PUBLIC ABSTRACT

Applicant (primary) name: Colorado Springs Utilities, an enterprise of the City of Colorado Springs, a Colorado home rule city and municipal corporation

Applicant s address: 121 S. Tejon Street, Colorado Springs, CO 80903
Street City State Zipcode

Team Members (if any): Foster Wheeler Power Group, Inc.

Perryville Corporate Park, Clinton, NJ 08809-4000
Name City State Zipcode

(listing represents only participants at time of application, not necessarily final team membership)

_____
Name City State Zipcode

_____
Name City State Zipcode

(Use continuation sheet if needed.)

Proposal Title: Next-Generation CFB Coal Generating Unit

Commercial Application: X New Facilities
__Existing Facilities

Other, Specify:

Technology Type: Advanced Low-Emission CFB Combustion System

Estimated total cost of project:
(May not represent final negotiated costs.)

Total Estimated Cost: $ 301,504,000

Estimated DOE Share: $ 30,000,000

Estimated Private Share: $ 271,504,000

PUBLIC ABSTRACT (cont'd)

Anticipated Project Site(s): Fountain, El Paso County, Colorado 80817-3800
Location (city, county, etc.) State Zipcode

Type of coal to be used: Sub-Bituminous PRB (Primary); PRB blended with coal waste, biomass, petroleum coke (Alternate (if any))

Size or scale of project: 2,200
Tons of coal/day input

And/or

150 megawatts Megawatts, Barrels per day, etc.
Other (if necessary)

Duration of proposed project: 72
(From date of award) (Months)

PRIMARY CONTACT:

For additional information, interested parties should contact:

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Name

Principal Engineer
Position

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Telephone Number

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Company

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City State Zipcode

Alternative Contact:

Phillip Saletta
Name

Managing Engineer
Position

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City State Zipcode

PUBLIC ABSTRACT (cont'd)

Brief description of project:

Next-Generation CFB Coal Power System Technology Demonstration

Colorado Springs Utilities (CSU) and Foster Wheeler (FW) are joining to achieve unprecedented low plant emissions levels in a coal generating unit. Circulating fluidized bed (CFB) combustion technology is being combined with fully integrated, multi-layered emission control technology to produce what is expected to be the cleanest coal unit in the world, while maintaining cost competitiveness and high unit reliability.

CSU and FW will demonstrate this new technology with a full-scale, 150 megawatt commercial generating unit at the Ray D. Nixon Power Plant, south of Colorado Springs. This new generating unit will provide CSU's customers with low-cost electric power, while furthering CSU's goal of environmental stewardship.

For oxides of nitrogen (NO_x), the system features an advanced staged-combustion process that can achieve unprecedented low furnace NO_x levels, coupled with an advanced selective non-catalytic reduction (SNCR) system that can reduce stack NO_x levels achievable today only with higher cost SCR technology.

For oxides of sulfur (SOx), to break through the current limit of limestone utilization for the CFB, the design features a three-stage approach to achieve the highest sulfur capture with the lowest limestone consumption. Unlike other processes, the limestone fed to the furnace is the only source of reagent added for sulfur removal. This system is expected to achieve a 96% to 98% sulfur removal, while reducing limestone consumption to less than half of conventional CFB systems.

In addition to the advanced SO_x and NO_x control technology, the advanced low emission combustion system features an integrated trace metal control system that can remove up to 90% of mercury, lead and other metals, as well as virtually all acid gases in the flue gas.

Emission performance is of key importance, but system cost and reliability are also essential for commercial viability. The design features an advanced integrated solids separator system instead of traditional cyclones. The solid separators are integrated into the traditional furnace structure, resulting in both improved reliability and lower system cost. This design allows a reduced combustor size, and elimination of the traditional hot expansion joints, while achieving improved operational performance and reduced maintenance costs. The demonstration of all of these integrated design features in a single unit, on a commercial scale, is the goal of this DOE Clean Coal Power Initiative Demonstration project, which CSU is hosting.

In addition to standard Powder River Basin coal, this unit will be able to burn low-grade waste coal, petroleum coke, and biomass fuels. Consuming any of these fuels represents both environmental and economic benefits to the community. About 20-30 million tons of coal washings from the steel industry in Pueblo, Co., has been an unsolvable environmental issue-- this project offers a solution . Recent forest fires have driven the local forestry service to endorse the continued removal of forest deadwood as a forest fire management strategy--this project offers a long-term, safe solution to wildfire management. In addition, the plant will be designed as a zero discharge plant, totally recycling all of its wastewater effluent streams.