

Some persons have suggested that the research and development can be accomplished without the leasing of any land, and should be pursued solely through Government-sponsored research expenditures. We agree that much can be accomplished by direct or Government contracted expenditure on research and development.

Indeed, this is one of our five points.

Point four of the program looks to joint research with industry in the use of nuclear explosives to fracture oil shale to permit retorting *in situ*.

It is interesting, the first of the AEC experiments on Project Gasbuggy in trying to improve the yield of gas fields in northern New Mexico has been postponed although it will take place within the next 60 days.

Point five looks to a total expenditure of about \$100 million over 10 years on oil shale technology, economics and geology, and related conservation and environmental protection. About \$15 million of that amount would be for *in situ* retorting research using nuclear explosives for fracturing (point IV). We believe there is also much to be gained by an approach taking into account the many firms and institutions, which, with their diverse research programs and commercial interests may be able to make important contributions to the effort.

On the other hand, there are suggestions that the state of the art is far enough advanced to permit a system of competitive leasing now.

This was a major point made by the Governors of the three States in their statement which I think anyone who would read it would have to say is a constructive and forthright statement, and one that obviously was very carefully prepared.

It has been suggested that we make suitably sized tracts of oil shale lands available for competitive bidding, and allow the marketplace to determine the pace of investment in oil shale research and production. Many of the comments we have received to date, including the comments submitted jointly by the Governors of Colorado, Utah, and Wyoming, urged this course. As I have mentioned earlier, we were not satisfied that we could devise a full-scale leasing policy now that would permit such development and at the same time protect the public interest. We are open to argument that there are ways of doing this, but we have had serious doubts about this.

However, the intensive study we have underway, and to which I will refer in a moment, will afford an opportunity to evaluate further this as well as other proposals.

This is the background to our initial decision to propose research and development leasing by use of the Mineral Leasing Act. We devised proposed regulations to obtain the necessary information in the shortest time possible, with safeguards to prevent speculation and monopolization, to provide maximum revenues, and minimize environmental and safety hazards. We offered the regulations for public comment to be made within 30 days of the time the regulations were announced, and we subsequently extended the time for comment, until mid-October, as you know.

We have received views from individuals, industry, and the educational community, Federal agencies, and State governments. I am sure,