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SOUTHWEST ENERGY STUDY

WORK GROUP G

INDIANS

CULTURAL, ECONOMIC AND SOCIAL FACTORS

SUMMARY

THIS REPORT WAS PREPARED PURSUANT TO A DIRECTIVE DATED JULY 16, 1971, FROM THE STUDY MANAGER, SOUTHWEST ENERGY STUDY. PUBLICATION OF THE FINDINGS AND RECOMMENDATIONS HEREIN SHOULD NOT BE CONSTRUED AS REPRESENTING EITHER THE APPROVAL OR DISAPPROVAL OF THE SECRETARY OF THE INTERIOR. THE PURPOSE OF THIS REPORT IS TO PROVIDE INFORMATION AND ASSISTANCE IN THE PREPARATION OF THE SOUTHWEST ENERGY STUDY MANAGEMENT TEAM REPORT.

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SUMMARY

Southwest Energy Study
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This report assesses the impact of large-scale mining of coal, its transportation and use in power generation as well as the transmission and utilization of electrical energy on the Indian society in the Colorado River Basin. Numerous factors have been identified and investigated as contributing to possible socio-economic change associated with coal extraction, power generation, and associated activities. The resulting indicators have been analyzed in terms of benefits and disbenefits.

There are 182,000 Indians representing 16 tribes residing within the study area. Of these, three will be significantly affected by energy production. The Navajo and Hopi are significantly affected by coal mining and power generation. The Papago will experience a major impact as a user.

The Hopi and Navajo Reservations lie in northeastern Arizona with significant portions of the latter extending into Utah and New Mexico. The Hopi Reservation proper encompasses approximately 2100 square miles, while that of the Navajo encompasses approximately 24,000 square miles.

Of the former, approximately 1100 square miles are held in joint ownership by both tribes with mineral benefits on these lands proportionately distributed between the two groups. These two reservations are geographically isolated from urban centers and main cross-continental arterial traffic.

The Navajo people are distributed over their entire reservation, generally as single families or kinship groups, of up to six households. Heavier concentrations, particularly of younger families, are found near developed communities and trading posts. Other than subsistence agriculture, they derive their livelihood mainly from such activities as various forms of handcrafts, employment in Federal and tribal governments, as well as in the limited service facilities on the reservation.

The Hopi live in a more sophisticated and urban setting, being concentrated in villages and settlements on or at the foot of three mesas. The Hopi have a reservation economy similar to that of the Navajo. Many leave the reservation to engage in skilled and semi-skilled work, returning to the reservation periodically to renew their residence.

The Papago Reservation is comprised of three parts and lies to the west and north of Tucson, Arizona. It encompasses nearly 4,700 square miles of land which consists of sonora desert type ranging from low alluvial valleys to mountains exceeding 7,700 feet. The historic economic base consists chiefly of farming small irrigated tracts, cultivating flash flood irrigated fields, grazing cattle, cutting firewood, and agricultural employment.

Today the historic Papago economy is being supplemented and expanded through the location and development of three large, commercial copper deposits. The surface and subsurface mining, together with the other development operations, will require the use of electrical energy estimated to exceed 100 MW annually by 1975. This rapidly expanding economic base is directly dependent upon the availability of power for delivery and use upon the reservation.

These three tribes have organized governments which make major decisions for their constituents. They have a specific autonomy based on both treaties and statutes which call for special consideration in negotiating the development of the resources under their jurisdiction.

There have been no substantiated reports of health hazards that can be specifically associated with the mining, transportation, generation or transmission operations now under way in the study area.

No evidence has been obtained that areas or sites of religious or sacred significance will be seriously altered. Continued safeguards to insure the protection of any existing sites should be maintained. There appear to be no serious issues of land conservation and beneficial utilization which cannot be accomplished by adequate land reclamation or archeological research and excavation.

It is believed that the towns of Page and Farmington have or will develop adequate housing and business facilities, as well as adequate educational, health and other community services for any increase in population, including the households of the 513 Indians who are expected to be employed in those immediate areas.

The Peabody Coal Company has 64,858 acres under lease from the Hopi and Navajo Tribes on the Black Mesa. They expect to mine 11 million tons annually by 1976 to fuel the Mohave and Navajo plants. The Utah Construction Company has a lease from the Navajo Tribe on 31,416 acres and expects to exceed the 7 million ton production level.

The mining, transportation, transmission, and generation operations on the reservations are expected to employ 735 persons by the end of 1971, of which 354 (48 percent) are expected to be Indian. Annual wages and salaries (including construction) will total $6,441,223 while the tribes will realize an additional $1,288,263 from lease rentals, royalties and other considerations.

The projected total direct Indian employment is expected to reach 1409 by the completion of Phase 1, while induced employment will reach 1190. Total direct Indian income will reach $19,044,000 while induced income will total $9,522,000. This constitutes an anticipated net income increase of $28,566,000 rising from the newly established energy operations by about 1976. Projecting the completion of Phase IV, total direct Indian employment will rise even further to 2234 and the induced employment will rise to 3086. Total direct income to Indians will reach $28,876,500 while the induced income will total $24,688,250 for a grand total of $53,564,750.

Reference should be made to the main body of the report for additional details regarding Indian attitudes toward reservation development, potential economic and social impacts of power development, and tribal sovereignty.

IV. HOPI PERSPECTIVE

A. Reservation Setting

The Hopi reservation is located within the Colorado Plateau area of north central Arizona within the Arizona portion of the Navajo Reservation. The maps depicting the study area show the relative positions of these two reservations and the unique ownership of a portion of the Black Mesa coal-producing region. It is a high desert area with elevation ranging from 5,000 to 7,000 feet.

The climate on the reservation is typically arid, with annual rainfall averaging about 10 inches, winter snowfall usually light and short-lived, and with daily temperatures seldom exceeding 100 degrees in the summer or falling below zero in the winter. Prevailing winds are from the southwest with highest velocities during March and April.

The terrain is characterized in the northern portion by the long, finger-like extensions of Black Mesa, while the southern portion exhibits a rolling topography.

Access to the reservation is provided by Arizona State Highway 264, which crosses the Hopi lands in an east-west

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direction. In addition, U.S. Highway 164 crosses the northwest corner of the reservation. Connection roads run from Arizona 264 to Winslow and Holbrook. Rail, air, and truck services are provided by various companies operating along U.S. Highway 66 (Interstate 40). Bus service is provided to Keams Canyon from Holbrook. Internal access is provided by asphalt paved, oiled, and dirt roads. The internal road system includes approximately 300 miles of maintained roads.

The Hopi people presently number approximately 6,280, most of whom live in twelve villages on three mesas. The remainder live off the reservation. Approximately 40 miles to the north of the Hopi villages coal deposits are mined which will fuel the Navajo and Mohave power plants.

B. PHYSICAL RESOURCES

(1) Land

The Hopi 1882 Executive Order Reservation, as depicted on Illustration No. 1 and other maps of the study area, is a large rectangular tract comprising some 2,472,254 acres within the Navajo Reservation. The lands and minerals of this area are jointly owned by both the

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Navajo and Hopi Tribes, which has an effect on the cultural and economic uses that are prevalent in the area.

The Hopi Reservation was set aside by Executive Order on December 16, 1882, for the use and occupancy of the Moqui (Hopi) and such other Indians as the Secretary of the Interior saw fit to settle thereon. For various reasons Navajos settled in the Jeddito Valley and on Black Mesa until by 1958 some 8,800 Navajos had located on the Hopi Reservation. The confrontations between the Navajo and Hopi Indians gradually constricted the Hopi to occupancy on or near the mesas where their villages and grazing areas are now located. This south central portion of the 1882 Executive Order Reservation was subsequently designated Land Management (Grazing) District 6.

The controversy was recognized by congressional action and passage of the Act of July 22, 1958 (72 Stat. 403), which authorized each tribe to institute or defend an action against the other "for the purpose of determining the rights and interests of such parties in and to said lands." The subsequent litigation on September 28, 1962, found that:

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1. The Hopi Tribe had exclusive right and interest in that part of the 1882 Reservation known as Land Management District 6, some 650,000 acres.

2. That the Navajo and Hopi Tribes had joint, undivided and equal rights and interests in and to all of the reservation outside District 6.

For practical purposes, the Navajo Indians continue to exclusively use and occupy the joint ownership areas while the Hopis remain within Management District 6. Contractual actions, however, require participation by authorized tribal representatives in conformance to the September 28, 1962, court decree. For example, the Black Mesa coal-mining operations, located in the northernmost portion of the joint ownership area, were authorized pursuant to leases executed by each tribe. Strip mining, construction, relocation of families, and related activities to produce coal, will directly affect only those Navajo Indians who currently use and occupy the area.

All Hopi land interests within the 1882 Hopi Reservation are owned by the tribe. This consists of the 650,000 acres of exclusively owned tribal land and the 1,822,000 acres jointly owned.

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Classification of the Hopi lands in Land Management District 6 is as follows:

Open Grazing	533,700
Timber (non-commercial)	78,400
Dry Farm	13,100
Irrigated	100
Wild Lands	22,800
Non-Agricultural Uses	1,900
	650,000

(2) Minerals

Coal appears to be the only major mineral resource on Hopi land. Some oil and gas exploration took place in the past, but results from the drilling were negative. The joint ownership area has had limited exploration and remains prospectively valuable for various minerals. Uranium deposits in the area are a possibility.

In fiscal year 1968, there were 30 oil leases in effect, encompassing 48,230 acres and providing $60,290 in rentals to the tribe. By fiscal year 1970, income from oil and gas declined to a total of $1,600.

Mineral income to the tribe has shown a marked increase in importance, due primarily to the Peabody Coal Company

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lease on Black Mesa. Income to the tribe in 1970 from this source was $20,100. In 1971 this increased to $80,997 as the result of that year's production of 328,00 tons of coal.

(3) Water

The Hopi Reservation is located in the Plateau Uplands Water Province. These formations have been intricately carved by steep-walled intermittent surface drainage courses. There are no permanent drainage courses on the Hopi Reservation. Broad alluvial areas which are common in other water provinces are uncommon here, and the alluvial deposits occur only as narrow strips along the drainages. The sedimentary rocks consist mostly of a sequence of alternating sandstone beds and soft shaly units. Differential erosion of these rocks gives the plateau country its characteristic mesa-and-butte topography.

The Colorado River cuts across the northwest corner of the province, but the principal drainage of the Hopi lands is the Little Colorado River. This river drains an area of about 26,900 square miles in Arizona and New Mexico. Its main tributary runoff is from the Mogollon slope and the White Mountains. Practically no runoff is obtained from the Hopi area.

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Ground water is generally available in the Hopi area. The aquifers are composed for the most part of fine-grained sandstones, however, and do not transmit water readily. In the Black Mesa area, the Peabody Coal Company has drilled five wells to great depths in order to provide water for the Mohave Power Plant slurry pipeline without depleting the water resources closer to the surface. A few wells drilled in the eastern part of the Hopi Reservation flow under artesian conditions. The United States Geological Survey has initiated a program to monitor the effect withdrawal of water for the slurry pipeline operations will have on the water resources in the area.

C. SOCIAL AND GOVERNMENTAL INSTITUTIONS

(1) Tribal Government

No tribal organization, as such, was in existence until passage of the Indian Reorganization Act in 1934.

Seven villages are currently represented on the council, whose office is at New Oraibi. The council operates in accordance with the "Constitution and By-Laws of the Hopi Tribe, Arizona," approved by the Secretary of the Interior on December 19, 1936. Hopi society is organized on the clan system, and each village is organized independently

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of the other and has a leader, either a village chief (a hereditary position) or a governor (elected by popular vote). Within the prerogative of the village leaders are such matters as granting of individuals the privilege to use land for purposes of farming or construction of dwellings; settlement of estates, etc.

(2) Religious and Cultural Factors

The Hopis are Pueblo Indians who, as city builders and dwellers, have attained a high degree of social sophistication. They are businesslike in their dealings, industrious, have a high regard for modern education, and are quite religious.

Culturally the Hopis are thought to be the modern day descendants of the cliff dwelling people who inhabited the plateau areas of the Southwest several centuries ago. They are traditionally agrarian and peace-loving.

The Hopi religion centers around the Kachina, which are a variety of god-like entities which aid and assist the Hopis throughout their lives. In terms of modern day living almost all Hopis practice or participate in the religious rites consisting of dances and ceremonies which concern the aspects of their everyday life.

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The Hopis are divided into traditional and progressive factions, with the traditionalists opposed to any change from the old ways and the progressives pursuing modern methods of transportation, communications, education, and living. The views of the traditionalists are presented in Attachment 14.

D. ECONOMIC FACTORS

The main source of individual Hopi income is government employment. Tribal and individual Hopi income has historically depended upon agriculture, minerals, and grazing in that order of importance. Due to the Black Mesa coal deposits, however, mineral leasing income to the tribe will increase measurably and far outweigh other sources. Details concerning this income are found in the Black Mesa section and in the following Table No. 9.

TABLE 9

ANNUAL INCOME AND WAGES RECEIVED BY THE HOPI TRIBE & INDIVIDUAL HOPIS FROM POWER GENERATION

Income Source	Total Dollars	Hopi Tribe	Individual Hopis
(a) Coal Mining			
Operation	$ 20,000	$	$ 20,000
Royalties	68,916	68,916	
Other	4,360	4,360	

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(b) Power Transmission

Operation	104,675		104,675
Totals	$197,951	$73,276	$124,675

The great majority of the land is used for grazing, although range conditions are classed as fair to poor throughout the entire reservation. Range management controlled grazing, juniper eradication, and other practices have been instituted by Hopi stockmen.

Dry farm produce is at present used almost entirely in home consumption by the farmer. There is very little selling of farm products, but trading of such is fairly common. There is very little likelihood that farming activities will increase in the future.

The only timber on the Hopi Reservation is noncommercial and furnishes little income to the tribe or the individual Indians.

Many Hopis are skilled in making pottery and baskets and a few have acquired the art of silvercraft. At the Hopi Silvercraft Guild in New Oraibi there is a display of silvercraft of distinctive Hopi design, and the Guild conducts both a retail and wholesale business.

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Among the Hopis are qualified masons, carpenters, painters, mechanics, and heavy-equipment operators. A considerable number on and off reservation do clerical work or are engaged in small private enterprises, such as, retail stores, carpentry, welding, radio, auto repair, and small trucking lines. Many are employed by the U.S. Forest Service as emergency firefighters throughout the Western States.

Ordinance No. 14 dated September 14, 1969, by the Hopi Tribal Council establishes the guidelines for development and exploration of oil, gas, and other minerals (Attachment 9).

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