FINDING OF NO SIGNIFICANT IMPACT
FOR THE PROPOSED
LIGNITE FUEL ENHANCEMENT DEMONSTRATION PROJECT

AGENCY: U.S. Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) has completed an Environmental Assessment (EA) (DOE/EA-1477) for a Lignite Fuel Enhancement Demonstration Project at the Coal Creek Station in Underwood, North Dakota. Based on the analysis in the EA, DOE has determined that the proposed action, for providing partial funding to demonstrate the fuel enhancement technology, does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (NEPA). Therefore, the preparation of an Environmental Impact Statement is not required, and DOE is issuing this Finding of No Significant Impact (FONSI).

COPIES OF THE EA ARE AVAILABLE FROM:

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BACKGROUND: The Coal Creek Station is a 2-unit, 1,100-megawatt, mine-mouth power plant that was constructed in the lignite fields of central North Dakota. The station is owned and operated by Great River Energy, based in Elk River, Minnesota. The U.S. DOE selected a proposal from Great River Energy to negotiate a cooperative agreement for using the Coal Creek Station to demonstrate an approach to increase the value of lignite and other high-moisture coals, such as Powder River Basin sub-bituminous coal, for generating electricity. The process proposed by Great River Energy would involve drying high-moisture coals using waste heat streams already present in typical coal-fired

power plants. The proposed project would be expected to demonstrate that the cost of the coal drying system used to reduce the moisture content of lignite feedstock would be outweighed by the economic benefits accrued from improved performance, by reduced emissions, and by increased reliability, availability, and maintainability. The results could promote widespread use and commercialization of the drying technology. Widespread use at all U.S. plants that use Powder River Basin subbituminous coals could potentially achieve annual savings of $840 million.

DESCRIPTION OF THE PROPOSED ACTION: The proposed action is for DOE to provide, through a 45-month cooperative agreement with Great River Energy, financial assistance for a Lignite Fuel Enhancement Demonstration Project at the Coal Creek Station near Underwood, North Dakota. If approved, DOE would provide $11 million, or 31% of the total estimated project cost of $35 million, to demonstrate the commercial viability of technology for using waste heat to reduce the moisture content and improve the fuel value of lignite.

The Coal Creek Station uses approximately 7.5 million tons of lignite per year. Roll mill pulverizers are used at the station for reducing the particle size of coal, which is then blown into a combustion furnace by primary air. A drier fuel for the station would require less power demand by the pulverizers and less primary air to dry and transport the fuel. The proposed coal drying system would require installation of additional ductwork, heat exchangers, and a fluidized bed dryer unit. All of the new components would be installed within existing buildings and structures of the Coal Creek Station. The demonstration project would focus on using waste heat from the Coal Creek Station to lower the moisture content of the coal by at least 10 percentage points.

ENVIRONMENTAL CONSEQUENCES: The EA for the proposed project included consideration of the potential effects on the following environmental resources: geology and soils, cultural resources, ecological resources, threatened and endangered species, water resources, air quality, noise, land use, socioeconomics, aesthetics, and environmental justice. No adverse environmental impacts were identified by the EA. In some resource areas, such as air quality, the environmental changes would be beneficial.

Geology and Soils: No direct impacts on regional geology and geological resources would be expected as a result of the proposed project due to the fact that no earthwork or piling would be required. In addition, no pre-existing geological conditions with potential for adversely impacting installation or operation of the project have been identified.

Cultural Resources: Because the proposed project would produce no land disturbance, no additional archeological or cultural resource investigations would be required. In addition, since the proposed project would not create any adverse impacts on air or water quality, aesthetics, noise, etc., tourism in the area, which results from several regional sites of historical significance, would not be affected.

Ecological Resources: No adverse impacts on ecological resources would be anticipated as a result of the proposed project. The reduced emissions may have a positive impact on

the surrounding ecology. The demonstration project would not impact or change water discharge operations or the procedures currently used by Great River Energy to manage ash ponds at the Coal Creek Station.

Threatened and Endangered Species: The project site would be located within the already constructed Coal Creek Station. Therefore, no impacts to federally listed threatened or endangered species would be anticipated as a result of the proposed project. The project would not produce changes in emissions or effluent streams that would adversely affect the surrounding environment, thus avoiding any impacts on threatened or endangered species.

Water Resources: The project would not adversely affect water usage or discharge. The Coal Creek Station is a zero-discharge facility, and therefore no direct impacts to streams or groundwater would result. All discharged waters from the plant, except storm water, are released by evaporation from the cooling tower (the circulating water system) or by evaporation from the various storage basins. Because the proposed project would be fully contained within the existing site footprint, no impacts to existing floodplains would result.

Air Quality: The project would be expected to result in a net reduction in air quality impacts. Research indicates that reducing the total moisture content of coal by 10% would reduce mass emissions of CO_2 and SO_2 by approximately 5%. Direct effects on the emissions of carbon monoxide and nitrous oxides would not be anticipated as a result of reducing the moisture content of the lignite fuel. However, with less coal being used to achieve full load, a slight reduction in emissions of these pollutants could occur.

Noise: No changes in the ambient noise levels would result from the proposed project.

Land Use: Since the proposed action would be fully contained within the existing powerhouse, no additional impacts to land use or zoning would occur.

Socioeconomic Effects: No long-term socioeconomic impacts would be expected from the proposed project. The project would not create additional permanent jobs for the region. On-site work for the project would be done by Great River Energy employees or contractors hired for specific tasks. However, some minor, temporary local benefits for local hospitality businesses, motels, and restaurants would occur due to the presence of additional workers during the project construction period.

Aesthetics: The majority of the construction activities associated with the Lignite Fuel Enhancement Demonstration Project would occur within the existing powerhouse structure. Some equipment may be added to the roof of the existing structure, thus resulting in a minor increase to the plant's silhouette. The impact would be insignificant relative to the large size of the existing structure.

Environmental Justice: In accordance with Executive Order 12898, the EA evaluated whether or not the proposed project would result in disproportionately high and adverse

impacts on minority and low-income populations. Because the proposed project would produce changes only at the existing site of Coal Creek Station in rural McLean County and no adverse impacts have been identified, no environmental justice issues would result from the proposed project.

ALTERNATIVES CONSIDERED: The purpose of the proposed project is to enhance the use of lignite as a fuel without increasing the utilization of other resources. This would be accomplished in the project by using heat sources that are normally rejected as waste heat streams. Drying could be accomplished by alternative methods through combusting additional fuel or through extracting heat from the steam going to the turbine. However, these alternatives would not achieve the purpose of the project and would minimize or eliminate many of the potential benefits. Therefore, such alternatives were not evaluated in detail.

Under the No Action alternative, DOE would not provide partial funding for the demonstration of the lignite fuel enhancement technology. In the absence of partial funding from DOE, plans for demonstrating the proposed technology would not be expected to continue. Because the fuel enhancement technology was designed with the goals for reducing emissions, increasing operating efficiency, and enhancing the plant's operating characteristics, cancellation of the project would eliminate the opportunity to test the beneficial aspects of the technology and would fail to accomplish DOE's purpose. The No-Action alternative would result in cost savings associated with not funding the project.

PUBLIC AVAILABILITY: A draft EA was distributed for review and comment to Federal and State agencies and to the public. Copies were made available at the Underwood Public Library and at Coal Creek Station. Public notices announcing the availability of the EA were placed in the Bismarck Tribune and Underwood News newspapers. No adverse comments regarding the project were received.

DETERMINATION: Based on the information and the analysis in the EA, DOE has determined that the proposed Federal action to provide partial funding for demonstrating the lignite fuel enhancement technology would not constitute a major Federal action that would significantly affect the quality of the human environment, within the meaning of the National Environmental Policy Act. Therefore an Environmental Impact Statement is not required, and DOE is issuing this FONSI.

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