HOT AIR: FIXING CANADA'S CLIMATE CHANGE CHALLENGE

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What's been happening in Canada?

- In the Arctic, a 4-degree increase in the Western Arctic and a 2-3 degree increase elsewhere in the Arctic from 1953-2003.
- The result: less snow and more wind; decreasing sea ice; shrinking tundra; thawing permafrost; widening of Northwest Passage.
- Mountain Pine Beetle killed more than half of B.C.s lodgepole pines. It has moved over the Rockies into Alberta and might move further east. Some outbreaks have already occurred in Saskatchewan.
- Glaciers are receding faster.
- Prairie rivers that depend on glacier melt are shallower; soils are drier.
- Lakes are freezing later and thawing earlier. Ontario's Lake Simcoe, for example, is freezing 13 days later than 130 years ago; Swift Current in Saskatchewan freezes 24 days later.
- Increased temperatures can contribute to more air pollution.
- Over the last 50 years, only the extreme northeast corner of the country (eastern Baffin Island, Newfoundland and Labrador, northern Quebec) got colder; everywhere else got warmer.
- Higher temperatures evaporate more water from the earth's surface that leads to more rain in rainy areas and more droughts in dry area. In other words, more weather pattern extremes.

"If we could predict the weather perfectly, it would take all the fun out of being Canada," Dave Phillips,Environment Canada's chief metereologist

- British Columbia opened 2006 with a record number of wet days in January. November was a record-setting wet month for Vancouver, causing landslides, flooding and a boil-water advisory. Another series of storms hit the province in December, toppling trees in Stanley Park and leaving about 250,000 people without power.
- In the summer, by contrast, a much drier weather pattern contributed to 50 per cent more wildfires than usual.
- 2006 overall was the second-warmest year on record across Canada.
- It was the tenth consecutive year of above-average temperatures.
- Winter of 2005 and 2006 were the warmest on record.
- Winnipeg recorded its driest June and July ever and its warmest January.
- Edmonton experienced its highest temperature in 70 years.
- A record number of hailstorms caused millions in property and crop losses on the prairies.
- Toronto's Pearson Airport recorded its warmest night ever.
- Power thunderstorms killed four people and left thousands of people without power in Quebec and Ontario.
- Southern Ontario and southern Quebec had the wettest fall on record and one of the wettest years ever.
- Montreal endured its rainiest year ever.

International Evidence

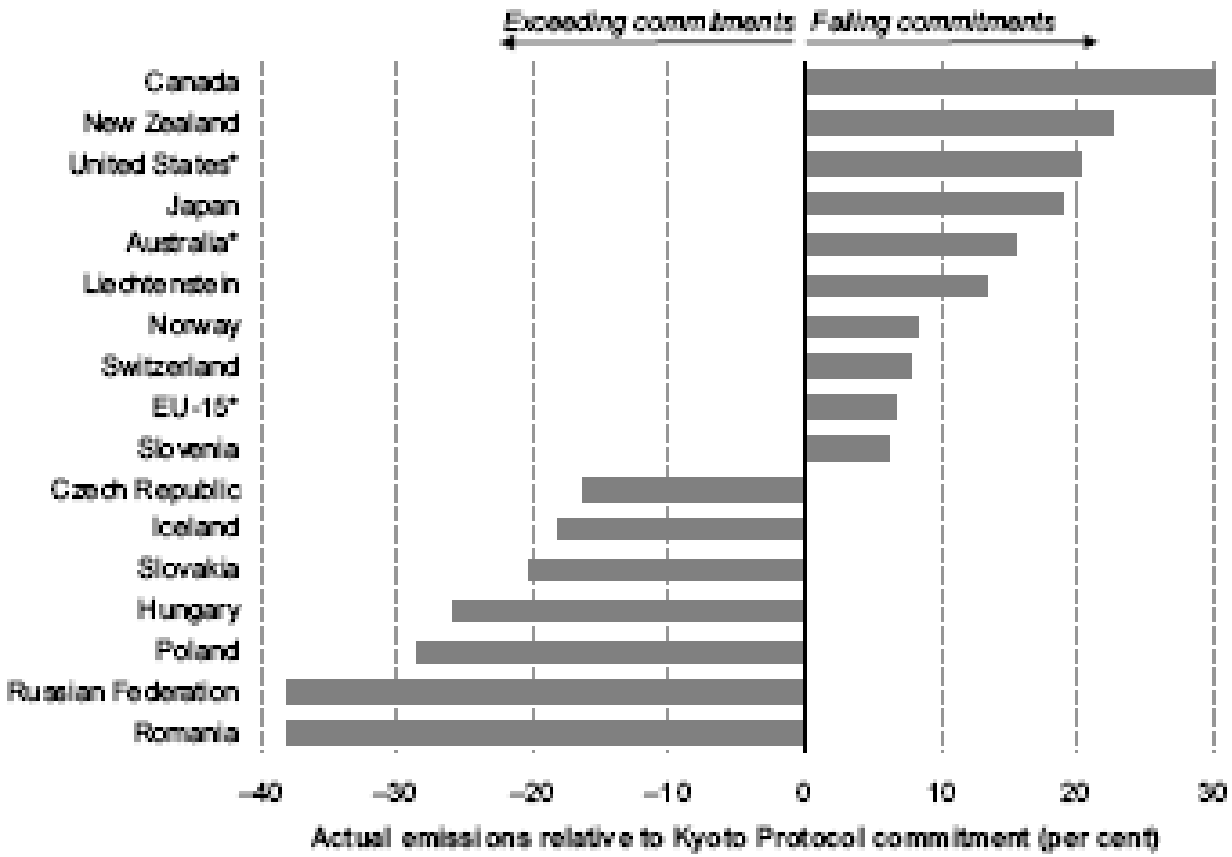
- A widespread consensus, articulated in the reports of the United Nations Intergovernmental Panel on Climate Change (IPCC) that the atmosphere is warming, and that the principal cause is human activity.
- The 1990s were the hottest decade in 140 years of global climate records.
- Carbon dioxide emissions have been accelerating over the past century, as have more powerful greenhouse gases such as methane.
- Unless action is taken, emissions from developing countries such as Canada are projected to increase, while those from developing countries such as China and India are skyrocketing.
- More warming. How much? The IPCC estimates 2 to 6 degrees Celsius over the next century.

Why Do Anything?

- Global warming isn't real.
- Canada is only responsible for about 2 per cent of total global emissions. (Responsible stewardship, tragedy of the commons)
- China, India and the others. Aren't they contributing more?
- The United States isn't part of Kyoto. Why should Canada be?

Canada's Kyoto Record

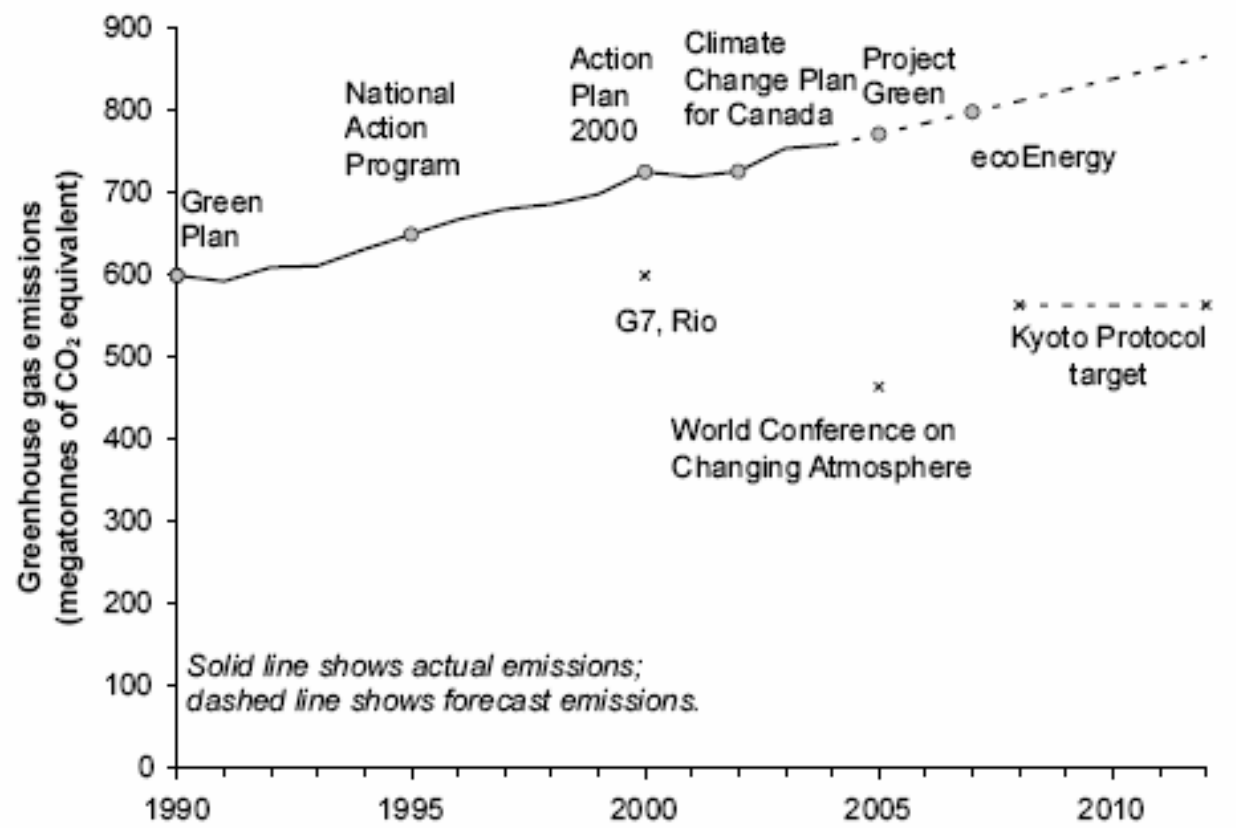
Commitments and Actual ghg Emissions of Signatories to the Kyoto Protocol, 2005



Source: Data from "Key GHG Data," United Nations Framework Convention on Climate Change, 2005.

Canada's Kyoto Record

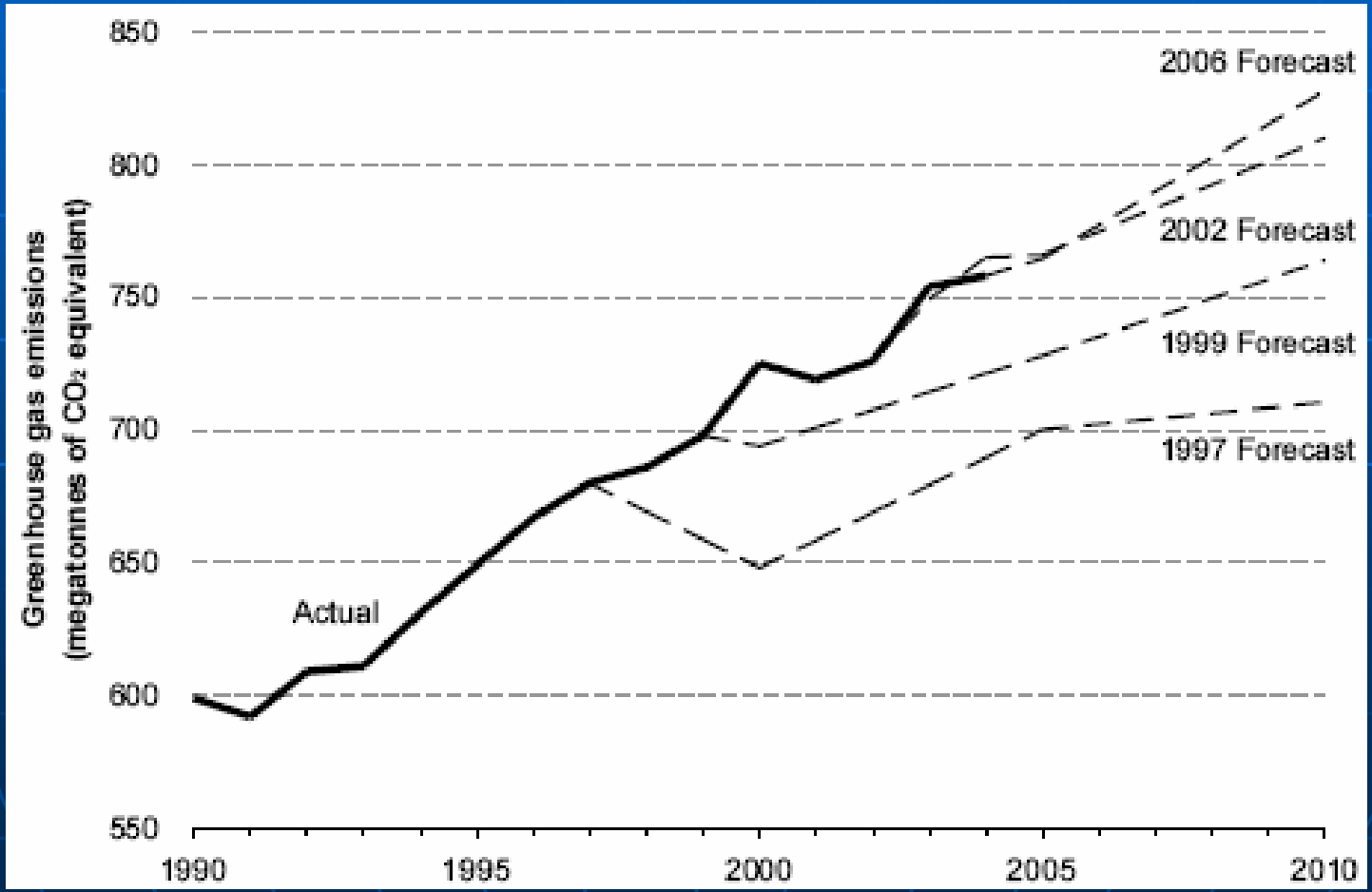
Canadian ghg Emissions and ghg Reduction Policies



Source: Historic emissions from Environment Canada GHG Inventory, 2006; forecast from calculations by Mark Jaccard and Nic Rivers.

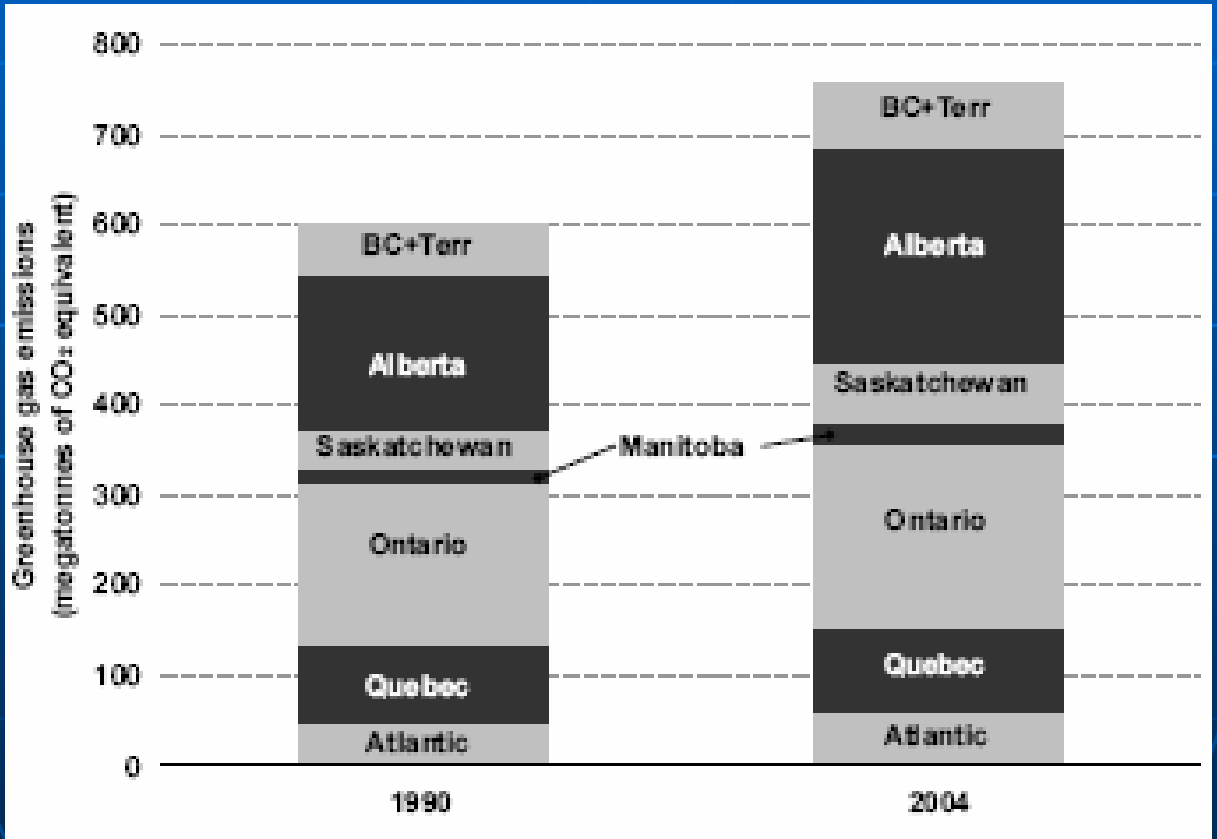
Canada's Kyoto Record

Government Forecasts of Canadian ghg Emissions



Canada's Kyoto Record

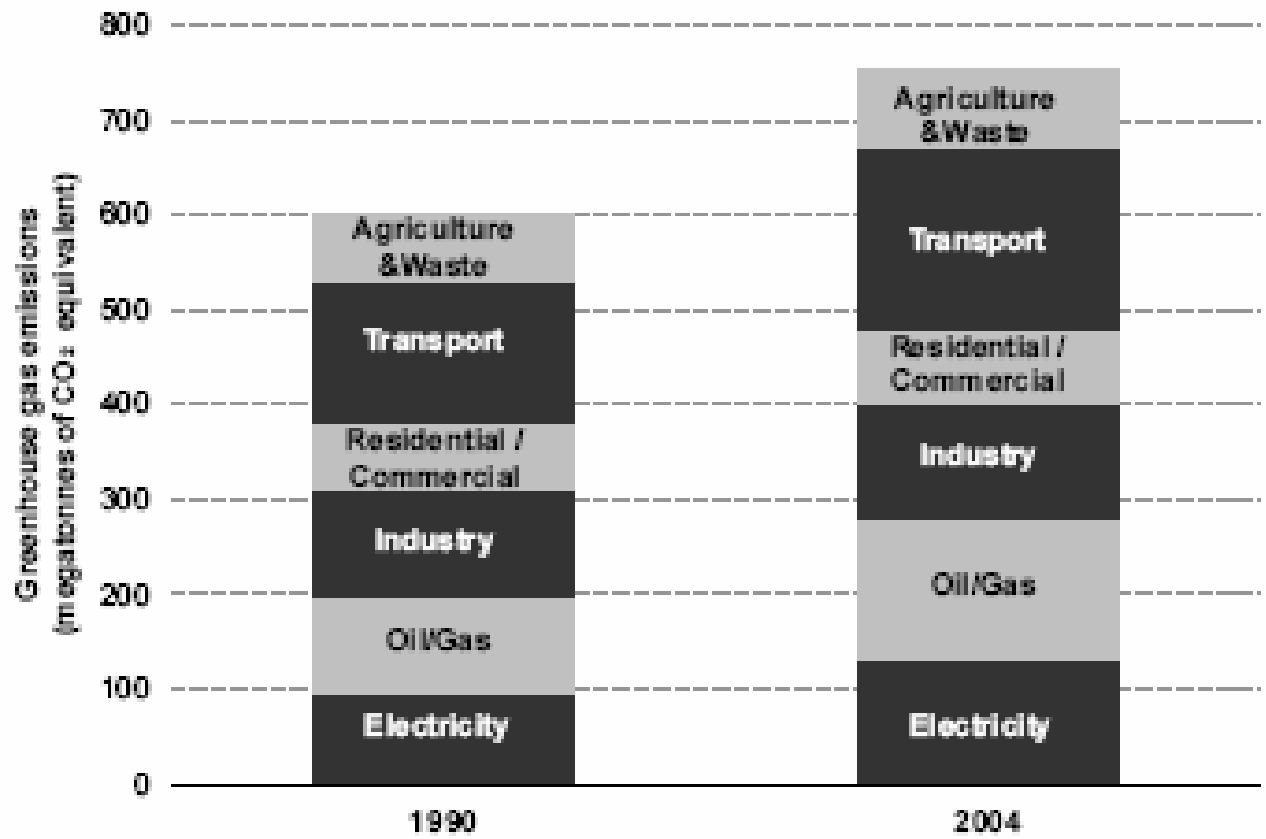
GHG Emissions by Province and Territory, 1990 and 2004



Source: Adapted from Environment Canada GHG Inventory, 2006.

Canada's Kyoto Record

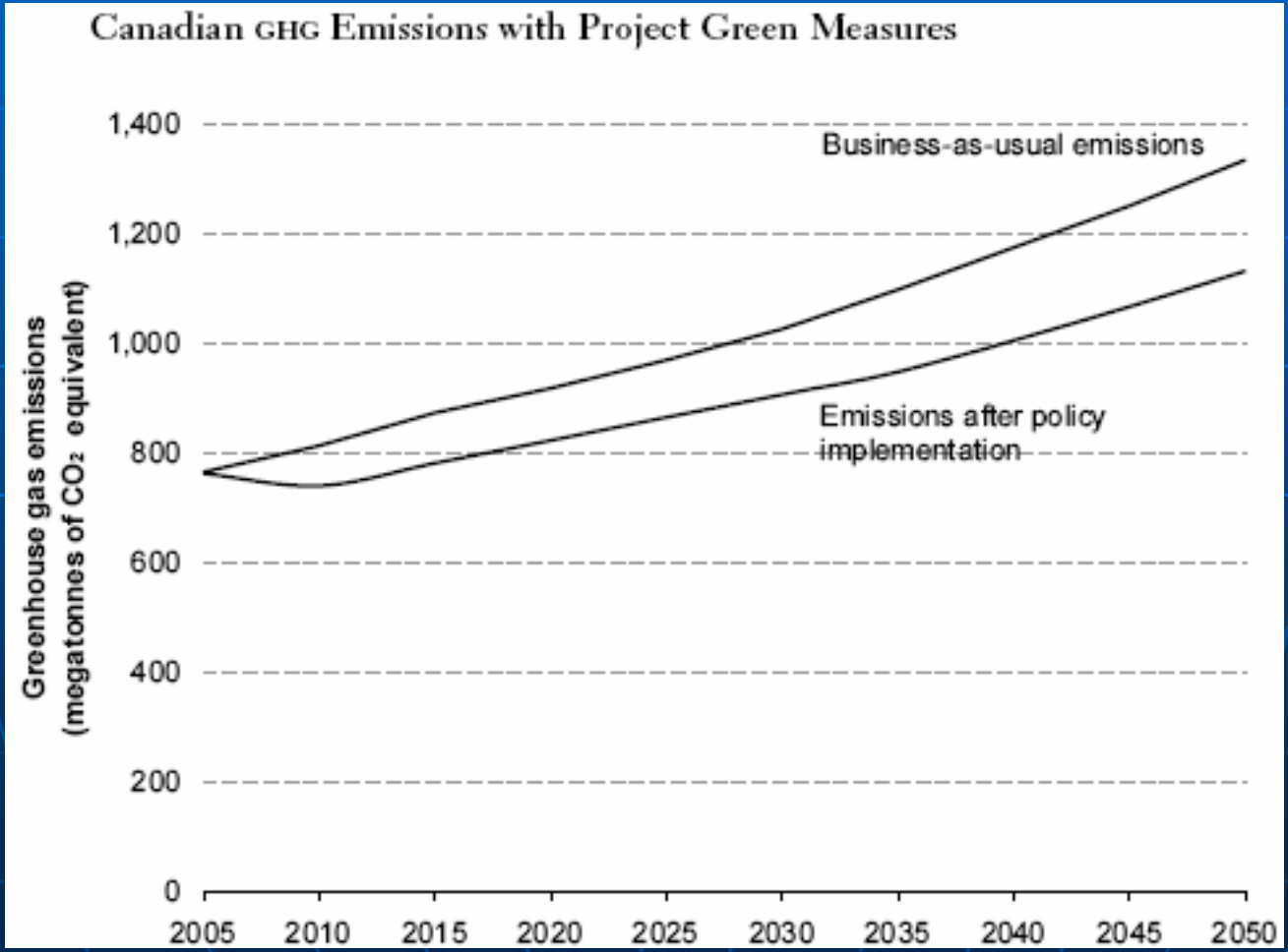
GHG Emissions by Source, 1990 and 2004



Source: Adapted from Environment Canada GHG Inventory, 2006.

Paul Martin/ Stéphane Dion's "Green Plan"

Canadian ghg Emissions with Project Green Measures

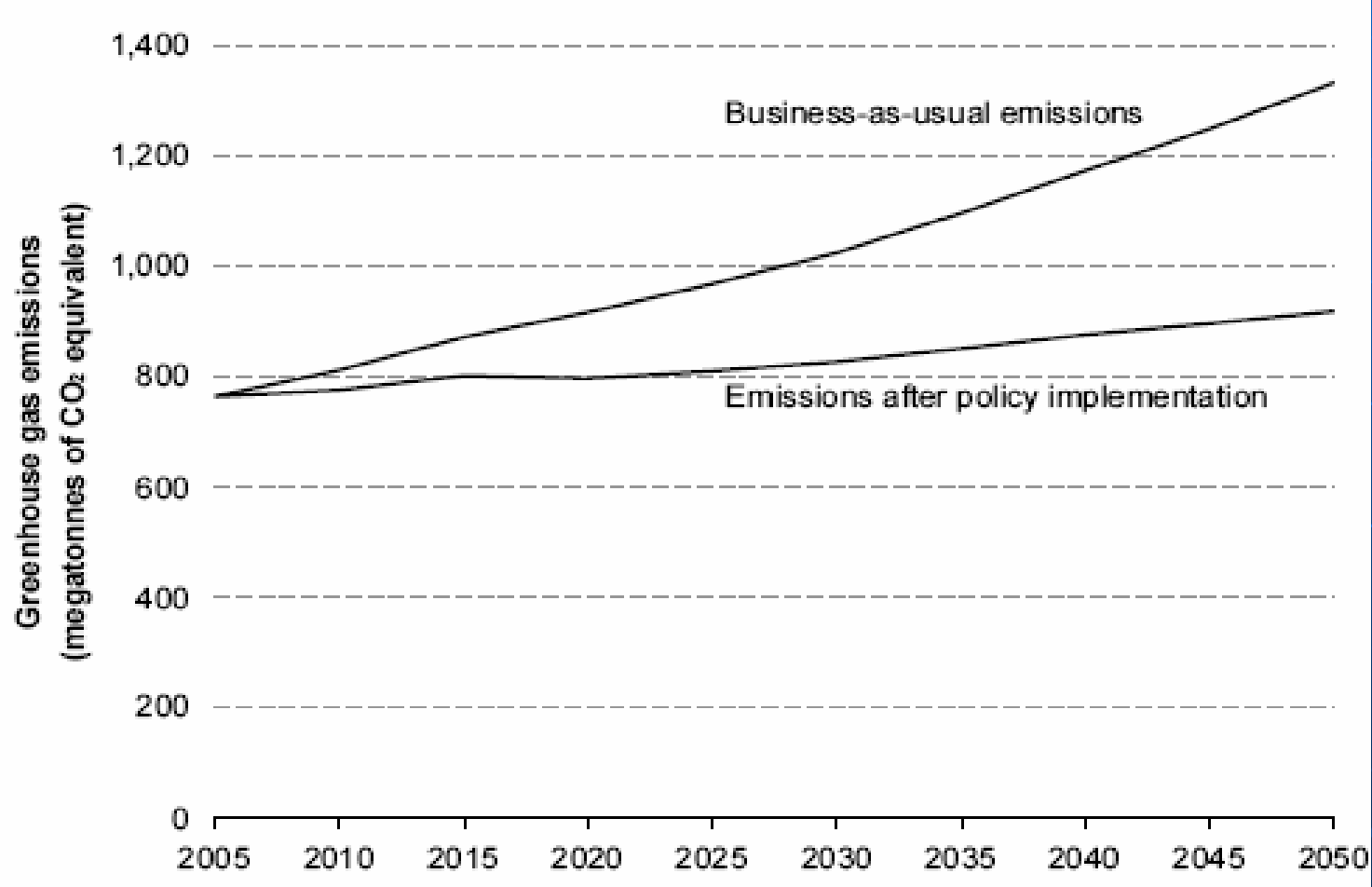


Stephen Harper's "EcoPlan"

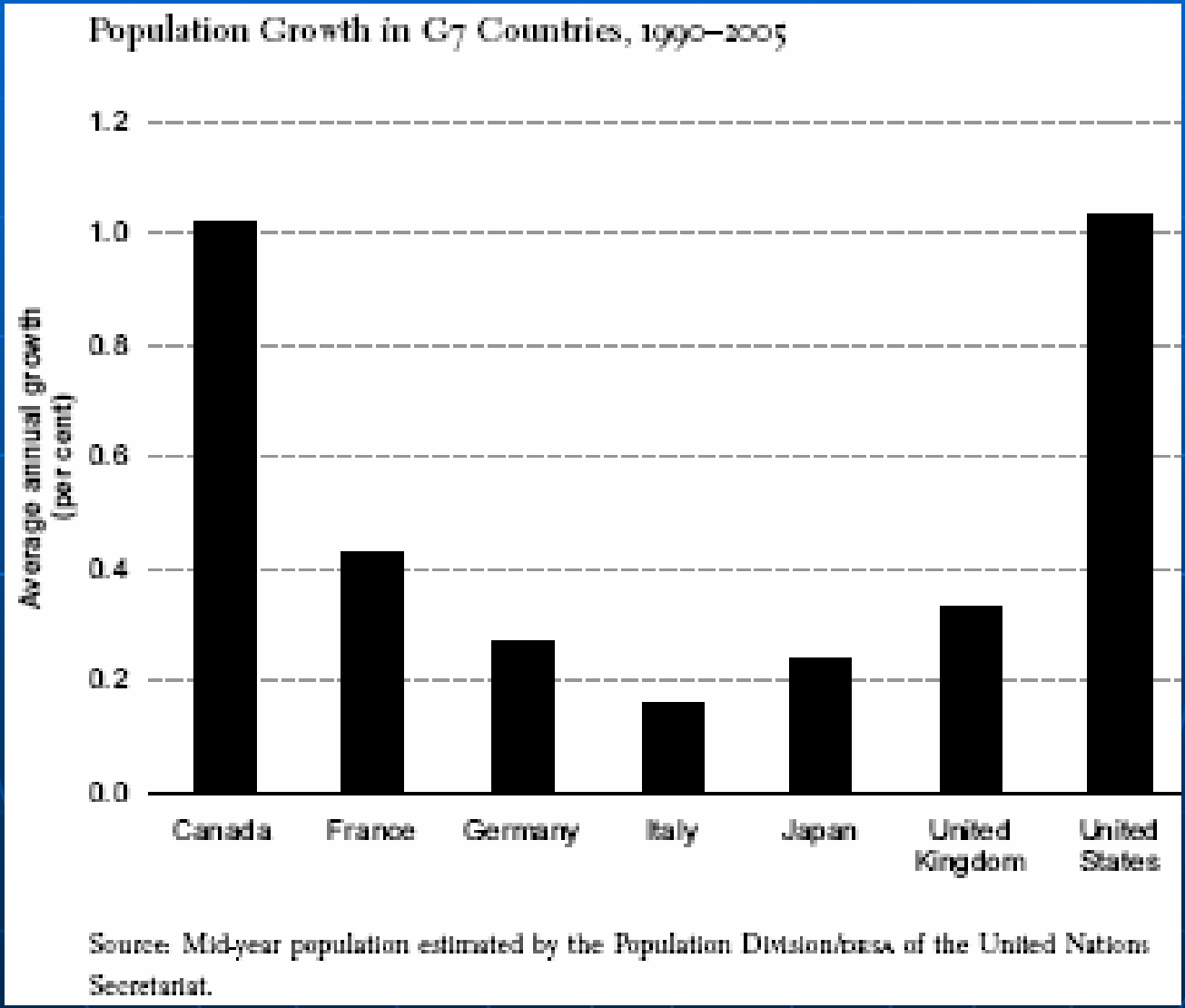
Table 1: *Estimated Emissions Reductions by Policy*

	Estimated Domestic GHG Reduction in 2020 Compared to BAU[a]	Estimated Domestic GHG Reduction in 2050 Compared to BAU
Phase I		
Public Transit Tax Credit	0.1 Mt	0.1 Mt
Renewable Fuel Standard	0.8 Mt	1.7 Mt
Phase II		
EcoENERGY Technology	1.1 Mt	8.0 Mt
EcoENERGY Efficiency	1.5 Mt	4.5 Mt
EcoENERGY Renewable	5.6 Mt	10.0 Mt
EcoTRANSPORT	1.2 Mt	2.2 Mt
EcoAGRICULTURE[b]	—	—
EcoTRUST	15.0 Mt	30.0 Mt
Phase III		
Large Industrial Emitters[c]	74.7 Mt	283.9 Mt
Passenger Vehicles	14.8 Mt	44.6 Mt
Energy-using Products	1.7 Mt	2.6 Mt
Total	**116.5 Mt**	**387.6 Mt**

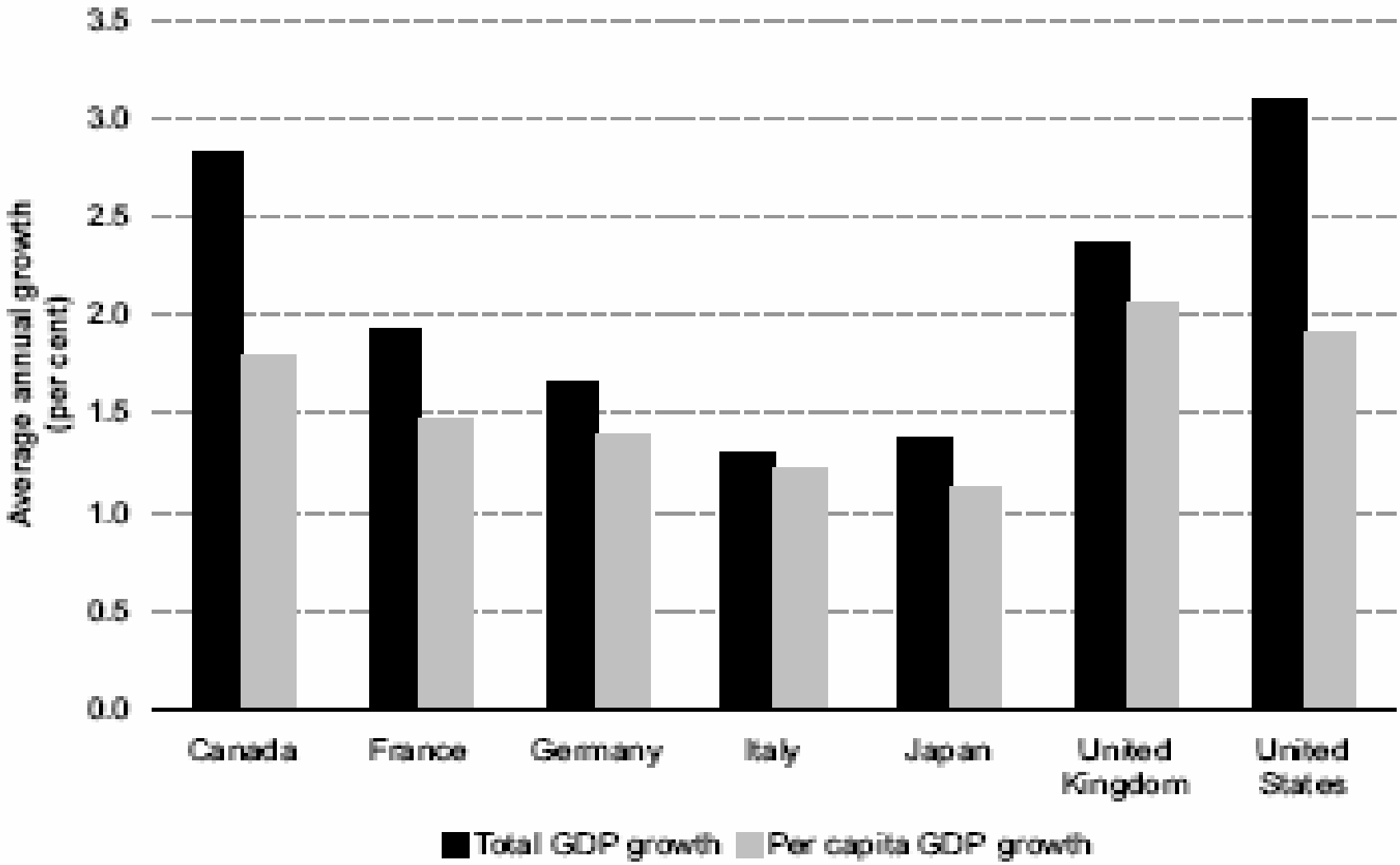
Stephen Harper's "EcoPlan"



Canada's particular challenges

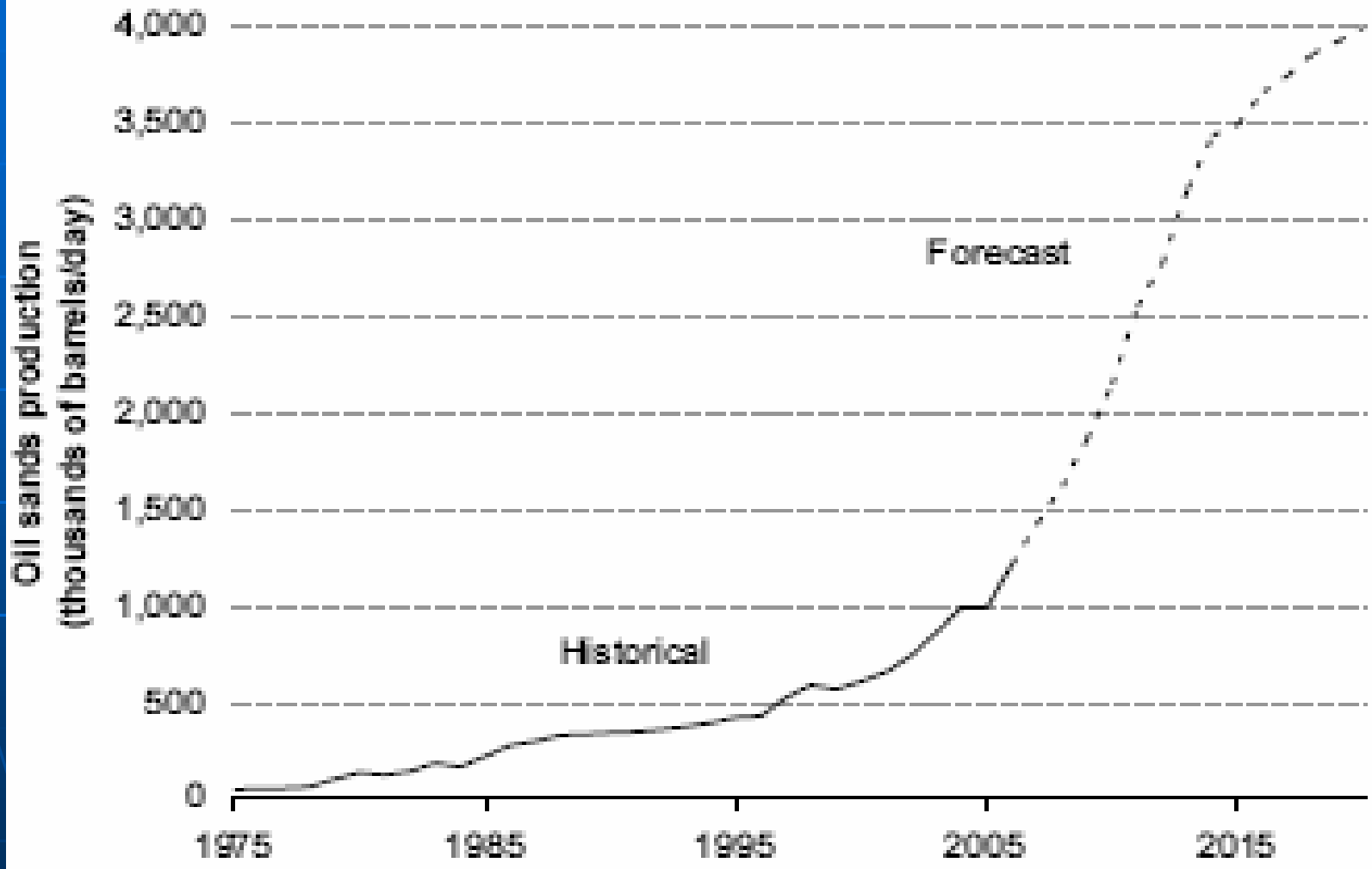


Rates of Economic Growth in G7 Countries, 1990–2005

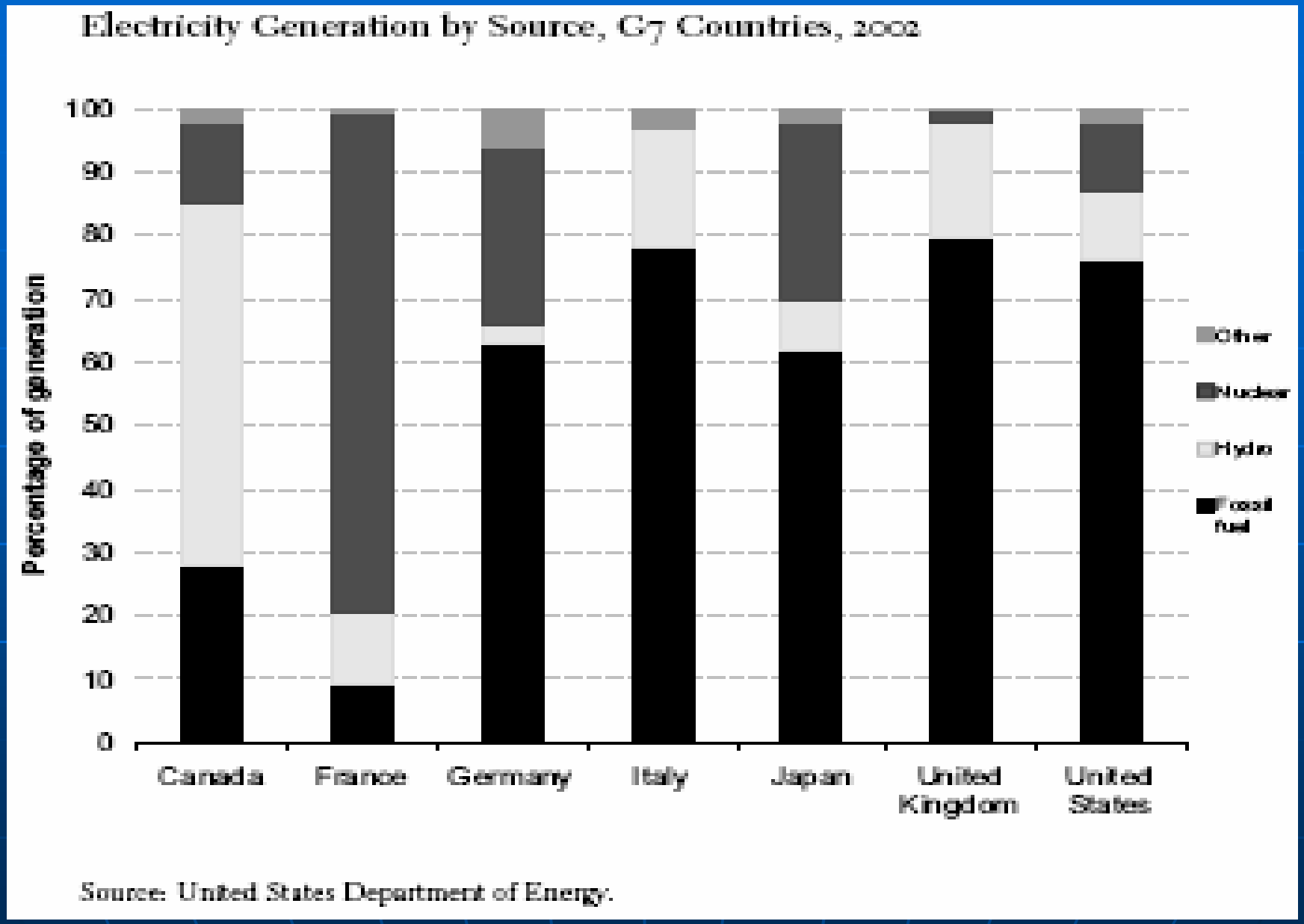


Source: World Bank.

Canadian Oil Sands Output and Forecast, 1975–2020



Source: Historical oil sands output from National Energy Board; forecast oil sands output from Canadian Association of Petroleum Producers.


Electricity Generation by Source, G7 Countries, 2002
Percentage of generation
100
90
80
70
60
50
40
30
20
10
0
Canada
France
Germany
Italy
Japan
United Kingdom
United States
Other
Nuclear
Hydro
Fossil fuel
Source: United States Department of Energy.

Why Have We Failed?

- Uniquely Canadian difficulties
- Public opinion, until recently
- Political Will
- Environmental dreaming
- Business opposition
- False Analyses

What Have We Tried?

- subsidies
- exhortation/public information

What Should We Do? Six Principles

- Don’t Treat the Atmosphere as a Free Receptacle
- We Don’t Have an Energy Problem: We Have an Emissions Problem
- A Price Has to be Put on Emissions
- Economic and Regulatory Policies are Required
- We Have Time/ We Have No Time to Lose
- Forget Kyoto/ Long Live Kyoto!

Economic and Regulatory Policies

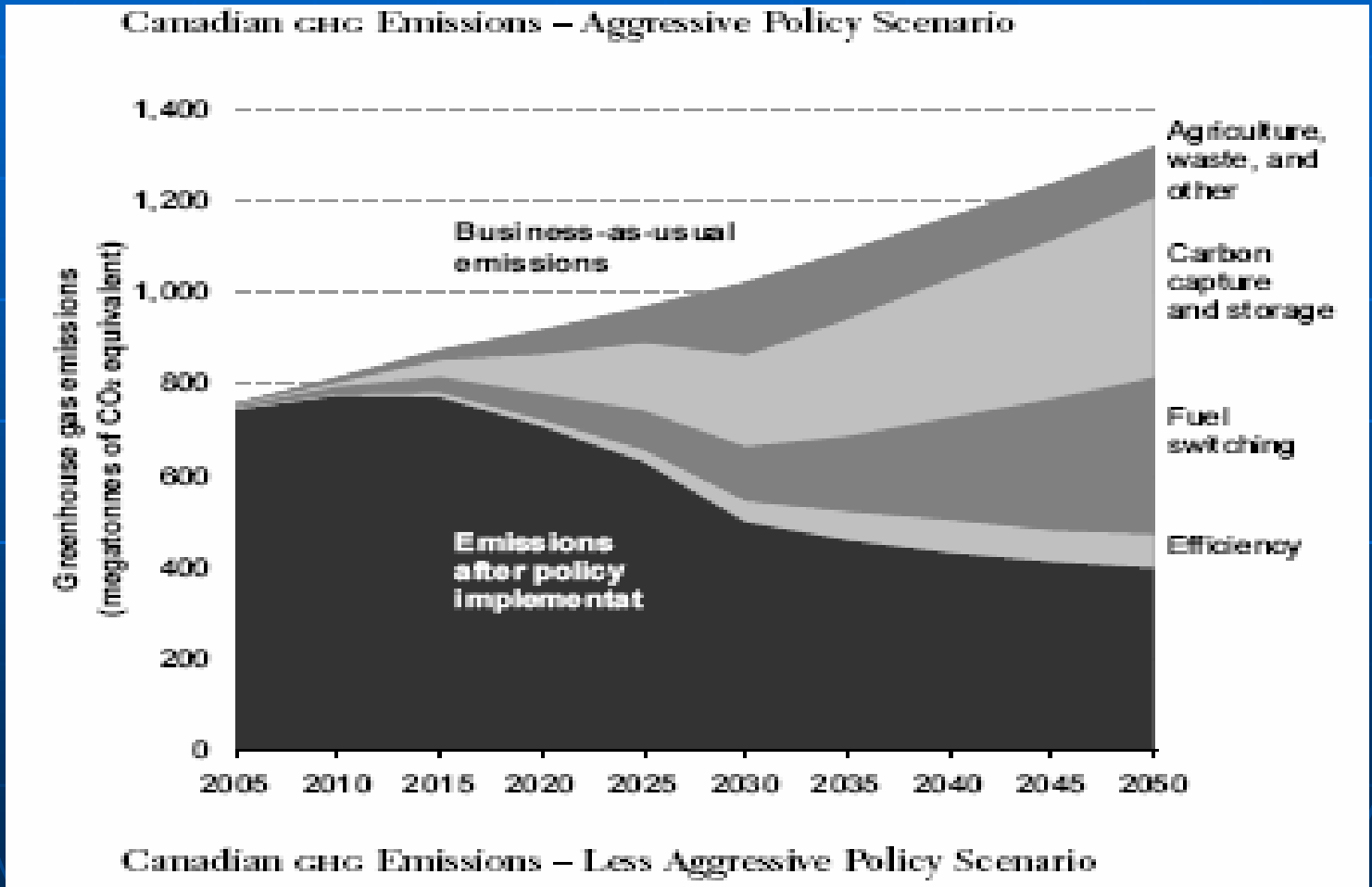
- "*The only way Canada can lower emissions appreciably over the coming decades – and this will be a decades-long challenge – is to design and implement either charges on emissions or regulations on emissions or technologies, or a mixture of both. We need economic tools and/or regulations to get the job done.*" - Hot Air text.

- carbon tax
- market-oriented regulations
- renewable portfolio standards
- carbon management standards (vehicle emissions standards)
- buildings and production standards
- carbon capture and storage

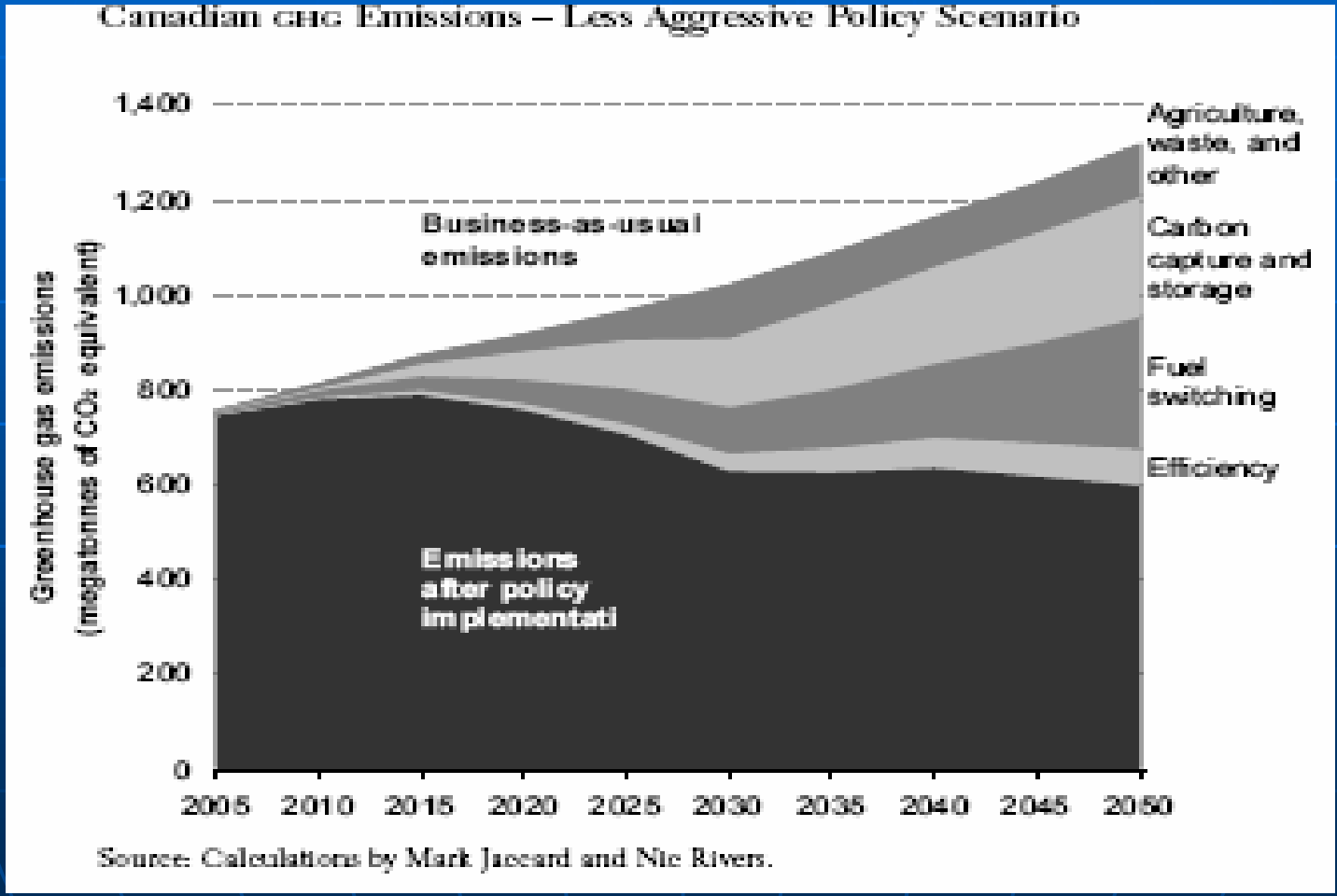
Why a Carbon Tax?

- it is the best way to produce, over time, changes in behavior by consumers and producers.
- set the tax initially at a modest level, rising gradually over time
- a tax might start at $25-a-tonne and rise to $100- (less aggressive) $150-a-tonne by 2050 (more aggressive)
- increase annual energy costs per household by 25-50 per cent – or about 1 per cent a year.
- tax must be structured as to be revenue-neutral to governments; offsets for low-income people

Aggressive Policy Scenario



Less Aggressive Policy Scenario



Eight Warnings

- If target are proposed, but the politicians setting them do not detail how they will be reached, assume failure.
- If, after advancing a target, politicians propose policies that lack a regulatory or financial constraints on GHG emissions, assume failure.
- If politicians insist that behavioral change by individuals alone will solve the climate change problem, assume failure.
- If politicians talk only about exciting, enticing actions – renewable energy, energy efficiency, carbon capture and storage – but say nothing about economic policies to force these actions, assume failure.
- If politicians complain about jurisdictional constraints, assume failure.
- If politicians crisscross the country or their province handing out subsidies and offering photo opportunities of themselves in front of wind turbines, research laboratories, or corn fields, assume failure.
- If politicians make a big deal for ideological reasons or other reasons about ruling out all forms of GHG taxes, and don't substitute for those tax policies ones that rely on market-oriented regulations such as emissions caps with tradable permits, assume failure.
- If politicians insist that Canada can meet its Kyoto commitment, offer the benefit of the doubt that they are not lying, just being disingenuous.

“The Time for Hot Air is Over”