CHAPTER 6

Outlook

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Objectives of the 1973 Program

The objectives of the Federal Prototype Oil Shale Leasing Program, as stated in 1973 by the Secretary of the Interior, are:

1. to provide a new source of energy to the Nation by stimulating the development of commercial oil shale technology by private industry;
2. to ensure the environmental integrity of the affected areas and at the same time develop a full range of environmental safeguards and restoration techniques that will be incorporated into the planning of a mature oil shale industry, should one develop;
3. to permit an equitable return to all parties in the development of this public resource; and
4. to develop management expertise in the leasing and supervision of oil shale development in order to provide the basis for future administrative procedures,

The Program was designed with the concept that six lease tracts in three States would be developed with significantly different mining and processing technologies, and that commercial-scale production of about 250,000 bbl/d would be achieved by 1980, However, the Wyoming leases were not sold, and development of the Utah tracts was suspended. Activity in Utah is limited to environmental monitoring and review of candidate development technologies. Before the ownership issue was resolved, the lessees stated their intention to resume development. Now that this issue is settled, and assuming unpatented claims are not an impediment, it will still take several more years before the Utah tracts can approach their initial production target of 100,000 bbl/d.

At present, only two lease tracts are being developed. Both are in Colorado and both involve similar mining and processing technologies. The more optimistic projection (Occidental's) suggests that commercial levels of production will be achieved no earlier than 1986. The tract C-a lessees predict commercial production in 1987, but at a lower level than envisioned originally, If both plans proceed on schedule, commercial quantities of shale oil (about 133,000 bbl/d) could be produced by the late 1980's. If unforeseen problems arise, commercial production (the Program's first major objective) could be delayed until the 1990's.

In its present form, the Program may not reach the production levels projected in 1973, and will certainly not reach them within the original schedule. Until recently it was also questionable whether the desired variety of mining and processing technologies would be tested. Underground mining to support modified in situ (MIS) processing appeared to be the only mining method that would be tested by the program, and it seemed possible that the demonstration of above-ground retorting (AGR) methods would be limited to Rio Blanco's trials of the Lurgi-Ruhrgas module on tract C-a.

Testing AGR is very important to a full evaluation of the technical, economic, and environmental aspects of oil shale development. AGR may be a feasible option by itself, and it also could be used to complement MIS processing. In MIS, at least 20 percent of the shale in the development zone is mined out and is not included in the MIS retorts. Options for disposing of the mined material are surface disposal (a waste of the shale's potential energy values), combustion for generating power and process heat (oil shale is not a very good solid fuel), or AGR. A facility that would combine MIS with AGR would be very efficient in terms of resource utilization.

The modified detailed development plan for tract C-b does not specify AGR of mined shale, although it is included as an option

without a stated time frame. ' It is likely that construction of an AGR facility will not begin on tract C-b until after the commercial-size MIS retorts have been operated for a few years. If setbacks occur on either tract, demonstration of aboveground processing methods could be delayed until well into the 1990's.

In 1978 the Department of the Interior (DOI) acknowledged the need to offer additional leases to encourage testing of above--ground methods,

> Finally, we recognize the need to encourage development of surface retorting technology, as well as other technologies which are not now being used on tracts C-a and C-b, and the substantial start-up time necessary to begin a commercial endeavor using a new development scheme.'

DOI also considered an adjunct leasing program specifically for in situ processing when the Wyoming leases were not sold. Although the original intention was to lease Wyoming lands for in situ development, the greater interest among potential developers in the richer Colorado deposits led to the nomination of four in situ tracts in that State, Work was begun on a supplemental environmental impact statement (EIS) for the new lease offering. The supplemental program was canceled when the tract C-a and C-b lessees switched to MIS processing.

As noted in chapter 5, support for most of the R&D programs aimed at commercialization of oil shale comes from the Department of Energy (DOE). Thus, although the first aim of the Prototype Program is to stimulate development, its implementation is by a Federal department different from the one responsible for the Program. Any evaluation of the Program must look at the full range of Government involvement when judging its success or failure.

With respect to the second goal of the Program—ensuring environmental integrity —it was anticipated that a framework would be provided for the evolution of techniques to restore the ecological balances that will be upset by oil shale development. Environmental monitoring programs have been established on each tract, and data from these programs will aid in detecting any environmental degradation resulting from development activities. Restoration techniques are also being developed, but the efficacy of these methods will not be verified until the tracts have been in full operation for several years.

Environmental investigations are being carried out by several agencies. As with support of commercialization, they are different from the Department overseeing the Prototype Program. Both DOE and the Environmental Protection Agency (EPA) have environmental R&D programs. This raises some basic questions about which agency is best suited to accomplish the objectives and whether there are more efficient or effective ways to accomplish them. Again, an evaluation must look at the complete range of activities being undertaken, not just at the efforts of a single agency.

The third Program objective—equitable return to all involved parties—has not yet been reached, Its achievement is tied to commercial shale oil production and, as such, is subject to numerous uncertainties. The economic and financial considerations of establishing an industry, as well as the tradeoffs necessary to accomplish this, are discussed in volume I.

The fourth objective was to develop expertise in leasing and supervision. In this regard, the Program has provided a training ground for DOI officials. The oil shale industry is unique among mining operations in that its modern development has taken place under laws and regulations such as those promulgated after the passage of the National Environmental Policy Act (NEPA) and the Clean Air Act. More established mining industries have had to adjust to environmental requirements, but their character has not been shaped by them as significantly as has that of the oil shale industry, where every process must be designed for compliance with environmental standards. Neither industry nor

Government could have anticipated the problems that have emerged in the course of the Program. Both sectors, however, have developed procedures for dealing with at least some of them. Moreover, although regulatory mechanisms have not functioned as speedily as might be desired by the developers, policies have been established that permit the development of the lease tracts.

New Initiatives

In 1978, DOI'S philosophy regarding additional leasing under the Program was expressed as follows:)

> To proceed with substantial additional leasing without the total experience which we will gain in Colorado would be a total contradiction of our established policy. Our current policy is to follow the guidelines laid down in the 1973 Oil Shale Environmental Impact Statement—to do no further general leasing until the prototype program has determined whether shale oil can be produced in an environmentally and economically viable manner. This may require some additional leasing in the near future to ensure that all available technologies for oil shale are adequately tested. However, this will be limited to only a few leases within the existing program and not a new full-scale leasing program,

In late 1979, DOI's Petroleum Imports Reduction Policy Group described the opportunities for additional leasing as follows:[4]

> In announcing the prototype program, the Secretary made a commitment to lease no more than six tracts under the program, and this has been taken as the lease limit for the program. This restriction was also contained in the programmatic EIS. Four tracts have been let. The two in Colorado are undergoing development: the two Utah tracts have been stalled by a legal challenge from the State of Utah. Consequently, there are two tracts of 5120 acres each which might be leased under the prototype program . . . The Department may not be limited to leasing two additional tracts, however. If the Prototype Program loses control over its tracts in Utah on "in lieu land selection" grounds, four tracts authorized under the Prototype Program would be available for leasing.

In May of 1980, DOI announced several decisions that mark a departure from these earlier positions and that will significantly alter the outlook for development. The choices were made, according to DOI'S decision document, "In response to the President's program to accelerate the development of a synthetic fuels industry and in full consideration of the potential and problems associated with the development of oil shale resources on the public lands. . . ."5

DOI will lease up to four new tracts under the Prototype Program. A task force will recommend the number and possible location of the new leases, the technologies to be encouraged, and the best strategy to accomplish the leasing. The task force's work is to be done by mid-fall of 1980.

Several justifications are cited for additional Prototype leasing. First is to ensure reaching a goal of 400,000 bbl/d of shale oil by 1990. While recognizing that this could be met by present projects, DOI indicates that "modest additional leasing" will foster production. Second is the need to strengthen the Program, which is characterized "as one of only qualified success, " particularly since only one technology is being tested in only one area. As the decision document notes:

> Additional leasing under the Program will permit us to gain the valuable broader experience first sought in the Program when the six lease tracts were selected and offered in 1974.

DOI emphasizes that the new efforts should be consonant with the purposes of the Program. Technologies not now being developed are to be encouraged, although lease

terms that stipulate the type of technology to be employed are not necessarily envisioned. At least one tract will be offered for multi-mineral development, Possible sites are not to be geographically concentrated, in order to reduce environmental and socioeconomic impacts.

Plans for a permanent leasing program will be started concurrently. According to DOI, "For the health of a maturing industry and the energy security of the Nation, oil shale production should continue to expand in the 1990's and beyond. " Because leasing to achieve additional production "is not fully consonant with the several purposes of the Prototype Program, " a comprehensive, permanent leasing program is proposed.

In preparation, four steps will be undertaken:

- a review of the Prototype Program;
- consultation with affected States, local governments, industry, the environmental community, and the public;
- consideration of a range of leasing alternatives, including no further leasing; and
- compliance with NEPA including preparation of a programmatic EIS.

The timetable calls for the review of the Prototype Program to be completed in 4 months, with a goal of having the permanent program ''in place within the next two years. "

Justification for the permanent program includes "The constantly changing national and international outlook for liquid hydrocarbons. . . ." DOI states:

> Failure to immediately initiate development of a permanent program poses the distinct risk that an emergency situation in the future would require the quick development and implementation of a poorly designed, crash leasing program, without adequate safeguards.

Land exchanges will not be given special emphasis. Rather, greater priority will be given to the leasing efforts. DOI judges exchanges as failing "too many tests as a desirable management tool. " Among the shortcomings are the inability to require diligent development and information sharing, which means greater production cannot be assured. Furthermore, bonuses, rents, and royalties are not obtained and the States do not receive shared revenues as they do from leasing. Finally, exchanges are viewed as inefficient and costly because of the necessity to analyze two or more tracts in order to effect the exchange. DOI does indicate it will fulfill its obligation to consider pending exchanges.

The Department will request amendments to the Mineral Leasing Act of 1920[6] and the Federal Land Policy and Management Act of 1976 (FLPMA). ' The former limits the maximum size of a lease tract to 5,120 acres (8 mi^2), prohibits any individual or firm from holding more than this acreage under lease, and allows only one lease to be held by an individual or firm." FLPMA specifically prohibits, outside the lease tracts, disposal of overburden or waste material and the siting of surface facilities.')DOI "will seek legislation which would remove all three constraints . . .

Specifically, DOI will ask for:

> . , . the authority to designate each lease tract of a size sufficient to sustain long-term commercial operations . , ., to issue permits to lessees for fair market value to provide for the off-lease disposal of shale and siting of processing facilities, and to permit a firm to hold a maximum of four leases nationwide and two leases per State, with an additional lease per State if the company is producing on the first two leases , . , and is within 10 years of completing production on one of them.

DOI is careful to note that they have not reached any conclusions about the specifics of their permanent leasing program, and that, therefore, the application of the off lease authority would be limited to the leases under the Prototype Program, either the existing ones or those to be issued under the Program's extension.

Taken together, these actions confirm a renewed interest on the part of the present

administration in the development of oil shale resources, The issues discussed in chapter 5 will move once again to the forefront of the debates about this development,

Chapter 6 References

1 *Shale Tract C-b—Modification* to *Detailed* Development *Plan*, Ashland Oil, Inc., and Occidental Oil Shale, Inc., February 1977.

[2]G. Martin, Assistant Secretary for Land and Water Resources, Department of the Interior, letter to OTA, U.S. Congress, Nov. 2, 1978.

[3]Ibid.

[4]C. Hall and M. Said, *Federal Oil Shale Leasing: Leasing* Options, *Legal and Policy* Constraints, Petroleum Imports Reduction Policy Group, Department of the Interior, Nov. 1, 1979, p. 14.

[5]James A. Joseph, Under Secretary, Memoran*dum to* the Secretary, "Decisions on the Oil Shale Secretarial Issue Document, ' U.S. Department of the Interior, May 27, 1980. Quotations throughout this section are from this *Memorandum.*

[6]*41* Stat. 437 (1920), 30 U.S. C. 181 et seq.

"90 Stat, 2743 (1976), 43 U.S.C. 1701 et seq.

[8]30 U.S.C. 181 and 241(a) (1976).

[9]90 Stat. 2786, 43 U.S.C. 1701.