenarios that focus on physical risks are often defined using Representative Concentration Pathways (RCP). RCPs describe future emissions patterns, in consideration of future greenhouse gas emissions and other socio-economic factors.

Three specific RCP scenarios are often considered in physical climate risk scenario analysis. Each scenario makes a different assumption about global average temperatures.

- **RCP 2.6:** average rise in temperatures of 0.9 to 2.3°C by 2100, which would require the most action to reduce GHG emissions.
- **RCP 4.5:** average rise in temperatures of 1.7 to 3.2°C by 2100, which would require significant action to reduce GHG emissions.
- **RCP 8.5:** average rise in temperatures of 3.2 to 5.4°C by 2100.

The physical risk exposure assessments will focus on the **RCP 2.6** and **RCP 8.5** scenarios and the differences in hazard values between these two scenarios. Although the SCSE does not attempt to measure a relationship between transition and physical risks, the **Current policies** scenario for transition risk, defined in Section 3.2.1, broadly aligns with the **RCP 8.5** scenario from a narrative perspective, since both scenarios involve limited or no climate policy action. Similarly, the narratives for the **Net-zero 2050** transition scenario and the **RCP 2.6** scenario broadly align since they require immediate and significant policy action.

This is how the RCP scenarios look in relation to one another.

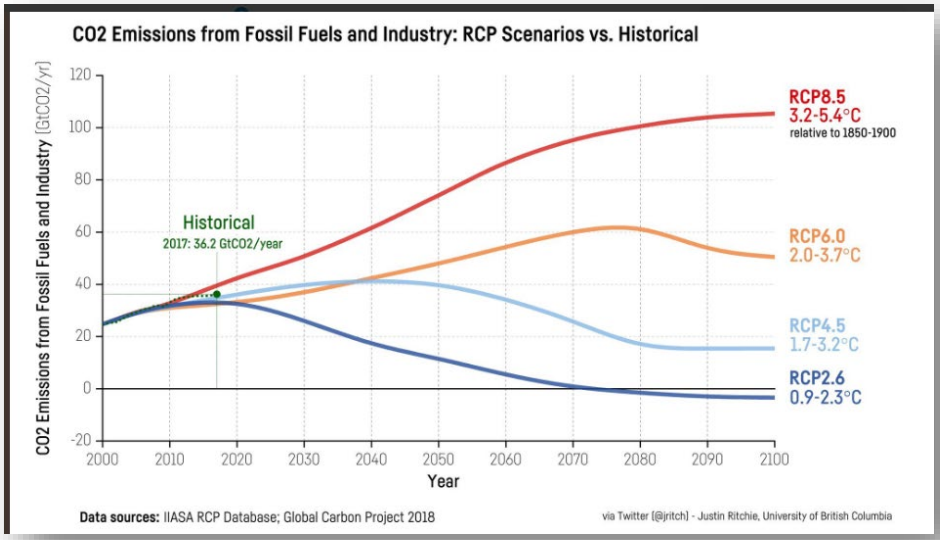


Figure 1

The stated objective of NetZero targets is to keep global warming below 1.5 degrees Celsius (over pre-industrial temperatures) as per the Paris Agreement. Few people realize that the 1.5°C target is a *political*, not a scientific goal.[1]

[1] https://link.springer.com/chapter/10.1007/978-3-030-51701-4_12

According to the creators of the RCP scenarios, these scenarios are **not meant to be used as policy prescriptive instruments,** but this is what the OSFI is doing, as is the Bank of Canada, and the Bank for International Settlements (BIS),[2] which means that international finance is being skewed by improper use of the RCP scenarios. Here the authors of van Vuuren et al (2011) caution against the misuse of the RCP scenarios:

> The information in this paper also reveals several limitations associated with the use of the RCPs that need to be kept in mind:
>
> - *The RCPs should not be interpreted as forecasts or absolute bounds, or be seen as policy prescriptive.* The RCPs describe a set of possible developments in emissions and land use, based on consistent scenarios representative of current literature (see Section 2). The RCPs should clearly not be interpreted as boundaries for possible developments with respect to emissions and land use. Similarly, while the RCPs may be used to identify the range of climate impacts associated with different anthropogenic forcing levels, they are not meant to be policy prescriptive, (i.e. no likelihood or preference is attached to any of the individual scenarios of the set). At the same time, the use of the RCPs in climate research may provide important information for decision-making.

https://link.springer.com/article/10.1007/s10584-011-0148-z

Climate policy analyst and long-time insurance industry advisor on disaster risk,[3] Roger Pielke, Jr. and his research colleague, Justin Ritchie have detailed how the misuse of these scenarios is distorting our understanding of climate science and the view of our climate future.[4] Pielke, Jr. directly addresses the scenarios of the Network for Greening the Financial System (NGFS)[5] in this presentation;[6] he describes them as *'wildly implausible and of questionable practical utility.'*

RCP 8.5 – Outlier of Outliers, Not Business as Usual

When shown on a graph as in Figure 1, on the previous page, the natural human tendency is to see these as comparative 'pathways,' objectives or targets. This is not the way the RCPs were designed; they were not designed to be used as policy guidelines, nor do they show a preferred objective or outcome, nor do they show a way to achieve such an outcome. To employ the scenarios in this way is a misuse of the RCPs which were designed strictly for research purposes.

OSFI states:

> "…the **Current policies** scenario for transition risk, defined in Section 3.2.1, broadly aligns with the **RCP 8.5** scenario from a narrative perspective, since both scenarios involve limited or no climate policy action."

[2] https://www.bis.org/bcbs/publ/d517.pdf
[3] https://rogerpielkejr.com/2020/02/14/my-cv/
[4] https://www.sciencedirect.com/science/article/abs/pii/S2214629620304655
[5] https://www.ngfs.net/ngfs-scenarios-portal/
[6] https://www.nas.org/blogs/media/video-climate-misinformation

Most egregiously, OSFI refers to RCP 8.5 as if it "*broadly aligns with current policies for transition risk,*" when that is nowhere near the case, nor is it "business-as-usual."

- RCP 8.5 has annual carbon dioxide emissions **more than tripling by century's end**,
- the concentration of carbon dioxide in the atmosphere **soaring to more than 900 parts per million**,
- and the radiative forcing (i.e. a scientific concept used to quantify and compare the external drivers of change to Earth's energy balance) **more than triple what it is today**.

Whereas the United Nations projects world population to be about nine billion by 2100, the **RCP 8.5 scenario assumed that it could be between twelve and fifteen billion**. The population projections of the other RCPs are within the 90 percentile of the UN projections, while RCP8.5 is well outside it.

Robert Lyman, former public servant and diplomat, writes in his report on the misuse of these scenarios:[7]

> "The other three RCPs project primary energy use of 750 to 900 exajoules in 2100, about twice the level of today. RCP8.5 projects that it will reach 1,700 exajoules, an energy-intensive scenario and a lower rate of technology development."

Though RCP 8.5 has been painted as the "business-as-usual" scenario by green billionaires Tom Steyer and Michael Bloomberg in their "Risky Business" project, the RCP 8.5 fossil fuel use projections are **far beyond the limits of reality**. Robert Lyman explains:

> "RCP8.5 stood out especially because of its assumptions concerning global fossil fuel use in 2100. Actual coal use was less than 200 exajoules in 2020. Almost all authorities project it to be stable or decline by 2100, due to the combined effects of lower costs for competing energy sources, such as natural gas and renewables, and government regulation. **RCP8.5, in contrast, assumed that global coal use would increase to over 800 exajoules**. **With respect to oil, under RCP8.5 world crude oil production in 2100 would have to be about four times that of 2015 to meet the assumed demand**. That means that oil companies would have to find and produce roughly four trillion barrels of crude oil between now and 2100. As that is about **twice the level of proven crude oil** reserves now plus the current estimate of technically recoverable resource potential, it would represent a herculean task. **Several academic papers have explored whether there are enough coal resources in the world to satisfy the demands assumed in RCP8.5.**"

Clearly these are implausible or impossible outcomes. RCP 8.5 is not "business-as-usual."

Lyman writes:

> "Without the attention and credibility given to RCP8.5, it is doubtful that a persuasive case could be made for high carbon dioxide taxes or "net-zero by 2050" policies."

[7] https://blog.friendsofscience.org/2023/01/26/between-the-implausible-and-impossible-the-misused-scenario-driving-climate-emergency-policies/

Yet, the OSFI document suggests transition risk as defined in section 3.2.1 is broadly aligned with RCP 8.5 and that the sole difference of RCP 8.5 is that is models what might prevail "without climate policy" which is clearly not the case:

> "…the **Current policies** scenario for transition risk, defined in Section 3.2.1, broadly aligns with the **RCP 8.5** scenario from a narrative perspective, since both scenarios involve limited or no climate policy action."

Section 3.2.1 states:

> "The current policy scenario assumes that there are no new climate policies being implemented, so transition risks are negligible. Greenhouse gas (GHG) emissions continue to grow until the end of the century, creating an adverse impact of extreme physical risks."

OSFI has misunderstood the parameters of RCP 8.5 – an outlier of outliers – and misunderstood what the RCP scenarios were originally designed for – climate research, *not policy development or GHG reduction targets.*

Thus, the Standardized Climate Scenario Exercise (SCSE) of OSFI is fatally flawed from the outset and would have catastrophic implications to the Canadian investment and banking sector if undertaken as a policy guideline for evaluating climate risk.

Indeed, this misuse of RCP 8.5 would be a **fraudulent misrepresentation of the future** and would leave banks and financial institutions at risk of legal action from parties who were required to meet the OSFI's intended imposition of stringent *climate risk* reporting and investment alignments to a purely fictitious scenario, that was never meant to be used in this way.

The Climate Scenario Crystal Ball

"It's difficult to make predictions, especially about the future."

- *Yogi Bearra*

As former international banker, Parker Gallant, has noted in correspondence to Friends of Science Society:

> "OSFI didn't predict many of the debt crises over the past 30/40 years so why do they suddenly think they are capable of predicting climate disasters?
>
> They missed the Asian debt crisis, the Latin American one, the Mexican One, the US mortgage (junk bonds) one, etc. etc. but Canadian banks demonstrated their ability to see those events materialize so weren't severely impacted."
>
> A history of the past 40 years in financial crises | IFR (ifre.com)

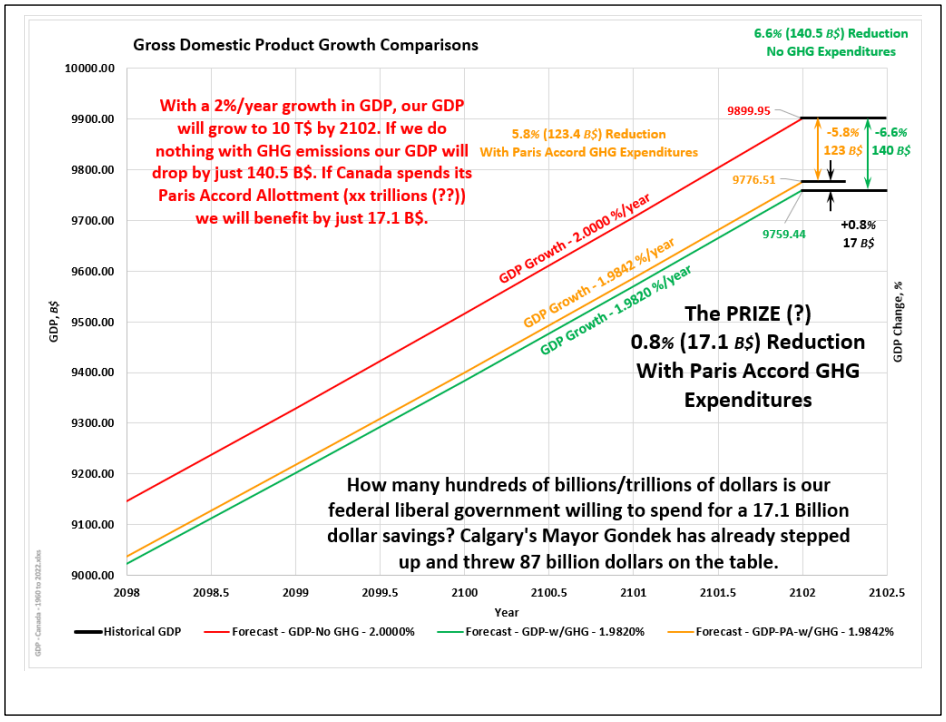
Indeed, the alleged future financial climate risk in Canada, has been put to bed by the Nov. 8, 2022, assessment in the Parliamentary Budget Officer's report[8] which showed:

- Under Scenario 1 Canada's GDP in 2100 will be 6.6% smaller than it would otherwise be, due to the negative impacts of global warming. Assuming a modest 2%/year growth in Canada's economy, Dr. McKitrick calculates that GDP will grow 388% over the next 80 years.

- But, according to the PBO if we do nothing it will **grow only 381%,** a small difference compared to other drivers of the economy. In fact, the IPCC's 5th Assessment Report also concluded that the economic impact of climate change is small relative to other drivers.

- In Scenario 2, with everyone meeting their Paris targets the above 6.6% difference becomes 5.8%, a miniscule difference of 0.8 percentage points. Incurring the enormous costs of complying with the Paris Agreement will mean that Canada's economy will grow not by the assumed 2.0%/year average, but by 1.986%/year. The compliance costs will take an order of magnitude more off our growth rate.

- Dr. McKitrick notes that one of the justifications cited for climate action is the "cost of inaction," i.e., something that is too large. But here, according to the PBO, the 'cost of inaction is **tiny**.[9]



- "While the impact on Canadian GDP is from global GHG emissions, *Canada's own emissions are not large enough to materially impact climate change.*" – PBO, Nov. 8. 2022

Friends of Science Society's president, Ron Davison, P. Eng. has graphed the PBO findings for your consideration.[10] It is interesting that the cities of Ottawa and Calgary in their climate plans have

[8] https://distribution-a617274656661637473.pbo-dpb.ca/bbc2846795c541eddc656e484a15e7ecd91bd0aff45196f231523d8c5c9aafe4
[9] https://financialpost.com/opinion/parliamentary-budget-officer-debunk-climate-alarmism
[10] https://climatechangeandmusic.com/parliamentary-budget-office-gdp-climate-change/
https://climatechangeandmusic.com/pbo-trudeaus-business-acumen/

both outspent the purported 'savings' of climate action. Our children will be struggling with **climate policy induced debt** for decades, thanks to the misuse of RCP 8.5. It is hard to see how this would justify banks and financial institutions being required to engage in the wasteful prognostications of 'climate risk' reporting when the far greater risk is fraudulent misuse of RCP 8.5 to defraud taxpayers of appropriate allocation of public funds, and derail essential investments in conventional energy that underpin the operation of modern society.

Likewise, in the BIS report[11] linked within the OSFI document we find the following:

> "The effect of climate change on economic growth appears to be more pronounced in developing countries. Empirical evidence suggests that exposure to climate risk has raised the average cost of debt by 117 basis points in a sampling of developing countries, translating into more than $40 billion in additional interest payments on government debt over the past 10 years (Buhr et al (2018)). Increased borrowing costs could lead to higher taxes, lower government spending and reduced economic activity, which may indirectly impact banks' credit risk. Dell et al (2012) also find evidence that, in poorer countries, an increase of 1°C in a given year reduces economic growth in that year by 1.3 percentage points. **In rich countries, however, changes in temperature do not have a robust, discernible effect on growth.**"

Former international banker, Parker Gallant, noted in correspondence to Friends of Science Society:

> "So, the rich countries are not affected and that presumably is related to their ability to spend the money on "infrastructure" to prevent climate disasters and their related costs. One need only to look at the Netherlands where 26% of its land is below sea level but their infrastructure built out over the centuries allows them to live on that land. The foregoing statement from the Bank for International Settlements clearly notes mankind's ability to adjust to climate risks should they need to, and no overseer of financial institutions are equipped to make that call for either the banks or insurance companies."

This observation is confirmed by the Parliamentary Budget Officer's assessment of Canada's climate change risks.[12]

Obviously 'rich' Western industrialized countries are more resilient **because infrastructure is designed and built to withstand various well-understood historical extremes of weather conditions**. The economies and socio-economic nets are strong in Western nations, as well as the fact that physical infrastructures are designed and built for resilience. Many buildings and much of our infrastructure is built to last at least 100 years. This was done by rational, common-sense architects, engineers, and contractors working with known historical weather trends, long before 'climate risk' became 'a thing.'

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[11] https://www.bis.org/bcbs/publ/d517.pdf

[12] https://www.pbo-dpb.ca/en/publications/RP-2223-015-S--global-greenhouse-gas-emissions-canadian-gdp--emissions-mondiales-gaz-effet-serre-pib-canadien

Alarming Conflation of Weather as Climate

Extreme weather events, floods, wildfires, hurricanes are often cited as examples of 'climate change' in OSFI and Bank of Canada and BIS documents. Climate change is measured over periods of 30, 50, 100 year and millennial timescales wherein regional weather patterns change in a manner that is statistically identifiable. Extreme weather events are **not** climate change.

Though various parties present graphs purporting to show that there is an increase in extreme weather events (and thus evidence of climate change) through insured losses, such analysis fails to account for:

A) Increase in population living in exposed areas like coastal cities (i.e. New York, Boston, cities of Florida, extreme fire risk areas of California or urbanites living on acreages in Canada).
B) Increase in property values of buildings in the area.
C) Increase in reporting of damaging events and costs (i.e. a wood/plaster beach house from the 1950s might not have even been insured; today's seaside mansion located in the same place surely is insured and for millions).

Then vs now.

D) Increase in numbers of people living in higher-risk areas **with less wisdom** (i.e. Kelowna residents building a condo-style 'cabin in the woods' where urbanites like their house 'nestled in the woods.' An experienced "FireSmart" or "FireWise (US)" wilderness resident would have all those trees cleared back 100 feet or more from the house.)

Recommended reading on this topic:

The Rightful Place of Science: Disasters & Climate Change
https://www.amazon.ca/Rightful-Place-Science-Disasters-Climate-dp-0999587749/dp/0999587749/ref=dp_ob_title_bk
What The IPCC Actually Says About Extreme Weather
https://open.substack.com/pub/rogerpielkejr/p/what-the-ipcc-actually-says-about?r=f96qu&utm_campaign=post&utm_medium=email
What the Media Won't Tell you about Wildfires
https://open.substack.com/pub/rogerpielkejr/p/what-the-media-wont-tell-you-about-783?r=f96qu&utm_campaign=post&utm_medium=email
Climate Change Isn't Everything: Liberating Climate Politics from Alarmism by Mike Hulme
Professor Mike Hulme of the University of Cambridge... "*confronts this dangerously myopic view that reduces the condition of the world to the fate of global temperature or the atmospheric concentration of carbon dioxide to the detriment of tackling serious issues as varied as poverty, liberty, biodiversity loss, inequality and international diplomacy. We must not live as though climate alone determines our present and our future.*"

Thus, as devastating as the Kelowna wildfires were, they are **not** a sign of climate change. They were a largely preventable disaster.[13]

In terms of the OSFI Mandate, how is it sound risk management to conflate weather and climate?

Fostering sound risk management and governance practices

OSFI advances a regulatory framework designed to control and manage risk.

It is clear that by OSFI misusing outlier climate scenarios and claiming that weather events (as per SCSE 5.3 Physical Hazards) are evidence of climate change is a form of fraud and deception.

Alarming Departure from Normative Practise of Risk Assessment

> *"The SCSE aims to measure climate risks that are* ***arguably not reflected using traditional risk quantification techniques, e.g., models that use historical experience to measure risks.****" - OSFI SCSE Consultation [emphasis added]*

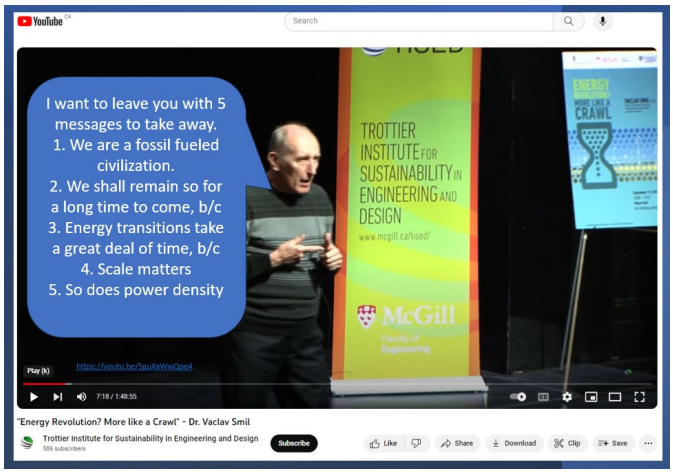
The entirety of the operation of money markets, insurance firms, and financial institutions rely on historical quantification in terms of credit risk, market trends (macro and micro), hedging against the possibility of losses and having a diversified portfolio, as Superintendent Routledge told the Canadian Senate on Dec. 6, 2023,[14] he would rather have *"a bank with a thousand small trees than three big ones."*

Thus, it is a disconcerting departure from the norm to try to force financial institutions to NOT use *'traditional risk quantification techniques such as models that use historical experience.'*

History tells us almost all we need to know to prepare for the future. Abandoning historical evidence and trends to rely on mathematical models is the height of irresponsible management of assets.

[13] https://youtu.be/SObeh-aiRYc
[14] https://sencanada.ca/en/content/sen/committee/441/BANC/56534-E

Transition Risk and Stranded Assets – Historical Experience



https://youtu.be/5guXaWwQpe4

Professor Emeritus Vaclav Smil is a global expert on energy. Historical evidence shows that energy transitions take at least 70 years, and that the legacy forms of energy are **not abandoned** but are <u>added to the energy mix</u>.

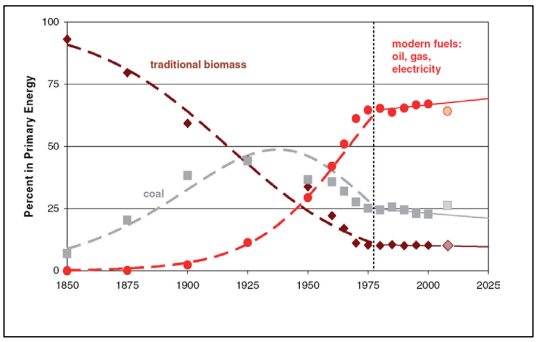


Figure 2 – Graph showing shifting trends in primary energy use.

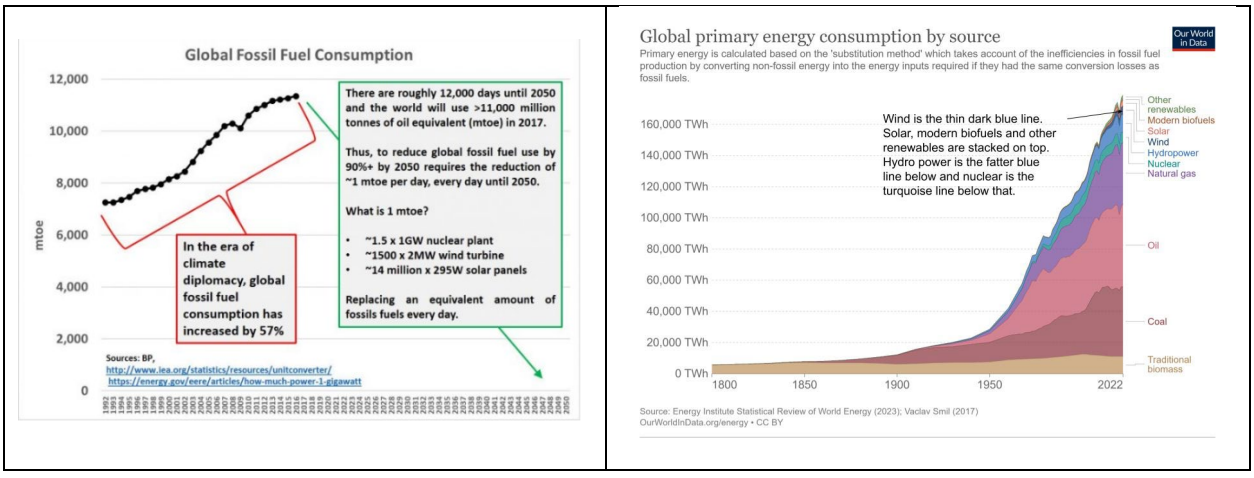


Figure 3 and 4 – The likelihood of a NetZero transition by 2030 or 2050 – in the absence of some magical new technology that can meet market readiness and scale up within a decade or two - is unrealistic and ***unnecessary*** *once implausible scenario RCP 8.5 is abandoned as the vision of our future.*

In addition to the historical evidence that it is unlikely that oil, natural gas or coal will end up as stranded assets anytime soon, the US Energy Information Administration, one of the foremost agencies on energy data, forecasts steady growth, particularly in emerging nations.

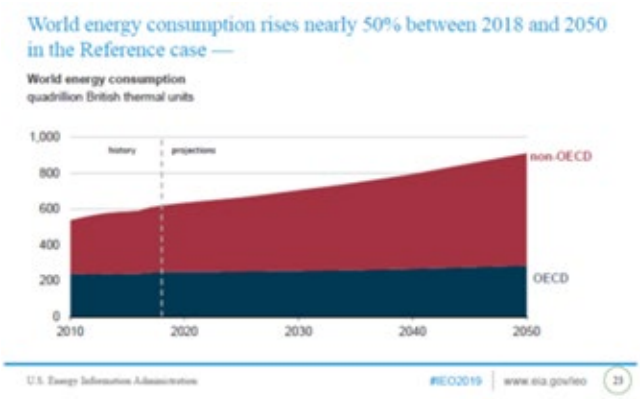


Figure 5 – US EIA World energy consumption forecast to 2050.

https://blog.friendsofscience.org/2021/03/01/when-giants-arise-the-real-world-of-ghg-emissions-and-growth/

If anything, this should be a green light for banks and financial institutions to invest in Canadian resources and export infrastructure like pipelines, ports and railways.

Risk of Creating Legal Liabilities by Forcing Climate Reporting Compliance on Financial Institutions

> *"Another high-profile suit is pending in New York state courts, where pensioners have sued three of New York City's pension funds over their divestment from traditional oil companies, and similar cases are sure to follow. One can presume that suits from the opposite perspective – i.e. "I lost money because my state pension quit using BlackRock" – will also undoubtedly pop up in the near future. Some of these suits may, indeed, seriously affect the industry.*
> *All of that noted, this isn't necessarily to say that lawsuits on behalf of those who believe they have been defrauded and disadvantaged by ESG will determine the future of the practice. It is, rather, to say that the future of ESG is now likely beyond the control of investors and voters and in the hands of administrators and especially judges."*
>
> - Steve Soukup, The Political Forum Dec. 21, 2023
> (Author of "The Dictatorship of Woke Capital")

On Dec. 6, 2023, Superintendent Peter Routledge testified to the Standing Senate Committee on Banking, Commerce and the Economy:[15]

> *"The fearless advice part of my job is that we at OSFI, in conjunction with our peers internationally, have built over the last several decades, in response to several financial crises, an architecture of risk measurement*

[15] https://sencanada.ca/en/content/sen/committee/441/BANC/56534-E

and capital allocation against those risks that is broad, comprehensive and detailed. I think good advice for me to give to parliamentarians is for them to let the bank geeks, who think about capital allocation and risk weighting, do their work and allocate capital on the basis of risk considered across a variety of sectors. Specific directions on the weighting of specific assets, while we could make it workable — and we would make it workable if Parliament so instructed us — there might be a better way to get at managing the risks that those preferred risk weightings are meant to address."

Twelve days later, the Fagradalsfjall volcano erupted in Iceland.[16] To date, the town of Grindavik has been evacuated and the fissure appears to run right through the town, although at this point (Dec. 21, 2023) the active lava eruptions and flows are a couple of kilometers north of the town.

How would one rate this potential climate risk? How could one forecast it, or its effects, locally, or internationally?

For instance, if the volcano continues to erupt, there could be a cessation of aviation as was the case in 2010 leading to the shut down of 90,000 flights[17] (at this time, that is not the case).

When would Fagradalsfjall switch from being an economic risk to Canadian airlines due to potential cancellations, as was the case in 2010, to a climate risk, as was the case when Laki erupted in 1783?

> Due to Laki's aerosols and gases: *"In the eastern United States, the winter average temperature was 4.8 degrees C below the 225-year average. The estimate for the temperature decrease of the entire Northern Hemisphere is about 1 degree C."*[18]

Laki emitted vast clouds of toxic gases that drifted into England and Europe. Cattle and farm workers were often overcome and dropped dead in the field. Famine was widespread. An estimated 6 million people worldwide died as a result of the Laki eruption.

How would a financial institute be able to forecast such a climate risk?

What might be the legal penalty for inaccurate climate risk assessment in such a case?

Did financial institutions suffer direct losses in all the previous years of volcanic activity when they did not report or assess these climate risks?

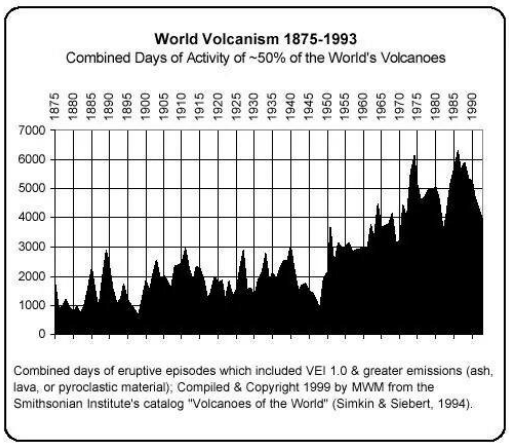


Figure 6 – World Volcanism 1875-1993

[16] https://www.euronews.com/travel/2023/12/19/iceland-volcano-2023-how-likely-is-an-eruption-and-how-will-it-affect-travel
[17] https://skift.com/2023/12/18/iceland-volcano-erupts-and-blue-lagoon-closes-again/#:~:text=An%20Icelandic%20Volcano%20Once%20Disrupted,their%20airspace%20for%20several%20days.
[18] https://volcano.oregonstate.edu/laki-iceland-1783

Did any financial institution predict the eruption of Hunga Tonga? This volcano altered the chemical composition of the atmosphere and was likely the driver of the higher global temperatures this past year, due to the enormous amount of water vapor driven into the upper atmosphere.

How would a financial institution forecast such a climate risk – a risk that happened thousands of miles away but has a direct effect on Canadian investments at home and abroad?

- **Study examines how <u>massive 2022 eruption</u> changed stratosphere chemistry and dynamics.** When the Hunga Tonga-Hunga Ha'apai volcano erupted on January 15, 2022, in the South Pacific, it produced a shock wave felt around the world and triggered tsunamis in Tonga, Fiji, New Zealand, Japan, Chile, Peru and the United States. It also changed the chemistry and dynamics of the stratosphere in the year following the eruption, leading to unprecedented losses in the ozone layer of up to 7% over large areas of the Southern Hemisphere. Driving those atmospheric changes, according to the research, was the sheer amount of water vapor injected into the stratosphere by the undersea volcano.

Just this one example of a natural climatic interruption has impacts far beyond what any climate risk reporting could even imagine or calculate. How shall financial institutions deal with all of these?

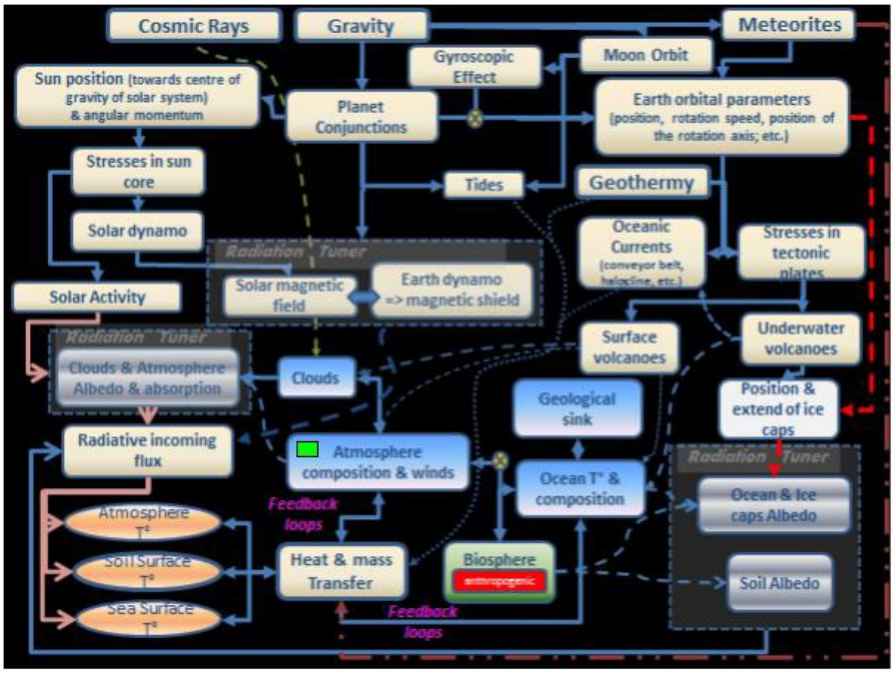


Figure 7 – Visualization of the complex, chaotic, non-linear climate system. The small green dot is a not-to-scale indicator of the human role.

Rather than the OSFI forcing Canadian financial institutions to engage in wasteful activity calculating climate risk, without using any historical evidence as a basis, the OSFI should be

ensuring that we have reliable, affordable energy security.[19] The OSFI should be ensuring there are sound investments in what are traditionally historically stable performers like oil, gas and coal. OSIF appears to be trying to derail common sense and stray into Medieval prognostication where people ended up being burnt at the stake for the crime of "weather cooking with the help of Satan."

Indeed, in Senate testimony, Superintendent Routledge revealed that there is no specific mandate for OSFI to embark on this course of action:[20]

> *"OSFI has an explicit mandate to contribute to public confidence in the Canadian financial system. This includes ensuring that the financial institutions we regulate are managing the risks that could impact their safety and soundness. Among these are the physical and transition risks associated with climate change.* ***While OSFI does not have an explicit mandate to advance climate change objectives, our*** *current mandate provides us with ample scope to take action to ensure the financial institutions we regulate are managing how climate change impacts their safety and soundness."*

It is clear that many parties perceive a real risk in this endeavor by OSFI, particularly when tied to the proposed Bill S-243 on Climate Aligned Finance, sponsored by Senator Rosa Galvez and supported by a bevy of climate activist ENGOs and major 'charitable' foundations.[21]

> ***"Senator Gignac:*** *I have a second question.*
>
> *Looking at the bill, it seems to be very detailed in proposing a risk weight of 1,250% for any loan or bond related to fossil fuels.*
>
> *If I understand you correctly, it is not the role of legislators or parliamentarians to go into that much detail. Nonetheless, would approving such a detailed bill have unexpected consequences?* ***What would the impact be on financing, access to capital for the Canadian economy? I am worried because it might mean that Alberta or a sector of the economy would have difficulty securing financing from financial institutions. Correct me if I am wrong. Can you clarify this****?" (emphasis added)*

In the Senate hearing, Chair Pamela Wallin noted:

> *"I'm looking at numbers from the 2022 Environmental, Social and Governance, or ESG, performance reports. The banks — I won't put the numbers beside each one — but $84 billion, $96 billion and $107 billion, and their projections are to be in the range of $500 billion by 2025. These are significant increases in terms of funding the transition."*

Superintendent Routledge pointed out:

> *"To set those numbers in context, the Canadian banking system is $8 trillion in assets."*

[19] https://blog.friendsofscience.org/2023/11/21/you-must-ensure-energy-security-for-all-canadians-osfi/
[20] https://sencanada.ca/en/content/sen/committee/441/BANC/56534-E
[21] https://rosagalvez.ca/en/initiatives/climate-aligned-finance/quotes-and-endorsements/

Though there is continual propaganda about the transition to a clean energy economy, the historical evidence does not support the claim. As Robert Lyman pointed out in "When Will Climate Policy Hit the Wall?" [22]

> *"Since 2007, Statistics Canada has reported on what it calls the "clean technology" sector. The definition is very broad; for example, in addition to renewable energy and energy efficiency it includes waste management services and site remediation and decommissioning activities that have nothing to do with climate mitigation.* ***This sector accounted for 3% of Canadian GDP in 2007. In 2021, following more than a decade of many billions of dollars of government subsidies, the sector's share of Canadian GDP was still 3%. It is not growing."***

Shocking Lack of Due Diligence on the "Transition"

The word "transition" appears 80 times in the SCSE document. However, it does not appear that any party has done the due diligence to see if such a transition is possible, let alone to meet the proposed NetZero 2030 or 2050 timeframes.

There are three significant challenges that are not addressed in the SCSE document.

1. To get wind, solar, or any other novel form of technology, you need oil, natural gas and coal.[23]
2. There are not enough mines for necessary minerals, and mines take up to 16 years to become operational. Fraser Institute reports that "… *388 new mines must be built by 2030* to satisfy international electric vehicle mandates. (For context: as of 2021, only 340 metal mines operate in Canada and the U.S.)."
3. There is no possible material supply chain for the proposed NetZero transition.

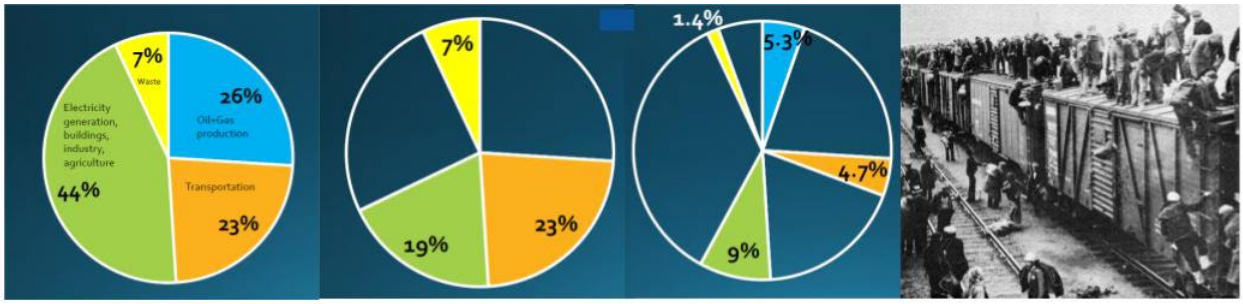
Metal	Element	Total metal required produce one generation of technology units to phase out fossil fuels (tonnes)	Global Metal Production 2019 (tonnes)	Years to produce metal at 2019 rates of production (years)
Copper	Cu	4 575 523 674	24 200 000	189,1
Nickel	Ni	940 578 114	2 350 142	400,2
Lithium	Li	944 150 293	95 170 *	9920,7
Cobalt	Co	218 396 990	126 019	1733,0
Graphite (natural flake)	C	8 973 640 257	1 156 300 ♦	3287,9
Graphite (synthetic)	C		1 573 000 ♦	-
Silicon (Metallurgical)	Si	49 571 460	8 410 000	5,9
Vanadium	V	681 865 986	96 021 *	7101,2
Rare Earth Metals	-			
Neodymium	Nd	965 183	23 900	40,4
Germanium	Ge	4 163 162	143	29113,0
Lanthanum	La	5 970 738	35 800	166,8
Praseodymium	Pr	235 387	7 500	31,4
Dysprosium	Dy	196 207	1 000	196,2
Terbium	Tb	16 771	280	59,9

Figure 7 – Excerpt of Dr. Simon Michaux' presentation
Full Report: https://tupa.gtk.fi/raportti/arkisto/42_2021.pdf

[22] https://blog.friendsofscience.org/2023/10/19/when-will-climate-policy-hit-the-wall-text-of-robert-lymans-presentation/
[23] https://spectrum.ieee.org/to-get-wind-power-you-need-oil

Thus, the proposed SCSE is requiring financial institutions to evaluate potential climate risks, using an outlier RCP 8.5 scenario, which would result in financing and insurance being choked off or charged at usurious rates for oil, natural gas and coal – or any heavy industry using significant amounts of such sources, while encouraging investment in industries that destroy jobs and which do not have a materials supply chain.

This will result in catastrophe and the economic and industrial collapse of Canada.



2014 ratios of emissions and sources in Canada

Canadian gov't committed to attain a 50% reduction from 2005 level by 2050

Canadian gov't notionally committed to an 80% reduction in GHGs

The result? The end of Canada as we know it today. Back to the Future 1930s.

There is presently **no technology** that can achieve these reductions. This is requires shutting down major industries completely - while the rest of the world builds more coal/natural gas/oil terminals and industries. No other nation is doing this.

In Closing

Earth's magnetic field is weakening. This will have some impacts on climate change which we are not in a position to determine. However, it is clear that **carbon pricing will do nothing to prepare us for these changes**, nor does it address the multi-faceted elements that drive climate change on earth.

> *"…a weaker field leaves Earth vulnerable to high-energy particles from the sun and space. More satellites may suffer damage as solar ions penetrate deeper into the planet's weakened magnetic shield. Computer models also suggest that if the dipole keeps dropping, blasts of protons from major solar storms could destroy up to 40% of Earth's ozone at high latitudes for months to years at a time, says atmospheric physicist Charles Jackman of NASA's Goddard Space Flight Center in Greenbelt, Maryland."*[24]

Rather than OSFI forcing Canadian banks to play climate astrologer with the SCSE models, it would be incumbent upon the OSFI to order Canadian financial institutions to **support and strengthen Canada's energy security, to provide financing and encouragement for the 'hardening' of our power grids, and to finance agricultural operations and innovation willingly and enthusiastically**.

[24] https://www.science.org/content/article/earths-waning-magnet

Far from being a climate risk, oil, natural gas and coal are the saving grace of Canadians, providing solid revenue streams and vital energy and a torrent of necessary product streams for modern day life and modern medicine.

Perhaps as a reminder, at this time of the year, it would be worthwhile to re-read Jack London's short story "To Build a Fire."

Robert Lyman, former federal public servant of 27 years, 10 years a diplomat,[25] has asked a fundamental question about the SCSE:

> *"When did it become the responsibility of regulators of financial institutions to impose their views on the investment risks that such institutions take? Do they assess the risks of war? Do they assess the risks of worldwide pandemics?? Do they assess the risks of economic depressions driven by excessive public and private indebtedness? I do not believe so, and if they did, what evidence can they provide that their knowledge of the future exceeds that of the financial institutions or of major investors? The answer surely is that, with respect to potential changes in the weather, climate, or other factors, the regulator has no special knowledge or expertise that empowers them to second-guess the institutions they regulate. This whole exercise should labelled for what it is -* ***a political effort to harm investment in Canada's resource sector to serve an ideologically-motivated agenda.****"*

The OSFI SCSE exercise is fatally flawed from the get-go and should be withdrawn.

[25] https://blog.friendsofscience.org/2019/05/29/robert-lyman-background-and-experience/

About Friends of Science Society

Friends of Science Society was established in 2002 by a group of earth, atmospheric, solar scientists, Professional Engineers, and business people. At the time, the concern of the founders was that the scientific premises of the Kyoto Accord (the forerunner to today's Paris Agreement) were flawed and the economic impact of the proposed climate policy measures would be destructive to the Canadian economy for dubious climatic or socio-economic benefit. Friends of Science Society reviews all Intergovernmental Panel on Climate Change (IPCC) reports and tracks new scientific studies and global climate policies, issuing monthly commentaries and reports. More recently, Friends of Science Society has worked with CLINTEL – the climate intelligence international network of more than 1860 scientists and scholars who hold rational, dissenting scientific views on the claimed consensus on climate change.

Friends of Science Society
PO Box 61172 RPO Kensington
Calgary AB T2N 4S6
Canada
Toll-free Telephone: 1-888-789-9597
Web: friendsofscience.org
E-mail: contact(at)friendsofscience(dot)org
Web: climatechange101.ca