

# Science for Peace

Rm A-306, University College, University of Toronto, Toronto ON M5S 3H7



## Carbon Taxes First

August 2008

Adapted for Canada from  
Carbon Tax Center  
[www.carbontax.org](http://www.carbontax.org)

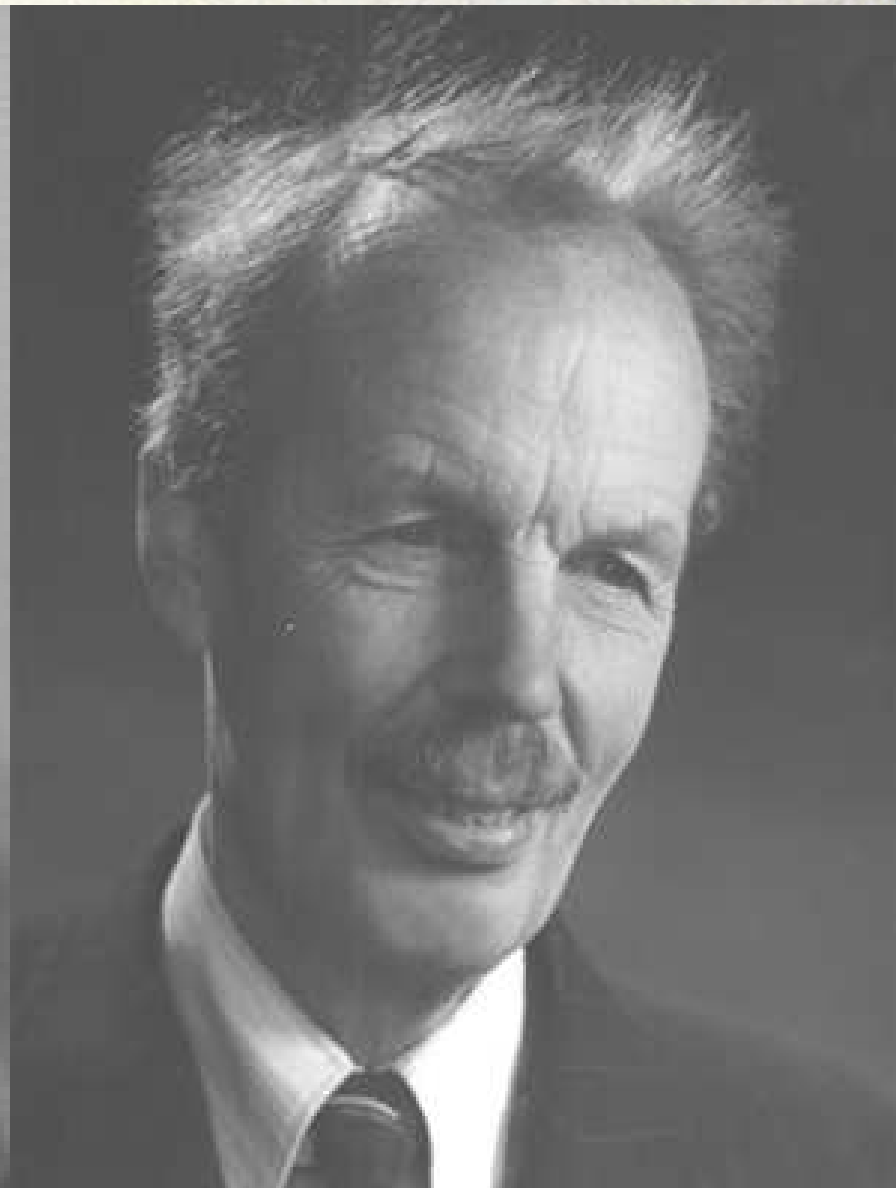
# Managing greenhouse gases is a new problem

- For 150+ years governments have promoted the discovery and use of fossil fuels
- It's time to reverse this trend
- Need to change incentives

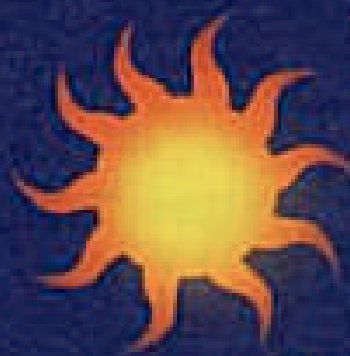
***Svante Arrhenius  
(1895 CO<sub>2</sub> and temp)***

**+**

***Arthur Cecil Pigou  
(1920 pollution tax)***



# The Greenhouse Effect



Some energy is reflected back out to space

Earth's surface is heated by the sun and radiates the heat back out towards space

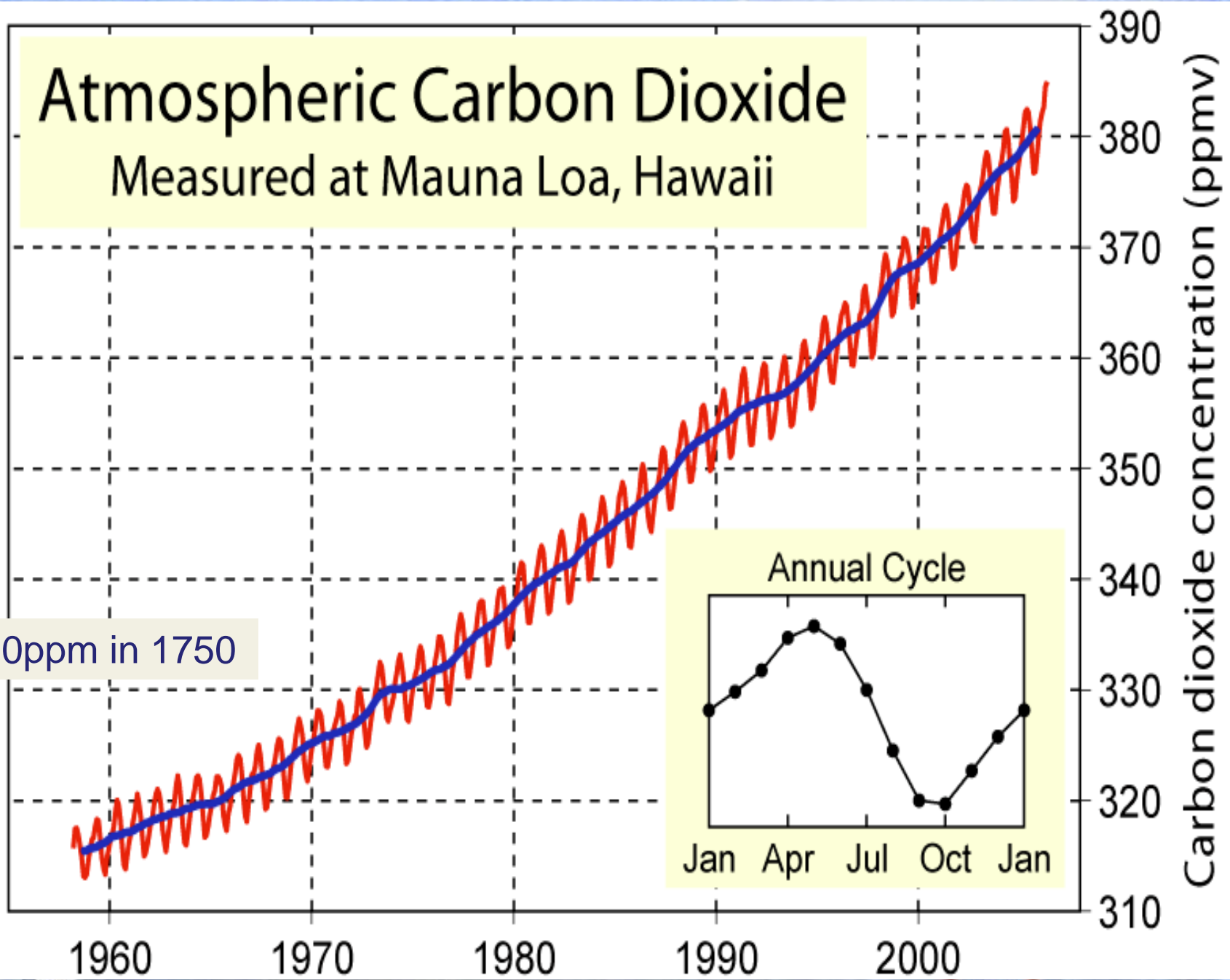
Solar energy from the sun passes through the atmosphere

Greenhouse gases in the atmosphere trap some of the heat



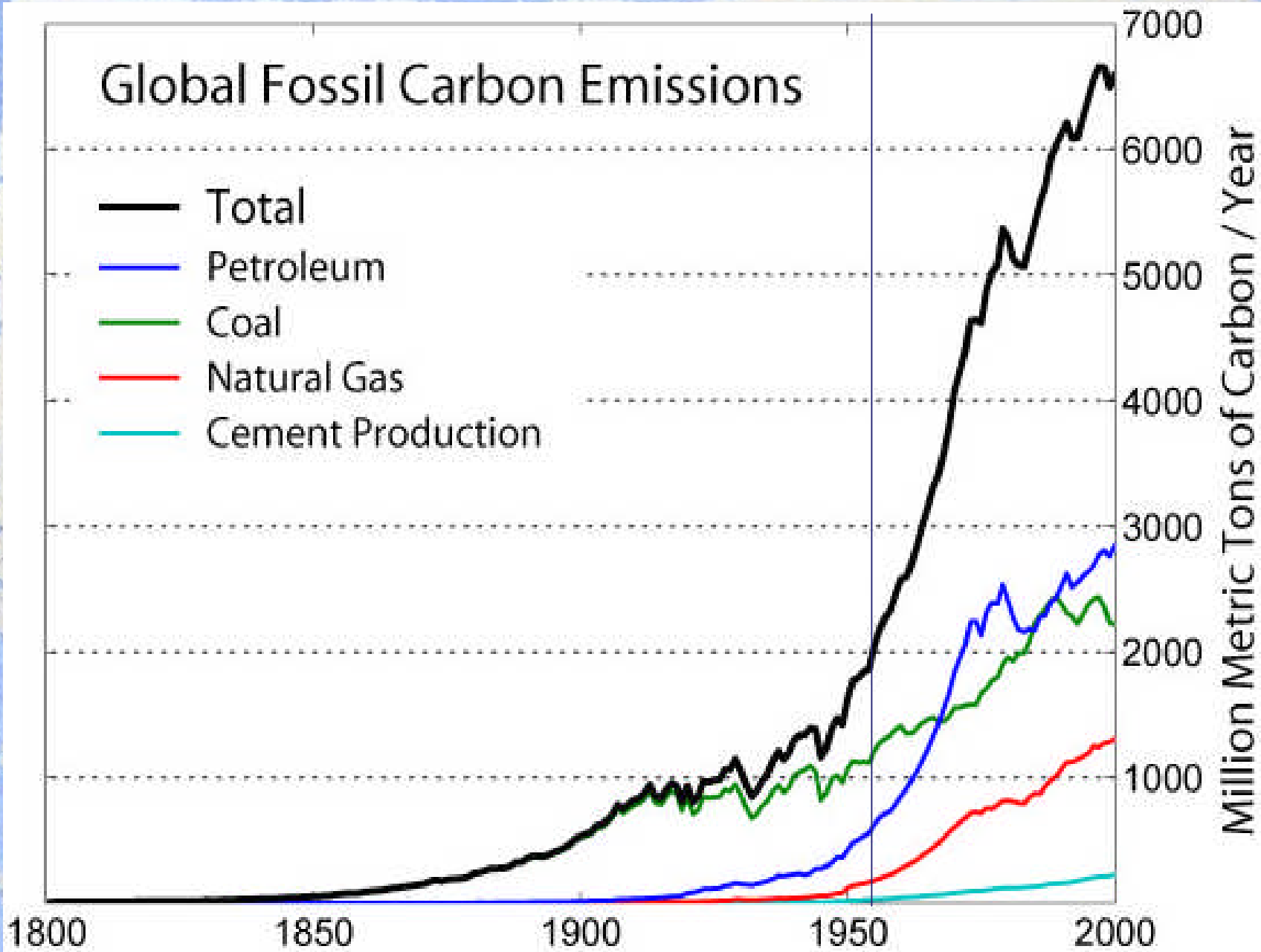
# Atmospheric Carbon Dioxide Measured at Mauna Loa, Hawaii

280ppm in 1750

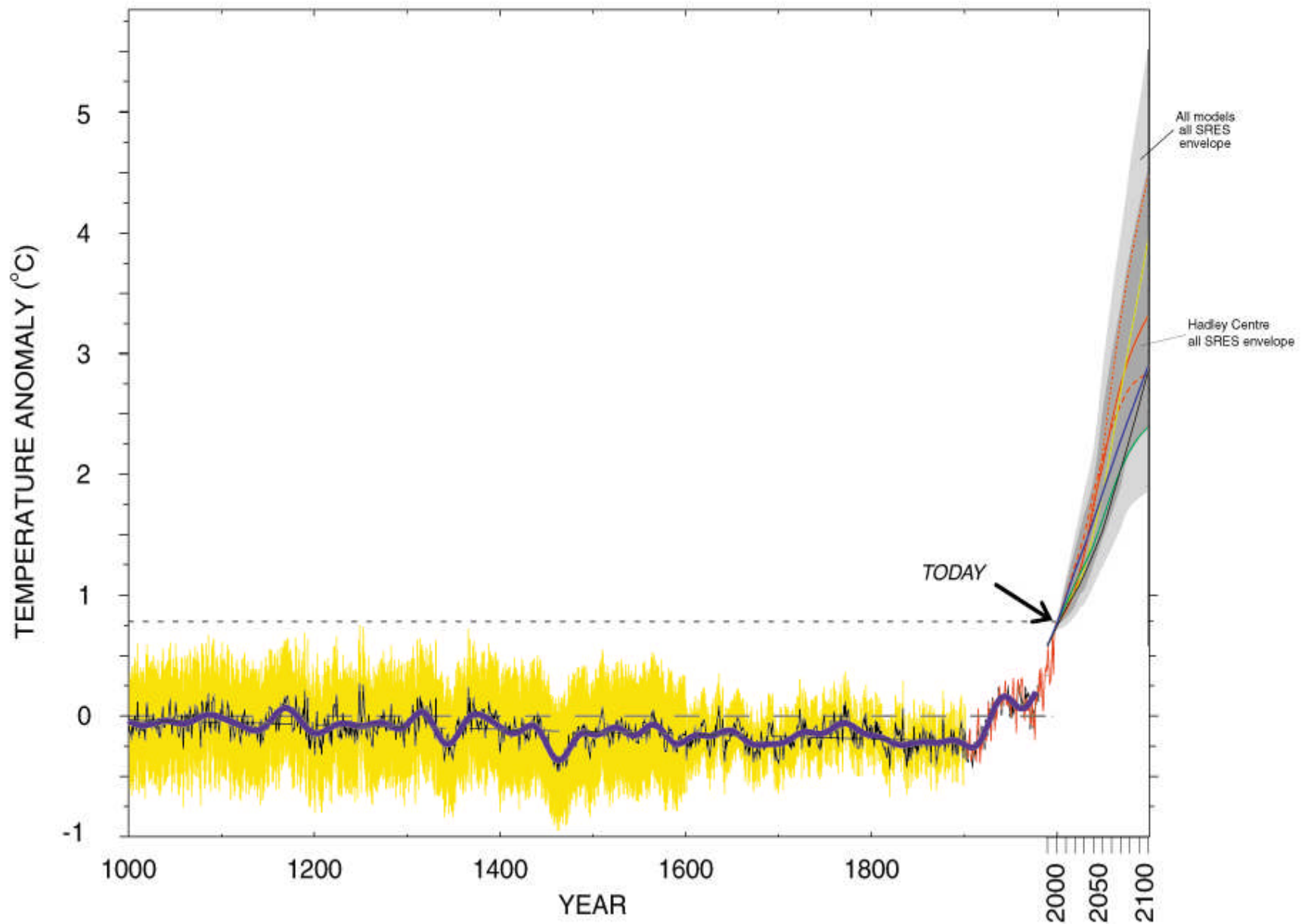


# Global Fossil Carbon Emissions

- Total
- Petroleum
- Coal
- Natural Gas
- Cement Production

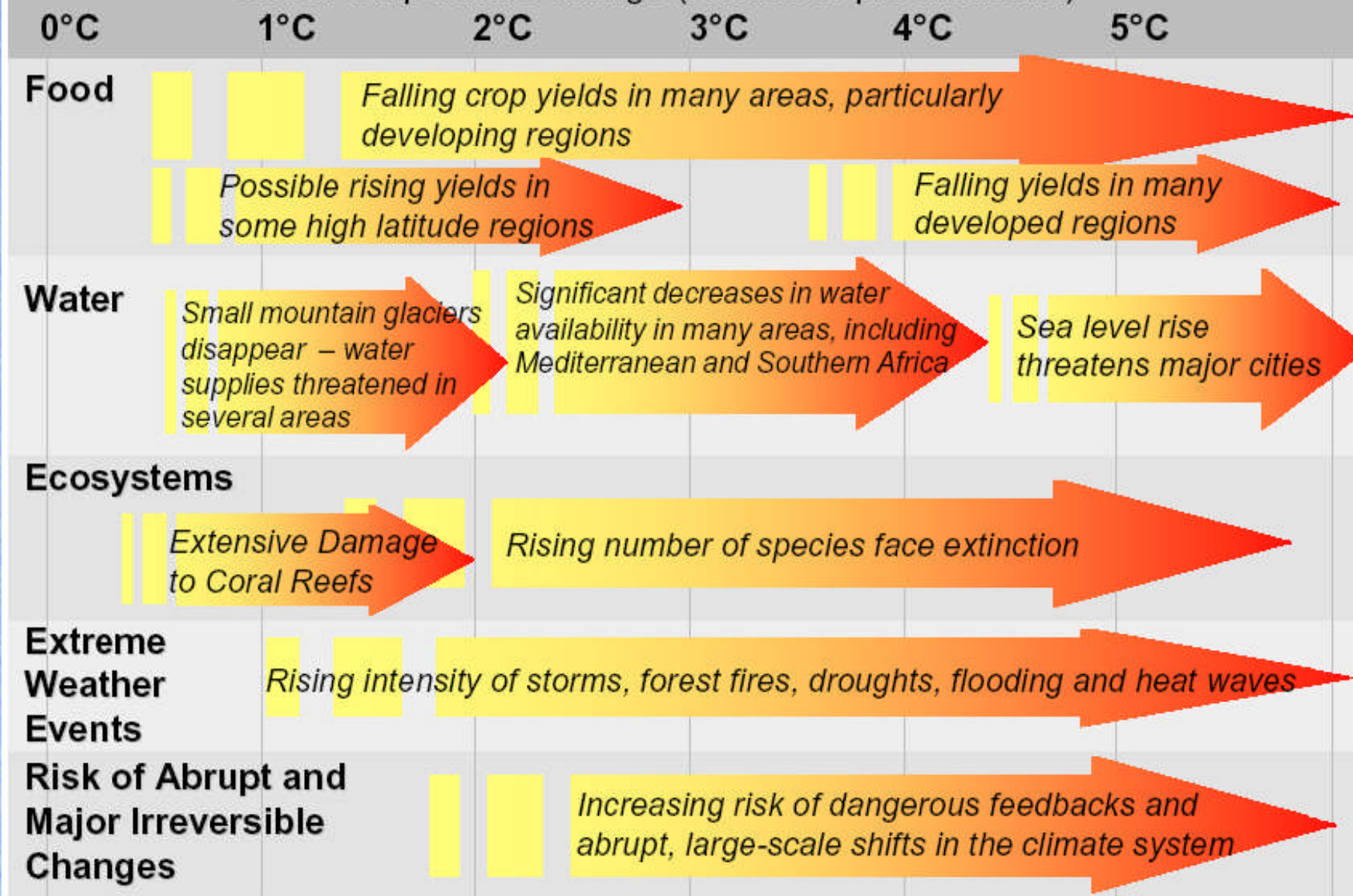


## Temperature, past and future



# Projected Impacts of Climate Change

Global temperature change (relative to pre-industrial)





# Clean-energy subsidies: a limited answer

- Selecting the next best energy technology by fiat has largely benefited lobbyists + special interests
  - Oil shale, nuclear power, synfuels, ethanol, etc.
- Many new sources also emit CO<sub>2</sub>
- Renewable Portfolio Standards: helpful – but not enough
- Reward increased energy consumption

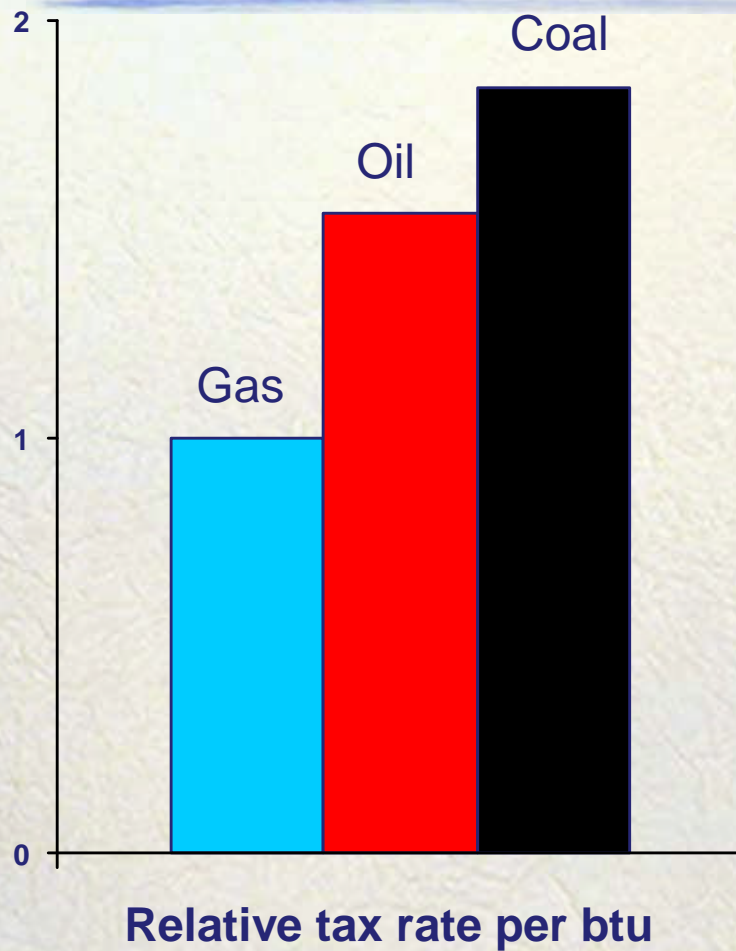
# Efficiency standards: vital, but not enough

- Too slow
  - Corporate resistance
  - Inherently reactive
- Scattered – impossible to regulate the hundreds of important energy-usage sectors
- ‘Rebound effect’ can reduce savings by increasing use

# A price on CO<sub>2</sub> emissions will:

- **Reduce burning of fossil fuels and CO<sub>2</sub> emissions**
  - Substitution of clean fuels and technology
  - More efficient use of energy
- **Provide a revenue stream to enable**
  - Reductions in other taxes
  - Support for energy efficiency, further reducing use of fossil fuels and related emissions
  - Energy R&D
- **Reduce other pollutants**
- **Increase equity through polluter pays**

# Carbon tax proportions



Fuels are taxed on their carbon content

# A “starter” carbon tax-shift

- \$20/tonne of CO<sub>2</sub> (i.e. \$73/tonne of carbon)
  - 5¢/litre of gasoline, diesel, jet fuel
  - \$38.7/thousand cubic metres of natural gas
  - 0.3¢/kwh electricity (Canadian average generation 2003)
- Increase to \$200/tonne CO<sub>2</sub> (i.e. \$730/tonne of carbon) by 2030 and complementary measures to reduce CO<sub>2</sub> emissions by 65% from 2007 levels (NRTEE)

# Starter tax – why ramp up?

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- Win broad consensus
- Implement ASAP
- Help people and businesses adapt
- Empirical validation of efficacy
- Mid-course corrections
- Establish long-term price trajectory
- Complement with investment in EE and renewables and regulations

# Canada after “starter tax x 10”

- **Emissions**
  - CO<sub>2</sub> emissions down by 65%
  - Other air pollutants down by 50%
- **Energy**
  - Coal-fired generation reduced
  - Oil consumption down
  - Wind and other renewable generation increased
  - Incandescents/halogens out, CFL's + LED's in
- **Transportation and Land-Use**
  - SUVs out, smaller, more efficient vehicles in
  - Costlier air and highway travel creates market pull for high speed intercity rail
  - Urban trips by bicycle up
  - Urban revitalization





# Possible uses of carbon tax revenues

EITHER

- **Distribute** to 33 million Canadians

OR

- **Tax Shift** out of other taxes:
  - Income tax
  - Profits tax
  - GST

OR

- **Energy efficiency** expenditures
  - Infrastructure
  - R & D

OR

- **Combination**

# Carbon taxes in practice

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- Sweden 1991, various rates, increased in 2007
- Finland, the Netherlands, Norway, Italy in 1990s
- UK fuel price escalator in 1993
- Quebec in 2007
- Bay Area Air Quality Management District in 2008
- British Columbia 2008

## Canada vs. Norway (carbon tax since 1991)

Growth from 1990 - 2005	Norway	Canada
Greenhouse gas / capita	- 0.4%	7.5%
GDP / capita	47%	30%

# Social impacts of a carbon tax

- **Affects regions, sectors and individuals differently** depending on carbon emissions (direct and indirect) and opportunities to change
- May need to provide **complementary measures** to minimize dislocations and inequities
- BC's **revenue neutral** carbon tax minimizes social impacts:
  - Each \$1 of carbon tax revenue returned as:
    - 14 cents to small business (tax reduction)
    - 22 cents to corporations (tax reduction)
    - 21 cents to low income earners (tax credit)
    - 42 cents personal income tax reductions

# Politics:

## Concerns about carbon tax-shifting

- Contrary to Canadian sense of entitlement to **“cheap energy”**
- **Anti-tax ideology** of past 25 years
- May pit the **federal government against the provinces** and some provinces against others

# But: growing support for taxing carbon emissions

- **Opinion leaders**

- David Suzuki Foundation
- Al Gore
- Scientists such as James Hansen (NASA)

- **Canadians**

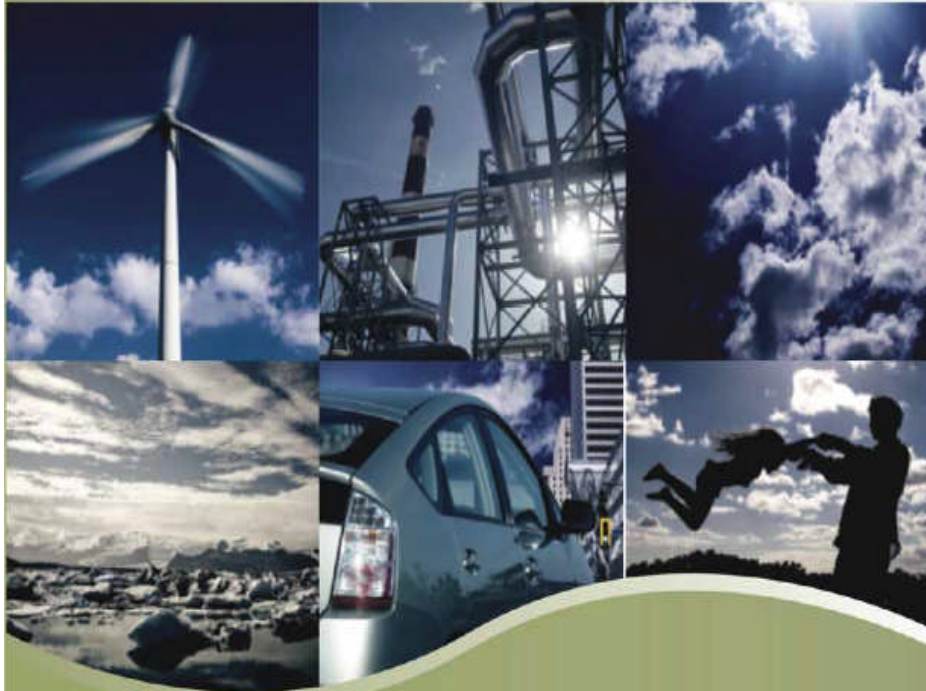
- 80 BC business leaders and 70 BC economists
- VTACC (Voters taking Action on Climate Change)
- Conference Board of Canada

- **Federal Advisory Group**

- NRTEE (National Round Table on the Environment and the Economy)

# Getting to 2050: Canada's Transition to a Low-emission Future

Advice for Long-term Reductions  
of Greenhouse Gases and Air Pollutants



Canada



National Round Table  
on the Environment  
and the Economy

Table ronde nationale  
sur l'environnement  
et l'économie

The most effective and efficient policy that would result in deep GHG emission reductions is a market-based policy, such as an emissions tax, a cap-and-trade system, or a combination of the two...complemented by other regulatory policies, to force emission reductions from parts of the economy that do not respond to a price policy.

POSTED ON 04/07/07

## O Canada, we must price carbon

JEFFREY SIMPSON

Canadians can pay sooner, or later. If they pay sooner, the price will start lower than if they delay. The choice is theirs, or rather the Harper government's. The price will be for carbon, the chief contributor to greenhouse-gas emissions.



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## To work, carbon tax must sting

**Governments, business not rushing to embrace it, which is why report will languish on the shelf**

Jan 20, 2008 04:30 AM

**PETER GORRIE**  
ENVIRONMENT REPORTER

Most Canadians tell pollsters they're concerned about climate change. Many insist they'd like to do something about it, and would even pay for measures to reduce greenhouse gas emissions.



RENÉ JOHNSTON/TORONTO STAR FILE PHOTO



# Carbon tax vs. cap-and-trade

- More predictable prices
- Utilizes existing tax system
- Covers more sources
- Rewards previous reductions
- Easy to understand

- More predictable quantities
- Requires new institutions
- Limited to large emitters
- Rewards previous polluters
- Difficult to understand

They can be combined

# Summary

- **Principles**
  - Tax-shifting – **not** a tax increase
  - Full-cost pricing
  - Polluter pays
- **Responds to concerns** about
  - Climate crisis
  - Inequitable taxes
  - Security & oil dependence
  - Basing economy on vulnerable energy
- **Can be combined** with other measures (including cap and trade)





QuickTime™ and a decompressor are needed to see this picture.

## Book Launch



# Is growth a healthy economy's only answer?



Please join Toronto Mayor David Miller, David Suzuki and Karen Kraft Sloan for the Canadian launch of Peter Victor's new book, **Managing Without Growth: Slower by Design, Not Disaster**

**Tuesday, 18 November 2008, 5:00 to 7:00 pm**  
The Boiler House, Distillery District,  
55 Mill Street, Toronto

### RSVP

[launch@managingwithoutgrowth.com](mailto:launch@managingwithoutgrowth.com)

[www.managingwithoutgrowth.com](http://www.managingwithoutgrowth.com)

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