

APPENDIX B POTENTIAL COAL SUPPLY, TRANSPORTATION, AND
CAPITAL GOODS CONSTRAINTS

A. COAL

Coal requirements for the Synthetic Fuels Commercialization Program will obviously vary according to the production level selected. What is important to note is that under any scenario the level of coal consumption is significant.

Specifically, under the information program coal requirements for synthetic crude, High Btu gasification, and low Btu gasification will range from 30 to 50 million tons per year. For the one million barrel program and the 1.7 million barrel program coal consumption is estimated to range from 110-160 and from 210-300 million tons per year respectively. These requirements will generally impact in the early 1980's. Coupled to this one must consider the conversion of oil-fired utilities to coal which is primarily being carried out along the East Coast. Coal requirements for conversion in the utilities sector for the 1979-1981 time frame are estimated at some 40-50 million tons. Assuming industrial conversion of similar magnitude coal requirements could range from 40-60 million tons in the 1979-1982 time frame. Finally, there is an estimated 70,000 MWe of new coal-fired capacity planned to come on line prior to 1981. This level of capacity would require approximately 190 million tons per year of coal. All of the aforementioned requirements for increased production are being placed on a sector of the economy which may be ill prepared to supply the output levels necessary to accompany this level of expansion.

The coal mining industry is still waiting for a clear signal from the Federal Government that coal will be considered a specific energy source for the future. To illustrate, the 1980 estimate for coal production was 839 million tons and was based on an update of the Project Independence Report for the Business-As-Usual scenario. This estimate has been adjusted downward based on the difference between the 1970 BAU projection of 685 million tons and what appears will be an actual 1975 projection of 615-635 million tons. The significance of this is that essentially the relatively modest growth rate projected in coal tonnage has so far turned out to be optimistic.

For 1985, the Project Independence Report (PIR) estimated coal production at 1.2 billion tons. This projection represented the BAU scenario and for the accelerated production scenario it was estimated at some 2.0 billion tons.

A recent detailed study performed by the MITRE Corporation stated that constraints on coal production may be so great that production may range somewhere between 960 and one million tons by 1985, unless steps are taken in the immediate future to remove the constraints of both a political and environmental nature.

The most important elements of uncertainty specified by the MITRE Corporation were:

- ° The outcome of the controversy over environmental regulations.
- ° Oil import levels and prices.
- ° Natural gas deregulation and prices.
- ° End-use control of natural gas.
- ° Federal leasing policy for Western coal
- ° The financial position of the utility industry.

The significances of the aforementioned constraints of the Synthetic Fuels Commercialization Program is that, with all the competing demands placed on the coal mining sector, a classic demand-pull inflationary situation may be created leading to intolerable coal price increases. Therefore, the Federal Government and the appropriate state bodies must be careful to avoid placing demands on the coal mining sector which cannot be attained while maintaining relative price stability.

B. RAIL TRANSPORTATION SECTOR

The rail transportation sector faces a number of difficulties which may inhibit coal development unless immediate action is taken. Coal production in 1973 totaled 591 million tons. Coal transported by rail in 1973 amounted to approximately 380 million tons with the resulting earnings constituting 10% of total rail freight revenues for 1973. By 1985, the United States may double coal production to 1.2 billion tons with 700 to 750 million tons to be transported by rail or about double the existing capacity. Expanded railroad service is thus essential to the development of coal over the 1975-1985 period. However, the ability of the railroad industry to double coal traffic is in doubt for several reasons:

1. Rail Bed Conditions

Due to deferred maintenance schedules, primarily the result of an increasing financial squeeze, rail bed conditions are very poor. Freight trains on some lines, particularly along the East Coast, are limited to intolerable low speeds (8 mph) over some routes.

2. Railroad Abandonments

The United States Railway Association (USRA) Preliminary System Plan proposes abandonment of some 6,000 miles of track, including 1,300 miles of coal branch lines. These abandonments would be virtually irreversible (the right-of-ways would be sold) thus effectively isolating coal reserves in many areas and impeding development of increased coal production.

3. Shortage of Hopper Cars

Since 1950, the number of open-top hopper cars has declined about 38% while the aggregate capacity has declined almost 18%. Coupled with this decline in capacity is a growing increase in daily hopper car shortages occurring in class-one railroads. In 1970, the shortage averaged 286 cars per day, by 1973 the shortfall was some 2,000 cars per day, and by the middle of 1974 the shortages averaged more than 5,000 cars per day.

While a reduction in coal movements in early 1975 due to a buildup in stockpiles has temporarily reduced hopper car shortages, future shortages appear inevitable if coal capacity continues to decline.

The current hopper car fleet is about 350,000 cars. It must be expanded to about 600,000 cars to meet the production goal of 1.2 billion tons in 1985. This means that new hopper car deliveries will have to average more than 40,000 cars per year to keep up with depreciation and increasing demand. However, in 1973 hopper car deliveries were only 3,098, in 1974 deliveries amounted to only 7,162 units, while orders in 1974 were for 25,000 cars.

4. Utilization of Rolling Stock

Overall hopper car utilization by railroads is poor. The average load-to-load cycle time was 13.3 days for coal cars in 1973. A much more rapid turnaround is enjoyed by cars in unit trains where the average turnaround is about six days by which 20% of coal now moves. Increased use of unit trains might also reduce freight rates which represent up to 30% of coal costs. (A unit train is defined as a coal train of approximately 100 cars that is never disbanded and carries at a minimum one million tons/year between one mine and one end-user in constant rotation.) The Interstate Commerce Commission has a regulation pending which would outlaw railroad-owned unit trains.

C. CAPITAL GOODS BACKLOG

Bureau of Mines information indicates approximately a two-year backlog for most coal-mining equipment with a four-year backlog for draglines (used for strip mining operations). The National Coal Association also indicates a backlog problem except that they estimate the backlog to be little more than a year for most coal-mining equipment (excluding draglines). Peabody Coal in St. Louis, reports that most underground mining equipment today can be delivered within six months. The exception to this would be equipment involving electric motors and speed reducers. The foundries and casings in this type of machinery are producing delays on ground 38 to 52 weeks.

From the above information, the Federal Energy Administration has concluded that the industries making coal-mining equipment have a large enough block of orders that immediate delivery on most mining equipment is impossible. As a result, the Synthetic Fuels Commercialization Program, the conversion of existing utilities and industrial users, and new coal-fired plants intended for construction may be imperiled due to the inability of the capital goods sector capacity to expand in the near-term. If in the event firms attempted to get their equipment at earlier dates, in all probability, a rising level of prices for most capital goods would occur. This would result in a diminution of the "real" purchasing power of the mining firms in turn resulting in a rising level of coal prices.