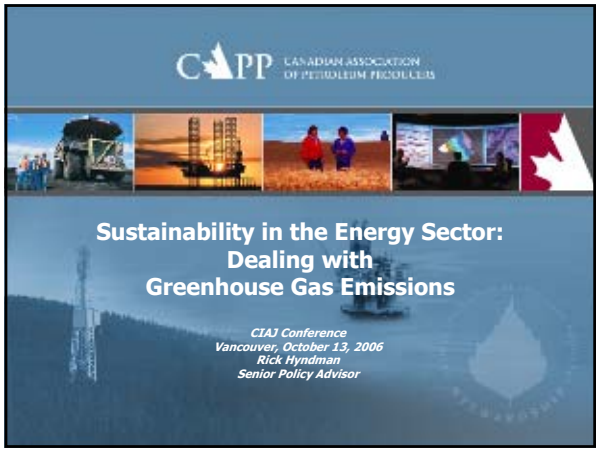
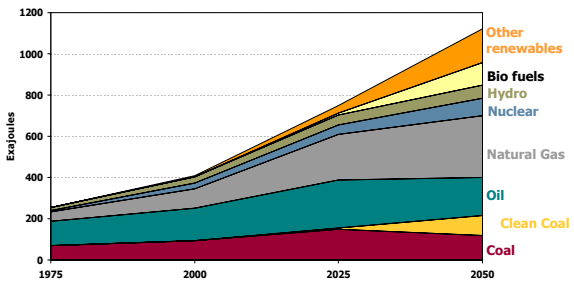


Outline

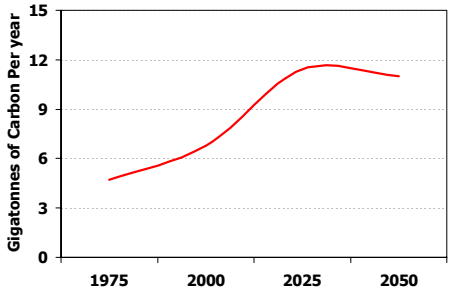
- **The climate change challenge & What has to happen**
  - Energy demand & emissions projection
  - Where the emissions are currently & where the growth takes place
  - Energy technology critical: CCS, nuclear??, solar, geothermal
  - Capital stock turnover & cost
- **Canada's GHG emissions & Kyoto target**
- **Kyoto v. what needs to happen internationally**
  - Kyoto in perspective: small coverage, target will be met in aggregate, distribution uneven
  - Multiple approaches to global issue, initial stage will be uneven effort
  - Need to start – countries have to take initial steps, make their contribution to what has to happen to reduce GHG dramatically over this century
- **What kind of policies can get us going? A politically realistic answer for Canada & other countries**
  - End use consumers: regulatory standards – buildings, autos, appliances
  - Direct funding of investment to advance technology
  - GHG price & cost signal for industry: improve emission performance, contribute to technology advancement

The Climate Change Challenge:
Energy use will continue to rise, fossil fuels continue to dominate primary energy



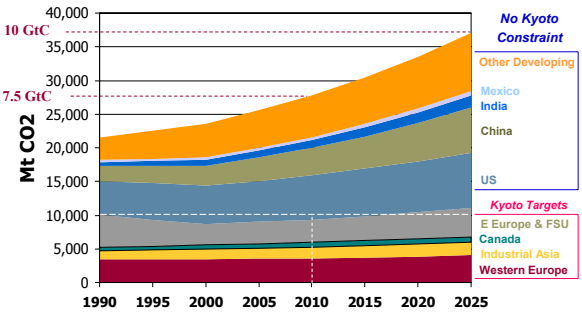
Shell Group 2001: Spirit of the Coming Age, Abundant Energy Supplies in a Fuel Cell World

CO_2 emissions from Hydrocarbon Energy



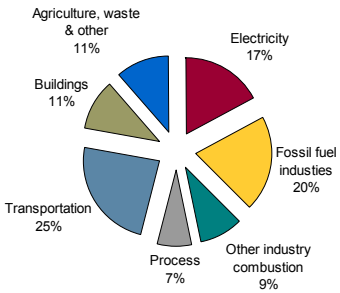
Approximation for Shell Scenario: Spirit of the Coming Age, Abundant Energy Supplies in a Fuel Cell World

Countries with Kyoto targets are on track to meet targets, in aggregate
Projected emission growth is in countries without Kyoto targets

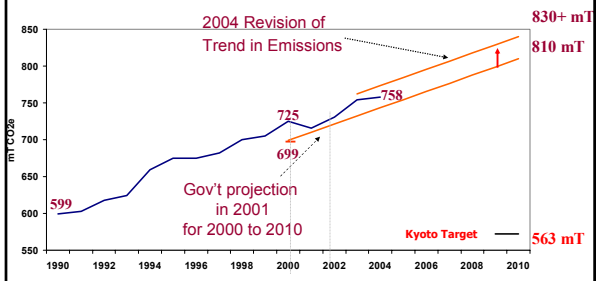


US EIA Projected CO_2 emissions by country to 2025

Canada's GHG Emissions 2004
Total 758 mT CO_2e



Canada's Kyoto gap



International cooperation: what's wrong with Kyoto?

- **Unequal allocation of targets:**
  - Very unequal allocation of effort among those with targets
- **Poor template for future steps**
  - Exclusion of countries where major increases will occur
  - International system not ready for system of emission rights
  - Creating, allocating and trading of emission rights premature for the state of monitoring, lack of consensus on problem, effectiveness of international cooperation
  - Bureaucratic CDM process for involving developing countries
- **UN process not effective for designing cooperative action on climate change**
  - inefficient, slow, costly, too many bit players, conflicting agendas

International cooperation on Climate Change action

UNFCCC: 2 tracks for discussions of post-2012

- **UNFCCC 4 workshops over next 2 years**
  - Includes the US with all other parties in the Framework Convention in a discussion of a future international framework
- **Kyoto Protocol parties**
  - Discussions as part of Protocol process to start at meeting in May
  - Goal is to complete in order to provide continuity beyond the 1st Kyoto period (2008-12)

Two non-UNFCCC significant processes:

- **G8 plus developing countries – Gleneagles Dialogue**
  - G8, EU, China, India, Brazil, Mexico, Indonesia, South Africa, S. Korea, Poland
- **Asia Pacific Partnership**
  - US, Japan, Australia, China, India, S. Korea

Opportunity to steer toward pragmatic, inclusive, international framework focused on technology & programs

What kind of policies could work for Canada's contribution at this stage?

- **Canada should:**
  - align the Canadian effort with the required global effort
  - recognize that initial efforts will be uneven internationally
  - push industry to improve its performance without undermining international competitive position
  - take part in and promote first steps at international cooperation
- **Kinds of policies that could work**
  - Efficiency standards for buildings, autos, appliances
  - Direct investment in technology development
    - e.g. clean coal power, CO_2 capture & storage in oil sands
  - Price & cost signal for industry
    - Improve emission performance
    - Contribute to investment in technology advancement