

Flip-Flop: from CFCs to GHGs

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Different US and European Responses Support Flip Flop?

Stratospheric ozone depletion

- US more precautionary in 1970s, early 1980s

Global climate change

- EU more precautionary in late 1980s, 1990s

Outline

Similarities and differences between issues

Stratospheric ozone depletion

- US and EU responses
- Explanations?

Global climate change

- US and EU responses
- Explanations?

Similarities

Global, atmospheric externalities

Century-scale characteristic times

Effects theorized before observed

- Environmental change well characterized
- Consequences more speculative

Precautionary language in major agreements

- Montreal Protocol (1987)
- Framework Convention on Climate Change (1992)

Differences: Easier to Control CFCs than GHGs?

Few CFC producers (firms and countries) v. many CO₂ and other greenhouse gas (GHG) producers

- But many CFC users (aerosols, refrigeration, air conditioning, foam manufacture, industrial solvent)
- Modest number of fossil-energy producers?

CFC producers could produce substitutes, unlike coal and oil companies?

- Major chemical firms benefit by shifting market from low-market commodity to development of new compounds
- Carbon sequestration?

CFCs represented small share of economy and of firm profits

- Not worth sacrificing corporate image

CFCs: US Response

Molina & Rowland 1974 *Nature* article, American Chemical Society news conference

Significant local activity

- 1975 Oregon aerosol ban, NY labeling law
- Consumer boycott

Federal regulatory plan, October 1976

- Phase 1 —Aerosol ban
 - Rule finalized March 1978
- Phase 2 — Non-aerosol uses
 - Advance Notice of Proposed Rulemaking 1980

European Response

National actions

- Voluntary agreements to restrict aerosol use (Germany, Denmark, Switzerland)
- Aerosol ban (Sweden, Norway)
- Labeling requirement (Netherlands)

EC agreed to cap production capacity at 480,000 tons/yr

- Well above current production of 300,000 tons/yr

Toward International Agreement

Early 1980s

- Less urgency (aerosol reductions, recession, science)
- Each side promoted its own policy
 - US aerosol ban v. EC production cap

May 1985 — discovery of Antarctic "ozone hole" (the crisis event)

- September 1986 — US industry "Alliance," DuPont, announced support for global regulation
 - Global rules preferred to unilateral regulation
- Reagan administration failed to stop
 - "Ray-Ban plan"

International Regulation

Montreal Protocol (1987)

- Ratified by all major parties

Post Montreal

- Numerous amendments to increase stringency and coverage
- US and EU equally aggressive?
 - US more hawkish on methyl bromide
 - EU more hawkish on HCFCs

Explanations for US/EU Differences?

European industry more heavily dependent on aerosols

- Aerosols = 3/4 of production v. < 1/2 in US
- Johnson Wax quickly phased out aerosol use in US, not in UK (5% of US products but 20% of UK products used CFCs)

and exports

- Supplied 40% of non-producer market

Legal system

- US industry concerned about product liability (initial suits against cigarettes producers)
- NRDC legal authority to intervene and force decision

Stronger US public response — risk perception or accident of history?

Global Climate Change

EU more precautionary than US, increasing difference

Pledges

- 1990 — Joint meeting of EU environment and energy ministers agreed that 2000 CO₂ emissions should not exceed 1990 level
- 1993 — President Clinton pledged to hold 2000 GHG emissions to 1990 level
 - Energy tax soundly rejected, small gasoline tax imposed

Framework Convention on Climate Change (1992)

- EU and US signed, but
 - US added cost-effectiveness language
 - President Bush threatened not to attend if specific commitments included

Kyoto Protocol (1997)

EU — GHG emissions 8% below 1990 level

- "Bubble" with Germany and UK making largest absolute reductions
- EU has ratified
- EU has adopted compliance measures including tradable emission permits (January 2005)
- Current emissions are at 1990 level

US — GHG emissions 7% below 1990 level

- Voluntary measures, research on science and technology
- Interest in comprehensive, multi-GHG approach
- Clinton never submitted for ratification, Bush withdrew
- Current emissions well above 1990 level

Explanations for US/EU Differences?

Energy demand and supply

- Europe is less energy and CO2 intensive
 - Geographically compact — less transportation?
- EU coal expensive (deep mine), US coal cheap (surface mining)
- More nuclear in EU (but growing resistance)
- Higher marginal cost of reduction in Western Europe?

Sensitivity to climate change

- Netherlands at risk from sea level rise
- So is southeast US

Political system

- Parliamentary systems allow third parties to gain power?
- Shift in population and political power to US southwest?