

SUBMISSION TO THE HOUSE OF COMMONS STANDING COMMITTEE ON FINANCE – Pre-budget consultations 2014

Presented by the **CANADIAN CLIMATE FORUM**
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Summary

Extreme events can have huge financial and human impacts. Major floods and storms disrupt critical services, slow industrial production, displace workers, destroy coastal infrastructure, cause power outages; and affect transportation, communications and public safety. During 2013, severe natural—mainly weather—events cost the Canadian insurance industry \$3.2 billion¹—triple that of 2010 and almost triple that of 2012. The damages incurred in last summer's Alberta floods were estimated at over \$5 billion. The worst two years of the last major prairie drought² resulted in \$3.6 billion in farm losses and left over 41,000 people out of work. The cost to British Columbia of fighting wildfires triggered by hot dry conditions and lightning has already topped \$103 million this year: and we're only half way through the fire season. Our climate has changed and we are paying for it.

International reports³ have shown that we can no longer hope to reverse the trajectory of global warming; but we can mitigate some effects; we can adapt to protect our economy from the threats of extremes; and we can identify and seize the opportunities presented. Some businesses and communities are already getting a jump on their competition by adapting to changing conditions and by accessing the growing market for adaptive climate change products and services.

The **Canadian Climate Forum** suggests the following measures to encourage resilience in the face of changing conditions, and to promote a balanced, sustainable and fiscally responsible approach to the climatic changes affecting Canada.

- 1. Increased investment in monitoring and observations, and in the analysis of information on our changing weather, oceans and climate as well as its impacts, for use by decision makers, standards associations, municipal officials, emergency managers and others.**

In particular, the Canadian Climate Forum recommends **renewal of the *Climate Change and Atmospheric Research (CCAR) program*** currently administered by the Natural Sciences and Engineering Research Council of Canada.

- 2. A proactive approach to mitigation and adaptation, incorporating both voluntary and legislated measures, particularly in vulnerable areas such as**

¹ Insurance Bureau of Canada, January 20, 2014

² 2001 & 2002

³ Intergovernmental Panel on Climate Change 5th Assessment Report (2013 - 2014)

coastal communities; and involving adapting and developing regional and local codes and standards for infrastructure. Transfer of new knowledge to support this.

As part of this, we recommend **funding a new program to take the results of data and analyses on weather and apply it.** This program could be administered by a national non-governmental organization mandated to accelerate the transfer and of emerging weather and climate knowledge, for practical applications.

- 3. The Canadian Climate Forum recommends development of incentives to encourage government, businesses and communities to incorporate climate resilience into their strategic planning frameworks, and to encourage early adoption of adaptive actions.**

These recommendations address the themes of ensuring economic growth; education and training; research, development, innovation and commercialization; and ensuring secure communities through support for infrastructure.

Introduction

The Intergovernmental Panel on Climate Change provides a clear and up-to-date view of the current state of scientific knowledge relevant to climate change. Its reports are researched and written by Canadian and foreign scientists, and endorsed by nations including Canada. The 5th Assessment Report was released in three parts, between November 2013 and April 2014. A synthesis report will come out in October 2014. The news is sobering for Canada and is already being felt: an increased intensity and duration of floods, heat waves, droughts, cold snaps; changes in agricultural production and fisheries affecting food costs and food security; invasive species and ecological changes; melting glaciers and sea ice, and changing oceans.

The Canadian Climate Forum is a non-governmental agency dedicated to improving understanding of weather and climate. It collaborates with partner agencies and individuals to accelerate the uptake and use of weather and climate information to serve the needs of society and the economy.

1. Enhanced investment in the information and its use

Funding of research and training of skilled meteorologists, atmospheric scientists and oceanographers has eroded over the past two decades, as granting council budgets have been stretched by inflation and the needs of a new cohort of applicants; and research and policy institutes have closed. The Canadian Climate Forum has determined that half of every research dollar often goes into the training of highly

qualified human resources. Canada needs these skilled and innovative young people for the jobs vacated by retiring experts or to meet new needs.

Likewise, funding of observations programs has eroded. While Canada's North continues to open up, the Canadian High Arctic Research Station is not yet observing the Arctic; and funding for the Polar Environment Atmospheric Research Laboratory (PEARL) has declined, while International Polar Year is long over.

One valuable program, the *Climate Change and Atmospheric Research* program is based on the contention that "The health and safety of Canadians and the strength of the Canadian economy rely on advancing our understanding of climate and the risks related to climate change, and on the development of effective policies that will allow us to anticipate and respond to these risks in a timely manner." That federally-funded program, established in 2011, has now been closed to applications.

We recommend **renewal of the *Climate Change and Atmospheric Research* program** currently administered by the Natural Sciences and Engineering Research Council of Canada; as well as funding for a new program to take the results of this and other research and apply it. (See next item)

2. Proactive approach to mitigation and adaptation

The devastating 2013 summer floods in Alberta and Toronto overwhelmed urban infrastructure: drainage, electrical distribution, and transport were overtaxed. Flow monitoring and measurement equipment in Alberta rivers upstream were found to be outdated, inadequate and overwhelmed, depriving authorities of timely information and compromising their ability to warn citizens early of impending danger and to protect homes and businesses. The situation is not unique.

In some areas we face conditions that jeopardize the rate of economic development. The softening of permafrost layer in the Arctic, as well as later freeze-up and earlier melting, affects the length of the winter road season for supplying communities and businesses; as well as the locating of airstrips, the load capacity of trucks and planes, and building design—including coastal infrastructure which would aid in marine resupply. The Standards Council of Canada is working on new standards for resilient infrastructure in northern communities (the Northern Infrastructure Standards Initiative), as are other departments through the Climate Adaptation program, but more work is needed.

Coastal communities are particularly vulnerable, as seen in the recent landfall of tropical storm Arthur, which knocked out power to 290,000 homes and businesses in the Maritimes. A proactive approach involves developing and applying regional and local codes and standards, to meet the future needs of the Canada's diverse landscapes and environments.

In May, 2014 the Nova Scotia government announced an \$850,000 flood mitigation funding program, recognizing that climate change is expected to increase the risk of future floods in the province. More such measures are needed.

Observations, data, education and the transfer and uptake of knowledge will enable communities to establish policies which anticipate future conditions in order to build in resilience at all levels. This resilience, founded on foresight, accurate data, political will and strategic assessments, planning and investments, will help deflect many of the worst effects of climate change and reduce its negative impacts on businesses and on productivity. It will ensure that damaged infrastructure is replaced to the standards required in the future, as opposed to those of the last century.

We recommend funding of a new program administered by a national non-governmental organization dedicated to weather and climate issues. The **purpose of the program should be to accelerate the transfer of emerging weather and climate knowledge, for practical applications.** This initiative would complement NRCan's Adaptation Platform as a forum for transfer of the new knowledge to communities who can apply it.

3. Development of incentives to encourage climate resilience

Canadians look to their governments to anticipate severe events, to implement measures to protect communities and businesses—and to cover many of the costs. In this regard, we congratulate NRCan for its 2014 report: *Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation*⁴ and for its Adaptation Platform.

Federal government departments should set examples for Canada's corporate world through being early adopters of adaptation strategies. These adaptation strategies can enhance the management of Canada's natural resources, ensure government infrastructure is designed and maintained to future standards, minimize impacts on government operations, reduce future liabilities and generate economic benefits that will reduce taxes and grow the economy.

Corporate strategies normally involve business impact analysis and risk assessment. Climate considerations need to be factored into these processes, to take into account the extent to which future conditions will differ from those today. Such strategies would permit the planning and implementation of adaptive standards and measures early in a process – which is much cheaper than retrofitting. Companies must also prepare to cope when production is reduced by weather leading to disrupted supply chains, or reduced staffing related to heat waves, dangerous travel conditions or damaged homes. Companies should be motivated by corporate strategies aimed at sustaining production, adapting to new conditions and identifying opportunities to develop products and services for markets that emerge from our new environmental conditions.

⁴ *Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation* is a 2014 update to the 2008 science assessment report, ***From Impacts to Adaptation: Canada in a Changing Climate***

In urban and coastal communities, policies must focus on public safety and the establishment of resilient infrastructure. For example, building permits should be limited in vulnerable areas, and denied in flood prone ones. Violators who rebuild homes in flood zones could be penalized.

We recommend **federal incentives be developed for departments, corporations and communities to encourage them to incorporate climate resilience into their strategic planning frameworks, and their early adoption of adaptation actions.**

Conclusion

Canada's climate has changed and will continue to do so. This is presenting us with opportunities to anticipate and incorporate adaptive mechanisms in public and private sector strategies. Observations, data, skills and commitment to adaptation are key.

Appropriate adaptation requires knowledge of climate change and the dissemination of this knowledge; capacity building and public education, and spans all sectors (including infrastructure). But adaptation alone will not suffice—we must both adapt AND mitigate. Mitigation requires adoption of best-practice technologies and national-scale harmonization of approaches, for example on renewables (e.g. grid integration); for improved energy efficiency in the built sector; improved forest stewardship; reduced emissions from the fossil-fuel sector. All of these provide technological and business opportunities that could benefit from Canadian expertise. And on the adaptation side, there are financial wins when we minimize the costs and liabilities of extreme events.

The Canadian Climate Forum can assist by ensuring the transfer and use of relevant knowledge, and by providing the space for dialogue whereby national-scale options and opportunities can be discussed, refined and promoted in a fair and transparent manner.