

# Electrification: One Answer To Rising Fuel Costs

By Jack Martin

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America's freight railroads, which already use only a small percentage of the petroleum consumed by U.S. transportation modes, could cut that percentage even more in the future—yet continue to do the vital job they do now.

How? By electrification of high traffic density segments of their systems, using power generated by the nation's virtually inexhaustible supply of coal.

"Coal is America's energy ace-in-the-hole, and railroads and their potential for electrification can be regarded as something of a national transportation insurance policy," states Thomas J. Lamphier, senior vice president-transportation policy and analysis. "We are fortunate that—all transportation modes—railroads can be electrified readily. Moreover, coal can be used directly for power generation, whereas it would have to be converted into oil and gas for use in trucks and barges—and conversion is as yet a relatively uncertain and uneconomic process."

Railroads consume only about three percent of the petroleum used by U.S. transportation, but handle more than 36

percent of the nation's intercity freight traffic.

But tightening supplies of diesel fuel and sharp increases in its cost are prompting Burlington Northern (BN) and some other railroads to look anew at the possibility of electrifying some lines. For BN, the move would probably involve its main coal train routes, Lamphier said. The railroad carried about 80 million tons of low sulfur coal from western mines to electric power plants last year and expects to haul more than 100 million tons in 1980.

At one time, electrified train service was rather extensive in this country.

"In the half century following the first electrified train service in the 1890s, 20 railroads had electrified more than 6,000 miles of line," Lamphier said. "But the diesel engine brought all the advantages of the electric locomotive without the maintenance worries of electrified track, and the fuel was very cheap. So, electrification passed into railroad history, for the most part; today, only about 1,200 miles of railroad are electrified."

That is the smallest percentage of electrified railroad of any major industrialized country, representing only about one half of one percent of U.S. rail mileage. In contrast, electrification is extensive in Europe,

Lamphier said. Switzerland has the highest percentage, with 99 percent of its rail system electrified, and the Soviet Union has the most miles of electrified track, about 18,000. France is building a line for a train that will run at almost 200 miles per hour from Paris to Lyon, with the electricity for it coming from nuclear power plants.

BN first looked at electrification several years ago. The cost of it was high then and is higher now because of inflation—"the gross investment would be about \$780 million for 740 miles of line," Lamphier said. But, he added, "we are examining electrification because fuel prices have reached the level at which electrification would present an attractive return on investment."

BN's fuel costs have climbed about 70 percent in just the past year.

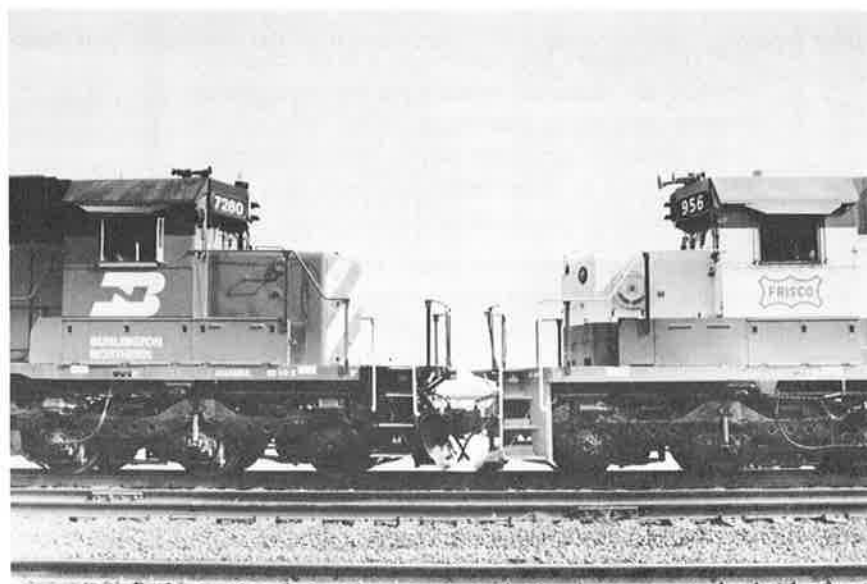
Should BN go to electrification, Lamphier said, it probably would be done—appropriately enough—on the company's heavily-used coal routes, such as that from Lincoln through Alliance, Neb., and into the coal fields of Wyoming and Montana. In addition to building the catenary—the system of poles and lines—substations would have to be built, signals and communications modified and electric locomotives purchased, he noted.

## Burlington Northern Merges With Frisco

Burlington Northern and St. Louis-San Francisco Railway (Frisco) merged late in 1980. A joint Burlington Northern-Frisco study team began investigating the potential benefits of this unification on February 1, 1977, and on December 5 of that year the team filed an application with the Interstate Commerce Commission, according to a news release.

The merger was approved unanimously in April 1980; however, the Missouri-Kansas-Texas Railroad Co. asked the Fifth Circuit Court to grant a stay. This was lifted November 21 and a second stay was imposed until November 25, 1980.

The Frisco Region has been formed and 4,600 miles of track are now part of the total Burlington Northern system (29,200 miles).



**Merger**—The Burlington Northern and St. Louis-San Francisco Railway (Frisco) have merged.