



## **Desert Rock: CO<sub>2</sub> Reductions through Efficiency Now, Carbon Capture for the Future**

### **Background:**

Desert Rock is a 1,500 MW mine mouth power plant developed by Sithe Global Power, LLC's subsidiary, Desert Rock Energy Company, LLC and the Dinè Power Authority, an enterprise of the Navajo Nation. It is designed to burn subbituminous Navajo coal. The plant will be located in Northwestern New Mexico at an elevation of 5,415 feet. Two supercritical pulverized coal-fired boilers operating at a net heat rate of 8,950 Btu/kWh (based on higher heating value) are planned. Very low emission rates have been proposed for this project including 0.06 lb/MMBtu for both NO<sub>x</sub> and SO<sub>2</sub> and 0.01 lb/MMBtu for filterable PM, all on a 24-hour average. Desert Rock will emit approximately 10.9 million tons of carbon dioxide annually.

### **Current Carbon Policy Issues:**

Carbon dioxide (CO<sub>2</sub>) is one of several greenhouse gases that is part of the natural greenhouse effect that makes the Earth have a habitable temperature. Man-made sources of CO<sub>2</sub> make up only 3% of global CO<sub>2</sub> emissions (source: U.S. Department of Energy) and are just one of many factors at work in determining the Earth's climate. Currently, CO<sub>2</sub> is not regulated as a pollutant. Several states have enacted regulations on greenhouse gas emissions including carbon dioxide, but those policies are in the early stages of development or implementation and are not likely to affect the power provided by Desert Rock. Currently, the Desert Southwest region is one of the fastest growing regions in the country and local utilities have requests for more than 2,300 MW of new base load power. Several Federal legislative proposals have been introduced as well, but each is in the very early stages of policy analysis and are unlikely to have immediate impacts.

### **Sithe Global Climate Principles:**

Sithe Global's development model addressing climate change is based upon a set of principles. The company's principles with respect to global climate change include:

- Climate change is a global issue requiring a comprehensive solution addressing all greenhouse gases, sources and economic sectors in all countries;
- Development of U.S. energy and environmental policy should seek to ensure U.S. energy security and independence;
- Solutions should encourage investment in a diverse supply of new generation to meet U.S. needs to maintain adequate reserve margins and support economic growth, as well as address customers' needs for affordable and reliable energy;
- As a leading merchant developer of all generation technologies, policies should encourage significant investments in research and development and deployment of a broad spectrum of solutions, including energy efficiency and renewable energy, coal, gas and nuclear generation technologies; and
- Any mandate to reduce greenhouse gas emissions should be developed under a market-based framework that is consistent with expected technology

development timelines and supports the displacement of old, inefficient power generation technology with advanced, more efficient technology.

## **A Vision for Lowering Greenhouse Gas Emissions**

Sithe Global and DPA are already taking steps to address concerns about global climate change, including investing in the development of new technologies and displacement of older, less efficient power plants with new efficient plants to lower CO2 emission rates. Unfortunately, no economical technology exists today to capture and sequester CO2. However, Sithe Global is investing to make its plants carbon capture-ready because it believes future technologies will enable economical capture and sequestration of CO2. DPA is investigating development of a large scale renewable wind project on the Navajo Nation as well.

## **CO2 Reductions through Efficiency**

The technology proposed for Desert Rock is highly efficient, meaning substantially less coal is used to produce the same amount of electricity with fewer emissions than older, conventional coal power plants. Desert Rock's proposed technology will produce initially a 15% reduction in greenhouse gas emission because of efficiency gains in the supercritical technology. No other coal technology including IGCC will emit less greenhouse emissions than the technology proposed for Desert Rock.

## **Building advanced, carbon capture-ready plants**

The Desert Rock Energy Project will use the nation's most advanced supercritical coal technology and meet standards defined by the International Energy Agency for carbon capture- and storage-ready. Desert Rock will be able to be fitted for future deployment of carbon capture and storage technology when the conditions exist to support its implementation.

## **Sequestration: An Unanswered Question**

Even if carbon capture technologies become available and affordable, many unanswered questions remain about the viability and impacts of sequestering carbon dioxide. While some technologies in the oil and gas industries use carbon sequestration today for additional development, no long-term storage data is currently available. An upcoming study from energy experts at the Massachusetts Institute of Technology (MIT) to be released in February of 2007 is likely to cast further doubt on the viability of sequestration technologies. While Sithe Global and other developers believe the future is promising, carbon sequestration issues still remain a largely unknown factor because of these concerns.