Clean-coal efforts advance

Industry interest, federal and state money boost research

By JEREMY FUGLEBERG  |  Star-Tribune energy reporter

It was a banner year for researchers and others in Wyoming pushing forward on cleaner-energy uses for coal.

Increased industry interest in cleaner-energy technology and an infusion of cash from both the state and federal governments fueled a wide range of research projects in Wyoming in 2010.

“We have had a growing amount of funding available to incentivize innovation and research,” said Mark Northam, director of the University of Wyoming’s School of Energy Resources.

Engineers from GE Energy are pushing forward on a $100 million coal gasification research facility under construction near Cheyenne. The High Plains Gasification-Advanced Technology Center, a joint project of GE Energy and the University of Wyoming, is in the procurement and engineering stages but should complete construction by the end of 2012.

“We’re in a whole new era where industry is no longer doing research on their own — they’re leveraging their dollars by working with universities,” Northam said.

The facility will be located on a 35-acre site in the Cheyenne LEADS Business Parkway. The state of Wyoming and GE will split the gasifier’s cost.

The gasification facility will serve as a test bed for researchers to convert Wyoming coal into combustible gases that can be used to manufacture a variety of chemicals and fertilizers or as a fuel for power production. The process is virtually pollutant- and greenhouse gas emission-free.

In 2010, the Clean Coal Task Force at UW’s School of Energy Resources distributed $7 million of $15 million available for a range of projects in Wyoming and elsewhere in the U.S. meant to research new, cleaner uses for coal from the Powder River Basin. The task force has distributed millions of dollars received from the state of Wyoming since the task force began in 2006.

Projects funded in 2010 spanned a wide range of coal-related technology. The UW’s Department of Renewable Resources received $1.3 million to conduct a three-year test of a process to capture carbon dioxide emitted from the Jim Bridger coal-fired power plant near Rock Springs.

The task force gave three different awards totaling $930,156 to UW’s Energy and Environmental Research Center. The money will fund research on power plant cooling, solvents to capture carbon...
dioxide, and power plant emission monitoring equipment.

Northam says the research is both attempting to limit the carbon footprint of coal use, as well as coming up with new, environmentally cleaner ways to use coal. “The former is more a defensive strategy and the latter is more of an offensive strategy,” he said. The federal stimulus bill approved in September 2009 funded a number of coal research projects in Wyoming, including carbon sequestration research at two promising geological sites: the Rocks Springs Uplift and Moxa Arch on southwest

in advanced technologies to lower the carbon impact of coal utilization and to expand markets for Powder River Basin coal is stimulating innovation,” he said in a statement when the first round of funding went out. “The Clean Coal Task Force is eager to put the remaining funds to work by funding the highest impact research.”

Elsewhere in Wyoming, Australia-based Linc Energy is conducting preliminary work in the Powder River Basin with an aim to develop sites on which to use the underground coal gasification process, in which coal is literally cooked underground to produce natural gas, which is then extracted for sale. The company is pressing forward with vegetation and wildlife surveys as part of the state’s permitting process, and intends to next conduct groundwater sampling, the company told stakeholders in an August/September 2010 publication. Linc is also researching the thickness and depth of Wyoming coal seams as another step toward setting up a small-scale commercial underground gasification demonstration facility in 2011.

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