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Bank of Canada

Head Office

234 Wellington Street
Ottawa, ON, K1A 0G9

ATTN: Tiff Macklem, Governor, Bank of Canada

RE: New Report: “Fighting Climate Change: Can Humans Regulate Earth’s Climate”

Governor Macklem and Staff,

Thank you for your response to our letter of Aug. 2, 2021.

We note in your response that:

The *Bank of Canada Act* instructs the Bank “to promote the economic and financial welfare of Canada.”

...and that you have been actively engaged on assessing climate-related risks since 2019.

Friends of Science Society was formed in 2002, so we have been assessing climate-related risks since that time and before. Our co-founders were semi-retired professionals who had worked in earth, atmospheric and solar sciences, engineering and business, and our view was that the Kyoto Accord (the Paris Agreement of the day) was deeply flawed in terms of science and economics.¹ We also work closely with CLINTELⁱ – the climate intelligence organization of over 900 scientists and scholars from around the world, who confirm there is no climate emergency.

To summarize the current situation on climate and energy, our team of Professional Engineers and scientists have compiled a new report “[Fighting Climate Change: Can Humans Regulate Earth’s Climate?](#)”ⁱⁱ sponsored by Canadians for Sensible Climate Policy.

In reviewing Bank of Canada’s climate risk assessments, we find that practical considerations of the challenges of achieving net zero is absent, and that improper assumptions are being made about extreme weather events.

¹ Prior to starting Friends of Science Society, many of our people, like co-founder Albert Jacobs, had been pioneers in resource development, including baseline research and technological development on the Alberta oil sands.

Many of our current members are expert Professional Geoscientists, Professional Engineers, and economists. One of our main policy contributors is Robert Lyman, a [former public servant of 27 years and a diplomat for 10 years](#).

For example, in Box 4, Chart 4-a, of your [2021 Financial System Review](#),ⁱⁱⁱ the claim that natural disasters are increasing due to human-influenced climate change is not supported by evidence in the event record or the temperature record. A common claim (also echoed in your report) is that the Fort McMurray wildfire was a climate change event. In fact, it began as an ordinary wildfire that was not properly managed in a timely way. Despite warnings from the Alberta Government's post-Slave Lake fire analysis, the 2012 [Flat Top Fire Complex Review](#)^{iv} (FTFCR), that wildfire crews must be prepped and ready to go by mid-April, the new Alberta NDP government had reduced spring wildfire services.

The FTFCR revealed that late April-early May is a high-risk time for wildfire – often a very dry time between snow melt and spring rain. Who can forget Wild Rose opposition leader Brian Jean in the Alberta Legislature on May 4th, 2016, desperately calling for then Premier Rachel Notley to send water bombers to Fort McMurray immediately, while Premier Notley chastised him in the legislature for fearmongering? Hours later Mr. Jean's house, along with those of 2,500 others, burned to the ground and ~100,000 people had to run for their lives.

Fort McMurray wildfire of 2016 is not a case of climate change, sir. It was mismanagement of wildfire fighting resources in a time of extreme wildfire risk.

Likewise, the 2013 Calgary flood was the product of a known, but rare meteorological pattern and *not* a climate change driven extreme weather event. Eight of the worst floods in Calgary's history were before 1933. It is unfortunate that high profile climate scientists like Dr. Katharine Hayhoe and most media commentators continue to make these false attributions on the Fort Mac wildfire and the Calgary flood.

We ask that your climate-related staff carefully review our report "[Facts vs Fortune-Telling](#)",^v our rebuttal to Dr. Hayhoe's report "[Alberta's Climate Future](#)".^{vi} For Dr. Hayhoe's report, she worked with climate models, 'downscaling' global climate models to Alberta regions. Our team worked with Alberta data and long-term evidence and temperature records. The evidence from long-term record does not support Dr. Hayhoe's downscaled modelled conclusions.

As Fiedler et al 2021 pointed out, [climate models are not fit for long-term forecasting](#),^{vii} and **not fit for climate risk assessment in banking and investment**.

The problem with ascribing natural disasters to climate change is that important **practical** actions to mitigate future natural events are forgotten. We address this in a [post for a journalist from SLATE](#)^{viii} magazine, concerning the 2020 wildfires in the US. Billions of dollars are thrown at ineffective climate change initiatives like wind and solar farms, which actually raise surface area temperatures regionally and contribute to climate change through "[Carbonless Anthropogenic Global Warming](#)",^{ix} but they do nothing to mitigate damaging wildfires which **happen every season**.

Just as it would be laughable to not prepare Canada's army of snowplows and sanders for winter, it is a puzzle that the Bank of Canada and insurance companies are busy with climate change policies, when they could be promoting effective FireSmart and flood mitigation strategies for communities and citizens, **because wildfires and floods happen seasonally every year**. There would be a much greater likelihood of saving lives and reducing property damage than wasting millions of dollars on climate models, something Canadian taxpayers are already funding at a national level through a myriad of climate initiatives, ENGOs and of course the various climate modelling centers in Canada.

To be clear, the funding of climate models is also an ineffective use of public funds as the Canadian climate models are forecasting warming that is [seven times that of observed trends](#).^x This kind of error would never be acceptable in your industry; most businesses would fire analysts that were seven times off the mark of reality. Canadian taxpayers are being forced to fund this source of climate hysteria and no organization, such as your own with a sudden interest in climate risk, is calling this group to task.

“We draw attention to the CanESM5 model: it simulates the greatest warming in the troposphere, roughly 7 times larger than the observed trends.” The Canadian government [relies on](#) the CanESM models “to provide science-based quantitative information to inform climate change adaptation and mitigation in Canada and internationally.” I would be very surprised if the modelers at UVic ever put warning labels on their [briefings to policy makers](#). The sticker should read: “WARNING! This model predicts atmospheric warming roughly 7 times larger than observed trends. Use of this model for anything other than entertainment purposes is not recommended.”

Had a few thousand dollars been spent making sure that every house in Fort McMurray was “FireSmart”, or even a few hundred million dollars, to create a large fire break around the town (or other towns at risk in the BC Wildfire corridor) – and had the Alberta NDP provincial government ensured that fire crews were contracted and ready to go by April 13 as outlined in FTFGR, the Fort McMurray wildfire might have been better contained and losses greatly reduced. For instance, look at this year’s [success of the town of Logan Lake as a “FireSmart” community](#).^{xi} Why is this not front-page news instead of the constant harangue about BC wildfires being caused by climate change? Why are media reporting on Lytton as being a climate change hotspot, when research reveals the [high temperature was related to the foehn \(aka Chinook\) winds](#).^{xii} Taking ‘climate action’ through carbon taxes and building wind and solar farms will do nothing to stop Mother Nature.

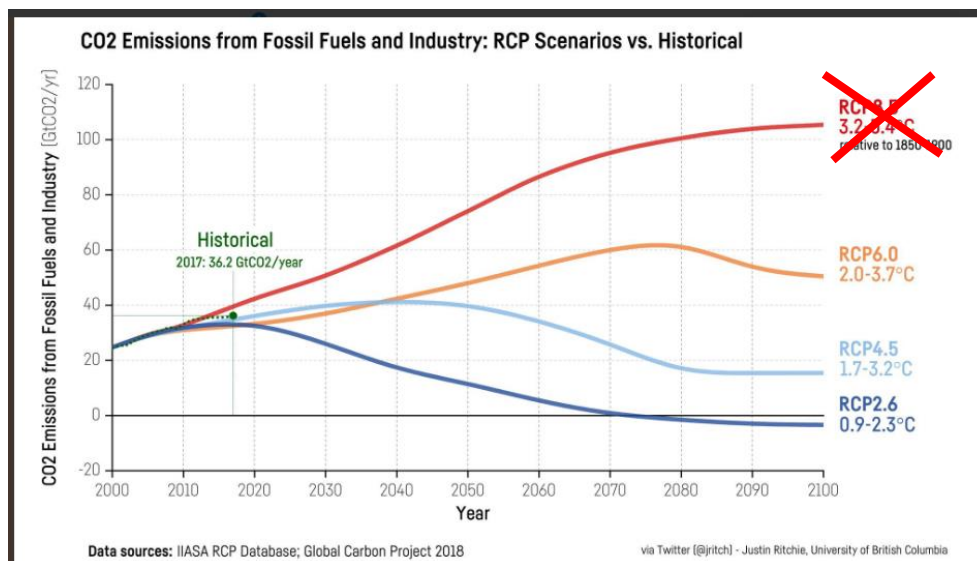
Roger Pielke, Jr. is a [climate policy analyst](#)^{xiii} in the United States and long-time consultant to the global insurance industry. He has been tracking extreme weather events and costs for more than 25 years and can show that **it is false to claim that climate change disasters are increasing**. He recently also called out Swiss RE on their climate catastrophe assessment in which they claimed climate change risks could cause an [“18% hit to global GDP by 2050”](#).^{xiv} Pielke, Jr., reports that Swiss RE used the implausible scenario (known as RCP 8.5) and then multiplied the potential future costs for ‘unknown unknowns’ by 5 and 10 times!

If you recall in the court challenge of Resolute Forestry Products against the Greenpeace activism that has damaged the reputation and the forestry industry, evidence was presented that this is how Greenpeace writes press releases:

If the Bank of Canada is truly interested in promoting the economic and financial welfare of Canada, it would be incumbent upon you to state some realities to Canadians, to the federal government, and to international trading partners and parties to the Paris Agreement.

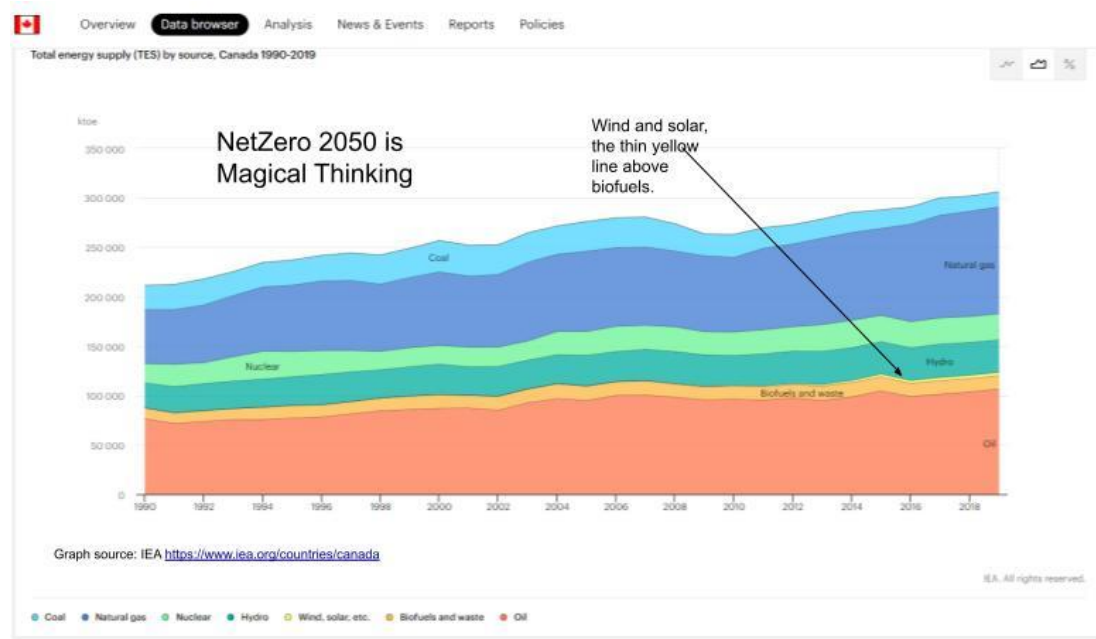
These are the realities we hope you would address:

- 1) **Canada is not Europe** – “Green New Deal” energy policies are not a fit for this vast, cold, sparsely-populated, resource-reliant nation. Abandon the Paris Agreement.
- 2) **Canada will not fund the Green Climate Fund which has no accountability, and the unattainable promise of big money (bribe) for developing nations. This has caused disillusionment by countries like China and India,** which were led to believe that if they participated in the Paris Agreement, then they would have access to **\$100 bn/yr** Green Climate Fund, paid by Western Nations, and that those funds would be released with no accountability requirements. **It is doubtful that Canadian taxpayers are fully aware of what this would have meant for them.** It is sad that China and India both had to issue a ‘demand’ notice in the fall of 2019^{xvii} for this promise, that could not be kept then, and post-COVID, cannot be kept now. It is curious that in your 2021 analysis, you focus on Canadian household debt, but have nothing to say about this international arrangement that, if implemented, would further drain Canada’s tax pool and burden working Canadians **for no benefit.**
- 3) **Stand up for the Alberta oil sands.** Bank of Canada is in a position to be straight with other banking institutions about the Alberta oil sands, which have been subjected to a >20-year long demarketing campaign, commonly known as the “Tar Sands Campaign”^{xviii} – a Green Trade War campaign filled with “Dirty Lies”^{xix} by environmental non-governmental organizations, many of which (in Canada) are federally registered charities. Thus tax-subsidized ‘charities’ are working against the interests of taxpaying Canadians and against the interests of Canada in general.
- 4) **NetZero 2030 or 2050 is an impossible and unnecessary target.** As Roger Pielke, Jr. and Justin Ritchie have found, thousands of climate change papers have been based on the implausible scenario known as RCP 8.5 which is based on outdated science^{xx}, and which was never meant to be used as a ‘pathway’ for policy making. This is the source of the belief that there is a ‘climate emergency’. When RCP 8.5 is removed from the picture, there is no emergency. You must take this news to the international community and stop the claims of ‘climate emergency’. The climate emergency is over. We do have time.



It is very clear that even if a catastrophic scenario was a reality, **Canada could not achieve NetZero – certainly not in 9 or 29 years.** There is no existing technology to replace oil, natural


gas, and coal at this time. We cannot plan a future on energy technology that does not exist as discussed by [Emeritus Professor Vaclav Smil in this public policy brief^{xxi}](#) published by the University of Saskatchewan, no matter what Greta Thunberg demands.



- 5) **The Carbon Tax must be cancelled.** In your assessment of household debt, you do not consider the fact that Canadian taxpayers are being drained of finances due to the cumulative cost of carbon taxes – which will not stop climate change or extreme weather. As we have noted in a recent [op-ed](#):^{xxii} *“The FUND economic model [calculates \(see table 4\)](#) a negative social cost of carbon dioxide meaning that the Social “Cost” of Carbon is actually beneficial, thus carbon taxes should be eliminated. Even this calculation is biased as it falsely assumes that all of the recent climate change was due to greenhouse gas emissions and none by urban warming and natural climate change.”*
- 6) **Recommend that governments stop funding tax-subsidized ENGOs and Non-profits:** On top of the carbon tax abuse of taxpayers, governments in Canada are handing out ~\$5,000 per year for every man, woman, child and peoplekind in Canada to already tax-subsidized charities! ***Imagine if Canadians had that \$5,000 back in each of their pockets;*** would this not largely right the concerns that your 2021 report expressed regarding debt load in Canada? A family of four would have \$20,000 back in their annual budget! Likewise, many of these tax-subsidized ENGO ‘charities’ are also funded by all levels of government for their partisan climate change causes (which often include berating banks and insurance companies in an effort to shut down our job-creating revenue generating resource industries).

In 2018, Environmental Defence reported to the CRA that ~30% of its income came from government. It is unclear why the federal government would be funding the richest charities in Canada for millions of dollars in direct grants unless it is to curry favor for votes. These groups are partisan activists, and many have been funded by foreign sources, apparently as part of the ClimateWorks plan [“Design to Win”^{xxiii}](#) – to agitate for policies these foreign cap-and-trade

interests want, making it appear as if this demand is from grassroots Canadians when it is a case of Potemkin environmentalism.

<p>by private donations and, in some cases, foreign sources. During the 2017-2018 fiscal year alone, Environment and Climate Change Canada (ECCC) made payments of \$23.1 million to the Nature Conservancy and \$6.1 million to Ducks Unlimited.</p> <p><i>The David Suzuki Foundation was awarded a \$149,793 by the federal government in the second quarter for 2018-2019 for the purpose: "to develop and improve the use of innovative alternatives to hard infrastructure for protection of Canada's coasts". Curiously, West Coast Environmental Law's Jessica Clogg claimed that their group had received a TIDES grant for this purpose.⁵</i></p> 	<p>ENGOS</p> <table> <thead> <tr> <th>Org</th><th>Revenue: 2000 - 2018</th></tr> </thead> <tbody> <tr><td>IDRC</td><td>\$ 3,552,093,750</td></tr> <tr><td>Ducks Unlimited - Canada</td><td>\$ 1,760,621,215</td></tr> <tr><td>Nature Conservancy Canada</td><td>\$ 1,452,308,191</td></tr> <tr><td>Toronto and Region Conservation Authori</td><td>\$ 1,347,142,424</td></tr> <tr><td>Tides (Foundation, Initiatives, Centre)</td><td>\$ 517,492,974</td></tr> <tr><td>WWF - Canada + Foundation</td><td>\$ 431,531,955</td></tr> <tr><td>Canadian Wildlife Federation + Foundati</td><td>\$ 285,128,766</td></tr> <tr><td>IISD</td><td>\$ 285,043,742</td></tr> <tr><td>David Suzuki Foundation</td><td>\$ 156,925,844</td></tr> <tr><td>Greenpeace Canada*</td><td>\$ 143,845,385</td></tr> <tr><td>BC Conservation Foundation</td><td>\$ 130,924,255</td></tr> <tr><td>Nature Trust - BC</td><td>\$ 121,600,515</td></tr> <tr><td>Land Conservancy of BC</td><td>\$ 109,160,956</td></tr> <tr><td>Coast Conservation Endowment Fund</td><td>\$ 106,222,357</td></tr> <tr><td>Pacific Salmon Foundation</td><td>\$ 101,449,777</td></tr> <tr><td>Pembina Institute + Foundation</td><td>\$ 84,182,986</td></tr> <tr><td>Habitat Conservation Trust Fund</td><td>\$ 78,761,460</td></tr> <tr><td>CPAWS</td><td>\$ 76,698,542</td></tr> <tr><td>Fraser Basin Council</td><td>\$ 70,982,750</td></tr> <tr><td>Canadian Climate Forum</td><td>\$ 68,756,446</td></tr> <tr><td>Ecotrust - Canada</td><td>\$ 49,524,387</td></tr> <tr><td>Equiterre*</td><td>\$ 44,893,420</td></tr> <tr><td>ForestEthics</td><td>\$ 43,181,576</td></tr> <tr><td>WC²</td><td>\$ 36,369,024</td></tr> <tr><td>Sierra Club - BC</td><td>\$ 24,482,904</td></tr> <tr><td>Raincoast Conservation Society</td><td>\$ 21,618,529</td></tr> <tr><td>Sierra Club Canada</td><td>\$ 17,453,039</td></tr> <tr><td>Wildlands League</td><td>\$ 15,307,701</td></tr> <tr><td>Alberta EcoTrust Foundation</td><td>\$ 14,733,779</td></tr> <tr><td>Wildsight</td><td>\$ 14,342,107</td></tr> <tr><td>Dogwood Initiative</td><td>\$ 12,694,471</td></tr> <tr><td>Canadian Environmental Grantmakers</td><td>\$ 3,774,309</td></tr> <tr><td>Land Trust Alliance - BC</td><td>\$ 2,600,627</td></tr> <tr><td>Climate Reality Project Canada</td><td>\$ 2,510,340</td></tr> <tr><td>Σ</td><td>\$ 11,184,360,503</td></tr> </tbody> </table>	Org	Revenue: 2000 - 2018	IDRC	\$ 3,552,093,750	Ducks Unlimited - Canada	\$ 1,760,621,215	Nature Conservancy Canada	\$ 1,452,308,191	Toronto and Region Conservation Authori	\$ 1,347,142,424	Tides (Foundation, Initiatives, Centre)	\$ 517,492,974	WWF - Canada + Foundation	\$ 431,531,955	Canadian Wildlife Federation + Foundati	\$ 285,128,766	IISD	\$ 285,043,742	David Suzuki Foundation	\$ 156,925,844	Greenpeace Canada*	\$ 143,845,385	BC Conservation Foundation	\$ 130,924,255	Nature Trust - BC	\$ 121,600,515	Land Conservancy of BC	\$ 109,160,956	Coast Conservation Endowment Fund	\$ 106,222,357	Pacific Salmon Foundation	\$ 101,449,777	Pembina Institute + Foundation	\$ 84,182,986	Habitat Conservation Trust Fund	\$ 78,761,460	CPAWS	\$ 76,698,542	Fraser Basin Council	\$ 70,982,750	Canadian Climate Forum	\$ 68,756,446	Ecotrust - Canada	\$ 49,524,387	Equiterre*	\$ 44,893,420	ForestEthics	\$ 43,181,576	WC ²	\$ 36,369,024	Sierra Club - BC	\$ 24,482,904	Raincoast Conservation Society	\$ 21,618,529	Sierra Club Canada	\$ 17,453,039	Wildlands League	\$ 15,307,701	Alberta EcoTrust Foundation	\$ 14,733,779	Wildsight	\$ 14,342,107	Dogwood Initiative	\$ 12,694,471	Canadian Environmental Grantmakers	\$ 3,774,309	Land Trust Alliance - BC	\$ 2,600,627	Climate Reality Project Canada	\$ 2,510,340	Σ	\$ 11,184,360,503
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7) Recommend to banks and insurance companies to finance and insure Canadian resource pipelines and resource development.

Insurance and finance are fundamental needs to support the safe operation of major corporations that provide essential energy services. [Unelected, unaccountable environmental groups are battering these industry sectors^{xxiv}](#) and putting Canadian society at risk of economic decline and potential power generation blackouts. Many banks, in an effort to mollify these reputational saboteurs, have made some kind of alliance with them or even financed their hare-brained schemes, such as RBC's contribution to the Great Bear Rainforest project driven by TIDES(MakeWay)/ForestEthics (now renamed STAND.Earth). As a reward for their efforts to cooperate, [RBC's reputation is now being shredded by Tzeporah Berman's "STAND.Earth"^{xxv}](#) a foreign-funded Canadian arm of the San Francisco-based operation, and operation that sits just a short distance from the Phillips 66 refinery that processes oil from competitor and despot nations! No protests there!

Clearly there is a Green Trade War going on against Canada and the Bank of Canada is in a position to do something about it.

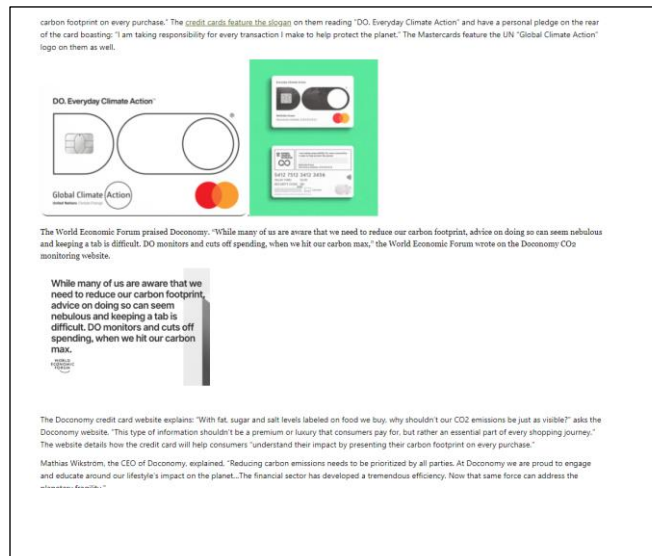
As the Bank of Canada, we believe you have an obligation to confront these economic saboteurs on behalf of Canadian taxpayers and citizens and stop these attacks, which you could advise/direct agencies to do through your own financial powers and those of the Competition Bureau.

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For instance, in the case of the beleaguered Trans Mountain Pipeline, it is clear that people in British Columbia are suffering high gasoline prices due to a combination of factors like the carbon tax, but also a shortage of supply. [Trans Mountain serves consumers^{xxvi}](#) – as detailed by energy economist Robert Lyman.

- 8) **War Measures Act for a “Climate Emergency” and Personal Carbon Ration?** We are deeply concerned at the intimation in a recent article in “[Metro](#)”^{xxvii} that some parties might be contemplating the implementation of the War Measures Act/Emergency Measures Act to address the alleged climate crisis, and [institute a personal carbon ration](#),^{xxviii} exploiting the

establishment of COVID tracing apps and ‘vax-ports’. We are concerned about similar promotions by others who promote a personal carbon ration (i.e., MasterCard’s DOconomy climate action card). The presence of these concepts in the media suggest they are moving into the Overton Window of political acceptability, despite being based on a greenwashing lie.



Before making environmental claims, businesses must make sure that the claims:

- **Aren't misleading or likely to result in misinterpretation**
- **Are accurate and specific:** claims that broadly imply that a product is environmentally beneficial or benign must be accompanied by a statement that provides support.
- **Are substantiated and verifiable:** claims must be tested and all tests must be scientifically sound, conducted in good faith and documented.
- **Are relevant:** claims must be specific to a particular product, and used only in an appropriate context. Claims must also take into consideration all relevant aspects of the product's whole life cycle.
- **Don't imply that the product is endorsed by a third-party organization when it isn't**

January 23, 2017 — OTTAWA, ON — Competition Bureau

[Carbon dioxide is not the control knob that can fine tune climate.](#)^{xxix} We expect you, as the Bank of Canada, to clarify these matters to the Canadian public, that such greenwashing is

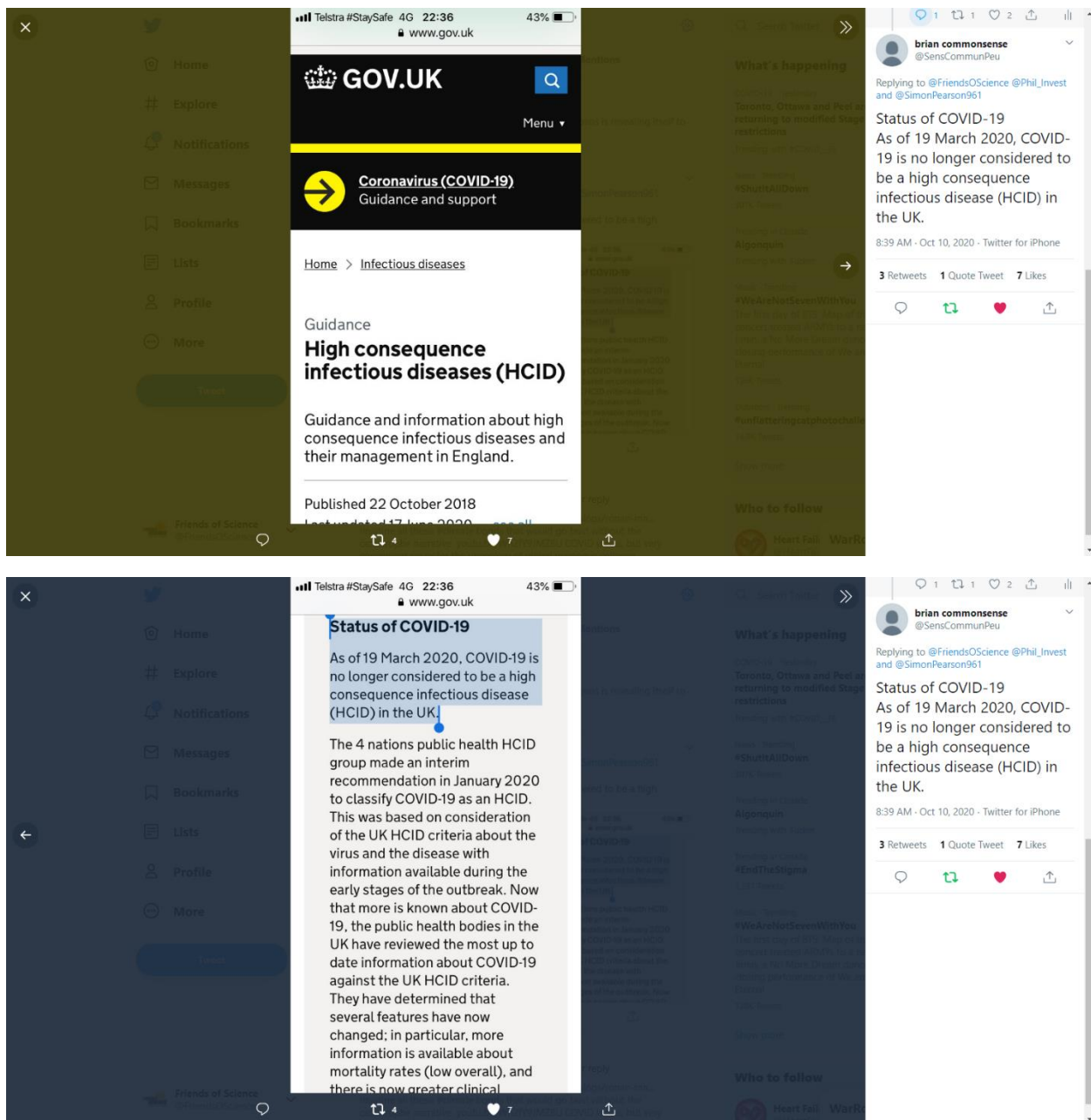
unacceptable and unscientific and that there is no need to implement the War Measures Act/Emergencies Act.

- 9) **Curious Correlation between Impossible Climate Aspirations of Fall 2019 and Fulfillment of Emissions Reductions by COVID Lockdowns of 2020-2021.** Further, we are deeply concerned that many of the climate goals expressed in this September 2019 document entitled “[Exponential Roadmap](#)”^{xxx} were effectively achieved by the COVID lockdowns of 2020, which were devastating to the Canadian economy. Perhaps you may have some insights on whether these influential parties had any role in the destruction of the Canadian economy and the economic slaughter of millions of us. Is it possible that climate interests, through the bond market or others, influentially capitalized on the economic challenges of late 2019 in the repo market and early 2020? Henri Lepage, French economist has noted that on Feb. 20, 2020, there was a [major financial market event](#).^{xxxi}

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On February 20, 2020, some yet unknown financial incident tipped the economy into a crash, one similar to the crash triggered by the events of August 2007. At that time, it took more than a year for the crash to produce its full effects. Enter the coronavirus, whose disastrous economic consequences became obvious after February 20. To what extent did the pandemic accelerate the crash? We will never know. What is quite exceptional is the telescoping of the two events: on the one hand, the pandemic, and on the other, a recession generated at the level of the global wholesale money market by a growing scarcity of collateral assets.

One week later, Mark Carney, then still Governor of the Bank of England, sent a letter to Rt. Hon. Mel Stride, Chair Elect of the Treasury Select Committee discussing climate risk assessments and the green bonds market (see Appendix I). A month later, global COVID lockdowns were declared, despite the fact that the UK, on March 20, 2020, had declared that COVID was no longer considered a High Consequence Infectious Disease.



Is the Bank of Canada aware of any undue influence by climate bond/catastrophe bond markets or other global financial powers on the implementation of the COVID lockdowns – perhaps to achieve the otherwise unattainable goals of the 2019 Exponential Roadmap? Science commentator Joanne Nova of Australia has long postulated that there would be a ‘sub-prime carbon meltdown’ as these markets are based on [‘the lack of delivery of an invisible substance to no one’](#).^{xxxii} Did the world experience a climate Tulip-O-Mania?

Following the publication of the “Exponential Roadmap”, the UNEP called for [“Cut global emissions by 7.6% a year every year for the next decade”](#)^{xxxiii} – and indeed, WEF reported that global emissions were cut by 8% due to lockdowns – but at the sacrificial price of millions of lives and dreams. As pointed out by Prof. Douglas Allen of Simon Fraser University, [lockdowns have caused between 4 to 282 times the harm](#)

[to people](#)^{xxxiv} than a more restrained and selective protective program for the more vulnerable. Consequently, it is a valid question to ask if climate interests were influentially behind the COVID lockdowns? Perhaps you can explore this and report back to Canadians. Obviously many climate activists and interests, see economy-wide [lockdowns as the 'cure' for climate](#)^{xxxv} – but as reported in this letter, there is no climate emergency, so no such measures are necessary.

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If indeed “The Bank of Canada Act instructs the Bank “to promote the economic and financial welfare of Canada” then it follows that the foregoing actions should be taken to protect the interests of Canadians.

We reiterate that our new report “[Fighting Climate Change: Can We Humans Regulate Earth’s Climate?](#)”^{xxxvi} should be required reading for all of your climate change/Net-Zero staff and we request that you open a public dialogue on the topic of climate change and ENGO interference and costs to the banking industry and to Canadians.

We would be happy to provide our expertise to aid this cause of establishing common sense climate and energy policies for Canadians.

Open, civil debate on these matters is of the utmost importance. We see now in the UK, where the public climate debate has been solely devoted to the green agenda, with BBC censoring skeptical views and The Guardian intentionally instituting ‘climate emergency’ language, power prices have now skyrocketed as there is no safety redundancy of reliable coal built into the UK power grid system. It is shocking to think that, going into winter in a modern, First World region, [food rationing is imminent due to poor public policy on climate and energy](#).^{xxxvii} Heat-or-eat poverty has already been [killing thousands](#)^{xxxviii} of people in the UK every year. Yet public debate about climate and carbon tax/energy policies has been actively censored there by the media, government, and climate dogma-compliant corporations.

These are life and death matters, Governor Macklem. This must not happen in Canada.

In the terrible history of famines in the world, no substantial famine has ever occurred in any independent and democratic country with a relatively free press. We cannot find exceptions to this rule, no matter where we look: the recent famines of Ethiopia, Somalia, or other dictatorial regimes; famines in the Soviet Union in the 1930's ; China's 1958-61 famine with the failure of the Great Leap Forward; or earlier still, the famines in Ireland or India under alien rule. China, although it was in many ways doing much better economically than India, still managed, unlike India, to have a famine, indeed the largest recorded famine in world history. **Nearly 30 million people died in the famine of 1958-1961, while faulty governmental policies remained uncorrected for three years.** The policies went uncriticized because there were no opposition parties in parliament, no free press, and no multiparty elections. Indeed, **it is precisely this lack of challenge that allowed the deeply defective policies to continue even though they were killing millions of people each year.**

- Amartya Sen, Nobel Prize for economics “Democracy as a Universal Value” (1999)

Sincerely,

Michelle Stirling
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BANK OF ENGLAND

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Dear Mel,

Thank you for your letter of 3 February 2020, regarding the financial risks from climate change. Your letter posed three sets of important questions:

- How transparent it is to consumers whether their savings are being invested consistent with a path to net-zero carbon emissions;
- How to manage climate-related risk, including those relating to potentially mispriced hydrocarbon assets; and
- How climate-related risks might be incorporated within capital regulation.

Reporting to consumers

Corporate disclosure is the foundation of reporting to consumers on whether their investments are consistent with a path to net-zero carbon emissions. In 2015, catalysed by the Bank of England, the Financial Stability Board set up a private sector Task Force on Climate-related Financial Disclosures (TCFD) to develop standards on climate reporting. The TCFD made its final recommendations to the 2018 G20 Summit in Hamburg, with a comprehensive disclosure standard that encompasses recommendations on governance, strategy, risk management, metrics and targets, including carbon emissions.

The TCFD has widespread and growing support. As of February 2020, more than 1000 organisations, representing a market capitalisation of over \$16.7 trillion and controlling assets of \$138 trillion, have pledged their support. It represents the best view of the private sector, capturing the opinions of the companies that must disclose in order to access finance and the providers of capital from across the financial system who increasingly use these metrics.

TCFD metrics and targets can help investors determine a firm's or a portfolio's exposure to climate-related risks and opportunities, and potentially its alignment with net-zero transition paths. The reporting therefore provides a base for banks, insurers, investors and supervisors to assess the consistency of their portfolios with the path to net-zero.

The question now is how to use the information that is reported under the TCFD to build a system where the alignment of portfolios to net-zero can be assessed and measured. The traditional approach has been for investors to follow some of the various Environmental, Social and Governance (ESG) ratings of companies. But with respect to climate change this has a range of shortcomings, including the huge variation in the measurement of ESG criteria, and the reality that approaches typically place low weights on environmental factors. In other words, the 'E' is dominated by the 'S' and the 'G'.

Taxonomies to identify environmental outperformance, such as the EU's Green Taxonomy and the Green Bond Standard, can help but they tend to be binary (either dark green or all brown). This can have the unintended consequences of excluding companies that are actively changing their business models for the transition. Mainstreaming sustainable investing for the whole economy will require a richer taxonomy – 50 shades of green – that can capture companies that are emitters today but have concrete plans to reduce emissions to net-zero in the future.

There are several ways that asset managers, pension funds and insurers could report the level of preparedness for the transition of a given portfolio:

- At the most basic level, the percentage of assets in a portfolio that comply with TCFD disclosure recommendations could be reported;
- A step further would be an assessment of the percentage of assets that are Paris-aligned (that is, are aligned to net-zero);
- To be clear, that would mean a net-zero target (for scope 1,2 and ideally scope 3 emissions), short term milestones for companies to track progress, details of governance (including potentially how executive compensation is tied to success, and comprehensive disclosure in line with the TCFD);
- And, at the most sophisticated end of the spectrum, are measurements that capture the 'degree warming' potential of the portfolio. These measure the quality of transition plans relative to the Paris goals. Companies with plans to reduce to net-zero emissions, or beyond, are rated at 1.5 degrees or below. Those that are not Paris-aligned will have a higher degree rating depending on how much their emissions exceed the Paris-consistent level. Some firms, like Axa and Allianz, have already voluntarily disclosed this information. They are now feeding into a TCFD group that is considering whether the warming potential of assets, or any other metric, is the best way to measure consistency with the transition to net-zero.

Managing climate-related risks

Since 2015 the Bank has been assessing and communicating how these changes will give rise to financial risks.

If commitments to net-zero are realised, many carbon-related assets will not be viable. At one extreme, the IPCC 1.5 degree report finds that no more than 349 Gt of carbon can be emitted, assuming a target probability of 66% for limiting the rise in global temperatures to 1.5°C. In contrast, proven oil and gas reserves contain approximately 510 Gt of carbon, and coal reserves another 425 Gt¹ - meaning that the combustion of *developed* oil and gas reserves alone would exceed the budget for 1.5 degrees of warming. According to a frequently cited academic study,² 80% of the world's known coal reserves, 30% of oil, and 50% of gas reserves are unburnable if emissions are to be consistent with keeping temperature rises below 2 degrees.

¹ http://ggon.org/wp-content/uploads/2019/12/GGON19_OilGasClimate_EnglishFinal.pdf

² McGlade and Ekins (2015), 'The geographical distribution of fossil fuels unused when limiting global warming to 2°C'

Some market prices have already begun to adjust. For example, the transition away from coal has resulted in the combined market capitalisation of the top four US coal producers falling by over 99% since the end of 2010. And studies have found that growing, undeveloped reserves have a *negative* impact on oil firms' value, particularly where assets are more carbon intensive to produce and deliver.³

In the absence of an early and smooth transition to a net-zero economy, the risks of a delayed but abrupt transition will rise. This could precipitate a sharp reassessment of asset values and of climate risks, destabilise markets, spark a pro-cyclical crystallization of losses, leading to persistent tightening of financial conditions a climate Minsky moment.

To ensure that the financial sector is resilient to such a scenario and can support a smooth transition that will avoid it, the Bank has been examining the risks that climate change poses to the safety and soundness of regulated banks and insurers. The Bank's approach was set out in detail in the PRA's April 2019 supervisory expectations for banks and insurers, which covered expected approaches to the integration of climate-related risks across governance, risk management, scenario analysis, and disclosures.⁴

The Bank has recently also launched a climate stress test that will run through 2021 to examine the resilience of the largest banks, insurers, and the financial system to different climate pathways.⁵ This pioneering exercise will require firms to investigate how their borrowers would cope with different scenarios, including one where a transition to a net-zero world is delayed and abrupt. This stress test will inform how risks and opportunities develop in the face of material carbon fluctuations at the firm- and system-level. Following the Bank's lead, 15 other central banks and supervisors around the world are now engaged in similar exercises.

Capital rules and brown penalising factors

The Bank of England's approach to setting capital requirements is determined by its statutory objectives for financial stability and for the safety and soundness of banks and insurers, as elaborated by the remits from the Chancellor to the Bank's Financial Policy and Prudential Regulation Committees. Consequently, the Bank takes a risk-based approach to setting capital requirements.

Where there is evidence that green assets are less risky, this can be factored into the internal models that banks use to set capital requirements. For example, analysis by colleagues at the Bank found that mortgages against energy-efficient properties are 18% less likely to be in payment arrears than mortgages against energy-inefficient properties.⁶ In general, however, absent explicit direction in its remit, the Bank would not advantage green lending in its risk-based supervision. Its approach would match the inherent riskiness of the assets. To do otherwise would be to mix climate policy with prudential policy.

The Bank is also examining the case for a brown-penalising factor that introduces additional capital charges on polluting and potentially risky activities. However, there are impediments to implementing such a measure, including: the lack of a universally accepted definition of brown and the tendency of definitions to focus on extremes, and most importantly the possibility of activities transitioning from brown to green over time. The adoption of a brown penalising factor is also hampered by the absence of data that allows us to measure the riskiness of an asset. This makes it harder to calibrate any impact and to justify adjustments to the capital framework.

³ Atanasova and Schwartz (2019), 'Stranded fossil fuel reserves and firm value'

⁴ <https://www.bankofengland.co.uk/prudential-regulation/publication/2019/enhancing-banks-and-insurers-approaches-to-managing-the-financial-risks-from-climate-change-ss>

⁵ <https://www.bankofengland.co.uk/paper/2019/biennial-exploratory-scenario-climate-change-discussion-paper>

⁶ <https://www.bankofengland.co.uk/working-paper/2020/does-energy-efficiency-predict-mortgage-performance>

To address this, the Bank is feeding its own research and thinking into the group of around 50 central banks and supervisors that are part of the Network on Greening the Financial System's review of the quantification of risk differentials. The 2021 climate stress test will also provide additional data on the links between climate risks and write-downs for different types of assets.

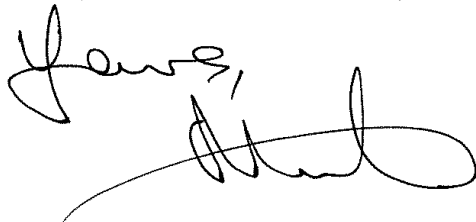
Potential role for legislation

As support for TCFD is widespread and growing across the financial sector, we are approaching the point when TCFD disclosures need to become mandatory.

Other jurisdictions are starting to move in this area – in France, Article 173 has required reporting on environmental issues for several years, and under its Green New Deal, the EU is investigating how best to integrate climate disclosures, such as into the Non-Financial Reporting Directive⁷. In co-hosting COP with Italy this year, the UK has made it a priority to work with the FSB, other international bodies like IOSCO, the IFRS and other countries to establish pathways towards mandatory disclosure through international standards and national regulation or legislation.

The pathway to mandatory reporting in the UK can build on steps taken already by the Financial Conduct Authority (FCA) and Department for Work and Pensions (DWP). The FCA are due shortly to consult on new climate-related financial disclosure rules for certain issuers aligned with the recommendations of the TCFD. And the DWP have introduced an amendment to the Pensions Bill to require pension funds to disclose their strategies for managing climate change under the TCFD.

I hope the information set out in this letter addresses your questions relating to the Bank's work on climate-related financial risks. My colleagues and I will, of course, respond to any further questions the TSC may have in this critical area at an important time.



⁷ https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2020-580716_en

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- ⁱ <https://clintel.org/>
- ⁱⁱ <https://blog.friendsofscience.org/2021/09/07/fighting-climate-change-can-we-humans-regulate-earths-climate/>
- ⁱⁱⁱ <https://www.bankofcanada.ca/2021/05/financial-system-review-summary-2021/>
- ^{iv} <https://open.alberta.ca/dataset/a73f7285-020d-41d1-af5f-cf54faa381f1/resource/add3bd4b-5465-4797-bb09-64f8bdb1231e/download/flattopcomplex-wildfirereviewcommittee-a-may18-2012.pdf>
- ^v <https://friendsofscience.org/assets/documents/Alberta%20Climate%20Future%20rebuttal.pdf>
- ^{vi} <https://open.alberta.ca/publications/albertas-climate-future-final-report-2019>
- ^{vii} <https://www.nature.com/articles/s41558-020-00984-6>
- ^{viii} <https://blog.friendsofscience.org/2020/10/23/slate-climate-crusade-against-the-public-good/>
- ^{ix} <http://dpi-proceedings.com/index.php/dtcse/article/view/23704>
- ^x <https://judithcurry.com/2020/08/25/new-confirmation-that-climate-models-overstate-atmospheric-warming/>
- ^{xi} <https://infotel.ca/newsitem/logan-lake-has-written-the-fire-smart-playbook-for-other-cities-towns-to-follow/it85265>
- ^{xii} <https://www.science-climat-energie.be/2021/08/27/temperatures-extremes-et-foehn-demonter-le-mythe-des-domes-de-chaleur/>
- ^{xiii} https://www.amazon.ca/Rightful-Place-Science-Disasters-Climate-dp-0999587749/dp/0999587749/ref=dp_ob_title_bk
- ^{xiv} <https://www.artemis.bm/news/climate-change-could-take-18-off-global-gdp-warns-swiss-re/>
- ^{xv} <https://www.science.org/news/2021/07/un-climate-panel-confronts-implausibly-hot-forecasts-future-warming>
- ^{xvi} <https://www.amazon.ca/Delinquent-Teenager-Mistaken-Worlds-Climate-ebook/dp/B005UEVB8Q>
- ^{xvii} <https://blog.friendsofscience.org/2019/09/18/pay-up-say-china-and-india/>
- ^{xviii} <https://blog.friendsofscience.org/wp-content/uploads/2020/08/Protest-vs-Green-Trade-War-rebutting-Enviro-Defence-FINAL-Aug-17-2020.pdf>
- ^{xix} <https://blog.friendsofscience.org/2021/02/12/dirty-lies-about-oil-sands-crude-clearing-the-air-on-carbon-intensity/>
- ^{xx} <https://www.sciencedirect.com/science/article/abs/pii/S2214629620304655>
- ^{xxi} <https://www.schoolofpublicpolicy.sk.ca/research/publications/policy-brief/what-we-need-to-know-about-the-pace-of-decarbonization.php>
- ^{xxii} <https://blog.friendsofscience.org/2021/09/11/leaders-debate-obsured-the-facts-on-energy-and-consisted-of-climate-dogma/>
- ^{xxiii} https://web.northeastern.edu/matthewnisbet/wp-content/uploads/2018/05/Nisbet2018_ClimatePhilanthropy_WIREsClimateChange_Final.pdf
- ^{xxiv} <https://blog.friendsofscience.org/2018/02/21/unfriend-engos-befriend-facts/>
- ^{xxv} <https://financialpost.com/opinion/terence-corcoran-hey-bankers-hows-that-esg-thing-going-for-you>
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- ^{xxvii} <https://journalmetro.com/societe/environnement/2686632/mesures-urgence-lutte-changements-climatiques/>
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- ^{xxxii} <http://climatechange101.ca/wp-content/uploads/2021/03/Conning-the-Climate.pdf>
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- ^{xxxiv} <http://www.sfu.ca/~allen/LockdownReport.pdf>
- ^{xxxv} <https://www.marketwatch.com/story/we-need-to-act-boldly-now-if-we-are-to-avoid-economy-wide-lockdowns-to-halt-climate-change-11600879250>
- ^{xxxvi} <https://blog.friendsofscience.org/2021/09/07/fighting-climate-change-can-we-humans-regulate-earths-climate/>

^{xxxvii} https://www.thegwpf.com/green-britain-faces-food-shortages-as-energy-crisis-shuts-down-factories/?mc_cid=8f620249a5&mc_eid=7679c5335e

^{xxxviii} <https://www.independent.co.uk/news/business/news/cold-weather-uk-winter-deaths-europe-polar-vortex-a8224276.html>