

## THE RESOURCE

First, then, let me discuss the resource itself.

In terms of sheer size the oil shales of Wyoming, Colorado, and Utah stagger the imagination. By some estimates there are 1.5 trillion barrels of oil located in the Green River formation of Colorado alone. It has been estimated that 280 billion barrels of oil could be recovered from the richer Colorado formations by using present technology. Compare this to the other known reserves of crude oil: 31 billion barrels in the United States. Suffice it to say that the oil shales of Colorado, Wyoming, and Utah represent the largest untapped source of hydrocarbon energy known to the world.

The potential value of shale oil is indeed staggering. Recoverable oil in the shale deposits of the Green River formation has been valued in the trillions of dollars. On October 22, 1965, the then Senator Paul Douglas introduced a bill in the Senate to provide for the retirement of the national debt, "through royalties from the rich oil shale lands owned by the Federal Government." The Illinois Senator stated then that the oil shale lands in public ownership "are so vast and so valuable as to provide royalties sufficient to pay off the entire national debt when they are developed." Then, just last year, Mr. Douglas offered a new proposal, "shale oil for the lamps of learning." This provided that the royalties from oil shale would not only pay off the national debt but also be used to finance a great new national education program. I cite these figures and hypothetical proposals to show how indeed vast this national resource is. But these cited instances point up the basic reality that it does no good to talk of this resource in terms of barrels of oil or in terms of dollars of national debt magnitude. To do so is unrealistic because the resource remains in the ground to this day and the task is still before us. It is up to us in the Government to assist private enterprise in translating those figures from mere figures into dollars. It is up to us to assist in developing a technology which can transform oil shale into shale oil. Only then will this resource be of benefit to this Nation.

Fortunately, we are much closer to an economically feasible utilization of this great resource than ever before. Significant discoveries have been made within the past year of a heretofore little known mineral called dawsonite. Dawsonite is an aluminum carbonate and, if preliminary tests which have been recently conducted by private industry live up to the expectations which we now have, this new mineral may be a new and leading source of aluminum in the years ahead. In addition, great quantities of another mineral, nahcolite, which is a sodium carbonate, have been found in conjunction with the Green River oil shales.

So without going into further detail on the experimental phases of these various new minerals, I would only say that it may be, and I emphasize may, that we have turned the cost corner if all three of these minerals, aluminum in the form of dawsonite, sodium in the form of nahcolite, and oil shale, can be developed in conjunction with one another.

## NATIONAL SECURITY

Let me proceed to discuss, then, in further detail why development of both oil shale and dawsonite is required in the interests of national security.

First, let me discuss our national energy resources and the part that oil must play in our total energy consumption. According to the U.S. Bureau of Mines the United States was consuming about 55 quadrillion B.t.u.'s per year in 1964. If this were to be translated to an equivalent amount of oil consumed, it would equal about 25 million barrels of oil per day in 1965. The Department of the Interior estimates that this oil equivalent will rise in 1980 to about 42.3 million barrels per day.

While energy consumption estimates, even up to as short a time as 1980, are tenuous at best, some experts are already claiming that the United States is now, or soon will become, an energy-deficient nation. What this means is that the United States must rely upon the importation of energy in order to run its industry. This increasingly heavy reliance on imported energy is a major threat to our national security. Leaders in the petroleum industry have estimated that at least 10 years' leadtime will be required in order fully to mobilize an oil shale industry. This leads me to state that the trend toward growing energy