

Western Resource Transport — a multipurpose pipeline

by Walter E. Fite and
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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



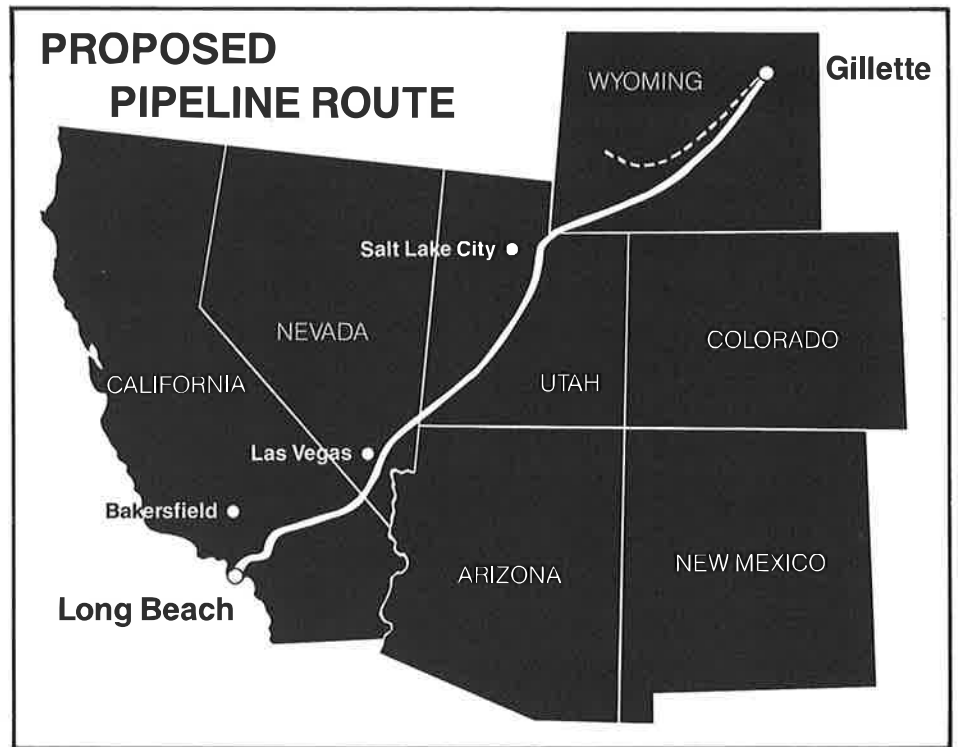
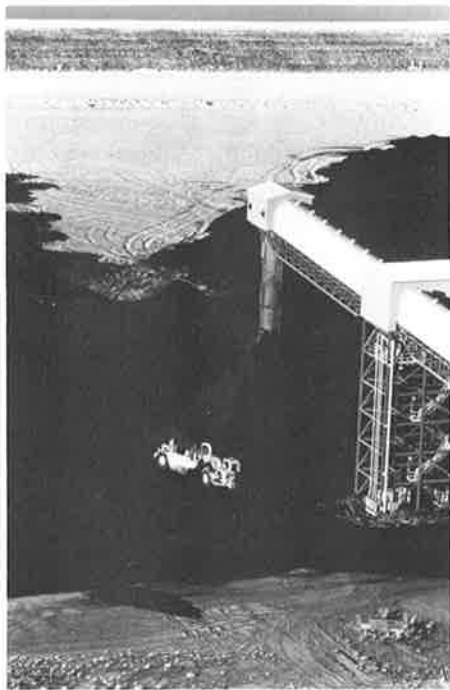
could save 20 percent on coal (\$50 to \$60 million per year) compared to current supplies from Australia and South Africa. The U.S./Japanese balance of trade would also be enhanced through this project.

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-