

Select Committee on Energy Independence and Global Warming

“New Energy Technologies: What's Around the Corner?”

July 28, 2009

9:30 am

2172 Rayburn House Office Building

Witness Questions for the record

Questions for Mr. Sptznogle (AEP)

1. What is the marginal cost per kwh of the electricity AEP is purchasing from the solar energy facility in Ohio? Given the unreliable output of the solar facility, what source of generation are you using to backstop the solar energy?
2. In your testimony, you note that the Virginia state commission declined to approve rate recovery for the development of an IGCC plant. As AEP moves forward with other low-carbon projects, do you have any further concern that state public utility commissions will not approve the higher cost of capital and rates to recover the additional cost?
3. If your 20 MW demonstration project at Mountaineer Power Plant is successful and the 230 MW commercial demonstration project is also successful, how long will it take to scale the technology up to the point where it could be deployed on the entire 1300 MW Mountaineer Plant? Has AEP studied the maximum annual amount of liquid CO₂ that could be stored at the Mountaineer Plant? What about the maximum lifetime storage? How long do you anticipate it would be until the aquifer is at capacity and then how would AEP manage the CO₂?
4. Has AEP studied the allowance price at which CCS would be cost-competitive with other forms of generation?
5. How does capturing carbon using the chilled ammonia process impact the efficiency of the plant?
6. What concerns, if any, do you have about the long-term storage of CO₂ in geologic formations? Are you concerned about the legal and regulatory complexities of long-term storage?
7. What are the principal barriers to the commercial deployment of carbon capture technologies?
8. How could performance standards be incorporated into the development of new coal-fired power plants?
9. As we look at long term storage of CO₂, have any of you looked at the pipeline needs related to this issue?
10. How much nuclear power does AEP include in your energy production? Do you support the inclusion of nuclear power in the baseline of a renewable or clean energy portfolio standard?

Questions for Dr. Greg Kunkel (Tenaska, Inc.)

1. What are the principal barriers to the commercial deployment of carbon capture technologies?
2. What challenges is Tenaska facing in building a CO₂ pipeline? Do you see the development of a national pipeline infrastructure in a reasonable timeframe? What is the role of the federal and state governments in the construction of CO₂ pipelines? What are the associated costs of building the additional infrastructure and who pays for the construction and operation of the pipeline?
3. How could performance standards be incorporated into the development of new coal-fired power plants?
4. Do you support the development of more nuclear power as we look toward the future in a carbon constrained environment?

Questions for Dr. Brent Constantz (Calera Corporation)

- 1) Has construction begun on your 20MW test facility? How long will it take to construct the entire facility? Is the capital available to begin construction of other pilot demonstrations?
- 2) In your testimony you note significantly higher CO₂ capture rates for other carbon intensive industries, specifically cement kilns and refinery operations. Have you looked at joint ventures with any firms in those industries to test your carbon capture technology? If not, what issues need to be resolved?
- 3) You also say that your current absorption rate is about 10%-15% of CO₂, which results with a significant amount of carbon dioxide still being emitted. What are the challenges with capturing a higher percentage of CO₂? How high would the price of an allowance have to be to make the marginal cost of capturing additional CO₂ profitable or is the barrier a lack of technology?
- 4) Do you support the development of more nuclear power as a carbon-free baseload source of electricity?

Questions for Mr. Frank Smith (Purgen One)

1. Would opening up portions of the coasts for offshore drilling provide SCS with additional sites to sequester CO₂ through EOR?
2. How secure is the dispensation of CO₂ in the Earth's ocean floors? How can you allay people's concerns about ocean acidification given your proposal of pumping more CO₂ into the ocean bed?
3. You note the necessity for the \$20 per ton carbon sequestration tax credit and a regulated carbon market established by cap and tax legislation. How high would the price of carbon have to be to make PurGen cost competitive?
4. Your testimony highlights the advantages of the unique underground/undersea location to sequester the carbon. Are similar geologic formations accessible on the U.S. coast? What characteristics must be available to expand your project to other parts of the country?
5. If PurGen is profitable without any direct government grants or other incentives, why is a costly and burdensome cap and tax scheme for other portions of the economy necessary?
6. Will you still proceed with this project if the ACES Act does not become law?
7. Have you considered liability issues if the sequestered carbon escapes the geological formation or if the pipeline leaks?

Questions for Mr. Sean Gallagher (Tessera Solar)

1. Where are your SunCatchers manufactured? If the United States wants to enhance our energy independence, does it make sense to move from using Middle Eastern oil to using Chinese solar panels?
2. What is the life cycle of the SunCatcher? Are there environmental considerations that must be examined during the disposal of waste solar panels?
3. You make some recommendations for improving the permitting process. Can you extrapolate on your proposed reforms? How would increasing application fees and thus driving up the price of a project, be of benefit to solar companies? Do these hurdles primarily exist on federal lands and with BLM or do state and local regulatory bodies also pose significant challenges during the permitting process? How much (what percentage) do you suggest increasing the fees by? Won't this pose a similar burden as the competitive leasing model in that smaller companies with fewer financial resources would have a tougher time meeting these costs?
4. Do you support reducing the NEPA process only for solar loan guarantee projects or would the streamlining of NEPA apply to other clean energy projects as well?
5. Have you or are you planning on applying for funding provided by the American Recovery and Reinvestment Act? If so, how is that funding going to be used? Is the funding provided by the grants capital that could not be acquired through other means?
6. How frequently must the SunCatchers be generating electricity to be cost-competitive? Specifically, would your product be cost-competitive in regions that are not abundant with solar resources, such as Wisconsin?
7. Regarding transmission costs, you say that this should be borne by the transmission owners – in the case of your Southern California Project, you estimate a cost of \$400 million. How do you propose this occurring without the costs being transferred on to consumers?
8. Do you support the development of more nuclear power to satisfy baseload demand as a carbon-free source of electricity?

Questions for Dr. Emanuel Sachs (1366 Technologies, Inc.)

- 1) Do you think that sustaining a 35% annual growth rate is realistic, particularly given the length of time and investment already directed towards PV?
- 2) Will adequate storage technology be commercially available by 2025?
- 3) How much landmass will be necessary to generate 7% of global electricity demand?
- 4) You note the difficulty of securing adequate financing for the development of PV. Do you believe that reflects the broader concern by investment companies into the commercial viability of your technology? If the open competitive market is not funding PV projects, why is it necessary for the government to prop up a foundering industry?
- 5) Are there currently any multi-megawatt PV facilities under construction?
- 6) Do you support the development of more nuclear power to satisfy baseload demand as a carbon-free source of electricity?