What Does Kyoto Mean For You?

APEGM Presentation

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Three Topics Assigned:

- What does Kyoto mean for individuals?
- What does it mean for engineers?
- Social as well as professional implications.

Outline

- Kyoto – History
- Climate Change impacts
- Policy reactions – globally and in Canada
- Implications for Manitoba
- How this might affect *you*

October 6 presentation

- By Darren Swanson, IISD
- Emphasised the science of climate change
- Response needs to include both mitigation and adaptation
- Thus the policy response should encourage both of these
- Engineers are significant delivery agents

Toronto 1988

- Toronto Conference on the Changing Atmosphere
- Calls threat from climate change “second only to a global nuclear war” and calls for 20 per cent cut in greenhouse gas emissions by 2005.

UNFCCC 1992

UN Framework Convention on Climate Change

- *Stabilize greenhouse gas concentrations* ***"at a level that would prevent dangerous anthropogenic interference with the climate system.“***
- *Ratified by most countries*
- *Reporting on results*

Kyoto Protocol 1997

- Significantly strengthens the Convention by committing developed countries to individual, legally-binding targets to limit or reduce their greenhouse gas emissions.
- Canada's target – 6% below 1990 levels for the *First Commitment Period* (2008-2012)

Kyoto provisions

- Developed countries have targets, not developing countries
- Penalties for non-compliance
- International carbon trading provisions, for economic efficiency
- Assistance for developing countries

Previous Policy in Canada

- Domestic carbon trading for *Large Final Emitters*
- Energy efficiency and fuel efficiency policies – incentives, regulations, taxes
- Offset trading – relevant to Manitoba
- Implemented through existing legislation (CEPA)

Current Policy

- Limbo
- Commissioner of Environment and SD criticized previous government record
- New *Clean Air Act* proposed – but subject to amendment
- All important details in regulations – not available (3 year timetable)
- Target is reductions of 45%-65% by 2050

Stern Report

- Recently issued, by UK government
- Inaction is very costly, between 5% and 20% of global GDP, annually
- Successful intervention is still possible, and will only cost about 1% of GDP annually
- Investment cycle is critical
- Need to act now

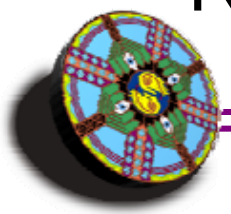
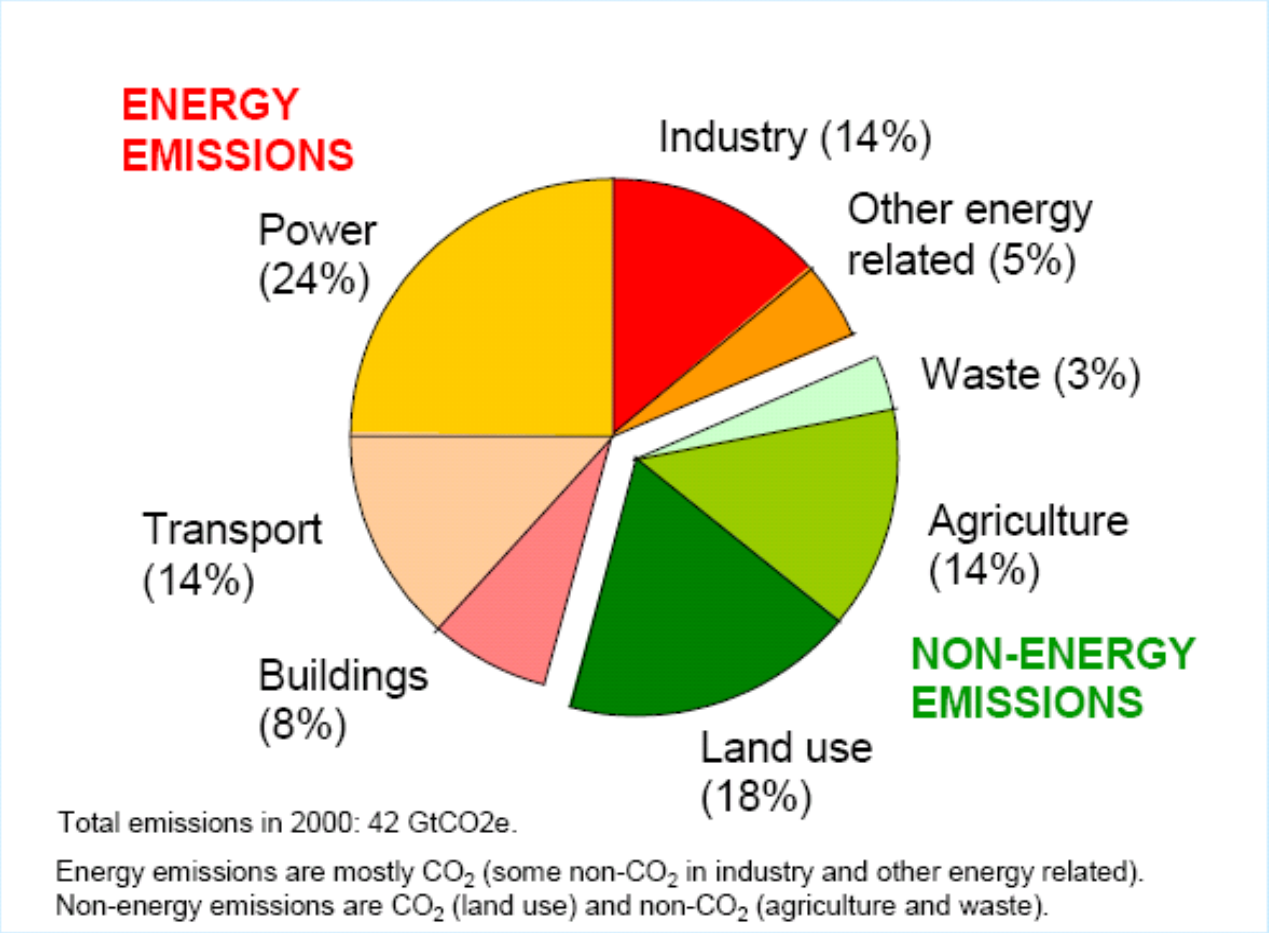
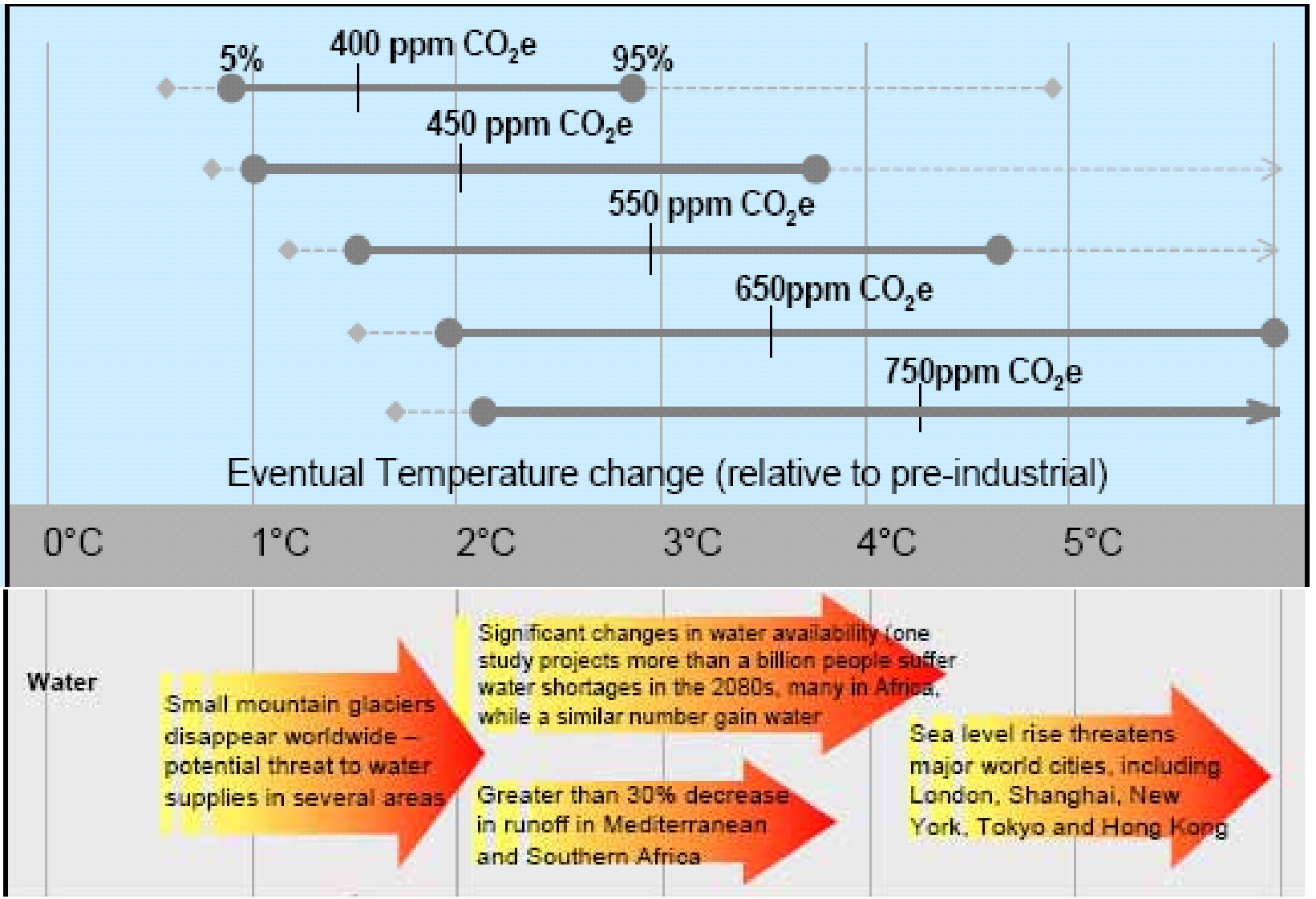


Figure 1 Greenhouse-gas emissions in 2000, by source



Source: Prepared by Stern Review, from data drawn from World Resources Institute Climate Analysis Indicators Tool (CAIT) on-line database version 3.0.


5%
400 ppm CO_2e
95%
450 ppm CO_2e
550 ppm CO_2e
650ppm CO_2e
750ppm CO_2e
Eventual Temperature change (relative to pre-industrial)
0°C
1°C
2°C
3°C
4°C
5°C

Water
Small mountain glaciers disappear worldwide – potential threat to water supplies in several areas
Significant changes in water availability (one study projects more than a billion people suffer water shortages in the 2080s, many in Africa, while a similar number gain water
Greater than 30% decrease in runoff in Mediterranean and Southern Africa
Sea level rise threatens major world cities, including London, Shanghai, New York, Tokyo and Hong Kong

Direct Impacts on People

- The climate is changing, and we will all need to adapt
- Farming, forestry, other activities relying on ecosystem productivity are the first at risk
- But water supplies, hydro electric generation, etc will also be affected
- Details unpredictable

As individuals -

- We need to design our own lives to minimize risk – increase resilience
- But this is a community and society issue, not just an individual one. We need to work together
- Engineers will help with implementing society's goals for increased resilience

Policy Driven Impacts

- Inevitably, both Canada and the US will develop a real policy response.
- It will necessarily involve new technologies, new emission monitoring requirements, new infrastructure requirements
- Energy efficiency and renewable energy sources will be essential

Resulting Opportunities

- All of these present real business opportunities
- They are local, but also national and global
- Successful entrepreneurs will help not only themselves, but all of us.