United States Department of the Interior

BUREAU OF RECLAMATION
WASHINGTON, D.C. 20240

IN REPLY
REFER TO: 440/551.

MAY 25 1971

Mr. Eliot Porter
Route 4, Box 33
Santa Fe, New Mexico 87501

Dear Mr. Porter:

The Secretary of the Interior has asked us to reply to your letter of May 2, 1971, regarding the coal-fired, thermal-electric powerplants in the Southwest. We have also read with interest your April 26, 1971, letter to Senator Edmund S. Muskie, that you enclosed.

Please be assured that we are taking into account the long-range effects of these powerplants. The needs for electrical energy in the Pacific Southwest are also being considered.

Western Energy and Supply Transmission Associates (WEST), comprised of 23 power companies in 7 Western States and which was formed in 1964, is continually evaluating alternative systems to meet the increasing demand for electrical power in the burgeoning Pacific Southwest load centers. The Western States Coordinating Council also projected the annual increase for electrical energy to be about 8 percent from 1970-1975. This estimate is somewhat above WEST's expected increase of about 5 percent for the 19-year period, 1967-1985.

During the late 1950's and early 1960's energy reserves of the vast undeveloped coal resources in the Four Corners area of the Southwest offered competitive advantage, both economically and environmentally. The coal-fired,thermal-electric powerplants were then, and are currently, considered the most viable alternative to meet demands for electricity in the near future.

Domestic pipeline gas supplies are insufficient to meet a substantial portion of the electrical power requirements. Oil or coal as a fuel to power the plants offers similar environmental concerns. However, oil offers an additional vulnerability in that our electrical energy could become dependent upon foreign

supplies. Also, the western coal deposits contain about one-half of 1 percent sulfur and are, therefore, superior to the oil products and higher sulfur coals of the East, which carry a 2-5 percent sulfur content.

You probably are aware of the unique environmental hazards associated with nuclear powerplants. Technological factors, capital limitations, plant siting, leadtime for construction, and other aspects represent significant barriers to development of nuclear powerplants as an alternative for electrical power production in and near the load centers for the Pacific Southwest. Geothermal and tidal basin sources can offer at present only modest amounts of competitive electrical energy.

Because of the Department's responsibilities regarding hydroelectric power, water supplies, coal deposits, and other resources located on Federal lands, several bureaus and offices became involved in the expansion plans by private interests. As these plans developed in the mid-1960's, it was recognized that environmental matters concerning air and water quality would need careful consideration. As a consequence, we introduced stringent air and water pollution control provisions into water service contracts, leases, licenses, permits, and other legal documents covering the use of resources associated with the thermal-electric powerplants.

The enclosed statement for the Four Corners Powerplant near Farmington, New Mexico, recites the background for Interior's involvement and summarizes the actions taken to date regarding that plant. Substantial environmental gains have been made in particulate control. To illustrate the progress being made, three-fourths of the particulates in stack emissions for all five units should be eliminated when the venturi wet scrubbers are installed at Units 1, 2, and 3 and which will be operational on or before December 31, 1971.

Upgrading of the electrostatic precipitators at Units 4 and 5 by the end of 1973, to comply with New Mexico standards, is expected to further reduce particulate emissions by more than 70 percent. These actions should make the plant virtually free of particulate pollution. Coincidental with these dramatic improvements, we are further insisting that devices for the control of sulfur and nitrogen oxides be incorporated as rapidly as technology becomes available. Pilot plant studies are currently underway at the Mohave Powerplant near the southern tip of Nevada. These studies, which are to be completed by October 1971, should provide the technological breakthroughs necessary for commercial application of a sulfur control system.

The enclosed brochure by the Peabody Coal Company describes the company's activities on Black Mesa pursuant to leases with the Navajo and Hopi Indian Tribes. During the next 35 years, it is estimated that about 14,000 acres will be strip mined. This represents about seven-tenths of 1 percent of the entire Black Mesa. The adverse ecological effects from the mining activity should be tolerable with respect to the entire entry area. Restoration of the strip-mined areas will be accomplished by Peabody Coal Company as mining activities progress. Thus, the adverse ecological effects should be further minimized as the conservation measures are performed.

Annual water requirements for the six powerplants in which Interior is involved represent less than 2 percent of the 12 million acre-foot annual flow of the Colorado River. The water being used represents State allocations under the compact. Return flows from the cooling towers or other plant functions must meet stringent thermal and salinity control criteria imposed by the water service contract or by State water quality regulations. In most instances, water used in the thermal-electric powerplants will not be returned to the Colorado River.

We trust that this lengthy and detailed review of the alternative sources for power, air, and land and water resources associated with this industrial development will assuage your fears. We believe that such development can be compatible with the environment of the scenic and historic Southwest. The indigenous coal and water resources will yield economic benefits locally and throughout the Pacific Southwest.

Sincerely,

Ellis L. Armstrong
Commissioner

Enclosures

Four Corners Powerplant

The Four Corners coal-fired, thermal-electric installation consists of 5 existing and 3 proposed generating units. Units 1, 2, and 3 which are solely owned by Arizona Public Service Company have about 634 megawatts capacity. Units 4 and 5 each with 795 megawatts capacity went on line in July 1969 and July 1970, respectively. Units 6, 7, and 8 are expected to be in the 900 megawatt range bringing ultimate capacity to about 5,000 megawatts.

Units 4 and 5 are jointly owned by Southern California Edison Company (48%), Arizona Public Service Company (15%), Salt River Project (10%), Tucson Gas & Electric Company (7%), El Paso Gas and Electric (7%), and the Public Service Company of New Mexico (13%).

All coal is supplied by the Utah Construction and Mining Company from land held under a lease dated July 26, 1957, with the Navajo Indian Tribe. Water for the first 5 Units is obtained from about 51,600 acre-feet of direct flows from the San Juan River. The intention of water use was filed with the New Mexico State Engineer in 1955 and diversion rights were granted by that officer in 1958. A water service contract was executed April 11, 1968, with Utah Construction and Mining Company for an additional 44,000 acre-feet of water annually from Navajo Reservoir, Colorado River Storage Project to meet water needs associated with Units 6, 7, and 8.

Air pollution control equipment to be installed by the Arizona Public Service Company to control particulate matter from stack emissions at existing Units 1, 2, and 3 of the company's Four Corners Powerplant near Farmington, New Mexico, stems from actions taken by the Bureau of Reclamation when energy company officials inquired about the availability of water for proposed expansion of the power generating facilities at its Four Corners site. In addition to environmental controls that were included in the water service contract for proposed Units 6, 7, and 8, air and water pollution control articles were placed in the July 1966 "Supplemental and Additional Indenture of Lease Including Amendments and Supplements to Original Lease--Four Corners Units 1, 2, and 3 . . . New Lease--Four Corners Units 4 and 5" between the Navajo Tribe of Indians and the several energy companies.

Section 14(a) of that agreement established air pollution control standards for Units 4 and 5. Section 14(b) further stipulated that within 14 months after Unit 5 is commercially operative, air pollution control equipment subject to review by the Secretary of the Interior was to be installed at existing Units 1, 2, and 3 of the Four Corners plant.

On October 4, 1968, the stack and precipitator designs for Units 4 and 5 at the Four Corners Powerplant were approved by David S. Black, Acting Secretary of the Interior upon recommendation of the Bureau of Mines.

On June 2, 1970, contract administration of the environmental provisions in section 14 of the "Additional Indenture of Lease . . ." and section 8.1 of the "Grant and Federal Rights-of-Way and Easements" was delegated to the Assistant Secretary of Water and Power Resources. This authority was redelegated to the Commissioner of Reclamation October 8, 1970, with redelegation of authority to the Regional Director at Salt Lake City and Boulder City, as appropriate.

The required review of the company's air pollution control and abatement equipment pursuant to the above agreements was completed October 23, 1970. The equipment, consisting of venturi wet scrubbers, will be designed to limit particulate matter emission rates to less than 0.05 pounds per million B.t.u. heat input. This standard was established following consultation among the company officials, representatives of the Bureau of Reclamation, the Office of Air Pollution of the Environmental Protection Agency, and officials of the State of New Mexico, Department of Health and Social Services.

In connection with that review, we have also advised Arizona Public Service Company, et al., that the adequacy of pollution control equipment installed at Units 4 and 5 would be further reviewed. Departmental agreements require that pollution abatement equipment must be operated so as to meet current State and Federal standards.

We are continuing to work closely with the Environmental Protection Agency's Office of Air Pollution which has just been established to develop acceptable criteria for the control of oxides of sulfur and nitrogen. The objective is to establish ambient air standards at values below those which would create conditions considered injurious to plant, animal, or human life.