



## VOLUNTARY ACTIONS FOR A CLEANER ENVIRONMENT

### COAL DRYING—COAL CREEK STATION

Great River Energy's Coal Creek Station ([www.greatriverenergy.com](http://www.greatriverenergy.com)), near Underwood, North Dakota, is the only lignite-based power plant in the nation to be chosen by the U.S. Department of Energy to participate in the first round of President Bush's Clean Coal Initiative. With the help of an \$11 million cooperative agreement with the U.S. Department of Energy, the plant is testing a process that uses its own waste heat to dry the lignite, reducing moisture levels in the coal and improving combustion performance.

The Department of Energy believes that a 25 percent reduction in moisture, including a reduction in ash content, will result in the same amount of electricity being generated, but with less lignite being consumed and fewer emissions of CO<sub>2</sub>. In addition, drier lignite will mean less sulfur dioxide, nitrogen oxides and mercury.

Great River Energy will evaluate the project in 2006, and decide whether to install more of the lignite-drying modules.

### FLY ASH SALES—COAL CREEK STATION

Another environmental initiative at Great River Energy's Coal Creek Station in North Dakota reduces greenhouse gas emissions by putting just over 80 percent of the plant's fly ash production to further use as a partial replacement product for cement in the production of concrete. Fly ash is a waste product produced during coal combustion. When used instead of cement, the ash improves the quality of the finished concrete product by making it stronger, more durable and easier to finish. A recent cement shortage in the Midwest has increased the demand for fly ash. Some producers are now replacing 30 percent or more of their cement with fly ash.

Concrete production is an energy intensive process. More than a ton of carbon dioxide is emitted for each ton of cement used. However, each ton of fly ash used in place of cement reduces greenhouse gases by at least a ton. In the case of Coal Creek Station, the sale of fly ash in 2005 will result in a reduction of 440,000 tons of CO<sub>2</sub>—about the same amount that would have been produced by 75,000 automobiles driven over a year's time.

Selling the fly ash to cement producers also reduces the amount that ends up in landfills. Great River Energy saved about \$1.65 million in 2005 landfill expenses, helping to reduce the need for landfill capacity and keeping electric rates stable for customers.



*This storage dome collects fly ash from Coal Creek Station in the winter months to meet peak demands during the summer construction season. The beneficial use of fly ash reduces greenhouse gas emissions and the amount of ash disposal at plant site landfills.*

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