February 25, 2014 delegation by Dr. James S. Quinn

I would like to begin with a premise that I hope you will all recognise. We, as evolved humans, tend to be short-sighted and self-interested by our very nature. As such we usually underplay important long-term challenges.

My name is Dr. Jim Quinn. I am a scientist and professor of Biology at McMaster University. I wish to speak to the importance of taking serious actions to reduce CO2 emissions in a meaningful way like some other leading municipalities. I will first address the severity of the situation, arguing that the International Panel on Climate Change (IPCC) reports underplay the severity of the problem because of the nature of scientists, the need to achieve consensus, and the influence of governments. Second, I will list some ideas that I hope you will consider seriously.

Science publication and funding is based on a peer review system that involves careful scrutiny of manuscripts and funding applications by expert scientists who work under a system requiring rigorous support for statements and ideas. Those who do not provide sufficient evidence for their statements, or sufficient scientific background for their funding proposals are not successful. Those who are detected to be misleading or cheating at science are called out and sanctioned seriously. There is no conspiracy of climate change science. The consensus is very strong that human activities are causing current global warming. Although the data are very complicated, most are supportive and the basic elements of physics support the conclusion that recent global warming/climate change is mostly human caused. The alternative (natural) climate change forcings are pushing towards a cooling of the planet, hence the warming that we have seen is not based on any credible alternative to human activities, particularly CO2 emissions. I will assume that you are all bright enough to dismiss silly suggestions that climate change scientists are conspiring to attain fraudulent research grants and publications. This is absurd and is frankly impossible within our scientific culture.

Scientists are by nature conservative. Science demands careful study and analysis before conclusions are drawn. For example, I spent 11 years working with my students to show that the frequency of inherited DNA mutations in herring gulls and mice is increased by exposure to breathable contaminant particulates produced by local industries, most likely due to coking oven emissions. This research was based on 22 person-years of work. All of this work and careful experiments with mice were necessary to prove that breathable particulate air pollution was responsible for the increased rates of inheritable mutations. Science moves slowly and carefully, and scientists do not overstate their conclusions.

The International Panel on Climate Change draws conservative scientific conclusions determined by its consortium of scientists (writers and reviewers). The IPCC reports are vetted and agreed to as consensus documents and as such are reduced to the most watertight conclusions and or are written with qualification where the evidence is not as strong. Expert reviewers and governments are invited to comment on the report at various stages, and those comments are considered and resolved before the release of the final document. This does not entirely eliminate errors, however, the conclusions drawn have been found to err on the side of minimizing, not exaggerating impacts. For all of the above reasons, I suggest strongly that the IPCC reports are conservative statements that are underplaying (NOT EXAGERATING) the significance of human caused climate change.
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This viewpoint is supported by following up on the earlier projections that were made by the IPCC computer models. Those projections underestimated the rate of change in the following 8 climate change variables: carbon emissions, temperature increase, loss of summer arctic ice, loss of Greenland and Antarctica ice sheets, Thawing of permafrost, ocean acidification, and sea-level rise. I will illustrate the last of these under-predictions as it relates well to the issue of consensus and conservative science.

The 2001 IPCC report projected a 2 mm per year rise of sea level that called for up to 0.58 metres by 2100. Between 1990 and 2013 the average rise has been 3.3 mm per year and updated studies now predict a rise of 0.73 to 1.9 metres by 2100. That increases the predicted end of century level change by 25% to 327%. Why the underestimate? The IPCC scientists could not agree on a value for the contribution of melting Greenland and Antarctic ice sheets, so they left out those contributions to sea level rise in order to achieve consensus. IPCC reports are not high-balling climate change predictions and recent scientific papers are voicing more extreme and concerning conclusions.

IPCC5 is due out in 2014 and the projections are grim according to Helen Auld and Don Maclver former Environment Canada Scientists who worked on the IPCC reports. The confidence in those projections is greater due to advances in climate modelling, which have been substantial since the IPCC4 was written.

Recognising the gravity of this situation and the lack of action at the Federal level I implore you to take the lead as a municipality and take serious steps towards reducing carbon emissions of both the city and its residents. Given that fossil fuels are causing current climate change and because the results are expected to be devastating, we must at least oppose any increase of extraction or transportation of fossil fuels. A low emission fleet of municipal vehicles may be a step, but it is just a baby step. To ignore the need to reduce CO2 will lead to huge future expenses directly due to the failure to act now.

Here is a list of suggested actions that would show leadership on climate change:

1) Divest from fossil fuel companies that are engaged in tar sands extraction and expansion (emission reduction).
2) Continue to oppose rubber-stamping approvals of tar sands oil pipelines and request full environmental assessments at the provincial level (emission reduction, risk reduction, protection of biodiversity)
3) Ban transportation of dangerous petroleum products via inadequate and unsafe tanker cars (emission reduction risk reduction, protection of citizens and biodiversity)
4) Reduce the amount of impermeable paved surfaces (roadways and parking lots) to reduce flooding risks (adaptation) and discourage optional automobile trips (emission reduction).
5) Freeze urban boundary expansion and protect our local agricultural lands (emission reduction – local foods; adaptation –living without shipped in foods)
6) Invest in alternative transportation – Light Rail, HSR, proper and connected bicycle lanes. In particular, subsidize and upgrade HSR to make it more attractive to current car drivers (adaptation and emission reduction).
7) Restrict municipal electricity sources to renewables (emission reduction).
8) Modify development charges to penalize sprawl and support intensification (emission reduction and adaptation).