FRIENDS OF SCIENCE SOCIETY
PO BOX 61172 RPO Kensington
Calgary AB Canada T2N 4S6
1-888-789-9597
E-mail: contact@friendsofscience.org

July 12, 2023

Open Letter to the Bank of Canada on Climate Risk
CC: Office of the Superintendent of Financial Institutions
Parliamentary Budget Officer
Auditor General of Canada

ATTN: Tiff Macklem, Governor

Dear Governor Macklem,

RE: Climate Risk Assessment Report of April 24, 2023, is a Flawed Analysis; Climate policies are putting Canadians in the poorhouse and our economy at risk

We have reviewed your first climate risk assessment and we have some comments. Friends of Science Society is a group of earth, atmospheric, and solar scientists, Professional Engineers and economists. We have been reviewing the Intergovernmental Panel on Climate Change (IPCC) reports since our inception in 2002 and issuing commentaries on the scientific claims made by the IPCC. We also issue reports on the cost-benefit analyses related to climate change policy proposals. We work closely with CLINTEL – the climate intelligence network based in The Netherlands, which has over 1,500 scientists and scholars who are signatory to the World Climate Declaration.

Coincident to writing this Open Letter, the Institute and Faculty of Actuaries released the alarmist report "The Emperor's New Climate Scenarios" which invokes climate analogies to the Titanic and to 'Hothouse Earth.' We dispute their findings. Our comments on their report can be found in Appendix II of this document. As Professor Christopher Essex pointed out years ago, the climate system is so complex, you would need computing power equivalent to the *Age of the Universe* to do a reasonably accurate 10 year forecast. It is unclear how bank employees are more qualified in this pursuit than scientists like Prof. Essex, nor how much valuable energy – human and material – is being wasted on climate risk assessment, when this is not in the wheelhouse of bankers.

"No climate model fully employs the known physics. They are empirical. But climate forecasting is not an empirical problem. If one had a computer large enough it is easy to estimate how long a typical modern computer would take to do one 10-year forecast without some of this fake (empirical) physics. With a Kolmogorov microscale of about a millimeter for air, one gets numbers like 100,000,000,000,000,000,000 years. That is longer than it took for Douglas Adams's famous fictional computer, Deep Thought, to answer the cosmic question."

1. **Natural climate change is not within our control.** You state in your report that "climate change poses enormous risks to Canada and the world" without clarifying whether you mean natural climate change or that from human-causation related to the use of fossil fuels. Natural climate change does pose enormous risks – but these cannot be controlled by any policy, we can only adapt to these risks. Human-caused effects on climate are nominal and are not responsible in any way for the long list of catastrophes

that you list, such as wildfires, floods, etc. As Roger Pielke, Jr. reports, there is but one attribution study out of >50 that ascribes human-caused climate change to extreme weather events. However, the IPCC does not see a catastrophic future for humanity as of the August 2021 IPCC AR6 report. Why do you?

2. **False Statements Made in Your Report**. The "Foreword" of Bank of Canada's report says "Climate change poses enormous risks to Canada and the world. Conceptually, there are two types of risks. The first is what most people think of when they see the news of wildfires, floods and other climate-related natural disasters:"

   The Executive Summary says, "In recent years, Canada has seen an increase in the frequency and severity of natural disasters and a surge in physical damage affecting both people and property."

   These statements are incorrect. There has been no increase in the frequency and severity of natural disasters in Canada, and any surge in physical damages is due to increasingly expensive properties being built in vulnerable locations.

   The IPCC AR6 doesn't detect or attribute any change of floods to anthropogenic causes. Flooding (detection): "Confidence about peak flow trends over past decades on the global scale is low, but there are regions experiencing increases, including parts of Asia, southern South America, the northeast USA, northwestern Europe, and the Amazon, and regions experiencing decreases, including parts of the Mediterranean, Australia, Africa, and the southwestern USA."

   There is no increase in hail, severe wind including hurricanes or major tornadoes (graph). Major tornadoes have dramatically declined in the USA. Minor tornadoes cause little damage compared to major tornadoes. The frequency of minor tornadoes in the record have increased likely only due to better detection systems. AR6 says "Low confidence in past trends in hail and winds and tornado activity due to short length of high-quality data records." [AR6, WG1 page 1532]

   Warm temperatures are very beneficial for humans and animals. Statistics Canada data shows that the death rate in Canada during cold months are 100 deaths per day greater that deaths during warm months. Numerous studies shows that cold weather causes many times more deaths than hot weather, ranging from 17 to 10 times as many globally. A study of "temperature-related mortality was published by Gasparrini et al. in the journal Lancet in 2015. They examined over 74 million deaths worldwide from 1985 to 2012 and found that the ratio of cold-related to heat-related deaths was a whopping 17 to 1. Based upon real-world data, it is obvious that global warming is going to directly prevent a large number of deaths." This 2021 study found that in China, cold causes 9.8 times more deaths that heat.

   This article by Bjorn Lomborg says "Each year, more than 100,000 people die from cold in the U.S. and 13,000 in Canada — which is more than 40 cold deaths for every heat death."

   This article shows that the worldwide death rate from extreme weather events has dropped by over 98% from the 1920s.

3. **CLINTEL has reviewed the IPCC AR6 report and found many flaws.** CLINTEL has sent a letter to Dr. Hoesung Lee asking why IPCC scientists did not speak up to stop UN Sec. Gen Antonio Guterres from his climate hysteria comments of a "Code Red for humanity," when this is not reflected in the science report of the IPCC. CLINTEL has sent a second letter to Antonio Guterres himself, also asking why he has not responded to their several letters. There is no climate emergency and no need to try and attain the *purely political* goal of keeping the world's average temperature below 1.5 °Celsius by decarbonizing the economy. The premises you are working on related to climate risk are faulty.

4. **Jessica Weinkle's Testimony to the US Senate reveals deep Conflicts of Interest in the climate world.** In the Bank of Canada "Code of Conduct" document, it is stated: **"***The Bank of Canada, Canada's central bank, is a public institution with important public policy functions. Directly or indirectly, the Bank's decisions affect the business and livelihoods of many people. In one way or another, we are ultimately accountable to Parliament and to the public for all that we do.*" In your climate risk assessment, you state that, "*The Bank does not set climate policy—that's appropriately the purview of elected governments and, ultimately, parliaments. But to fulfill the Bank's mandates to control inflation and promote financial stability, we need to understand the implications of climate change for the Canadian economy and financial system*."

   Consequently, Prof. Jessica Weinkle's testimony reveals the following, **we believe it is your duty to inform the government that climate emergency claims are flawed, fraught with Conflicts of Interest, and that climate change from human industrial emissions poses no immediate threat to Canadians or Canadian businesses and industries.**

   On March 1, 2023, Prof. Jessica Weinkle testified to the US Senate that the banks, the finance sector and insurance companies are using climate models that were developed by parties with extreme Conflicts of Interest. Some points:

   - Central bank stress testing scenarios are developed by researchers who are also lead authors on IPCC reports and have important roles in organizing the international modelling community in the development of IPCC scenarios. Funding for central bank scenario development and the most recent meeting of the scenario modelling community comes from influential organizations including, Bloomberg Philanthropies, ClimateWorks, and the Bezos Earth Fund.
   - McKinsey & Company used a climate consultancy to produce a series of widely influential reports on climate change financial risks. In defence of their use of RCP8.5 the report cited a peer-reviewed publication written by its own consultants.
   - The researchers did not declare their Conflicts of Interests (COI) as consultants for McKinsey or their association with the asset management firm, Wellington.

   Governor Macklem, clearly the climate catastrophe narrative is built on highly conflicted, deceptive practises and inputs. **Clearly your work on climate change is at odds with the fundamental principles of the Bank of Canada's Code of Conduct and Ethics.**[1]

[1] The Bank's promise to Canadians is to give them the confidence to pursue opportunity by fostering economic and financial stability. Our long-standing commitments – excellence, integrity and respect – and our corporate values — think ahead, include everyone, and inspire confidence—guide us in delivering on our promise. https://www.bankofcanada.ca/wp-content/uploads/2018/07/code-business-conduct-ethics.pdf

In light of the revelations by Prof. Weinkle of the Conflicts of Interest inherent in the climate risk analysis, it is difficult to see how the Bank of Canada is living up to the code of conduct described in your document:

We give Canadians the confidence to pursue opportunity:
• by fostering economic and financial stability
• by navigating relentless change with rigour and integrity
• by helping grow our shared prosperity
Canadians count on us.

Climate policies are destroying Canada's economy and our financial stability; it is clear that rigour is lacking – due diligence has not been done; integrity is not being upheld if you support the Task Force on Climate Risk Disclosure when it is fraught with Conflicts of Interest; there is no shared prosperity. Climate policies are destroying Canada and making us uncompetitive.

Bank of Canada owes it to Canadian citizens to stop this economically destructive climate charade right now.

5. **From our recent press release on the relevance of this matter of the "RCP8.5" scenario:** Friends of Science notes that "RCP 8.5" is implausible as a projection of the future. Representative Concentration Pathways (RCP) are a set of different scenarios of greenhouse gas emissions based on different forecasts of population and economic growth rates. RCP 8.5 forecasts replacing natural gas with coal for producing electricity with little nuclear or renewable energy. This paper says "This return to coal hypothesis: (i) represents a significant discontinuity in historical primary energy development trends." Forecasts with "high CO2 forcing from vast future coal combustion are exceptionally unlikely." This article in Nature says "Emission pathways to get to RCP8.5 generally require an unprecedented fivefold increase in coal use by the end of the century, an amount larger than some estimates of recoverable coal reserves". Robert Lyman, former public servant and diplomat has written a report explaining why RCP8.5 is implausible and unsuited for setting climate policies.

6. **There is no material supply chain to support the Net Zero objectives**, as shown by the work of Simon Michaux for the Geological Survey of Finland. Likewise, the mining of additional minerals, especially rare metals which typically require much more grinding and processing, will require much more additional use of oil, natural gas and coal. *"Total energy consumption of global mining activities, including both mineral and rock mining, is estimated to be 6.2% of the total global energy consumption."* Therefore, the concerns and conclusions in your climate risk report, regarding the alleged energy transition and possible stranded assets of fossil fuels is out of touch with reality. This also indicates a lack of due diligence on the part of your climate risk assessment team; it is one thing to fiddle with modelling about what future temperatures might be, and quite another to not bother to see if the world can meet the necessary materials needed for the proposed energy transition. Dr. Michaux's report has been available since Aug. of 2021.

7. **People will die, Canada's economy will be ruined, #MadeInChina2025 will defeat us due to our NetZero climate policies.** Over 300 million people in the world are in a food insecure state. Disruption of our agricultural policies due to fertilizer reduction or radical climate policies on livestock and poultry production further will further add to world hunger. Canadian food banks are seeing unprecedented

demands; some vulnerable people are contemplating Medical Assistance in Dying for want of food, housing, social supports and medication. NetZero (other than pretend carbon trading) is unattainable. Your climate risk report says nothing about the fact that China has an aggressive program to be the world's factory, called #MadeInChina2025. That's only a few months away. Is part of the PRC China plan to ruin competitor economies through this green trade war? It is strange that you support our self-capitulation rather than warning the nation of this very real "climate" risk.

8. **Your claim of procuring 100% renewable energy by 2022 is an embarrassment**. In your climate risk report you say: *"The Bank purchased renewable energy certificates from Bullfrog Power in 2022 for 100% of the electricity used at its four Bank-owned buildings located in Ontario and Quebec (equivalent to 455 tCO2e)."* This must have cost you all of about $17,000 out of your $700 million annual operating budget. It did nothing constructive for the environment and simply enriched green crony capitalists at the cost of taxpayers. You bought credits in provinces where the power grid is already exceptionally 'clean' with nuclear and hydro in Ontario and hydro in Quebec. You say nothing of other operations such as that in the province of Alberta where natural gas primarily powers the grid.

9. **Reality Check based on data from Robert Lyman's report "When the Facts Collide with Climate Alarm:"** This year, the 2023 version of the Statistical Review of World Energy 2023 was produced by the Energy Institute with partners KPMG and Kearney. It contains full energy data for 2022 and for the preceding years going back to 2012. Thus, it is easy to see if the world is decarbonizing or not. It is not.

10. **Please provide full transparency on your climate risk team and costs of the exercise.** Based on the pyramid organizational chart in your report, it appears that Bank of Canada has quite a collection of staff engaged on climate risk assessments. Please provide us with a list of the staff positions and their scientific or economic qualifications to be engaged on climate risk assessment, the amount of time committed to this report by each, and the cost to Canadian taxpayers for having Bank of Canada staff engaged in climate risk reporting. Please include any travel or conference time/submissions for the Network for Greening the Financial System or other related climate conferences.

Be the NetZero example for Canada. From today, we invite you, the Bank of Canada and all Canadian banks, to perform a test and stop using any fossil fueled power for your operations anywhere in Canada. This is what Catherine McKenna's "Integrity Matters" report calls for. Let you be first and show Canadians the way.

We look forward to your reply. If you would like additional insights on climate or energy issues, we have numerous expert and plain language reports. We would also be happy to review your climate risk assessment data in detail and offer comments based on our expert professional knowledge and our 21 years of climate science, energy and policy experience.

Sincerely,

Ron Davison, P. Eng.
President
Friends of Science Society

Appendix I

1. Excerpts of "When Facts Collide with Climate Alarm" In this article, Robert Lyman compares the facts concerning world energy trends as reported in the review with the claims of climate campaigners:

   a) **Claim: Renewable Energy Sources are Steadily Replacing Fossil Fuels in the World's Primary Energy Mix**
   Of 2022's total primary energy consumption of 604 exajoules, fossil fuels (oil, natural gas and coal) accounted for 494 exajoules, or 82%. Nuclear energy and hydroelectricity provided 10.7%. Renewables supplied 7.5%, and most of that were biofuels. The fossil fuel share is holding roughly constant.

   b) **Claim: The World is on the Path to Radical Decarbonization**
   Since 2012, total CO2-equivalent emissions have increased from 36.6 billion tonnes per year to 39.3 billion tonnes per year. The increase in emissions from 2021 to 2022 was only 0.8%, as the world was still largely in recession.

   In 2022, the non-OECD countries produced 68% of global emissions, up from 66% in 2021. China alone produced 30% of the world's GHG emissions. The United States produced 13.5% of global emissions, Canada 1.5%, and Europe 10.0%. The world is not decarbonizing.

   c) **Claim: Financial Institution Constraints on Investment are Impairing the Growth in World Fossil Fuel Production**
   World production of crude oil and condensate liquids increased from 77.4 million barrels per day in 2012 to 81.2 million barrels per day in 2022, an increase of 5%. World production of natural gas increased from 3,326 billion cubic metres in 2012 to 4,043 billion cubic metres in 2022, an increase of 717 billion cubic metres, or 22%. World production of coal increased from 8,188 million tonnes in 2012 to 8,803 million tonnes in 2022, a rise of 615 million tonnes, or 8%.
   In short, production of all fossil fuels is increasing despite the efforts of climate campaigners to restrict producers' access to funds.

   d) **Claim: The measures to promote the use of electric vehicles, vehicle fuel efficiency and increased transit use, as well as onerous taxation of motor fuels, are reducing consumption of oil and especially gasoline in the transport sector.**
   World liquids (i.e., crude oil and natural gas liquids) consumption increased from 90.6 million barrels per day in 2012 to 100.3 million barrels per day in 2022, an increase of 9.7 million barrels per day, or 11%. World consumption of gasoline increased from 21.5 million barrels per day in 2012 to 23.9 million barrels per day in 2022, a rise of 2.4 million barrels per day, or 11%.

   In other words, passenger transport-related oil demand continues to rise across the world, despite government policies.

   e) **Claim: Natural gas consumption is being reduced through regulatory measures.**
   World consumption of natural gas increased from 3,320 billion cubic metres in 2012 to 3,941 billion cubic metres in 2022, a rise of 621 billion cubic metres, or 19%. Overall, natural gas continues to be one of the fastest growing sources of global energy demand and a key source of clean, reliable energy supply.

f) Claim: Climate policies are driving coal out of the global energy mix.
World coal consumption rose and fell on a yearly basis within a relatively narrow band over the period 2012 to 2022. Global consumption in 2022 was 161 exajoules, compared to 158 exajoules in 2012, and the highest level since 2014. Coal consumption still shows no signs of significant decline.

g) Claim: Electricity Generation is growing Fast Enough to Soon Meet Most Energy Needs
Global electricity generation increased from 22,833 terawatt-hours in 2012 to 29,165 terawatt-hours in 2022, a rise of 6,332 terawatt-hours, 28% in eleven years. According to Enerdata, in 2021, the share of electricity in global final energy consumption was only 20.4%.

Global electricity generation increased by 2.3% in 2022, with renewables (including hydro) meeting 84% of net electricity demand growth. **Even with unprecedented levels of subsidization and regulatory mandating, the massive investments in wind and solar energy were not even sufficient to keep up with demand growth, let alone displace any existing fossil fuel-based electricity generation.**

COMMENTS
The data illustrates that almost all the key assertions of climate campaigners about present trends in global energy supply, demand and emissions are flawed. Most importantly, the "world" is **not decarbonizing** and is not undergoing either a rapid "transition" towards full electrification or replacement of fossil fuels by renewable energy.

Appendix II – Disputing Claims of "The Emperor's New Climate Scenarios"

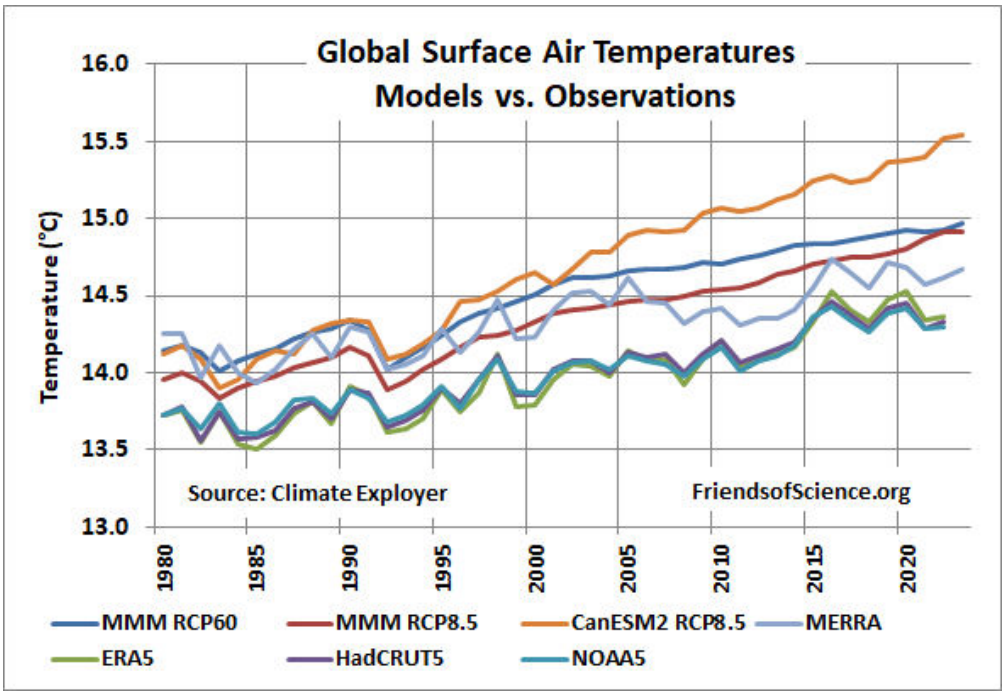
The benefits of CO2 fertilization and warming greatly exceeds harmful effects of warming. There is no tipping point that would cause a sudden increase in damages, therefore, the Titanic running into an iceberg analogy is inappropriate. There are only very gradual impact changes, mostly beneficial.

"Warning – the Earth's climate may be more sensitive than we thought". One can only assume that "we thought" refers to what was estimated by the IPCC. The article gives no evidence that the Earth's climate sensitivity to greenhouse gases is greater than the IPCC's estimate.

"In financial services considerable effort has been expended on developing climate-change scenario analysis and producing TCFD results." It should have defined 'TCFD' as "Task Force on Climate-related Financial Disclosures".

"Many current climate-change scenario models are understating risk, showing benign, or even positive, economic impacts from a hot-house world in which we fail to limit global warming." The article gives no evidence that current climate-change scenario models are understating risk. Positive economic impacts from warming are likely correct.

"Climate change is happening more quickly than expected." Our research director does not see evidence of that. This graph compares global surface temperatures from climate models to actual measurements. The surface measurements are likely rising too fast as they include urban warming. MMM is multi-model mean. CanESM2 is the Canadian model. ERA5 and MERRA are reanalysis. The HadCRUT5 and NOAA5 are temperature analysis given in anomalies (changes from a base period) only, so they are shown here with the datasets adjusted so the temperature of 1980 equals that of the ERA5 dataset.



"... equilibrium climate sensitivity (ECS), which is defined as the level of warming we expect when we double atmospheric greenhouse gases – something we have now achieved." No, we haven't doubled atmospheric greenhouse gases since pre-industrial. From 1750 to mid of 2023, the CO2 concentration has increased from 277

ppm to 419 ppm, or 1.51 of pre-industrial, or 51% to a doubling. On a CO2 equivalent basis, the CO2eq increased from 359 ppm to 527 ppm, or 1.47 of pre-industrial, or 47% to a doubling.

"Some economists have estimated negative GDP impact at 3°C of warming to be around 2% of GDP – in stark contrast to scientists' warnings. This is because they have assumed sectors of the economy that work indoors can be excluded from any calculations and that the future will be like the past – people will work a bit less when its warmer, as they have in the past." A 2% loss of GDP from a 3 °C of warming assuming the IPCC expected ECS of 3 °C, from 2020 to 2107 is tiny considering that the GDP is expected to increase by 480% with negative climate impacts! We see no reason to think that the 2% loss is too optimistic, considering the large positive effects of CO2 fertilization and our ability to adapt to climate change.

RE: "Hothouse Earth" Analogy

This appears to be a successful science advertorial marketing strategy. See this rebuttal of Steffen et al (2018)