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Cowichan Bay, BC, V0R1N2
March 17, 2025

The Rt Hon. Prime Minister Dr. Mark Carney
House of Commons
Ottawa, ON, K1A 0A6

Subject: Revision of Climate Plan to help elect a Liberal government

Dear Rt Hon Prime Minister Carney:

We congratulate your impressive election as Liberal party leader, and we believe you were the best choice.

We are four scientists deeply concerned about our deteriorating environment and climate, fostered by extreme, ill-informed inclinations and actions among some North American leaders. We understand and support your intention to focus on the economy, especially in view of President Trump's threats to Canada, with destructive tariffs and his stated intent to annex our country. We are writing this letter because we want a healthy country and world, and we offer our support for doing the right things. We are confident that you realize that the longer-term climate crisis will negatively affect our economy and every aspect of life, long after Trump's term.

The four of us collectively have more than 200 years of combined training, expertise and experience in climate and related health issues, as per our brief biographical sketches in **Appendix I.** We are all members of the Canadian Association for the Club of Rome (CACOR, a non-governmental organization dedicated to intelligent debate and action on global issues), including Strong, climate scientist, former national President 2006-07 of Canadian Meteorological and Oceanographic Society (CMOS); van der Jagt, member CACOR and PCN Boards, 28 years as clinician/scientist addressing hematologic malignancies linked to adverse environments and climate; Sears, trained in chemical engineering and working in environmental health, and chairs Prevent Cancer Now (PCN); and Hunter, who designed and constructed the *Manotick Microgrid* of renewable energy in Ottawa.

Our combined expertise in climate and health convinced us to point out errors in the present climate plan, strictly from a scientific perspective. We are bold to suggest that the federal government carry out a 'phased' withdrawal of subsidies to fossil fuels, redirecting those to small businesses, public groups and municipalities who wish to develop small ***mesogrids* of renewable energy** at local (municipal) scales. The details of these errors, suggested revisions, and benefits are briefly explained in the background **Attachment**, and are backed up by our published articles listed in **Appendix II**. Briefly, the six items which we feel should be dropped are: **1)** planting **billions of new tree seedlings** to sequester CO_2 as counter to carbon emissions; **2) carbon pricing**; **3) the carbon tax**, which we thankfully note you dropped for consumers on your first day as Prime Minister; **4) setting caps on carbon emissions**; **5)** additional **funding for pipelines** and **subsidies** to fossil fuels; **6) Carbon Capture and Storage (CCS)**, perhaps the greatest deception used by the fossil fuel industry on governments.

Sincerely yours,

***Geoff Strong*,** PhD, Atmospheric/Climate Scientist, Cowichan Bay, BC
Richard van der Jagt, MD, FRCP, Adjunct Prof. of Medicine, U of Ottawa, Ottawa ON
Meg Sears, PhD, Chair, Prevent Cancer Now, Ottawa ON
***Art Hunter*,** PhD, M.Eng, Hypersonic Aerodynamics, Ottawa, ON

cc: The Hon. Terry Duguid, Minister Environment and Climate Change
The Hon. Joanne Thompson, Minister Fisheries, Oceans and the Canadian Coast Guard
The Hon. Jonathan Wilkinson, Minister Energy and Natural Resources
The Hon. Anita Anand, Minister Innovation, Science and Industry

APPENDIX I - Biographical Sketches

G.S. (Geoff) Strong, PhD
Atmospheric/Climate Scientist, Cowichan Bay, BC

Geoff has been involved in weather and environmental issues for over 60 years. He is an atmospheric/climate scientist by profession, earning his PhD (1985) on multiscale thunderstorm dynamics at the University of Alberta (UofA). He is a 50-year member of the Canadian Meteorological & Oceanographic Society (CMOS), a Fellow of and former national President of CMOS (2006-07), and has received several awards from that society. His professional career included being a weather forecaster for ECCC (1966-76), research scientist with ARC Edmonton (1976-88), and research scientist with ECCC, Saskatoon (1988-98) where he officially retired, and independent researcher since 1998. He has chaired local CMOS Centres in Halifax, Saskatoon, Edmonton, and Victoria, is an active member of the Canadian Association for the Club of Rome (CACOR), and sits on the Board of Prevent Cancer Now (PCN).

In retirement, Geoff instructed weather and climate courses at UofA and Kings University in Edmonton, and VIU in Nanaimo. He continued field research on thunderstorms, evaporation, and drought, and supervised several graduate students at UofA using research contract funding (1998-2005). In 2001, he turned attention to the risks of climate change, and takes every opportunity to provide public information on climate threats, giving invited talks, writing media articles, several 'novels' on climate change, and advocating three levels of government on climate mitigation.

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Art Hunter, PhD
Hypersonic Aerodynamics, Ottawa, ON

- **Aerospace Innovation:**
  - Contributed to Telesat Canada's Anik A1, the world's first domestic geosynchronous communications satellite.
  - Managed critical subsystems for the Communications Technology Satellite (CTS), focusing on deployable solar arrays.
  - Served as the Canadian Project Manager for NASA's Space Shuttle Canadarm at the National Research Council, steering one of the most iconic space technologies.
- **Sustainable Energy Leadership:**
  - Designed, operates, and continuously modernizes the *Manotick Microgrid* since 2016.
  - Integrated cutting-edge components like rooftop solar arrays, home battery storage, a ground source heat pump, and electric vehicles into a smart energy system.
  - Earned top government inspection ratings for enhancing passive energy retention.
- **Academic and Professional Credentials:**
  - Holds an Hon B.Eng. from the Royal Military College.
  - Earned a Ph.D. in hypersonic aerodynamics from the University of London, Imperial College.
  - Extensive consulting experience and a background in research across universities, private companies, and government institutions.
- **Thought Leadership:**
  - Active member of the Canadian Association for the Club of Rome.
  - Authored a book on investing, further showcasing a diverse skill set beyond engineering and sustainable energy

Richard van der Jagt, MD, FRCP,
Adjunct Prof of Medicine, U of Ottawa, ON

Richard obtained his Medical Degree (1983) from McMaster U, Internal Medicine fellowship (McMaster), followed by hematology fellowship at U of Toronto. He completed training in bone marrow transplantation on a Canadian Cancer Society fellowship at the world's largest bone marrow transplant center (Fred Hutchinson Center in Seattle working under the auspices of the Nobel Prize winner and founder of the technique along with other leading scientists. He then helped develop the stem cell transplant program at the Ottawa Hospital. He also founded and chaired the CIHR funded Canadian Leukemia Studies Group (CLSG) for 15 years. This group was a collaboration of 22 centers in the Canada and the US and was one of the first clinical research groups to adopt remote data entry and standardized contracts. Based on this success and the assistance of a steering committee, he helped developed the vision and plan for the existing Canadian Clinical Trials Coordinating Centre (CCTCC) during a 12-year period, eventually receiving the support of the former Senator Ogilvie, the pharmaceutical industry. and CIHR. He sits on the Boards of the environmentally oriented Canadian Association for the Club of Rome (CACOR) and Prevent Cancer Now (PCN). He spent 28 years dealing with malignancies, many of which were likely triggered by environmental exposures and climate change.

In the past 7 years, Richard turned his attention to the effects of climate change on health. He has been spearheading an attempt to encourage the new Ottawa Hospital campus to adopt a clean energy approach, making it safer for area residents and saving the hospital money. He is also leading an effort to persuade a developer in Manor Park (Ottawa) to transition to green energy at the community hub and eventually a proposed Manor Park Estates expansion . This could provide a model for change for similar projects nationally.

Richard has published many articles relating to his clinical research, and on energy, climate change and health in the *CMOS Bulletin SCMO*, *National Observer, The Hill Times*, and is now part of a steering committee to develop a CIHR funded national institute for planetary health and well-being society.

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Meg Sears, BASc, MEng, PhD
Environmental Medicine, Chair, Prevent Cancer Now, Ottawa, ON

Meg trained in Chemical Engineering and Applied Chemistry (UofT) and Biochemical Engineering (McGill), working in Microbiology, National Research Council. With young children, she led local environmental initiatives on natural assets and land use planning, and to reduce pollution (e.g., pesticides in urban areas). With medical researchers, she drafted and edited pediatricians' research, and participated in large systematic reviews. She led a CIHR-funded project on arsenic, cadmium, lead and mercury, authored peer-reviewed publications, and edited special editions of medical journals encompassing sources, effects, and policy and medical approaches to prevention of harms from toxic exposures. She has also published in popular press. Meg now leads Prevent Cancer Now, and collaborates with numerous national and international groups to prevent intergenerational harms and diseases, and to improve environmental health. She also advocates for CIHR funding for environmental health. Climate chaos is the single largest, multifaceted, tragic, and *theoretically* preventable environmental disaster of our day.

APPENDIX II – Published Articles

Internet links for published editorials evaluating five key processes in Canada's Climate Plan, with its focus on continuing fossil fuels through 2050.

1. Dec. 12, 2009 - Edm. Journal - *Climate Change is no Hoax* – G. Strong, Hans Machel, and Julian Brimelow.
2. July 6, 2023 - The Hill Times, Canada Needs a Research Institute on Environment, Health, and Well-being, Trevor Hancock, Richard van der Jagt, Chris Buse, and Meg Sears - https://www.hilltimes.com/story/2023/07/05/canada-needs-a-research-institute-on-environment-health-and-well-being/391843/
3. July 13, 2023 - The Hill Times - *Misconceptions of what 'net-zero emissions' actually means will have dire health impacts* - Strong and van der Jagt. https://www.hilltimes.com/story/2023/07/13/misconceptions-of-what-net-zero-emissions-actually-means-will-have-dire-health-impacts/392720/
4. Aug. 10, 2023 - The Hill Times - *The Futility of Carbon Capture and Storage (CCS)* - Strong and van der Jagt. https://www.hilltimes.com/story/2023/08/10/the-futility-of-carbon-capture-and-storage/394864/
5. Jan. 08, 2024 - The Tyee - *Don't Give Up on the Electric Car Dream* - Leury, STRONG , and Hunter.
6. May 14, 2024 - CMOS Bulletin SCMO - *A Way Forward on the Climate Crisis* - Strong and van der Jagt. https://bulletin.cmos.ca/a-way-forward-on-the-climate-crisis/
7. May 22, 2024 - Hill Times - *Why common mitigation efforts are not solutions to the climate crisis* - Strong and van der Jagt. https://www.hilltimes.com/story/2024/05/15/why-common-climate-mitigation-efforts-are-not-solutions-to-the-climate-crisis/421897/
8. May 22, 2024 - Hill Times - *The way forward on the Climate Crisis*. Strong and van der Jagt. https://www.hilltimes.com/story/2024/05/22/the-way-forward-on-the-climate-crisis/422550/
9. June 19, 2024 - National Observer - *Using small microgrids to help restore a healthy planet* - Strong and van der Jagt. https://www.nationalobserver.com/search?k=Using+small+microgrids+to+help+restore+a+healthy+planet+
10. July 4, 2024 - National Observer - *Would our next prime minister look after the environment* - van der Jagt, Hollins, and Strong. https://www.nationalobserver.com/2024/07/04/opinion/canada-next-prime-minister-look-after-environment
11. Nov. 4, 2024 - Hill Times - *Climate change barrier between the public and government MPs* - . https://www.hilltimes.com/story/2024/11/04/the-climate-change-barrier-between-the-public-and-government-mps/440015/
12. Mar. 6, 2025 - Hill Times –*Carbon Capture, Utilization, and Storage will not help Mitigate the Current Climate Crisis* - Strong, Sears, and van der Jagt (pending publication).

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Errors in Canada's Climate Plan, Suggested Revision and Benefits

Geoff Strong, Richard van der Jagt, Meg Sears, and Art Hunter

The authors are professional scientists who conduct research and advocacy on climate change and related health issues. We identify here some overlooked factors in Canada's climate plan that render some of the proposed mitigation efforts inherently wrong, which can only lead to failure. We are strongly motivated to explain these errors, and to suggest a new pathway to revise the plan. The revised plan would provide additional assistance to speed up current developments of *microgrids*[1] and/or *mesogrids*[2] of clean, renewable energy at municipal scales. Businesses, industry and municipalities would be encouraged to convert fossil fuel systems to electric systems during major maintenance periods, gradually reducing local demand for fossil fuels, allowing market forces to determine supply, ultimately reducing carbon emissions by over 95% within the next 15 years.

Present Climate Plan

Most agree that the first objective (of two) for mitigating global warming is to reduce carbon emissions from burning fossil fuels as soon as possible. Unfortunately, Canada's climate plan contradicts that main objective by emphasizing a continued role for fossil fuels well beyond 2050. Current Canadian carbon emissions exceed 700 MT (700,000,000 tonnes) of CO_2 per year, while global emissions are now near 40 GT (40,000,000,000 tonnes); 60 GT when all greenhouse gases (GHGs) are included. The present plan focuses on countering annual carbon emissions through the seven processes listed below. We have shown (in published articles - see **Appendix II,** and numbered with superscripts in the list) why processes 1-6 will not counter annual carbon emissions. Relying on these virtually guarantees that **the climate plan will fail.**

We summarize the six errant processes, plus a seventh useful one as follows:

1) **Planting billions of tree seedlings**[6,7,9] to sequester carbon dioxide from the air through normal photosynthesis: This cannot possibly counter annual emissions significantly because trees do not appreciably sequester carbon before they are 10-20 years old, maximizing at tree maturity in 50-100 years. Sequestering current excess atmospheric CO_2 with trees would require centuries, so tree planting will be important for helping to reduce atmospheric CO_2 `concentrations, currently at 430 ppm, to down below 350 ppm. It's important to realize that global warming in any given year is not caused by carbon emissions in that year, but by the cumulative emissions of the last 100 years. Thus, even if emissions were stopped immediately, the climate would continue to warm indefinitely, making the drawdown of atmospheric GHGs the second major objective. We must count on future technology being developed, together with Earth's trees, to help reduce the existing atmospheric component.
2) **Carbon pricing**[6,7,9]**:** Environment and Climate Change Canada (ECCC) reported in Sep. 2024 that emissions fell by (an insignificant) 0.7% during 2023. At that rate, it would take until 2039 to reduce carbon emissions by just 10%. The current plan calls for a 45% reduction by 2030.
3) **Carbon Tax**[6,7,9]**:** The tax will not result in reduced driving and emissions for consumers if you just consider that annual fuel price increases by the fossil fuel industry of $0.30 to $1.00 per litre between December and June every year do not result in reduced driving by Canadians. Thus, a small carbon tax increase on April 1st, amounting to about $0.033/litre, is unlikely to affect the public's driving.

[1] Microgrid – we define this as a combination of renewable systems attached to a single household.
[2] Mesogrid – a combination of renewable systems serving more than one household, a subdivision, or small municipality.

4) **Setting caps on industry emissions[6,7,9]:** Government cannot possibly monitor all emissions from thousands of sources. Keeping track of these is a nightmare, and caps are not worth the effort.

5) Additional **funding for pipelines** and **subsidies** to fossil fuels: It should be clear that if we can successfully reduce carbon emissions by 2040, there should then be no need for any new pipelines (unless those were for water to drought-stricken communities). Moreover, in the interest of global emissions, we should not be exporting oil/gas by then. Curtailing subsidies to fossil fuels is a given.

6) **Carbon Capture and Storage (CCS)[4,6,7,9,12]:** This is undoubtedly the greatest deception manipulated by the fossil fuel industry on governments all over the globe. They claim that CCS can successfully counter carbon emissions, but their reports are usually misleading. Many claim they can capture between 100,000 to 1,000,000 tonnes of CO_2 per year, but available data to date show much less success. Moreover, they do not account for emissions released in operating the CCS. There are fewer than 30 'operational' CCS facilities in the world and only two in Canada at present, despite fossil fuel industry claims to the contrary. Most report CO2 capture rates are well under 1 million tonnes per year. With Canadian emissions of 700 MT from thousands of sources, it is not feasible to counter more than a tiny fraction of the CO2 (two million of 700 million tonnes, or less than 0.3%). Besides this, virtually all fossil fuel sources with capture facilities transport the captured CO2 and pump it beneath inefficient oil/gas wells to improve their production, with little attention paid to how fast that CO2 may find its way back to the atmosphere, nullifying the assumed intent.

7) **Electrifying all surface transportation by 2035 (EVs)[5,6,7]:** This is one of the few positive items in the climate plan. More than 25% of all carbon emissions in North America have transportation as their source, with at least 20% of this from surface transport. Electrifying all surface transportation (from cars, trucks, and trains) would result in almost a 20% reduction in emissions.

Items 1-6 were intended mainly to counter current carbon emissions, but they allow carbon emissions to continue '*business as usual*' through 2050 and beyond, contradicting the claim to be reducing emissions. While item 7 (electrifying surface transportation) can result in a 20% reduction in annual emissions, 1-6 collectively can only provide miniscule reductions.

A Revised Climate Plan

We implore the federal government to carry out a 'phased' withdrawal of subsidies and support to fossil fuels, redirecting those to small businesses, public groups and municipalities who wish to develop ***mesogrids* of renewable energy** at local (municipal) scales. This would not plunge Canada into economic distress because the phase-in would be gradual, and it can be accomplished within a few years, not decades. Regions where energy is supplied by nuclear reactors could also phase-in renewables as reactors reach their end-of-life. The bottom line should be not to approve any new oil/gas drilling, and not to develop new nuclear facilities that could become serious liabilities in the event of a nuclear accident or a future war. Besides this, renewable energy systems can be implemented much faster and are cheaper than any other energy source.

All levels of government can persuade local businesses and industry to convert to full electric energy at times of major maintenance, which, given the financial benefits and energy security, should not be a difficult conversion for most. Federal and provincial governments can provide retraining of fossil fuel workers to switch into renewable energy jobs. Governments also need to cooperate on upgrading major electric grids, and adding EV charging stations, aligning the grids mostly west to east rather than the present north-south. We also implore the government to pass the Senate's Climate Aligned Finance Act (Bill S-243 sponsored by Senator Galvez) . This would have a net effect of redirecting investment into renewable energy.

Benefits of Converting to Renewable Energy

Some of the benefits of renewable energy are listed here:

- Developing renewable energy projects locally where they do not conflict with fossil fuel activities.
- Marked reductions in GHGs (CO_2, CH_4, N_2O) and of atmospheric pollutants (CO, SO_2, NO_X, and PM2.5 particles) all released simultaneously from burning fossil fuels.
- *Microgrids* and *mesogrids* of renewables can be expanded without disrupting the flow of electricity.
- Renewable energy grids are cheaper, and implementation is faster than any other form of energy.
- Renewable energy systems require less maintenance and provide less expensive retail energy.
- A mixture of two or more renewable types (*solar, wind, geothermal, hydroelectric*, or *tidal/wave* energy) in a *mesogrid*, and linking *mesogrids* together provides reliable energy security.
- A major focus on developing renewable energy would give the economy a surge not seen since WW II.
- Canada-wide renewable energy would boost inter-provincial cooperation, since all provinces and territories can have equal access to renewables, minimizing the economic monopolies of fossil fuels (Alberta, Saskatchewan), British Columbia forestry, or Ontario nuclear energy and manufacturing, and the vagaries of international trading barriers and tariffs for export/import of fossil fuels and electricity.
- Governments could pay more attention to new technology for drawdown of atmospheric CO_2 from the present 430 ppm to below 350 ppm, possibly avoiding the catastrophe of reaching a tipping point in global warming, thought to be close to 2ºC warming, when nature could cause a rapid increase in rates of warming, reaching 3-5ºC in this century, resulting in catastrophic losses of life and infrastructures.
- Help alleviate the World Health Organization finding that air/water pollutants from burning fossil fuels cause more than eight million deaths per year globally, making it the greatest public health threat!
- Canada could become a true world leader on the climate crisis without any pretense.

Experience of other Regions

The success of renewable energy in other regions should be noted. For example, Texas, arguably the centre of global fossil fuels, regularly breaks new records for implementation of solar, wind, and battery storage facilities. Los Angeles plans to be fully electric by 2050. Norway, a fossil fuel rich nation generates more than 98% of its energy from renewable sources. Morocco on the edge of the Sahara Desert, is building one of the world's largest concentrated solar power plants. Bangladesh in the subtropics is home to the world's fastest expansion of solar energy, with 3.5 million homes or 18 million citizens now having electricity thanks to solar home systems. Other subtropical countries are rapidly moving into solar and wind energy simply because they cannot afford fossil fuels, giving their countries an economic boost as well.

Comparative Costs of Fossil Fuel Energy and Renewables

A recent extensive study of 149 countries determined that the annual costs of fossil fuel energy in terms of fuel, health and climate exceeded that of renewable energy using wind, water, and solar by a factor of more than 10 times. And of course, with 100% renewable energy, there are no health costs. They concluded that policies promoting CCS and DAC should be abandoned along with subsidies for same.

How About Canada?

Canada's current climate plan, ostensibly to permit fossil fuel energy indefinitely, also allows continued air pollution and tremendous health costs, while paying only lip service to renewable energy development. This desperately needs a complete revision. Note that Canada currently spends $372 billion annually on health care, and that is doomed to increase rapidly with continued emissions of both GHGs and air pollutants from the same sources. Even developing countries leave us behind in this area. Our continued use of fossil fuels at current rates will eventually destroy the Canadian economy AND Canadian public health.

A revised focus on renewable energy would go hand in hand with our new government's intention to concentrate on the economy, for **the development of renewables presents a new industry that will result in an economic boom**. More importantly, Canadians will be able to breathe clean, fresh air once again. We implore our new government to revise tactics to accept the challenge of converting Canada's energy over to renewable clean electric energy.