Climate Change Policy Lessons from Canada and British Columbia for Local Governments

Lower Mainland Local Government Association

Whistler, May 2008

May 7, 2008

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In this talk

1. Canada's GHG situation
2. Policy options to reduce emissions
3. Canada's and BC's approach to reducing emissions
4. Lessons for local governments

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1. Canada’s GHG Situation

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Canada's GHG Emissions

- Significant GHG emissions
  - GHG emissions 2005 = 747 Mt CO_2e
  - 7^{th} largest emitter
  - ~ 23 t_{CO2e} per capita
    - One of the largest in the world
- Fast growing GHG emissions
  - Emissions have grown by ~ 25% since 1990
  - Compared to growth of ~ 13% in US, -2% in EU, -13% UK

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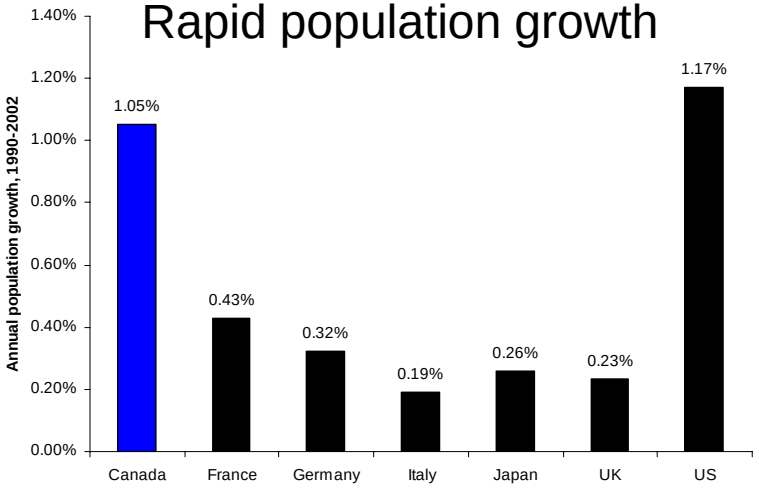
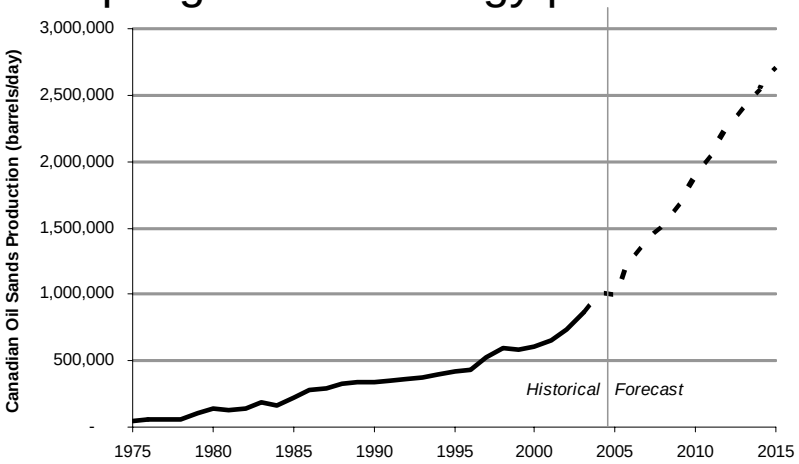
Source: UNFCCC, 2005, "Key GHG Data".
EC, 2007, "National Inventory Report".

Explaining GHG Growth

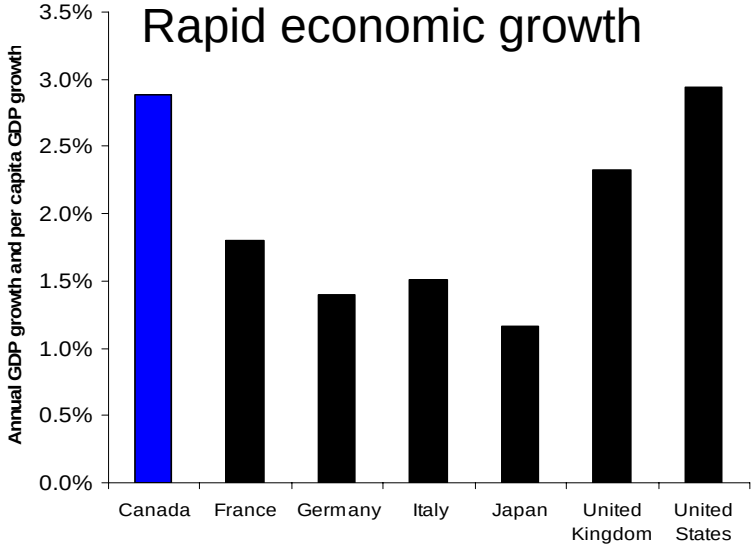
Rapid population growth



Rapid growth in energy production



Rapid economic growth



All of these trends are likely to continue…

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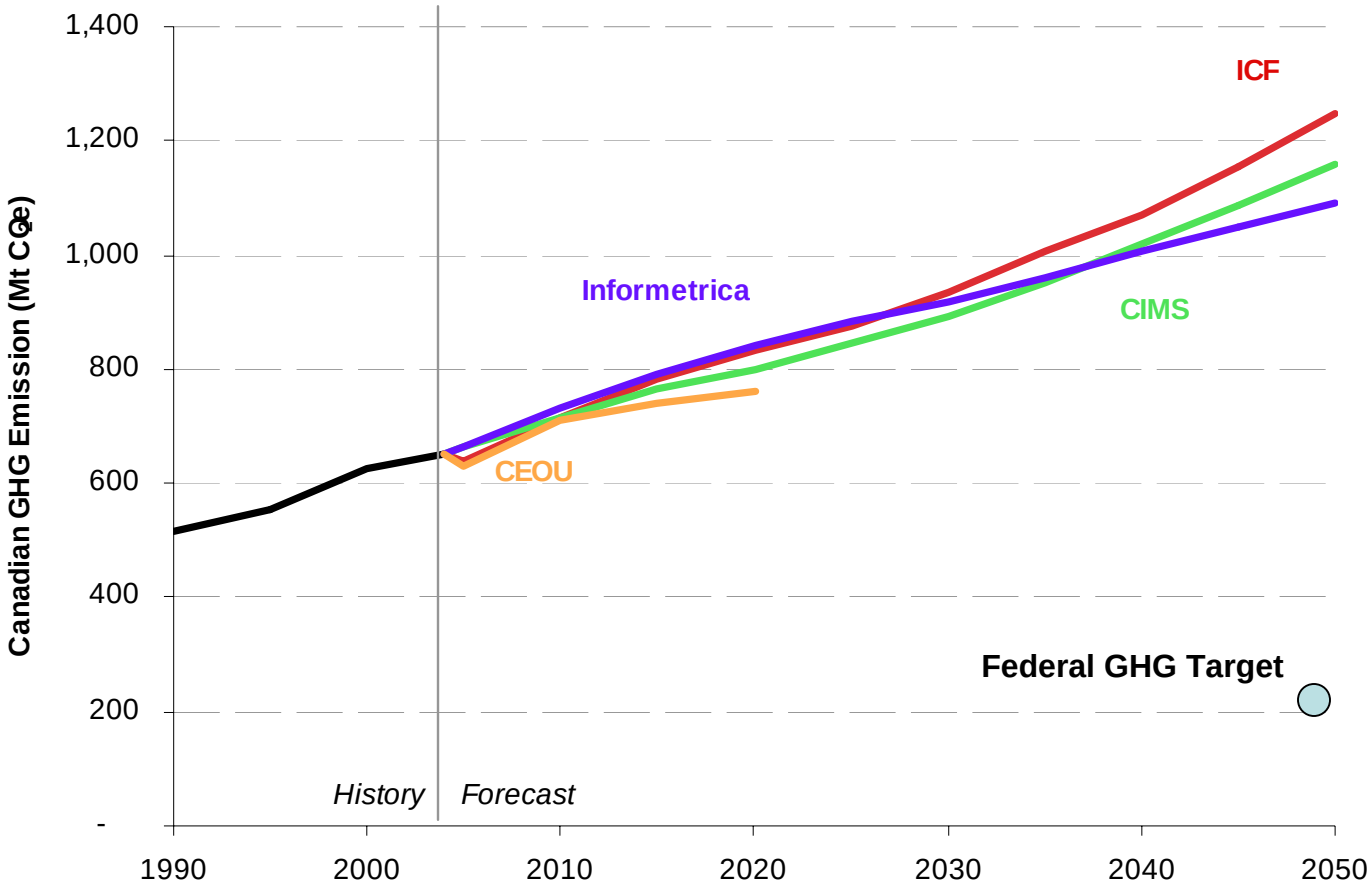
Source: National Energy Board, Canadian Association of Petroleum Producers, Statistics Canada

Future Trajectory (Without Policies)



Note: all forecasts exclude agriculture, waste, and solvent emissions, as well as some industrial process emissions.

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Source: Rivers, N., Bataille, C., Peters, J., 2006, "Pathways for GHG and CAC Reductions in Canada", Report to NRTEE.

2. Options for Reducing Emissions

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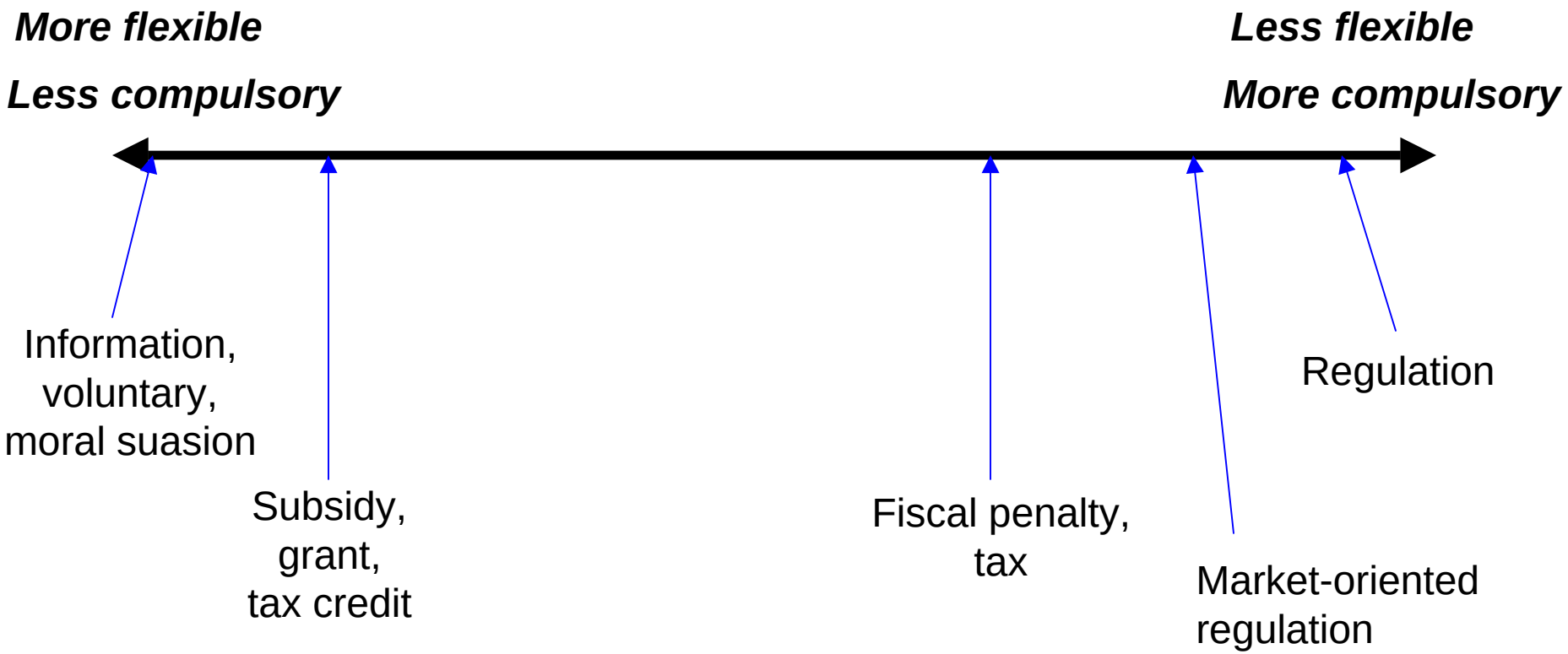
GHG Policy Options



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Voluntary/Information Policies

- Government provides information, support
- Significant flexibility in response
- Examples
  - Voluntary Challenge and Registry (industry)
  - ENERGY STAR labels on appliances
  - One-tonne Challenge
  - Memorandum of Understanding with vehicle manufacturers
- Problems
  - If GHG reduction is costly, unlikely to drive significant abatement

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Subsidy Policies

- Examples
  - Wind power production incentive
  - EnerGuide for houses retrofit rebate
  - Hybrid vehicle tax credits (provincial) and rebate (federal)
- Problems
  - Free-riders: 50 - 75%
  - Rebound: 5 - 20%
  - Too costly for government to significantly reduce emissions

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Fiscal Penalties

- Penalties on GHG emissions or on high-GHG/low-efficiency technologies
- Examples
  - Carbon taxes (BC, Norway, Sweden)
  - Green levy on fuel-inefficient vehicles (Canada)
- In general, considered cost-effective
- Problems
  - Political acceptability

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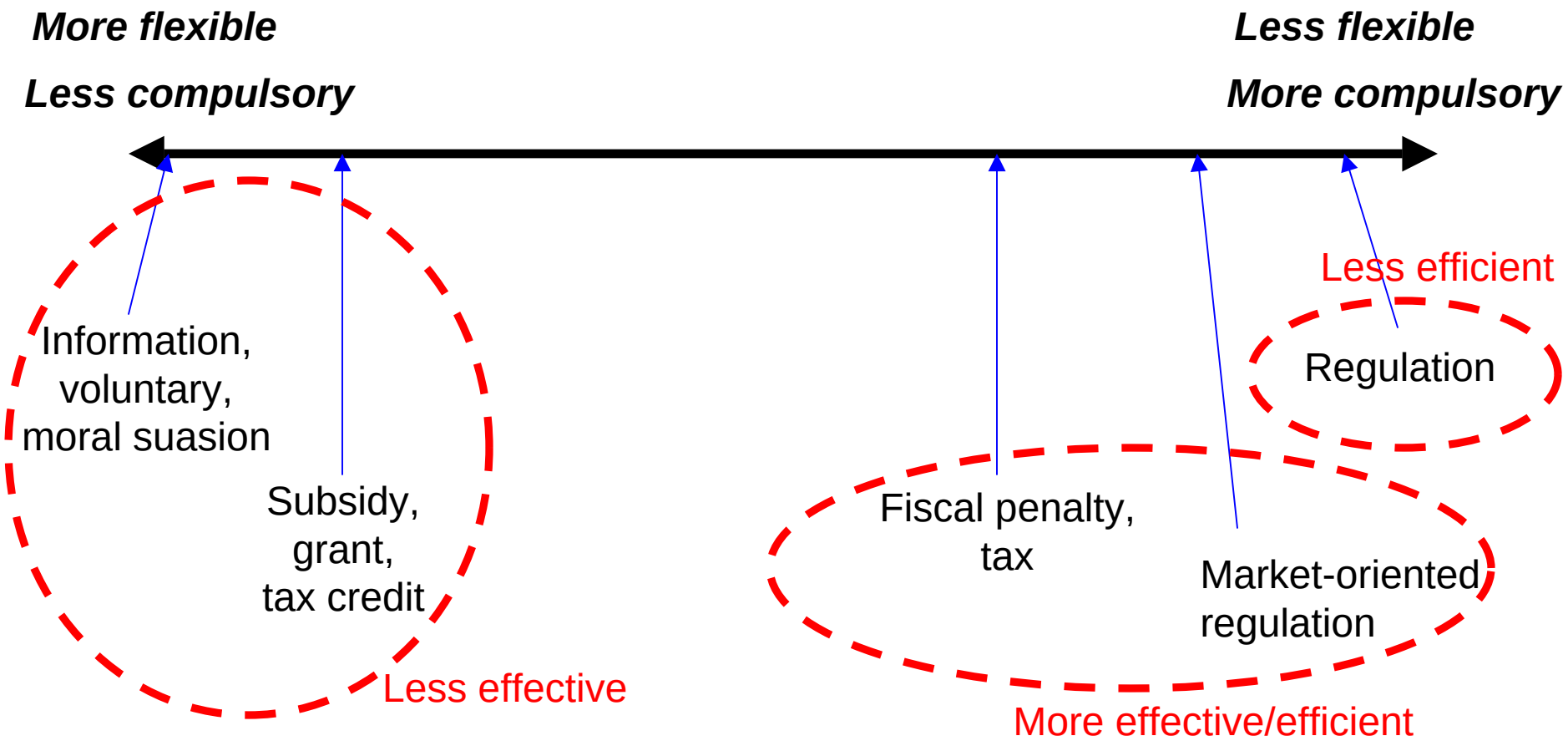
Regulatory Policies

- Technology or performance standards
- Enforced through legal/financial penalties
- Examples
  - Energy efficiency regulations (appliances)
  - Building codes
- Environmentally effective
- Possible high cost due to low flexibility

Market-oriented Regulations

- Aggregate regulatory requirement
- Individual participants determine their level of participation
- Negotiations conducted through a permit/certificate market
- Considered environmentally effective and relatively cost effective
- Examples
  - Cap and trade (EU)
  - Renewable portfolio standards (27 US states)

Policy Options Review



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3. Canada's and BC's Approach

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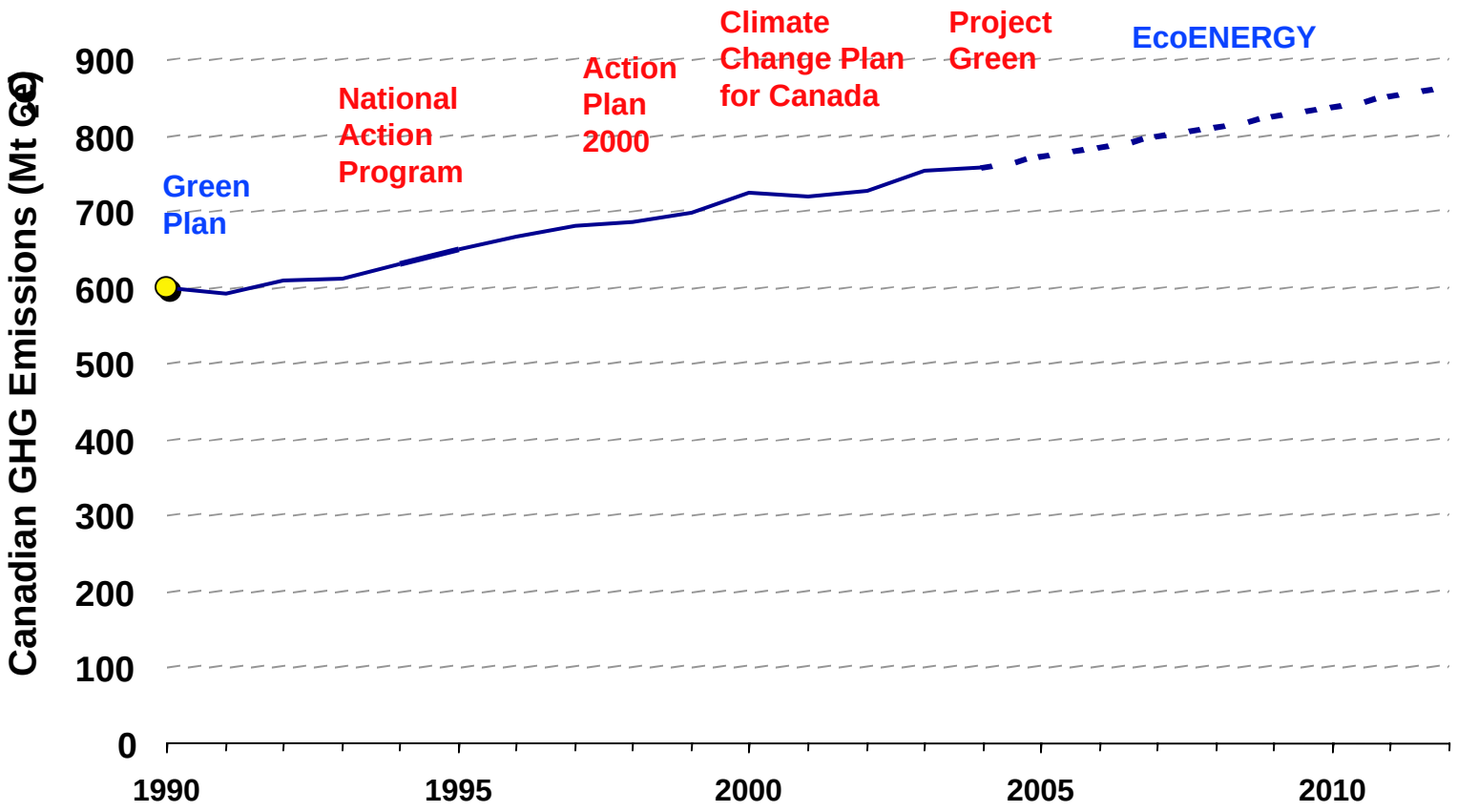
Canada's GHG Policy History



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Source: Historic emissions from Environment Canada, 2006, Greenhouse Gas Inventory.

Action Plan 2000

Transportation	Partnerships with automotive manufacturers and ethanol producers Information provision through EnerGuide for Vehicles Demonstration projects for hydrogen distribution infrastructure and efficient urban transportation	Subsidy/information Information Information
Energy Sector	Demonstration project for carbon sequestration Information provision and moral suasion through the Canadian Industry Program for Energy Conservation Voluntary agreements with industry Financial incentive for renewable energy Purchase of green power by government	Demo/Information Information Voluntary Subsidy Subsidy
Industry	Information gathering and benchmarking Energy-efficiency audits for small and medium enterprises	Information Subsidy/information
Buildings	Information provision to encourage retrofits in commercial sector Information provision through EnerGuide for Houses	Information Information

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Source: Action Plan 2000 on Climate Change.

Canada's Past Failure to Reduce Emissions

- Near-complete reliance on voluntary programs and modest subsidies
  - Voluntary programs have failed because significant GHG abatement is costly
  - Subsidies have failed because of free-ridership
- No financial or regulatory constraint on emissions of GHG to the atmosphere
- Result: Failure to reduce emissions

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British Columbia's Policy Approach

- Fiscal policy
  - Revenue-neutral carbon tax
- Market-oriented regulations
  - Cap and tradable permit system (Western Climate Initiative)
  - Vehicle emission standard
  - Renewable fuel standard
  - Net zero GHG electricity standard
- Result: Likely success in reducing emissions

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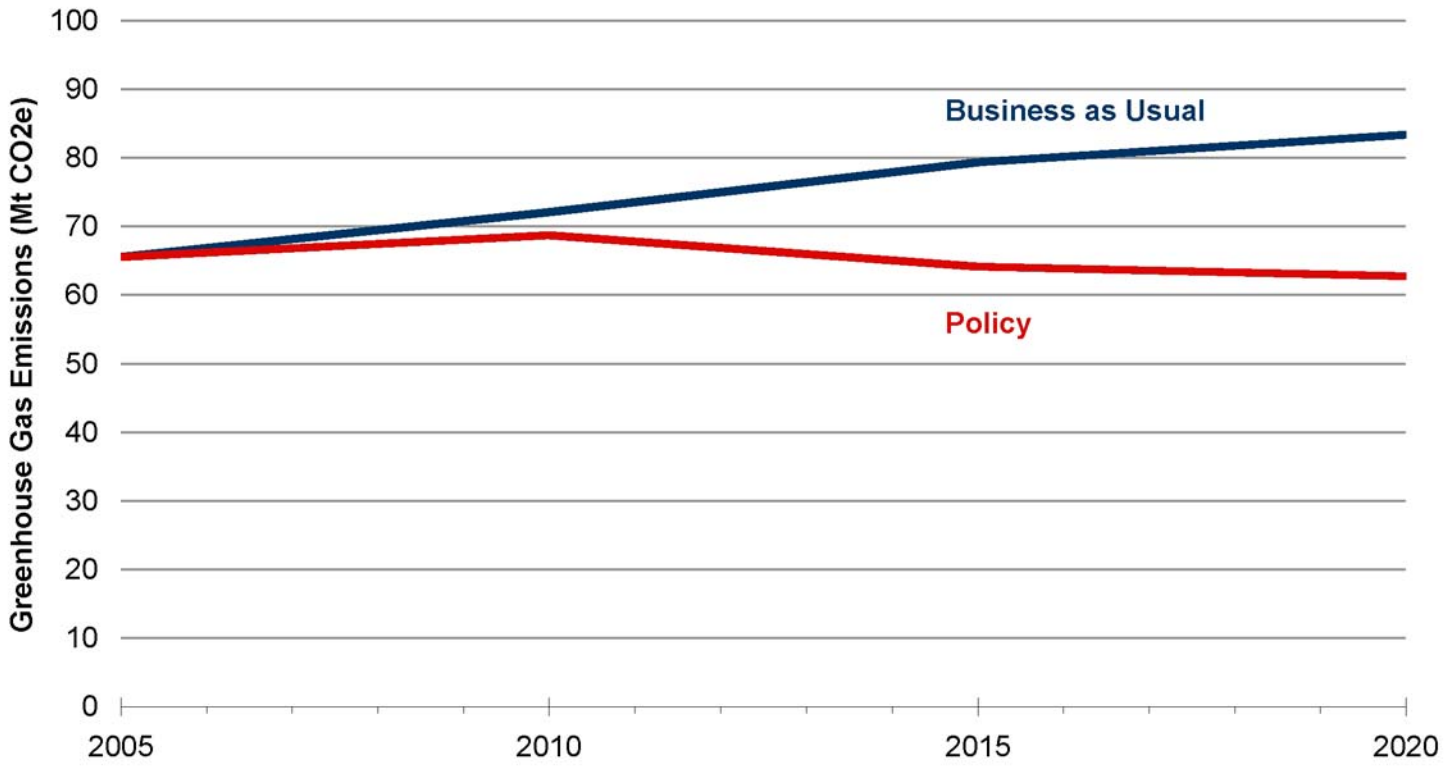
Forecast of BC's GHG Emissions



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4. Lessons for Local Governments

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Lessons for Local Government

- Focus on regulatory and fiscal policies
- Use subsidies sparingly, if at all
- Information provision as a complement to other policies, not a substitute
- Some possible examples:
  - Buildings:
    - Local improvement charges
    - Municipal heating/energy utility
  - Transportation:
    - Land use

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Local Improvement Charges

- LICs are used in many municipalities to finance neighbourhood improvements:
  - Landowners who benefit from improvement have increased property taxes until improvements have been paid for
- Concept could be applied to finance energy efficiency/renewable energy
- Could help overcome barriers associated with long payback time and lack of capital access
- Legal opinion: could use LICs for energy efficiency improvements under existing local government act

Source: Pembina Institute, “Using Local Improvement Charges to Finance Energy Efficiency Improvements”.

Municipal Heating Utilities

- Municipalities are experimenting with neighbourhood utilities:
  - Lonsdale Energy Corporation, North Vancouver
  - Central Heat, Vancouver
  - Sun Rivers Development (geothermal), Kamloops
  - Sustainable Energy Utility (sewer heat recovery), Vancouver
- Advantages of NEUs:
  - Economies of scale
  - Longer time horizon and lower discount rate
  - Higher equipment utilization and efficiency (load aggregation)
  - Better environmental performance

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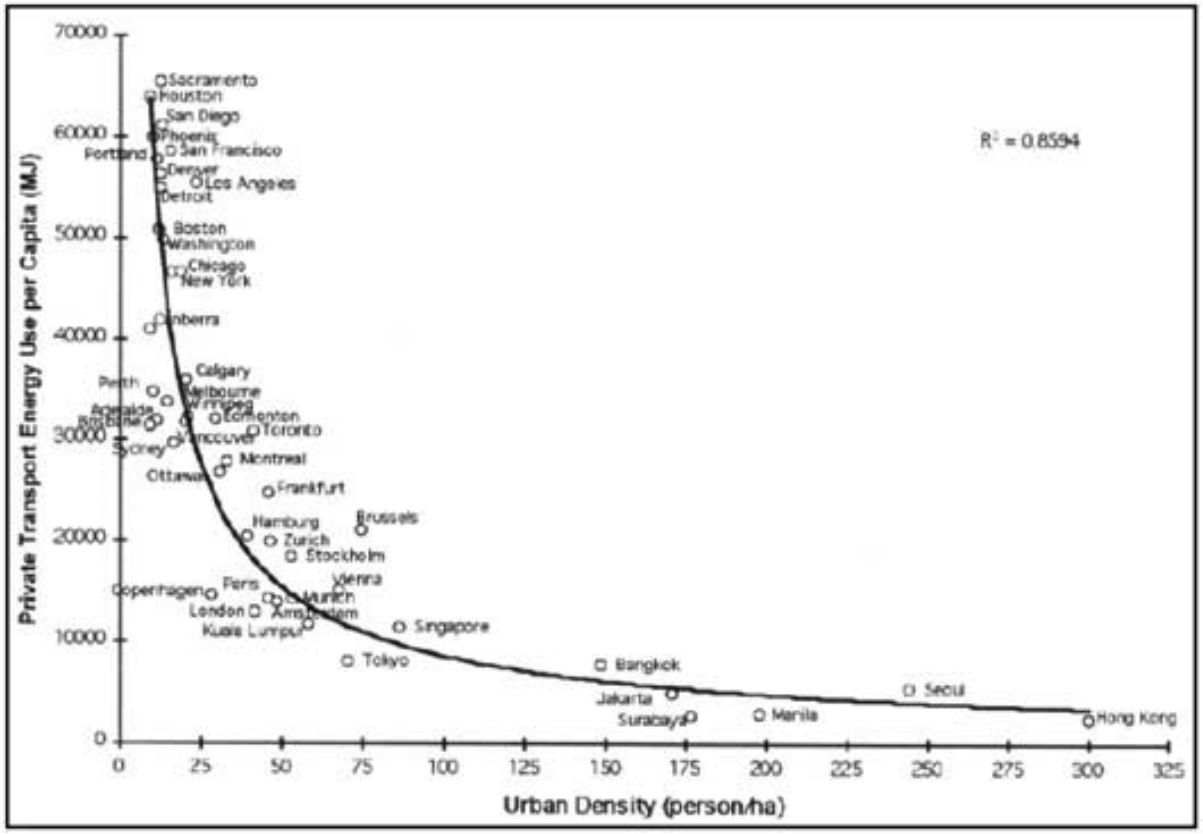
Land Use Planning

- Primary policy lever of local governments is zoning and planning
- Urban form is strongly tied to energy use and emissions
- Research suggests that travel is strongly influenced by road availability
  - Building 1% more roads encourages about 0.7 to 1% more travel



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Source: Newman, P. and Kenworthy, J. 2000, "Sustainable Urban Form: The Big Picture." Noland, R.B., 2001, "Relationships between Highway capacity and induced vehicle demand"

Thanks!

Questions…

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