

PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Clean Coal Power
Initiative (CCPI 2)

10/2008



AIRBORNE PROCESS™ COMMERCIAL SCALE DEMONSTRATION PROGRAM (WITHDRAWN PRIOR TO AWARD)

Project Description

Mustang Clean Energy will design, construct, and operate a full scale sodium-based multi-pollutant scrubber in conjunction with a revenue-generating fertilizer by-product processing plant at Mustang Energy Company, LLC's Mustang Generating Station. Both Mustang Clean Energy and Mustang Energy Company are subsidiaries of Peabody Energy, the world's largest coal company. The 300 MW (net) station will be located in McKinley County, NM and will be a minemouth pulverized coal-fired power plant burning El Segundo sub-bituminous coal containing up to 1.56 percent sulfur.

This project was selected in Round Two of the Department of Energy's (DOE) Clean Coal Power Initiative (CCPI) to demonstrate advanced emissions control technologies. The Mustang Project teams Peabody Energy and co-sponsor Airborne Clean Energy (ACE) along with HPD LLC, a Veolia Water North America subsidiary, and Icon Construction in a commercial-scale demonstration of the Airborne Process™ scrubber, regeneration system, and fertilizer production systems. As co-sponsors of the proposed effort, Peabody and ACE will jointly manage the project. HPD and Icon will be responsible for the engineering, procurement, and construction of the ACE Mustang Facility.

A subsidiary of ACE will process the spent product from the environmental control process to produce a high value fertilizer by-product.

The Airborne Process™ employs a patented method of sodium bicarbonate scrubbing to remove sulfur dioxide and nitrous oxide from flue gas streams. Processes using sodium bicarbonate to scrub flue gases have been historically limited by the high cost of the sodium bicarbonate and the disposal of the resulting sodium sulfate by-product. In the Airborne Process™, the sodium sulfate by-product is regenerated into two end products: sodium bicarbonate for re-use in the scrubbing process, and a granular ammonium sulfate-nitrate fertilizer that can be sold, eliminating disposal costs and producing an additional revenue source for the plant. Commercialization of the technology will combine the use of dry sodium bicarbonate injection with enhanced wet sodium scrubbing to provide control of sulfur oxide, nitrous oxide (NO_x), and Mercury (Hg).

CONTACTS

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PARTICIPANT

Mustang Clean Energy, LLC, a
subsidiary of Peabody Energy
St. Louis, MO.



ADDITIONAL TEAM MEMBERS

Airborne Clean Energy
Calgary, Alberta, Canada
Veolia Water North America
Plainfield, IL
Icon Construction
Dayton, OH

LOCATION

Mustang Generating Station
McKinley County, NM

ESTIMATED PROJECT DURATION

48 months

COST

Total Project Value
\$93,195,888

DOE/Non-DOE Share
\$19,700,000 / \$73,495,888

ADDRESS

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918-699-2000

CUSTOMER SERVICE

1-800-553-7681

WEBSITE

www.netl.doe.gov

Benefits

This project will demonstrate significant emissions reductions while both achieving market competitive capital and operating costs, and maintaining high plant reliability. Mustang's innovative multi-pollutant control process will provide 99.5 percent removal of sulfur dioxide, 98 percent removal of sulfur trioxide (sulfuric acid mist precursor), 98 percent removal of NO_x , and 90 percent removal of Hg from plant emissions, while turning the byproducts into a high-quality, high-value granular fertilizer. In addition, this project will demonstrate that it is feasible to improve the cost competitiveness of coal-fired capacity by providing a significant revenue stream from fertilizer production while keeping capital costs competitive with current technologies. Overall, Airborne's regeneration process is expected to reduce operating costs, reduce waste, reduce landfill costs, and generate an additional revenue stream for the plants that use the technology.

This technology will help to meet the President's environmental objectives for the Nation. Early CCPI demonstrations emphasize technologies that are applicable to existing power plants and also include construction of new plants. Successful implementation of CCPI will solve many of the environmental issues associated with fossil fuel use and provide high-efficiency, low-cost, future generating capacity.

Project Status

This project was withdrawn from the CCPI Program by mutual consent of Mustang Clean Energy and DOE.

