

APPENDIX G

ECONOMICS

TABLE G-1
 PRESENT VALUE OF FUTURE AVERAGE GROSS SALES FROM ONE ACRE
 COMPARED TO POTENTIAL COAL ROYALTIES FROM ONE ACRE IN
 THE MONTANA POWDER RIVER REGION

	<u>Winter Wheat</u> <u>a/</u>	<u>Alfalfa Hay</u> <u>a/</u>	<u>Coal</u> <u>b/</u>
Average Gross Value/Acre <u>c/</u>	\$ 90.26	\$122.06	\$866.07
Interest Factor <u>d/</u>	4.3552	4.3552	.9091
Present Value	\$393.10	\$531.60	\$787.34

a/ Assumes that coal leasing would occur on acreage devoted to one of the two most extensively harvested crops in the Montana Powder River Region. See Table G-5.

b/ From Table G-3.

c/ Based on 1979 average gross values. See Table G-6.

d/ Derived from the formula $\sum_{t=1}^n (1/1+k)^t$, where n equals 6, in the case of the crops, or 1 in the case of the coal. This assumes 1 year for mining and 5 years for reclamation. k, the costs of capital, is assumed to be 10 percent in all cases. Stated simply, the formula calls for a summation of all quantities obtained as t is changed from 1 through n.

TABLE G-2
1979 CROP PRODUCTION AND CATTLE INVENTORY IN
POWDER RIVER AND ROSEBUD COUNTIES COMPARED TO
MONTANA AND THE U.S.

	Bushels Per Acre	Total Production Million Bushels
Barley		
Big Horn County <u>a/</u>	40.0	.69
Powder River County <u>a/</u>	22.5	.11
Rosebud County <u>a/</u>	45.0	.29
Montana <u>a/</u>	39.0	40.56
U.S. <u>b/</u>	50.6	378.07
Corn (Grain)		
Big Horn County <u>a/</u>	76.0	<u>c/</u>
Powder River County <u>a/</u>	---	---
Rosebud County <u>a/</u>	78.0	.08
Montana <u>a/</u>	77.0	.39
U.S. <u>b/</u>	109.4	7,763.77
Oats		
Big Horn County <u>a/</u>	57.0	.12
Powder River County <u>a/</u>	31.0	.05
Rosebud County <u>a/</u>	48.0	.08
Montana <u>a/</u>	39.0	5.46
U.S. <u>b/</u>	54.4	534.39
All Wheat		
Big Horn County <u>a/</u>	25.6	2.00
Powder River County <u>a/</u>	24.3	0.98
Rosebud County <u>a/</u>	25.2	1.07
Montana <u>a/</u>	22.7	116.48
U.S. <u>b/</u>	34.2	2,141.73
All Hay		
	Tons Per Acre	Million Tons
Big Horn County <u>a/</u>	2.26	.17
Powder River County <u>a/</u>	1.37	.09
Rosebud County <u>a/</u>	2.04	.09
Montana <u>a/</u>	1.80	4.29
U.S. <u>b/</u>	2.39	145.88
Cattle Inventory		
	January 1, 1,000 head	
Big Horn County <u>a/</u>	115.6	
Powder River County <u>a/</u>	77.6	
Rosebud County <u>a/</u>	86.1	
Montana <u>a/</u>	2,607.0	
U.S. <u>b/</u>	110,864.0	

a/ USDA, 1980a.

b/ USDA, 1980b.

c/ Less than 10,000 bushels.

TABLE G-3
 AVERAGE COAL RESERVES PER ACRE AND POTENTIAL COAL
 ROYALTIES PER ACRE IN THE MONTANA POWDER RIVER REGION

Recoverable Reserves (Million Tons) <u>a/</u>	2,427.3
Coal Acreage <u>a/</u>	56,053
Average Recoverable Reserves/Acre (Tons/Acre)	43,404
Royalty Per Ton <u>b/</u>	\$.02
Average Gross Royalty Per Acre	\$ 866.07

a/ Derived from Table 1-1 in Chapter 1.

b/ Assumes Annual Royalty Payments of 2 cents per ton of coal mined, based on a range of 2 cents to 35 cents per ton of coal mined for regional landowner lease agreements.

TABLE G-4
 GROSS RECEIPTS PER ACRE FROM LIVESTOCK AND CROPS IN THE
 MONTANA POWDER AND RIVER REGION

Livestock and Livestock Products

Gross Receipts <u>a/</u>	\$73,492,900.00
Rangeland (Acres) <u>b/</u>	6,460,824
Average Gross Receipts/Acre	\$ 11.38

All Crops

Gross Receipts <u>a/</u>	\$22,725,000.00
Croplands (Acres) <u>b/</u>	635,544
Average Gross Receipts/Acre	\$ 35.76

a/ USDA, Montana Department of Agriculture, 1980.

b/ From Table 3-3 in Chapter 3.

TABLE G-5
ACRES HARVESTED BY CROP IN 1979 IN THE MONTANA
POWDER RIVER REGION a/

<u>Crop</u>	<u>Acres Harvested</u>
Winter Wheat	138,500
Durum Wheat	300
Spring Wheat <u>b/</u>	22,000
Barley	28,400
Corn	10,500
Sugarbeets	4,810
Dry Beans	900
Oats	5,300
Alfalfa Hay	140,300
Other Hay	39,900

a/ USDA, Montana State Department of Agriculture, 1980.

b/ Excludes Durum Wheat.

TABLE G-6
AVERAGE GROSS VALUE PER ACRE FOR THE TWO MOST EXTENSIVELY
HARVESTED CROPS IN THE MONTANA POWDER RIVER REGION IN 1979

	<u>Winter Wheat</u>	<u>Alfalfa Hay</u>
Total Value <u>a/</u>	\$12,501,300	\$17,126,100
Acreage Harvested <u>a/</u>	138,500	140,300
Average Gross Value/Acre	\$ 90.26	\$ 122.06

a/ USDA, Montana State Department of Agriculture, 1980.