Climate Change Policy Options

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NO WONDER WE'RE EXPERIENCING GLOBAL WARMING, SOMEONE CRANKED UP THE THERMOSTAT!!!

THIS IS THE SOLUTION WE'VE DEVISED FOR DEALING WITH THE FLOODING CAUSED BY CLIMATE CHANGE.
All data is for 2000. All calculations are based on CO₂ equivalents, using 100-year global warming potentials from the IPCC (1996), based on a total global estimate of 41.755 MtCO₂ equivalent. Land use change includes both emissions and absorptions. Dotted lines represent flows of less than 0.1% percent of total GHG emissions.
We have a long way to go!!!

2004 US Energy Consumption

- Petroleum: 40%
- Natural Gas: 23%
- Coal: 23%
- Nuclear: 8%
- Renewable: 6%

Source: http://www.eia.doe.gov
The US & Global Challenge

- Make renewable energy competitive with fossil fuels (issue of externalities)
- Decrease emissions (consumption and production)
- Address equity issues between developing and developed world
- Electrify rural areas of world (~50% of population)
- Rapid & Efficient transition to renewable energy
## Energy Source

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<th>Energy Source</th>
<th>2005 Prices (Cents/kWh)</th>
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<td>Natural Gas</td>
<td>3-4</td>
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<td>Solar PV</td>
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<td>Prices dropping</td>
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Do these market costs reflect true cost?
“Socialism collapsed because it did not allow prices to tell the economic truth. Capitalism may collapse because it does not allow prices to tell the ecological truth.”

Source: Dahle, 2001
Market Failure & Externalities

Individuals and businesses make decisions based on price signals.

Prices do not reflect externalities of GHG emissions

Need to make fossil fuel reflect true cost (increase cost)

Eliminate subsidies to fossil fuel producers
Transition to Renewables

1960s:
THE ANSWER MY FRIEND IS BLOWING IN THE WIND

2000s:

www.seppo.net
Current taxes are applied to aspects of behavior: wages, productivity, profit

Shift to tax aspects that are negative: waste, inefficiency, pollution

Possible mechanisms:
- Pollution taxes
- Tradable pollution permits: Cap and Trade

Shifting impacts of production to producers -- “internalization”
Policy Options

- **Tax Carbon** — difficult to get the price right to reduce emissions to desired levels, yet lower transaction costs

- **Cap and Trade**
Cap & Trade – Simplified

Emission Units

Company A  Company B

The Cap
50% overall reduction
Company A can reduce by 70 units at $10/unit

Company B can reduce by 30 units at $10/unit but to reduce an additional 20 units would cost $12/unit
Company A can sell 20 units to Company B at $11/unit versus paying $12/unit.

Without Cap & Trade: $104
With Cap & Trade: $100

Total Net Costs =

Cap & Trade – Simplified

The Cap 50% overall reduction
SO\textsubscript{2} emissions have declined by more than 6.5 million tons since 1980.

 Fully implemented, the cap reduces SO\textsubscript{2} emissions to 50% of 1980 levels by 2010.
Issues with Cap & Trade

- Auction credits or allocated
- Flexibility—price safety valve
- Rate of reducing cap
- Promotes private innovation incentive
- Allows flexibility for polluters
GOAL: Avoid additional 2°C increase in temperature (keep below 450 ppm)

TOTAL REDUCTIONS: 80% below 1990 levels

REGULATION: EPA within 2 years

MECHANISMS: 1) Cap and Trade Permitted
              2) Performance Standards
              3) Efficiency Standards, etc.
              4) Climate Reinvestment Fund
                 (adaptation, hardship, R & D)
“Congress Needs to Enact Legislation as Quickly as Possible.”

“Congress should specify an emission target zone aimed at reducing emissions by 60% to 80% from current levels by 2050.”

“In our view, the climate change challenge, like other challenges our country has confronted in the past, will create more economic opportunities than risks for the U.S. economy.”
The time is now!

- Transition to renewable energy can be efficient and rapid with the right policy mix
- Need both carrots (R&D, tax breaks) and sticks (pay for carbon)
- See Obama Energy Plan
 Wishful thinking

"I regret to report that there's no global warming threat after all — we just got Fahrenheit and Celsius mixed up."