PLANNING MANUAL FOR
ENERGY RESOURCE DEVELOPMENT
ON INDIAN LANDS

(FORMERLY "COMPREHENSIVE ANALYSIS OF ISSUES REGARDING
ENERGY RESOURCE DEVELOPMENT ON INDIAN RESERVATIONS")

EXECUTIVE SUMMARY

PREPARED FOR THE
U.S. DEPARTMENT OF ENERGY

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TABLE OF CONTENTS

	<u>Page</u>
LIST OF EXHIBITS	11
I. INTRODUCTION	1
II. BENEFIT-COST ANALYSIS OF ENERGY DEVELOPMENT ALTERNATIVES . .	9
III. MANAGEMENT OF TRIBAL ENERGY RESOURCES	21
IV. ASSESSMENT OF ALTERNATIVE CONTRACTUAL ARRANGEMENTS AND CONTRACT MANAGEMENT REQUIREMENTS	31
V. MANPOWER TRAINING PROGRAMS TO SUPPORT ENERGY RESOURCE DEVELOPMENT	45
VI. ASSESSMENT OF ENVIRONMENTAL ISSUES IN ENERGY RESOURCE DEVELOPMENT	55
VII. PROGRAM PLAN AND COST ESTIMATE FOR ESTABLISHING AN INDIAN ENERGY CLEARINGHOUSE	73
BIBLIOGRAPHY	81

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Title</u>	<u>Page</u>
S-1	Energy Tribes That Participated in This Study	7
S-2	Participating Reservations	8
S-3	Tribal Resource Planning and Decision Process	15
S-4	Application of Tribal Resource Planning and Decision Process to Specific Project	16
S-5	Summary of Benefit-Cost Analysis Methodology for Energy Resource and Other Land Development Options	17
S-6	Example of Decision Process for a Hypothetical Coal Development	18
S-7	Example of an Organizational Format for Model II Distribution of Minerals Tasks Among Functional Areas	28
S-8	Example of an Organizational Format for Model II Concentration of Minerals Tasks with Direct Line Authority	29
S-9	Comparison of Alternative Exploration Permits	38
S-10	Comparison of Lease Sales and Negotiated Contracts	39

LIST OF EXHIBITS (Cont.)

<u>Exhibit No.</u>	<u>Title</u>	<u>Page</u>
S-11	Variations of Lease Contractual Form	40
S-12	Joint Venture Variations	43
S-13	Tribal Skills Inventory Form	52
S-14	Flow Chart--Decisions and Actions Related to Development of Skills Training Programs	53
S-15	Preparation and Review of Environ- mental Impact Statements Under the CEQ Guidelines	67
S-16	Tribal Involvement in the EIS Process	70
S-17	Social and Cultural Concerns Addressed and Not Addressed in Environmental Impact Statements	71
S-18	The Clearinghouse Environment	77
S-19	Summary of Functions Performed by Three Clearinghouse Models	78
S-20	Summary of Clearinghouse Characteristics	79

I. INTRODUCTION

BACKGROUND

Indian tribes in the Southwest and Northern Great Plains states own reservation lands containing some of the richest deposits of low-sulfur coal, uranium, oil, and gas in the country. It has been estimated by the Department of the Interior that collectively Indian reservations contain billions of tons of strippable coal, millions of barrels of oil, more than a trillion cubic feet of natural gas, and millions of tons of uranium ore. These lands also contain undetermined amounts of geothermal energy and oil shale.

The major portion of these resources are held by the tribes listed in Exhibit S-1 (p.7). Many of these tribes, most notably Blackfeet, Crow, Jicarilla Apache, Laguna, Navajo, and Osage, have substantial proven reserves and have been producing for many years, in some instances for several decades. With the exception of oil and gas, however, most of the reserves remain undeveloped.^{1/}

Opinions differ within and among tribes as to whether or not to initiate new development in the future. Nevertheless, the leaders of the energy tribes realize that they share a common interest: protection of each tribe's right to determine the use of its resources. In 1975, the

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^{1/} The Bureau of Indian Affairs (BIA) is in the process of conducting minerals inventories for several tribes, with the majority of reports expected to be published in the early 1980's.

twenty-two tribes listed in Exhibit S-1 (a map is provided as Exhibit S-2, p. 8) organized the Council of Energy Resources Tribes (CERT) to represent their mutual interests. CERT requested the assistance of the Federal Energy Administration (which has been superseded by the Department of Energy). This study is the result of that request.^{1/}

The objective of this report is to provide information the tribes can use to make energy development decisions. The report is particularly concerned with management responsibilities and financial commitments that development will require on the part of the tribes and with the types of information and skilled personnel the tribes will need in the future to make informed decisions.

DEVELOPMENT CONCERNS

Energy resource development decisions raise a number of specific concerns to tribal leaders. When weighing the advantages and disadvantages of energy development, they must consider the short-term and long-term effects on the tribal economy, traditions and lifestyles, the physical environment, and the use of other resources. If a tribe chooses to proceed, its members need to decide how the resources should be developed. The tribe must determine the terms of specific contracts and the degree and type of tribal participation in managing specific business ventures.

Producing tribes have encountered some development problems. These include: (1) poor financial arrangements, (2) inadequate social and environmental planning, (3) inadequate environmental protection monitoring, (4) minimal employment and training of tribal members for energy jobs on their reservations, and (5) inadequate enforcement of contract terms. These problems are discussed in the paragraphs that follow.

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^{1/} CERT now has 26 member reservations, seven of which represent two or more tribes. Osage has subsequently dropped out.

With respect to financial arrangements, many of the tribes' existing long-term coal leases include fixed-rate royalty clauses, which pay tribes considerably less than the minimum royalty of 12.5 percent mandated for federal land since 1976 by amendments to the Federal Coal Leasing Act.^{1/} Some tribes have renegotiated these old leases, and other tribes are understandably wary about entering into new fixed-rate contracts in view of today's rising energy prices.

In the area of social and environmental planning, the National Environmental Policy Act (NEPA) has standardized procedures for assessing the environmental impacts of development projects prior to their approval, including those on Indian lands. However, the process alone has not offered adequate protection from the tribal point of view. Since the NEPA process does not usually give consideration to the uniqueness of an Indian reservation's economy, fiscal base, political structure, and cultural values, many development decisions and contract terms have not reflected the full spectrum of tribal concerns.

A third problem, which is also related to the NEPA process, has been the inadequate administration of environmental laws affecting energy resource development on Indian lands. As a result, energy projects have degraded reservation air and water quality, rendered lands unusable for alternative uses, and contaminated soils. In light of these experiences, most tribes are giving special attention to environmental controls before permitting any new energy developments on the reservation.

The availability of tribal employment opportunities created by energy projects on a reservation is a fourth major concern for most tribes. Tribes are interested in the number and skill level of jobs available to

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^{1/} Tribes earned an average of 21¢ per ton of coal mined, or 6.2 percent of the market value of the coal, in 1975. (Source: U.S. Geological Survey, Federal and Indian Lands: Mineral Production, Royalty Income and Related Statistics, Fiscal Year 1975, March 1976.) The current market value of western coal is approximately \$7 per ton at the mine under long-term contracts.

tribal members. Some companies have made special efforts to train tribal members for both entry-level and highly skilled jobs. Most companies, however, have less than desirable records of Indian hiring, especially for high-paying jobs. Training and employment opportunities are now a key consideration of tribal leaders in planning for energy resource development and in drawing up specific terms of development agreements.

Finally, in some instances where tribes have signed favorable agreements, enforcement of the terms has not been adequate. Oversight of energy company activities on reservations has historically rested with the U.S. Geological Survey (USGS) and the Bureau of Indian Affairs (BIA) as part of the federal trust responsibility. Both of these agencies are chronically understaffed in the Indian energy development area and are not able to monitor company operations adequately or to advise tribal leaders.^{1/} As a result, it is important to have a management capability that will enable tribal personnel to assume responsibility for oversight and control of energy development activities on their respective reservations.

HOW THE REPORT ADDRESSES THESE CONCERNS

Tribes have lacked information and expertise that they feel is necessary to resolve the concerns discussed above. This report is designed to assist tribes in their decision-making process by providing a framework and information for:

- Assessing the benefits and costs of developing coal, oil and gas, uranium, geothermal and/or oil shale
- Evaluating alternative contractual arrangements and contract terms
- Developing a tribal staff organization to plan for, monitor, and/or control energy projects

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^{1/} This observation is based upon interviews conducted with responsible officials of these two respective agencies.

- Identifying the jobs typically created by energy resource development; the way to match these opportunities with the skills of tribal members; and the education and training programs available in the minerals field
- Evaluating the environmental impacts of proposed projects and controlling the impacts of any development activity by using the existing environmental laws and programs more effectively
- Establishing an energy information network among the energy resource tribes.

The full study report organizes the above subject areas into five volumes:

- "Volume I -- Benefit-Cost Analysis"
- "Volume II -- Management and Contractual Arrangements"
- "Volume III -- Manpower and Training"
- "Volume IV -- The Environment"
- "Volume V -- Energy Information and Clearinghouse Design"

In Volume I, benefit-cost analysis is presented as an analytical tool that can assist the tribes in estimating the advantages and disadvantages of energy resource development. Volume II focuses on both tribal management issues and contractual arrangements. The management section provides a framework that will assist a tribe in deciding what it wants to do about energy resource development. While federal government agencies will continue to assist the tribes in the future, new BIA leasing regulations, expected in May 1978, will provide an ever-increasing role for the tribes in the planning and development of their own resources. The section on contractual arrangements suggests ways the tribes can make more favorable arrangements with energy companies once a decision to develop specific resources is reached.

Volume III discusses the types of jobs associated with different types of energy development, the skills required to fill these jobs, and training programs available to the tribes to acquire the necessary skills. Again, emphasis is placed on the careful planning and evaluation required by the tribes to take full advantage of potential employment opportunities.

Volume IV addresses the environment and the government's role in its regulation. The first part of the volume assesses the Environmental Impact Statement (EIS) process mandated by NEPA and suggests how the tribes can use the policies promulgated under NEPA to serve their own interests. The second part analyzes federal statutes dealing with environmental and safety issues and how the tribes can make the rules and regulations issued under these statutes serve their own interests.

The tribes also need to have current information to ensure that decisions are sensitive to changing market and regulatory conditions. Volume V presents a design framework for establishing an energy information clearinghouse and describes several sources of information that are available and useful to the tribes. The information provided through a clearinghouse should help the tribes' professional staffs, tribal leaders and tribal members to make more informed decisions about energy resource development.

EXHIBIT S-1

ENERGY TRIBES THAT PARTICIPATED IN THIS STUDY

1. Acoma Pueblo San Fidel, New Mexico	12. Navajo Tribe Window Rock, Arizona
2. Blackfeet Tribe Browning, Montana	13. Northern Cheyenne Tribe Lame Deer, Montana
3. Cheyenne River Sioux Tribe Eagle Butte, South Dakota	14. Osage Tribe Pawhuska, Oklahoma
4. Crow Tribe Crow Agency, Montana	15. Rocky Boys Reservation Chippewa-Cree Tribe Box Elder, Montana
5. Fort Belknap Reservation Assiniboine and Gros Ventre Tribes Harlem, Montana	16. Santa Ana Pueblo Bernalillo, New Mexico
6. Fort Berthold Reservation Three Affiliated Tribes (Mandan, Hidatsa and Aricara Tribes) New Town, North Dakota	17. Southern Ute Tribe Ignacio, Colorado
7. Fort Peck Reservation Assiniboine and Sioux Tribes Poplar, Montana	18. Uintah & Ouray Tribes Fort Duchesne, Utah
8. Hopi Tribe Oraibi, Arizona	19. Ute Mountain Ute Tribe Towaoc, Colorado
9. Jemez Pueblo Jemez Pueblo, New Mexico	20. Wind River Reservation Shoshone and Arapaho Tribes Fort Washakie, Wyoming
10. Jicarilla Apache Tribe Dulce, New Mexico	21. Yakima Toppenish, Washington
11. Laguna Pueblo Laguna, New Mexico	22. Zia Pueblo San Ysidro, New Mexico

EXHIBIT S-2

SYMBOLS

- * Two or more Tribes
- C Coal in production
- c Coal known or likely
- O Oil in production
- o Oil known or likely
- G Gas in production
- g Gas known or likely
- S Oil shale in production
- s Oil shale known or likely
- GE Geothermal in production
- ge Geothermal known or likely
- U Uranium in production
- u Uranium known or likely

PARTICIPATING RESERVATIONS

1. Acoma (c,u,ge)	12. Navajo (C,O,G,U,ge)
2. Blackfeet (c,O,G,)	13. Northern Cheyenne (c,u,o,g)
3. Cheyenne River Sioux (o,g,c)	14. Osage (O,G)
4. Crow (C,O,G)	15. Rocky Boys (c,g,u,c)
5. Fort Belknap* (c,o,g)	16. Santa Ana (ge)
6. Fort Berthold* (c,o,g)	17. Southern Ute (O,G,c)
7. Fort Peck* (c,O,G)	18. Uintah & Ouray* (O,G,s,u)
8. Jemez (ge,u)	19. Ute Mountain Ute (O,G,c,u,ge)
9. Jicarilla Apache (O,G,ge,c)	20. Wind River* (O,G,u,c)
10. Hopi (C)	21. Yakima* (ge)
11. Laguna (U,c,ge)	22. Zia (ge,u)

II. BENEFIT-COST ANALYSIS OF ENERGY DEVELOPMENT ALTERNATIVES

Benefit-cost analysis is a tool that can be used to make decisions about energy resource development. It is a technique frequently used by government agencies in making decisions about resource allocation. Few tribal governments have much experience in using it.

The principal value of benefit-cost analysis to government is its direct parallel to the concept of a "bottom line" used by private businesses. Corporate planners generally make a "go/no-go" decision about investment opportunities on the basis of the expected financial returns to the company over the course of several years. Since the decisions of governments are not based solely on marketplace events, benefit-cost analysis provides a means to consider the relevant pluses and minuses needed to make a public investment decision.

The conduct of a benefit-cost analysis for an energy development project can be expensive (\$100,000 or more for complex projects) and time-consuming (six months or more in some cases). However, the money and time are well spent if the analysis estimates the positive and negative consequences of the project which can lead to improvements in the project design and to actions preventing a serious, irreversible impact.

Two major steps are taken to assess whether to develop energy resources (or engage in any other type of development at all). The first is to identify and describe the overall tribal planning and decision process. The second is to develop a detailed set of steps to assess the benefits and costs of energy development alternatives within the context of the tribe's overall planning process.

The overall tribal planning and decision process consists of two parts. The first is the development of a decision-making framework by each tribe. The second is the formulation of a system to assess the feasibility of specific energy development projects. The decision-making framework is depicted in flow-chart form in Exhibit S-3 (p. 15), while the application of the framework to specific projects is depicted in Exhibit S-4 (p. 16). The major elements of the framework are the tribal objectives with respect to such factors as economic impacts, environmental effects, and socio-cultural considerations. The types of impacts expected from a specific project are a function of the type of resource developed, the type of contractual arrangement used, and the specific value or weight applied by the tribe to each type of impact. In applying the framework to a specific project, tribal decision-makers would follow a sequence of steps: (1) formulating the project; (2) conducting a feasibility study that focuses on impacts that affect the tribe (the energy company would conduct its own economic feasibility study); (3) determining the project's desirability by applying a set of tribally developed decision rules to the outcome of the feasibility study; and (4) accepting, rejecting, or modifying (followed by reassessing) the project in question.

Benefit-cost analysis provides the analytical support needed to implement the tribal decision-making framework. Exhibit S-5 (p. 17) summarizes the key elements in conducting a benefit-cost analysis and describes how they fit together to help tribal leaders make decisions about specific projects. The major steps are: (1) examining resource characteristics (e.g., determining what resources are on the reservation and their quantity and quality); (2) estimating likely production levels; (3) estimating direct benefits (particularly revenues to the tribal government and potential incomes that can be earned by tribal members through job creation) and direct costs (environmental impacts, opportunity costs through the diversion of land from other uses, administrative costs to the tribe); (4) estimating indirect benefits (e.g., from potential multiplier effects) and indirect costs (e.g., from impacts on tribal culture and the environment); and (5) determining fiscal impacts on tribal revenues and expenditures (so-called "boom town" impacts related to energy development in rural areas).

Important issues are, first, the timing of benefits, costs, and fiscal impacts of projects and, second, the difficulty in placing dollar values on these items (particularly environmental impacts). The timing is crucial: one must know when benefits will be received and when costs will be incurred. Often, costs are incurred before the benefits of a project are realized, placing severe strains on a community. Indian tribal governments are poorly equipped to cope with such demands. The inability to measure specific types of impacts, particularly environmental effects, is also discussed with emphasis placed on the potential biases that can result in the assessment of benefits and costs if a significant effort is not made to quantify all important impacts on both sides of the ledger. While benefit-

cost analysis offers many advantages to a tribe considering energy resource development, it is not a panacea. It presents a framework for weighing the pluses and minuses of development, but it will neither provide answers to difficult technical questions nor provide a clear-cut "go/no-go" answer to a specific project or set of projects. Benefit-cost analysis is a tool that can assist trained tribal planners in making recommendations about development. It is a tool that should be used by a tribe in formulating both its short- and long-term plans, and its continued use will produce increasingly valuable information as a tribe gains the necessary experience to use it effectively.

Hypothetical examples are used in Volume I to illustrate realistic development opportunities for tribes that have significant reserves of one or more resources (coal, oil and gas, uranium, geothermal, and oil shale). Some of the major points that emerge from the individual resource analyses are as follows:

- Coal

- Revenues are sensitive to choice of contractual arrangement.
- There is some question whether land can be restored to full productive capacity after surface mining.
- Leaching of minerals from the mine may pollute water at the surface and underground.
- Possible related developments on the reservation are coal liquefaction, coal gasification, and power plants.

- Oil and Gas

- The contractual arrangement chosen will depend on relative chance of oil field success. This should be determined by geological and seismic surveys prior to completing contractual arrangements.

- Successful fields permit high revenues if contracts are drafted by experts.
- There are small work force requirements.
- The environmental impacts are minor if adequate precautions are taken.
- Uranium (Ore)
  - Mining may have adverse health impacts on workers.
  - There is a very high potential profit from mining (and perhaps milling) if contracts are drafted by experts.
  - There are great uncertainties in future uranium prices (and, hence, profits).
  - A long pre-production period means delay in receipt of revenues.
- Oil Shale
  - Present extraction technologies are not competitive with technologies for other resources.
  - Surface retorting has significant negative environmental impacts.
  - A large work force is required by oil shale facilities.
  - If oil prices increase sufficiently, production may become economic, and there is high revenue potential from large-scale operations.
- Geothermal
  - Hot dry rock technology is still in experimental stages.
  - It is essentially a non-polluting energy source if adequate precautions are taken.
  - It has dual use: (1) space heating and (2) generation of electric power that is competitive with small-scale fossil fuel power plants.
  - Only a small work force is required.

Exhibit S-6 (p. 18) summarizes the coal example utilized in Volume I in greater detail. Volume I also contains detailed examples for the other energy resources. All examples were based on "average" or "typical" conditions that might prevail on a reservation with sufficient resources to consider development.

To summarize, quantification of environmental and socio-cultural impacts is very complex and will vary from tribe to tribe as much as tribal values, customs, and goals for the future differ. In this light, a complete decision framework would of necessity place a value on these "intangible" costs and make certain that they entered into the final decision regardless of whether a price tag could be put on them. Placing values on a tribe's environment, culture, and social structure is totally in the domain of tribal decision-making and cannot be accomplished outside of the tribal context (even using a decision-making tool such as benefit-cost analysis). While the valuation of environmental and socio-cultural costs was not within the scope of this analysis, we emphasize the importance of the tribes' quantifying and valuing environmental and socio-culture impacts to the maximum extent possible, as they may be viewed in contrast to the dollar benefits of development.

Finally, the estimated benefits and costs described here are intended only to illustrate the types of benefits and costs an individual tribe might expect from energy development. They are not exhaustive. A tribe considering its first venture in energy development or a significant increase in the scale of current operations should seriously assess its own minerals management capability first to ensure a comprehensive approach to planning and operation of such a venture. Volume II examines the components of a comprehensive energy management strategy.

TRIBAL RESOURCE PLANNING AND DECISION PROCESS

* The circled letters indicate points where Exhibit S-3 relates to Exhibit S-4.

EXHIBIT S-4

APPLICATION OF TRIBAL RESOURCE PLANNING AND DECISION PROCESS
TO SPECIFIC PROJECT

* Reference points from Exhibit S-3.

SUMMARY OF BENEFIT-COST ANALYSIS METHODOLOGY FOR ENERGY RESOURCE AND OTHER LAND DEVELOPMENT OPTIONS

A. Examine energy resource reserves data for each reservation in terms of feasibility of recovery (e.g., depth of deposit, quality of mineral, production history). Examine available data for other land use options.	A.	Mineral Reserve Characteristics - depth - production history - quality - demand		Alternative Land Development Options - agriculture - other - timber - no development																				
B. For each resource on a reservation select alternative levels of production that illustrate low to high intensity development (e.g., 1,5, and 10 million tons of coal mined per year).	B.	Alternate Levels of Production <table border="1"> <tr> <th colspan="2">Mineral A</th> <th>Other</th> </tr> <tr> <td>Produce X(T/yr)</td> <td>Produce Y(T/yr)</td> <td></td> </tr> <tr> <td>1,2,3,...years</td> <td>1,2,3,...years</td> <td></td> </tr> </table>		Mineral A		Other	Produce X(T/yr)	Produce Y(T/yr)		1,2,3,...years	1,2,3,...years		Alternate Land Use(s) <table border="1"> <tr> <th>Agriculture</th> <th>Timber</th> <th>Other</th> </tr> <tr> <td>Acres</td> <td>Acres</td> <td></td> </tr> <tr> <td>1,2,3,...years</td> <td>1,2,3,...years</td> <td></td> </tr> </table>			Agriculture	Timber	Other	Acres	Acres		1,2,3,...years	1,2,3,...years	
Mineral A		Other																						
Produce X(T/yr)	Produce Y(T/yr)																							
1,2,3,...years	1,2,3,...years																							
Agriculture	Timber	Other																						
Acres	Acres																							
1,2,3,...years	1,2,3,...years																							
C. For each development alternative, identify direct benefits that accrue to Tribal members individually or collectively over time and quantify, where possible, in monetary or other terms (e.g., increase in the number of jobs and income, potential for additional funds for education).	C. Estimate Direct Benefits																							
D. Identify direct costs to the Tribe in monetary or other terms (e.g., direct environmental impacts, relocation costs associated with conversion of land from agricultural to mining use, administration). If the Tribe were to enter into a joint venture, its share of capital outlays and annual operating expenses would also be considered.	D. Estimate Direct Costs																							
E. Identify indirect benefits (e.g., induced employment and income through multiplier effects) and indirect costs (e.g., secondary environmental effects) and quantify where possible.	E. Estimate Indirect Benefits and Costs																							
F. Summarize the benefits and costs for each development level that will aid Tribal decision-making using discounted values of future benefits and costs where appropriate.	F. Summarize Benefits and Costs																							
G. Estimate and summarize fiscal impacts: revenues (e.g., severance taxes, sales/property tax in addition to royalties/profit-sharing) vs. costs (e.g., additional expenses for such public services as water and sewer, roads, education, police and fire protection, health care).	G. Summarize Fiscal Impacts and Incorporate into Benefit-Cost Calculations																							

EXHIBIT S-6

EXAMPLE OF DECISION PROCESS FOR A HYPOTHETICAL COAL DEVELOPMENT

1. RESOURCE CHARACTERISTICS ARE DETERMINED

- 100 million tons of coal recoverable through surface mining
- Coal is low sulfur (less than 0.75%) and low Btu
- Seam thickness is deep (over 20 feet) and the stripping ratio is 3 to 1

2. PRODUCTION LEVEL ALTERNATIVES ARE REVIEWED

- 5 million tons-per-year to be recovered from single surface mine for a period of 20 years (plus 2 years lead time)

3. MAJOR DIRECT AND INDIRECT BENEFITS TO TRIBE ARE ASSESSED

- \$184 million in royalty payments to tribe at 12 $\frac{1}{2}$ % royalty rate for 20 years
  - \$80 million if deflated to "constant" dollars at 6% per annum
  - \$27 million if deflated dollars discounted to present value at 10%^{1/}
- \$47,000 per year rental fee (47,000 acres leased at \$1 per acre per year)

^{1/} The earnings would be \$181 million (current dollars), \$74 million (constant dollars), or \$20.5 million (discounted to present value) under a 50-50 "carried interest" joint venture.

EXHIBIT S-6 (Cont.)

- \$1 million bonus payment
- 230 jobs created at \$18,700 earnings per year (in constant dollars); tribal members could earn over \$2 million per year if they filled at least half the jobs

4. MAJOR DIRECT AND INDIRECT COSTS TO TRIBE ARE ASSESSED

- Environmental damage
  - health effects from deteriorated air and water quality
  - cost of quality maintenance required to clean coal dust from buildings
  - decreased hunting and fishing opportunities
  - decreased soil productivity from wind and soil erosion
  - decreased tourism revenues
- Negative impacts to aesthetics and culture
- Administrative costs related to energy management and other increased burdens on tribal government
- Opportunity cost from lost agriculture/ranching opportunities (minimal)
- Relocation costs for uprooted families (minimal)
- Reclamation (considered in estimating the mining costs to the energy company)

5. FACTORS ARE WEIGHED

- Financial benefits and costs are balanced
- Other benefits and costs are given values

6. DECISION IS MADE EITHER TO PROCEED, NOT TO PROCEED, OR STIPULATE NEW DEVELOPMENT TERMS

III. MANAGEMENT OF TRIBAL ENERGY RESOURCES

Tribal leaders will find guidelines for strengthening energy resource management within the tribal government in Volume II, Part I. There are numerous ways a tribe could organize its energy management. It is important that each alternative be evaluated systematically so that the limited tribal staff and financial resources will be used most effectively. Therefore, the purpose of this part is twofold:

- First, to provide tribal leaders with a framework that may be used to select the resource management programs that are suited to the tribe's needs
- Second, to provide information on the programs that can be used to prepare an implementation plan for a tribal minerals office.

The following subsections summarize the major steps in implementing a tribal minerals program: (1) identify the purpose and objectives of the program; (2) evaluate alternative programs and form priorities; and (3) design a plan that incorporates the minerals functions into the tribal government.

IDENTIFICATION OF PROGRAM NEEDS

The first step to implement a minerals program is to have the tribal leaders reach a consensus on the purpose and role of the activities in the tribal government. These policy resolutions should reflect the following considerations:

- What is the purpose of the tribal program?
The tribe has the right as the mineral owner to impose conditions on development when approving or disapproving proposals for prospecting, mining, water entitlements, rights-of-way, and energy conversion facilities. The resource planning and management programs are intended to provide the information and mechanisms to do this.
- What are the tribe's goals with regard to energy development? The programs undertaken will depend on whether the tribe wishes to emphasize revenue, environmental, employment, or other factors in its management of development on the reservation.
- What programs are needed to implement the strategies effectively? Once the tribal leaders have decided how they want to manage energy development, they should identify their program needs (e.g., policy planning, analyses of specific proposals, and/or the monitoring and enforcement of contract stipulations).

Volume II discusses these issues in greater detail, and provides examples of goals, strategies, and programs. It includes exhibits that cross-reference tribal goals and strategies with the planning and management activities that typically are undertaken to achieve them.

EVALUATION OF ALTERNATIVE RESOURCE MANAGEMENT ACTIVITIES

The second step in preparing an implementation plan for a tribal minerals program is to evaluate alternative programs and set priorities. We suggest that tribal leaders base these evaluations on the following considerations:

- (1) The minimum level of effort that is required to meet the tribe's objectives
- (2) The adequacy of the current level of effort for each activity

- (3) The alternative methods of performing the activity
- (4) The resource (cost, staff, and skill) requirements of the alternative approaches.

The materials in this section document the current methods of managing tribal mineral development; review the factors that determine the alternative methods; and provide general estimates of staffing, costs, and skills associated with the major programs. The section also includes sample formats for summarizing and presenting the results of the evaluations. The key observations in this section are:

- While several tribal governments have mineral-related programs, most of the current resource management activities are performed by the Department of the Interior (DOI) as trustee through the Bureau of Indian Affairs (BIA) and the Conservation Division of the U.S. Geological Survey (USGS). The BIA oversees leasing activities, while the USGS administers and enforces the conditions of all permits and leases and serves as technical advisor to the tribes and BIA on minerals matters.^{1/} The planning and management activities of these two agencies are dictated by regulations.^{2/} Volume II includes exhibits that present an index of the tasks required by the regulations.

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- ^{1/} This functional split applies to all tribes except Osage. (The Osage BIA Superintendent carries out all trust activities under the Osage Allotment Act of 1906.)
- ^{2/} For BIA, see Title 25 of the Code of Federal Regulations - 25 CFR; for USGS, see Title 30 of the Code of Federal Regulations - 30 CFR. Until recently, the required tasks were set forth in the following CFR sections: Leasing of Tribal Lands for Mining (25 CFR 171); Surface Exploration and Reclamation (25 CFR 177); Osage Oil and Gas Leasing and Operating Regulation (25 CFR 183); Oil and Natural Gas Operating Regulations (30 CFR 221); and Operating Regulations for Exploration, Development, and Production (for minerals other than coal, oil, or natural gas) (30 CFR 231). In April 1977, the BIA issued a notice of proposed rulemaking that would revise its leasing procedures and guidelines. The revised 25 CFR 171 would govern leasing of minerals other than oil and gas; 25 CFR 177 would be strengthened to include operating standards for the mining of such minerals as coal; and a new 25 CFR 182 would govern oil and gas leasing. The general provisions of each of these sections are described in Appendix B of Volume II.

- Several authorities have cited shortcomings in the DOI's current level of effort. The report identifies the major criticisms of the existing practices. While the regulations are being revised, the USGS Conservation Division remains understaffed relative to its mandate and expects to conduct only about one-quarter of the quarterly lease inspections and one-half of the post-audits assigned to it.
- After evaluating existing programs, tribal leaders should select areas where the tribe will rely on the existing activities and areas where special tribal programs are needed. In areas where a tribal initiative is desired, the tribe may choose either to (1) strengthen the use of existing programs or (2) supplement the current activities with independent tribal programs. The specific alternatives available to the tribe will derive from the tribe's legal authority to implement them. Before preparing plans for programs, especially those involving controls on development, the tribe should consult its attorneys to clarify the legal opportunities and constraints on its actions. Volume II highlights key questions that should be addressed when determining (1) the source of the tribe's authority; (2) the scope of that authority; and (3) the legal standards and procedures that must be followed to implement the programs.
- Plans for implementing tribal minerals programs should specify the skill requirements, staffing workload, and costs of each task that is recommended. This volume identifies the basic steps involved in assessing each of these. To determine the type of staff needed, the tribe must determine which skill areas are needed; whether to use outside consultants or an in-house staff; and what training programs are needed for tribal members. To calculate the staff workload, the tribe must measure these facts: The level of effort desired; the number of "work units" within the task; and the staff time required for each work unit. Finally, the plan must include estimates of the direct costs (e.g., staff salaries), and the indirect costs (e.g., office space, equipment, vehicles, travel, etc.) of the programs. Volume II discusses these factors and presents a series of exhibits based on DOI guidelines which provide information on the skills needed, workload measures, and program costs.

DESIGN OF A RESOURCE MANAGEMENT PROGRAM

The third phase in implementing a minerals program requires three key decisions: (1) selection of the activities to be undertaken, (2) appropriation of funds for the program, and (3) integration of the minerals program into the existing tribal government organizational structure. The materials in the section discuss each of these issues, and three organization "models" are presented to illustrate the range of tasks, staffing, and costs associated with different tribal policies. The major points made in this section are:

- The selection of programs will be based on the evaluations (discussed in Section III) and on tribal priorities. At least five criteria will influence the priority ranking of individual activities: (1) whether the task is needed or optional, (2) contractual arrangements used, (3) specific problems with the current level of the activity, (4) limits on the tribal budget, and (5) general tribal policies.
- Tribal funds would be needed to hire in-house staff, train tribal members to fill specific slots, and retain specialists to perform technical studies associated with resource development. Sources of revenue for these purposes may include general tribal revenues, royalties or other income generated by minerals production, or tribal taxes.^{1/} Trust programs, such as BIA's self-determination grants under PL 93-638, may be appropriate for some activities. Likewise, other federal assistance programs may be applicable. These include the Department of Housing and Urban Development's community development discretionary block grants, the Economic Development Administration's economic development planning grants, the Environmental Protection Agency's environmental planning and management

^{1/} This last source is highly uncertain and controversial. See the discussion in the next section on contractual arrangements and Part II of Volume II for a more detailed discussion of this issue.

programs, funds available through the U.S. Department of Agriculture under the Rural Development Act, and the Civil Service Commission's inter-governmental personnel programs. Other programs include the Department of Labor's manpower training funds under the Comprehensive Employment and Training Act (CETA); technical assistance provided by the Administration for Native Americans (ANA--formerly the Office of Native American Programs) within the Department of Health, Education, and Welfare; and general revenue sharing. The resulting patchwork of programs may not match the tribe's priorities and may be difficult to integrate into a comprehensive, viable program for resource planning and management. Recently, general assistance funds for such programs have been made to certain tribes collectively through the Council of Energy Resource Tribes (CERT). The extent to which funding of intertribal groups can help individual tribes will depend on the resources and policies of those groups.

- Three alternative energy resource program organization models have been developed to address a tribe's available choices: whether to accept, augment, or supersede the management support activities currently provided by the DOI. The models stem from the following premises:
  - Model I assumes that the existing (or revised) resource management activities under BIA and USGS regulations provide sufficient protection of tribal interests in resource development. In this case, the tribe would utilize only those services with very little or no increase in its staff workload or budget expenditure.
  - Model II assumes that a tribe decides to participate more fully in planning and management activities either because it concludes that existing practices need to be upgraded or because it wishes to better exercise its decision-making powers under the revised regulations (e.g., review analyses of contract terms, perform inspections or audits of operations). This model implies variable increases in workload and costs depending on the capabilities developed.

- Model III assumes that a tribe has established its own set of minerals-related standards (e.g., Mine Reclamation Codes, Zoning Ordinances, Taxation Codes) to supersede the Interior Department regulations. While it is recognized that the tribe could incorporate these codes into a contract, thereby shifting the enforcement tasks to DOI, this model assumes that the tribe plans to assume responsibility for implementing its own standards. Consequently, certain tasks are made mandatory rather than discretionary under this approach.

Each model is discussed in Volume II within the framework of the four key decisions to be made on the proposed minerals office: (1) the purpose of the programs selected for a tribal government staff; (2) the activities associated with those program areas; (3) the in-house resources required to perform the selected tasks and estimated annual cost; and (4) possible organizational formats for the minerals office.

- Using Model II as an example, the minerals office could be merged into the tribal government structure in at least two ways. First, the tribe may wish to leave its minerals activities within its overall economic or land-use planning and management effort. In this case, the tribe could create a Department of Natural Resource and Economic Development (DNRED) that would include the minerals planning, engineering, and management activities. Accounting functions could be assigned to the tribal finance or accounting office. Exhibit S-7 (p. 28) illustrates this concept of distributing staff among existing tribal departments. Second, if the tribal officials want to have more direct oversight and control over the energy activities, it may be appropriate to set up an identifiable energy resources department (minerals office) in addition to DNRED. However, under the staffing levels used herein, several staff would be assigned to the minerals office from DNRED on a part-time basis only. Exhibit S-8 (p. 29) illustrates this alternative concept.

EXHIBIT S-7
EXAMPLE OF AN ORGANIZATIONAL FORMAT FOR MODEL II
DISTRIBUTION OF MINERALS TASKS AMONG FUNCTIONAL AREAS

* Connotes some staff time devoted to energy resources tasks.

-- Dashed line connotes optional organizational unit.

EXHIBIT S-8

EXAMPLE OF AN ORGANIZATIONAL FORMAT FOR MODEL II
CONCENTRATION OF MINERALS TASKS WITH DIRECT LINE AUTHORITY

* Connotes part-time positions.

-- Dashed line connotes optional organizational unit.

IV. ASSESSMENT OF ALTERNATIVE CONTRACTUAL ARRANGEMENTS AND CONTRACT MANAGEMENT REQUIREMENTS

There are alternative contractual arrangements tribes might pursue in structuring development agreements. This section of the report reviews several of these in detail. BIA has proposed revisions to the federal regulations governing minerals development. The proposed federal regulations recognize the authority of tribes to issue their own regulations and to enforce contract provisions. Existing federal regulations are not explicit about the tribes' authority in these areas. The proposed regulations give the tribes much more latitude than do the existing regulations. As a result, tribes choosing to exercise their prerogative for greater involvement and control may be faced with a great many decisions, some highly technical in nature. Part II of Volume II highlights a number of those decisions.

EXPLORATION AGREEMENTS

In the absence of funding for exploration purposes, tribes are forced to rely on exploration permits with mineral companies as their only means of selecting tracts for development. This places tribes in a reactive position instead of one in which they are able to initiate tract selection for development.

There are two types of exploration permits--non-exclusive and exclusive. A non-exclusive permit allows several companies to perform basic geological investigations in specific areas. Any of the companies can then request that a lease sale be held. An exclusive permit allows one company to conduct a broad range of geological exploration, including drilling. It usually includes an option to lease. Exhibit S-9 (p. 38) compares the advantages and disadvantages of the two types of permit.

LEASE SALES VS. NEGOTIATED CONTRACTS

The most common method of arranging for minerals development on reservation lands is through competitive bid lease sales. A company (often one that conducted exploration under a non-exclusive permit) requests that the tribe hold a lease sale for particular tracts of land. If the tribe agrees, the sale will be advertised 30 days in advance. Lease terms are typically standardized. Interested companies then submit competitive bonus bids. The lease is awarded to the highest bidder.

Negotiated contracts involve an attempt by a company and a tribe to arrive at a mutually satisfactory agreement. In the past, tribes have had to secure permission from the BIA Commissioner before entering into negotiations. Under the proposed revisions to 25 CFR 171, tribes may negotiate agreements with companies without having to secure permission to negotiate from the BIA Commissioner. Alternatively, tribes may continue to rely on competitive bid lease sales, although bidders may now compete on such terms as rental and royalty rates, in addition to bonuses. Exhibit S-10 (p.39) compares the advantages and disadvantages of lease sales and negotiated contracts.

NEGOTIATION OF AGREEMENTS

Tribes should not attempt negotiations without technical advisors. This is important, but often overlooked. Tribes reluctant to pay for this expensive, but important, expertise in the beginning may short-change tribal interests in the end. A well-drafted, balanced agreement will more than pay for the expense incurred for expert advice during the negotiations.

Mineral companies have more experience than tribes in negotiating agreements and do not hesitate to use legal, engineering, and financial specialists. Tribes should follow their lead.

Studies of developing nations have identified a number of factors that affect a country's position in negotiating with mineral companies.^{1/} Some of these factors are paraphrased below to reflect a tribal perspective:

- Stability and unity of tribal government. The presence of strong tribal factionalism will weaken the tribe's position. Some companies will perceive too much risk and pull out, while others may attempt to play one faction against another.
- Knowledge of the industry and access to industry specialists. These will strengthen the tribe's position.
- Cost to the company of developing resources on tribal lands, relative to costs associated with development on non-tribal lands. The tribe should consult with financial experts to assist the tribe in identifying the financial provisions that would maximize financial returns to the tribe while providing the company with a profit that it would find attractive.
- Grade and quantity of minerals that the tribes mine. Tribes with large, high-grade deposits are in a stronger negotiating position than tribes owning lower grades and/or smaller quantities of minerals.

^{1/} Smith, David, and Louis Wells, Jr., Negotiating Third World Mineral Agreements: Promises as Prologues, Ballinger Publishing Co., Cambridge, Massachusetts, 1975, p. 15.

- Risk and uncertainty associated with development. Tribes holding proven reserves (i.e., those that have been located and determined to be recoverable) are in a stronger position than tribes having only potential reserves.
- A clear identification of tribal priorities and a range of acceptable terms for key provisions sought in the mineral development contract. The priorities should remain fixed, while the provisions should be negotiable. To paraphrase an observation made about developing nations, "tribes have a better chance of getting what they want if they have identified some specific things they would like to have" prior to the start of the negotiations.

ALTERNATIVE CONTRACTUAL ARRANGEMENTS

Tribes can structure their contractual relationships with mineral development companies through the use of leases and variations thereof, such as operating agreements, joint ventures, and service contracts. Exhibits S-11 (p.40) and S-12 (p.43) highlight some of the factors to be considered in alternative types of leases and joint ventures, respectively. It has been the case with developing countries, and will probably hold true for tribes as well, that the form of agreement chosen often has more political than economic or management significance.^{1/} Partial ownership of an operation remains more of a regulatory than actual management nature. Management control implies tribal involvement in decisions concerning such things as rate of development and day-to-day operations, while regulatory control is oriented toward approval of operating plans, reclamation plans, and enforcement of performance standards with which companies are to comply. Unless the tribe's goal is eventual full ownership and management of an

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^{1/} For a discussion of this concept, see Raymond F. Mikesell, Foreign Investment in the Petroleum and Mineral Industries, The John Hopkins Press, Baltimore, 1971, p. 30.

operation, it would probably better serve the tribe's interest to invest its human and financial resources in strengthening tribal capability to evaluate proposed projects and work plans and monitor company operations through a tribal minerals office. If a tribe lacks the capability to evaluate and monitor projects proposed by outside companies, it surely will not be in a position to initiate and manage its own ventures successfully.

REGULATION OF DEVELOPMENT

In deciding whether to strengthen tribal control over company operations on the reservations, a tribe's first step should be to closely analyze the new BIA regulations on mineral leasing and decide whether the revisions adequately address the tribe's concerns. If the tribe has had experience in mineral leasing, it should evaluate how effectively it feels BIA and the U.S. Geological Survey (USGS) have enforced regulations governing mineral leasing in the past. If the tribe has not leased minerals in the past, its representatives should discuss with neighboring tribes their experience with regulation enforcement. Discussions with tribal representatives revealed that there are varying opinions about the adequacy of BIA and USGS assistance to tribes in mineral leasing.

If the tribe decides that the new regulations either serve its purposes adequately in the present form or could do so with some minor revisions or additions, the next step is to determine how actively it wants to become involved in working with BIA and USGS in monitoring company operations, approving mining plans, and establishing environmental protection standards and reclamation plans. Through discussions with BIA and USGS, plans can be developed to implement improved control over operations by hiring and training tribal government staff to supplement the services provided by the agencies.

If the tribe decides that the new regulations are inadequate or if it has not had effective working relationships with the government agencies in the past, it has the option of developing its own tribal minerals code and enforcing it. This option can become expensive if there are large-scale projects to regulate because the tribe will probably have to hire outside specialists (minerals engineers, environmental specialists, accountants, etc.) for many positions while tribal members are being trained. However, mineral-rich tribes planning extensive development may find this option the only viable one, given their need for extensive monitoring, the chronic understaffing of USGS, and the general lack of mineral development expertise within BIA.

TRIBAL TAXATION OF MINERAL DEVELOPMENT COMPANIES

The issue of tribal taxation of mineral development companies involves two areas of concern to tribes:

- In some cases, the revenues the states receive through taxes are greater than the revenues tribes receive in royalties from mineral development on reservations. These tax revenues go into the state general fund, and some tribes feel that the value of state services they receive is lower than the tax contribution made from their minerals. These tribes feel that, given their right to impose taxes, the tax funds could be used to benefit tribal members more directly if the tribe exercised its powers and superseded state taxation with tribal taxation.
- Some tribes that are parties to leases entered into under financial provisions that do not reflect the market value of their minerals are exploring taxation as a means of increasing their financial return. However, the tribe's right to tax minerals development is subject to the outcome of several lawsuits.

Taxation, if upheld, would entail new financial responsibilities for tribes and create at least a temporary need for large numbers of skilled administrators. Such demands could conceivably place a significant strain on energy tribes that do not currently have adequate means of auditing and enforcing lease and royalty obligations, let alone a whole new set of taxes.^{1/} While taxation is definitely an option that should be explored, the point to be stressed is the importance of establishing an administrative system to handle the existing workload before adding additional responsibilities. Otherwise, tribes may end up spreading their resources so thin that none of their financial and management functions are performed adequately.

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^{1/} Goldberg, Carole, "The Prospects for Navajo Taxation of Non-Indians," University of California School of Law, Los Angeles, 1976, p. 4.

COMPARISON OF ALTERNATIVE EXPLORATION PERMITS

Type of Exploration Permit	Advantages	Disadvantages
<u>Non-Exclusive</u> Allows several companies to perform basic geological investigations in specific areas.	(1) Tribe doesn't have to make an immediate commitment to a company for development rights. (2) Agreements can be quickly drafted and signed. (3) Tribe receives exploration fees without making a commitment to develop its land.	(1) Historically, companies have been unwilling to share with tribes information obtained through non-exclusive permits. There is no reason, however, that tribes should not stipulate in every exploration permit requirements for quarterly reports on holes drilled, geological and geochemical analysis, seismic tests, etc. In some cases, tribes may even want to have core samples analyzed by their own specialists.
<u>Exclusive</u> Agreement with one company to conduct broad range of geological exploration, including drilling; usually includes an option to lease.	(1) Usually provides for all geological and geophysical information to be available to the tribe. (2) Usually requires the company to spend a minimum annual amount on exploration. This helps to avoid speculative holding if the required expenditure is large enough.	(1) If a mineral-rich area is found, the tribe will probably receive lower royalties than if the tract had been offered competitively. (2) The tribe is making a long-term decision to lease without adequate information about minerals on the tract.

Note: Some of the observations contained in this chart are drawn from Tom Leubbin, "Mining Agreements with Indian Tribes," American Indian Journal, May 1976, pp. 3-4.

EXHIBIT S-10

COMPARISON OF LEASE SALES AND NEGOTIATED CONTRACTS

LEASE SALES		NEGOTIATED CONTRACTS	
Advantages	Disadvantages	Advantages	Disadvantages
Less expensive than negotiation. Tribes can add relatively minor stipulations to a BIA form lease. Tribes can develop their own form leases and offer them for bids. Lease sales using tribally developed forms may be most cost-effective for oil and gas development.	Terms of BIA form leases tend to be standardized so that they do not always reflect conditions on different reservations or different parts of a reservation. Not good for resources such as geothermal or oil shale which involve the use of new technologies. Not good for coal and uranium, which often involve major changes on reservation lifestyles that must be addressed and requires special environmental and reclamation provisions.	Tribes with significant resources can usually secure better financial terms than are available through lease sales. Training/employment and environmental provisions can be tailored to fit the needs of particular reservations. Tribes can further their development objectives by negotiating specific provisions to achieve them.	Requires a financial outlay by the tribe to retain negotiators (mineral specialists, lawyers). Does not work well where there are strong tribal factions opposing mineral development. If the tribe does not have good information on its minerals and the company does, the tribe will be in a disadvantageous position.

EXHIBIT S-11

VARIATIONS OF LEASE CONTRACTUAL FORM

Financial Provision	Method of Computation	Factors To Be Considered	Required of Tribe	Risks
(1) Percentage of Market Value	Market value is a figure calculated to reflect: the highest price paid for production of like quality in the same field, assuming a transaction between independent parties; posted prices (i.e., those offered by refineries for certain grades of crude oil) and FPC prices (for natural gas). This provision is most frequently used with oil and gas leases.	• Tribe benefits from increases in the market value of its resource but will experience declining revenues if market value falls. • Discourages extraction of marginal resources having low market value. • Integrated companies producing for sale to affiliates are likely to balk at market value royalties since they typically sell at artificially low prices.	• Tribe can rely on market valuation calculated by USGS and hire its own auditors annually to verify valuation accuracy and payments. • If the Tribe does not want to rely on USGS valuation, it will have to establish its own royalty accounting office with access to a market evaluation team.	Fluctuations in market value.
(2) Percentage of Price Received By Developer Company	Contracts are usually structured so that the tribe would receive the greater of: a specified percentage of the price received by the developer for the tribe's minerals or a minimum royalty per ton, barrel or thousand cubic feet of minerals extracted. The tribe may stipulate that it receive a higher percentage from the developer in later years of the contract. Applies mostly to minerals sold to a purchaser under a long-term contract. A tribe would not want to use this method if the purchaser was an affiliate of the developer (e.g., a utility that owned the mining company because the purchaser may be paying the mining company less than market prices).	• When used in conjunction with a company having a long-term purchase contract for the mineral, the Tribe is assured of a gradually increasing income stream which reflects inflation. • Price received by a company under a long-term contract may be lower than market value, reflecting nonprice concessions in the contract. • When using this form of royalty, the Tribe should pay particular attention to the price formula being used by the company-- price escalation clauses should be analyzed by a minerals accountant.	• Where numerous shorter term contracts with purchasers exist, continuous monitoring of transactions and verification of prices is necessary. • Regular post audits of transactions are needed even with long-term purchase contracts. Tribe will have to assume this function or hire auditors.	• During later years of a long-term contract, the purchase price may fall below market value (a trade-off for the security of a long-term contract.)

EXHIBIT S-11 (Cont.)

Financial Provision	Method of Computation	Factors To Be Considered	Required of Tribe	Risks
(3) Percentage of Market Value or Price Plus a Tax on Company Profits	Either of (1) or (2) above plus a specified percentage of company profits on the reservation operation. A graduated percentage schedule. Where the company pays a higher percentage on profits over a given amount may be included.	- While Tribes as sovereign entities have the right to tax, attempts by Tribes to preempt state taxation of company income will surely be challenged in the courts. Unless Tribal taxation is upheld, the resulting double taxation will discourage development on the reservation. - Taxation can yield significant increases in revenue to the Tribe without incurring the risks associated with development through some joint ventures.	Administration of taxation requires an expert staff of monitoring and audit personnel to verify company transactions, audit financial statements, and calculate taxes.	State government court challenges of Tribal taxation, probably requiring a Supreme Court decision ultimately. Litigation expenses may be high. Development may be delayed until a decision is reached.
(4) Percentage of Market Value of Price Plus A Severance Tax	Either of (1) or (2) above plus a specified price per ton, barrel, or thousand cubic feet extracted or a tax on the value of the resource.	- If the state also imposes a severance tax, companies may balk at double taxation. - Tribes imposing severance taxes have been challenged in court by companies. No decision has yet been reached on this issue. - Provides an additional fixed revenue source not contingent on the market.	Moderate administrative machinery, primarily a special accounting system and some auditing.	Company resistance to being taxed by a Tribe and the state. Litigation expenses.

EXHIBIT S-11 (Cont.)

Financial Provision	Method of Computation	Factors To Be Considered	Required of Tribe	Risks
(5) Percentage of Market Value or Price Plus Production Sharing	Either of (1) or (2) above plus a specified in-kind percentage of the mineral produced.	- Provides Tribal members with an energy source for their own use. - Provides an inexpensive fuel source for Tribal manufacturing enterprises.	- Provision for transportation and storage of fuel. - Monitoring of production quantity in order to assure Tribe is receiving all fuel due.	None on production sharing.
(6) Flat Rate Based on Production Volume	Production company pays a stipulated amount on each ton, barrel, or thousand cubic feet extracted.	Does not maximize revenues to the Tribe.	Minimal administration, chiefly monitoring production volume of company.	Tribe has no protection from inflation or increases in market value of its resource.
(7) Royalty Plus a Percentage of Profits	Tribe elects to receive a standard royalty during the period the operating partner recoups its investment. Once the venture begins to generate profits, the company and tribe split profits on a 50-50 basis.	- Tribe does not have to go through a several-year period during which no revenues are coming in. - Accounting provisions are critical in determining when profits are generated. They should be carefully reviewed by accountants familiar with accounting practices of the minerals industry.	A minerals office staff of accountants; financial consultants and industry specialists to advise the Tribe.	Unless the financial records of the operating company are closely scrutinized, the expenses charged to the operation by the company may be inflated, reflecting lower profits than are actually being made.

EXHIBIT S-12

JOINT VENTURE VARIATIONS

Financing Provisions	Structure of Agreement	Factors To Be Considered	Required of Tribe	Risks
(1) Working Interest	Proportionate shares of capital contributed by each partner. Tribe elects the proportion of equity it wishes to contribute (0%-50%) to the venture. Tribe shares in profits and losses proportionately.	• Tribe must have access to substantial funds for investment. • Tribe is risking funds on an unproven venture. • Tribe will not receive revenues during a several-year period before profits begin.	• A minerals office staff of accountants, financial analysts, and industry specialists to monitor operating partner's operation and protect tribal interests during joint venture negotiations and after an agreement has been signed.	Loss of capital if venture is a failure.
(2) Carried Interest	If tribe does not have equity funds available, it may contribute its share of equity out of income generated by the property. After its equity share has been paid to the operating partner, tribe begins to receive share of income.	• Does not require the tribe to have funds immediately available for investment. • Tribe will not receive revenues during start-up years or early years of profit generation.	• Same as above.	If the venture is marginal, operations may cease before the tribe ever receives profits.

V. MANPOWER TRAINING PROGRAMS TO SUPPORT ENERGY RESOURCE DEVELOPMENT

Energy resource development as a source of jobs for tribal members is treated in Volume II. Mineral development leases have traditionally stipulated that preference in hiring should be given to "qualified tribal members"; however, in the majority of cases, tribal members have been qualified for those jobs that required minimal skills.

The report addresses ways to bridge the gap between existing tribal skill levels and the skill levels required for higher paying jobs in energy resource development projects. It addresses opportunities for technical, skilled, and semi-skilled employment as well as professional positions, because it is important to have tribal participation at all levels of an operation.

An effective way for a tribe to assess the skill levels of its members is to conduct a tribal skills inventory. This inventory would include a survey of tribal members to show the skill status of the tribe for each occupational category that the tribe would like to fill, such as management, professional, supervisory, technical, skilled trades, and skilled clerical. Exhibit S-13 (p. 52) is a suggested skills inventory form that should be updated by the tribe on an annual basis.

CONCEPT OF A TRAINING PROGRAM MODEL

A training program that focuses on energy development skills should have the following characteristics:

(1) Program Components:

- (a) Elementary and secondary education (college preparatory programs)
- (b) Higher education (college-level courses)
- (c) Vocational training (secondary and post-secondary)
- (d) Apprenticeship
- (e) Manpower training programs (e.g., Comprehensive Employment Training Act--CETA, sponsored by the Department of Labor)
- (f) Adult Basic Education, including General Equivalency Diploma (GED)
- (g) Company-sponsored or tribally developed training
- (h) Management training for tribal employees (e.g., civil service courses, company-sponsored workshops).

(2) Categories of occupations to be considered for training programs for the following energy-related positions:

- (a) Management (e.g., contracts manager, mining superintendent)
- (b) Professional - technical (e.g., geologist, chemical engineer, petroleum engineer)
- (c) Professional - other (e.g., accountant, lawyer, employee relations specialist, systems analyst)
- (d) Administrative/Specialist (e.g., training specialist)
- (e) Supervisory (e.g., foreman, office supervisor)
- (f) Technical (e.g., laboratory technician, engineering aide, drafter, instrument technician)
- (g) Tradesman - skilled operators (e.g., chemical operator, drill operator, electrician, gager, operating engineer, mechanic)

- (h) Administrative/Staff (e.g., bookkeeper, inventory clerk, keypunch operator, secretary, computer operator)
- (i) Production and service (e.g., car cleaner, miner, pitman, helper)
- (3) Applicability to occupations related to energy development and to tribal natural resource and economic development. The model should be responsive to training needs for occupations in both energy development operations (e.g., coal mine) and a tribal minerals office.
- (4) Accounts for the tribe's present and planned energy resource and economic development programs in terms of resource(s) involved, planned level of development, and availability of management, technical, trade, and other skills.
- (5) Reflects the tribe's employment and human development goals and the tribe's policies related to its economic self-sufficiency.

To summarize, a training model consists of programs designed to prepare tribal members for employment in the areas of energy enterprise development (e.g., an oil and gas operation or coal mine), a tribal minerals office, and/or a tribally owned and operated energy enterprise. In each case, programs must be developed on a resource-by-resource basis.

ALTERNATIVE TRAINING METHODS

Many types of training methods are available to tribes developing a training program. Some focus on classroom training in an institutional framework while others emphasize on-the-job training. These programs can be categorized as follows:

- Four-year college program resulting in a bachelor's degree
- Two-year college program resulting in an associate degree
- Recognized three- or four-year apprenticeship program resulting in achievement of journeyman status in a skill or craft occupation

- Recognized one- or two-year apprenticeship program resulting in a certificate of achievement in a skilled or semi-skilled craft or occupation
- Vocational, technical, or business program that lasts from six months to three years and that results in a certificate or diploma
- General or special courses running from several days to several months designed to enhance already acquired professional, technical, or management skills
- Programs specially designed to develop or improve Indian skills in the areas of business, government operations, and technical fields
- Courses developed and offered by industry training companies for purposes of skill development and skill improvement
- Ongoing programs offered by industrial organizations and trade associations
- Programs offered by federal government agencies.

Volume III has an extensive appendix that describes specific programs and costs involved in each of the above areas.

OVERVIEW OF THE TRAINING PROGRAM DEVELOPMENT PROCESS

A flow chart depicting the training program development process is presented in Exhibit S-14 (p. 53). The center portion of the chart outlines the general steps to formulate and implement a training program geared to existing tribal human resources and expected job opportunities in the energy field. The information to be collected and analyzed as input for each step is identified on either side of that step on the flow chart.

For example, an assessment of overall tribal goals and objectives and existing skill levels is used to formulate general training objectives and plans. A more detailed assessment of the types of energy resources to be developed (e.g., oil and gas) and contractual arrangements under consideration (e.g., lease, operating agreement, service contract) is then made to identify specific skill requirements. Similarly, other types of information are utilized to determine the tribe's skill strengths and weaknesses, select specific target occupations, assess alternative methods for skill development, and, finally, select and implement a comprehensive skills training program.

Most of the energy tribes have needs for skills training that are common to most or all member tribes. These shared needs may be addressed in several ways. Each tribe could undertake the development of skills training programs on its own, a costly and timely effort. As an alternative, tribes can cooperate by developing programs adaptable for use by all participating tribes. An example of the latter approach would be for a group of tribes having similar skill needs not met by available programs to negotiate a training contract with an outside organization to develop a program for use by all participating tribes. Another method for developing a core training program would be to use the services of energy tribe organizations. Program specifications could be developed by the participating tribes and communicated to the organizations representing them. The organizations could then either purchase and modify a program or coordinate development of the program by its staff and/or outside specialists.

ENERGY CAREERS FOR YOUNGER TRIBAL MEMBERS

Once a training program has been developed, the tribal government would serve as the primary channel for linking potential tribal employees with mineral development companies. This suggests that programs are needed within tribal government to encourage and support tribal members in pursuit of careers in energy-related fields. Discussions with tribal officials revealed that very few young Indian students have been inclined to pursue careers in technical fields. Unless this trend is reversed, tribal members will continue to obtain only less-skilled and lower-paying positions in mineral development activities on their reservation. Programs to reverse this trend would focus primarily on students in high school and junior high school. Such programs might require the tribe to:

- Identify students who exhibit talent in science and mathematics (this would be based on specialized testing, rather than grades or standardized tests alone)
- Provide tutoring and other enrichment programs in the science and mathematics areas
- Expose students to the range of career opportunities in energy resource development fields, including apprentice jobs, with a focus on how they relate to tribal energy resource development
- Acquaint tribal members, especially those still in school, with successes of other members in technical, business, and professional fields
- Provide financial, tutorial, and counseling assistance to Indian students interested in pursuing training in energy careers at vocational or community colleges, technical institutes, and universities
- Improve grade and high school curricula in the mathematics, science, and technical fields

- Develop a college recruitment program to attract Indians employed in energy resource development fields to visit reservations.

Such companies as Atlantic Richfield, General Electric, Sun Oil Company, and Westinghouse have been actively involved in developing programs to increase the number of minority engineers. These programs focus on students at the junior high school level and follow them through high school. While these programs have been predominantly oriented to inner-city students, it seems likely that they could be adapted to Indian students as well. Formal organizations of energy tribes could potentially act as coordinators to encourage energy companies operating on Indian reservations to develop a program to motivate Indian students toward careers in energy development. Such organizations could coordinate the development of special training programs geared to mineral development projects of member tribes.

EXHIBIT S-13

TRIBAL SKILLS INVENTORY FORM

<u>Occupation Classification</u>	<u>Associated Skill Level</u>	<u>Number of Tribal Members in Category^{1/}</u>		
		<u>Male</u>	<u>Female</u>	<u>Total</u>
Management	4-year degree or 2-year degree in field			
Professional-technical	4-year degree in field			
Professional-other	4-year degree or bachelor degree plus advanced degree			
Administrative/specialist	2-year degree or 2-3 years of business school			
Supervisory	3-4 years of apprenticeship or 2-3 years of vocational or business school			
Technical	2-year degree, 2-3 years of vocational school or 0-1 year of vocational school			
Trades and crafts/skilled production	1-3 years of apprenticeship or 3-4 years of apprenticeship			
Clerical and secretarial	0-1 year of business school or high school diploma or secretarial training			
Semi- or unskilled production	High school or on-the-job training			
Total Tribal Labor Force				

^{1/} A file on each person would be maintained in the tribe's employment office coded by occupation, skill area(s), etc.

**FLOW CHART -- DECISIONS AND ACTIONS RELATED TO
DEVELOPMENT OF SKILLS TRAINING PROGRAMS**

VI. ASSESSMENT OF ENVIRONMENTAL ISSUES IN ENERGY RESOURCE DEVELOPMENT

Existing and proposed uses of tribal energy resources range from limited development of small oil and gas fields to large-scale extraction and conversion of coal, uranium, and oil shale. The adverse environmental impacts of such projects may conflict with a tribe's environmental policies and its economic, employment, and other long-term goals. Volume IV provides tribal decision-makers with a reference document on the mechanisms available to resolve such conflicts.

This volume focuses on the role of existing environmental laws in enabling a tribe to achieve the needed balance among its objectives. Over a dozen major federal statutes have been enacted to achieve this purpose. One law, the National Environmental Policy Act (NEPA), provides procedures to ensure that environmental factors are included in the federal decision-making process. Numerous other laws, such as the Clean Air Act, have been enacted to prevent or control any negative environmental impacts of actual projects. This volume documents the key provisions of the laws and regulations, and discusses their effectiveness in meeting tribal needs. Also, tribal options to strengthen these mechanisms are highlighted.

The second section of Volume IV outlines the basic procedures governing NEPA's Environmental Impact Statement (EIS) process and the manner in which it has been applied to developments on Indian lands. The report includes a discussion of steps that may be taken by tribes to change or better utilize the EIS procedures. The third section focuses on the content of the EIS's that have been prepared for tribal energy developments. It also identifies tribal issues that have been addressed inadequately in past EIS's and

suggests ways in which treatment of these concerns can be improved. Finally, Section IV presents a documentation of the provisions of other environmental laws; discusses their strengths and weaknesses in preventing or controlling impacts; and reviews factors that should be considered by those tribes that wish to strengthen these mechanisms. The major results of the assessment in each area are summarized below.

THE EIS PROCESS AND ITS RELATIONSHIP TO INDIAN TRIBAL GOVERNMENTS

- An EIS is required for energy resource projects that involve federal approval of a land lease, water contract, or other similar major federal action. Joint-venture mineral development projects that are expected to significantly impact the human environment may also require the preparation of an EIS, because the required project approval by the Bureau of Indian Affairs (BIA) constitutes a major federal action.
- The Federal Council on Environmental Quality's (CEQ) Preparation of Environmental Impact Statement Guidelines provides the necessary procedures for EIS requirements under the National Environmental Policy Act (NEPA--see detailed flow chart in Exhibit S-15, pp. 67-69). The lead agencies in preparing EIS's for projects proposed on Indian lands are usually the Bureau of Indian Affairs (BIA--non-water resources development projects) and the Bureau of Reclamation (BR--water resources development projects), both within the Department of the Interior.
- The EIS process involves eight major steps, each of which may involve several substeps (as illustrated in Exhibit S-15). The major steps occur in the following sequence:

- A project proposal that requires a major federal action (e.g., a lease approval) is submitted by a tribe to the federal agency (e.g., the BIA) that is potentially involved.
- A lead agency is designated by inter-agency agreement based on the extent of involvement and the areas of expertise required.
- A preliminary environmental assessment is prepared to determine whether the proposed project will significantly affect the human environment, either directly or indirectly.
- The public is informed of the agency's intention to prepare an environmental statement by notification in the Federal Register (early notice system).
- A Negative Declaration is prepared for projects that will not have significant impacts. A Draft Environmental Statement (DES) is prepared for projects that will significantly affect the environment. If a Negative Declaration is filed, there may be no further agency review of the project's impacts.
- The DES is circulated for review and comment to selected federal agencies and federal-state agencies with jurisdiction by law or special expertise and any individuals or groups that request a copy.
- Comments may be entered on the record either orally at a public hearing (held in accordance with individual agency policies) or in writing within 45 days after the DES becomes available. These comments will be reviewed by the preparing agency and attached to the Final Environmental Statement (FES), which must reflect an appropriate response involving any revisions necessary.
- An FES is prepared after all comments are received and is then circulated again to appropriate federal and federal-state agencies and other commenting groups.

- Administrative action may be taken on the project 30 days after the FES is released, but not before 90 days following release of the DES.
- The procedures followed by the BIA and BR generally conform to the CEQ guidelines; however, there are some variations that present potential problems from a tribal viewpoint. These can be highlighted as follows:
  - For projects that follow BIA procedures (advertised lease bids or BIA-approved lease negotiations), an EIS is generally prepared by the BIA prior to the tribe's approval of a lease. However, in cases where a tribe desires to negotiate a lease privately with a mineral company, an EIS is prepared by the BIA after the tribe has concluded its negotiations and submitted a lease-agreement for BIA approval. In this latter case, a tribe must perform its own impact analysis in order to negotiate the most beneficial environmental terms in the lease agreement. The BIA's EIS analysis is not available early enough to be used as a tool in formulating the specific provisions of the lease.
  - The extent to which tribal input is solicited and used for EIS preparation varies. The BIA guidelines specifically require the involvement of affected tribal organizations in the EIS consultation and review process. The written guidelines of the Bureau of Reclamation do not require Indian consultation; however, in practice, the BR consults with both the BIA and affected tribes throughout project planning. Neither agency routinely includes tribal members on an EIS task force, but in some cases tribes have been invited to participate. Indian EIS task force participation will prove beneficial to Indian Nations if sufficient expertise is available to the tribes to perform substantive analysis.
  - The practice of holding public hearings is not mandatory in the BIA guidelines; however, the BIA usually holds public hearings, mainly after a DES becomes available for review. There appear to be fewer public hearings in the earlier stages of the project planning than in the latter stages. On the other hand, the BR's guidelines require

public hearings at both of these stages, and the BR is currently considering a comprehensive revision of its guidelines that will include additional provisions for full public involvement. In practice, both bureaus notify the public of scheduled hearings (after a DES becomes available) via press releases to the local news media and have on occasion postponed hearings upon request by an affected tribe.

- Specific criteria or methods for assessing socioeconomic or cultural impacts or mitigating measures do not adequately address tribal concerns. This is due largely to the fact that the state of the art of quantitative socioeconomic and cultural impact analysis is not advanced. CEQ, the National Science Foundation (NSF), and the U.S. Department of Energy (DOE) are currently funding studies to develop such criteria.
- A generalized tribal EIS review process is illustrated in Exhibit S-16 (p. 70). The key steps in the process and the points at which the tribes can provide input are identified.
- For EIS's that have been released for review by a federal agency, there are several specific snags that could delay the tribes in their review of these documents:
  - Delay in receiving notification
  - Language barriers and translation
  - Unavailability of technical expertise
  - Diversity of tribal opinion concerning a project.
- There are several built-in stages within the formal EIS process where direct tribal input (and perhaps influence) is possible:
  - Where tribal consultation by a federal agency occurs during EIS preparation, the tribe should draw up a statement explaining its environmental concerns and priorities. This should be reviewed during subsequent consultations and compared with completed agency analysis.

- Where the opportunity arises, either by solicitation or by request of the tribe, increased participation on EIS task forces by tribal analysts would aid in increasing the extent to which future EIS's address tribal environmental concerns. Tribal participation on an EIS task force is not a standard agency policy; however, increased tribal expertise in the natural and social sciences, economics, etc., and increased tribal requests for participation, may effect a change in the extent of task force involvement.
- Submission of substantive oral testimony and written comments at public hearings (frequently held at the project initiation and DES review stages of project development) and in response to DES review should be emphasized. Comments concerning DES adequacy must be appropriately addressed and included as part of the EIS record including necessary changes in analysis, text, or project design.
- Litigation may be initiated at two stages in the EIS process: after a Negative Declaration has been filed for projects declared by the federal agency to have no significant impact on the human environment, and parties with a standing interest contend otherwise; or after an FES is filed, and parties with a standing interest contest its adequacy or compliance with procedural requirements. Timely and successful litigation requires technical and legal expertise.
- The following additional actions should be considered by the tribes in order to increase their level of participation in the EIS process:
  - Increase monitoring of project information sources, including the Federal Register, local media, and BIA field offices
  - Increase communication among tribes concerning project developments
  - Increase ongoing technical and legal analyses of project developments
  - Include specific measures to benefit tribal welfare during lease negotiations.

REVIEW OF ISSUES INADEQUATELY ADDRESSED IN EIS'S

- Readily quantifiable impacts (e.g., air quality, water quality) are generally covered adequately in the physical environmental impact section. However, the social and cultural impacts that occur as a result of poor air and water quality are not covered adequately.
- The identification of failures in past EIS's to address social and cultural impacts can have three beneficial effects for tribes in the preparation of future EIS's:
  - Some socioeconomic considerations that otherwise may be overlooked by a non-Indian analyst will be identified and analyzed.
  - Development options that may benefit tribes to a greater or lesser degree than the proposed project over short- and long-term periods may be uncovered.
  - A more specific and uniform information base will be available for DES review by tribal analysts.
- Cultural barriers between Indians and the non-Indians affect the interpretation of the EIS. Because they might place different weights on the issues considered to be negative impacts on the population, the Indian reviewer and the non-Indian reviewer may have distinctly different benefit-cost analysis results.
- For planning purposes, Indian reservations must be considered unique areas. Typical urban or rural economic impact multipliers cannot be used for projections.
- The EIS's are the most common way to present the tribes with the environmental, social, and cultural information they need to evaluate mineral development projects. Unfortunately, these EIS's currently do not delve deeply enough into possible social and cultural impacts to discover the true extent and significance of the possible impacts. The reasons for this lack of depth are:

- The agencies preparing the EIS's are not familiar with social and cultural impacts.
  - Such data are neither readily available nor easily collected, especially for cultural aspects and impacts.
  - Unlike the physical data, the social and cultural information, once collected, is not easily weighted.
- The major concerns of most tribes regarding physical and social and cultural impacts of mineral development are identified in Exhibit S-17 (p. 71). This exhibit also indicates the impacts that most EIS's discussed and the additional impacts on Indian society that have been overlooked. The report goes into considerable detail in each of these areas.
  - Finally, to ensure that their interests are fully protected, tribes will have to assume a greater role in looking after their own interests. This involves active pursuit by tribal governments of the information needed to make well-informed decisions about mineral development. Volume IV provides tribes with a checklist of the information they should obtain and consider prior to decisions on mineral development.

LAWS AND REGULATIONS PERTAINING TO ENERGY REGULATIONS ON INDIAN LANDS

- During the site visits to the 22 charter member tribes of the Council of Energy Resource Tribes (CERT), shortcomings in the current application of environmental controls were noted. Two basic issues emerged: (1) Do existing environmental controls provide enough protection to enable the tribe to develop its resources given its environmental goal and (2) should the tribes assert greater oversight and control over energy projects by adopting and enforcing tribal environmental regulations? Before the tribes decide either question, it is necessary to account for the environmental controls that already exist without additional tribal action.

- The distinction is generally made in the environmental field between "laws of general applicability" and laws specifically designed to fulfill the government's "trust" responsibilities. The materials in Section IV provide background information on existing environmental laws and the manner in which they are implemented on tribal lands.
  - First, the report documents which federal environmental regulations apply to oil, natural gas, coal, uranium, oil shale, and geothermal developments on Indian lands. Exhibits for each resource indicate the applicable statutes or regulations, their citation in the Code of Federal Regulations (CFR), the name of the responsible federal agency, and the type of activity affected (planning or operations). The supporting text provides a description of each statute and regulation, including planning and management provisions, performance standards, and their provisions for enforcement on tribal lands.
  - The second subsection identifies the implementation issues and problems related to these environmental laws. The report indicates whether the regulations include performance standards to counteract the types of impacts identified by the tribes. The tribes have encountered two major problems regarding the enforcement of environmental laws: (1) the jurisdictional questions that arise from the special legal status of the tribes, a problem that is unique to Indian lands, and (2) shortcomings in the enforcement effort needed to achieve the standards set forth in the laws, a problem common to federal environmental management. The extent to which standards will meet tribal environmental goals depends on how effectively these broad measures are implemented. The tribes must determine individually whether: (1) the performance standards are inadequate and need to be strengthened, (2) the standards are sufficient, but administration and enforcement need to be strengthened, or (3) there are regulatory gaps that should be filled by either tribal or BIA rules and regulations.

- Finally, the third subsection summarizes the options available to the tribes if they do decide to assert greater tribal control over the environmental management of resource development. Again, the tribal decision process, the availability and desirability of using specific control measures (contract conditions, tribal ordinances), program standards and procedures, and resource requirements are all discussed in detail in Volume II and the management section above.
- Some of the most significant problems pertaining to performance standards and their administration and enforcement can be summarized briefly as follows:
  - Existing environmental regulations do not provide comprehensive performance standards to control the radiation impacts of uranium mining. Mine activities are subject to the Environmental Protection Agency's (EPA) water effluent and underground injection regulations and to the Mine Enforcement and Safety Administration's (MESA) standards for worker exposure to radiation. However, mine activities specifically have been excluded from the jurisdiction of the Nuclear Regulatory Commission's (NRC) licensing standards and the EPA's ambient radiation controls. Similarly, the Department of the Interior regulations for uranium mining operations do not include performance standards. However, the Surface Mining Control and Reclamation Act of 1977 authorizes a study of standards for the exploration, extraction, and reclamation phases of mining these minerals.
  - Prior to 1977, there were no performance standards for coal mining activities on tribal lands. If the coal mining and reclamation regulations recently proposed by the BIA become final, then operations on tribal lands will be subject to the same standards that currently apply to federal lands. The recently passed Surface Mining Control and Reclamation Act of 1977 will establish minimum standards and will allow Indian tribes to assume enforcement responsibilities.

- There are no final performance standards for such new technologies as oil shale and geothermal development. Likewise, current standards do not consider the impacts of abandoned wells, mines, or mills.
- The special legal status of the tribes vis-a-vis the federal and state governments has posed some questions about which authority has jurisdiction over activities on tribal lands. This matter has not conclusively been resolved by the courts, but the current trend is to assist federal jurisdiction over Indian activities on Indian lands and limit state jurisdiction to non-Indian activities on the reservation.
- The current enforcement of environmental regulations may not be sufficient to ensure that the performance standards are met. Many operators have not yet complied with EPA regulations or have had to delay their compliance schedule. The U.S. Geological Survey has been unable to perform sufficient inspections of oil, gas, or uranium operations because of manpower shortages and related management problems. Studies of the Nuclear Regulatory Commission (NRC), Occupational Safety and Health Administration (OSHA), and other federal enforcement efforts have indicated a need for more frequent inspections and other compliance safeguards. However, proposals to upgrade the enforcement efforts must balance the benefits against the budgetary costs.
- In cases where existing mechanisms are deemed inadequate, tribal leaders may decide to deny development or to supplement the current programs with special tribal controls. The report discusses four general issues that must be addressed to implement such supplemental controls:
  - First, the program or regulation undertaken will depend on a policy decision made by the tribal leadership on whether tribal standard-setting and/or enforcement capability are warranted. This evaluation process should follow steps similar to those discussed in Volume II regarding implementation for a resource management program (e.g., setting goals, evaluating current programs, alternate approaches, and staff and funding requirements).

- Second, environmental control measures must be derived from a legally recognized tribal authority to set and enforce such standards. The primary sources of such authority are: (1) contract conditions (e.g., stipulations on leases, rights-of-way permits); (2) tribal ordinances (e.g., land use, taxation codes); and (3) any authority delegated to the tribe by the U. S. Congress.
- Third, environmental control programs typically consist of procedures, performance goals, and permit stipulations. The procedures used in most environmental regulatory programs are needed to achieve three major purposes: (1) to establish control over specific projects through permit procedures; (2) to adopt performance standards; or (3) to enforce the standards. Performance goals are established to set criteria for the quality of the general environment (e.g., cumulative air quality or water quality on the reservation). Finally, these programs usually require each permittee to comply with stipulations that are extended to attain or maintain the performance goals. At this time, permit stipulations follow one of three general patterns: (1) standards for the siting, design, and operation of a particular pollution source to limit effluents or other impacts; (2) fees on the emission or discharge of a particular pollutant; and (3) a combination of standards and penalties.
- Fourth, based on its proposed program, the tribe must take all of the legal, budgetary, and organizational steps needed to implement it.

EXHIBIT S-15

PREPARATION AND REVIEW OF ENVIRONMENTAL IMPACT STATEMENTS UNDER THE CEQ GUIDELINES

*NOTE: Refer to agency guidelines concerning necessity of holding public hearings, meetings, etc.

+ NOTE: Potential for Tribal input to EIS process.

Draft EIS
Issued

EXHIBIT S-15 (Cont.)

Source: "Guidebook for Environmental Analysis" (unpublished report), used with permission of Messer Associates, Inc.

TRIBAL INVOLVEMENT IN THE EIS PROCESS

EXHIBIT S-17

SOCIAL AND CULTURAL CONCERNS ADDRESSED AND NOT ADDRESSED
IN ENVIRONMENTAL IMPACT STATEMENTS^{1/}

Issue	Mentioned	Not Mentioned ^{1/}
<u>Physical Issues</u>		
Air Quality	• Technical analysis of negative air quality resulting from the project	• Degradation of life due to Tribal cultural beliefs • Cultural significance of the reservation
Water Quality and Quantity	• Water use requirements • Impact on services • Water rights • Contamination resulting from the project	• Degradation of life due to Tribal cultural beliefs involving the use of water • Change in recreational patterns in Tribal lands
Aesthetic Quality	• Disruption of the natural setting • Reduced visibility	• Impact on Indian values tied to the natural environment • Change in recreational patterns on Tribal lands
<u>Social Issues</u>		
Traditional Life-Styles and Culture ^{2/}	• Breakdown in social bonds of family and community • Relocation • Loss of culture • Loss of wildlife	• Lack of depth in analysis of cultural and religious beliefs and traditional life-styles • Mobility • Traditional hunting and fishing patterns
Land Use Planning	• Need for planning • Use of multipliers • Need for increased Tribal involvement	• Lack of access to adequate planning expertise • Use of incorrect multipliers • Impacts upon project completion (e.g., closing of a mine) • Minority position in regional planning process
Education	• Increased enrollment • Increased need for more school facilities • Decreased quality	• Indians as minority • Opportunity for advanced education
Employment and Income	• Increased number of jobs • Increased income • Increased standard of living • Availability of training programs	• Change in economic situation at project end • Resulting conflict between economic livelihood and traditional life-style

^{1/} Issues expressed during reservation site visits, public hearing testimony, or in DES comment letter.

^{2/} While several areas are covered in EIS's, none is covered in sufficient depth. Hence, there is overlap between points mentioned and not mentioned in this category.

VII. PROGRAM PLAN AND COST ESTIMATE FOR ESTABLISHING AN INDIAN ENERGY CLEARINGHOUSE

Information--like land, people, and energy--is a resource. It is particularly valuable to Indian tribes considering whether to develop their energy resources. A simple example is the need to have information on the quantity and quality of energy resources that is detailed, current, and accurate. Examples of other types of valuable information are data on the current and projected selling prices of energy resources; current and proposed federal regulations regarding contractual arrangements, environmental laws, and other issues; proposed projects for which EIS's must be prepared; and several others. No tribe is in a position to acquire, read, analyze, and use the vast quantity of information produced almost daily in the energy field. As a result, there is a need to establish some means to provide important information to tribes in a timely and efficient manner.

In order to fill this need, a program plan and cost estimate for establishing an Indian energy information clearinghouse for the exchange of information relating to resource development is developed in Volume V. The volume contains two analytical sections and two appendixes. The first section presents a program plan for establishing a clearinghouse, while the second section presents three alternative models for the clearinghouse. Each of

the models presented includes the following information: (1) scope, (2) acquisition functions, (3) operations, (4) staffing, (5) cost estimates (start-up and operating), and (6) dissemination and user service functions. Appendix A presents a summary of operating characteristics of several existing clearinghouses after which the clearinghouse may be modeled. Finally, Appendix B lists several sources of information available to the prospective operators of a clearinghouse.

The following are the key findings from Volume V that will be of interest to the general reader:

- Exhibit S-18 (p. 77) depicts the general "clearinghouse environment." It displays the clearinghouse functions in the center box (e.g., acquire, disseminate) in terms of the transformation of information from several sources into a form useful to and usable by tribal leaders and members of their respective technical staffs.
- Exhibit S-19 (p. 78) lists more specifically the possible functions to be performed by a clearinghouse and indicates the functions that would be assumed under each clearinghouse model presented in this report.
- The cost estimates for the three models range from \$3,150 to \$11,500 for start-up and \$18,300 to \$81,200 for annual operation (all prices are as of late 1976/early 1977). None of the models involves the use of electronic data processing for the generation of information, although this does not preclude the clearinghouse's accessing existing automated data bases.
- The primary staff positions necessary to make a clearinghouse functional (for any of the three models) are the Director/Information Specialist and the Tribal Information Coordinators. The former is responsible for planning and directing all clearinghouse activity. The director must be knowledgeable in the area of energy resource

development and have a detailed knowledge of information systems and clearinghouses, information networking, and information management (particularly true if the clearinghouse is eventually automated). In addition, the director must be able to communicate effectively with tribal representatives and have an understanding of their information needs. The Tribal Information Coordinators would be tribal employees who coordinate both the provision of information to the clearinghouse and the receipt of information from the clearinghouse for each participating tribe.

- The major differences in personnel requirements among the three models are:
  - Model I: one information specialist
  - Model II: one senior information specialist and one clerk-typist/secretary
  - Model III: one director and two information specialists; one clerk-typist/secretary

Other cost differences pertain to equipment, rent, subscriptions, miscellaneous supplies, and telephone and postage.

- A one-year period is recommended to develop the clearinghouse on a manual basis and obtain as much user feedback as possible. Following the trial period and a period of relatively smooth operation, automation should be considered, depending on the extent and nature of the demands being made on the clearinghouse by various user groups.
- One area not considered in this report but clearly of interest is the method of financing the clearinghouse. While sources of initial funding might be provided by federal agencies and/or foundations, the clearinghouse would probably have to become largely self-sustaining within three to five years, particularly if it wished to expand. If this is the case, then a mixture of annual tribal assessments and user charges (for subscriptions to publications, filling of individual requests) would be desirable and should be the subject of discussion shortly after the clearinghouse is established.

- Exhibit S-20 (p. 79) summarizes the salient characteristics of clearinghouses whose operations were reviewed during the course of developing the models. These clearinghouses are reviewed in considerable detail in Appendix A of Volume V.
- Finally, the sources of information identified in Appendix B together with a contact person and cost include such areas as abstracts, bibliographies, clearinghouses, journals/magazines, searches, and statistical updates.

EXHIBIT S-18
THE CLEARINGHOUSE ENVIRONMENT

INDIAN ENERGY INFORMATION CLEARINGHOUSE

Disciplines

- economic development alternatives
- energy development
- management
- accounting
- investments
- mineral resources
- training programs
- environmental policy

Nature of Materials

- bibliographic
- research in progress
- sources of expertise

Types of Materials

- primary journals
- secondary journals
- books/encyclopedias/dictionaries
- reports
- computerized data bases
- indexing/abstracting services
- maps/charts
- U.S. Government publications

EXHIBIT S-19

SUMMARY OF FUNCTIONS PERFORMED BY
THREE CLEARINGHOUSE MODELS

FUNCTION	Model		
	I	II	III
Receives material from tribes	X	X	X
Purchases and checks in journal subscriptions		X	X
Acquires publications through mailing lists from regional and state clearinghouses		X	X
Subscribes to computerized bibliographic and mineral reserves data bases			X
Indexes material by subject	X	X	X
Stores material in an organized manner	X	X	X
Refers requesters to other clearinghouses	X	X	X
Purchases and sends books and journals not maintained in house but requested by users			X
Abstracts relevant materials			X
Performs monthly selective dissemination of information to users		X	X
Writes periodic newsletters	X	X ^{1/}	X ^{1/}
Maintains a circulation system	X	X	X
Focuses on the following subject areas:			
- Energy development	X	X	X
- Environmental policy	X	X	X
- Mineral resources	X	X	X
- Accounting		X	X
- Management		X	X
- Economic development alternatives			X
- Training programs			X

^{1/} Newsletters are monthly.

EXHIBIT S-20

SUMMARY OF CLEARINGHOUSE CHARACTERISTICS

Name of Clearinghouse Information Center	National Technical Information Service	U.S. Department of Energy (DOE) Technical Information Center	Smithsonian Science Information Exchange (SSIE)	Science and Technology Division	National Energy Information Center	Clearinghouse on Teacher Education-- Educational Resource Information Center (ERIC)
Sponsor	Department of Commerce	U.S. DOE	Smithsonian Institution	Library of Congress	U.S. DOE	National Institute of Education
Field of Interest	All Government-Sponsored Research	All DOE Program Related	Life and Physical Sciences	All Aspects of Science and Technology	All Energy-Related Information	Teacher Education
Type of data maintained	Bibliographic	Bibliographic	Research projects in progress	Bibliographic	Bibliographic; statistical	Bibliographic
Degree of technicality	Technical	Technical	Primarily technical	Technical	Technical	Primarily nontechnical
Functions performed:						
Evaluating	No	Yes	No	No	No	Yes
Cataloging	Yes	Yes	Yes	Yes	Limited	Yes
Indexing	Yes	Yes	Yes	Yes	Limited	Yes
Abstracting	Yes	Yes	Limited (when not provided)	No	Limited	Yes
Physical acquisition of publications	Very extensive	Extensive	No	Yes	Yes	Yes
Physical dissemination of publications	Very extensive	Limited	No	Yes	Limited	Limited
User services (response to information requests)	Extensive	Extensive	Extensive	Extensive	Very extensive	Extensive
Charge for user services	Yes	Most services	Yes	Some services	No	Some services
Information analysis (special projects)	None	Extensive	None	Extensive	Yes	Yes
Publications	Extensive	Extensive	Yes	Yes	Yes	Yes
Degree of automation	Highly automated	Highly automated	Highly automated	Moderate	Highly Automated	Highly automated (central ERIC)
Annual cost of operation	\$13,000,000	\$5,000,000	\$2,500,000 (only for input function)	\$875,000	\$700,000	\$269,000
Total staff	400	260	125	60	34	10 1/2
Professional staff	275	200	80	40	25	7 1/2
Reports/articles/books available	950,000	7,000,000	200,000	5,000,000	10,000	10,000
Annual acquisitions	75,000	1,000,000	100,000	750,000 (library totals)	3,000	2,000

EXHIBIT S-20 (Cont.)

Name of Clearinghouse Information Center	Energy Research and Development Inventory	Energy Research Information System (ERIS)	Four Corners Regional Commission Energy System	Resources Research Regional Environmental Assessment Program (REAP)	Energy Information System Montana Energy Advisory Council	National Geothermal Information Resource Clearinghouse on Geothermal Information (GRID)
Sponsor	U.S. DOE	Old West Regional Commission Department of the Interior	Four Corners Regional Commission Department of the Interior	North Dakota	Montana	U.S. DOE
Field of Interest	Energy-Related Research in Progress	Energy-Related Research in Progress	Energy-Related Research in Progress	Natural Resources	Energy-Related Research	Geothermal/Energy
Type of data maintained	Research projects in progress	Research projects in progress	Research projects in progress	People; research in progress; sources; bibliographic	Research projects in progress	Bibliographic
Degree of technicality	Technical	Moderately technical	Moderately technical	Moderately technical	Moderately technical	Technical
Functions performed:						
Evaluating	Limited	No	Limited	Limited	No	Yes
Cataloging	Yes	Yes	Yes	Yes	Yes	Yes
Indexing	Yes	Yes	Yes	Yes	Yes	Yes
Abstracting	Limited (when not provided)	Limited (when not provided)	Limited (when not provided)	Limited	Limited	Yes
Physical acquisition of publications	No	No	Limited	Limited	Limited	Yes
Physical dissemination of publications	No	No	Limited	No	Limited	Limited
User services (response to information requests)	Limited	Limited	None ^{1/}	Limited	Limited	Yes
Charge for user services	Some services	No	No ^{1/}	No	No	No
Information analysis (special projects)	None	None	None ^{1/}	None	None	None
Publications	None ^{2/}	Limited	Limited ^{1/}	None	Limited	Yes
Degree of automation	Highly automated	Automated	Moderate ^{1/}	Highly automated (state system)	Manual system	Highly automated
Annual cost of operation	\$200,000	\$60,000	\$51,000 ^{1/}	\$39,000	\$25,000	\$240,000
Total staff	6	2	3/4 ^{1/}	2	1	10
Professional staff	5	2	3/4	2	1	9
Reports/articles/books available	10,00	550	1,500 ^{1/}	7,000	275	3,000
Annual acquisitions	2,000	400	500	2,000	75	1,000

- ^{1/} The Four Corners system is in the data-gathering phase. The \$51,000 cost is the total funding contracted to the five member states for the data-gathering effort.
- ^{2/} "Inventory of Current Energy Research and Development" is published from the data base, although by another group within DOE.

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