

MITIGATING THE SOCIAL AND ECONOMIC IMPACTS
OF OIL SHALE DEVELOPMENT

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INTRODUCTION

As the oil shale industry gains national focus, those factors critical to its proper development also become more significant. One of the most important of those issues is the social and economic impacts that accompany a major industrial effort. Not only is a proper approach important to preserving the immediate area of development for the future, but because of the labor intensive nature of the oil shale industry, social and economic issues may be the most critical constraint to the industry itself.

Because the richest reserves lie in Colorado, the greatest activity is likely to occur in Colorado, although the earliest development may occur in Utah. All of the oil shale area is rural. The three county area of Colorado, generally accepted as the state's oil shale area, had a total of 9,563 square miles and a total population of 90,748 in 1977 when a special census was conducted. Rio Blanco County, the smallest of the three, had only 5,100 people at the time of the census. Most of the oil shale development in Colorado will occur in the two counties of Garfield and Rio Blanco and will primarily affect six communities in the immediate area of development, all of which comprised a total population in 1977 of 7,742.

HISTORY

The history of the industry from a planning

perspective can be divided into four phases. The first phase begins with the original settlements in the area by the Ute Indians, and later by early white settlers. The Indians named the area the Piceance (pronounced Pee-Ahnz), reputedly meaning tall grass, now called the Piceance Creek basin. This period has most relevance for understanding the culture of the current residents and their attitudes. The people were then, and are now, independent, hard working, and willing to take care of themselves and their communities.

The second phase is best characterized by the mining claims staked on hundreds of thousands of acres of federal oil shale lands before 1920 resulting in the patchwork ownership map of the area where titles to the land are held by hundreds of different parties. The third phase began with four leases awarded by the federal government in 1974; leases that sold for \$210.3 million, \$117.8 million, \$75.6 million and \$45.1 million respectively for Tracts C-a and C-b in Colorado and U-a and U-b in Utah.

Events at that time set the stage for the present. The fourth phase, beginning with President Carter's speech in July, 1979, will lead to a major, national effort to develop synfuels in the 1980's, and oil shale will be a substantial part of that effort.

INDUSTRIAL CHARACTERISTICS AFFECTING SOCIOECONOMIC MITIGATION EFFORTS

Socioeconomic mitigation programs for oil shale development must be conducted with recognition of the particular characteristics of the industry. The industry will be highly concentrated in a rural area with limited community infrastructure and transportation facilities available relative to the magnitude of the work forces and secondary populations required to commercialize development. A major industry will almost surely require a series of coordinated public-private efforts. Such a cooperative enterprise will be highly visible and subject to broad interests.

Compared to other, more traditional forms of petroleum production, oil shale development is both labor and capital intensive. It has been viewed as a high risk, intensive effort dependent upon resolution of a number of contingencies. The following contingencies form the context in which planning and mitigation will take place and to which planners must respond as the industry expands.

- The number of facilities developed
- The timing and phasing of each retort and mine
- Their locations
- Their sizes
- Capital expenditures required
- How each facility is taxed and how funds are returned to the local area
- The technologies employed for each project
- The markets for the production
- National and international issues
- Federal support and constraints and,
- The number and type of suppliers required locally by the industry.

GROWTH AND CHANGE

The entire focus of socioeconomic mitigation programs is upon the growth and change that will occur as a result of development. The contingencies noted above as they are resolved in decisions made for each project are the factors that will determine how much growth will occur. Particularly important are the number, location and timing of each project - informational requirements that have been difficult to predict for the industry.

Because it has been very difficult to determine the actual growth that will be generated by oil shale development along with the cumulative growth that will occur, planning and mitigation efforts have been based on these contingencies. Attempts are made to meet various thresholds of growth rather than exact needs in each given year. The towns plan to accommodate a given number of people with the completion of each facility over an unspecified number of years, more or less, depending on the need and the resources available.

It is clear that the oil shale industry will not be the only generator of growth for the region, although an individual town may receive its major growth from it. Because there is so much activity planned for the region, the cumulative growth from coal, uranium, power plant construction, retirement, recreation and oil shale will compound the overall picture. Planning, as a practical matter, must be carried out with cumulative growth effects in mind, although, different mitigation resources may be applicable to different growth sources.

The local Council of Governments, using employment figures anticipating those projects most likely to go forward, forecasts that a modest oil shale industry producing 190,000 barrels per day by

1990 would bring 38,000 new people into the area by itself. Cumulative growth between now and 1985 could result in a doubling of the COG's four county planning area including Moffat County -- a total influx of from 95,000 to 154,000 new persons. Limited oil shale activity to date, for Rifle, for example, has resulted in an increase of around 1,250 new people.

The cities and counties have prepared for growth largely by getting ready for whatever might come their way by utilizing all of the resources available to them from federal, state, local and industry sources. Efforts to date could be viewed as a model for boom town planning and mitigation, although the growth has been relatively slow in coming and the resources so far have been adequate. The big question is future growth. How much will occur? How much of it can be managed without radically altering the present quality of life? How much change, at one time, can a community absorb before there is a breakdown in necessary services? How much growth can occur before the effects become a constraint on the industry itself, creating problems in morale, and leading to high rates of turnover, difficulties in work force recruitment, accidents on the job and severe social disruption in the communities.

Efforts to determine reasonable, desirable or workable rates of growth for boom towns reveal no clear pattern. Each community, like each person, has unique characteristics. For some, especially those most rural and traditional, the hypothetical rate of fifteen percent may bring breakdowns in administration and delivery of services. For others whose city councils have experienced prior booms, and have hired sophisticated administrative personnel, the problems of rapid growth may be less challenging.

In the absence of clear information about the workable limits of growth, it is perhaps best to deal with the constraints that will affect growth the levels of preparation that have been made to date for managing future oil shale growth, and the considerations related to growth that are important for mitigating its consequences in the future.

The communities in Colorado that will be most directly affected by oil shale development are Meeker and Rangely in Rio Blanco County and Grand Valley, New Castle, Rifle, Silt and Battlement Mesa (a planned new town) in Garfield County. None of these towns have populations over 3,500 at present. They are projected to reach from 10 to 15 thousand total persons during the 1980's. If all of the improvements planned for these towns are carried out, they could collectively accommodate from 30,000 to 40,000 people within the next several years depending on the nature of improvements required and the availability of funds.

The natural constraints on the oil shale industry will arise from such factors as work force recruitment, the availability of housing, the availability of community infrastructure, transportation facilities, overall industry uncertainties and financial resources for each of the above areas. External constraints will come in the form of federal leasing patterns and requirements, possible litigation, the availability of economic support for the industry and federal, state and local regulations.

Whatever the ultimate and possibly changing nature of growth management, it is important to both industry and government to minimize or eliminate the boom effects that occurred in the Rock Springs and Gillette areas and other parts of

the country. One way to get a perspective on boom growth is to consider how quickly a town will double or triple in size. If the towns of the oil shale area reach a population of 30,000 to 40,000 during the next decade, some of them will double their present populations during that period and some of them may grow more than six times.

The key to an effective socioeconomic mitigation program is to spread the growth as widely as possible and to reduce or eliminate the unnecessary stress on any given community by being responsive to the needs and abilities of each community to respond to growth at any given time. Industrial development should be keyed to the marginal capacity of a community to respond to change. The remainder of this paper takes up the mitigation efforts that can help accomplish this result.

MITIGATION AND THE PROBLEM CONTEXT

Mitigation can be generally defined as "those extraordinary actions taken to normalize anticipated or current socioeconomic changes not falling within the traditional scope of problems or means for dealing with problems." Mitigation actions may involve measures for organizing at one or more government or industry levels to meet specific objectives such as hastening response times or adding support to existing agencies; sharing responsibilities by regulations, contract or agreement; or, for internalizing added costs into product costs. Whatever the measures taken, mitigation actions generally fall into one of the following areas: Coordination and Organization; Physical Planning and Development; Information Generation and Transfer; and, Funding.

Mitigation programs occur in specific contexts that can vary broadly with the state, the resource, the type of project, and the communities. However,

there are also fairly well identified problem circumstances within which mitigation programs will operate in the western United States. The problems encountered by most rural communities arise largely because the funds and administrative expertise are not available to the communities when the problems occur. The time-frame for industry is not often compatible with community needs for accommodating industry-generated growth. Industry wishes to meet market demand in the shortest time possible to make their process cost-effective, to meet contract objectives and to make a profit. Bringing financial and other support to a community to deal with new development and growth is often very difficult, especially when there are a number of unknowns in terms of how much growth that community will experience and when the growth will stabilize in that community considering all variables. Private investors are often reluctant to risk their capital in unstable growth situations where the demand is not predictable. Also, many states have imposed restrictions on the spending capability of local communities to protect the communities from overburdening themselves with debt. The consequence of this time problem is that industry is attempting to meet its market with maximum production in the shortest period while the communities are faced with rapid change and almost overnight can find themselves with inadequate technical management, planning expertise, administrative resources and revenue generating capabilities.

A similar problem generated by the divergent time frames is that of growth and decline cycles. Particularly where more than one development and, perhaps, more than one type of industry enters rural areas, there is created the potential for

a series of in and out-migrations of workers. The consequence may be uncontrollable and unpredictable contractions and expansions in the demand for housing and other services.

As there is a generalizable problem context, there is also a problem-solving context. A problem solving context would find an awareness and understanding of the special problems of boom town growth as different from typical urban growth or traditional rural change. The willing attitude of newcomers as well as long-term residents toward dealing openly and honestly with the problems they are facing is important. Another key factor is the sophistication of the administration, city councils and county commissioners. This last capability can reduce the need for many of the other efforts when it is available and can reduce the effectiveness of many others when it is not.

Of similar importance is the broad participation of all parties to development of a resource including all levels of government and industry. Lastly, some means must be available to coordinate the overall mitigation efforts that are required. This coordination can be accomplished by any of several approaches including federal, state, local and industry organizations or some combination of each. The existing approaches to mitigating socioeconomic impacts in the oil shale area will be detailed next.

EFFORTS CURRENTLY UNDERWAY

Several efforts have been initiated, particularly since the 1974 leases were let. There is overlap between each of these programs, although it is easier, because each of them has its own particular applicability, to discuss the specifics under each category of sponsorship.

Federal Programs

The mitigation programs currently available at the federal level with application to oil shale are of two primary types, funding and information and technical assistance. The following briefly summarizes these programs.

Funding

Federal Mineral Leasing Act. This act, passed in 1920, allows for return of 50 percent of federal leasing revenues to the states. The act resulted in creation of the oil shale trust fund and the Mineral Leasing Fund in Colorado.

Power Plant and Industrial Fuel Use Act

(Section 601). This fund makes provision for socioeconomic impacts resulting from coal and oil shale development. It is useful where impacts are occurring from more than one resource. Funds were requested for Meeker for low and moderate income housing development related to coal development in the 1979 request.

Related Federal Programs. A number of programs are available to deal with planning, technical assistance, construction of public facilities and housing. However, most of these programs are aimed at urban areas, have strict guidelines and are highly competitive, although they may still have potential for specific applications.

Information and Technical Assistance

Federal Regional Council. The Federal Regional Council coordinates the major federal agencies having an interest in oil shale development with local areas. The FRC provides a representative to the local impact teams to assist with identifying federal funds and in packaging those funds for specific

uses. The FRC has also an informational function and publishes an annual profile of impacted communities in Region VIII.

Area Oil Shale Supervisors' Office. This agency functions primarily in an informational role by compiling data on socioeconomic impacts mostly related to development of the two lease tracts C-a and C-b.

Colorado Programs

State level programs are oriented to two major areas, managing funding requests and disbursements and technical assistance. These programs are summarized below.

Fund Management

Colorado Department of Local Affairs, Division of Mineral and Energy Impact. The Division of Mineral and Energy Impact serves to review requests made to the states' impact funds by local public groups. The office makes recommendations to the state legislature for use of the funds, administers those funds and provides coordination between state agencies and local areas.

Joint Budget Committee, Colorado General Assembly. The JBC appropriates the state funds applicable to energy impacted areas, namely, the Oil Shale Trust Fund and the Energy Impact Assistance Fund consisting of the Colorado Mineral Leasing Fund and the Local Government Severance Tax Fund.

Technical Assistance

Field Representatives, Department of Local Affairs. In response to the programs of the Division of Mineral and Energy Impact, the field representatives work with local areas to coordinate requests for funding assistance and administer impact funds.

Colorado West Area Council of Governments.

The COG, working in conjunction with the state, serves as a clearinghouse for information on state and federal funds and assists local governments in applying for those funds. It also conducts a growth monitoring system for its four counties making information available on current and projected growth to all levels of government and industry.

County and Community Efforts

Programs at the local level serve as a focus for all of the assistance provided from other entities. In addition to traditional functions of government, the counties and communities have instituted specialized planning and zoning programs, developed task forces for coordinating overall mitigation efforts and introduced measures to allow growth to pay its own way. There are substantial differences in the extent to which the communities have prepared for growth, although significant preparations have been made in all of them. The following descriptions briefly summarize these preparations.

County Level

Planning and Zoning. All of the counties have county-wide master plans although they vary in effectiveness. Rio Blanco County, in particular, has developed an impact zoning procedure requiring major growth generators to comply with the provisions of the county comprehensive plan and in some instances, to prepare an impact statement.

Impact Mitigation Task Forces. Developed to meet future growth needs, the task forces coordinate with state level requirements. However, in some cases, as in Rio Blanco County, for example, they play a much broader role. The task forces are

composed of two groups, a county-wide core group and advisory groups for each municipality. The task forces research present and future needs, screen funding requests, submit funding requests to government and industry, provide a public forum for participation and communication, and make informed judgements possible for all levels of government responsible for local decisions.

Community Level

Community Planning, Growth Policies and Professional Staffing.

The towns of Meeker and Rifle have comprehensive planning efforts underway. Rifle has also, for example, adopted a full range of development standards and subdivision regulations, created a housing authority and begun building a professional, trained staff. Silt has developed a housing authority and is pursuing federal funding for low and moderate income families.

Industry Programs

Industry mitigation efforts dealing with socioeconomic impacts have also varied considerably from attendance at local meetings to full scale programs. Industry programs can be classified into the categories of growth management planning and technical assistance, work force programs and community shortfall assistance. These programs are discussed below.

Growth Management Planning and Technical

Assistance. After the initial leases were let, the two major operators each provided Rio Blanco County with \$40,000 for planning. One of the operators developed a master plan for the town of Rangely and prepared a socioeconomic impact statement indicating its future impacts. Several oil shale developers recently provided Rifle with matching funds for its comprehensive plan now underway. Another operator has provided its own

staff and the services of a consulting firm over the last several years to assist the local governments in assembling the task forces and planning for the hospitals, housing, social services, recreation and other programs at the request of the communities. This same operator also prepared an extensive series of documents to assist the communities in their growth management programs and compiles quarterly monitoring reports on community growth.

Work Force Programs. One of the most significant areas of industry activity is proper management of the needs of its own work forces. The same operator, mentioned above, has begun a major training program, bused its workers to the tract for the last two years, and provided financial incentives to developers to produce housing adequate for its needs. Another oil shale developer has proposed a new town to house its workers as well as other new residents.

Community Shortfall Assistance. Industry has provided financial support to a number of projects where funds were needed to complete grant applications or to meet needs where other sources were unavailable. Falling into this category are such items as funds for operating service facilities, planning support and direct provision of aid as in site preparation for construction of public facilities.

FUTURE SOCIOECONOMIC IMPACTS

The range of mitigation programs already underway provides a broad base for dealing with future growth. However, the existing programs are adequate only if growth proceeds at orderly rates.

The kind of growth that oil shale development could bring, in conjunction with other resource development, the super rates of growth at 600 percent and more within a short span of years would bring problems beyond the capability of current programs.

The key to this growth is its rate, magnitude and location. If growth does occur at extreme rates in short periods of time, if very large numbers of new people come to the region or if the new population settles primarily in one or two communities to the exclusion of the others, the problems will be severe. Natural and external growth constraints will possibly dampen the overall growth coming to the area. Nonetheless, with cumulative development, the population influx could reach extreme proportions and additional solutions to those now underway will be necessary.

Not only must the efforts currently in existence be continued at maximum levels for private and public groups alike but new solutions will be required. The federal government will have to provide more direct and more flexible funding than is currently available. The state will most likely have to become more directly involved in an oversight and coordinating role, especially if other states are developing oil shale concurrently. The local programs will still be a key focus but may need to be organized in a broader, more regional manner. Industry will need to consistently take care of its own work force problems such as housing and transportation as well as assisting the local governments with technical expertise and shortfall backup where necessary.

Finally, some mechanism will most likely be required to coordinate the overall mitigation programs and to ensure that growth does not exceed unnecessary levels of stress and ultimately affect both the short

and long term quality of life in the region. A number of options are available for coordinating development under very rapid rates of growth. For example, if the government leases lands in a haphazard and uncoordinated manner, the difficulties will be compounded and little can be done at the local level to ameliorate that. Future leasing must be conducted in a responsible manner by including socioeconomic as well as technical considerations. A sound leasing program at the federal level providing leases and support only for those companies willing to share responsibility for managing growth is critical.

Another alternative includes establishment of siting legislation at the state levels to ensure that development does not occur until the proper steps are taken on a case by case basis. Those developers who deal with local needs could proceed on course.

A regional authority could be formed with the proper mix of funding, regulatory capacities and authority. Such a group should encourage participation from all interests to avoid growing into a superstructure organization. The regional authority could be responsive to industrial needs by indicating where and when development would be least disruptive and proceeding on that basis.

None of these solutions or the others that might be devised will find universal support. It is increasingly clear, however, that without such efforts, the major remaining stumbling block to oil shale development and preservation of the quality of life will be the housing, social services, work force recruitment and other human needs rather than the technological and economic factors that have affected the industry until now.