Low Emission Canada Scenarios in an Expanding, Industrialized, Oil Exporting Economy: The Case of Canada

Presentation Slides for:

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Panel on Global Challenges Toward Low-Carbon Economy (LCE) - Focus on Country Specific Scenario Analysis

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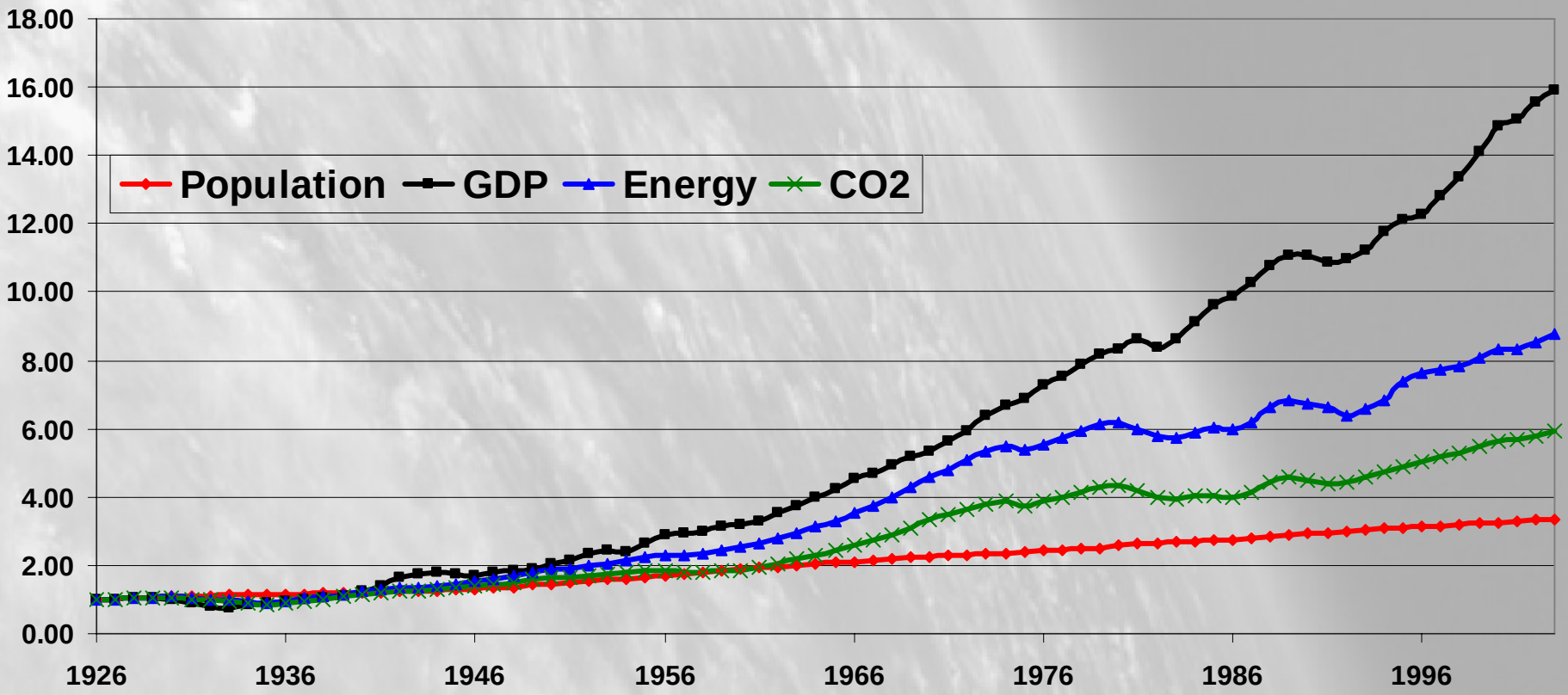
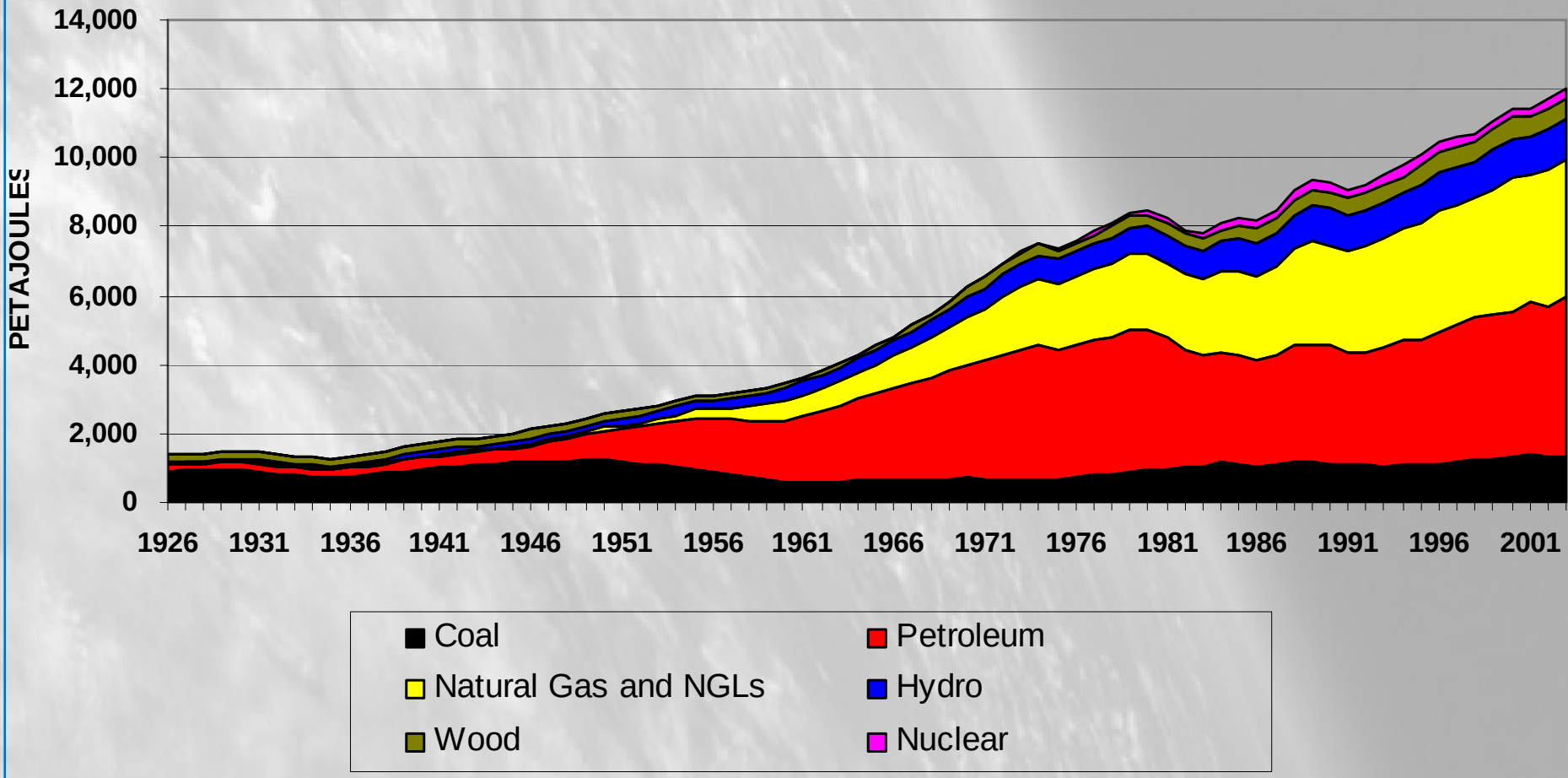
Low Emission Futures – What and When

- Low emission futures are futures in which emissions of greenhouse gas emissions are reduced by 50% or more, globally. The sooner this is achieved, the sooner the concentration of GHG in the atmosphere will stop growing. In such futures, reductions of more than 50% would be required or expected in the rich countries of the world, on a time scale of 100 years.

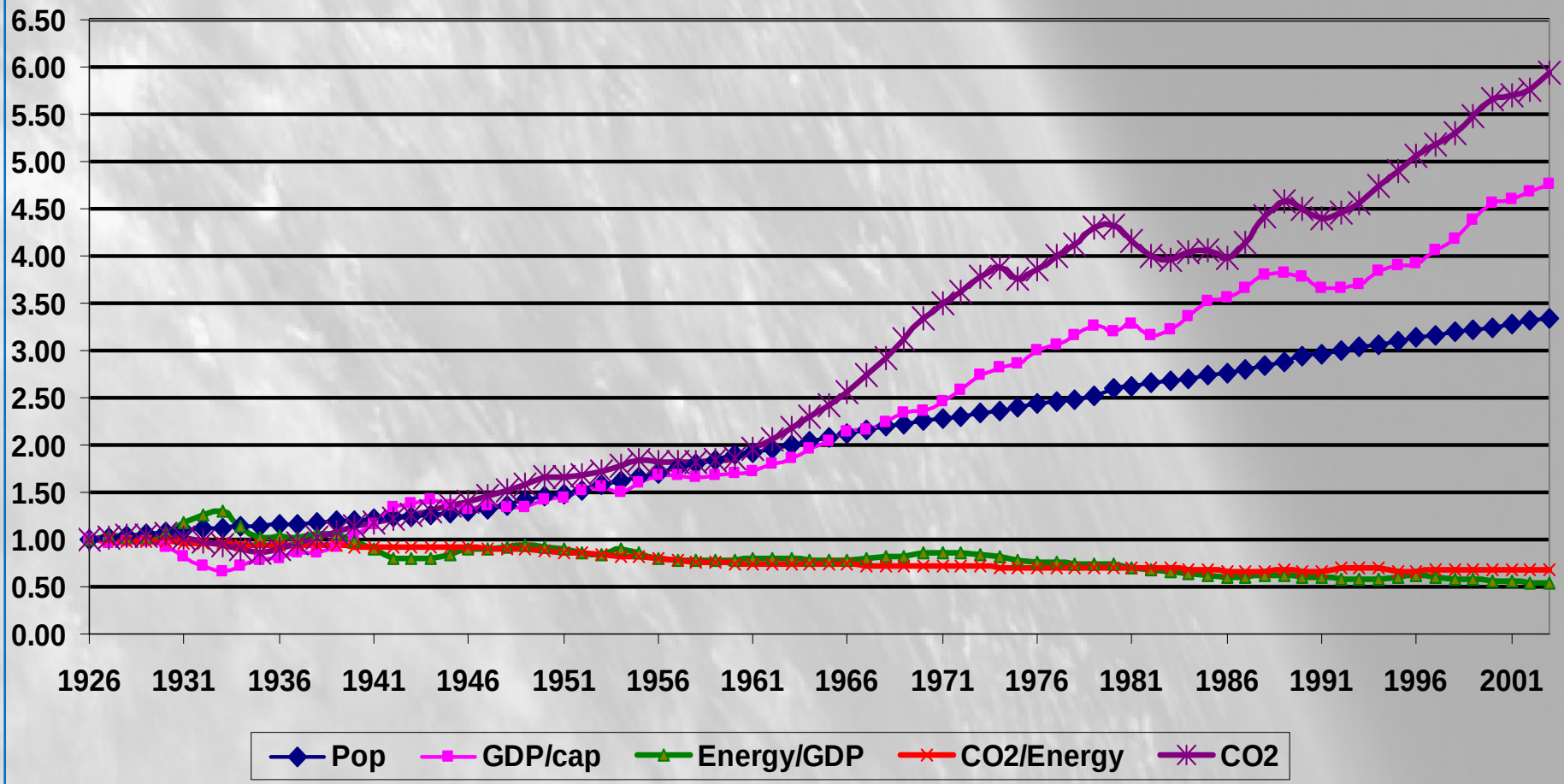
Population, GDP, Energy and CO2 in Canada, 1926-2003



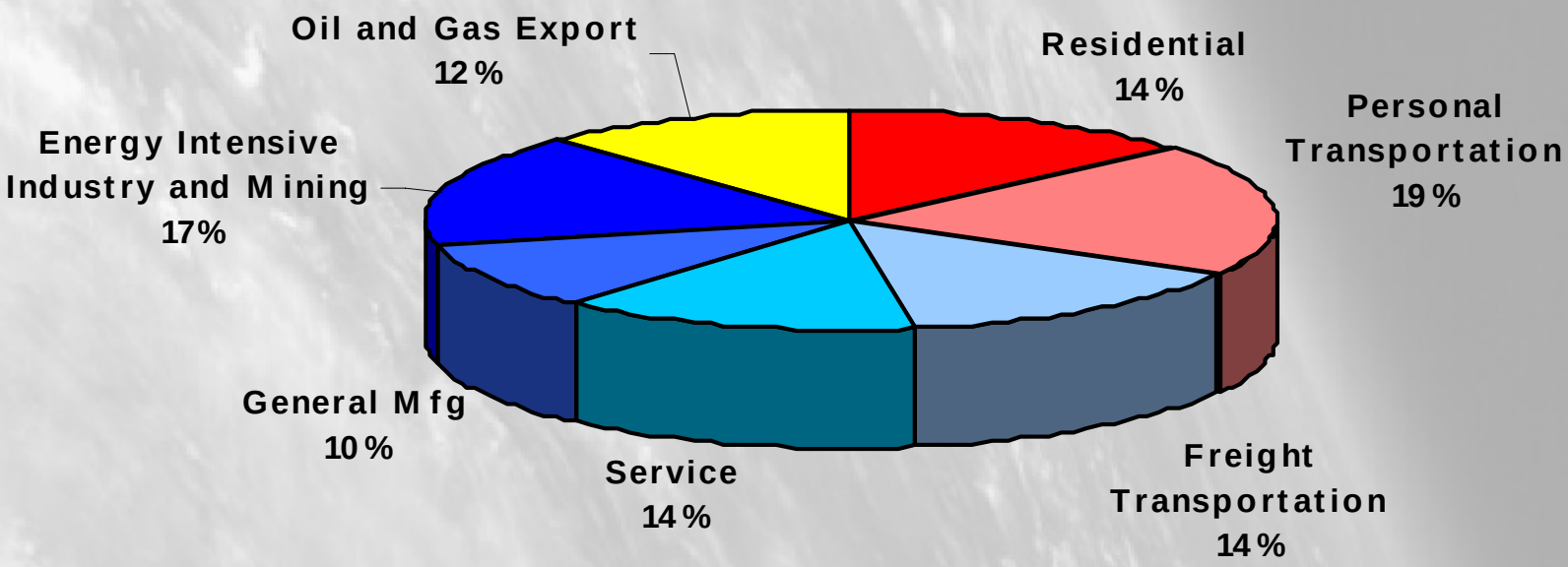
Canadian Domestic Demand for Primary Energy, 1926-2003



Canadian Energy and CO2 -- KAYA Factors



Greenhouse Gas Emissions in Canada (full cycle emission allocation)



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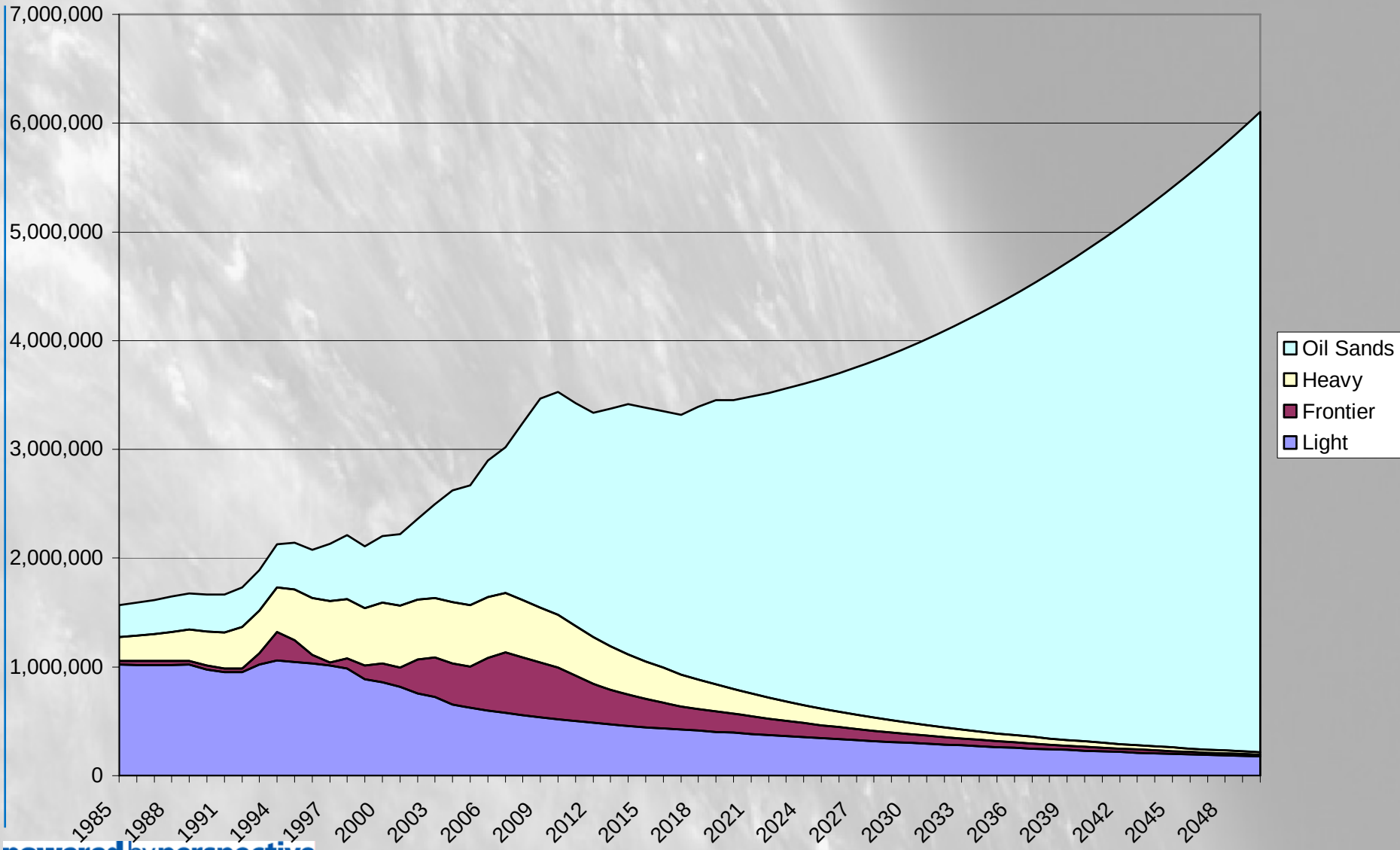
Oil Production (bbl/day)



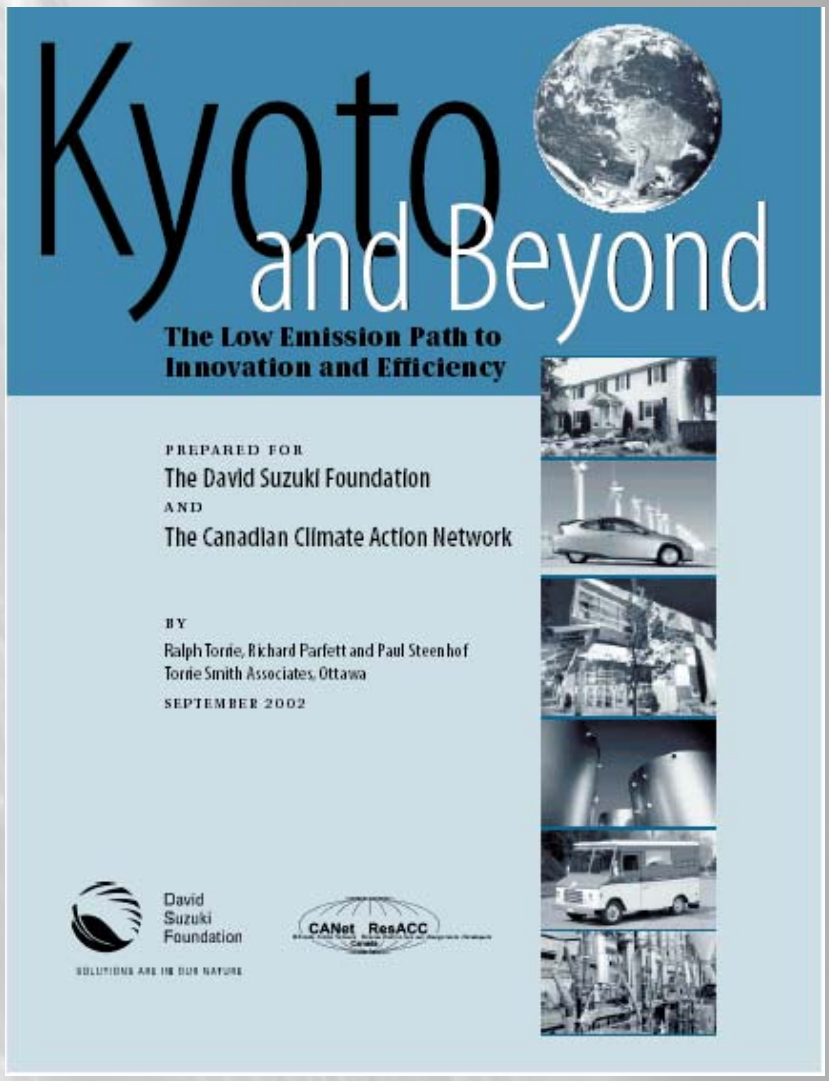
powered by perspective

"Kyoto and Beyond" –

- Study completed in 2002
- 2030 time horizon
- 50% reduction, all GHG's
- Downloadable from web sites of David Suzuki Foundation (www.davidsuzuki.org),

Climate Action Network www.climateactionnetwork.ca

Or from www.torriesmith.com



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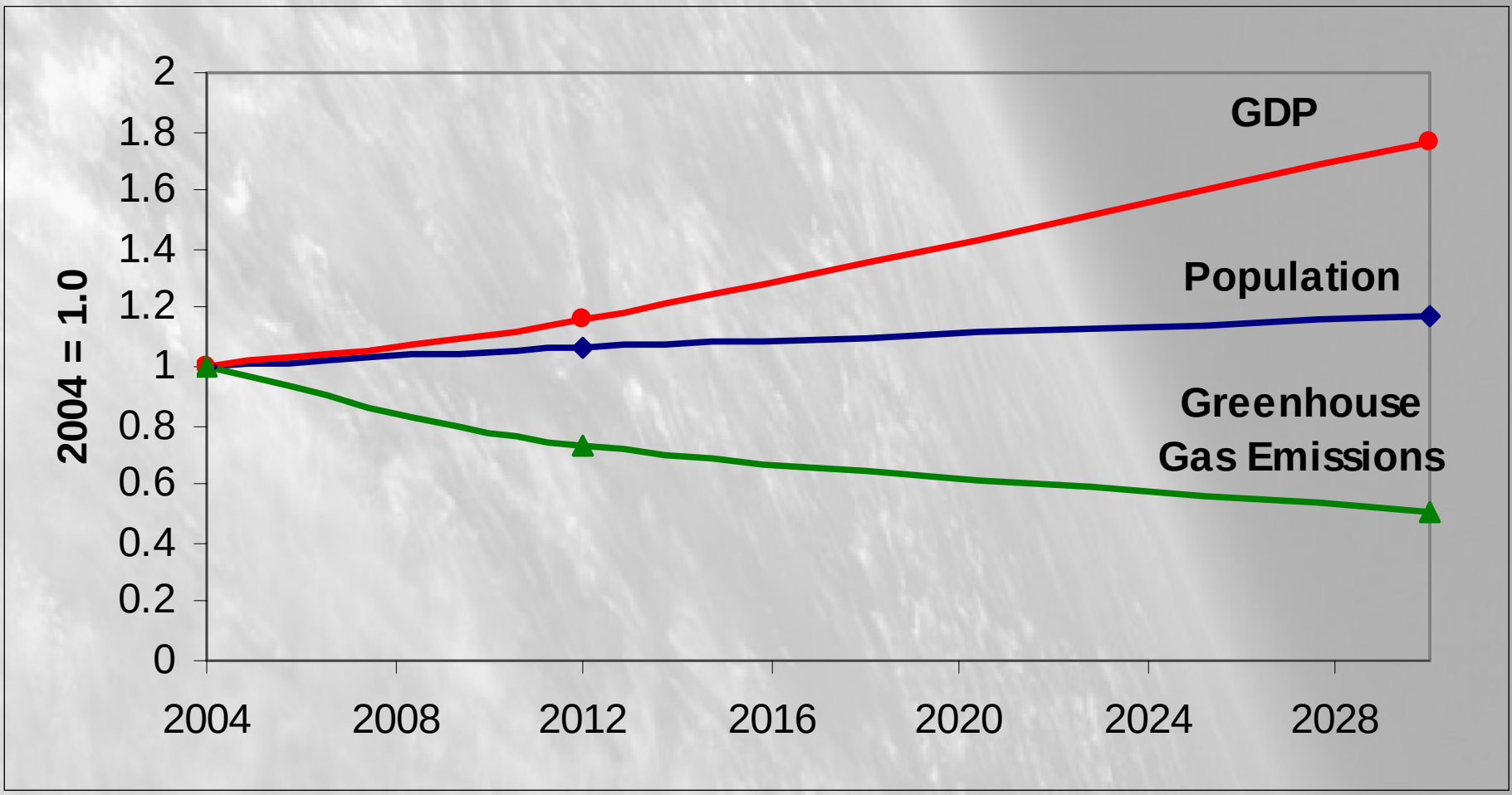
Sustainable, Low Emission Futures – The Technologies

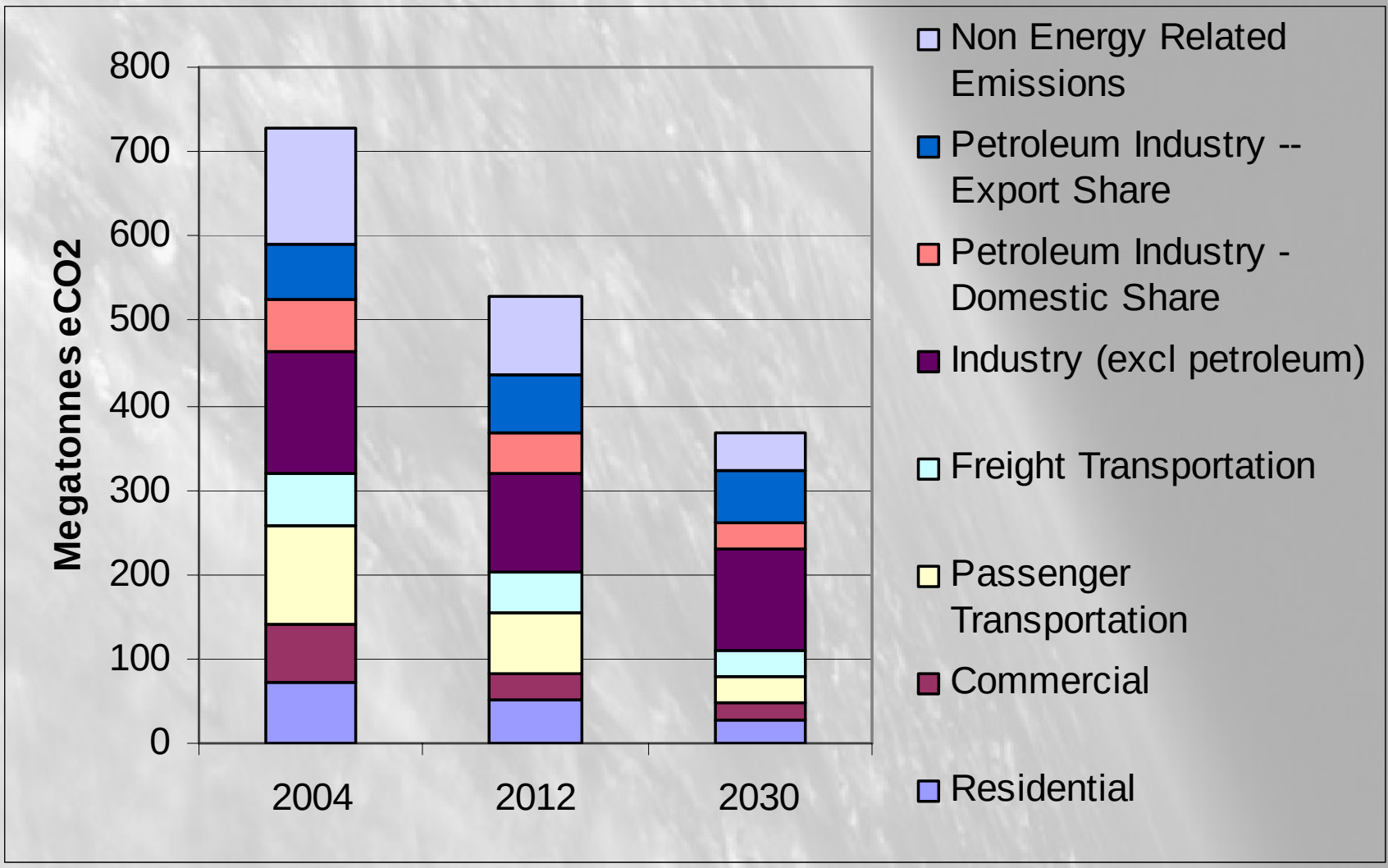
- A doubling, and then a redoubling, of energy efficiency, delivers benefits more effectively and on a larger scale than all the other options – low emission future not possible without this
- Combined heat and power is also an essential element of the low emission future
- Renewable electricity (wind, solar) developed on a base of much more efficient electricity use
- Energy efficient urban forms that allow access with lower rather than higher levels of mobility
- Biofuels – can they be developed sustainably?
- Carbon capture and storage technologies? Nuclear?
- Hydrogen may emerge as an energy carrier

Economic growth with declining greenhouse gas emissions?...



Beyond Kyoto – A Low Emissions Path for Canada

(circa 2003, David Suzuki Foundation, Climate Action Network)



Current Work on Low Emission Futures for Canada

- The National Round Table on Environment NRTEE has been asked to comment on how to set the course for Canada's post-Kyoto economy from 2030-2050, and to look at how to position Canada to compete in a carbon-constrained economy
- Canadian greenhouse gas emissions in the range of 300 Mt eCO2 by 2050 would be consistent with a global effort to stabilize atmospheric concentrations. This represents a 60% reduction from current levels
- The NRTEE has asked ICF to develop scenarios of such low emission futures, and we are doing this along with the help of an extensive advisory panel, the Centre for Spatial Economics and the Systematic Solutions (Energy 2020 model).
- Results by spring of 2006

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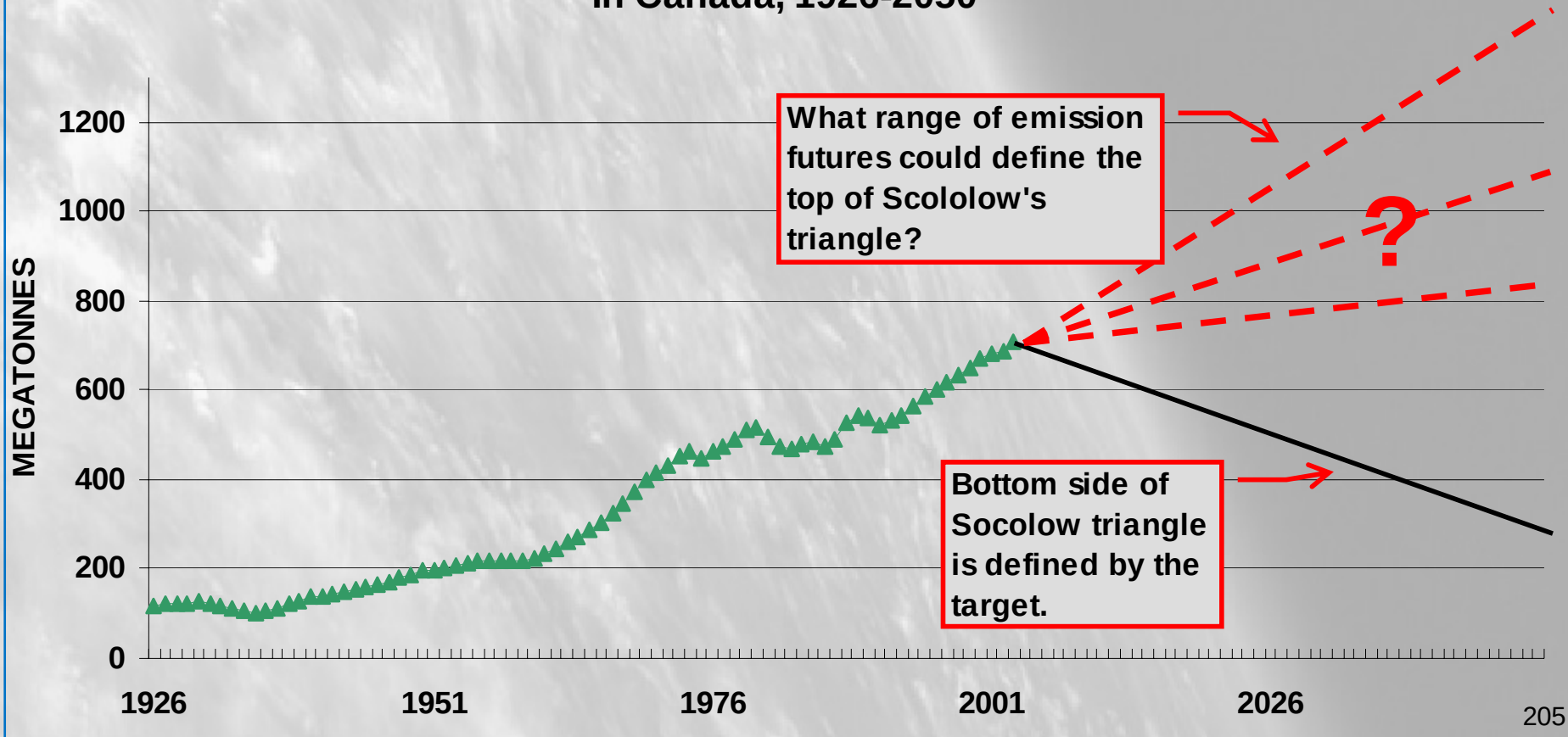
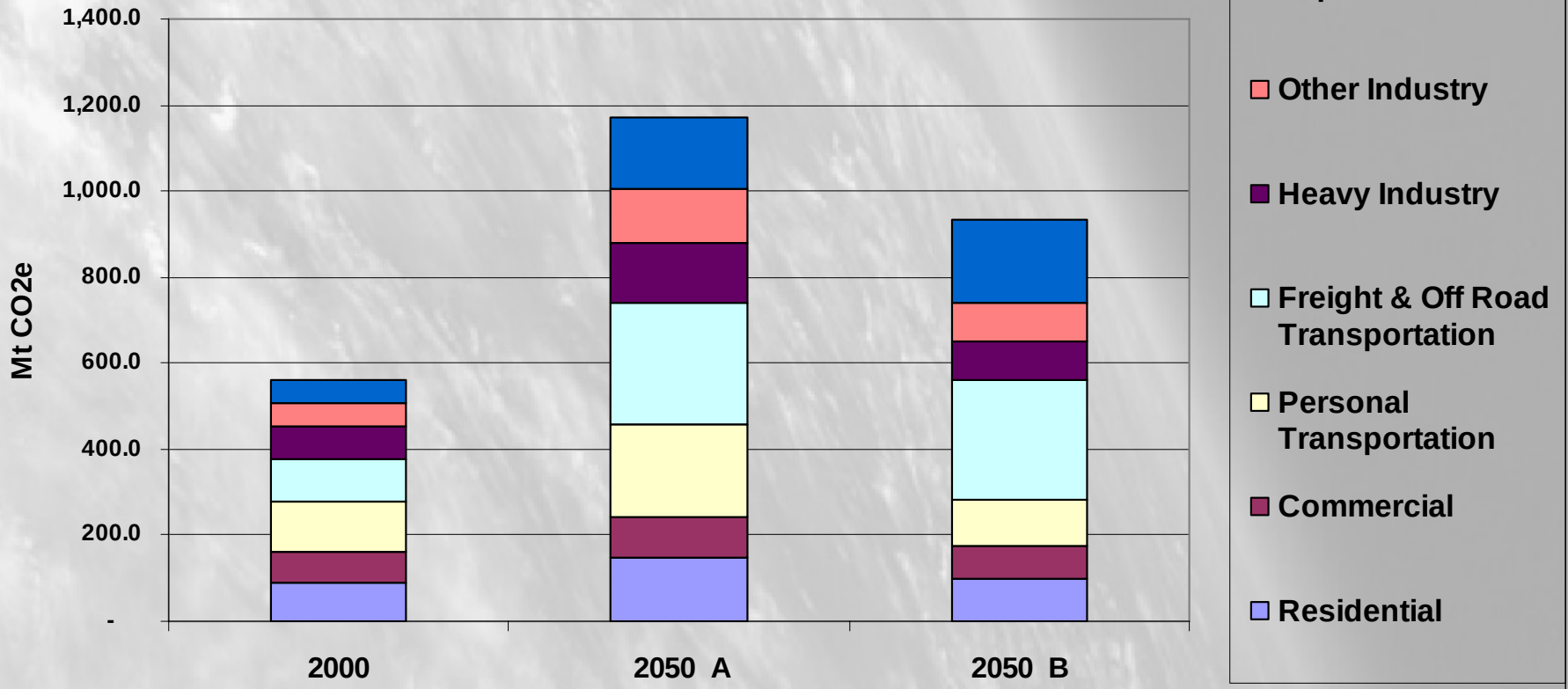
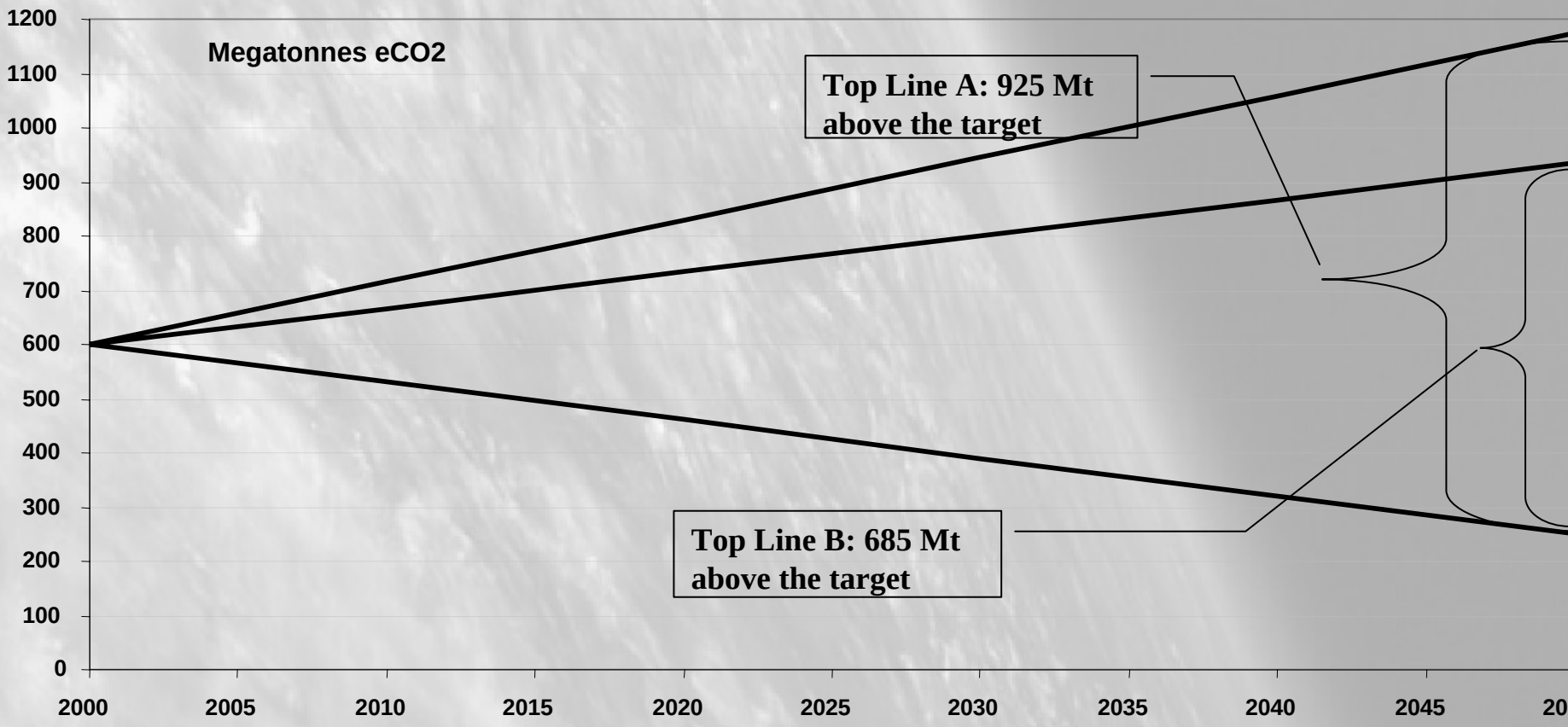
Energy Related Carbon Dioxide Emissions In Canada, 1926-2050



Greenhouse Gas Emissions "Top Line Scenarios"
2000 vs. 2050



Socolow Triangle for Canadian GHG Emissions
Top Line Scenarios vs. 60% Reduction Relative to 2000



Elements of the Low Emission Future

- Continued improvements in energy productivity of economy
- Factor four efficiency improvement
- Cogeneration of electricity
- Biofuels
- Carbon sequestration
- Decarbonize electricity generation in the long term

Planning for Low Emission Futures -- Implementation

- Low emission futures have policy implications well beyond conventional energy policy. They must be developed in a broader context of sustainable development
- Energy price based strategies perhaps necessary but not sufficient
- Technology deployment fundamentally economic, but constrained by underdeveloped organizational and financial infrastructure, entrenched advantage of commodity suppliers, and externalization of environmental costs.
- Global marketing, rapid deployment will characterize demand side developments.
- Local authorities must engage; community transformation