

Energy and the Environment – A Canadian Perspective



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Overview



- Energy's Importance to Canada
- Energy-Environment Interface
 - Climate Change
 - Clean Air
 - North American Context
- Canada's Climate Change Plan
 - Case study in integration
- Moving Forward -- Opportunities and Challenges



Policy Context



“A strong energy sector is...absolutely fundamental to Canadian prosperity.

...it is important that we maintain high standards of environmental protection and enforcement. We must not -- indeed cannot -- allow the lowest common denominator to prevail. We must meet our commitment to the sustainable development of our natural resources. Indeed, Canada views maintaining a healthy environment as not only a challenge but also an economic opportunity”. *The Right Honourable Jean Chrétien, Prime Minister of Canada, Calgary, April 6, 2001*





Energy's Importance to Canada



Energy's Economic Importance to Canada



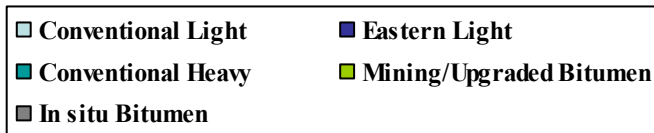
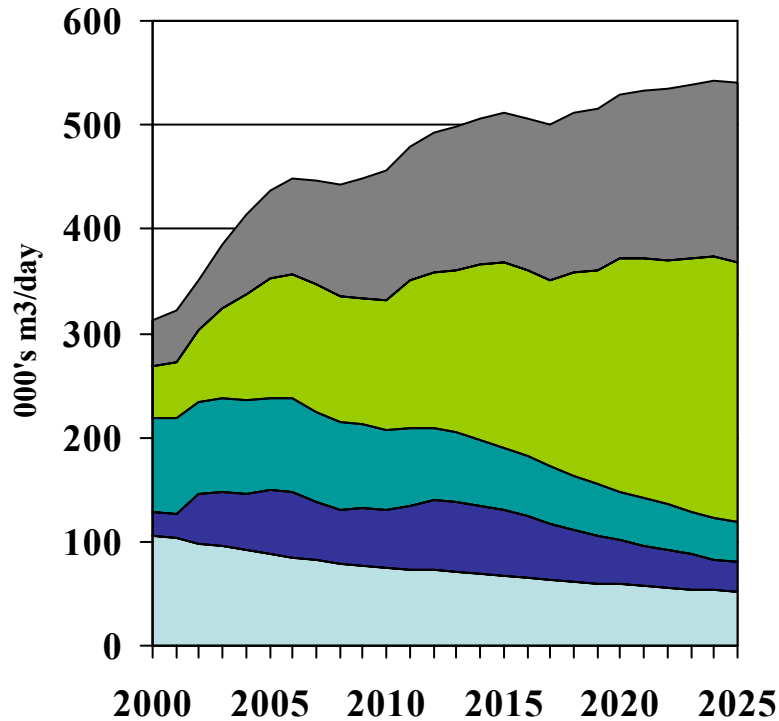
- The energy sector plays a vital role in the Canadian economy. It directly accounts for:
 - 6.2% of GDP in 2002
 - 318,000 jobs; some 2% of labor force
- The energy sector has an important presence right across the economy:
 - notably large in Alberta (22% of GDP), Saskatchewan (15%) and Newfoundland (14%)



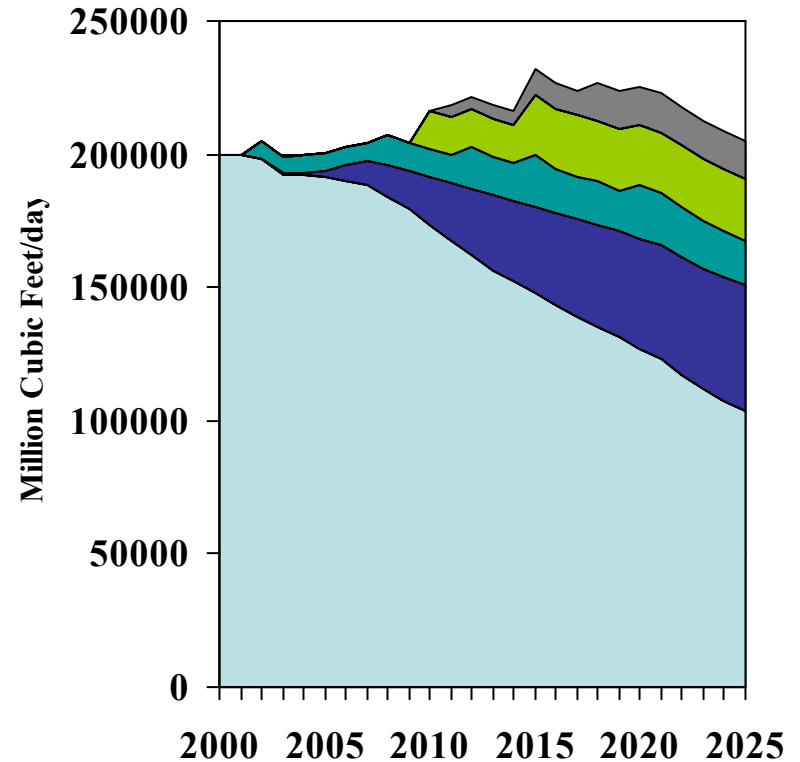
Energy in Canada - Oil and Gas Production



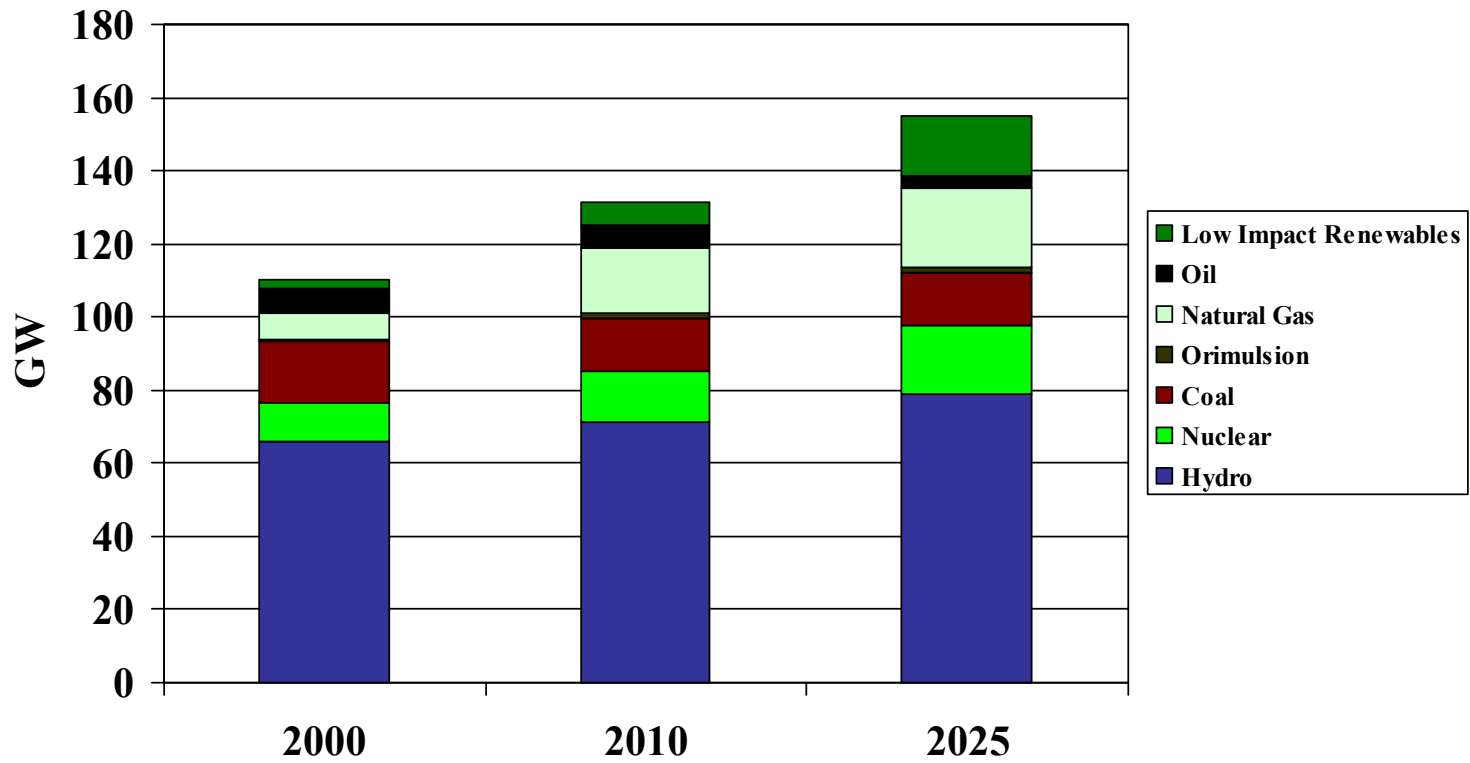
Oil Production



Natural Gas Deliverability



Energy in Canada - Electricity Generating Capacity





Energy-Environment Interface



How Does Energy affect the Environment?



- Climate change impact
 - 81% of GHG emissions energy-related
- Clean Air impacts
 - Fossil fuel combustion accounts for 85% of NO_x emissions
- Other environmental impacts
 - Land use
 - Habitat and biodiversity
 - Waste (e.g., oil sands tailing ponds)



Clean Air Actions



- Canada-Wide Standards
 - Federal-provincial framework
- Vehicle-Fuel Agenda
 - Sulphur in gasoline -- 150 parts per million (ppm) as of July 2002; 30 ppm by January 2005
 - Sulphur in diesel – plans to reduce by 95% by June 2006
- Canada-Wide Acid Rain Strategy Post-2000
 - Targets and schedules for further SO₂ emission reductions (Ont., Que., N.B., N.S.)



Clean Air Actions – International Context



- Ozone Annex to Canada-US Air Quality Agreement
 - Signed and came into force in December 2000
 - Target: reduce NO_x emissions by as much as 44% in central and eastern Canada and 43% in parts of the U.S. by 2010
 - Calls for a 50% decrease in NO_x emissions from the fossil-fuelled electricity sector in Ontario



North American Context



- Canada-US energy markets closely linked
 - Natural gas -- about half of Canadian production exported
 - Crude oil -- more than half production exported
 - Electricity -- Canada supplies close to 100% of US imports
 - Canada's electricity imports rising due to demand pressures in Alberta, Saskatchewan and Ontario
- Canada supplies about 27% of total U.S. net energy imports
- Integrated markets for automobiles and appliances
 - Over 80% of cars produced in Canada exported to US
 - Significant two-way trade in appliances and equipment





Canada's Climate Change Plan – Case Study in Integration



Canada's Kyoto Challenge



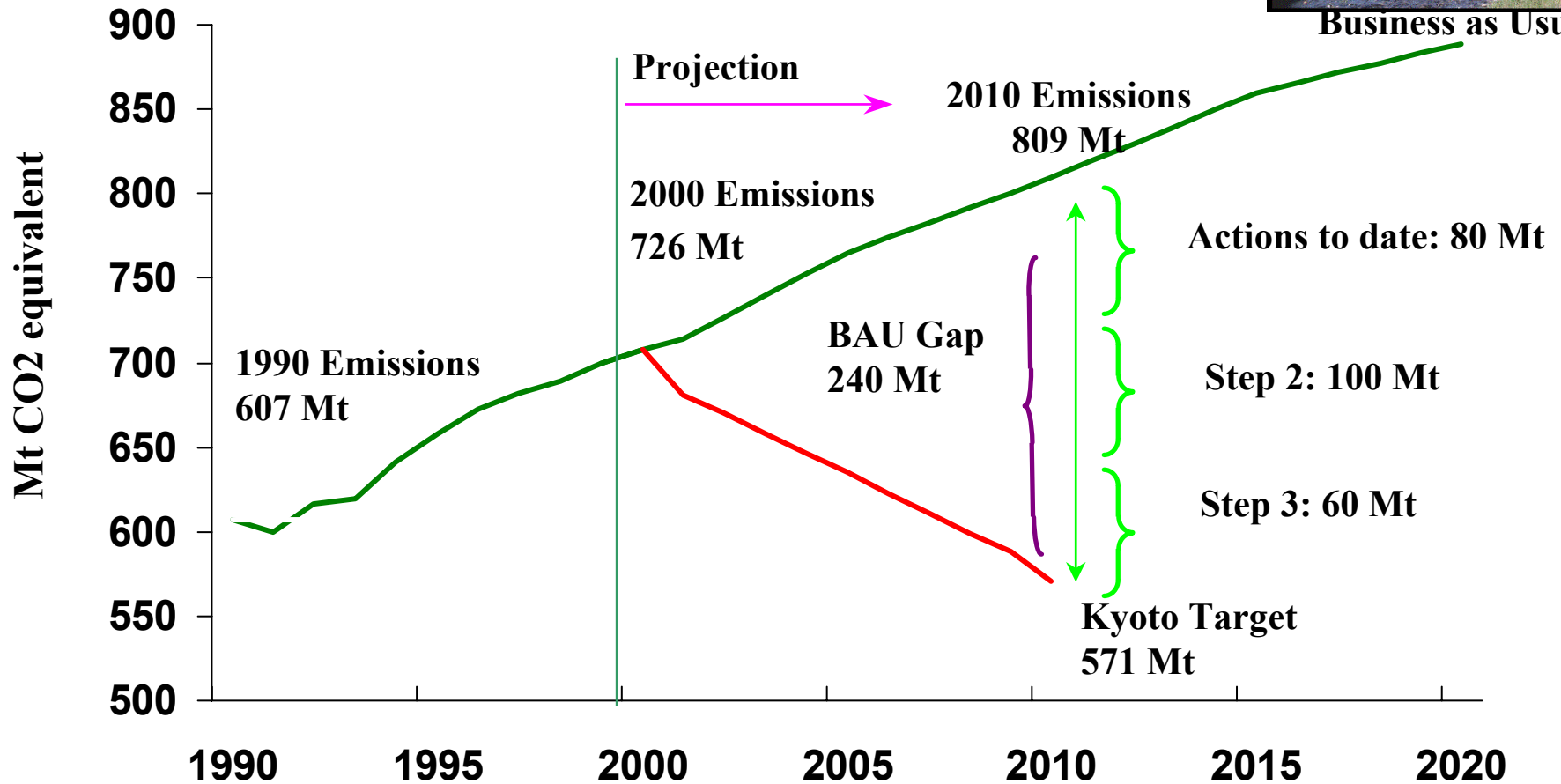
- 2% of global emissions, 9th largest global emitter, and 3rd highest per capita in industrialized world
- Kyoto target -- 6% below 1990 levels by 2008-2012
- US non-ratification creates unique challenges



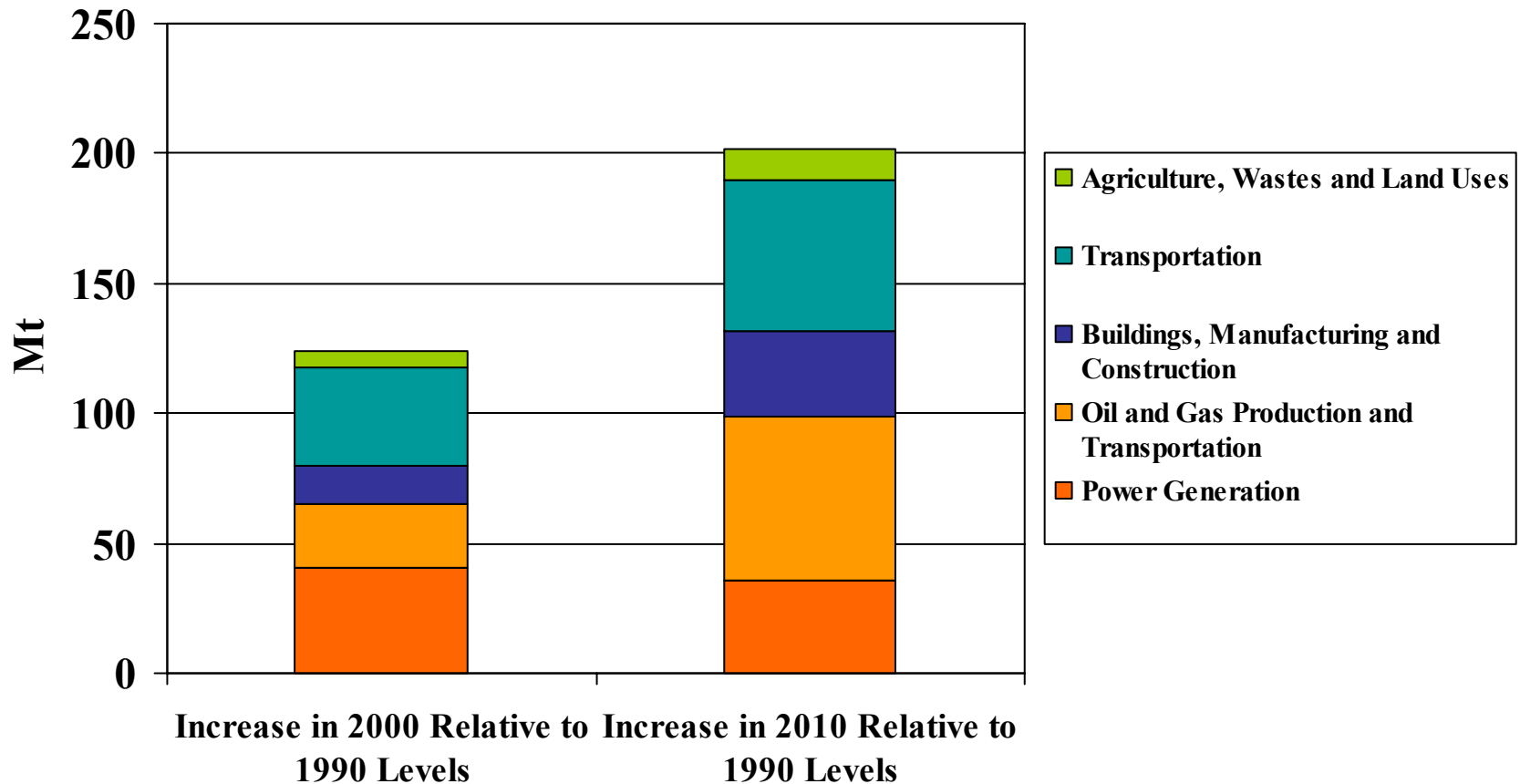
The Challenge: Canada's GHG emissions and the Kyoto Protocol



Business as Usual



Growth in GHG Emissions



Canada's Climate Change Plan – Five Key Instruments



- Large final emitters (LFE) system
- Funding of partnerships with the Govt of Canada and Provinces/Territories
- Strategic infrastructure investments
- Coordinated innovation strategy
- Targeted measures
- Funding announced in Budget 2003 – over \$1 billion in announcements this August



LFE System



- Covers almost 50% of Canada's 2010 emissions
- Emission intensity targets established by regulatory backstop/covenant
 - no absolute cap on emissions -- output growth is facilitated
 - overall target equivalent to about 15% reduction in emissions intensity
- Targets to take account of early action, competitiveness, R&D
- Variety of options for compliance including
 - in-house emission reductions
 - purchasing emission permits from other companies -- domestic trading
 - investment in the Kyoto Mechanisms
 - investment in domestic offsets



Some other Energy-Related Items



- Cost-shared strategic investments in areas such as:
 - Renewable energy;
 - Clean coal demonstration projects
 - CO2 pipeline
- Programs/incentives for Residential/Commercial/Institutional Buildings
- Transportation, including
 - Improve new vehicle fuel efficiency by 25% by 2010
 - Support for increased ethanol penetration
- Programs for SMEs





Moving Forward – Opportunities and Challenges



Opportunities and Challenges



- Climate Change is a long term issue
- Kyoto Protocol is critical first step but more far-reaching steps will be needed
- Technology development will be key in areas such as
 - Carbon-lean and non-carbon sources
 - Renewable energy
 - Carbon sequestration



Opportunities and Challenges

– Roles of Emissions Trading



- Price signal key to changing behaviour - emissions trading one mechanism
- Climate Change
 - Canada and Mexico – CDM
 - US non-ratification a barrier to a North American trading regime
- Clean Air
 - US has emissions trading in NO_x and SO_x
 - Ontario is exploring a NO_x trading system
 - North American trading mechanisms for NO_x and SO_x being explored

