

Western Resource Transport — a multipurpose pipeline

by Walter E. Fite and
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Western Resource Transport addresses many problems that have defeated previous attempts to tap vast Powder River Basin and other coal reserves by pipeline.

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Western Resource Transport — a pipeline that will link the vast Powder River Basin coalfields with a port on the Pacific Coast — is now in planning. Western Resource Transport is a concept for an approximately 1,180-mile-long liquid carbon dioxide/coal slurry pipeline which will be operational in 1990. Initial capacity for the line running from near Gillette, Wyoming, to Long Beach, California, will be 10 million tons of coal per year, with an increased capacity of 15 million tons per year in 1995. Aquatrain, Inc., of Tulsa, Oklahoma, and the U.S. Department of the Interior's Bureau of Reclamation are cooperators in this project which will also address the government's need to control Colorado River salinity.

Project participants believe the pipeline may be very significant to the ailing coal industry and the Nation's economy as it provides the opportunity to increase western coal production. Currently, the coal industry is depressed due to high freight costs which often double the price of delivered coal and discourage sales in the international marketplace. Western Resource Transport can carry coal at lower costs, making U.S. coal again competitive in export markets and stimulate development of this currently under-utilized resource. By conservative estimate, Pacific Rim consumers

could save 20 percent on coal (\$50 to \$60 million per year) compared to current supplies from Australia and South Africa. The U.S./Japanese balance of trade would also be enhanced through this project.

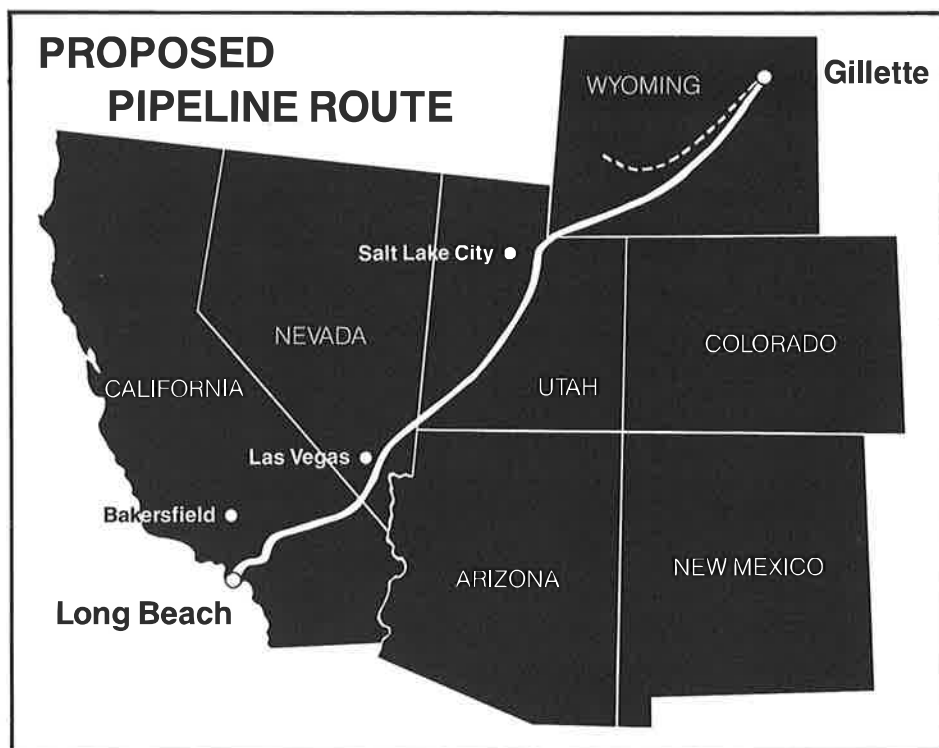
Western Resource Transport addresses many problems that have defeated previous attempts to tap vast Powder River Basin and other coal reserves by pipeline.

- The pipeline is not in competition with railroads. Rail transport of large volumes of coal to the Port of Long Beach is difficult or impossible due to social and environmental impacts.
- The pipeline will not be a water-based slurry line and will therefore avoid the social, environmental, and political problems of water supply and disposal arrangements associated with such systems.
- The pipeline will not require Federal eminent domain legislation for rights-of-way. The project is working directly with individual states to secure eminent domain.

Due to these features, Western Resources Transport is expected to be built on a fast-track schedule with a broad base of support.

For shipment in Western Resource Transport, Powder River Basin coal will





be pulverized to consistencies ranging from as fine as talcum powder to as coarse as granulated sugar. In the process, approximately 20 percent of the coal's moisture will be removed, increasing its heat value. A slurry mixture of 75 percent coal and 25 percent liquid carbon dioxide by weight will be shipped through the line by use of an origin pump station and ten intermediate stations. At the terminus, the slurry mixture will be separated and coal will be stored in silos until loaded on tankers for export. The carbon dioxide can be marketed for enhanced oil recovery at the pipeline's terminus in the Los Angeles Basin, making this a dual-commodity system. Injection of liquid carbon dioxide into wells will allow producers to recover more oil, reducing the need for foreign imports and improving the balance of trade.

Pipelines separate from the liquid carbon dioxide/coal slurry line will carry saline water from sources to points of beneficial use to help Federal and state governments meet objectives for improving Colorado River water quality. Salt damage now robs agricultural, municipal, and industrial water users of more than \$90 million each year, and that figure will more than double after the turn of the century. The pipeline can divert harmful water before it enters the

river and carry it to locations for uses such as powerplant cooling, oil shale recovery, and potash solution mining.

The cooperation between the public and private sectors in the project began in 1980 when private industry proposed the concept of a coal transport line using saline water as the carrier medium. In 1982, Aquatrain, Inc., and the Bureau of Reclamation entered into a cooperative agreement to jointly study the possibility. Subsequently, liquid carbon dioxide has replaced saline water as the medium due to its greater efficiency and fewer environmental and social impacts. Reclamation is studying possible uses for saline water in Wyoming, Colorado, and Utah and will identify feasible opportunities in 1985.

Western Resource Transport is now in the formative planning stage. To date, feasibility-level market research, designs, cost estimates, and financial analyses have been completed. The anticipated cost to develop, design, and construct the liquid carbon dioxide/coal slurry line over a 5-year period (1985-89) is \$1.16 billion for the 10-million-ton-per-year system. An additional \$121.8 million would be required for the 1993-94 expansion to 15 million tons per year. Not included in these estimates are funds for saline water features. Detailed financial analyses for those features will

be performed during 1985 as studies and planning progress. Letters of intent from other firms for private capital to finance the project and is pursuing supply and market commitments for coal and carbon dioxide.

The general pipeline alignment will run from the Powder River Basin near Gillette, Wyoming, diagonally across Wyoming to the proposed Rocky Mountain Pipeline Project corridor near Evanston, Wyoming. From the southwest corner of Wyoming to the southwest corner of Utah, the pipeline traverses Utah following the Rocky Mountain Pipeline Project corridor. The route continues southwest through Las Vegas, Nevada, then follows designated utility corridors through the California desert to San Bernardino. The pipeline joins the route proposed for the PACTEX Pipeline Project to the Port of Long Beach. The highly congested areas of metropolitan Los Angeles are traversed following public and utility rights-of-way and facilities such as streets, power lines, gas pipelines and flood control channels.

The pipeline parallels existing rights-of-way or established utility corridors for more than 90 percent of the route. Of the 1,180-mile length, 650 miles (55 percent) are on Federal land, 35 miles (3 percent) state, and 495 miles private (42 percent). Project participants are work-

ing closely with involved states on an individual basis, and Federal eminent domain legislation for rights-of-way will not be required. The Bureau of Land Management and Forest Service will assist Reclamation in acquiring rights-of-way on Federally-administered land. Total time to acquire most rights-of-way is estimated to be 21 months.

BLM, through an agreement with the Bureau of Reclamation, identified and evaluated possible corridors for the pipeline. The Forest Service also participated extensively in the study of corridors in National Forests. The study assessed alternative routes to link project area sources and markets, including supplies of coal, carbon dioxide, and saline water; beneficial use points for saline water; and potential coal export sites.

BLM completed the study and published a February 1984 report recommending a series of corridors and routes for further consideration during environmental impact statement scoping. The report discusses other corridors which were considered but eliminated as not meeting project needs. Descrip-

tions are included for studied corridors, as well as plans and concerns regarding physical resources, natural resources, and land use. Corridor widths ranging from several hundred feet to 10 miles were studied to avoid sensitive areas when actual routes are selected at a later date. Maps included in the report illustrate each corridor studied.

The study identified several potential concerns relating to land use, environmental, and social issues, such as:

- In southern Nevada, a pipeline crossing the Las Vegas Valley area would create local concerns about environmental impacts and land use restrictions. Seven routes through the Las Vegas Valley area were analyzed.
- Corridors entering southern California will cross the California Desert Conservation Area and will be confined to designated energy and utility corridors. Environmental (air quality), social, and land use concerns are expected to be high for corridors crossing the Los Angeles Basin to a California port.

- Corridors crossing National Forest system lands should be confined to designated utility corridors. If a route were selected outside designated corridors, amendments to Forest Service land and resource management plans would be required, along with development of acceptable mitigation for proposed changes.

The study did not evaluate corridors as far north as the Powder River Basin, as the origination point for the pipeline was first selected to be near Rock Springs in southwestern Wyoming. BLM will perform a study supplement to include the intervening area. Current findings show that the area is virtually open and the pipeline would largely follow existing corridors.

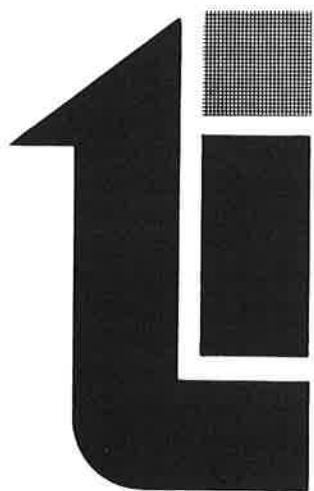
Copies of the corridor study report may be obtained by writing: Saline Water Transport and Use Office, Bureau of Reclamation, ERC-190, P.O. Box 25007, Denver, Colorado 80225.

Additional corridors may be identified and studied as the pipeline concept progresses through planning and precon-

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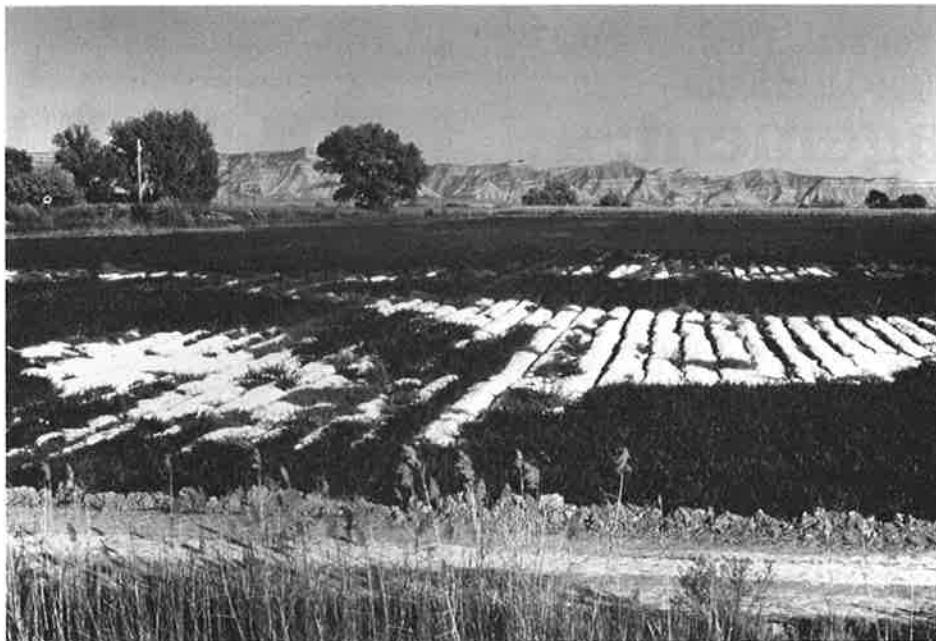
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Salt deposits along the proposed corridor.

struction phases. Preferred corridors and alternatives will be selected based on feedback from further studies and public meetings in the project area.

To date, Reclamation and Aquatrain, Inc., have conducted numerous informal meetings and briefings to identify public and environmental group concerns associated with the project. These concerns have been taken into account in formulating the project, and through this effort, many potential undesirable aspects have been eliminated or minimized. Also, the potential has been reduced for unknown concerns surfacing during preparation and review of the project environmental impact statement which could cause considerable cost increases and time delays. Reclamation and Aquatrain will continue to identify concerns with formal EIS scoping and an active public involvement program through construction. Reclamation will prepare the project EIS, satisfy all National Environmental Policy Act requirements, and obtain Federal and state permits. These activities will be done in parallel and are scheduled to run from January 1985 through December 1986.

Also scheduled to begin in 1985 are design and construction of a demonstration facility to confirm the liquid carbon dioxide transport technology. The feasibility of this technology has been

established by a small pilot test loop, and a commercial-size demonstration system is needed to obtain design, operation, and maintenance data. The facility will be sited at an existing powerplant, and discussions with other groups have been initiated to determine possible cooperation.

Western Resources Transport is a pioneering effort between the public and private sectors, joining the respective talents and resources of each to achieve benefits for the Nation. Incorporation of the diverse needs and desires of government, industry, and the public will lead to a viable project with widespread support.

Enhancements

(cont. from pg. 17)

substitution of a hard-surfaced road for a gravel road enhanced land value and is considered special benefits. (Herndon V. Pulaski County). (Ball V. Independence Count 217 S.W. 2d 913) (Bridgman V. Baxter County 148 S.W. 2d 673).

Each jurisdiction within which the appraiser works may be different and it is the appraiser's responsibility to find out what conditions apply to each project being appraised. The best way to find out about these conditions is to discuss with the attorney involved the points of law that affect the appraisal.

Opportunity

(cont. from pg. 5)

paper money of very high value but no significant weight. Who should pay the most? Does the landowner share in the potential profit of all highway users? Of course not, and no one would suggest such an idea and be considered legitimate.

Newly coined titles like "opportunity cost doctrine" are catchy. They seem to acquire validity with mere use. Further when men of letters prepare articles for magazines which present only a biased accounting principle with inapplicable examples, we are lulled into the belief that such may be reasonable.

No one likes to lose his land or land rights to expropriation. Due to the development of valid utilities, which are constructed for the good of all, we accept the notion. Our legislators have control, through valid laws, to protect against indiscriminate taking of lands and the gaining of huge profits. We do not need creative accounting techniques to complicate this process.

The market value approach to land value has some problems and limitations. Recently in Canada the government enacted legislation to provide in part for such problems. It too has limitations, however, it does afford the owner of potential pipeline or power line right-of-way with a means to protect against future losses. The notion is one of periodic payment based on market value and renegotiable every 5 years. With a properly applied term of payment and interest rates to reflect average business conditions such an approach would protect the owner who believes his long-term interests have been lost.

Finally, in the process of obtaining right-of-way for a linear project it is conceded by experienced landmen that equitable treatment of adjacent owners is imperative to both obtaining easements and for good ongoing relationships. The "opportunity cost doctrine" absolutely defies the principle of equal treatment. By its name it is "opportunistic" and not realistic.

Experienced and knowledgeable land people should neither condone nor accept such narrow and ill-conceived doctrines. Neither the profession nor the public would be so served.