

OIL SHALE CURRENT DEVELOPMENTS AND PROSPECTS

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ABSTRACT

Oil shale deposits constitute an important future source of fuel energy and hydrocarbon feedstock for manufacturing a variety of petrochemicals. Despite the fact that a commercial shale oil plant has not been established in the United States utilization of this natural resource continues to be viewed with optimism.

Oil shale is a viable industry. Almost every major petroleum company has established an oil shale department staffed by geologists and engineers and have leased privately owned oil shale land in Colorado and Utah or purchased fee acreage. Many companies have budgeted substantial funds for both research and land positions including investments into other company's interests and for reserve evaluations. Mobil, Humble and Atlantic-Richfield have recently been in the forefront of such activity.

There are sufficient oil shale reserves under private ownership to establish commercial development by mining and retorting methods at this time. Many companies are also prepared, however, to bid on the Federal Land whenever it becomes available for leasing. A group of eighteen oil companies is planning a 1969 industry-government nuclear explosion in oil shale (Project Bronco) to test the resulting fractured subsurface area as an in situ retort.

Mining and production costs for shale oil are believed to be about \$1.60 per barrel. There is reluctance, however, to invest an estimated \$150 million for a 50,000 barrels-per-day plant until considerably more scale-up research from the small experimental plants has been completed, the disposition of the Federal oil shale lands has been clarified, and feasibility of in situ production by nuclear fracturing or some other process has been examined.

The petroleum import policy and the depletion allowance for shale oil (presently 15 per cent of the value of the mined and crushed rock compared to $27\frac{1}{2}$ per cent for liquid petroleum) currently have the more sensitive effect on oil shale profitability but other deterrents to the industry include heavy (highly viscous) oil development, tar sand oil and coal hydrogenation.

The United States' population is expected to nearly double in 35 years, and the oil and gas demand will double in 15 to 20 years. Thus huge petroleum reserves will be needed. Shale oil will certainly play a part in the future energy market growth.