

of our present needs, and as I pointed out earlier, these needs are increasing at a rather rapid rate, based on 1966 consumption there would have to be a production of 439,746,900 barrels of oil per year. To fill this need it would require 24 retorts and upgrading with a daily capacity of 50,000 barrels. To put it another way, if we had relied on oil shale to take care of just the increase in demand in 1966 over the demand for 1965 (approximately 203,723,000 barrels), it would have required 11 retorts with a daily capacity of 50,000 barrels.

As has been pointed out earlier in the hearings, a single plant having a 50,000 barrel per day capacity involves an investment of \$100 million or more. So we are talking about some very sizeable investments, and also we are talking about some very large operating expenses.

As I said earlier, there would seem to be plenty of room for everyone sincerely interested in developing an oil shale industry both in terms of shale land and in terms of market opportunity. However, in the final analysis the need for and the emergence of an oil shale industry will be determined on a basis of economics. Oil shale will have to compete with other energy sources and fuels. If it cannot compete, other sources of energy will take over the market. This is as it should be. But it would be most unfortunate if oil shale's inability to compete was as a result of either government action or government inaction, because it would deny us the many benefits that could result from such an industry.

Mr. Chairman, I think that all of us can agree with the basic objective of encouraging competition and preventing undeserved windfalls. But I should like to point out that an exclusive government development program would very likely result in a windfall to the large users of petroleum products, assuming that the price would be less if the government produced the shale oil, and I believe that this is an assumption that is not necessarily supported by fact and experience in other fields. In effect, huge subsidies would be granted to the large users of petroleum by selling a commodity developed and produced with government capital, and sold at reduced costs, because the government would pay no state, local or federal taxes, and it would not distribute dividends to its shareholders which in turn would be taxable. Railroads, steamship lines, power generating companies, manufacturers, companies using large numbers of motor vehicles, in fact every company having large demands for petroleum or its products would be the disproportionate and primary beneficiaries of this Federal largesse. The benefits going to the average man on the street would be infinitesimal by comparison, if indeed there were any benefits at all.

In addition, a government program or a quasi-government corporation program of research and development has the same basic flaw that turning the whole program over to a single company would have, that is that only one approach would likely be followed. This is because someone has to be in charge and has to make the decision as to what approach will be pursued. I certainly would not suggest that this program be turned over to one company, and I doubt that any of the members of this Subcommittee would do so, because by doing so would be to deny the people of this country the benefits that can be derived from vigorous competition—that is the achievement of the best and most economical method of producing petroleum products. The benefits of competition come about through many different views on how to do some thing and each view being pursued vigorously by its proponent. The best one will win supremacy, but that supremacy may be only temporary because it is constantly being challenged by new developments. As the Chairman well knows, this is the genius of competition that has served us so well for such a long time.

As the Subcommittee is aware, several different approaches are presently being pursued to achieve an economical method of extracting shale oil from oil shale. Some may appear to be more promising than others. But as even a cursory examination of industrial development will disclose, a later development—perhaps occurring in an unrelated industry—may cause the discarding of a process and the resurrection of another process which had been formerly shelved.

I noted with interest the listing which you attached to your opening statement, Mr. Chairman, which indicated that of the 500 largest industrial corporations in 1965, 20 of the largest oil companies were included. With 20 oil companies in such favorable financial condition, it would appear that the prospects of competition are good. It is also interesting to note that while automobiles are probably the largest consumers of the products of the oil companies, there are only four remaining manufacturers in this country.