

## **CLEAN COAL TECHNOLOGY**

### **Immediate Investments Needed to Meet Climate Goals**

#### **The Nation's Electricity Capacity Needs are Growing**

Coal currently accounts for half of the U.S. electricity generation mix and about 62 percent of the generation consumed by electric cooperative consumers. The cooperative segment of the industry only owns 5 percent of the nation's electric generation. Cooperatives need to add over 22,000 MW of generating capacity in the next decade - a 50 percent increase over current capacity - to keep up with rising electricity demand. According to the North American Electric Reliability Corporation (NERC), U.S. electricity use will grow more than twice as fast as committed resources over the next 10 years. NERC warns that the grid is being operated "at or near its limits more often than ever before."<sup>1</sup> America's ingenuity must be tapped to find a way to keep the nation's most abundant fuel source useful for meeting electricity demand while still meeting goals set for limiting carbon emissions.

#### **New Clean Coal Technology Must be Developed to Meet Future Capacity Needs**

State of the art coal-fired power plants that optimize environmental performance will be crucial for meeting increased capacity needs. The Electric Power Research Institute (EPRI) has assessed the economic impact of reducing carbon emissions to 1990 levels by 2030, assuming the availability of different fuel portfolios.<sup>2</sup> EPRI emphasizes that new advanced clean coal plants are a critical part of a resource mix needed to provide adequate electricity and achieve aggressive carbon reductions. Based upon the EPRI analysis, if the U.S. adopts carbon reduction goals and builds new nuclear power plants as well as new highly efficient coal plants equipped with carbon capture and storage (CCS) technology, utility rate increases attributable to a climate strategy would average about 10 percent in real dollars. Electric rates would nearly *triple* by 2050, however, if the U.S. relies solely on natural gas, renewables and energy efficiency to meet capacity needs, and fails to invest in new nuclear and coal technologies.

To ensure that advanced clean coal will remain part of the nation's electricity fuel mix, a significant technology "push" is needed to make environmental technologies like CCS commercially feasible. Scientific experts agree that CCS will not be available until 2020 at the earliest - even *with* significant investments in research and development.

#### **Electric Cooperatives are Pioneering New and Emerging Technologies**

Co-ops also want opportunities to build new, advanced, highly efficient coal-fired plants and have the experience to support this effort. Basin Electric Power Cooperative, a North Dakota-based generation and transmission cooperative, is successfully operating the largest North American CCS project at its Great Plains Synfuels Plant. About 49 percent of the CO<sub>2</sub> produced there is captured, compressed and delivered through a pipeline to depleted Canadian oil fields for use in enhanced oil recovery. Although the CCS technology has not

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<sup>1</sup> North American Electric Reliability Council, "2007 Long-Term Assessment," October, 2007.

<sup>2</sup> Electric Power Research Institute, "The Power to Reduce CO<sub>2</sub> Emissions: The Full Portfolio," prepared for the 2007 Summer Seminar.

been demonstrated for electricity production, some of the lessons learned from the cooperative gasification project can be applied to future technology development for electric generation.

### **Significant Investments in Efficient Clean Coal Plants and CCS are Needed**

While electric co-ops look for additional opportunities to apply CCS to electric generation facilities, CCS must clear several significant technology and economic hurdles to be feasible for large scale commercial development. A recent study by the Massachusetts Institute of Technology found that current programs to demonstrate carbon sequestration are “completely inadequate” and require intensive future efforts.<sup>3</sup>

While government and industry work to overcome these challenges, bridge technologies can greatly enhance coal plants’ efficiency and environmental performance. Two technologies currently under development are integrated gasification combined cycle (IGCC) and ultra-supercritical technologies using pulverized coal. The IGCC process converts coal into a gas, cleans it and uses it in a combustion turbine to make electricity. The ultra-supercritical technologies employ a steam cycle with extremely high heat and pressure. These technologies are the platforms to which CCS technology - when developed - would be added.

To push forward on advanced clean coal technologies, government and industry both must make a significant commitment. Incentives are needed to mitigate dramatically rising construction costs, the price of diverting power for environmental performance, risk and maintenance issues involved in deploying new technologies. The incentives will cost tens of billions of dollars over time, but making this investment today will speed advances in technology so that the forecasted *tripling* of electricity rates will not occur. Legislation is needed today to let not-for-profit electric cooperatives participate in major technological and environmental advances through the use of investment tax credits and clean coal technology bonds.

### **The Solution: Support Legislation that Provides Tax Incentives for Advanced Clean Coal Technologies**

#### **NRECA Urges Members of Congress to:**

- **Create** a substantial partnership between government and industry focused on clean coal technologies.
- **Support** legislation (soon to be introduced) that provides tax incentives for clean coal technologies, including Carbon Capture and Sequestration (CCS).
- **Ensure** co-ops can access those incentives by including bonds that provide low-cost financing to not-for-profit utilities.

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<sup>3</sup> Massachusetts Institute of Technology, “The Future of Coal: Options for a Carbon-Constrained World,” 2007.