

CHAPTER X

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Mineral Resources

The major commitment of resources is the mining and consumption of 1.5 billion tons of coal by 1990. This represents 12 percent of the known present economically strippable coal reserves in the Eastern Powder River Coal Basin.

Large amounts of clinker, sand, gravel and other types of aggregate material will be used and for all practical purposes is irretrievable. The total amount to be used in the study area by 1990 is unknown but will be over 1.5 million cubic yards.

In the southern part of the study area, some minor amounts of uranium resources could be irreversibly committed. Commitment would occur to the extent that dilution of mineralized rock during coal mining prohibits recovery.

Water Resources

In areas where the coal or overlying material is saturated, aquifers will be permanently removed by mining.

If large quantities of ground water are pumped from thick Tertiary and Cretaceous age sand and shale aquifers, part of the water will come from shale and there could be some irreversible subsidence. Areas of subsidence would be local and would be restricted to well fields where considerable (several hundred feet) dewatering and draining of the shale beds took place over a period of years.

Although some water will be recycled, such as for cooling purposes, much of the water used for generation of power and for gasification plants will be consumed. By 1990, water use associated with coal development in the area will amount to 49,620 acre-feet per year. The coal slurry pipeline will be removing an estimated 15,000 acre-feet of water annually from the study area.

Cultural Resources

Any destruction of archeological or paleontological values will be an irreversible commitment of resources.

Aesthetics

The present natural state of the study area will be irreversibly and irretrievably committed to change. The change will be one to industrialization which for all intents cannot be reversed once it occurs.

Lost Production

At the present time, production on the railroad route and coal leases is primarily forage and browse utilized by domestic livestock and wildlife. From the assumptions basic to this report and data contained elsewhere herein, it is possible to estimate production losses. It must be emphasized that these figures are rough estimations only.

For purposes of this analysis, the following assumptions were made:

- 35% of coal mined is from an area where a loss of 4.3 acres equals one AUM.
- 65% of coal mined is from an area where a loss of 6.5 acres equals one AUM.
- No production on disturbed areas.
- On reclaimed areas 50 percent production loss will occur.

Total areas to be disturbed and reclaimed are shown on Figure 6, Chapter II. The total AUM loss over the period from 1975 through 1990 is 33,200 AUMs* of livestock forage.

By 1990, an estimated 7,100 acres of land will have been removed from productivity by plant facilities, roads, and railroads. Their occupancy should be considered permanent and thus an irreversible and irretrievable commitment of land.

Addition of an anticipated 2,400 acres of residential and commercial development by 1990 would result in an estimated 9,500 acres being irreversibly and irretrievably committed to uses other than presently exist on the land. This change will mean a permanent loss of wildlife habitat and grazing land. Displacement of all animal species from this land will occur.

*AUM -- animal unit month. A measure of forage of feed requirement to maintain one cow or 5 sheep for a period of 30 days.

Loss of Power and Materials Used for Development

Extraction of coal, construction of a railroad and reclamation of disturbed areas will require a commitment of liquid fuels, electric power, manpower, machinery and a myriad of lesser items such as blasting chemicals, paper, seed, etc. This material and effort will be irretrievably lost to other uses. However, to the extent these resources would be employed in energy development elsewhere to meet projected national demands, this commitment to development of Eastern Powder River Coal can be considered in the nature of a transfer rather than an incremental commitment of resources.

Loss of Life

Fatal accidents will occur which are related directly to the physical activity of strip mining coal and are considered on-the-job accidents.

Secondary, however, will be a variety of occurrences which will be fatal to human life which occur not because of direct mining activity, but as a result of increased human interaction from population increases. Historical trends for all types of on-the-job fatalities could be cited as they could for a multitude of other fatal occurrences. The point is not so much how many will occur, because projected future fatality rates are at best speculative, but that they historically do occur and they will continue to occur as a result of coal development. An unquestionably irreversible and irretrievable commitment of human resources will be lost due to strip mine accidents, traffic accidents, possible train accidents, murders and suicides. Regardless of the impetus or fault of any of these, they are all irreplaceable losses and there will be more of them than previously occurred in the basin area.

Based on fatal accident rates experienced in the strip mining industry during 1972, the latest figures readily available, an employee will suffer a fatal accident for every 14.3 million tons of coal produced. By 1990, as many as 108 people can be expected to have lost their lives in mining coal. Based on 1972 rates, disabling injuries can be expected to occur at the rate of 9.24 per million man hours worked. Differences in mine method and attention to safety precautions could induce departures from expected rates in the future.