# SECTION 9

## ENERGY BALANCE

The overall energy balance is illustrated in Figure 9-1. The results indicate that the energy value of products is approximately 820 billion Btu/day, which represents about 74% of the energy contained in the feed coal.

Figure 9-2 presents a simplified summary of the projected overall thermal efficiency factors including power generation, heat rate based on fuel gas, along with the process products and byproducts.

Figure 9-3 presents the thermal efficiencies for the process operations and for power generation separately. The process thermal efficiency, including the manufacture of fuel gas, is 74%. The power generation efficiency, based on the apportioned fuel gas required to generate the net electrical power for sale of 970 MW, is 43%.

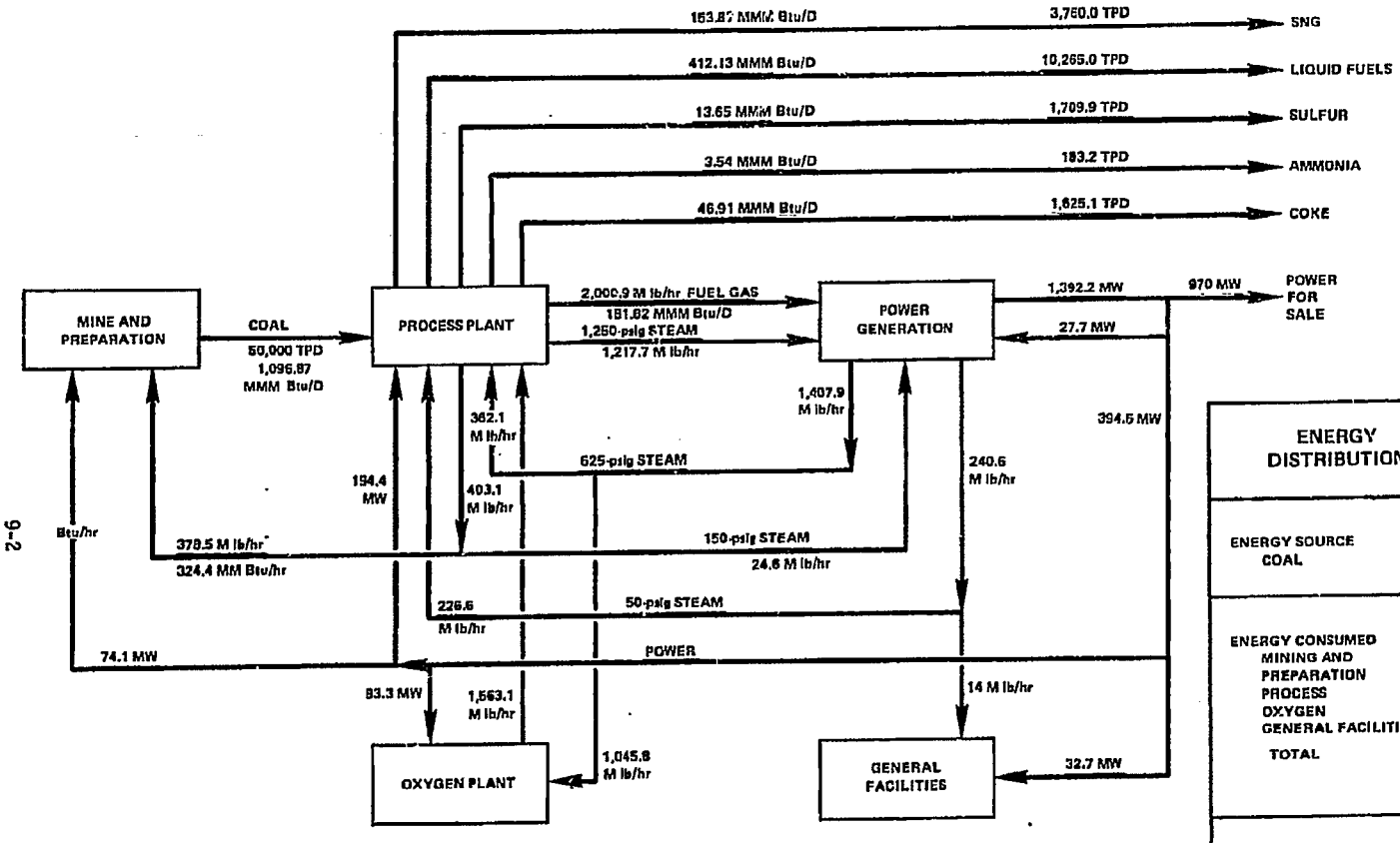



Figure 9-1 - Energy Balance

| ENERGY DISTRIBUTION | BILLION Btu/D | PERCENT |
|---|---|---|
| ENERGY SOURCE | | |
| COAL | 1,096.87 | 100 |
| ENERGY CONSUMED | | |
| MINING AND PREPARATION | 23.50 | 2.15 |
| PROCESS | 210.43 | 19.19 |
| OXYGEN | 38.03 | 3.47 |
| GENERAL FACILITIES | 7.28 | .66 |
| TOTAL | 279.33 | 25.47 |
| ENERGY VALUE OF PRODUCT | | |
| SNG | 153.97 | 14.03 |
| LIQUID FUELS | 412.13 | 37.57 |
| SULFUR | 13.65 | 1.24 |
| AMMONIA | 3.54 | .32 |
| COKE | 46.91 | 4.28 |
| FUEL GAS TO STEAM & POWER | 181.82 | 16.58 |
| TOTAL | 811.92 | 74.02 |

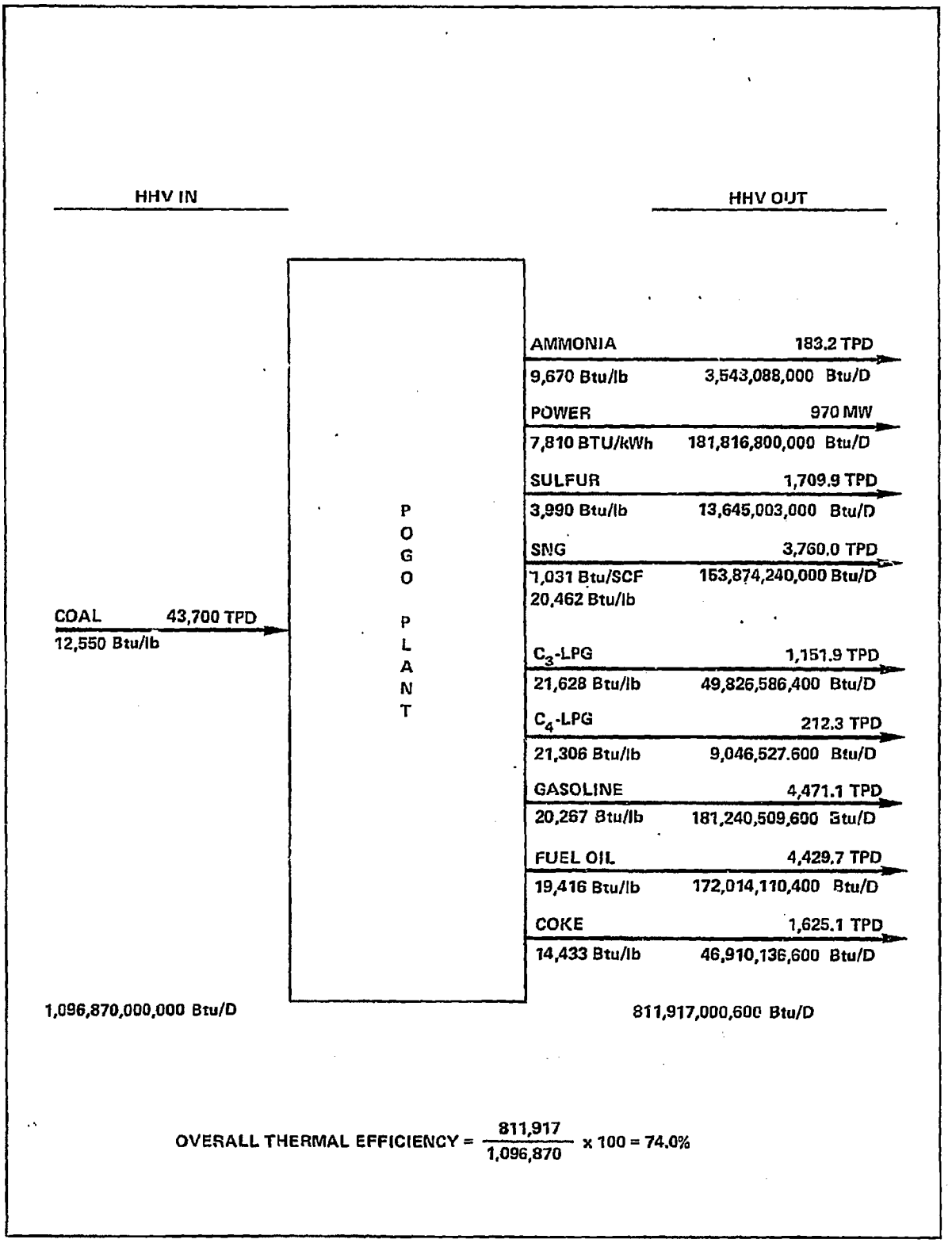
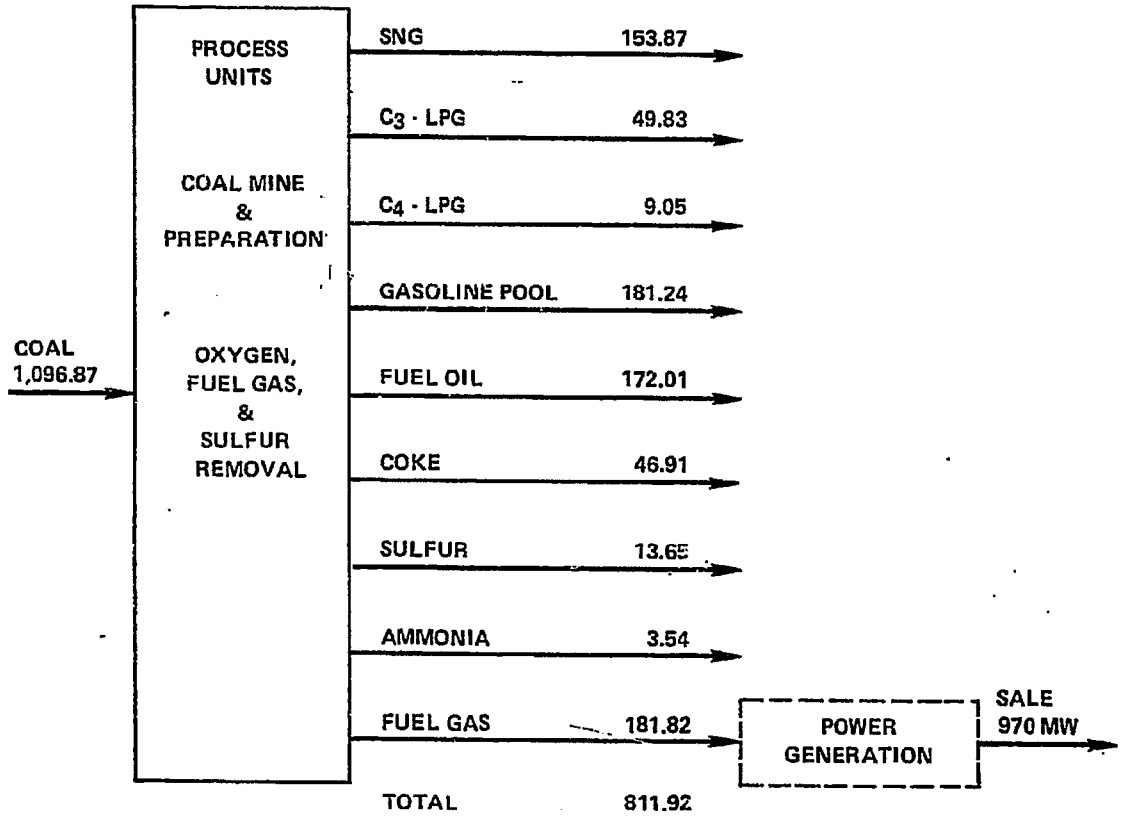



Figure 9-2 - Overall Thermal Efficiency




ALL FIGURES ARE MMM Btu/D HHV

PROCESS THERMAL EFFICIENCY:

$$\frac{811.92}{1,096.87} \times 100 = 74.0\%$$

POWER GENERATION EFFICIENCY (BASED ON GAS)

$$\frac{970,000\ kW \times 24 \times 3,413\ Btu/kWh}{181,820,000,000} \times 100 = 43.7\%$$

Figure 9-3 - Projected Thermal Efficiencies