

3 December 2018

Dear Prime Minister Trudeau, Leaders of the Opposition and Provincial and Territorial Premiers:

We, four of Canada's most senior environmental scientists, believe it is our duty to urge you and other political leaders to take seriously the findings of the recent IPCC report on climate warming, and its implications for Canada. The report indicates that detrimental effects of climate change are already occurring, and will worsen much more quickly than believed in the past.

The new report compares in some detail the impacts of the two alternate targets proposed by the Paris Accord, limiting increases in average global warming to 1.5 or 2 degrees C. The impacts of two degrees of warming would be much more severe than only 1.5 degrees of warming, with devastating increases in extreme weather, and long-term changes to the oceans, the forests, the arctic, to biological diversity, and to the economies that support human populations. It is noteworthy that Earth has already warmed by an average of 1 degree C as a result of human activity, and the 1.5 degree threshold will be reached by 2040, under current emissions.

It is noteworthy that large northern land masses have warmed much faster than these global averages. Much of Canada has already warmed by 1.5 C degrees, and temperatures are continuing to rise. In order to minimize damage to Canada's society, ecology and economy, strong action must be taken in the next few years. There is no time for the "transitional economies" that some have touted to pacify fossil fuel interests by investing in still more fossil fuel infrastructure. We need to devote all available resources to develop alternative energy sources now.

The vast majority of earth and environmental scientists in all countries now agree that climate warming, accelerated by human emission of greenhouse gases like CO<sub>2</sub> and methane, is amplifying weather events, making hurricanes more powerful, and droughts and floods more extreme. In addition it is melting glaciers, acidifying the oceans, promoting sea level rise, causing increased incidence and intensity of forest fires, and making detrimental changes to biological habitats, including those of commercially important species.

We have already seen many of the changes predicted by earlier IPCC reports. Changes that have affected Canada include forest fires of increasing number, size and intensity, as in Alberta in 2016 and British Columbia in 2017 and 2018. These have devastated Fort McMurray, crippled the forest-based economy, tripled the annual emissions of greenhouse gases from the province of BC, and produced severe human health effects via poor air quality that has been worse than in industrial China for many weeks each year. We have also seen more extreme

weather, with increased prairie drought, as in the early years of the new millennium, and more extreme floods, such as in Canmore, High River and Calgary in 2013. Increasing greenhouse gases are predicted to cause such events to become even more extreme.

Warming and acidifying oceans that border Canada are producing fewer salmon, and warming is enhancing blooms of harmful algae in lakes. Melting ice and permafrost are making transportation and building more difficult and costly in Canada's North, and jeopardizing the livelihoods of Indigenous peoples. Farther south, more intense hurricanes, droughts and storms are occurring, just as the IPCC predicted in earlier reports.

The new IPCC report was a massive undertaking, comprising three years of work by more than 130 authors, synthesizing over 6,000 scientific references and fielding over 42,000 comments during the extensive peer review process. It is not a scam invented by a few, as some climate change deniers would like us to believe. The science is as sound as that upon which nuclear power and space travel are based, and studies that show that tobacco causes lung disease. To ignore the IPCC's report is to ignore the warnings of thousands of scientists and jeopardize our country, our way of life, and the biodiversity of life on our planet. Some have claimed that we must wait for other countries with larger greenhouse gas emissions to commit first to reductions. This is contrary to Canada's tradition of global leadership. Canada led the world with the first science-based policies to control the inputs of phosphorus that cause algal blooms in the Great Lakes and other freshwaters. The rest of the world quickly followed our lead. Canada was also the first country to reduce the emissions that caused acid rain. The USA and Europe again followed our leadership, saving thousands of lakes and forests. Neither of these actions had negative effects on the economy, despite claims to the contrary by vested interests, and both caused significant recoveries of affected resources. Canada led protecting the stratospheric ozone layer by hosting the Montreal Protocol, with benefits for ecosystems and for human health. In short, the world looks to Canada for leadership, because of our reputation for sound, science-based environmental policy. Following the Paris Accord, Canada made strong statements in favor of the 1.5 degree warming target. We cannot fail to do what we are asking other countries to do. We must not fail to lead in curbing global warming.

As the effects of climate warming unfold, the overall effect on the economy and the environment will be as devastating as a slow-moving international war. We must treat the threat to Canada with this in mind. In any functioning democracy, it is customary for political parties to set aside their differences at such times in order to address a threat that jeopardizes the future of its citizens. This is such a time, and we call on federal and provincial leaders to cooperate in reducing emissions of greenhouse gases with the greatest possible haste. A crisis of this magnitude transcends political bickering and demands a full commitment from all citizens and all industries.

We must not be afraid to confront the truth. Action to reduce greenhouse gases must be taken now, or the effects of climate change will prevent us from securing the future that we want for our descendants.

Sincerely,



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