Climate Change and Federal Regulation

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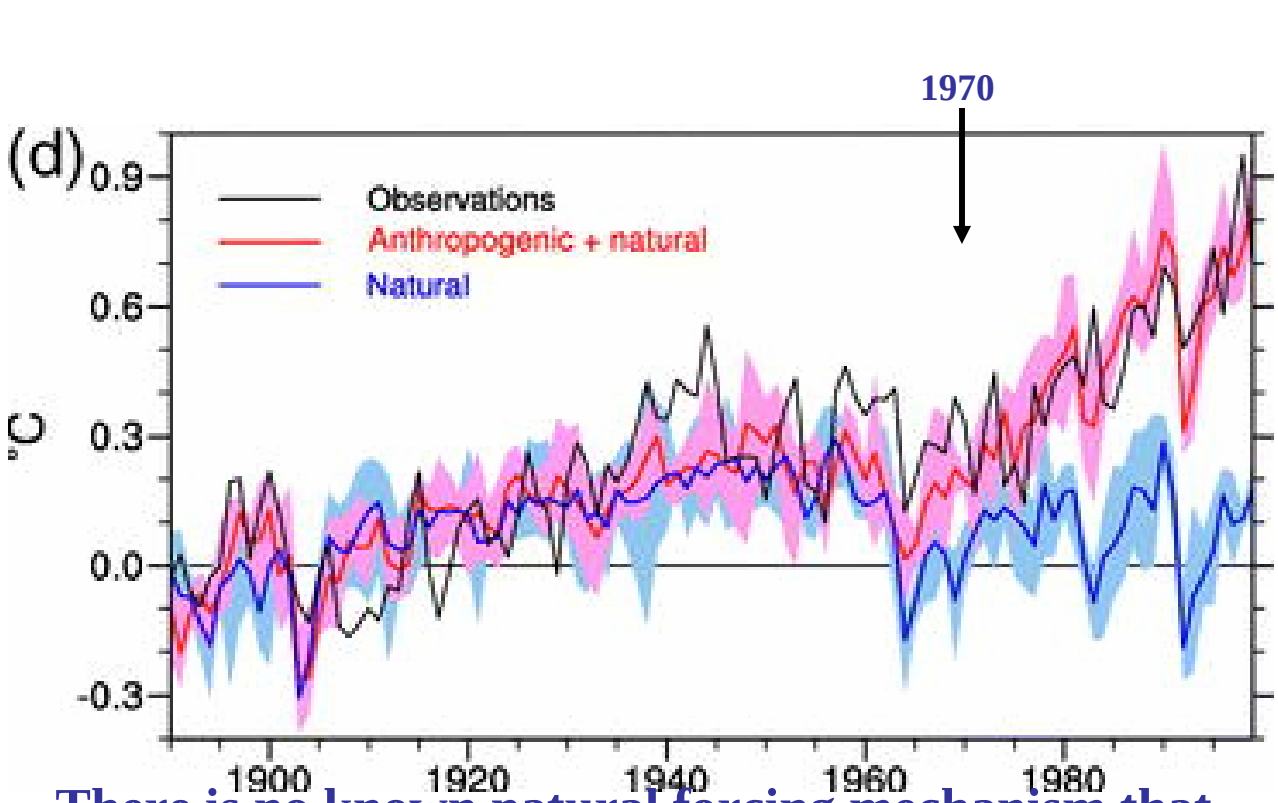
Regulation will be Driven By:

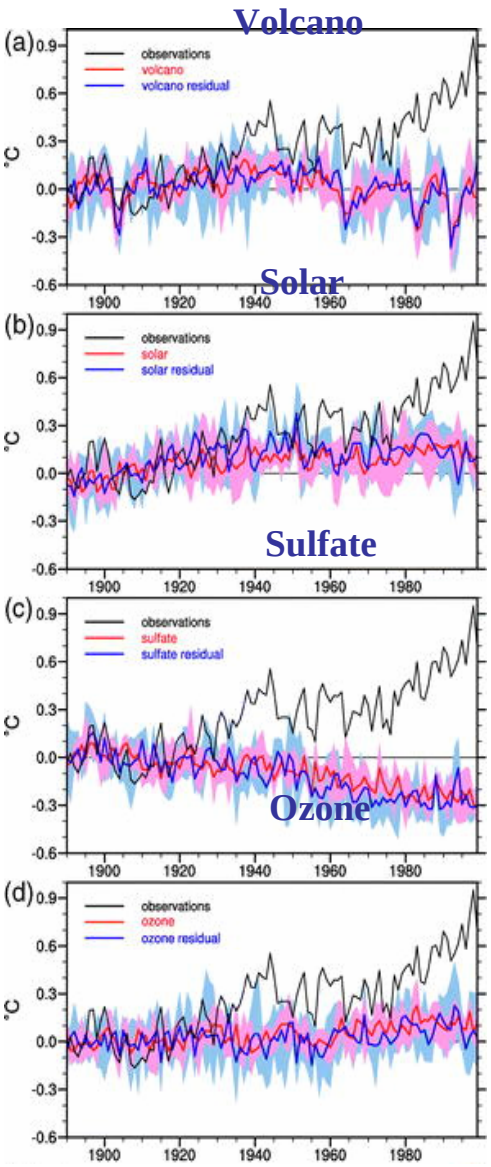
- Perception of the Problem – Accuracy of Predictions
- Predictions as to Temperatures and Effects of Temperatures (less agreement on effects)
- Predictions as to Cost of Action that will address the problem

Problem Defined by Chart

- Accurate Prediction of Surface Temperature Variability That has Occurred

Surface Temperature Variability





There is no known natural forcing mechanism that can explain the surface temperature increases since 1960 (Meehl et al 2004, 2006)

Notice the warm 1940-50 period in the "natural cycle"

- Extending to the Future shows ranges that many define as Harmful
- Depends on How Emissions Grow and Time Frame: Predictions Less Accurate the Further Out BUT 1.4 - 6 degrees C in 100 years if pre-industrial levels double/ Already almost 1 degree C in last century

SST-Hurricane Relationship

- Webster et al (2005) and Emanuel (2005) noted a strong global relationship with seasonal intensity changes.
- Hoyas et al (2006) in a Bayesian analysis confirmed the above findings.
- North Atlantic analysis by Holland and Webster (2006 in preparation) and recent NCAR work is of interest….

Controversy?

- Questions about temperature of lower atmosphere have been corrected- measurement – Extremely good connection between surface temperature/air temperature and rising CO2, and discounting of ‘other phenoms’
- Still variability of predictions on impacts
- And moving into cost of avoidance – Stern Report – External risk/Externality
- ALSO moral vs. nationhood self-interest stance

What is current regulatory response

- Cap and Trading systems – EU
- Money for renewables
- States and cities
- Voluntary industry response
  - Taken because of assumption of credit
  - Advertising/public appearance
  - Cost-saving/energy efficiency

System Coming – 2008

- Public Opinion has changed dramatically in 2006 – October 31, 2006
- Respectable doubters acknowledge more certainty – T. Karl/ G. Easterbrook
- Evangelical Involvement – Pat Robertson

- “31 Multinational corporations believe federal limits ‘are imminent’” – Oct. 20, 2006 (includes Alcoa/ Duke Energy)
- “TXU plans for eventuality of CO2 regs, but behind schedule” – November 7, 2006
- 67% of companies think will take effect between 2010 and 2018.

What will a federal regulatory system look like?

What are GHG regulations in existence in the states and localities?

- GHG inventories – many state and local governments – mostly voluntary
- Mandatory power plant CO2 controls – Massachusetts, New Jersey
- Power plant cap-and-trade system –Regional Greenhouse Gas Initiative (RGGI) – Northeast States; possible West Coast involvement
- Automobile controls – California (Other states that adopt California – BUT lawsuit)
- GHG sequestration as part of reduction-Maine
- Renewable requirements in electricity portfolios – numerous states, including Texas

Many focus on power generation

- Big producer of CO2
- Already regulated and part of cap and trade system

Most likely to proceed in sectors

- Electric Power Production
- Petrochemical
- Refining
- Transportation
- Autos/ trains/ ships/ air transport

National System

1) CO_2 cap and trade
   inventory
   recognizing prior voluntary actions

2) Other GHGs – equivalence system
3) Recognition of sequestration
4) Foreign trades/monitoring
5) Tort liability waiver?

Industry Response

- Get ahead of the curve – voluntary reduction?
  - Unknown, but might lose out on opportunity, advertising bragging rights, mistakes on input costs (coal fired)
  - More likely with incentives

Capturing allocations? – TXU?

Perceived Benefit? – El Paso Energy (joining Chicago Climate Exchange) – bound to make certain reductions - Methane