

July 11, 2008

Coal Power: Stress efficient carbon capture-and-storage

As global leader in energy technology, America needs to come up with a practical way to combat climate change that allows for the continued use of the world's most abundant fuel: coal. Developing methods for more efficient coal combustion combined with the capture and underground storage of carbon emissions is the answer.

Advanced clean-coal technologies now under development could be incorporated into new coal plants and many existing plants over the next 20 years. The environmental benefits are expected to be significant. The Electric Power Research Institute estimates that a 10 percent improvement in the efficiency of a conventional pulverized coal plant would increase the amount of electricity squeezed from each ton of coal, and translate into a carbon reduction of 25 percent.

The importance of clean-coal technology should not be under-estimated. Coal is our country's energy mainstay, accounting for more than half of the nation's electricity generation and 62.5 percent of Georgia's power. Industry now has the capability to capture carbon dioxide at coal-fueled power plants before it reaches the atmosphere. Research is under way on improved and more cost-effective technologies for carbon capture.

Transporting carbon dioxide by pipeline to a suitable site for underground storage is the next step, then injecting it into oil and natural gas fields. Further into the future, carbon dioxide could be sequestered in other geologic formations such as deep saline formations. Geologists believe layers of rock will seal the carbon dioxide underground indefinitely.

The continuing development of this technology --- and its successful demonstration in large-scale testing --- is the key to reducing greenhouse-gas emissions. In turn, it could be exported abroad or developed and demonstrated jointly with other countries like China and India that rely on coal to power their economies.

Several small-scale tests of carbon capture-and-storage technology are under way in the U.S. and other countries. But more than a decade of research and development will be needed before the start of large-scale demonstrations. This effort will cost an estimated \$2 billion annually for the next 15 years.

Congress needs to address carbon capture-and-storage and it should provide the necessary funds to get a major program launched. Developing this technology --- one that can be replicated around the world --- makes a lot more sense than imposing limits on carbon emissions through a domestic cap-and-trade scheme that fails to give sufficient allowances to coal.

The risk here is that, unless and until a cost-effective technology becomes available to capture and store carbon emissions, U.S. utilities would be forced to shift from coal to high-priced natural gas. And any reduction in U.S. carbon emissions would be more than offset by increased emissions from countries with fast-growing economies that have no such restrictions on carbon dioxide releases from power plants.

Any plan to reduce carbon dioxide emissions without making provisions for the future use of coal worldwide will be doomed from the start. A country like China --- which relies on coal for 80 percent of its energy --- can't be expected to abandon it, since doing so would cause energy shortages and serious damage to its economy.

Policymakers like to talk about the need for alternative energy sources --- solar and wind power, geothermal energy, natural gas, nuclear power and conservation. But those alternatives, though helpful, aren't enough to meet growing demand for electricity in increasingly digitalized economies.

The growth of nuclear power is severely constrained by equipment and manpower shortages.

Even with state mandates, it's unlikely that renewable energy sources will ever account for more than a fraction of U.S. electricity generation. Solar and wind have serious limitations due to cost and practicality. Neither one is of much help on days when the weather isn't cooperating.

For the United States and globally, a combination of more efficient coal combustion and carbon capture-and-storage offers a potentially workable solution to the greenhouse-gas problem --- and an opportunity to reach a comprehensive strategy for international cooperation on carbon mitigation. Energy supply would be more secure, and the citizens of coal-producing countries would gain more from the natural wealth their countries control. Both producing and consuming countries would win --- regardless of where the carbon is sequestered.

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