reminders & announcements:

next week – SPRING BREAK

Tuesday, April 3 – flexible class time for Activity #2 planning

Thursday, April 5 – regional and state-level climate action

Tuesday, April 10 – City/County of Boulder climate policy action
w guest Jonathan Koehn

Thursday, April 12* – Colorado climate policy action
w guest Alice Madden

*activity #2 presentations will be postponed slightly, time/day TBA
Time to Ditch Kyoto
• “Kyoto tries to do too much too soon” (p. 794)
• innovation emphasis (e.g. R&D) over hollow regulatory aims
• “The proper purpose of politics is to do things for people, not to them” – calls for flexibility and multiscale action
• multilateralism OUT, minilateralism IN

The Hartwell Paper
• “The UNFCCC/Kyoto model was structurally flawed and doomed to fail…”
• path dependence concerns – sunk costs, political capital
• refocus efforts: ensure energy access for all; ensure ‘sustainable’ development; ensure that our societies are equipped to deal with climate risks and dangers

‘geoengineering’ defined

geoengineering
(or climate engineering): deliberate engineering and manipulation of the planetary environment to combat or counteract anthropogenic changes in atmospheric chemistry (Royal Society, 2009)
**top themes in today’s readings**

**carbon intensity (CI):** GHG emissions of a fuel’s production and use through its life cycle, per unit of energy delivered → grams of carbon dioxide equivalent emissions per megajoule of energy \[ \text{gCO}_2/\text{MJ} \]

COAL > OIL > Natural Gas > Renewables (debates on hydrogen, nuclear)

*Schneider et al. (2010) chs 45-47:*
- hydrogen, nuclear, carbon capture & storage

*Schneider et al. (2010) ch 48 (by David Keith):*
- controlling the weather [and links to military endeavors]
- ‘Should we engineer the planet?’

**two main types of geoengineering**

- **Solar Radiation Management (SRM) [adaptation]**
  - e.g. painting rooftops, enhancing cloud reflectivity, SO$_x$

- **Carbon Dioxide Removal (CDR) [mitigation]**
  - e.g. ocean fertilization, air capture, lithosphere storage
two main types of geoengineering

Solar Radiation Management (SRM) [adaptation]
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Planetary engineering: a moral hazard?

“to suit human needs & promote habitability” NYT, 2006

Yale poll on attitudes & climate change (Leiserowitz et al, 2010):
• 74% of respondents had never heard of geoengineering
• 3% of the respondents could accurately define it

CONSIDERATIONS

→ a ‘way out’ of emissions reductions responsibilities?
→ reducing political/public citizen will for mitigation actions?
→ do humans have a ‘right’ to deliberately change the climate?
→ how can ‘we’ agree on the optimal climate globally?
  questions of power & jurisdiction
→ are regulations and standards too underdeveloped to address this?
→ how are we addressing overlapping risks w fracking/natural gas extraction?
→ are these ‘band aid’ efforts, overlooking root causes of climate change?
planning & research

Asilomar International Conference on Climate Intervention Technologies (nov 2010)

Objectives:
- Identify potential risks associated with climate intervention experiments
- Propose a system to assess experiment design for potential categorical risks and suggest precautions to assure their safe conduct
- Propose voluntary standards for climate intervention research for the international scientific community

Recommendations:
- pursue research that advances the collective well-being of society, env’t
- coordinate and plan internationally
- during consideration and conduct of planned activities, take in account governmental oversight, public involvement, and decision-making
- conduct research with transparency and accountability
- undergo independent evaluation and assessment of research.

climate governance & scale

Does the scale of the challenge match the scale of responses?

“radical changes..will be needed for a low carbon society” – Fawcett (2010, 6875)