CANADIAN CLUB OF HALTON PEEL

DINNER SPEECH

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CLIMATE CHANGE – END OF CIVILIZATION OR ECONOMIC RENAISSANCE?

It is a pleasure to have the opportunity to speak tonight at the Canadian Club of Halton Peel on a subject some people are calling the greatest threat to the planet today.

The title of my speech is “Climate Change – End of Civilization or Economic Renaissance.”

I will begin with the end of civilization. I’ll draw first on the most widely recognized source of information and scientific conclusions – the Intergovernmental Panel on Climate Change (or IPCC for short). The changes I will highlight are expected to occur over the coming decades and could get much worse if we don’t drastically reduce human-generated greenhouse gas emissions soon – by as much as 80-90 per cent by 2050, according to reputable sources.

The scenarios and projections on the impacts of climate change are serious enough to challenge Canada’s lack of concerted action on this issue. By that I mean the current inadequacy of government policies, industry responses, and consumer and public behaviour in the face of an issue that promises to restructure the global ecosphere and its’ wholly-owned subsidiary, the world economy.

To begin, let’s see what climate change is expected to bring.

The following global impacts of climate change are likely, according to the IPCC:

- Increased magnitude and frequency of floods and droughts (we're already seeing intensified drought in many regions of the world)
- Further loss and degradation of many wetlands
- An increase in the annual mean global temperature (which has already increased more than 0.8°C between 1900 and 2005)
- Changes in migratory patterns of species and in their geographic distribution (already being observed)
- More heat waves (already occurring with greater intensity and frequency)
- Glaciers melting throughout the world (we're already seeing this)

In its fourth Assessment Report (2007), the IPCC stated that the 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 mean sea level.

Bear in mind that these impacts will come on top of tremendous damage to the world's ecosystems that has already occurred. For example, with respect to water-related impacts alone, the Royal Bank's October 2007 Fact Sheet on The World and Water notes the following:

- The loss already of about half of the world's wetlands
- The loss of freshwater species (for example, almost 20 per cent of the world's known freshwater species have become extinct, threatened or endangered)
- The six-fold increase in global water use that occurred during the 20th Century (which was more than twice the rate of population growth)
- The degradation of ecosystems by the construction of dams, diversions and canals on 60 per cent of the world's 227 largest rivers

This is serious, because water is essential to life on this planet. In 1995 it was estimated that about 1.8 billion people (out of 5.7 billion worldwide) were living under severe water stress. Under climate change, this situation is expected to become much worse, especially with an increasing population and rising per capita energy use.

So where does Canada fit? Unfortunately, we rank second highest in the world in terms of per capita water consumption, at 353 liters/day. We even consume 65 per cent more than the OECD average. With respect to per capita energy consumption, we rank ninth highest in the world – higher than any of the major industrialized countries, but we do consume less per capita than oil-producing countries like Kuwait, Qatar, and the United Arab Emirates! We are third highest in the world in terms of per capita emissions of carbon dioxide, the principal global greenhouse gas.

But Canada is not alone in increasing greenhouse gas emissions. We're living in a world of ever increasing energy use, most of it based on fossil fuels. The International Energy Agency's World Energy Outlook, dated November 2007, highlighted the rapidly growing impact of China and India on energy and climate change. The Outlook forecasts a 57 per cent increase in greenhouse gas emissions by 2030 if no new action is taken. The IEA predicted that the "alarming" rise in energy demand will speed up climate change, threaten global energy security, and possibly create a supply crunch that will send already high prices soaring. It also called for, "Vigorous, immediate and collective policy action by all governments …" This report has been called the most pessimistic overview of world energy markets ever portrayed!

High emissions of other pollutants come along with high energy production and consumption. In the most recent OECD country comparisons, Canada ranks poorly, as follows:

- 27th out of 29 nations in energy use per capita
- 28th out of 29 nations in energy efficiency
- 27th out of 28 nations in sulphur dioxide emissions per capita (more than two times the OECD average)
- 25th of out 28 nations in nitrogen dioxide emissions per capita (almost 40 per cent higher than the OECD average)
- 25th out of 26 nations in volatile organic compound emissions per capita
- 26th out of 27 nations in carbon monoxide emissions per capita

We may not have the most polluted air in the world, but Canadians are being seriously affected by these energy-related co-pollutants. On November 5 of this year, Toronto's Medical Officer of Health released a new report on the significant burden of illness and health-related costs associated with current levels of smog-generating pollutants, greenhouse gases and air toxics emitted by vehicles in Toronto. He noted that about 440 of the City of Toronto's 1,700 annual air pollution-related deaths are associated with vehicle traffic, and he noted that a 30 per cent reduction in motor vehicle emissions in Toronto could save nearly 200 lives per year and significantly reduce hospitalization and illness, along with associated economic impacts.

Sir Nicholas Stern, Head of the UK Government Economic Service and Adviser to the Government, was commissioned to prepare a report on the Economics of Climate Change. His 2007 report to the Prime Minister achieved global recognition. Sir Nicholas Stern reached the following conclusions, among others:

- "If no action is taken to reduce emissions, the concentration of greenhouse gases in the atmosphere could reach double its pre-industrial level as early as 2035, virtually committing us to a global average temperature rise of over 2°C. In the longer term, there would be more than a 50 per cent chance that the temperature rise would exceed 5°C. This rise would be very dangerous indeed; it is equivalent to the change in average temperatures from the last ice age to today. Such a radical change in the physical geography of the world must lead to major changes in the human geography – where people live and how they live their lives."

- "… if we don't act, the overall costs and risks of climate change will be equivalent to losing at least five per cent of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20 per cent of GDP or more. In contrast, the costs of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change – can be limited to around one per cent of GDP each year."

So there you have it – ample support for anybody who wants to predict the end of civilization as we know it. Let's turn now to the economic renaissance side of my speech.

What would lead anyone to believe that an economic renaissance could arise in the face of the climate change disasters coming at us? The answer, in my view, is that there are choices we can take that will profoundly affect the economy of the future. Some of those choices are being made now, by companies and individuals who fear climate change, or who see profit in meeting the challenge of controlling greenhouse gases, or both. On the other hand, choices are being made that are discounting the impacts that climate change will bring and which, if wrong, will make the problem worse. Governments are caught in the middle, playing into both sets of interest and developing conflicting policies and programs.

The public is also partly to blame. We want cheap and convenient products and services, and we squander energy profligately, while at the same time polls show the public has a powerful recognition of the threat of climate change and is demanding that governments do something about it. Where then are the signs that things are changing?

Let’s start with public opinion. If government leadership is critical to addressing climate change, and I believe it is, then governments will make more consistent policy choices in favour of greenhouse gas reductions if the public rewards or punishes them for their climate-related decisions. There is little evidence of this to date, despite polls showing the environment is once again at the top of public concerns. The recent Ontario election demonstrated this, to some extent, although it should not go unobserved that all of the political parties had environmental promises in their platforms. It should also not go unobserved that eight per cent of Ontario voters cast their ballots for the Green Party. It may not be entirely clear what this means, but it must put traditional parties on edge. There may come a time when the environment actually decides the outcome of an election.

But what does the public want, or what will the public accept in terms of political leadership. To explore this, I’m going to talk about a recent (October 3, 2007) GfK Roper/Yale Survey on Environmental Issues. Surveys are surveys are surveys, but I believe the results of this survey begin to show what politicians can consider doing at the city and local levels to deal with climate change. The reason I’m profiling this survey is that my speech today is to people who live in a progressive environmental community, as demonstrated by the leadership on air quality and climate change by the Halton Region Health Department. You have some of the leading local and regional thinkers in Canada, and I urge you to find out what they are up to and support them in their work.

Now back to the Gfk survey. I found this survey interesting because it starts to show what Americans (i.e., citizens of the USA) believe about climate change and say they are willing to do. In particular, the survey results indicate that 68 per cent of respondents are increasingly convinced that global warming is occurring. The most compelling finding was the growing sense of urgency, with nearly half of them believing that global warming is already having dangerous impacts on people around the world, or will in the next 10 years. This is a 20 percentage point increase since 2004 and, according to the GfK survey, represents a sea change in public opinion.

Of particular interest to my speech today is that nearly three quarters of the Americans polled would support local regulations requiring all newly constructed homes to be more energy efficient, and there even was a willingness to pay $7,500 more to save an estimated $17,500 in utility bills over 30 years. Moreover, 71 per cent would pay $5 more each month to support a local subsidy to replace old furnaces, water heaters, air conditioners, light bulbs and insulation. And 69 per cent would pay $8.50 more a month for local regulations requiring electric utilities to produce at least 20 per cent of their electricity from wind, solar and other renewable energy sources. A further 68 per cent would support changing their city or town’s zoning rules to decrease suburban sprawl and concentrate new development near the town centre, with 65 per cent supporting a mix of housing, offices, industry, schools and stores close together in

neighbourhoods. Finally, 53 per cent would back city or local fees added to electricity bills to encourage people to use less electricity. The Americans would not, however, support building more apartments rather than single family homes (57 per cent opposed) or adding 10 cents a liter to the price of a gallon of gasoline to encourage people to use less fuel (64 per cent opposed).

Do you believe all this? Do I? Well, maybe not entirely, but imagine if local and regional governments in Canada could implement these types of measures. They would help considerably with climate change, but would they contribute enough to the large-scale structural changes needed to reduce Canada's greenhouse gas emissions by 80-90 per cent by 2050? Arguably not, so more is needed. But what?

Now we get into the really difficult, and exciting, area of high-level policy. What causes major structural change to occur in an economy?

The answer is many things, but I will focus on three areas that can profoundly change the way in which the economy and society function. The three areas are infrastructure, technology and prices.

Infrastructure is the foundation on which all else operates. Roads, bridges, watermains, sewers, electricity grids, railways and public transit infrastructure can all be designed as systems in which greater energy efficiency is built in. Governments massively fund infrastructure and have great control over what receives, or doesn't receive, funding. Governments control decision-making processes and provide guidance for municipal plans and related infrastructure. They subsidize infrastructure and have all the tools they need to engineer a shift towards more energy efficient physical assets and urban design. Government leadership here is fundamental.

Technology is the second part of the equation. Industry plays the key role here, meeting societal needs and consumer demands, but if energy conservation and efficiency are to be part of the climate change solution, then industry needs to be rewarded for delivering the goods (and penalized when they do not). Industry runs on the profit motive. Governments can harness this motive to influence the development of technology through regulations, standards and incentives.

Prices are the third, and final, part of my simple equation. Prices influence human economic behaviour, and they reward industry for supplying growing markets. Governments can influence prices, but they do so at their peril. The public may be willing to pay higher prices for well-defined goods and services, but they resist higher taxes with no clear goal in mind. Markets set prices, for the most part, but governments must play a vital role; in particular, unpriced environmental externalities must be monetized, either through taxes or policy tools such as emissions trading, or they must be regulated.

Sir Nicholas Stern has said that there are three strands to policy, and all are required:

- "First, we must establish a carbon price via tax, trade and regulation – Without this price there is no incentive to decarbonise."
- "Second, we must promote technology: through research and development. Further, private sector investors need confidence that there will be markets for their products: that is why development policy also makes sense."
- "And third, we must deal with market failure; for example, problems in property and capital markets inhibit investments for energy efficiency."

So where does this leave us?

In my view, Canada lacks a clear vision of where its sustainable energy future lies. Environmentalists focus on energy conservation, energy efficiency and renewable energy. Infrastructure, technology and prices could be aligned with this vision. The energy industry, however, largely focuses on the efficient use of Canada's fossil fuel resources, emphasizing advanced coal technology and carbon sequestration. The nuclear arm of that industry is offering what they advertise as safe, clean electricity at affordable prices.

The Canadian Council of Chief Executives issued a Policy Declaration on October 1, 2007, titled, "Clean Growth: Building a Canadian Environmental Superpower." The CEOs said that Canadians must reduce their impact on the environment and help people around the world adapt to changes in climate that cannot be prevented. They called for a policy framework that promotes economic growth and technological innovation. They want shared goals and a national plan, investment in new technologies (especially in what they term 'clean energy'), energy intensity targets that 'ultimately' lead to substantial absolute reductions in emissions of greenhouse gases in Canada and globally, prices that reflect the environmental costs of energy use (through emissions trading and environmental taxation), and finally Canadian leadership globally, meaning that Canada must champion a future international process that ensures the participation of all major emitting countries.

There is some hope for a measure of agreement between the CEOs and environmental groups, especially in relation to energy pricing and emissions trading, but there are several areas in which fundamental differences exist, such as energy intensity targets versus absolute reductions in greenhouse gas emissions. I would also point out that Sir Nicholas Stern's report states that the costs of inaction on climate change could lead to damage of as much as twenty per cent of GDP, while the costs of action to avoid the worst impacts of climate change could be limited to around one per cent of GDP each year.

On September 25, 2007, the Canadian Council of Energy Ministers met and pledged to increase intergovernmental cooperation and to collaborate on new energy technology partnerships in several priority areas, such as cleaner fossil fuels, advanced energy end-use, alternative and renewable energy sources, bioenergy, and hydrogen production, storage and conversion. The Ministers agreed “that energy efficiency and conservation have the potential to reduce energy demand in Canada by an amount equal to almost 25% of today’s energy use by 2030.” This is a modest statement. It is a hopeful sign that our governments may finally agree to work towards a shared objective, but we are far from being a global leader in setting goals and implementing them.

Other nations have different visions than Canada – ones suited to their circumstances and economic strengths, as well as their acceptance of the need to address the global climate challenge. Germany, for example, is striving to become a market leader in the emerging multi-billion dollar climate change business. After many years of investment, Germany is now at the forefront of new technologies in renewable energy (especially wind, solar and biomass), waste management, nano- and biotechnologies, and boosting energy efficiency. According to a study by the Hamburg Institute of International Economics and the Berenberg Bank, climate change will result in a “renaissance of the primary sector” on the capital market and for investors.

Germany is now home to the largest concentration of solar manufacturing plants anywhere in the world. It now builds about half of the world’s installed solar panels and is leading the way in solar technology. Germany also domestically produces 55 per cent of the world’s photovoltaic energy from solar panels, and the German Solar Industry Association expects in the long-term that a third of the country’s energy for heating and a quarter of the generation of electricity could be produced from solar panels sited near consumers.

How is Germany doing it? It has a vision, and it is aligning infrastructure, technology and prices with full recognition of both the threats and opportunities presented by climate change. The vision has environmental benefits, both to Germany and to the planet as a whole, and it has economic benefits for German citizens. Canada could learn from the example of Germany and other countries.

Canada’s problems in developing a national energy sustainability vision lie, to a large extent, in the wide range of future energy options that we have – almost every one imaginable – and the skewed regional distribution of our energy resources, as well as in what seems like a fierce determination not to work together as a nation. This may be changing, with our energy ministers agreeing to collaborate on energy technology and efficiency partnerships. But fortunately for the planet, other countries have already started to lead and Canada can take advantage of their progress.

My closing message about climate change and economic renaissance is that we don’t have time to lose. Inaction will cause us to lose twice – once as planetary ecosystems restructure under the pressure of a changing climate, and again as other countries leapfrog us in the race to develop and implement technologies that reconcile human needs with ecological limits.

I do believe Canada can be a productive part of the global fight against climate change. We made significant progress on reducing the production and use of ozone depleting substances, such as CFCs, as well as reducing acid gas emissions, such as sulphur dioxide. We must do the same for greenhouse gases!

So, economic renaissance? Of course! We have no choice. The alternative is unthinkable.

Thank you to the Canadian Club of Halton Peel for this opportunity to share some thoughts on climate change tonight.