

point 5. These will include alternate mining methods research, deeper insights into the basic composition and utilization of shale and shale oil, associate minerals, and related economic and environmental studies. A research program outline and prospectus has been developed for a 10-year effort involving a total budgetary requirement of \$86 million, exclusive of the *in situ* investigations and experiments. We offer this prospectus for the record, with the caveat that it has not been reviewed by the Bureau of the Budget.

This, in general, then, is the direction we propose to take on this very important resource issue. Much thought and deliberation has gone into the subject over the past 4 or 5 years. I think, therefore, that I should summarize for you some of the philosophical or policy considerations that have gone into the development of the proposed program.

Here we have a resource which has lain dormant for nearly half a century since its value was first recognized. The question has been asked in many quarters, "Well, why should we bother with it now? Why not let it lie until it is required to meet a real shortage in our energy requirements? Wait until it can demand a premium price!" In other words, keep it as a reserve and hoard it.

In our judgment there are at least two very good answers to this challenge.

In the first place, let us concede that we are in no immediate danger of a national petroleum shortage. Our known and potential reserves, according to present technology, are adequate to carry us into the next century at or about present costs. However, as a recent interdepartmental energy study reports, oil and gas now supply 73 percent of our total energy requirements, and we have the potential for developing additional reserves through advanced discovery and recovery technology. Conventional sources of these fuels represent the smallest known and potential reserves, worldwide, of all the fuel resources. Thus, unless we are to be forced by possible shortages within half a century into radical dislocation of our heating, power generation and transportation systems, we must begin now to plan in an orderly way for substitute sources.

We have the lead time to plan the development of shale oil on a systematic, economical and sound conservation basis. To me the very best argument for moving ahead in a slow deliberate way now is that if we begin now, not in the haste of some national emergency but out of the desire to plan an orderly, rational program, then I think we have the time to do it right: do it right in terms of protecting the long-term national interest, do it right from a conservation point of view, and do it right in terms of our traditional approach to resource development.

Past history tells us that the difficulties are formidable. Prudence therefore dictates that we utilize the time available to us now to phase shale oil into our long-range energy forecast. The potential in good quality deposits in Colorado, Utah, and Wyoming is on the order of 600 billion barrels of shale oil, or about twice the world's proved petroleum reserves. Deferral of development measures now could easily result in the need for a "crash" effort later with attendant increased costs and sacrifice of adequate conservation planning to protect the total resources of the region.