Year 4 Tasks

Science

Q: What is a safe level for CO\textsubscript{2} in the atmosphere?
T: 1. ESM model development.
    2. IPCC experiments with GFDL.
    3. Glacial/ Interglacial work.

Q: How much CO\textsubscript{2} can be emitted if we are to stabilize at any given level?
T: 1. Ongoing process studies of sources and sinks in ocean and on land.
    2. Inverse modeling to map and monitor sources and sinks in real time.
    3. O2/N2 measurements.

Q: What are the unintended environmental consequences of mitigation options?
T: 1. Air pollution vs carbon modeling with GFDL/Ford.
    2. Ongoing work on climactic effects of wind power, etc.
Year 4 Tasks

Capture

Q: What are the critical enabling technologies that are ready for commercialization in the near term, and what are their cost-capacity curves?

T: 1. Using already developed models of hydrogen and synfuels from coal with CO$_2$ capture, provide cost inputs for integrated assessments.
2. Comparison of hydrogen production technologies based on coal and natural gas.
3. Model phased commercialization of CGCC power plants with CO$_2$ capture (capture-ready, capture-and-store)
4. Model windfarms with pre-transmission storage (e.g. as compressed air)
5. Model production of electricity and synfuels from biomass via gasification.

Q: Given that most of the stabilization wedge must be built in developing countries, what technological options are the most promising for the developing world?

T: 1. Continue involvement in technology adoption discussions in China
2. Expand fuels production models that embed country-specific costs (with BP/Ford?)
Year 4 Tasks

Storage

Q: How likely are CO\(_2\) storage reservoirs to leak?
T: 1. Analysis of field collected cement samples (Teapot Dome).
  2. Laboratory experiments on cement in the presence of CO2.
  3. Numerical models for the areas surrounding the interface
     between sequestration reservoir and well.

Q: How risky are leaks at basin-scales or larger?
T: 1. Numerical models for the areas surrounding the interface
   between sequestration reservoir and well.
   2. Fast reservoir models for basin scale risk analysis.

Q: How can we best mitigate leakage risk?
Year 4 Tasks

Economics and Policy

Q: What is the economic cost of stabilization?
T: 1. IA modeling, including relationships with IIASA, and Edmunds groups.

Q: What is the relationship between economic efficiency and practicability of implementation?
T: 1. IA modeling.

Q: What are the most efficient economic instruments to accomplish it?
T: 1. (PG)^2 modeling of trading schemes for stabilization.

Q: What is the cost of waiting?
T: 1. Completion of regrets studies.

Q: What political options are most feasible and which are most likely?
T: 1. Establish working group.