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STATEMENT OF
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BEFORE THE
SUBCOMMITTEE ON ENERGY PRODUCTION
AND SUPPLY
COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ON
UNITED STATES COAL DEVELOPMENT AND
THE FEDERAL COAL LEASING AMENDMENTS ACT OF 1975

Mr. Chairman and Members of the Subcommittee:

We welcome the opportunity to appear before this Subcommittee to discuss some of the issues related to developing Federal coal resources and the Government's ability to effectively administer a development program. As you know, the GAO has been deeply involved in reviews of issues affecting the development of this Nation's vast coal resources. My testimony is based on our published reports to the Congress and on recently completed work. We are also in the process of drafting reports on that work and we hope to complete and publish them soon.

There is no question that coal will play an important part in the Nation's energy future. The relative importance of coal as an energy source, however, will largely be shaped by policies yet to be developed.

Why is America's coal important? It represents 90 percent of the Nation's total fossil fuel reserves. Yet, it

currently supplies only 18 percent of energy needs. Coal's importance grows when you consider that

--domestic oil and gas supplies are limited, and declining rapidly;

--nonconventional energy sources, such as solar and geothermal, are unlikely to contribute significantly to energy supplies for the next 25 years or so; and

--dependence on insecure foreign energy sources continues to increase.

In its National Energy Plan, the Administration expects annual coal production and use of 1.2 billion tons by 1985, up from 665 million tons in 1976.

Can this Nation double its annual coal production and use by 1985? We believe not. In our recent evaluation of the National Energy Plan, we pointed out that achieving 1.2 billion tons is highly unlikely--in fact, it will be very difficult to achieve one billion tons annually by 1985.

To focus this testimony on Federal coal leasing, I would like to raise two broad issues which we believe are central to developing proper Federal coal leasing policy, and also discuss the current status of the Department of the Interior's efforts to address these questions. The questions are:

1. What portion of future coal production will come from Federal lands, and over what time frame?

2. Will coal resources now under lease be adequate to satisfy immediate needs, and if not, can the necessary lease schedules be followed?

The success of a Federal leasing program revolves around three key points--resource and reserve data, maximizing economic recovery, and coordinating the planning for future leasing and production between the Department of Energy (DOE) and Interior. We are aware that Interior is beginning major efforts to rationally address the problems of coal leasing policy. At the request of Senators Jackson and Haskell, we are beginning a close monitoring of these efforts and expect to update and modify our current findings as Interior progresses in their efforts.

Resource and Reserve Data

Current data on coal resources and reserves are extremely spotty and outdated. The current "best estimate" says we have 3.9 trillion tons of coal--1.7 trillion tons are called identified resources and 2.2 trillion tons are called hypothetical (undiscovered) resources. Although it is readily recognized that Federal coal lands account for a large share of the Nation's coal resources, estimates are equally deficient; even for coal lands now under lease.

In our nearly completed review of the estimates for existing Federal coal leases, made at the request of Senators Jackson and Metcalf, we found that neither Interior's nor the leaseholders' estimates of recoverable coal reserves can be considered accurate. We concluded that as they now stand, neither should be relied on in managing the coal leasing program.

Maximizing Economic Recovery of the Resources

"Maximizing economic recovery," one of the objectives of the Federal Coal Leasing Amendments Act of 1975, is a term which has yet to be defined. Consequently, until it is defined--and we believe it is DOE's responsibility to do so--it is not possible to develop reliable estimates of economically recoverable coal. Coupled with the definitional problem is the fact that cost and pricing considerations generally are not readily discernable in the reserve estimates of the leaseholders or Interior.

Coordination of DOE and Interior Planning

In a March 1977 report entitled "Energy Policy Decision-making, Organization, and National Energy Goals," we pointed out that the management and control of Federal energy programs was spread throughout a number of agencies. We felt at that time, and still do, that the Government could deal more effectively with the long-term, complex nature of the Nation's energy problems by consolidating energy functions. In this regard, we favored removing all leasing functions from Interior.

However, in August 1977 the Department of Energy Organization Act transferred to the newly created DOE only some responsibilities for Federal coal leasing policy which previously had been performed by Interior. These include prescribing regulations for fostering competition, implementing

alternative bidding systems, establishing diligent development requirements and rates of production, and acquiring and disposing of Federal royalty interests taken in kind. The Act also established, in DOE, a leasing liaison committee to coordinate the leasing responsibilities of DOE and Interior. The Committee is to be composed of equal representation from each Agency.

Under this Act, Interior retained authority for issuing and supervising Federal leases and enforcing all regulations applicable to resource leasing, lease terms and conditions, and production rates. The Federal Coal Leasing Amendments Act of 1975 also prohibits the leasing of any coal lands unless they have been included in a comprehensive land use plan prepared by the Secretary of the Interior or the Secretary of Agriculture. The land use planning process requires consultation with state and local officials, an opportunity for a public hearing, and an assessment of the amount of coal in the land, together with an estimate of the amount recoverable by surface and deep mining methods.

Prior to leasing any tract, the Secretary of the Interior must hold a separate hearing to consider the effects the lease might have on the environment and community services, as well as the economic impact on the area. Presumably, if the adverse impacts of leasing a tract are sufficient, the Secretary of the Interior may decide to prohibit leasing. Unless the upmost priority is attached to early coordination between

DOE's responsibility to establish Federal production levels and Interior's responsibilities to treat environmental and socio-economic problems on a lease-by-lease basis, the actual orderly implementation of Federal coal policy in relation to National needs could become extremely difficult if not impossible.

In summary, Mr. Chairman, we believe that the Secretaries of Energy and the Interior should work closely during the next few months to (1) improve coal leasing data; (2) define "maximum economic recovery" and establish guidelines for its implementation in the estimating process; and (3) take some fundamental steps to relate the amount of Federal coal required to meet National goals to any program of renewed leasing. These three items form a critical continuum, each one dependent to some extent on the satisfactory resolution of the other two. We believe, in the absence of the satisfactory resolution of these three items, that the Federal Government will be precluded from adequately determining the future role to be played by coal now under lease and from properly planning future production and lease schedules in relation to National needs. We believe that these items are the critical ones upon which Interior and DOE should focus a priority effort as they attempt to define a sound Federal coal leasing policy.

FEDERAL COAL LEASING AMENDMENTS ACT OF 1975

I now would like to turn to other matters, especially the Federal Coal Leasing Amendments Act of 1975.

Reserve Estimates

In one review we are completing, we selected from Interior records the top 20 leaseholders based on estimates of recoverable reserves. These leaseholders controlled about 75 percent of the total estimated recoverable reserves on leases as of September 1976 and included 219 of the 537 outstanding Federal leases. We analyzed Interior's estimates by comparing them with those made by the 20 leaseholders and by examining the leaseholders' supporting documentation and estimating methodologies. With the assistance of a geologist consultant, we also independently computed in-place and recoverable reserve estimates on four leases and compared our estimate to both Interior's and the leaseholders'.

In the aggregate, the amount of recoverable coal computed by Interior was 22 percent, or about 2 billion tons, more than the recoverable coal computed by the leaseholders for the 219 leases. However, on 21 leases, Interior's estimates were more than 100 percent higher; and on 13 leases, the leaseholders' estimates were more than 40 percent higher. These wide variations existed between Interior and leaseholder estimates because of differences in estimation methodology and because Interior generally considered some underground coal in its estimates whereas leaseholders generally only included surface mineable coal. Our analysis showed the existence of greater in-place and recoverable reserves than estimated by either Interior or the leaseholders.

We identified several additional underground seams, but no additional surface seams. The additional underground seams are located 400 to 1,000 feet below the surface, and contain an estimated 82 million tons of coal, which could be classified as recoverable. We made no attempt to exclude underground seams based on economics or safety, both of which could reduce recoverable tonnage. However, our point is that a significant amount of underground coal exists which neither the leaseholders nor Interior carried in their records.

Interior's estimating criteria require that economics be considered in determining recoverable reserves, but do not specify the type or source of such information. We fo that Interior does not use specific economic factors in making its reserves estimates. In fact, most of the estimates were made in 1973 within a 30 day period, and were based on the judgment of individual mining supervisors and their staffs rather than on a detailed analysis of all available geologic data. Estimates for only 31 of the 219 leases included in our review have been updated since 1973; these were updated in 1975 and 1976. None of these later estimates were based on specific economic factors.

Production Requirements

Our work also showed that

--190 of the 219 leases had no coal produced before 1977;

--leaseholders had submitted mining plans for 118 leases;

--Interior had approved mining plans for only 31; and

--Interior may take about one-third longer to approve mining plans than before.

Leaseholders did not prepare mining plans for 101 of the 219 leases. Reasons given include

--leases were still under exploration;

--attempts to market the coal were unsuccessful;

--coal was being held as inventory for internal use; and

--reserves were insufficient to be marketable.

Diligent development and continued operation requirements of the Federal Coal Leasing Amendments Act of 1975 should go a long way toward resolving the problem of timely development of Federal leases because the law will require production and continued operation by 1986 on all existing leases or forfeiture of the lease. Once again, however, proper enforcement will depend on reasonably accurate and credible reserve estimates because the requirements are based on Interior's estimate of recoverable reserves. For example, the leaseholders' recoverable reserve estimates for 77 of the 219 leases reviewed exceed Interior's recoverable reserve estimates by 1.4 billion tons. If the leaseholders are correct, use of Interior's estimates would result in lower development requirements totaling about 34 million tons by 1986. Likewise, continued operation requirements would be understated by about 14 million tons annually.

Fair Market Return to the Public

Several provisions of the Federal Coal Leasing Amendments Act of 1975 were designed to help insure a fair market return to the public--including an all-competitive leasing system, a minimum royalty, and readjustment of the terms of the lease more frequently than every 20 years as in the old law.

In an April 1976 report and related testimony on the Federal coal leasing program, we noted that there were serious deficiencies in the quantity and quality of the resource, reserve, and economic data available for Government use in valuing coal areas. As I said earlier, our recent work indicates that the situation has not changed; data needed to make credible valuations are still inadequate. We recognize that many factors in the tract valuation process cannot be quantified with certainty, but we believe that the process must be improved if the fair market return provisions of the Act are to function as designed. Improvements call for collecting site-specific information on economically recoverable coal reserves. As noted in our nearly completed review of the estimates for Federal coal leases, this type of information is still not available on a site-specific basis.

Concentration of Holdings

A major effort in the United States' energy policy should be to maintain competition in the energy sector of the economy to assure the most efficient production and allocation of our

scarce energy resources. We are currently completing a study at the request of senator Abourezk on the state of competition in the coal industry. In that study, which will be completed in a few weeks, we note that the Federal Government owns over 40 percent of the demonstrated reserve base in the Western markets and represents the major source of coal deposits available for new entrants into this market. Therefore, Federal leasing policy has and will continue to have a significant impact on an individual firm's ability to enter the coal industry as a competitor.

Given the large amounts of coal controlled by the Federal Government in the Western markets, it is very important that the procedures set forth in the Federal Coal Leasing Amendments Act of 1975, which are designed to establish and assure the competitive posture of these markets, be vigorously implemented. Under this Act, the Secretary of the Interior is required, with the assistance of the Attorney General, to determine the competitive impact of a lease on the coal industry and to use Federal coal lands to promote competition. In addition, by limiting the amount of coal reserve that can be held by any corporate entity and requiring the use of a deferred bonus bidding system, the Act will help to decrease the level of reserve concentration and give smaller firms greater access to Federal reserves. Through proper implementation of the authority granted under this Act, the Secretary of the Interior can selectively determine who should or should not

be granted a lease. If any company or group of companies appeared to be gaining market power, the Federal Government could control this power by leasing to new entrants or other less "threatening" companies.

Although we have not reviewed the plans of the Secretary of the Interior or the Attorney General to implement this Act, we feel that, through passage of this Act, the Congress has already taken an important step to insure a healthy state of competition in the coal industry.

Mr. Chairman, that concludes my comments on coal leasing policy, the status of the leasing program in the Department of the Interior, and the role to be played by DOE. I understand that the Subcommittee is also interested in the social and economic impacts and water and transportation requirements caused by Western coal development. At this time, I would like to comment briefly on each of these areas.

AMELIORATION OF SOCIAL AND ECONOMIC IMPACTS

Earlier this year, we reported to the Congress on the need for Federal assistance to Rocky Mountain communities affected by development of the region's vast sources of largely untapped energy. I would like to very briefly summarize the conclusions of that study because I believe they are valuable in making energy decisions and decisions on the need for additional assistance for all areas that will be affected by energy resource development.

Most socio-economic effects can be ameliorated if communities can plan and fund facilities and services before the rapid development occurs. Many communities cannot handle the impacts by themselves, however, so they look toward the industry and their State and the Federal Government for assistance. On a nationwide basis, these costs might be as high as $4.4 billion by 1985, and another $10.5 billion between 1985 and 2000.

Some States have enacted legislation intended to mitigate the effects and, in a few cases, industry has provided assistance. The Federal Government, however, has provided the greatest amount of assistance and recently has enacted three laws which will provide much more. While we recognize that Federal involvement is necessary to mitigate the localized effects of National energy development, we believe the increased funding provided by the three laws is currently adequate to fulfill this obligation. For example, it is likely that the Rocky Mountain States will receive in excess of $2 billion from the Federal Government to provide the estimated $1.9 billion to $2.9 billion in public facilities and services needed by 1985 for these purposes.

State and local governments should be primarily responsible for providing the necessary facilities and services. While there is no evidence that the Federal Government should interfere in these activities, there should be some assurances that impacted communities will receive funds. We believe this

could be accomplished if one Federal office were established to (1) provide State and local officials with advice on the availability of all Federal assistance programs, and (2) monitor and periodically evaluate the need for additional Federal assistance to communities affected by energy development.

Transportation Requirements

Railroads carried 65 percent of the Nation's coal during 1975, and they will continue to be the principal coal transporters in the forseeable future.

Other transportation modes also will expand as part of the total transportation system. However, these other modes are ultimately limited by physical, economic, and/or environmental constraints.

The Nation's inland waterway system, for example, carries over 100 million tons of coal each year, and is the cheapest transportation mode. However, the system does not directly serve many areas scheduled for major coal development.

Trucks cannot compete with railroads because of costs. In 1974, truck costs per ton-mile were estimated to be five times higher than railroad costs.

Coal slurry pipelines appear to be economically competitive with railroads. However, pipelines require enormous amounts of water at the point of shipment--a key constraint in arid western coal fields. There is also a problem of disposing of the effluent at the destination. Pipelines also face a big legal hurdle in trying to assemble rights-of-way, often over property owned by the railroads.

We believe that the Nation's transportation system can be expanded to meet expected needs. In part, this conclusion reflects the transportation industry's confidence that transport facilities can be put into place as fast or faster than than new mines can be opened and new boiler capacity installed.

Water Requirements

Western coal development is greatly dependent on the supply of water. Enormous amounts of water are needed for all phases of coal development--mining, reclamation, transportation, and energy conversions. Unfortunately, certain parts of the West are either in short supply of water or the water that is available is already fully allocated, though not necessarily fully utilized.

Water availability is governed by State and Federal laws, interstate compacts, international treaties, and Indian treaties. All these agreements and allocations deplete the water supply "on paper," even though the water is not necessarily physically depleted. In some areas, coal development will almost certainly mean sacrificing an existing water use or an environmental effect that leads to social cost. In any event, water may not be available for full coal development in the West because of reluctance to convert water rights from existing uses. As a result, coal may have to be shipped to other geographic areas where water is more plentiful.

Where Do We Go From Here?

It should be obvious to everyone by now that the United States in the long term must develop the inexhaustible sources

of energy for any sustained economic growth and, in fact, for our very survival. Domestic oil and gas supplies are being depleted rapidly and international sources have certain security of supply problems. We must make plans and act now on how we are going to get from our present energy base, which relies primarily on oil and natural gas, to an energy base which uses renewable sources. We must act now because it is not possible to do this overnight.

Again, it seems obvious that conservation, nuclear, and coal are going to have to be the stepping stones to a renewable energy base and, in fact, will need to be the cornerstones of our immediate energy policy.

My testimony here of course is directed at the coal issue, and particularly at the leasing program. The important point to remember is that the leasing program should be designed and implemented always keeping in mind the ultimate goal of developing renewable resources and that coal is going to have to play a very important near- and intermediate-term role as a stepping stone.

In two recent reports to the Congress, An Evaluation of the National Energy Plan and U.S. Coal Development--Promises, Uncertainties, we have addressed these issues and have concluded that, if coal is to immediately help reduce our dependence on oil imports and relieve pressure on our dwindling domestic oil and natural gas reserves, then certain Federal actions will be necessary.

We pointed out that the administration's plan deals with some of the constraints to increased coal use, but does not deal effectively with transportation, productivity, and other constraints to achieving 1.2 or even one billion tons of coal production and use in 1985.

In the near term (through 1985), coal is not only supply constrained, but is also demand constrained in the sense that utility and industrial users are not going to buy coal if they cannot use it. Although we will be looking at the demand constraints outside our efforts with the coal leasing program, our coal leasing efforts will be directed toward monitoring the program to help eliminate unnecessary supply constraints. We will specifically be monitoring:

--The previously mentioned three key points of (1) adequate resource and reserve data, (2) maximizing economic recovery, and (3) coordinating Interior and DOE planning for future leasing and production.

--Potential delays in the Federal leasing program due to required implementation of the National Environmental Policy Act at the various stages of the leasing schedule, and other delays which might impede implementation of the schedule.

In the medium term (1985-2000), coal is demand constrained. The possibilities of direct substitution for oil or gas are very limited on an economy-wide basis. The prospect for indirectly substituting coal-generated electricity, while more promising, also is limited by economics and the current state of industrial and transportation technology.

Over a longer term (beyond 2000), coal seems to be both supply constrained, especially in terms of low-sulfur and

metallurgical coal, and demand constrained. We believe the very long-term prospects for increased coal demand ride on the hope that coal gases and liquids will become environmentally safe and economical.

These, then, are the major physical and economic limits of the coal solution.

If maximum coal output and consumption can be achieved within these limitations, the tradeoffs will be costly, particularly in terms of human life and disease. These tradeoffs can only be considered tolerable when viewed in the broader context of the Nation's inadequate oil and gas resources as well as the risks and limits of nuclear power.

Indeed, the coal tradeoffs are important enough to reemphasize the need for vigorous energy conservation--not as an alternative to coal, but to temper somewhat coal's very high social and economic costs.

Because of the long leadtimes to translate Government policy and action into actual coal production and consumption, we believe it is realistic to assume that government policies set in motion now will have some effect by 1985, but the greater impact will be in the 1985-2000 period.

On the demand side, the best answer to the Nation's energy bind is conservation, through increased efficiency and decreased use.

On the supply side, there is no question that coal will become a key player in the Nation's energy future. So will

foreign oil and nuclear power. Domestic oil and Natural gas will decline and probably have to be restricted to optimum end uses such as home heating, etc. The use of solar and other renewable energy sources will increase slowly, and will initially only be a complement to other fuel types. But, the day will come when renewables will be all we have. Government policies must reflect this situation.

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That concludes my prepared statement, Mr. Chairman. I will be happy to answer any questions.