

Climate change is a real and present danger

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With the UN Climate Change Conference set for Cancun later this month, the Senate's decision to kill a private member's climate-change bill is regrettable. This action was expected, given that the federal government has been opposed to meeting Kyoto commitments and did not advocate binding targets on carbon emissions at the last round of talks in Copenhagen.

There are some people who do not believe that global warming is a reality, others who have vested interests in the status quo, and others who do not appreciate the science. In a Gazette opinion piece ("The Senate was right to kill the climate change bill," Nov. 19), Tom Harris stated that "We simply do not know if there is significant anthropogenic global climate change happening now, or whether it will happen in the foreseeable future, let alone whether or not it might be 'dangerous'." We can forgive Harris any confusion about the science. Our knowledge about climate change is changing rapidly because new results come in daily, and none are good news. These data can also be confusing because on a personal level, it is difficult to appreciate that our planet is heating up. Harris's opinion might reflect his personal reality but it is very wrong on almost all accounts. Here are five hard facts:

- | The concentrations of the principal greenhouse gases have increased dramatically since pre-industrial times: Carbon dioxide has increased by about 138 per cent, nitrous oxide by 116 per cent, and methane by 250 per cent. **Erratum:** This sentence should have read: "*The concentrations of the principal greenhouse gases have increased dramatically since pre-industrial times: carbon dioxide has increased by about 38%, nitrous oxide by 16%, and methane by 150%.*"

- | The Intergovernmental Panel on Climate Change in its fourth assessment report in 2007 stated that "Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since (pre-industrial times) and now far exceed pre-industrial values determined from ice cores spanning many thousands of years."

- | A key indicator of the global climate is temperature averaged across days and nights and across the globe. Since the Industrial Revolution, this average global temperature has increased from 13°C to the current 14.3°C. More than half of this increase has occurred since 1950.

- | In its most recent report, the IPCC concluded that "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level." This conclusion is not based on climate models, as suggested by Harris, but on observations.

- | Extending the trend since we began recording temperature in 1880 implies a projected global average temperature in 2100 of 14.9°C. But, temperatures have increased much more rapidly since 1950, and using that more recent trend implies an average temperature in 2100 of 15.8°C. These simple extrapolations of trend are probably underestimates: plausible climate models project a global average temperature of 17.4°C, a full 3.4°C above pre-industrial levels.

John P. Holdren, a leading energy expert and an adviser to President Barack Obama for science and technology, stated in an interview in 2007: "The world's coal-burning power plants, all by themselves, are likely to push us past the three degrees Celsius level in global-average surface temperature if most of their

carbon dioxide emissions are not avoided. And if we go that far -that is, beyond three degrees Celsius -I think we're cooked, literally."

Holdren explains the implications: "Two degrees, just a hair more than the 1.5 degrees Celsius to which we're already committed, might be enough to initiate irreversible melting of the Greenland ice sheet. No one knows for sure how rapidly this melting could occur, but a resulting rate of sea-level rise of as much as two, three, or even four metres per century cannot be ruled out. Until recently, most scientists thought sea-level rises of this magnitude would take thousands of years. But there is now evidence indicating that there have been earlier periods in Earth's history when the sea level went up by four or five metres in a century as a result of natural influences on climate no stronger than what humans are doing today."

Many of our great cities are only slightly above sea level. Increases in sea level of 1.5 to five metres will destroy most of these cities and much of the surrounding land, or force the construction of massive and ultimately futile dikes. Such a global catastrophe is almost incomprehensible and the social, environmental, and economic costs are staggering. Should we worry about today's jobs? Sure, but bringing in alternative energy sources and reducing our emissions of carbon can increase employment.

Averting a global catastrophe should be the No. 1 priority of humankind. Indeed, in a poll for the Council of Canadians, over 80 per cent agreed that we need to have an economy that is in harmony with nature and that the Canadian government should invest in green jobs. It is distressing and ultimately tragic that Canada and other industrialized nations are not willing to make structural changes that will assure a bright future for our children, grandchildren, and great-grandchildren, and the community of life on the planet with which we share our heritage and destiny.

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