

The facts, arguments, risks and potential rewards associated with one of the world's greatest challenges are heating up. What will it take to save our warming planet?

# Climate Change

By Matthew Bramley  
Director, Climate Change  
Program, Pembina Institute



indisputable," they said in a joint statement earlier this year. "Large reductions in the emissions of greenhouse gases ... are needed soon. It is essential that world leaders agree on the emission reductions needed ... in Copenhagen in December 2009."

So why do we have a government in Ottawa that has allowed four years to pass without implementing any policies capable of substantially cutting emissions – a government that has been widely seen as one of the least constructive participants in international climate negotiations, and that has tried

to downplay expectations for the UN's Copenhagen summit?

Federal ministers must either not have been listening to the scientists or have chosen not to believe them. It simply isn't possible to show so little conviction about tackling the problem after taking in the devastating projections of a failure to act now: tens of millions of people displaced by sea-level rise, hundreds of millions without sufficient fresh water, a massive loss of living species.

Clearly, governments don't like disturbing powerful economic interests. Policies cannot be effective in cutting emissions unless they make high-emission investments less attractive and low-emission investments more so. This means incurring the displeasure of those who want to continue pursuing activities like oil sands development. But it is also a huge opportunity to create growth and jobs in new sectors like renewable energy.

Some of Canada's provin-

cial governments have a much better track record, but the best of them still don't have policies in place that add up to their emissions targets. Further afield, a few European governments are nearer to cutting emissions in line with the science. But overall, industrialized countries' current targets for 2020 add up to much less than a reasonable share of the global emission cuts required.

Emerging economies like China and India must take greater action too. But between now and 2020, as they continue to lift millions out of poverty, they will need to continue increasing their emissions – albeit at a slower rate. In the international negotiations, Canada appears to have been the only country calling for near-term hard caps for China and India – a position almost universally seen as unrealistic, unfair, or both.

The Copenhagen conference is important because it's a critical opportunity for governments to up their game. With

over 60 heads of state and government under the scrutiny of thousands of journalists and observers, this is the time for politicians to show real leadership. Copenhagen is not now expected to produce the full legal language of a new climate treaty. But it can still deliver a binding outcome that lays out the key specifics of that treaty and sets a timetable to finalize it.

If Copenhagen fails, leadership by individual governments will be more important than ever. Canada's Environment Minister Jim Prentice currently states that his climate policy is to wait for U.S. decisions and then "harmonize" with them. This "after you" approach is the exact opposite of leadership. Despite the best intentions of President Obama, what appears to be the maximum of current political feasibility in the U.S. still falls far short of what the science shows is needed. Canada can and must do better.

Recently the Pembina Insti-

tute and the David Suzuki Foundation published a major economic modelling study that showed how Canada could meet a science-based emissions target in 2020 while continuing to enjoy solid economic growth and creating as many net new jobs as under business-as-usual – even if the U.S. takes far weaker action. Alberta would still expand its oil sands operations and lead the country in economic growth. Policies would protect vulnerable manufacturing sectors from impacts on their competitiveness.

That's not to say it would be easy. The policies required would be an order of magnitude more ambitious than any thing governments have done or proposed in Canada to date. But Canadians are ready for leadership on this issue. Almost two-thirds agree that "climate change is mankind's defining crisis." Fully three-quarters agree that "it's embarrassing that we are not doing more to curb emissions." Now it's up to governments to act. ■

**"It simply isn't possible to show so little conviction about tackling the problem after taking in the devastating projections of a failure to act now: tens of millions of people displaced by sea-level rise, hundreds of millions without sufficient fresh water, a massive loss of living species."**

## Kyoto hindsight makes task clear for Copenhagen

By Avrim Lazar  
President and CEO  
Forest Products Association  
of Canada



for Environment Canada, the development of our government's policy position for Kyoto. That effort, and my subsequent work with Canadian forest industry leaders on achieving the Kyoto targets (in fact we surpassed them 10 times over), has forced me to spend a lot of time thinking about what we all need to do better in Copenhagen.

The bottom line is simple: you cannot address climate change with the kind of thinking that created it. Climate change is the result of our failure to see, acknowledge and act on how things in this world are connected to each other: how our actions impact the environment; how the

world is not divided into polluters and innocents; and how there is no safe haven from global environmental issues. We like to think in safe, comfortable slices, but the world works as a system. Much of where Kyoto failed was the result of this type of thinking – focusing on the separate pieces of the puzzle rather than on their interconnectedness.

So looking toward the Copenhagen process, this is what we need:

- Cumulative global targets and actions that are ambitious enough to seriously impact the climate. Gestures, pilot projects and half measures have been defended in the past as ways to get things going, and they have. But people need to believe that we are doing something effective if they are to buy into the cost of making real change.
- Far less emphasis on offsetting emissions and far more emphasis on the deep retooling needed to reduce them. We can't hide the greenhouse gases under the bed – we

need to stop emitting them. Of course, offsets help in the short run, but they distract us from the real work of retooling our industries and infrastructure.

- Controls and counting regimes that are based on total carbon footprint. The use of massive amounts of fossil fuel to support the production and use of biofuel in the U.S. is one example of what happens when you don't measure total carbon footprint.

Also, the movement of production from one country to another may allow one country to claim a reduction in emissions, but that doesn't help the climate.

- Better integration of other environmental imperatives into the climate program. Biodiversity, air and water quality are severely impacted by climate change and in need of protection. Sacrificing them for carbon reasons is to repeat the mistakes of the past.
- A far more robust acknowledgment that we need to live within nature's cycles rather

than trying to reverse-engineer our way out of nature's imperatives.

- A willingness to deny access to global markets to those who choose to ignore their environmental responsibilities. For example, banning products that caused deforestation or that came from illegally logged forests.

In Canada, the forestry sector realized years ago that it must transform itself to meet the challenges of climate change.

During the past decade, our forest industry – the world's largest exporter of forest products – has reduced greenhouse gas emissions from its mills by 60 per cent, removing eight million tonnes from the atmosphere.

By retooling our plants and mills and switching from fossil fuels to renewable fuels, we have learned to live within our natural forests, to do business while preserving biodiversity.

Over the past few years, our industry has seen at close range the dangers of climate change.

Warmer winters have allowed pine beetles normally killed by the cold to multiply. The destruction they have left in Canadian forests has resulted in 25,000 families in this country losing their livelihood.

This is just one problem, in one industry, in one nation. And it is just one reason why we in the forest industry have realized that climate change is not an abstract threat for the future, but today's reality.

We have made much progress, but the challenges remain daunting. That is why we are going further in addressing our total carbon footprint by committing to becoming carbon neutral from cradle (the forest), to grave (recycling), without purchasing carbon offsets.

With 300 communities across this country relying on the forest industry and one in 25 Canadians working directly and indirectly in the forestry sector, we realize action on climate change is crucial.

Kyoto accommodated the skeptics; we need Copenhagen to empower the believers. ■

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Our goal is to make global warming something we teach in our history classes.



The University of Calgary is honoured to be the new home of Carbon Management Canada – the first Network of Centres of Excellence (NCE) focused on reducing our country's greenhouse gas emissions. This \$25-million commitment will help Canada and its fossil energy sector reduce carbon emissions. It's an important start and our ultimate goal is to put an end to global warming. For good.

Thank you to our government and industry partners, the Institute for Sustainable Energy, Environment and Economy and the Canada School of Energy and Environment who have helped create Carbon Management Canada to find cost-effective solutions to global warming.

CarbonManagement.ca



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## ClimateChange

# Ontario's electricity system could be the envy of the world on climate change action

By Don MacKinnon  
President  
Power Workers' Union

The current Copenhagen climate change talks are generating lots of heat but little light. Media coverage is awash with the dire environmental consequences of failing to adopt the latest



panacea offered by "green" energy advocates. Politicians who question the favoured solutions of the activists are harshly criticized. The time has come to return some balance to the discussion on how best to protect our environment and ensure our economy is strong.

Clearly, Canada needs to do its part to reduce global

greenhouse gas emissions (GHGs). Our actions should be commensurate with our contribution to global emissions. Canada represents about two per cent of the global energy-related GHG emissions. On a per capita basis, Canadians compare poorly because of our vast geography; relatively small, widely distributed population; colder climate; and eco-

nomie structure. Exports of coal, oil and natural gas account for more than 80 per cent of Canada's GHG emissions. For example, Canada is the largest source of U.S. natural gas and is among their top sources of oil.

In Ontario, nuclear and hydroelectric generation supply over 70 per cent of the province's electricity and cre-

ates one of the lowest-cost and lowest-carbon systems in the world. Historically, this low-cost energy has helped make Ontario the centre of Canada's industrial heartland. However, unlike Quebec, Ontario has little remaining hydroelectric potential. That is one of the reasons Ontario partnered with the federal government to develop CANDU nuclear technology.

Ontario is investing heavily in intermittent, expensive wind and solar generation, which is to be continuously backed up by new CO<sub>2</sub>-emitting natural gas plants. Concerns about the higher cost and price volatility of natural gas generation have been consistently downplayed, but already Ontarians are beginning to see their electricity bills increase.

Recent reports from Spain, Denmark and Germany show that wind generation: does not deliver the anticipated electricity or environmental benefits; creates higher costs, with consumers in these countries paying up to three times more for electricity than Ontarians; necessitates the subsidization

## Nuclear and Biomass: Two Proven "Made in Ontario" Energy Solutions that Work

Ontario can lead the world in the reduction of greenhouse gas emissions and stimulate the economy by using two of its assets:

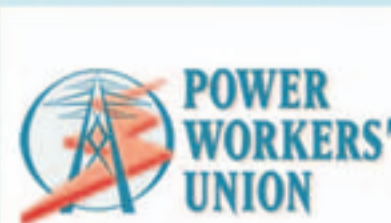
- Building "Made in Ontario," proven and improved, emission-free CANDU reactors now;
- Using "Grown in Ontario" carbon neutral biomass wastes in our coal and natural gas plants.

### The Benefits:

- Secure, reliable, affordable, environmentally responsible electricity for a growing economy and population.
- Create tens of thousands of high-skilled, high-paying manufacturing jobs right here in Ontario.
- Stimulate major investments in the province's agricultural, forestry and transportation sectors as well as opportunities for First Nations.
- Generate billions of dollars of much-needed government revenues.
- Enable the transition to more environmentally friendly electric transportation.
- Guarantee Canada a crack at the trillion dollar global market for new reactor sales.

### The Time to Act is Now!

From  
the people  
who help  
keep  
the lights on



**Ontario is the centre of Canada's annual \$6.6-billion nuclear industry, and benefits from hosting most of more than 130 CANDU nuclear supply chain companies, tens of thousands of well-paid, high-skill workers, and R&D investments at Ontario universities and colleges.**

of industrial electricity prices; and generates "green" jobs that are only sustained by large subsidies.

Ontario continues to delay the decision to build new emission-free nuclear reactors while the province's coal plants are being closed and replaced with natural gas-fired plants. The delay in building the new Darlington reactors means more CO<sub>2</sub> emissions will come from fossil fuel generation, much of which will be imported from U.S. coal plants.

Ontario is the centre of Canada's annual \$6.6-billion nuclear industry, and benefits from hosting most of more than 130 CANDU nuclear supply chain companies, tens of thousands of high-paid, high-skill workers, and R&D investments at Ontario universities and colleges. Ontario also receives reliable, low-cost, greenhouse gas emission-free, nuclear base-load electricity to power our economy and has an opportunity to export this clean energy to our energy-hungry neighbours.

In addition, accelerating investments in supply infrastructure in Ontario's agricultural and forestry sectors should enable the implementation of large-scale, carbon-neutral, biomass waste-fuelled generation at Ontario's existing coal generating stations. This would further reduce GHG emissions, provide reliable renewable generation, create jobs and increase Ontario's energy security.

Ontario's first priority should be to focus on what we are good at and on what works. This means acting now to build proven and improved "Made in Ontario" CANDU reactors, invest in a "Grown in Ontario" biomass supply chain and become a partner in Canada's world-class carbon capture and storage R&D program. It's the best way for Ontario to ensure a clean, reliable, affordable, environmentally responsible and secure electricity supply. It is a plan that's better for both the economy and the environment.

# Canadian energy innovators aim to capitalize on climate change solutions

Part of the solutions to Canada's climate change and economic concerns alike reside in the development and commercialization of innovative energy technologies, say experts.

When it comes to addressing issues related to the oil sands, for example, David Layzell, executive director of the Institute for Sustainable Energy, Environment and Economy (ISEEE), University of Calgary, says there are many exciting technologies with the potential to reduce environmental impacts.

"Today, producers boil water to make steam to inject underground, requiring a lot of water, energy and greenhouse gas emissions. New technologies promise to reduce greenhouse gas emissions by 50 per cent, reduce water use by 70 per cent or more, and produce an oil that doesn't require upgrading on the surface," he says.

Longer term, "there is a

possibility of converting the oil sands into hydrogen, and putting the waste carbon dioxide back underground, thereby generating a carbon-free form of fossil energy," says Dr. Layzell. "That is where we need to go. Fossil energy will be a significant part of our energy system for many decades to come, and we need to prevent carbon dioxide from accumulating in the atmosphere."

Other research underway at ISEEE is advancing technologies for coal gasification, bio-energy, carbon capture and less energy-intensive methods of removing sulphur from natural gas.

The federal and Alberta governments have committed to invest about \$3 billion in carbon capture technology, but "we have yet to see that kind of investment in carbon-efficient recovery research," says Dr. Layzell. "That's going to be important. We don't use fossil fuels very efficiently – a



Synodon's realSens systems detect fugitive gas emissions from pipelines, well sites and natural leakages, enabling quick solutions, less waste and environmental degradation, and increased returns to gas producers. PHOTO:SYNODON

typical coal plant is only 30 per cent efficient at converting the energy in the coal into electricity. We can do better."

Doing better requires incentives and policies that penalize inefficiency, he says. "In the 20 years after World War II, we transitioned the market share for energy from coal to oil and gas. Now we are looking at an even larger

40-year transition to renewable energy and de-carbonized fossil fuels. We need carrots and sticks all along the way."

Sustainable Development Technology Canada (SDTC), an arm's-length, not-for-profit organization created by the federal government in 2001, helps bridge the gap between innovation and markets by preparing early stage compa-

nies for commercialization.

For example, while concerns around energy-related emissions typically revolve around those concerned with energy production, Synodon Inc., one of 171 companies in SDTC's portfolio, is tackling the issue at another level. The company uses helicopter-mounted technology to detect fugitive gas emissions from pipelines, well sites and natural leakages.

"Normally you'd have someone walk the pipeline, thousands of kilometres," says Dr. Vicky Sharpe, SDTC president and CEO, adding that Synodon's solution is fast and cost effective, enabling quick solutions, less waste and environmental degradation, and increased returns. "Companies can sell that gas rather than losing it."

SDTC's portfolio also includes Canadian companies advancing the potential of renewable energy. For example, Clean Current Power Sys-

tems Inc. is harnessing energy from the tides of the Bay of Fundy.

Meanwhile, in solar energy, Toronto-based 6N Silicon has developed a more energy efficient and economical way to make solar panels. "Silicon represents about 40 per cent of the cost of solar technology overall, so this is a way to address the economic viability gap," says Dr. Sharpe.

We have an abundance of energy in Canada, she says. "If we can find ways of providing it more cleanly, we reduce our environmental impact and improve 'salability' to low-carbon markets."

Dr. Sharpe says last year, for the first time in the U.S., the clean-tech investment sector attracted more capital than in communication or life sciences. "This is where it's happening. We have huge capability in Canada to respond to these new markets. We need to be sellers of technology." ■

**"We don't use fossil fuels very efficiently – a typical coal plant is only 30 per cent efficient at converting the energy in the coal into electricity. We can do better."**

## RENEWABLE POWER

# Clean electricity a consumer choice says green energy provider

As proven in the U.S., Europe and increasingly so in Canada, voluntary, consumer-driven markets can play an important role in making renewable power a bigger part of the energy mix.

"Individual citizens and businesses can play a key role in advancing new renewable power," says Tom Heintzman,

president of clean energy provider Bullfrog Power.

The company enables businesses and home consumers to buy electricity produced exclusively from wind and hydro facilities that have been certified as low impact through Environment Canada's EcoLogo program.

He says 8,000 Canadians

and almost 1,000 Canadian businesses – including Walmart Canada, Ivanhoe Cambridge, TD, BMO and RBC – have already chosen to pay a premium to support clean, renewable power through Bullfrog Power.

"Across Canada, Bullfrog Power customers have provided the demand and financial

support for five new wind projects," says Mr. Heintzman.

He says that beyond providing a convenient way for consumers to drive green energy demand, Bullfrog is also working with governments to allow for increased consumer participation in renewable electricity markets.

"By giving residents a

green choice and by participating in public consultation sessions on renewable options, we are helping Canadians to have a stronger voice in this important debate," says Mr. Heintzman.

Mr. Heintzman says increasingly the message is resonating among all levels of government.

"Municipalities including Mississauga and the City of Toronto are also going green as they recognize their role in addressing climate change and air pollution. Bullfrog Power's success highlights the potential of the voluntary market to contribute to the accelerated development of renewables," he says. ■

This report was produced by RandallAnthony Communications Inc. (www.randallanthony.com) in conjunction with the advertising department of The Globe and Mail. Richard Deacon, National Business Development Manager, rdeacon@globeandmail.com.



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2009 report on sustainability

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ClimateChange

# Businesses rise to climate change challenges

More businesses in Canada are stepping forward to help combat climate change by measuring, managing and reducing their “carbon footprints” – emissions of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases (GHGs) that contribute to global warming.

“There is growing interest among organizations for quantifying their footprints, having it verified by third parties and implementing projects to reduce emissions,” says Michel Girard, director of climate change services with CSA Standards.

CSA plays a key role in the development of international environmental standards and provides guidance to businesses and governments on how to implement them.

“In 2007, we provided 1,000 days of training on climate change standards, and this year we are on track to deliver more than 4,000 training days,” he says.

The marketplace is stressing climate change strategies in an unprecedented way, says

Mr. Girard, noting a growing number of provinces have introduced regulations on emissions reporting, and increasingly consumers and large retailers see value in carbon performance. “More companies are seeing that they need a credible, carbon improvement plan if they want to continue to be preferred suppliers. Consumers are asking for credible information on the carbon footprint of the products and services they buy.”

It’s a message not lost on paper products giant Cascades Inc. The company has been producing packaging, tissue products and specialty papers from mainly recycled fibres since its beginnings as a family business in Quebec in 1964. The company now employs 13,000 people in operations across North America and Europe.

Among its numerous environmental efforts, Cascades “harvests from the urban forest,” says Hubert Bolduc, vice-president of communications and public affairs, citing the company’s use of recycling

bin waste instead of newly cut trees as feedstock for many of its paper products.

Cascades, however, has gone much further in its contribution to reducing greenhouse gas emissions. “We also have a big impact on GHGs, because we use six times less water to produce one metric tonne of paper than the Canadian industry average,” says Mr. Bolduc.

In fact, Cascades’ latest sustainable development report

states that the company’s CO<sub>2</sub> emissions are 85 per cent lower than the average for North American recycled fine paper plants.

The company achieved its laudable performance through a suite of initiatives that include its use of landfill biogas to power mills, measures to reduce vehicle energy consumption and its dedication of a team of engineers tasked with reducing energy use company-wide. Winner of

numerous environmental awards, Cascades “has always put great importance on being a green and responsible company, and we are committed to continuously improving,” Mr. Bolduc says.

At the end of the product lifecycle stream, Waste Management Inc., is also making significant inroads. An award-winning company that provides waste and environmental services across North America, WM is creating an

inventory of its company-wide carbon footprint— to measure GHG emissions in all operations including waste collection, disposal sites, and waste-to-energy and recycling plants.

Among its actions to address emissions, WM is implementing a massive initiative to curb emissions from its 22,000 vehicles – one of the continent’s largest commercial fleets. WM aims to increase fuel efficiency by 15 per cent and reduce emissions by another 15 per cent, says Wes Muir, director of corporate communications. “We are targeting to reduce our fuel usage by 350 million gallons, about 3.5 metric tonnes of CO<sub>2</sub> emissions,” he says.

Waste Management will use its purchasing power to encourage development of environmentally advanced heavy waste vehicles. “We’ve announced plans to purchase hybrid trucks over the next decade,” says Mr. Muir. “We’re going to use our capital budgets as an incentive to spur eco-efficiency and innovation for development of trucks with hybrid systems.” ■



Consumers are asking for credible information on the carbon footprint of the products and services they buy, and businesses are delivering. PHOTO:ISTOCKPHOTO.COM

CAP AND TRADE READINESS

## Organization provides assurance through GHG certification program

The proposed use of “cap and trade” systems as a method to regulate greenhouse gases (GHGs) raises an important question: who is qualified to quantify and verify GHG reports?

ECO Canada (Environmental Careers Organization), the national sector council for the environment, responded to this matter by developing personnel certification standards that incorporate



The need for qualified individuals certified to quantify carbon emissions is rising as emerging regulations and market mechanisms put a price on the greenhouse gas. PHOTO:ISTOCKPHOTO.COM

International Standards Organization (ISO) 14064, 14065 and 14066 criteria.

Canadian GHG professionals can now apply through ECO Canada Certifications for the designation of Environmental Professional specializing in GHG Verification or Quantification – EP (GHG).

ECO Canada president Grant Trump says this competency-based national certifica-

tion system will allow Canada to create emission inventories that are realistic, accurate and defensible.

“Approximately \$60 billion in carbon credits are traded each year in the EU’s Emissions Trading System. If Canada is going to partake in emissions trading on this scale, certification to qualify professionals who report and verify GHG emissions is a must,” he says.

The development of the EP (GHG) certification program was funded by the Standards Council of Canada and the Government of Canada’s Human Resources and Skills Development Canada, as part of the Sector Council Program, and Natural Resources Canada.

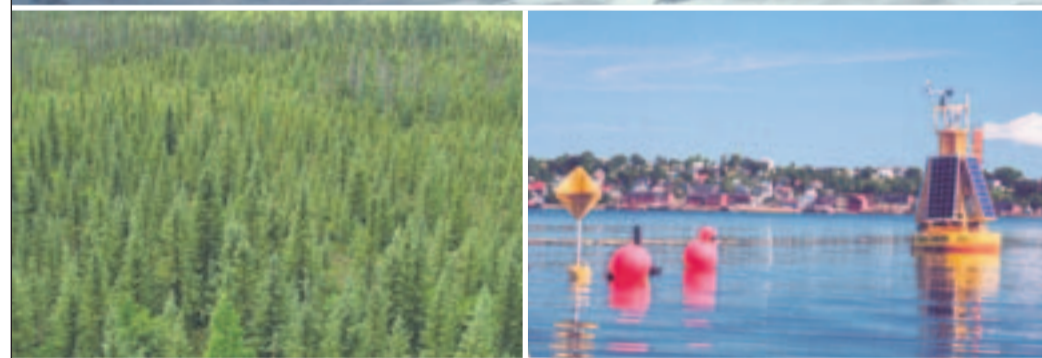
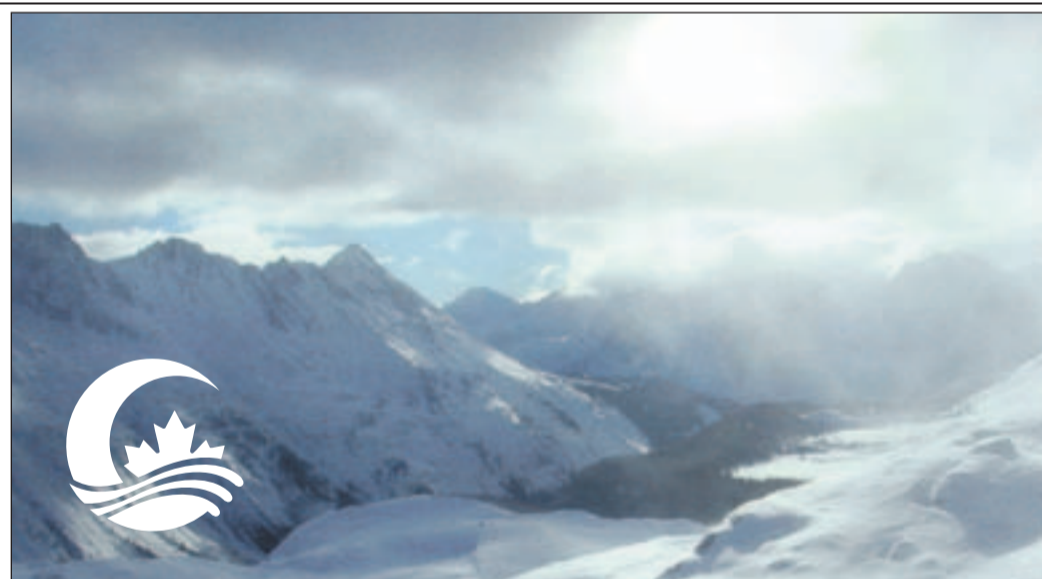
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# Scientists raising voices over mounting climate concerns

Leading climate scientists across the globe are delivering a strong and sobering message about the quickening pace of climate change – warning that many changes predicted in “worst-case scenarios” just a few years ago are already happening.

For example, experts say, ice sheets are melting faster and sea levels rising higher than projected even in 2007, when the International Panel on Climate Change (IPCC) released its fourth assessment report. Meanwhile, greenhouse gas (GHG) emissions are also exceeding the most pessimistic predictions, now increasing by around three per cent a year, compared to 0.9 per cent annually in the 1990s.

It’s a combination that is leading climate experts in Canada and around the world to become more outspoken about the urgent need for political leaders to take immediate and aggressive action to reduce GHG emissions.

“Because of all these factors, the climate community worldwide is not just speaking out but we are screaming out that we need to get emissions to turn the corner,” says Andrew Weaver, a professor and Canada research chair in climate modelling and analysis at the University of Victoria, and one of the authors of the 2007 IPCC report. “The scientists who work in this area are more outspoken than scientists have ever been on any environmental issue anywhere, at any time. It’s that important.”

Dr. Weaver is also among a group of international scientists who authored The Copenhagen Diagnosis, a report released November 24, 2009, to sound the alarm for countries taking part in the December United Nations climate change meetings in Copenhagen, Denmark. The report covers findings from several hundred recent studies.

Greenland and Antarctic ice sheets are losing mass at

an increasing rate, the report says, and summertime melting of Arctic sea ice “has accelerated far beyond the expectations of climate models.” It also says that global average sea levels have risen 3.4 millimetres a year over the past 15 years, 80 per cent above past IPCC predictions. “The turning point must come soon,” the authors warn, saying that global emissions need to start declining rapidly as early as 2015, and per capita emissions must be 80 to 95 per cent lower than 2000 levels by 2050, in order to avoid dangerous levels of global warming.

Recent science has also raised concerns about “ocean acidification,” says another one of Canada’s leading climate scientists, Dr. Gordon McBean, a professor and Chair for Policy in the Institute for Catastrophic Loss Reduction at the University of Western Ontario in London, and chair of the Canadian



Despite mounting scientific evidence including rising sea levels and melting ice sheets near Greenland (pictured) and the Antarctic, GHG emissions continue to rise at a pace that is outstripping predictions considered pessimistic just two years ago. PHOTO:ISTOCKPHOTO.COM

Foundation for Climate and Atmospheric Sciences (CFCAS).

“This issue wasn’t even on our radar screen scientifically until recently,” Dr. McBean says. “Carbon dioxide is producing carbonic acid in the oceans. Measurements show the oceans are becoming more acidic, and this is affecting coral reefs and other marine systems in ways that really weren’t talked about a few years ago.”

Dr. McBean agrees that more scientists believe they must advocate for aggressive policies to reverse the warming trend. One reason, he says, is that the “climate change deniers” are still getting publicity. “The science community feels it is important that our voice be heard, particularly when there are people making statements for which there is no scientific validity. We have to make the case for our children and grandchildren.”

“The science community feels it is important that our voice be heard, particularly when there are people making statements for which there is no scientific validity. We have to make the case for our children and grandchildren.”

## ADAPTATION AND ABATEMENT

# Climate change an urban challenge

Global issues of melting ice caps, rising water levels and other impacts of climate change are increasingly hitting home as Canadians cities and citizens awaken to the need for lifestyle changes and other efforts needed to support environmental sustainability.

But as they gear up for the fight to reduce carbon emissions, a key problem facing municipal governments across the country is that our cities and surrounding suburbs have been largely built on an assumption that residents will travel by car.

“If you live in the suburbs and you want to walk anywhere, a lot of places don’t even have sidewalks,” said Gabriel Sekaly, chief executive officer at the Institute of Public Administration of Canada (IPAC).

“More often than not, you can’t walk to a corner store because there isn’t one, so you have to get into a car and drive.”

It is partly for this reason that in 1991 Geoff Cape launched Toronto-based Evergreen, a not-for-profit charitable organization, set up with the aim of making cities more liveable.

Evergreen works to achieve this goal by empowering Canadians to take a hands-on approach to greening their urban environments.

“Having spent his childhood years growing up near Toronto’s ravines and spending time in the wilderness outside Toronto, [Mr. Cape] recognized the absence of nature in most urban areas,” said Evergreen spokesman Nate Habermeyer.

“So he decided to start

Evergreen to help restore urban ecology and lead programs to integrate nature into urban design.”

Since Evergreen persuaded 180 Toronto-area schools to participate in its first “Tree Day” back in 1991, the organization has distributed more than 2,300 separate grants worth over \$4.3 million.

It has also convinced thousands of volunteers across the country to commit over 459,000 hours of service to green projects such as weeding in school grounds or removing invasive plant species from publicly accessible land.

“We are pretty excited about the progress we have made to date,” said Mr. Habermeyer.

With the financial support of corporate donors such as Walmart Canada, Toyota Canada and Fido, Evergreen reports it has improved over 2,400 sites across the country.

Its flagship project is Evergreen Brick Works. Located in downtown Toronto, this former brick factory is being transformed, at a cost of \$55 million, to create a centre for urban sustainability that will feature office space, a farmers market and a nursery. It is scheduled to open in the summer of 2010.

The work of organizations like Evergreen is widely seen as being vital in helping cities not only address climate change challenges, but in doing so create urban settings that will better the quality of life for future generations.

“Climate change is happening, and we have to adapt as a society,” said Mr. Sekaly.

As a non-profit association of public servants from all levels of government across Canada, IPAC is equally concerned about the impact of climate change on cities. It is trying to highlight the issues associated with global warming through research, knowledge sharing and by rewarding public service excellence right across the country.

This year, for example, IPAC bestowed a Canadian Public Sector Leadership award to BIXI, an innovative bike rental service. BIXI enables Montreal residents and visitors to grab a bike from stations around the city, travel to their destination and return the bike to any station on the BIXI network.

Launched in the spring of 2009, BIXI has been a big success, attracting 10,000 members, and a network of

400 stations and 5,000 bikes.

Mr. Sekaly said IPAC liked the fact that in Montreal, BIXI is focusing on moving people while attempting to reduce greenhouse gas emissions.

Besides supporting Montreal’s reputation for urban sustainability, the city is profiting another way too. Other cities, including Boston, have hired Montreal planners to help them install a BIXI system in their cities.

## THE HUMAN FACTOR

# Urgent action required to avert migration disaster

Melting ice shelves, increased drought and more extreme weather events are among the often-discussed impacts of climate change. What are less obvious – and understood – however, are the potentially devastating impacts of climate change related to human migration and displacement.

Experts concerned that a dramatic shift in migration could have dire, widespread social and political fallout are calling for action to both abate climate change and help the world’s most vulnerable societies to adapt.

A report released in May, “In Search of Shelter, Mapping the Effects of Climate Change on Human Migration and Displacement” cautions

“societies affected by climate change may find themselves locked into a downward spiral of ecological degradation, towards the bottom of which social safety nets collapse while tensions and violence rise.”

Further, the report – prepared by the United Nations University Institute for Environment and Human Security, as well as CARE International and the Center for International Earth Science Information Network at the Earth Institute of Columbia University – urges, “In this all-too-plausible worst-case scenario, large populations would be forced to migrate as a matter of immediate survival.”

Among its recommendations, the report calls on the

international community to agree on a path forward by December 2009 to bring global GHG emissions to safe levels, or otherwise risk committing “future generations to a much more dangerous world in which climate change-related migration and displacement, on a truly massive scale, is unavoidable.”

The report states, “Policy decisions made today will determine whether migration becomes a matter of choice amongst a range of adaptation options, or merely a matter of survival due to a collective failure by the international community to provide better alternatives.”

For the full report, visit [www.care.org](http://www.care.org).



Evergreen is a not-for-profit organization that makes cities more livable. The Fort York Community Garden is one of the thousands of hands-on greening projects Evergreen supports each year. PHOTO:EVERGREEN

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