

Panel Discussion on the Future of Coal in a Carbon-Constrained World



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Moderator

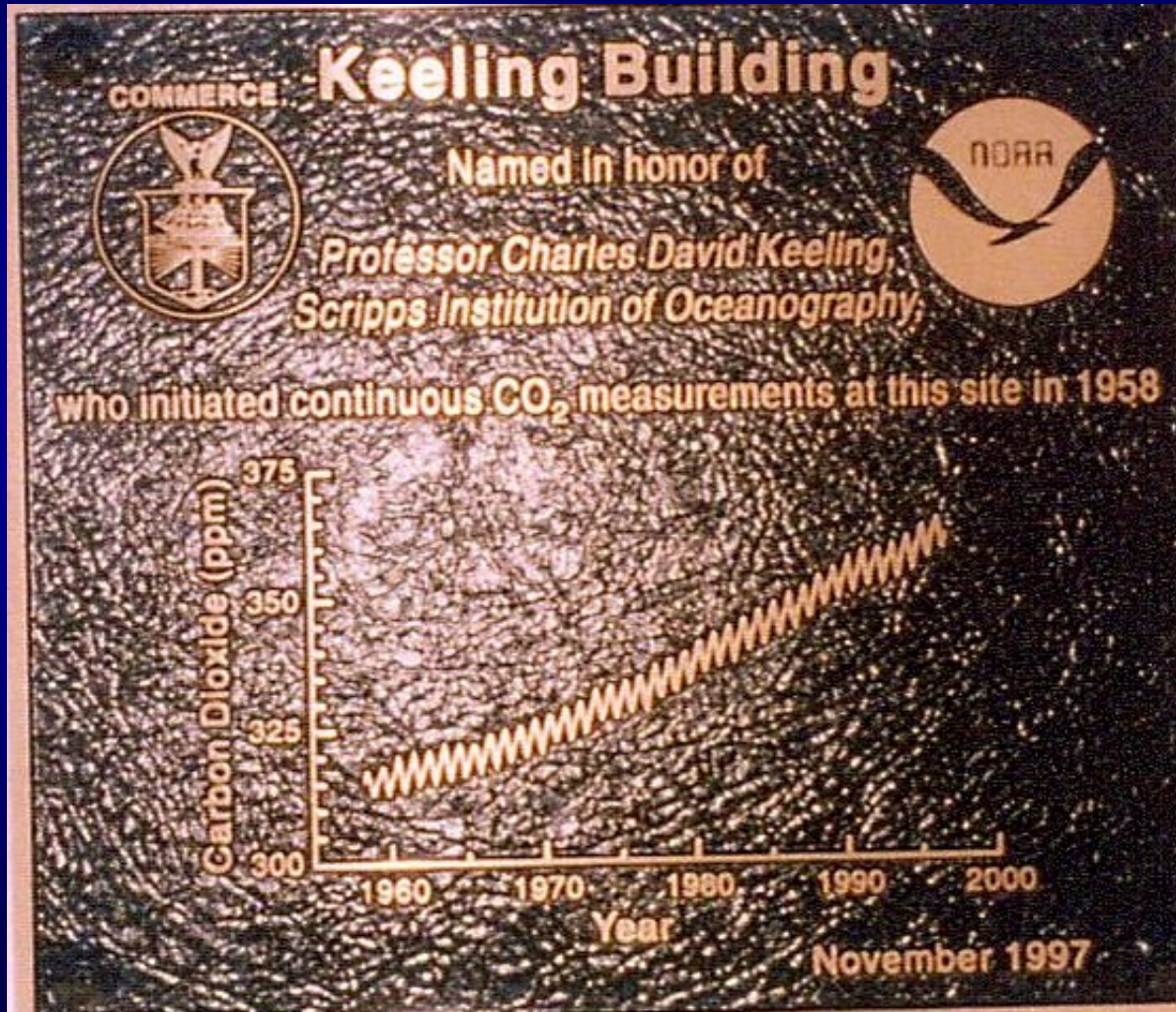
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The Future of Coal in a Carbon-Constrained
World

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Salt Lake City Main Library

Keeling Curve (11,000 feet, Mauna Loa, Hawaii) : Very Predictable CO₂ Levels under Business-as-Usual Practices : 316 ppm in 1959, 379 ppm in 2005, 500 ppm expected in mid-century (exceeds by far the natural range over the last 650,000 years (180 to 300 ppm)



Recent Science-Related Events: IPCC Fourth Assessment Report (2007)

States:

- “Global atmospheric concentrations of carbon dioxide, methane, and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years. The global increases in carbon dioxide concentrations are due *primarily to fossil fuel use* and land-use change, while those of methane and nitrous oxide are primarily due to agriculture.”
- Ambient CO₂ average annual increase over last ten years at 1.9 ppm/year is more than 1/3 higher than the average of 1.4 ppm/year over the last 45 years (1960-2005; period of direct measurements)

List of Questions

- Numerous challenges facing us if CCS is to become the future of coal : technology, liability, environmental safeguards, safety, financial risk, public acceptance, and possibly more.
- Best way to integrate all of the above into a coherent whole if CCS is to be deployed?
- Suppose we do not ever get there? Is there a Plan B for coal?

List of Questions

- How do you see the relative future roles of *New* nuclear, *New* coal, *New* Renewables, and gains in energy efficiency ? (capital costs, negative carbon mitigation costs, CCS costs, carbon liabilities, carbon price, public acceptance) ?
- Optimal location of new coal plants : How does CCS change the location dynamics ? Would it be possible to use or expand current pipeline right of ways?

List of Questions

- What do you see as major constraints to new construction of advanced coal-technology plants?
- What incentives are needed to make it more likely that advanced technology would be used as opposed to retrofitting old plants?
- What do we need to know about the price structure for electricity in order to create incentives to move in environmentally sound directions?

List of Questions

- Should we allocate carbon allowances to consumers or load-serving entities or to power producers? Why not auction ALL of the allowances ?
- What is the “right” price signal for carbon to shift us toward advanced coal combustion technologies/CCS? or the “right” cap (magnitude and speed of achievement)?

List of Questions

- Should the US permit now any NEW coal fired power plants without CCS in place upon startup ? If so, under what conditions:
 - Space for carbon capture?
 - Sequestration opportunity on site or by pipeline?
How soon will this be available?
 - minimum thermal efficiency requirements?
minimum amount of biofuel? minimum efficiency/biofuel combination?
 - translate above to a maximum lb CO₂/mWhr net output?