Southern Utah Coal: The Railroad Challenge

by Jeff Brinton

Introduction

It was almost two years ago that the Union Pacific Railroad Company, in conjunction with a consortium of coal and utility companies, first publicly disclosed that a preliminary feasibility study was underway considering the possible construction of a railroad line to serve coal fields located in the southern Utah area. At that time, two alternative routes were being projected for accessing the Kaiparowits Plateau (see Figure 1). Each alternative alignment required approximately 200 miles of new trackage. As originally intended, the proposal was to have been progressed as quickly as possible so as to allow for completion of the rail line by June, 1986. This date coincided with the date by which the federal coal leases were required to be in production in accordance with diligent development regulations contained in the Federal Coal Leasing Act Amendments of 1976.

Union Pacific's interest in the southern Utah area was due to a variety of factors, including an acknowledgement both of coal's expanded role in this nation's (and the world's) energy future, and of the tremendous potential of the Kaiparowits Plateau, which contains one of the largest undeveloped bodies of high-quality coal in the United States. This was combined with a belief that the transport of this coal resource in raw form to outside markets by rail would be environmentally preferable to either mine mouth electrical generation, mine mouth synthetic fuel conversion, or slurry transport utilizing valuable water resources; and, of course, Union Pacific's existing lines were ideally positioned to tap Kaiparowits coal.

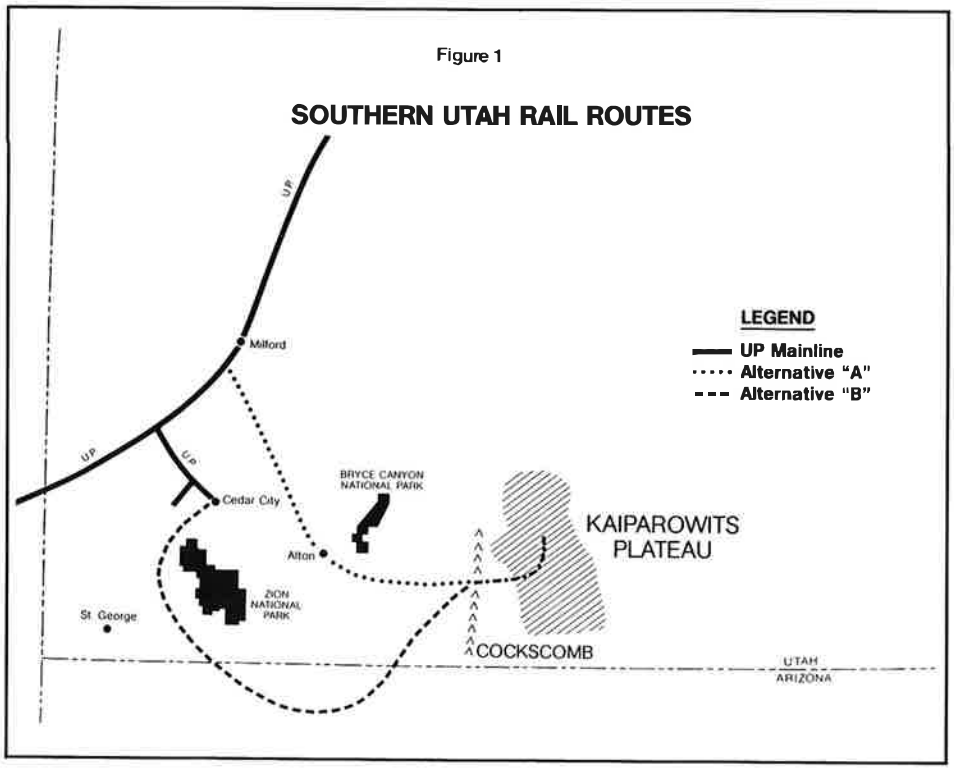
While the opportunities were readily apparent, it was also realized that the proposed undertaking would present a series of challenges, some of them formidable. Not the least of these was the task of laying 200 miles of track through the sometimes difficult terrain of the Colorado Plateau. The magnitude of the project was reflected in its cost—the total estimated cost of the main access line with one branch line, based on 1978 dollars, ranged from $317 million to $350 million. Added to this was the financial commitment required on the part of coal developers to develop the associated underground mining complex. No less imposing was the challenge of balancing energy resource values with environmental values in an area well known for its natural amenities. And, finally, there were a number of difficulties inherent in the coordination of the diverse and sometimes competing interests of the respective mining, transportation, and utility companies.

Given the complexities noted above, it is not surprising that the ambitious time schedule originally proposed has not been met. In spite of this delay, there have been significant positive developments which impact on both the environmental and economic feasibilities of the project and which, therefore, are directly related to the status of the proposal at the present time. These developments are briefly reviewed in the following sections.

Kaiparowits Coal Development and Transportation Study

Not long after the rail line proposal and associated coal developments were announced, the federal and state governments joined forces to sponsor a broad-brush environmental feasibility study of potential coal-related activities in the

Figure 1



southern Utah area. In essence, the effort was designed not only to supplement previous environmental studies such as the Southern Utah Coal EIS (1979), but also to provide a general planning document upon which critical decisions relating to the Plateau's future could be based. It was envisioned that detailed site analyses would be conducted at a later time in conjunction with specific mining plans and applications for rights of way.

A consultant, Environmental Research and Technology, Inc., of Fort Collins, Colorado, was selected to perform the environmental analyses. In addition, the Five County Association of Governments headquartered in St. George, Utah was responsible for the analysis of socioeconomic impacts under an arrangement with the state of Utah. A federal-state steering committee guided the work effort. In August of 1980, after approximately one year of study, the report was released to the public. Three levels of coal production were analyzed in the report: a low production level of 5 million tons per year, a medium production level of 54 million tons per year, and a high production level of 84 million tons per year. Several transportation corridors and transport modes were also studied.

While ERT's study refrains from "making value judgments about the desirability of coal development or the acceptability of impacts," it does suggest that sizable tonnages of coal can be mined and transported from the Kaiparowits region without violating present environmental regulations, if proper mitigating measures are applied. However, some degradation of the environment and socioeconomic problems would accompany development and this is indicative of the trade-offs which are to be expected. The significance of these impacts would depend primarily upon the level of coal production and the type and location of coal transportation facilities.

The effects of regional coal development and transportation on the socioeconomic environment were also studied and were found to have both positive and negative elements. Positive impacts would include increased money in the local economy, a larger tax base, more employment opportunities, and less moving away of young local residents in the eligible work force. On the negative side, the large population increases projected for some communities could result in concomitant increases in the tax rate structure, the need for major capital outlays to provide for basic community services (possibly in advance of any substantial growth-related revenue increases), and substantial increases in the cost of living. With a large influx of residents from outside areas sociocultural changes in the communities could also occur.

The findings of the study indicated that significant quantities of coal could be developed and transported from the southern Utah region while maintaining acceptable levels of environmental quality. With its regional and integrating perspective, the ERT study fills a void in the planning process which otherwise might not have been provided. It supplies a foundation which now can be used in conjunction with other supporting evidence to chart a course for the Kaiparowits area. It will also help guide the advanced planning effort which will be required to minimize the adverse socioeconomic impacts.

The transportation corridors studied are realistic and should help focus and expedite further study efforts and site-specific analyses. However, it should be cautioned that any tendency towards a rigid delineation of these corridors should be rejected in favor of a more flexible approach which will recognize that changing circumstances and opportunities may lead to new or modified alignments.

Assuming the steering committee is continued, as is recommended by ERT, to ensure that "appropriate interangency coordination and future planning efforts are implemented," it would be strongly advisable to explore the possibility of involving one or more representatives from the coal mining and transportation industries in the committee's work.

Transportation Corridors and the Wilderness Review Program

Rail access to the coal-rich Kaiparowits Plateau is complicated for several reasons, including both institutional and physical constraints. With respect to the former, it may be said that the Plateau is literally encircled by several state and federal recreation areas, both existing and proposed. Just as constraining is the extremely rugged terrain of the region which severely limits the number of corridors which railroads can successfully utilize.

For those seeking to access the Plateau from the West, the Cockscomb stands as a very real geologic barrier. Only one suitable corridor through this barrier has been found by our engineers—the Paria Box. Here the Cockscomb is breached by the Paria River, which forms a natural corridor through the rugged terrain. This route would permit the construction of a rail line with a maximum grade of 1 percent against the loaded movement, a practical necessity for unit coal trains.

Because of the criticality of this corridor, its proposed inclusion within an area of land designated for wilderness study poses a serious threat to the viability of a rail transportation option. This obstacle was the most significant potential constraint to rail transportation identified in the ERT study. The concern was expressed as follows: "Designation of the Paria Box as a wilderness study area would severely restrict the development of a rail line to Milford or Cedar City. Engineering and economic constraints at a different crossing of the Cockscomb could be prohibitive." Because of the potentially serious nature of this constraint, the wilderness review program and its possible ramifications on coal transportation are summarized below.

Section 603 of the Federal Land Policy and Management Act of 1976 directs the Secretary of Interior to determine which public lands have wilderness characteristics (as described in the Wilderness Act of 1964), and to report to the President his recommendations as to the suitability or nonsuitability of each such area for preservation as wilderness. It is the Bureau of Land Management's responsibility to develop these required recommendations and to forward them to the Secretary who will, in turn, submit them to the President (before the 1991 deadline). The President must then report his recommendations to Congress by 1993. Only Congress can designate an area as wilderness. To aid in carrying out its wilderness mandate, the BLM has developed a wilderness review process with three phases: inventory, study, and reporting.

In November of 1980, after completing the inventory phase and scrutinizing the public comments received the Bureau issued its final decision on the Wilderness Study Areas (WSA's). In summary, the decision included the Paria Box corridor within a WSA unit, thus providing interim protection and preventing rail construction. The final WSA decisions were sched-

uled to take effect December 15, 1980, assuming no protests were filed. However, protests were received on all units in the Kaiparowits area, and these were considered by the Utah state director. The state director's decisions are now being reviewed by the Department of Interior Board of Land Appeals (IBLA) following normal administrative procedures.

In any event, the next phase of the wilderness review process is scheduled to begin shortly. During this study phase, all resources and activities will be evaluated and considered in relation to each other.

In light of the importance of the aforementioned transportation corridor, and since the acreage in question is small, and only minor adjustments in WSA boundaries would be needed to resolve the conflict, it is hoped that some accommodations will eventually be reached concerning the Paria Box. However, it is also important that the decisions regarding wilderness suitability be made in a timely fashion.

BLM has already indicated its willingness to study and resolve the status of "high resource conflict areas" well in advance of the 1991 deadline. Under its proposed policy, BLM plans to process studies relatively quickly on sensitive areas such as energy sites and transportation routes. Those studies will be done as amendments to existing land management plans. Recommendations could then be presented to Congress as they are developed rather than waiting to present one comprehensive proposal as occurred under the Forest Service's RARE II experience. BLM has projected that each amendment could take about two years to complete, so that recommendations could begin to flow as early as 1984. They will soon publish a schedule for completion of studies on each WSA.

If development of Kaiparowits Plateau coal reserves is to become a reality, provisions must be made for transportation access. And, while actual mining and transportation activities may be several years distant, a reasonable basis for planning should be provided now. The concern is that the ongoing wilderness review process may delay the processing of applications for rights-of-way across Federal and state lands; and if the Paria Box and other key corridors are finally included in wilderness areas, that this may prevent rail access and, hence, development of the Kaiparowits Plateau even though such development would not be precluded on other environmental grounds.

Domestic Coal Markets

The economic feasibility of southern Utah rail transportation was originally linked almost completely to domestic markets in the Pacific Southwest. The single largest potential market was envisioned to be southern California. It was believed that California, with its dependence upon oil and gas for electrical generation, would be forced to turn to other fuels in order to provide both for new growth and replacement of existing facilities. National energy policy and price considerations were viewed as contributing factors. Because of the uncertainty surrounding nuclear plant construction and the scarcity of suitable new hydroelectric sites, the coal option was considered to be a practical necessity. Air quality constraints were viewed as a possible negative factor, but it was believed that coal-fired plants could be built in selected areas of the state which would comply with all applicable standards. The southern California desert contained several prime sites.

Potential markets in Arizona, Nevada, and central California were also identified. When the utility and industrial markets in these areas were combined with southern California, total demand amounted to over 50 million tons by the year 1995, climbing to over 100 million tons after the turn of the century. Kaiparowits coal was deemed a strong competitor in several of these markets.

While many of the original premises upon which the projected demand was based still hold true, there have been new developments which affect the outlook for domestic markets. Over the last few years, the growth in electrical demand has slowed, both in these markets and elsewhere. Conservation measures, together with more efficient load management techniques and the application of cogeneration, which have been spurred on by

rising energy prices, are thought to have played a role in this, along with a general downturn in the economy. In any event, it appears that within the timeframes considered here, the need for new generating capacity will be somewhat less than once expected. Also affecting the outlook for coal are new policies on the part of utilities which emphasize the development of power sources which are renewable rather than finite. Southern California Edison Company, the largest utility in the southern California area, has recently announced such a policy change. Wind, geothermal, solar, and fuel cells are among the renewable resources which will play a role in meeting future electrical demand.

Nevertheless, for Southern California Edison Company and other utilities, coal will play a part in the total mix of fuels upon which new capacity will be based during the decades of the 1980s and 1990s. The size and timing of its contribution will depend to some extent on the speed with which the alternate resources program can be implemented. Efforts to accelerate conservation and alternate energy programs will be neither easy, nor certain, nor cheap.

In addition to the demand from utility power plants, there will also be industrial markets in the Pacific Southwest. Industrial consumers are considering obtaining their coal supplies by rail either directly from the mine to the plant, or through delivery to a bulk handling facility from which trucks would distribute to the plant.

Also encouraging are the proposals to locate synthetic fuels plants (using coal) in the southern California area. Significant quantities of coal would be required to operate these facilities. Again, the high quality and abundant reserves of the Kaiparowits Plateau, combined with its locational advantages, make the area a logical source of supply, were transportation available.

Export Coal Markets

The long-term outlook for export markets in the Pacific Rim area, once thought to be marginal, is presently causing a flurry of excitement. Part of the reason for this excitement is the fact that, beginning in April of last year, Western U.S. steam coal started moving into Far Eastern markets for the first time. As of the end of 1980, approximately 1 million tons of steam coal had moved over the Union Pacific system on its way to Far East consumers. Shipments originated in central Utah, western Colorado, and southern Wyoming and moved through the West Coast ports of Los Angeles and Long Beach. Most was destined for industrial consumers in Taiwan, Japan, and Korea. Some short-term contracts have also been signed with these users. Long-term contracts involving substantially greater tonnages will await development of the coal-fired electric generating capacity which is scheduled to occur starting in the mid-to late-1980's. What is the nature of this long-term export potential and how does it relate to the southern Utah area?

Japan is said to represent the world's fastest growing coal market. Steam coal imports should grow from a few million tons per year currently, to in excess of 40 million tons by 1990. Industrial coal use will push total 1990 imports to well over 50 million tons per year.

When Japanese demands are combined with those of other major consumers such as Taiwan and Korea, and the lesser demands of other Pacific Rim nations, the totals are even more encouraging. The World Coal Study (1980) projected a total demand for the Far Eastern region of approximately 44 million tons per year by 1985, expanding to 95 million tons per year by 1990. A report released by the Interagency Coal Export Task Force (directed by the Department of Energy) contains similar estimates of the Pacific Rim demand. Others have been even more optimistic for the long term, projecting total 1990 imports of over 100 million tons per year.

There is a potential for significant contributions from the United States. Two fundamental reasons have commonly been offered: a desire by Far Eastern countries to diversify coal supply sources so as to protect themselves against disruptions, and a desire to improve the balance of trade with the United States.

Far Eastern countries themselves have projected that up to one-fourth or one-third of their total demand could be supplied by U.S. sources. While there are several Western fields in competition, Utah must be viewed as a leading candidate because of its location and the quality of its reserves—both of which will have a favorable impact on its price competitiveness. Location is particularly important since suitable Western coals are found several hundred miles inland, and land transportation costs will be an important element of the overall delivered costs.

Before this export potential can be realized, Pacific Rim nations must be assured of a dependable supply chain. With respect to southern Utah, mining and transportation infrastructures must, of course, be developed. In addition, and this is important regardless of the source, adequate port facilities must be made available. Presently, the only two bulk loading facilities on the West Coast are located at the Port of Los Angeles and the Port of Long Beach. It is through these outlets that exports are now moving. Combined capacity of these ports is presently limited to about 5 million tons per year annual throughout, far below the level of expected exports.

A remaining obstacle to the full realization of export potential will be eliminated when the current "chicken-and-egg" stalemate is broken. That is, foreign customers are awaiting assurances that supply, transportation, and logistics systems will be developed and in place before entering into long-term contract agreements. Meanwhile, producers, transporters, and port developers are awaiting long-term contracts to justify the sizeable capital investments which are required to develop the infrastructure. An encouraging sign is the apparent willingness of some, including prospective foreign customers, to financially support this development and to thereby provide the necessary impetus to break the deadlock.

Expediting Applications for Right-of-Way Grants

Before significant quantities of coal can begin moving from southern Utah to either domestic or export markets, a major transportation system must be constructed. Any such system will require right-of-way applications and other government permits.

Coordination (which implies both communication and understanding) among the various federal, state, and local agencies, which are either directly or indirectly involved, from the very earliest stages of preapplication activity, may be the single most important factor in expediting the required procedures and processes. At appropriate stages of the application process, public participation is also vital. Every attempt must be made to avoid wasteful

or duplicative effort on the part of applicant and agency alike. The following paragraphs contain a brief description of the various application processes, as they now stand, together with some suggestions for improvement. The emphasis is on the environmental review process. It will be seen that there are already several provisions which, if properly followed, can serve to expedite this review.

In the case of major new rail construction, the transportation company would file with the Interstate Commerce Commission (ICC) an application for a certificate of public convenience and necessity. The application would contain, in addition to several informational items pertaining to the applicant and the proposed project, an Environmental Report. Generally stated, the environmental report should contain a description of the environmental effects of the proposed actions and alternatives which are also to be considered. Impacts on air and water quality, transportation systems, land use plans, energy, noise, safety, wildlife, historic sites, and communities are among those to be addressed. Prospective applicants are encouraged to consult with the Energy and Environmental Branch of the ICC before beginning work on the environmental report; but in any event, contact should be made at least six months prior to the date an application is to be filed.

The application for a right of way across federal lands is to be filed with the Bureau of Land Management simultaneously with the filing of an application with the ICC. As with the ICC's application, there are several informational items which would be presented, such as: the applicant's qualifications and financial capabilities, a detailed description of the project, and the lands to be included in the right of way. Insofar as an environmental submission by the applicant is concerned, the BLM regulations are less precise. Under the BLM's right-of-way rules early contact with the agency is encouraged so that "potential constraints may be identified, the proposal may be considered in land use plans, and processing of an application may be tentatively scheduled." This "preapplication activity" is important since it presents an opportunity for the applicant and the agency to sit down together and discuss the requirements and procedures to be followed. It is also intended that coordination with federal, state, and local government agencies be initiated at this time. Once the application is filed and reviewed by the agency, an environmental analysis would be conducted.

Fortunately, there are provisions in the BLM's right-of-way regulations for appending or referencing pertinent information from other applications in the right-of-way application so as to minimize duplication. Presumably, this accommodation would apply to the environmental submission as well as to certain other parts of the application. A genuine opportunity is therefore presented for coordination of the respective applications. Through early consultation with the agencies, and the coordination between the federal agencies themselves, the applicant would be assured of an environmental submission which would serve double duty.

The concept of preapplication teamwork is logical given the fact that, once the applications are filed, the agencies would be required to work together in progressing the environmental analysis required under the National Environmental Policy Act of 1969 (NEPA). In this regard, it is assumed that the construction of a rail line to access southern Utah coal fields would require the preparation of an environmental impact statement (EIS). Either the Bureau of Land Management or the ICC would bear primary responsibility for preparing this document. Generally, the lead agency would be designated by agreement among the agencies themselves. The Council on Environmental Quality (CEQ) would be called upon to make the selection should a dispute arise.

Regardless of which agency assumed the lead, it would be a distinct advantage to have, at the outset, as complete an environmental documentation as possible. With this in mind, the applicant's own environmental submission should be designed to help expedite the agencies' preparation of an EIS. Therefore, special care must be taken to assure that the submission contains a thorough treatment of the environmental issues and that it is prepared in such a manner that its accuracy is evident and easily verifiable, since the lead agency would otherwise be under no obligation to incorporate its data and findings into the EIS. Needless to say, this would require considerable consultation with both the ICC and BLM during its preparation.

One factor which could serve to limit the participation of the BLM in this process, and thus partially undermine the value of the environmental submission, is the cost reimbursement provision found in the Bureau's right-of-way regulations. Simply stated, an applicant for a federal right of way is required to reimburse the agency for administrative and other costs incurred in processing the application, including the preparation of reports and statements pursuant to NEPA. Because of this, the preapplication guidance it is permitted to render a prospective applicant may be severely curtailed. It is suggested that procedures be developed in advance to eliminate this potential barrier. The fact that an applicant must reimburse the BLM for the environmental analysis it (the agency) conducts in conjunction with the preparation of an EIS underscores the importance of maximizing the usefulness of the applicant's initial environmental submission.

Although the above comments have centered on the roles of the ICC and the BLM, it should be noted that several other federal, state, and local agencies will also play vital roles in the environmental review process. Furthermore, in addition to the right-of-way grant across federal lands and the certificate of convenience and necessity, several other permits and approvals may need to be acquired for rail line construction, including: Utah Division of State Lands—right-of-way across state lands; U.S. Corps of Engineers—Section 404 permits; Federal Communications Commission—permits for communication system components; State Department of Transportation—permits to cross state highways; State Engineer—permits for water use during construction; State Department of Environmental Health—various permits depending on proposed ancillary facilities; local governments—building permits. All of these efforts must be coordinated and progressed simultaneously if the establishment of a transportation system in southern Utah is to become a reality.

Summary and Recommendations

The long-term prospects for Western coal reserves generally, and for southern Utah coal in particular, have been enhanced by the export market potential attributable to Pacific Rim countries. Certainly, much ground work will need to be laid in order to take advantage of this opportunity. At a minimum, an adequate min-

ing, transportation, and port infrastructure must be provided. This will require that the current "chicken-and-egg" syndrome be overcome through the willingness of all participants to commit financial backing. In addition, alliances must be formed, uniting government and industry, that are dedicated to furthering coal exports and expediting resolution of the attendant obstacles and problems. An example of such an alliance is the relationship that currently exists between the Western Governor's Policy Office (WESTPO) and the coal industry. WESTPO has opened channels of communication linking American and Far Eastern industries and is actively promoting the development of an expanded coal export business. Activities similar to those in which WESTPO is engaged will be critical to the realization of export coal trade.

Questions regarding the environmental feasibility of mining development and of rail line construction and operation have been partially answered by the BLM-sponsored Kaiparowits Coal Development and Transportation Study. We now know that sizeable tonnages of coal can be mined and transported from the Kaiparowits region without violating present environmental regulations, if proper mitigating measures are applied. As might be expected, there are tradeoffs, including some degradation of the environment and socioeconomic problems. Here the study serves another purpose, it provides a foundation which now can be used, in conjunction with other supporting evidence, to chart a course for the Kaiparowits area and to help guide the advanced planning effort which will be required to minimize these impacts.

One serious question which remains unanswered involves the interface of coal development with wilderness areas. The inclusion of a critical rail transportation corridor (The Paria Box) in a wilderness study area is one cause for concern. Although the prospects for a resolution of this conflict during the study phase of the wilderness review process seem good, the timing will be crucial. It is vital that the study of "high resource conflict areas" such as the Paria Box be accelerated to the greatest extent possible. Without these decisions, there cannot be a reasonable basis for planning. And, while actual mining and transportation activities may be several years distant, this basis is needed now.

To expedite applications for rail line construction, there must be a concerted effort to coordinate the required environmental analyses and other reporting requirements of the BLM and the ICC and other agencies from whom approval must be obtained. In many cases, there are already provisions designed to accomplish this objective, and these should be applied. It may, however, be necessary to modify provisions which stand in the way of this coordination. Specifically, some arrangement should be devised to allow the BLM to be consulted at length during the preparation of an environmental submission prior to the filing of a right-of-way application.

Without transportation access, the development of Kaiparowits Plateau coal reserves cannot become a reality. The rail option makes sense of several reasons—such as its ability to move large volumes of coal while avoiding adverse impacts on an area's water resources. Adaptability and flexibility are also characteristics unique to railroads and further justify the rail option as one particularly well-suited to serve as the primary means of transporting coal from the Plateau.

Certainly, the challenges are great. For this reason, and the fact that governmental processes are both complex and time-consuming, progress in advancing the cause of southern Utah development has been slow. Nevertheless, there is some favorable news. A recent policy decision by the Department of Interior provides for a possible five-year extension of the diligent development requirement for federal coal leases issued prior to August 4, 1976. This may help to compensate somewhat for the delays. It does not mean that planning efforts can be relaxed, nor does it mean that resolution of potential wilderness conflicts can be delayed.