

Information Circular 8772

**Projects To Expand Energy Sources
in the Western States; ²An Update
of ¹²Information Circular 8719**

Survey of Planned or Proposed Coal Mines; Electric
Generating, Coal Conversion, and Waste-to-Fuel Plants;
Oil Shale and Tar Sands Projects; Geothermal Facilities;
Uranium Mines, Mills, and Enrichment Facilities; Natural
Gas Processing and Storage Facilities; Oil Refineries
and Terminal Facilities; Railroads; and Coal Slurry,
Petroleum, and Natural Gas Pipelines, in States West
of the Mississippi River (as of August 1977)

By Charles H. Rich, Jr.

With Contributions by Bureau of Mines
Western State Liaison Officers



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**UNITED STATES DEPARTMENT OF THE INTERIOR
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PROJECTS TO EXPAND ENERGY SOURCES IN THE WESTERN STATES--AN UPDATE OF INFORMATION CIRCULAR 8719

Survey of Planned or Proposed Coal Mines; Electric Generating, Coal Conversion, and Waste-to-Fuel Plants; Oil Shale and Tar Sands Projects; Geothermal Facilities; Uranium Mines, Mills, and Enrichment Facilities; Natural Gas Processing and Storage Facilities; Oil Refineries and Terminal Facilities; Railroads; and Coal Slurry, Petroleum, and Natural Gas Pipelines, in States West of the Mississippi River
(as of August 1977)

by

Charles H. Rich, Jr.¹

With Contributions by Bureau of Mines Western State Liaison Officers

ABSTRACT

This Bureau of Mines report is an expansion and update of Information Circular 8719 and comprises maps and tables listing the name, location, and other pertinent data concerning certain fuel-related projects. The maps show the locations of the planned or proposed facilities. The tables include information on projects involving the proposed or planned development of fuel resources, as well as the development of storage, transportation, and conversion facilities. The report covers the 24 States west of the Mississippi River including Alaska and Hawaii. Of the 808 projects for which information is provided, 219 concern coal mines, 246 concern electric generating plants, and 115 concern uranium mines; Energy Supply and Environmental Coordination Act coal conversion notices are also included.

Because of the dynamic nature of the energy industry, many uncertainties exist and some of the listed projects may never become realities. Also, no attempt has been made to determine the degree of certainty or viability of each project.

INTRODUCTION

The need for new energy sources is as critical today as when the energy crisis struck the country in 1973-74. As the President stated in his address to a joint session of Congress on April 20, 1977, "The heart of our energy problem is that we have too much demand for fuel that keeps going up too quickly, while production goes down... Oil and natural gas make up about 75 percent of our consumption in this country, but they only comprise about 7 percent in our reserves. Our demand for oil has been rising by more than 5 percent each year, but domestic oil supplies have been dropping more than 6 percent." To reduce the magnitude of the scarce energy supply and the demand for energy, the President proposed a reduction in energy consumption, particularly oil and gas, an increase in coal production, and research in solar and nuclear forms of energy.

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In response to the interest expressed not only by the President but by the private and public sectors of the country concerning energy-related projects, new or major expansions to existing facilities that are planned, proposed, or under construction, this Bureau of Mines study was conducted to expand and update Information Circular 8719, "Projects To Expand Fuel Sources in Western States," that was published in 1976.

This study has greatly expanded IC 8719 by including all States west of the Mississippi River including Alaska and Hawaii, and by adding additional types of energy-related projects.

In a study of this nature, certain limitations are inherent because of the many uncertainties concerning private company plans, public policy, and the outcome of existing and potential litigation and legislation. Information is presented on some projects that may not ever be developed and put online. No attempt was made to determine the viability, or the degree of certainty, for any of the projects.

A special effort was made to avoid exclusions and to reconcile any inconsistencies while using the most current information available. However, because of the dynamic nature of the projects, the use of many data sources, and the large amount of data collected, a few listings may be outdated or there may be a few omissions of projects.

The locations of the projects on the State maps are shown as close to the actual sites as practicable. Because of the information received, some projects are located on a county basis only. Projects where the site was unknown were given numbers in anticipation of more information becoming available in the future. These projects were not plotted on the individual State maps.

In certain cases, particularly under fuel consumption for electric generating plants, estimates were made to fill in data gaps. These estimates are marked on the tables for the States involved.

Pinpointing or forecasting new areas of oil and gas production was virtually impossible because of the large size and the dynamic nature of the exploration programs, the ratio of dry holes to successful holes, and the short time it takes to drill holes. Therefore, these areas of future oil and gas production have not been covered.

This report is divided into two parts. The first part is a general summary of future energy-related projects in the Western United States by type of project. The second part lists the projects by State and includes pertinent data such as company, location, capacity and/or consumption, current status, initial operating data, and other relevant information. Individual State maps are included with each project plotted thereon if possible. Data sources for the information given on each project are listed with the State concerned, and Energy Supply and Environmental Coordination Act (ESECA) coal conversion notices are included.

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SUMMARY OF ENERGY-RELATED PROJECTS, PLANNED, PROPOSED,
OR UNDER CONSTRUCTION IN THE WESTERN UNITED STATES

As of August 1977, a total of 808 energy-related projects are planned, proposed, or under construction within the 24 States west of the Mississippi River including Alaska and Hawaii. These projects include not only new facilities but also facilities undergoing significant expansion. Projects covered are strip and underground coal mines; coal-fired, nuclear, and other types of electric generating plants; electric generating plants ordered to change to coal; coal conversion plants; waste-to-fuel conversion plants; oil shale projects; tar sands projects; geothermal facilities; uranium mines, mills, and enrichment facilities; natural gas processing and storage facilities; terminal facilities; oil refineries; railroads (related to energy development); and coal slurry, petroleum, and natural gas pipelines. As shown in table 1, the States with over 50 projects are California (85), Colorado (141), New Mexico (53), Texas (81), Utah (80), and Wyoming (74).

TABLE 1. - Number of future energy-related projects, by State

State	Number of projects	State	Number of projects
Alaska.....	14	Montana.....	26
Arizona.....	9	Nebraska.....	8
Arkansas.....	6	Nevada.....	23
California.....	85	New Mexico.....	53
Colorado.....	141	North Dakota.....	18
Hawaii.....	6	Oklahoma.....	37
Idaho.....	6	Oregon.....	20
Iowa.....	13	South Dakota.....	15
Kansas.....	15	Texas.....	81
Louisiana.....	28	Utah.....	80
Minnesota.....	15	Washington.....	16
Missouri.....	19	Wyoming.....	74
		Total.....	808

The distribution by type of project is shown in table 2. This table indicates that most of the projects are coal mines (219), electric generating plants (246), and uranium mines (115).

TABLE 2. - Number of future energy-related projects, by type of facility

Type of facility	Number	Type of facility	Number
Strip coal mines.....	126	Geothermal facilities.....	46
Underground coal mines.....	93	Uranium mines.....	115
Coal-fired electric generating plants.....	96	Uranium mills and enrichment facilities.....	18
Nuclear electric generating plants.....	28	Natural gas processing and storage facilities.....	29
"Other" electric generating plants.....	118	Terminal facilities.....	11
Oil or gas to coal electric generating plants.....	4	Oil refineries.....	40
Coal conversion plants.....	27	Railroads (related to energy development).....	10
Waste-to-fuel conversion plants	6	Coal slurry pipelines.....	7
Oil shale projects.....	10	Petroleum and natural gas pipelines.....	22
Tar sands projects.....	2	Total.....	808

Table 3 lists the number of projects listed in IC 8719 that have been completed or canceled. Of the 515 projects listed, 101 were completed and 60 were canceled for various reasons. The remaining 354 projects are included with others in this report.

TABLE 3. - Number of energy-related projects as reported in IC 8719 completed or canceled, by State

State	Number of completed projects	Number of canceled projects	State	Number of completed projects	Number of canceled projects
Arizona.....	5	1	Nebraska.....	1	1
Arkansas.....	1	-	New Mexico.....	10	-
California.....	7	-	North Dakota....	5	3
Colorado.....	4	19	Oklahoma.....	7	3
Idaho.....	-	1	Oregon.....	2	1
Iowa.....	4	4	South Dakota....	-	1
Kansas.....	4	5	Texas.....	29	3
Louisiana.....	9	-	Utah.....	2	5
Minnesota.....	1	1	Washington.....	-	2
Missouri.....	7	6	Wyoming.....	3	4
			Total.....	101	60

The following tables and descriptions contain a general summary of the future energy-related projects by type.

Coal Mines

As of August 1977, 219 future coal mines or expansions to existing mines were planned, proposed, or under development. Strip mines (table 4) account

for 126 of these mines with 105 new mines and 21 expansions. Underground mines (table 5) include 88 new mines and 5 expansions for a total of 93 mines.

TABLE 4. - Future strip coal mines and capacities, by State

State	New mines		Expansions to existing mines		Total	
	Number	Annual production, MMtpy	Number	Annual production, ¹ MMtpy	Number	Annual production, MMtpy
Alaska.....	1	-	-	-	1	-
Colorado.....	31	29.7	-	-	31	29.7
Montana.....	6	31.0	6	54.1	12	85.1
New Mexico.....	15	76.7	2	14.6	17	91.3
North Dakota.....	10	58.4	1	4.4	11	62.8
Oklahoma.....	12	-	-	-	12	-
Texas.....	5	23.2	2	26.0	7	49.2
Utah.....	3	13.0	-	-	3	13.0
Washington.....	-	-	1	5.0	1	5.0
Wyoming.....	22	160.7	9	38.3	31	199.0
Total.....	105	392.7	21	142.4	126	535.1

¹ Production figure in some cases may include existing production as well as expansion production.

TABLE 5. - Future underground coal mines and capacities, by State

State	New mines		Expansions to existing mines		Total	
	Number	Annual production, MMtpy	Number	Annual production, MMtpy	Number	Annual production, MMtpy
Arkansas.....	1	0.2	-	-	1	0.2
Colorado.....	46	22.3	-	-	46	22.3
New Mexico.....	1	-	1	0.7	2	.7
Oklahoma.....	7	.5	-	-	7	.5
Utah.....	28	33.3	3	10.2	31	43.5
Wyoming.....	5	6.4	1	.2	6	6.6
Total.....	88	62.7	5	11.1	93	73.8

Estimated production from the future mines is incomplete at this time. Many of the mines are still in the exploration and negotiation stage with no firm estimates of production being made by the various companies. Total reported future production is 608.9 million tons per year with surface mines accounting for 535.1 million tons and underground mines accounting for 73.8 million tons. This could then be considered a low estimate of future production if all of the mines were to come online as scheduled.

Electric Generating Plants

As shown in tables 6-9, there are 246 new, expanding, or converting electric generating plants totaling 511 individual units. If all these electric

generating units were constructed, an additional 191,911 megawatts of generating capacity would be realized. Energy sources for the various plants include coal, oil, gas, nuclear, and hydropower. A few plants being planned as experimental at present, but which will go online if successful, are powered by wind and solar sources.

TABLE 6. - Future coal-fired electric generating plants and capacities, by State

State	Total projects	Total units	Capacity, megawatts
Alaska.....	1	-	-
Arizona.....	4	10	2,883
Arkansas.....	4	11	5,293
California.....	3	7	8,400
Colorado.....	6	13	5,295
Iowa.....	7	7	2,767
Kansas.....	3	7	3,686
Louisiana.....	3	6	3,220
Minnesota.....	4	5	3,700
Missouri.....	5	5	1,824
Montana.....	4	7	2,650
Nebraska.....	4	5	2,475
Nevada.....	2	6	2,500
New Mexico.....	4	9	3,684
North Dakota.....	3	6	2,680
Oklahoma.....	5	8	4,335
Oregon.....	1	1	30
South Dakota.....	5	5	1,240
Texas.....	17	33	18,503
Utah.....	6	16	7,670
Wyoming.....	5	8	3,490
Total.....	96	175	86,325

TABLE 7. - Future nuclear electric generating plants and capacities, by State

State	Total projects	Total units	Capacity, megawatts
Arizona.....	1	3	3,705
Arkansas.....	1	1	950
California.....	12	26	33,168
Kansas.....	1	1	1,150
Louisiana.....	2	3	3,045
Missouri.....	1	2	2,300
Nebraska.....	1	1	1,000
Oklahoma.....	1	2	2,300
Oregon.....	1	2	2,520
Texas.....	4	7	7,896
Washington.....	3	7	8,656
Total.....	28	55	66,690

TABLE 8. - Future "other" electric generating plants and capacities, by State

State	Total projects	Total units	Capacity, megawatts
Arizona.....	2	4	273
California.....	50	128	24,211
Colorado.....	4	10	800
Hawaii.....	4	7	208
Idaho.....	3	3	338
Iowa.....	2	4	215
Kansas.....	4	7	654
Minnesota.....	5	5	823
Missouri.....	7	18	1,433
Montana.....	5	12	1,208
Nebraska.....	1	6	1,002
Nevada.....	1	4	280
New Mexico.....	2	3	323
Oklahoma.....	1	3	300
Oregon.....	2	3	206
South Dakota.....	4	4	74
Texas.....	7	9	1,227
Utah.....	4	4	134
Washington.....	9	47	5,622
Wyoming.....	1	1	4
Total.....	118	282	38,635

TABLE 9. - Generating plants receiving preliminary ESECA notice to convert to coal

State	Total projects	Total units	Capacity, megawatts
Iowa.....	1	1	38
Missouri.....	2	2	194
Nebraska.....	1	1	29
Total.....	4	4	261

Coal Conversion Plants

Twenty-seven coal conversion projects under consideration or planned have been identified (table 10). Except for one liquefaction plant, all of these are gasification plants. Also, all of the plants will use coal except one which will use peat. There are many uncertainties concerning the number of plants that will be constructed.

TABLE 10. - Future coal conversion plants and capacities, by State

State	Total projects	Total units	Total gasification units	Total liquefaction units
Colorado.....	1	1	1	-
Kansas.....	1	1	1	-
Louisiana.....	1	1	1	-
Minnesota.....	¹ 5	¹ 5	5	-
Missouri.....	3	3	3	-
Montana.....	4	7	6	1
New Mexico.....	2	5	5	-
North Dakota.....	3	7	7	-
South Dakota.....	1	1	1	-
Utah.....	1	1	1	-
Wyoming.....	5	8	8	-
Total.....	27	40	39	1

¹One project will use peat instead of coal.

Waste-to-Fuel Conversion Plants

Six waste-to-fuel conversion projects are planned in the West. Three of the plants are located in Oregon and one each in Louisiana, Oklahoma, and Utah.

Oil Shale Projects

Ten oil shale projects, seven in Colorado and three in Utah, have been identified. These projects represent a planned total capacity of 594,600 barrels of shale oil per day.

Tar Sands Projects

Although the outlook is not particularly promising at the present time, two tar sands projects are planned for Utah.

Geothermal Facilities

Forty-six areas, located in nine Western States, are now under lease or are being explored for geothermal resources. It must be emphasized that geothermal exploration and leasing will not necessarily lead to the development of geothermal resources of commercial quantity and quality. However, all of the areas are included in the report to illustrate the extent of geothermal resource exploration and the current status of the geothermal industry in the Western United States. Table 11 indicates the number of geothermal areas under lease or in the exploration stage by State.

TABLE 11. - Future geothermal facilities, by State

State	Total areas under exploration or development
California.....	8
Hawaii.....	1
Idaho.....	2
Louisiana.....	1
Nevada.....	20
New Mexico.....	2
Oregon.....	9
South Dakota.....	1
Utah.....	2
Total.....	46

Uranium Mines, Mills, and Enrichment Facilities

One hundred and fifteen new uranium mines, or expansions to existing mines, are planned in eight Western States. Eighteen new mills and enrichment facilities, or expansions to existing facilities, will be located in seven Western States. Table 12 provides a breakdown of the mines, mills, and enrichment facilities by State.

TABLE 12. - Future uranium mines, mills, and enrichment facilities, by State

State	Total mines	Total mills or enrichment facilities
Colorado.....	30	8
Louisiana.....	-	1
New Mexico.....	12	2
Oregon.....	1	-
South Dakota.....	1	1
Texas.....	34	1
Utah.....	21	-
Washington.....	1	1
Wyoming.....	15	4
Total.....	115	18

Oil Refineries and Natural Gas Processing and Storage Facilities

Plans for 40 new or expanding oil refineries and 29 new or expanding natural gas processing and storage facilities have been announced. The refineries will increase present throughput capacity by 1,385,309 barrels per day (bpd); the natural gas processing facilities will increase present capacity by 6,651,052 cubic feet per day (cf). Table 13 lists the projects and the increase in capacity by State.

TABLE 13. - Future oil refineries and natural gas processing and storage facilities with capacities, by State

State	Oil refineries		Natural gas processing plants		Natural gas storage facilities	
	Total projects	Capacity, bpd	Total projects	Capacity, Mcfd	Total projects	Capacity, Mcf
Alaska.....	1	30,000	3	2,796,552	-	-
California.....	7	47,500	1	100,000	-	-
Colorado.....	3	9,988	-	-	-	-
Hawaii.....	1	8,000	-	-	-	-
Idaho.....	-	-	-	-	1	-
Kansas.....	3	87,130	-	-	2	-
Louisiana.....	10	641,000	3	2,790,000	-	-
Nebraska.....	-	-	-	-	1	39,000
New Mexico.....	5	20,900	1	75,000	-	-
Oklahoma.....	2	15,391	4	213,000	-	-
Oregon.....	1	30,000	1	5,000	1	-
South Dakota.....	-	-	-	-	1	400,000
Texas.....	4	485,000	6	551,500	-	-
Utah.....	-	-	3	-	-	-
Wyoming.....	3	10,400	1	120,000	-	-
Total.....	40	1,385,309	23	6,651,052	6	439,000

Terminal Facilities

Seven States will increase their terminal facilities for importing and exporting oil and natural gas and for transshipment of coal. This includes both new and expanding facilities. Alaska, California, Iowa, and Louisiana are planning two facilities per State; while Missouri, Texas, and Washington are planning one facility each.

Railroads (Related to Energy Development)

Ten proposed railroad lines, either new or expanding, totaling 869 miles have been identified in seven States (table 14). No railroad lines less than 15 miles long are included. In some States the railroads are upgrading their lines, but because of many uncertainties, no estimate was made related to upgrading.

TABLE 14. - Future railroads (related to energy development), by State

State	Total projects	Total length, miles
Alaska.....	1	450
Arizona.....	2	68
Colorado.....	2	50
New Mexico.....	2	72
North Dakota.....	1	38
Utah.....	1	65
Wyoming.....	1	126
Total.....	10	869

Coal Slurry, Petroleum, and Natural Gas Pipelines

As of August 1977, 7 coal slurry pipelines and 22 petroleum and natural gas pipelines are planned to originate and/or terminate in the Western United States. No pipeline with a total length of less than 20 miles is included in the report. The total length for the coal slurry pipelines is 4,803 miles, and for the petroleum and natural gas pipelines the total length is 9,246 miles. Table 15 gives a breakdown of the pipelines by State.

TABLE 15. - Future coal slurry, petroleum, and natural gas pipelines, by State

State	Coal slurry pipelines		Petroleum and natural gas pipelines	
	Total projects	Total length, miles	Total projects	Total length, miles
Alaska.....	-	-	5	7,977
California.....	-	-	2	288
Colorado.....	1	820	2	123
Iowa.....	-	-	1	130
Kansas.....	-	-	1	32
Louisiana.....	-	-	4	185
Minnesota.....	-	-	1	99
Montana.....	1	1,260	-	-
New Mexico.....	2	347	-	-
Oklahoma.....	-	-	4	353
South Dakota.....	-	-	1	80
Utah.....	1	240	1	39
Wyoming.....	2	2,136	-	-
Total.....	7	4,803	22	9,246

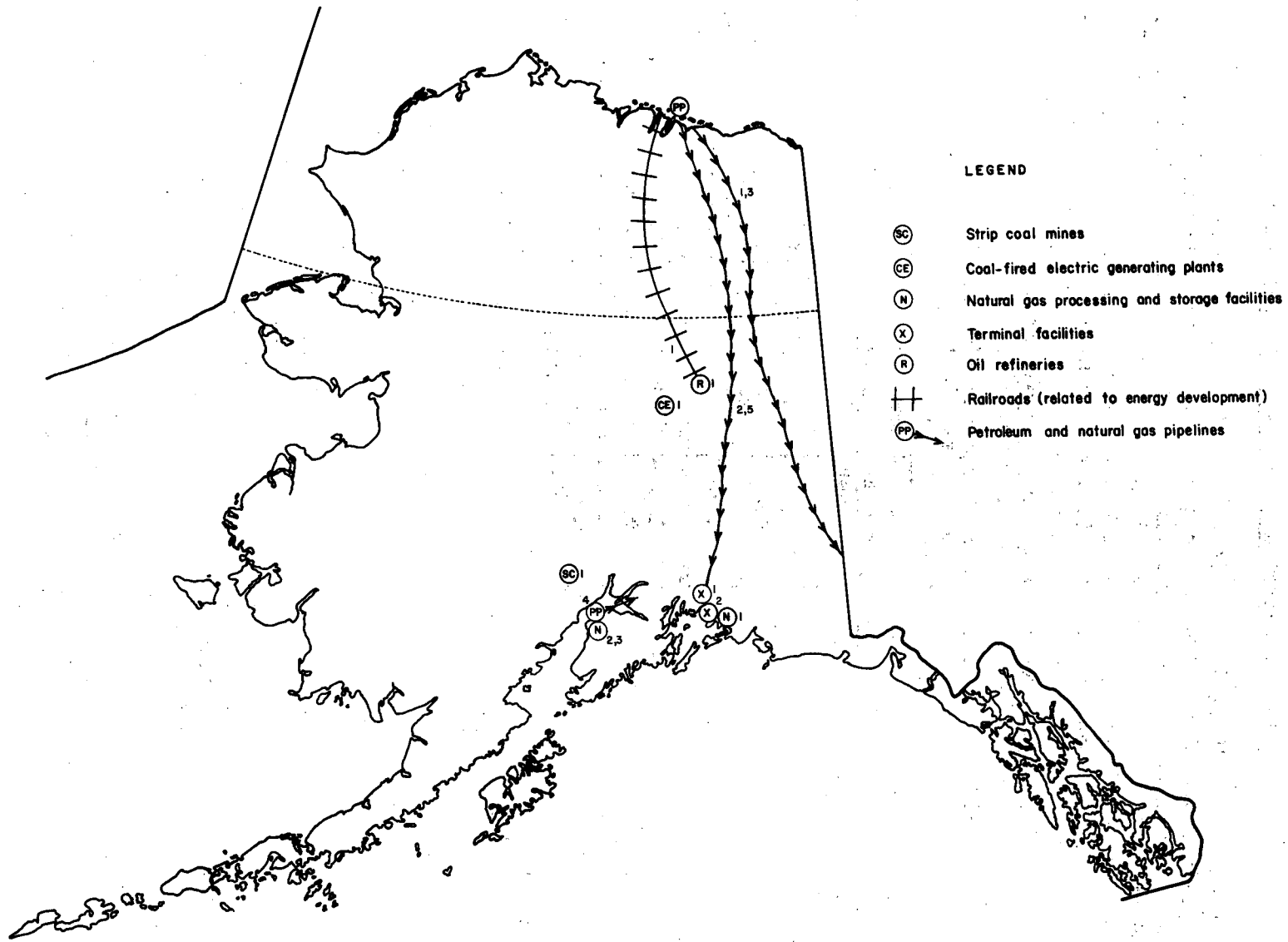


FIGURE 1: - Future energy-related projects in Alaska.

A LISTING OF FUTURE ENERGY-RELATED PROJECTS
IN THE WESTERN UNITED STATES

Alaska

Data on the following Alaska projects are presented in tables 16-22. The map reference numbers correspond with the accompanying Alaska map.

Map ref. No.	Project name	Company or agency
Coal mines:		
SC1.....	Unnamed.....	Placer AMEX.
Electric generating plants:		
CE1.....	.....do.....	Golden Valley Electric Association and Fairbanks Municipal Utilities System.
Natural gas processing and storage facilities:		
N1.....	.....do.....	El Paso Alaska Co.
N2.....	.....do.....	Pacific Gas and Electric Lighting Corp.
N3.....	.....do.....	Collier Carbon and Chemical Co.
Terminal facilities:		
X1.....	Valdez.....	Alyeska Pipeline Service Co.
X2.....	Gravina Point.....	El Paso Alaska Co.
Oil refineries:		
R1.....	Unnamed.....	Energy Co. of Alaska.
Railroads:		
1.....	Alaska.....	Alaska Railroad Co.
Petroleum and natural gas pipelines:		
PP1.....	Alaska to California	Alaskan Arctic Gas Co.
PP2.....	Alaska.....	El Paso Alaska Co.
PP3.....	Alaska to California	Alcan Pipeline Co.
PP4.....	Alaska.....	Nikiski Alaska Pipeline Co.
PP5.....	.....do.....	Alyeska Pipeline Service Co.

TABLE 16. - Future coal mines in Alaska.

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
SCL.	Unnamed, Beluga.	Placer AMEX, San Francisco, Calif.	Surface..	Unknown..	Subbituminous Ash--13.3%-30.5% Sulfur--0.2% Moisture--11.3%-24.4% Btulb--6,290-8,890 General analysis for this area.	Several seams, most 20 to 30. One 55.	Relatively shallow.	Studies are being conducted to determine the feasibility of placing a mine at this location. This project as proposed will include a 20-mile-long slurry pipeline from the mine to the sea-coast. Anticipated markets are in Japan or along the west coast of the United States.	2

TABLE 17. - Future electric generating plants in Alaska

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Unnamed, Healy.	Golden Valley Electric Association and Fairbanks Municipal Utilities System, Fairbanks, Alaska.	Coal, unknown.	Unknown	Unknown	1983-1984	A tentative program announced in 1976 with final design required in 1979.	2

TABLE 18. - Future natural gas processing and storage facilities in Alaska

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Unnamed, Gravina Point, near Valdez.	El Paso Alaska Co., El Paso, Tex.	Unknown..	2,401,080 Mcfd	A liquefaction plant will be built at Gravina Point to supply cryogenic tankers hauling LNG to Point Conception, Calif. The President disapproved this plan in October 1977.	1
N2..	Unnamed, Kenai.....	Pacific Gas and Electric and Pacific Lighting Corp., San Francisco, Calif.	1981.....	395,472 Mcfd..	A gathering system and liquefaction plant will be constructed. Tankers will deliver LNG to California.	1
N3..	.....do.....	Collier Carbon and Chemical Corp., Kenai, Alaska.	Unknown..	Unknown.....	Natural gas from two wells on the Kenai Peninsula and Cook Inlet will be used to manufacture ammonia.	1

TABLE 19. - Future terminal facilities in Alaska

Map ref. No.	Terminal location	Operating company	Type	Capacity	Initial operating date	Remarks	References
X1..	Valdez.....	Alyeska Pipeline Service Co., Anchorage, Alaska.	Crude oil.	10,000,000 bbl storage at full capacity; 1,200,000 bpd at yearend 1977.	June-July 1977.	Four tanker berths, loading rate 110,000 bph 42- and 48-inch pipelines will deliver oil to tankers.	2
X2..	Gravina Point, near Valdez.	El Paso Alaska Co., El Paso, Tex.	Natural gas.	2,401,080 Mcfd.....	Unknown..	A liquefaction plant will be built at Gravina Point to supply cryogenic tankers hauling LNG to Point Conception, Calif. The President disapproved this plan in October 1977.	2

TABLE 20. - Future oil refineries in Alaska

Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Unnamed, North Pole.....	Energy Co. of Alaska, Fairbanks, Alaska.	August 1977.	25,000; expansion to 30,000 in future.	Cost \$30 million, will use Prudhoe Bay crude oil. Products will be industrial turbine fuel and fuel for Alyeska pump stations and Arctic Diesel Co.	2

TABLE 21. - Future railroads (related to energy development) in Alaska

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Remarks	References
		Origin	Destination					
1...	Alaska Railroad Co., Anchorage, Alaska.	Fairbanks, Alaska.	Prudhoe Bay, Alaska.	450	Standard gage, diesel.	Unknown..	In feasibility stage. Nothing definite to date.	2

TABLE 22. - Future petroleum and natural gas pipelines in Alaska

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PP1.	Alaskan Arctic Gas Co., Anchorage, Alaska.	Prudhoe Bay, Alaska.	Through Canada to California and Illinois.	3,300 new, 875 looped.	Gas.....	Unknown...	30 and 48	2.25 billion cfd. Cost \$5.9 billion. Planning discontinued.	1
PP2.	El Paso Alaska Co., El Paso, Tex.	...do.....	Gravina Point near Cordova, Alaska.	809.....	...do....	...do.....	42	2.4 billion cfd. Cost \$6.54 billion. Planning discontinued.	1
PP3.	Alcan Pipeline Co., Salt Lake City, Utah.	...do.....	Through Canada to California and Illinois.	3,000 new, 1,600 looped	...do....	...do.....	42 and 48	2.4 billion cfd. Cost \$6.28 billion. Plans approved October 1977.	1
PP4.	Nikiski Alaska Pipeline Co., San Antonio, Tex.	Nikiski (north of Kenai), Alaska.	Anchorage, Alaska.	70.....	Refined products	1976 (full capacity late 1977).	10	50,000-bpd capacity.	2
PP5.	Alyeska Pipeline Service Co., Anchorage, Alaska.	Prudhoe Bay, Alaska.	Valdez, Alaska	798.....	Crude oil	June 20, 1977.	48	Initial capacity 600,000 bpd expanding to 1.2 MMbpd by end of 1977. Project in operation June 20, 1977.	2

List of Data Sources for Alaska

1. Federal Power Commission News. V. 10, No. 5, Feb. 4, 1977, pp. 2-10.
2. Service, A. L., Bureau of Mines, State Liaison Officer, Anchorage, Alaska.
May 19, 1977.

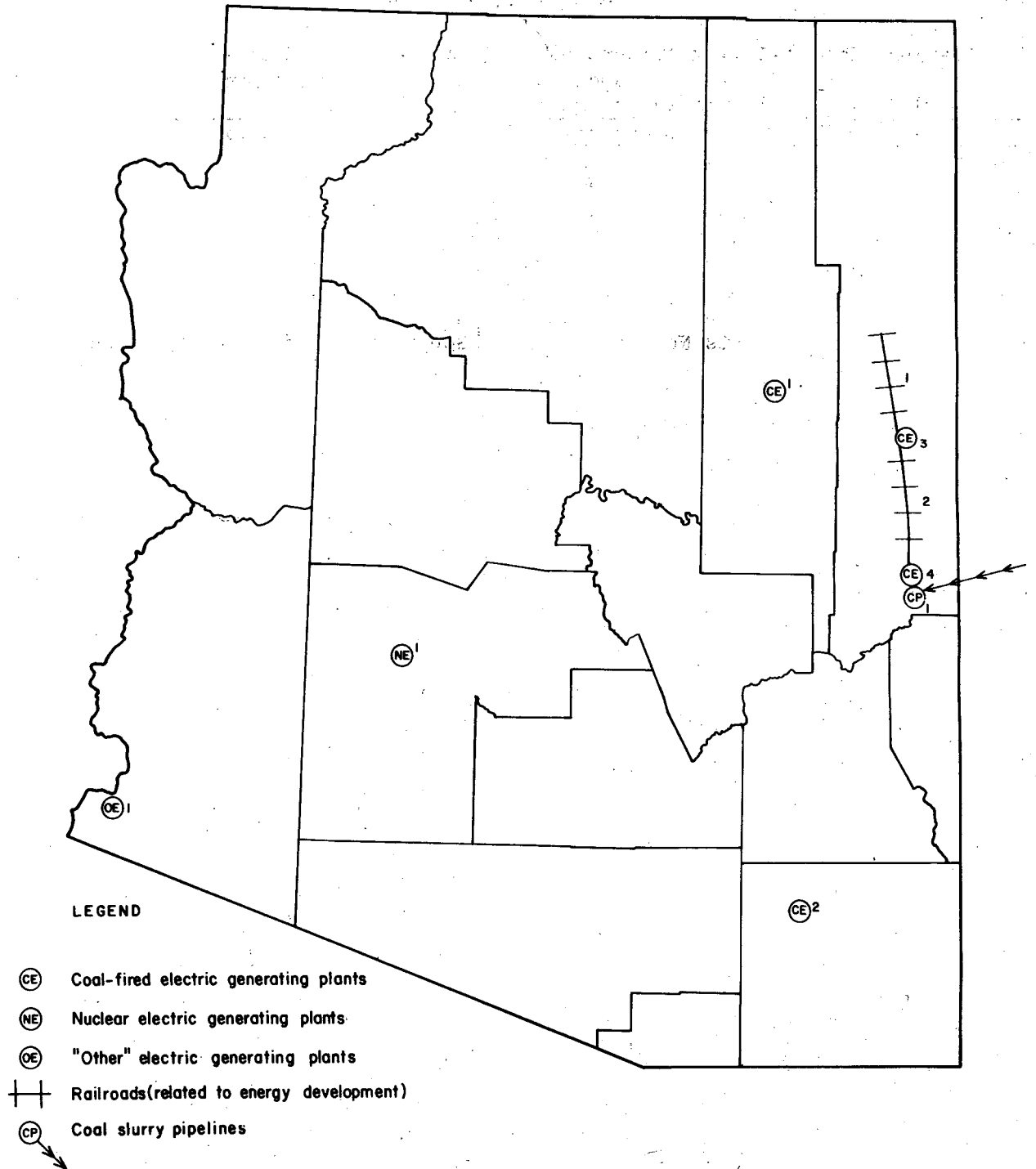


FIGURE 2: - Future energy-related projects in Arizona.

Arizona

Data on the following Arizona projects are presented in tables 23-26. The map reference numbers correspond with the accompanying Arizona map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
CE1.....	Cholla Nos. 2-5.....	Arizona Public Service Co.
CE2.....	Apache Nos. 2-3.....	Arizona Electric Power Cooperative.
CE3.....	Coronado Nos. 1-3....	Salt River Project.
CE4.....	Springerville No. 1..	Tucson Gas and Electric Co.
NE1.....	Palo Verde Nos. 1-3..	Arizona Public Service Co.
OE1.....	Axis No. 1.....	Southern California Edison Co.
OE2.....	Unnamed.....	Arizona Public Service Co.
Railroads:		
1.....	Arizona.....	Salt River Project.
2.....	.....do.....	Tucson Gas and Electric Co.
Coal slurry pipelines:		
CPl.....	New Mexico to Arizona	Salt River System.

TABLE 23. - Previously reported energy development projects that have been completed or canceled in Arizona

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Electric generating plants:				
Salt River Project, Phoenix, Ariz.	Navajo No. 3, Page Coconino County		X	
Arizona Public Service Co., Phoenix, Ariz.	West Phoenix Nos. 1-3, Phoenix, Maricopa County.		X	
Southwest Forest Industries.....	Snowflake, Snowflake, Navajo County.		X	
Salt River Project, Phoenix, Ariz.	Unnamed, unsited.....	X		
Coal mines:				
Peabody Coal Co., St. Louis, Mo...	Black Mesa, northern Navajo County		X	
Do.....	Kayenta, northern Navajo County...		X	

TABLE 24. - Future electric generating plants in Arizona

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Cholla Nos. 2-5, Joseph City, Navajo County.	Arizona Public Service Co., Phoenix, Ariz.	Coal--4.0 (total, all units).	2	235	June 1978	Additions to 115 Mw first unit. Water requirements from manmade Cholla Lake are estimated at 25,700 acre-foot per year (afy) for all units. Coal would be supplied by Pittsburg and Midway's McKinley mine near Gallup, N. Mex. No. 5 formerly unsited.	1, 4-6, 8-9, 11
				3	242	June 1979		
				4	347	June 1980		
				5	347	June 1983		
				Total	1,171			
CE2.	Apache Nos. 2-3, Cochise, Cochise County.	Arizona Electric Power Cooperative, Benson, Ariz.	Coal-- ^a 1.1 (total, all units).	2	175	June 1978	Formerly Apache Nos. 5-6...	1, 5, 8
				3	175	June 1979		
				Total	350			
CE3.	Coronado Nos. 1-3, St. Johns, Apache County.	Salt River Project, Phoenix, Ariz.	Coal--2.2 (total, all units).	1	350	Apr. 1979		1-2, 5-6, 8
				2	350	Apr. 1980		
				3	350	1993		
				Total	1,050			
CE4.	Springerville No. 1, Springerville, Apache County.	Tucson Gas and Electric Co., Tucson, Ariz.	Coal.....	1	312	May 1983		11
NE1.	Palo Verde Nos. 1-3, Wintersburg, Maricopa County.	Arizona Public Service Co., Phoenix, Ariz.	Nuclear.....	1	1,235	May 1982		5-6, 8, 10-11
				2	1,235	May 1984		
				3	1,235	May 1986		
				Total	3,705			
OE1.	Axis No. 1, Yuma, Yuma County.	Southern California Edison, Rosemead, Calif.	Oil.....	1	23	Apr. 1979		3, 5, 11
OE2.	Unnamed, unsited, 3 units.	Arizona Public Service Co., Phoenix, Ariz.	Oil.....	1	100	June 1983		1, 11
				2	50	June 1984		
				3	100	June 1985		
				Total	250			

^aEstimated, see appendix for explanation.

TABLE 25. - Future railroads (related to energy development) in Arizona

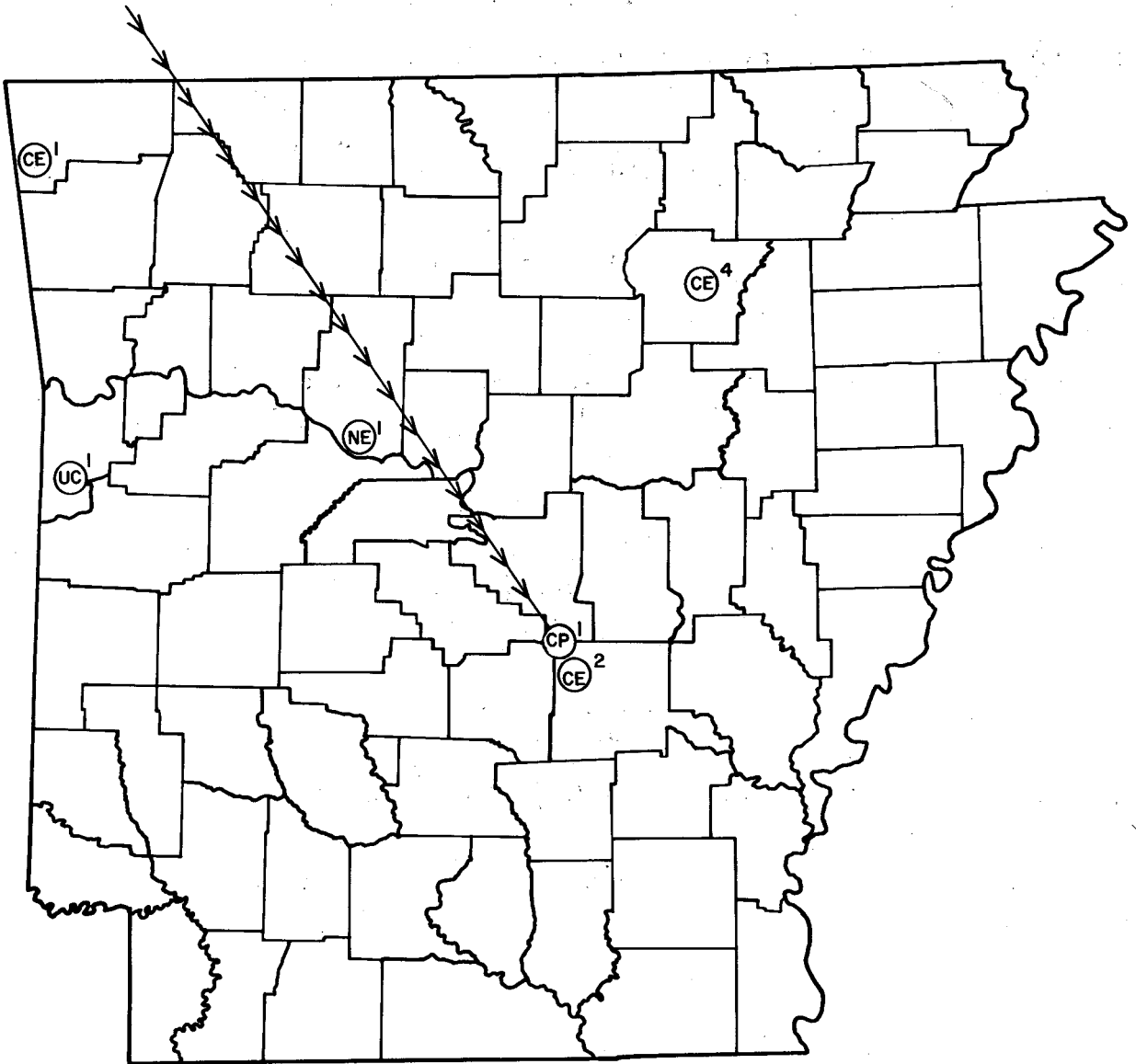
Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Remarks	References
		Origin	Destination					
1...	Salt River Project, Phoenix, Ariz.	Navajo, Apache County, Ariz.	St. Johns, Apache County, Ariz.	40	Spur	1979	Spur line from Santa Fe mainline at Navajo to proposed Coronado powerplant.	1-2
2...	Tucson Gas and Electric Co., Tucson, Ariz.	St. Johns, Apache County, Ariz.	Springerville, Apache County, Ariz.	28	Spur	1985		1

TABLE 26. - Future coal slurry pipelines in Arizona

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
Cpl.	Salt River System, Phoenix, Ariz.	Star Lake, McKinley County, N. Mex.	Coronado powerplant, St. Johns, Apache County, Ariz.	180		Indefinite	16	4.0 MMtpy. This project is in the early stages of planning. Nothing definitive to date.	7

List of Data Sources for Arizona

1. Arundale, J. C., Bureau of Mines State Liaison Officer, Phoenix, Ariz. July 1977.
2. Coal Age. Peabody and Santa Fe Railroad Units Set Coal Supply for Salt River Project. V. 80, No. 10, September 1975, p. 40.
3. California Energy Resources Conservation and Development Commission. Electricity Forecasting and Planning Report. V. 2. October 1976.
4. Engineering News Record. V. 197, No. 26, Dec. 23, 1976, p. 119.
5. Federal Power Commission. Proposed Generating Capacity Changes for the Period 1975 Through 1984. Reported Apr. 1, 1975, in response to Docket R-362; Order 383-3.
6. McKinley, J. L., Administrative Manager, Western Systems Coordinating Council, Denver, Colo. 1976.
7. Oil and Gas Journal. V. 73, No. 26, June 30, 1975, p. 44.
8. Steam-Electric Plant Factors, 1975.
9. U.S. Department of Agriculture, Forest Service. Cholla Powerplant Environmental Impact Statement. 1975.
10. U.S. Energy Research and Development Administration. Eleven Nuclear Power Reactors Announced in 1975. News release, Jan. 26, 1976.
11. Western Systems Coordinating Council Technical Staff, Salt Lake City, Utah. Ten-Year Coordinated Plan Summary 1977-1986. May 1977.



LEGEND

- Ⓢ UC Underground coal mines
- Ⓢ CE Coal-fired electric generating plants
- Ⓢ NE Nuclear electric generating plants
- Ⓢ CP Coal slurry pipelines

FIGURE 3. - Future energy-related projects in Arkansas.

Arkansas

Data on the following Arkansas projects listed below are presented in tables 27-30. The map reference numbers correspond with the accompanying Arkansas map.

Map ref. No.	Project name	Company or agency
Coal mines:		
UC1.....	SP-7.....	Sugarloaf Mining Co.
Electric generating plants:		
NE1.....	Arkansas Nuclear-One No. 2.	Arkansas Power and Light Co.
CE1.....	Flint Creek No. 1.....	Southwestern Electric Power Co.
CE2.....	White Bluff Nos. 1-2.....	Arkansas Power and Light Co.
CE3.....	Unnamed, unsited Nos. 1-6..	Do.
CE4.....	Independence Steam Electric Stations Nos. 1-2.	Do.
Coal slurry pipelines:		
CP1.....	Wyoming to Arkansas.....	Energy Transportation Systems, Inc., and Kansas-Nebraska Natural Gas Co.

TABLE 27. - Previously reported energy development projects that have been completed or canceled in Arkansas

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Natural gas processing plant: Beacon Gasoline Co., Taylor, Ark.....	Walker Creek Gasoline Co., near Taylor, Columbia County (T 19 S, R 23 W).		X	

TABLE 28. - Future coal mines in Arkansas

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
UC1.	SP-7, southeast of Hartford, Sebastian County.	Sugarloaf Mining Co., Ft. Smith, Ark. (a subsidiary of National Steel Corp.).	Underground	0.2--1978	Bituminous Moisture--1.9%-3.6% Ash--7.1%-9.3% Sulfur--1.0%-1.3% Btulb--13,420-13,800 General analysis for this area.	Lower Hartshorne, 3.5 to 6.0.	500 to 1,000	Planned market is steel mills.	2

TABLE 29. - Future electric generating plants in Arkansas

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
NE1.	Arkansas Nuclear-One No. 2, Russellville, Pope County.	Arkansas Power and Light Co., Little Rock, Ark.	Nuclear.....	2	950	Mar. 1978	Arkansas River will be water source.	1
CE1.	Flint Creek No. 1, Siloam Springs, Benton County.	Southwestern Electric Power Co., Shreveport, La.	Coal--°1.7.....	1	528	Aug. 1978	Coal will be supplied by the AMAX Belle Ayr mine in Wyoming.	1-2
CE2.	White Bluff Nos. 1-2, Redfield, Jefferson County.	Arkansas Power and Light Co., Little Rock, Ark.	Coal--°5.0 (total, both units).	1 2 Total	700 700 1,400	June 1981 Jan. 1982	Coal will be supplied by the Kerr-McGee Jacobs Ranch mine in Wyoming.	1-2
CE3.	Unnamed, unsited Nos. 1-6.....	Arkansas Electric Cooperative Corp., Little Rock, Ark.	Coal--°6.4 (total, all units).	1 2 3 4 5 6 Total	300 300 500 265 300 300 1,965	June 1978 June 1979 June 1981 June 1982 June 1982 June 1983	Site and plans are unknown. Units are reported to FPC as projected additions to generating capacity of company. Plants will not necessarily be located at the same site.	1
CE4.	Independence Steam Electric Station Nos. 1-2, Newark, Independence County.	Arkansas Power and Light Co., Little Rock, Ark.	Coal--°5.0 (total, both units).	1 2 Total	700 700 1,400	Jan. 1983 Jan. 1985	Units are reported to FPC as projected additions to generating capacity of the company.	1

°Estimated, see appendix for explanation.

TABLE 30. - Future coal slurry pipelines in Arkansas

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
CP1.	Energy Transportation Systems, Inc., Casper, Wyo., and Kansas-Nebraska Natural Gas Co., Phillipsburg, Kans.	Gillette, Wyo.	White Bluff, Ark.	1,036		1978-1979	38	Capacity: 25 MMtpy	2

List of Data Sources for Arkansas

1. Federal Power Commission. Proposed Generating Capacity Changes for the Period 1975 Through 1984. Reported Apr. 1, 1975, in response to Docket R-362, Order 383-3.
2. Stroud, R. B., Bureau of Mines State Liaison Officer, Little Rock, Ark. June 14, 1977.

California

Data on the following California projects are presented in tables 31-37. The map reference numbers correspond with the accompanying California map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
OE1.....	Hunters Point No. 1.....	Pacific Gas and Electric Co.
OE2.....	Portrero Nos. 7A-7B.....	Do.
OE3.....	Mobile Emergency No. 2....	Do.
OE4.....	Mobile Emergency No. 3....	Do.
OE5.....	Geysers Nos. 12-17.....	Do.
OE6.....	Geysers.....	Sacramento Municipal Utilities District.
OE7.....	Thermal A 1-3, B 1-3, A 1-10, B 1-10, C.	Pacific Gas and Electric Co.
OE8.....	Helms Nos. 1-3.....	Do.
OE9.....	Haas.....	Do.
OE10.....	Central Valley Project....	Do.
OE11.....	Kerckhoff.....	Do.
OE12.....	Big Creek.....	Southern California Edison Co.
OE13.....	Lucerne Valley Nos. 1-5...	Do.
OE14.....	South Bay Nos. 2-3.....	San Diego Gas and Electric Co.
OE15.....	Castaic Nos. 5-6.....	Los Angeles Department of Water and Power.
OE16.....	Cool Water Nos. 3-4.....	Southern California Edison Co.
OE17.....	Encina No. 5.....	San Diego Gas and Electric Co.
OE18.....	Fuel Cells.....	Southern California Edison Co.
OE19.....	Unnamed.....	Pacific Gas and Electric Co.
OE20.....	.....do.....	Do.
OE21.....	.....do.....	Do.
OE22.....	Energy Storage.....	Do.
OE23.....	Unnamed.....	Sacramento Municipal Utilities District.
OE24.....	Calaveras County Hydro....	Do.
OE25.....	Imperial Valley Geothermal	Imperial Irrigation District.
OE26.....	.....do.....	Burbank Public Service Department
OE27.....	.....do.....	Southern California Edison Co.
OE28.....	Scattergood 3.....	Los Angeles Department of Water and Power.
OE29.....	Waste Heat Recovery.....	Do.
OE30.....	Burbank.....	Burbank Public Service Department
OE31.....	Long Beach Nos. 10-11....	Southern California Edison Co.
OE32.....	Unnamed.....	Do.
OE33.....	Combustion Turbine 1-28...	Do.
OE34.....	Combined Cycle 1-3.....	Do.
OE35.....	Unnamed.....	Do.
OE36.....	.....do.....	Do.
OE37.....	Oakland Nos. 1-3.....	Pacific Gas and Electric Co.
OE38.....	Auburn Nos. 1-2.....	U.S. Bureau of Reclamation.
OE39.....	New Melones Nos. 1-2.....	Do.
OE40.....	Cottonwood No. 1.....	California State Department of Water Resources.
OE41.....	Grayson No. 8.....	City of Glendale.

Map ref. No.	Project name	Company or agency
Electric generating plants--Continued:		
OE42.....	Unnamed.....	Southern California Edison Co.
OE43.....	.....do.....	Pacific Gas and Electric Co.
OE44.....	.....do.....	Do.
OE45.....	.....do.....	Do.
OE46.....	Pittsburg.....	Do.
OE47.....	Unnamed.....	Imperial Irrigation District.
OE48.....	Silver Gate No. 2.....	San Diego Gas and Electric Co.
OE49.....	Rollins.....	Pacific Gas and Electric Co.
OE50.....	Combined Turbine No. 1....	Sacramento Municipal Utilities District.
NE1.....	Diablo Canyon Nos. 1-2....	Pacific Gas and Electric Co.
NE2.....	San Onofre Nos. 2-3.....	Southern California Edison Co.
NE3.....	Rancho Seco No. 2.....	Pacific Gas and Electric Co.
NE4.....	San Joaquin.....	Los Angeles Department of Water and Power.
NE5.....	Sundesert Nos. 1-2.....	San Deigo Gas and Electric Co.
NE6.....	Nuclear Nos. A-B.....	Pacific Gas and Electric Co.
NE7.....	Nuclear Nos. D-E.....	Do.
NE8.....	Nuclear Nos. F-G, J.....	Do.
NE9.....	Nuclear Nos. H-I.....	Do.
NE10.....	Nuclear No. K.....	Do.
NE11.....	Nuclear Nos. A-D.....	San Diego Gas and Electric Co.
NE12.....	Nuclear Nos. 1-4.....	Southern California Edison Co.
CE1.....	East Coal.....	Do.
CE2.....	Unnamed.....	Pacific Gas and Electric Co.
CE3.....	Fossil Nos. 1-2.....	Do.
Geothermal facilities:		
G1.....	Geysers.....	Do.
G2.....	.....do.....	Do.
G3.....	Imperial Valley.....	Imperial Irrigation District.
G4.....	.....do.....	Burbank Public Service Department
G5.....	.....do.....	Southern California Edison Co.
G6.....	Geyserville.....	Pacific Gas and Electric Co.
G7.....	Heber.....	San Diego Gas and Electric Co.
G8.....	East Mesa.....	Republic Geothermal Co.
Natural gas processing and storage facilities:		
N1.....	Elk Hills Gas Plant.....	U.S. Navy.
Terminal facilities:		
X1.....	San Francisco.....	Port of San Francisco.
X2.....	Long Beach Terminal.....	Standard Oil Co. (Ohio).
Oil refineries:		
R1.....	Kern County Refinery.....	Kern County Refinery Co.
R2.....	Unnamed.....	Lion Oil Co.
R3.....	.....do.....	Do.
R4.....	.....do.....	Lunday-Thagard Oil Co.
R5.....	.....do.....	U.S.A. Petrochem Corp.
R6.....	.....do.....	Lunday-Thagard Oil Co.
R7.....	.....do.....	Sabre Refining Co.
Petroleum and natural gas pipelines:		
PP1.....	California.....	Standard Oil Co. (Ohio).
PP2.....	California to Arizona.....	Do.

TABLE 31. - Previously reported energy development projects that have been completed or canceled in California

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Electric generating plants:				
City of Glendale, Glendale, Calif.	Grayson Nos. 8-10, Glendale, Los Angeles County.		X	Unit 8 completed. Status of 9-10 unknown.
Pacific Gas and Electric Co., San Francisco, Calif.	Portable-Turbine No. 1, San Francisco, San Francisco County.		X	
Los Angeles Department of Water and Power, Los Angeles, Calif.	Castaic Nos. 3-4, Castaic, Los Angeles County.		X	
Imperial Irrigation Dist., Imperial, Calif.	Coachella No. 4, Coachella, Riverside County.		X	
Southern California Edison Co., Rosemead, Calif.	Long Beach Nos. 1B-7B, Long Beach, Los Angeles County.		X	Not online.
Oil refineries:				
Standard Oil of California (Chevron U.S.A. Inc.), San Francisco, Calif.	Richmond Refinery, Richmond, Martin County.		X	
Do.....	El Segundo Refinery, El Segundo, Los Angeles County.		X	

TABLE 32. - Future electric generating plants in California

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
OE1.	Hunters Point No. 1, San Francisco, San Francisco County.	Pacific Gas and Electric Co., San Francisco, Calif.	Oil.....	1	49	1988		4
OE2.	Portrero Nos. 7A-7B, San Francisco, San Francisco County.	.....do.....	Oil.....	7A 7B Total	292 400 692	1980 1981	Unit 7A is to go online July 1980 and be converted in July 1981 to a combined cycle unit producing 400 Mw.	4, 9-10, 19-20
OE3.	Mobile Emergency No. 2, Richmond, Contra Costa County.	.....do.....	Oil.....	2	32	1978		4
OE4.	Mobile Emergency No. 3, Richmond or Eureka, Contra Costa County.	.....do.....	Oil.....	3	16	1980		4
OE5.	Geysers Nos. 12-17, Geyserville, Sonoma County.	.....do.....	Geothermal.....	12-17 Total	626	1978-1981		3-4, 16, 20
OE6.	Geysers, Geyserville, Sonoma County.	Sacramento Municipal Utilities Dist., Sacramento, Calif.	.....do.....	1-8 Total	880	1982-1986		4, 20
OE7.	Thermal A 1-3, B 1-3, A 4-10, B 4-10, C, San Francisco, Calif.	Pacific Gas and Electric Co., San Francisco, Calif.	Oil..... Oil..... Coal.....	A 1-3 B 1-3 A 4-10 B 4-10 C Total	225 225 575 575 800 2,400	1980-1983 1982-1983 1983	Units A 1-3 and B 1-3 are to go online and then be converted to combined cycle units. Seven additional units will be added to each set of units A and B at the time of conversion.	4, 20
OE8.	Helms Nos. 1-3, Wishon Reservoir, Fresno County.	.....do.....	Hydropower (pump storage).	1 2 3 Total	375 375 375 1,125	June 1981		6, 9-10, 16, 19
OE9.	Haas, North Fork Kings River, Fresno County.	.....do.....	Hydropower.....		15	1981		4
OE10.	Central Valley Project, North Fork Kings River, Fresno County.	.....do.....	.....do.....	3	548 Unknown	1981-1985 1986-1995		4
OE11.	Kerckhoff, San Joaquin River, Fresno County.	.....do.....	.....do.....		150	July 1983		4, 20
OE12.	Big Creek near Huntington Lake, Fresno County.	Southern California Edison Co., Rosemead, Calif.	.....do.....		31	Mar. 1980		4, 9-10, 19.
OE13.	Lucerne Valley Nos. 1-15 and 3 Combined Cycle additions, Lucerne Valley, San Bernardino County.	.....do.....	Oil..... Combined cycle..	1-15 1-3 Total	Total 900 430 1,330	1981-1985 1981-1986		4, 9-10, 16, 19-20
OE14.	South Bay Nos. 2-3, Chula Vista, San Diego County.	San Diego Gas and Electric Co., San Diego, Calif.	Oil.....	2 3 Total	64 64 128	June 1979 June 1979		4, 9-10, 16, 19
OE15.	Castaic Nos. 5-6, Castaic, Los Angeles County.	Los Angeles Department of Water and Power, Los Angeles, Calif.	Hydropower.....	5 6 Total	185 135 320	Jan. 1978 Oct. 1978		4, 9-10, 16, 19

OE16	Cool Water Nos. 3-4, Daggett, San Bernardino County.	Southern California Edison Co., Rosemead, Calif.	Oil.....	3 4 Total	236 236 472	Apr. 1978 Aug. 1978	4, 9-10, 16, 19
OE17	Encina No. 5, Carlsbad, San Diego County.	San Diego Gas and Electric Co., San Diego, Calif.	Oil.....	5	292	1979	4, 9-10, 16, 19
OE18	Fuel Cells, 15 units, unsited.	Southern California Edison Co., Rosemead, Calif.	Oil (fuel cell).	1-15	Total 390	1981-1982	4, 9-10, 19
OE19	Unnamed, unsited.....	Pacific Gas and Electric Co., San Francisco, Calif.	Oil.....		1,725	1984-1991	4
OE20	.....do.....	.....do.....	Hydropower.....		150	1984	4
OE21	.....do.....	.....do.....	.....do.....		500	1986-1995	4
OE22	Energy storage, unsited....	.....do.....	Hydropower pumped storage.		2,400	1986-1995	4
OE23	Unnamed, Rancho Seco, Sacramento County.	Sacramento Municipal Utilities Dist., Sacramento, Calif.	Oil.....		300	1979-1992	4
OE24	Calaveras County Hydro, Calaveras County.	.....do.....	Hydropower.....		270	1982	4
OE25	Imperial Valley Geothermal, Imperial County.	Imperial Irrigation Dist., Imperial, Calif.	Geothermal.....		400	1980-1994	4
OE26	.....do.....	Burbank Public Service Department, Burbank, Calif.	.....do.....		200	1979-1995	4
OE27	.....do.....	Southern California Edison Co., Rosemead, Calif.	.....do.....		650	1986-1995	4
OE28	Scattergood 3, Los Angeles County.	Los Angeles Department of Water and Power, Los Angeles, Calif.	Oil.....	3	309	1979	4
OE29	Waste Heat Recovery, Los Angeles County.	.....do.....	Oil.....		60	1980	4
OE30	Burbank, Los Angeles County.	Burbank Public Service Department, Burbank, Calif.	Oil.....		119	1977	4
OE31	Long Beach Nos. 10-11, Los Angeles County.	Southern California Edison Co., Rosemead, Calif.	Oil.....	10-11	Total 106	1979	4
OE32	Unnamed, San Geronio Pass, Riverside County.	.....do.....	Wind.....		100	1986-1991	4
OE33	Combustion Turbine 1-28, unsited.	.....do.....	Oil.....	1-28	Total 1,414	1987-1994	4
OE34	Combined Cycle 1-3, unsited.	.....do.....	Oil.....	1-3	Total 702	1987-1988	4
OE35	Unnamed, Upper Mojave Desert, San Bernardino County.	.....do.....	Sun.....	1-2	Total 200	1993-1995	4
OE36	Unnamed, Fresno County.....	.....do.....	Hydropower.....		140	1987	4

Site and plans cannot be determined at the present time. Each is 26 Mw.

TABLE 32. - Future electric generating plants in California--Continued

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
OE37	Oakland Nos. 1-3, Oakland, Alameda County.	Pacific Gas and Electric Co., Oakland, Calif.	Oil.....	1	64	May 1978	Addition of gas turbine.....	3, 16, 20
				2	64			
				3	64			
				Total	192			
OE38	Auburn, Auburn, Placer County.	U.S. Bureau of Reclamation, Central Valley Project, Calif.	Hydropower.....		300	Mar. 1984		1, 9-10, 19-20
OE39	New Melones, Melones, Calaveras County.	.....do.....	.....do.....	2	300	1979		1, 9-10, 19
OE40	Cottonwood No. 1, San Luis Obispo, San Luis Obispo County.	California State Department of Water Resources, Calif.	.....do.....	1	5	1985	Formerly Shasta County.....	1, 9-10, 19
OE41	Grayson No. 8, Glendale, Los Angeles County.	City of Glendale, Glendale, Calif.	Oil.....	8	98	1977		1, 9-10, 19
OE42	Unnamed, unsited, 7 units...	Southern California Edison Co., Rosemead, Calif.	Unknown.....	1-7	Total 377	June 1986		1, 9-10, 19
OE43	Unnamed, unsited, 8 units, Geysers area, Lake County.	Pacific Gas and Electric Co., San Francisco, Calif.	Geothermal.....	1	110	July 1979		3, 9-10, 19-20
				2	110	July 1980		
				3	110	July 1981		
				4	110	July 1982		
				5	110	July 1983		
				6	110	July 1984		
				7	110	July 1985		
				8	110	July 1986		
				Total	880			
OE44	Unnamed, San Francisco Bay area.	.....do.....	Oil and gas.....		400	1980-1981	Planning.....	3
OE45	Unnamed, Moss Landing, Monterey County.	.....do.....	.....do.....		400	1984	.....do.....	3
OE46	Pittsburg Powerplant, Pittsburg, Contra Costa County.	.....do.....	Oil.....	1-4	Total 1,600	1980-1983		3
OE47	Unnamed, unsited, 2 units...	Imperial Irrigation Dist., Imperial, Calif.	Oil.....	1-2	Total 100	1980-1983	Expansion.....	1-2, 10
OE48	Silver Gate No. 2, San Diego, San Diego County.	San Diego Gas and Electric Co., San Diego, Calif.	Gas and oil.....	2	162	Sept 1979		20
OE49	Rollins, northeast of Wheatland, Placer, Nevada, and Yuba Counties.	Pacific Gas and Electric Co., San Francisco, Calif.	Hydropower.....		6	Apr. 1981		20
OE50	Combined Turbine No. 1, east of Clay, Sacramento County.	Sacramento Municipal Utilities Dist., Sacramento, Calif.	Oil.....	1	150	July 1979	Probable delay of 4 to 6 years.....	20

NE1.	Diablo Canyon Nos. 1-2, Avila Beach, San Luis Obispo County.	Pacific Gas and Electric Co., San Francisco, Calif.	Nuclear.....	1 2 Total	1,060 1,060 2,120	Mar. 1978 Dec. 1978	Unit 1 was uprated in March 1976 by 40 Mw. In 1982, unit 1 will be uprated 20 Mw and unit 2 will be uprated 50 Mw.	3-4, 9-10, 16, 19
NE2.	San Onofre Nos. 2-3, San Clemente, Orange County.	Southern California Edison Co., Rosemead, Calif.	.....do.....	2 3 Total	1,100 1,100 2,200	Oct. 1981 Jan. 1983	Pacific Ocean is planned water source.	4, 9-10, 16, 19
NE3.	Rancho Seco No. 2, Clay Station, Sacramento County.	Pacific Gas and Electric Co., San Francisco; Sacramento Municipal Utilities Dist., Sacramento, Calif.	.....do.....	2	1,100	1988	Sacramento River is planned water source.	4, 9, 19
NE4.	San Joaquin, Nos. 1-4, east of Hillcrest Center, Kern County (formerly San Joaquin No. 1).	Los Angeles Department of Water and Power, Los Angeles; Southern California Edison Co., Rosemead; Pacific Gas and Electric Co., San Francisco, Calif.	.....do.....	1-4	5,200	1985-1995		4, 9-10, 19
NE5.	Sundesert Nos. 1-2, Blythe, Riverside County.	San Diego Gas and Electric Co., San Diego, Calif.	.....do.....	1 2 Total	974 974 1,948	May 1984 Jan. 1986		4, 10, 16-17, 20
NE6.	Nuclear Nos. A-B, Study Region 1, Amador County.	Pacific Gas and Electric Co., San Francisco, Calif.	.....do.....	A, B	Total 2,200	1985-1989		4
NE7.	Nuclear Nos. D-E, Tulare County.	.....do.....	.....do.....	D, E	Total 2,500	1988-1989		4
NE8.	Nuclear Nos. F-G, J, Tuolumne County.	.....do.....	.....do.....	F, G J Total	2,500 1,250 3,750	1990-1991 1994		4
NE9.	Nuclear Nos. H-I, Santa Barbara County.	.....do.....	.....do.....	H, I	Total 2,500	1992-1993		4
NE10.	Nuclear No. K, El Dorado County.	.....do.....	.....do.....	K	1,250	1995		4
NE11.	Nuclear Nos. A-D, unsited...	San Diego Gas and Electric Co., San Diego, Calif.	.....do.....	A, B, C, D	Total 4,400	1988-1994		4
NE12.	Nuclear Nos. 1-4, unsited...	Southern California Edison Co., Rosemead, Calif.	.....do.....	1-4	Total 4,000	1989-1995		4
CE1.	East Coal, unsited.....	.....do.....	Coal.....	1-4	Total 5,200	1990-1994		4
CE2.	Unnamed, northern California	Pacific Gas and Electric Co., San Francisco, Calif.	Coal--5.2.....		1,600	1985	Will apply for building permits summer-fall 1977.	18
CE3.	Fossil Nos. 1-2, unsited....	.....do.....	Coal.....	1 2 Total	800 800 1,600	July 1984 July 1985	Early planning stage.....	3, 20

TABLE 33. - Future geothermal facilities in California

Map ref. No.	Location	Company	Current status, plans, and other relevant information	References
G1..	Geysers area, Lake and Sonoma Counties.	Pacific Gas and Electric Co., San Francisco, Calif., and others.	Pacific Gas and Electric Co. currently has 11 units with a total of 500 Mw of installed electric generating capacity. Unit Nos. 12-15, totaling 406 Mw, will be installed in 1978 and 1979. Step-out drilling will continue as well as redrilling in productive areas. Development will probably exceed 1,500 Mw and may reach 2,500 Mw by 1985. Developed field may exceed 25 to 30 square miles. Wells are drilled by Union Oil Co., Thermal Power Co., Pacific Energy Co., Burmah Oil Co., Shell Oil Co., Sun Oil Co., and others.	5
G2..	.....do.....	.....do.....	3 units. Total 600 Mw by 1985.	4
G3..	Imperial Valley, Imperial County.	Imperial Irrigation Dist., Imperial, Calif.	400 Mw. Planned 1980.	4
G4..	.....do.....	Burbank Public Service Department, Burbank, Calif.	200 Mw. Planned 1979.	4
G5..	.....do.....	Southern California Edison Co., Rosemead, Calif.	13 units. 650 Mw. Planned 1986.	4
G6..	Geyserville, Napa County.	Pacific Gas and Electric Co., San Francisco, Calif.	7 units. 770 Mw. Units will be installed from May 1981 to June 1984.	4
G7..	Heber, Imperial County.	San Diego Gas and Electric Co., San Diego, Calif.	45-Mw plant proposed for operation in 1980.	2
G8..	East Mesa, Imperial County.	Republic Geothermal, San Diego, Calif.	45- to 50-Mw plant proposed for operation. Company has obtained \$9 million loan guarantee from DOE to develop the geothermal steam field and powerplant.	2

TABLE 34. - Future natural gas processing and storage facilities in California

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Elk Hills Gas Plant, Elk Hills, Kern County.	U.S. Navy, Elk Hills, Calif.	Dec. 1977	100,000 Mcfd	Engineering stage. Plan to step up production to 400 to 600 MMcfd.	7, 13

TABLE 35. - Future terminal facilities in California

Map ref. No.	Terminal location	Operating company	Type	Capacity	Initial operating date	Remarks	References
X1..	San Francisco, San Francisco County.	Port of San Francisco, San Francisco, Calif.	Bulk terminal.	1 MM tons..	Unknown	Bulk terminal at Pier 94N to be constructed to handle low-sulfur coal and other bulk cargoes. Site includes loop track and space for 1 million tons of stockpiled bulk material.	11
X2..	Long Beach Terminal, Long Beach, Los Angeles County.	Standard Oil Co. (Ohio), Richmond, Calif.	Sour crude	615,000 bpd	1978	500 ft south of Pier J. Will move surplus Alaskan oil away from coast.	8, 14

TABLE 36. - Future oil refineries in California

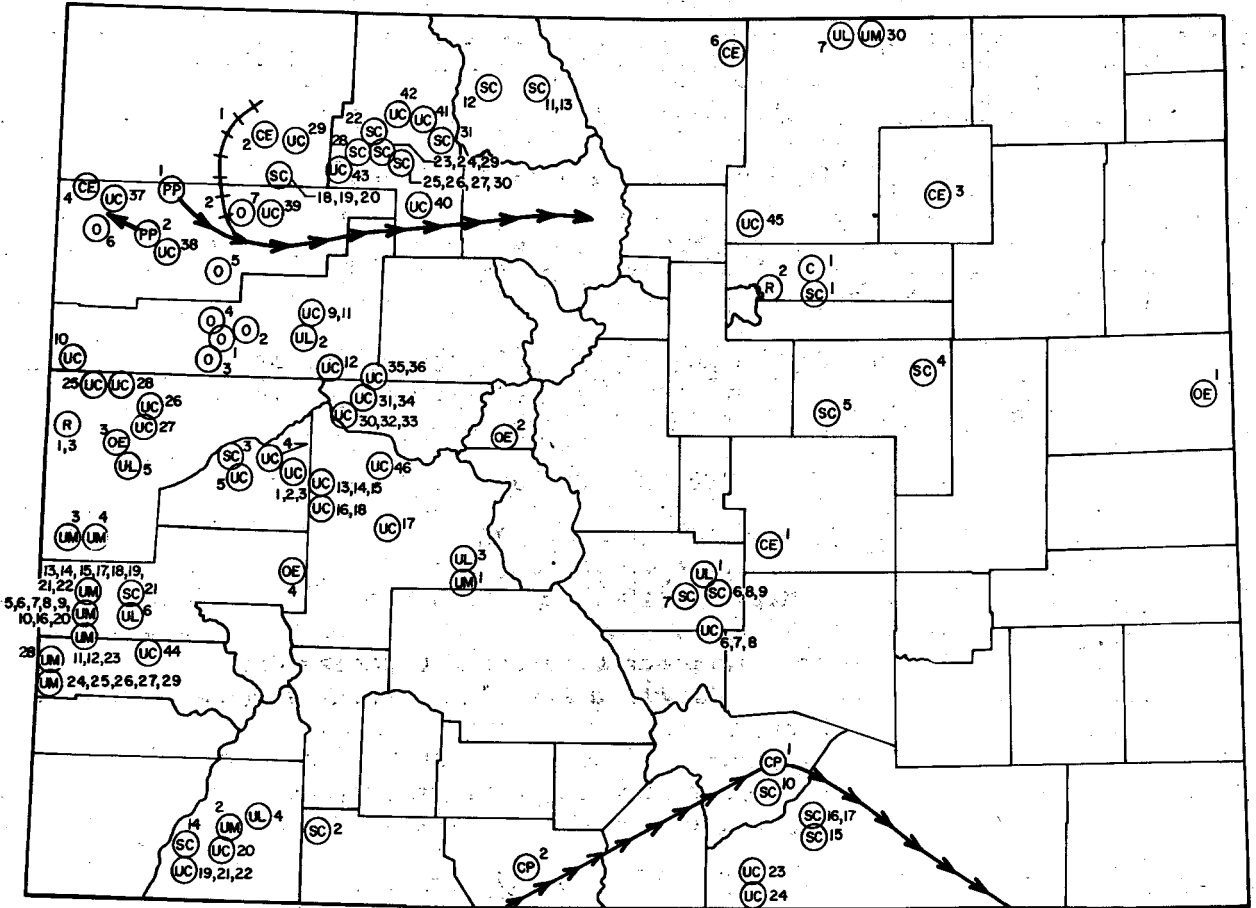
Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Kern County Refinery, Bakersfield, Kern County.	Kern County Refinery Co., Los Angeles, Calif.	Oct. 1979 Oct. 1979	CAT reform 900 CAT HDT... 800	Feed pretreatment.	13
R2..	Unnamed, Bakersfield, Kern County.	Lion Oil Co., St. Louis, Mo.	Sept. 1979 Dec. 1978	CAT reform 1,500 CAT HDT... 1,800		13
R3..	Unnamed, Martinez, Solano County.	.....do.....	1979 1979	CAT reform 3,500 CAT HDT... 1,500		13
R4..	Unnamed, Torrance, Los Angeles County.	Lunday-Thagard Oil Co., Southgate, Calif.	June 1978	CAT HDC... 3,000		13
R5..	Unnamed, Ventura, Ventura County.	U.S.A. Petrochem Corp., Ventura, Calif.	Unknown	Crude..... 31,500	Engineering stage.	13
R6..	Unnamed, South Gate, Los Angeles County.	Lunday-Thagard Oil Co., Southgate, Calif.	June 1977	Crude..... 1,500		13
R7..	Unnamed, Bakersfield, Kern County.	Sabre Refining Co., Huntington Beach, Calif.	June 1977	Crude..... 1,500		13

TABLE 37. - Future petroleum and natural gas pipelines in California

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PP1.	Standard Oil Co. (Ohio), Richmond, Calif.	Long Beach Harbor, Calif.	Moreno, Calif....	78	Crude	Mid-1978	30	669 miles of existing lines will be used to connect these lines. Pipeline will be used to move Prudhoe Bay oil away from coast. Existing lines will be leased from Coronado Pipeline Co. Plan subject to State approval.	12, 15
PP2.do.....	35 miles west of Colorado River, Calif.	Ehrenberg, Ariz. (on California-Arizona border).	150		Mid-1978	42do.....	12, 15

List of Data Sources for California

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LEGEND

- | | | | |
|------|---------------------------------------|--------|---|
| (SC) | Strip coal mines | (LM) | Uranium mines |
| (UC) | Underground coal mines | (UL) | Uranium mills and enrichment facilities |
| (CE) | Coal-fired electric generating plants | (R) | Oil refineries |
| (OE) | "Other" electric generating plants | —+—+— | Railroads (related to energy development) |
| (C) | Coal conversion plants | (CP) → | Coal slurry pipelines |
| (O) | Oil shale project | (PP) → | Petroleum and natural gas pipelines |

FIGURE 5: - Future energy-related projects in Colorado.

Colorado

Data on the following Colorado projects are presented in tables 38-48.
The map reference numbers correspond with the accompanying Colorado map.

Map ref. No.	Project name	Company or agency
Coal mines:		
SC1.....	Watkins Lignite.....	Cameron Engineers, Inc.
SC2.....	Mel Martinez.....	Chimney Rock Coal Co.
SC3.....	Tomahawk.....	Quinn Development Co.
SC4.....	Limon.....	Limon Fuels Co.
SC5.....	Station Creek Lignite mine	Cameron Engineers, Inc.
SC6.....	Black Diamond.....	G.E.C. Minerals, Inc.
SC7.....	Cedar Canon.....	Cedar Canon Coal Co.
SC8.....	G.E.C. S & A.....	G.E.C. Minerals, Inc.
SC9.....	Hastings.....	Robert M. Hastings.
SC10.....	No-Name.....	Groves-Calder.
SC11.....	Canadian Strip.....	Sigma Mining Co.
SC12.....	Grizzly Creek.....	Zapata Colorado Mining Corp.
SC13.....	Marr Strip No. 1.....	Kerr Coal Co.
SC14.....	Hay Gulch.....	C&F Coal Co.
SC15.....	Del Agua Strip.....	Del Agua Coal Co.
SC16.....	Healey Strip.....	Horner Coal Co.
SC17.....	Jewell Strip.....	Do.
SC18.....	Colowyo.....	Colowyo Coal Co.
SC19.....	Trapper.....	Utah International, Inc.
SC20.....	Williams Fork Strip.....	Empire Energy Corp.
SC21.....	Nucla Strip.....	Peabody Coal Co.
SC22.....	Denton Strip.....	Milner Coal Corp.
SC23.....	Edna.....	Pittsburg & Midway Coal Mining Co.
SC24.....	Eilt's Property.....	Sun Coal Co.
SC25.....	Energy Strip No. 1.....	Energy Fuels, Inc.
SC26.....	Energy Strip No. 2.....	Do.
SC27.....	Energy Strip No. 3.....	Do.
SC28.....	Hayden Gulch.....	W. R. Grace & Co.
SC29.....	Meadows No. 1.....	Sun Coal Co.
SC30.....	Seneca Strip No. 2.....	Seneca Coals, Ltd.
SC31.....	Unnamed.....	Shell Oil Co.
UC1.....	Blue Ribbon.....	Sunflower Energy Corp.
UC2.....	Bowie.....	Coors Industries, Inc.
UC3.....	Farmer.....	Pittsburg & Midway Coal Mining Co.
UC4.....	Orchard Valley.....	Colorado Westmoreland, Inc.
UC5.....	Red Canon No. 1.....	Coalby Mining Co.
UC6.....	Golden Quality No. 5.....	Golden Quality Coal Co.
UC7.....	Newlin Creek.....	Newlin Creek Coal Corp.
UC8.....	Twin Pines.....	Twin Pines Coal Co.
UC9.....	Eastside.....	Louis Bendetti.
UC10.....	McClane Canyon.....	Sheridan Enterprises, Inc.
UC11.....	Nu-Gap No. 3.....	Henry Bendetti Coal Co.

Map ref. No.	Project name	Company or agency
Coal mines--		
Continued:		
UC12.....	Sunlight.....	Carbon King, Ltd.
UC13.....	Bear.....	Bear Coal Co.
UC14.....	Hawks Nest East No. 2.....	Western Slope Carbon, Inc.
UC15.....	Hawks Nest West No. 3.....	Do.
UC16.....	Mt. Gunnison No. 1.....	Atlantic Richfield Co.
UC17.....	O.C. mine No. 2.....	O. C. Mine Co.
UC18.....	Somerset.....	U.S. Steel Corp.
UC19.....	Blue Flame.....	Fidel Lobato.
UC20.....	Coal Gulch.....	Arness-McGriffin Coal Co.
UC21.....	King.....	King Coal Co.
UC22.....	Peacock.....	Peacock Coal Co.
UC23.....	Lorencito.....	Freeport Coal Co.
UC24.....	Maxwell.....	CF&I Steel Corp.
UC25.....	Anchor-Tresner Unit.....	Coal Mining Partners.
UC26.....	Cameo.....	Cameo Coal Co.
UC27.....	CMC.....	Cambridge Mining Co.
UC28.....	McGinley No. 1.....	Village Land Co. and Certified Realty.
UC29.....	Wise Hill No. 5.....	Empire Energy Corp.
UC30.....	Bear Creek.....	Mid-Continent Coal and Coke Co.
UC31.....	Coal Basin.....	Do.
UC32.....	Dutch Creek No. 1.....	Do.
UC33.....	Dutch Creek No. 2.....	Do.
UC34.....	L. S. Wood.....	Do.
UC35.....	Thompson Creek No. 1.....	Anschutz Coal Corp.
UC36.....	Thompson Creek No. 3.....	Do.
UC37.....	Gordon.....	Moon Lake Electric Co.
UC38.....	Unnamed.....	Northern Natural Gas Co.
UC39.....	Rienau No. 2.....	Sewanne Mining Co.
UC40.....	Apex No. 2.....	Sunland Mining Corp.
UC41.....	Blazer.....	Blazer Fuels Co.
UC42.....	Dawson Unit.....	Coal Fuels Corp.
UC43.....	Sun.....	Ruby Construction Co.
UC44.....	Elder.....	Holland and Sons Mining Co.
UC45.....	Lincoln.....	Imperial Coal Co.
UC46.....	Peanut.....	U.S. Energy Corp.
Electric generating plant:		
CE1.....	Nixon.....	City of Colorado Springs Electric Department.
CE2.....	Craig.....	Colorado Ute Electric Association.
CE3.....	Pawnee.....	Public Service Co. of Colorado.
CE4.....	Hatch Flats.....	Intermountain Consumers Power Association.
CE5.....	Unnamed.....	Public Service Co. of Colorado.
CE6.....	Rawhide No. 1.....	Platte River Power Authority.
OE1.....	Burlington.....	Tri-State Generation and Transmission Association.

Map ref. No.	Project name	Company or agency
Electric generating plants--Continued:		
OE2.....	Mt. Elbert Nos. 1-2.....	U.S. Bureau of Reclamation.
OE3.....	Dominguez.....	Do.
OE4.....	Crystal.....	Do.
Coal conversion plants:		
C1.....	Watkins Lignite.....	Mintech Corp.
Oil shale facilities:		
01.....	Parachute Creek.....	Colony Development Corp.
02.....	Paraho Demonstration Project.	Paraho Development Corp.
03.....	Roan Creek Project.....	Occidental Oil Shale, Inc.
04.....	Union Oil Project.....	Union Oil Co. of California.
05.....	C-b Project.....	Ashland Oil Co.
06.....	Rio Blanco Oil Shale Project.	Gulf Oil Corp. and Standard Oil Co. (Indiana).
07.....	Superior Oil Project.....	The Superior Oil Co.
Uranium mines:		
UM1.....	Pitch.....	Homestake Mining Co.
UM2.....	Durango Tailing Pile.....	Ranchers Exploration and Development Corp.
UM3.....	C-G-26A.....	Lois B. Foster.
UM4.....	C-G-27A.....	Pioneer-Uravan, Inc.
UM5.....	C-JD-5A.....	Do.
UM6.....	C-JD-7.....	Cotter Corp.
UM7.....	C-JD-7A.....	Do.
UM8.....	C-JD-8.....	Do.
UM9.....	C-JD-8A.....	Pioneer-Uravan, Inc.
UM10.....	C-JD-9.....	Cotter Corp.
UM11.....	C-WM-17.....	Do.
UM12.....	C-WM-17A.....	Robert Taylor.
UM13.....	C-SM-18.....	Cotter Corp.
UM14.....	C-AM-19A.....	Do.
UM15.....	C-AM-20.....	Do.
UM16.....	C-LP-21.....	Do.
UM17.....	C-LP-22A.....	Do.
UM18.....	C-BL-23.....	Ince Minerals.
UM19.....	C-BL-23A.....	Pioneer-Uravan, Inc.
UM20.....	C-BL-23B.....	W. M. Huff.
UM21.....	C-CM-24.....	Nuclear Resources.
UM22.....	C-CM-25.....	Cotter Corp.
UM23.....	Naturita Tailings Pile....	Ranchers Exploration and Development Corp.
UM24.....	C-SR-11A.....	Cotter Corp.
UM25.....	C-SR-12.....	Shiela Schabacker.
UM26.....	C-SR-14.....	Environmental Development, Ltd.
UM27.....	C-SR-14A.....	Pioneer-Uravan, Inc.
UM28.....	C-SR-15A.....	Walter Buchanan.

Map ref. No.	Project name	Company or agency
Uranium mines--		
Continued:		
UM29.....	Letty Jones.....	Cotter Corp.
UM30.....	Unnamed.....	Wyoming Minerals Corp.
Uranium mills and enrichment facilities:		
UL1.....	Canon City.....	Cotter Corp.
UL2.....	Rifle Mill.....	Union Carbide Corp.
UL3.....	Pitch.....	Homestake Mining Co.
UL4.....	Durango Leach Site.....	Ranchers Exploration and Development Corp.
UL5.....	Unnamed.....	Cotter Corp.
UL6.....	Naturita Leach Site.....	Ranchers Exploration and Development Corp.
UL7.....	Precipitating Plant.....	Wyoming Minerals, Inc.
UL8.....	Unnamed.....	Pioneer-Uravan, Inc.
Oil refineries:		
R1.....	.....do.....	Hunt Oil Co.
R2.....	.....do.....	Continental Oil Co.
R3.....	Gary Western Refinery.....	Gary Western Co.
Railroads:		
1.....	Colorado.....	Denver & Rio Grande Western Railroad.
2.....	.....do.....	Do.
Coal slurry pipelines:		
CP1.....	Colorado to Texas.....	San Marco Pipe Line Co.
CP2.....	New Mexico to Colorado....	Houston Natural Gas Co. and Rio Grande Western Railroad.
Petroleum and natural gas pipelines:		
PP1.....	Colorado.....	Western Slope Gas Co.
PP2.....	.....do.....	Rio Blanco Oil Shale Project.

TABLE 38. - Previously reported energy development projects that have been completed or canceled in Colorado

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Powerplants:				
Public Service Co. of Colorado, Denver, Colo.	Comanche No. 2, Pueblo, Pueblo County.		X	Online in 1976.
Salt River Project and Colorado Ute Electric Association.	Hayden No. 2, east of Hayden, Routt County.		X	Online September 1, 1976.
U.S. Bureau of Reclamation, Denver, Colo.	Morrow Point No. 2, southwest Gunnison County.		X	Online.
City of Colorado Springs Electric Department, Colorado Springs, Colo.	Nixon No. 3.....	X		
Coal slurry pipelines:				
Cambridge Mining Corp., Palisade, Colo.	Cambridge Mining Corp., mine to Cameo Powerplant, Cameo, Colo.	X		
Coal mines:				
Kerr-McGee Corp., Oklahoma City, Okla.	Unnamed, near Watkins, Adams County...	X		No action.
Coalby Mining Co., Cedaredge, Colo....	Coalby No. 2, Cedaredge, Delta County.	X		Do.
Consolidation Coal Co., Denver, Colo..	Unnamed, 20 miles southwest of Walden, Coalmont area, Jackson County.	X		Plans indefinite.
Energy Resources Co., Denver, Colo....	Unnamed, near Hesperus, LaPlata County	X		No significant action.
Tipperary Oil and Gas Corp., Midland, Tex.	Unnamed, near Pryor, Las Animas County	X		No report.
Kemmerer Coal Co., Kemmerer, Wyo.....	Unnamed, Savery area, Moffat County...	X		No action.
Blue Mountain Coal Co.....	Unnamed, 4 miles west of Rangely, Moffat County.	X		Do.
Paul S. Coupey, unknown.....	Unnamed, 2 miles south of Craig, Moffat County.	X		No further report.
H. W. Siddle, Littleton, Colo.....	Unnamed, near Cimarron, Montrose County.	X		Exploration completed; no development anticipated.
Consolidation Coal Co., Denver, Colo..	Unnamed, 9 miles north of Meeker, Rio Blanco County.	X		Exploration only; no development plans announced.
Midland Coal Co.....	Unnamed, 8 miles northwest of Rangely, Rio Blanco County.	X		No action.
Thomas C. Woodward, Casper, Wyo.....	Unnamed, 10 miles west of Steamboat Springs, Routt County.	X		Waiting completion of negotiations.
Coal Fuels, Rollinsville, Colo.....	Unnamed, 20 miles west of Steamboat Springs, Routt County.	X		No report.
American Electric Power System.....	Unnamed, 3 miles north of Pagoda, Routt County.	X		Do.
Morgan Coal Co.....	Unnamed, southwest of Steamboat Springs, Routt County.	X		Do.
Waste-to-fuel conversion plants:				
Energy Conversion Systems, Inc.....	Unnamed, Denver, Denver County.....	X		Do.
The Oil Shale Corp.....	Unnamed, near Tosco Laboratory, north of Golden, Jefferson County.		X	Scrap tire processing pilot plant in operation.
Bio-Gas of Colorado, Inc.....	Monfort Feedlot, Greeley, Weld County.	X		Funding could not be raised.

TABLE 39. - Future coal mines in Colorado

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
SC1.	Watkins Lignite, north of Watkins, Adams County (T 2 S, Rs 64-66 W; T 3 S, Rs 64-65 W).	Cameron Engineers, Inc., Denver, Colo.	Strip....	12.5--1983	Moisture--30% Ash--30% Sulfur--0.3%-0.4% Btulb--4,000	25	180	Coal production would be dedicated to a mine mouth gasification plant.	4, 12
SC2.	Mel Martinez, 4 miles southeast of Piedra, Archuleta County (T 34 N, R 4 W).	Chimney Rock Coal Co., Pagosa Springs, Colo.	...do....	0.025--1977 0.1--1978	Moisture--4%-5% Ash--6%-7% Sulfur--0.4%-0.5% Btulb--12,200-13,000	4 seams, 4 to 13	20 outcrop	1977 production through June was 625 tons. Local coal sales.	4, 12
SC3.	Tomahawk, 4 miles northwest of Cedaredge, Delta County (T 13 S, R 95 W).	Quinn Development Co., Montrose, Colo.	...do....	0.08--1977 0.25--1978	Moisture--8%-14% Ash--9.3% Sulfur--0.9% Btulb--11,600-12,090	11.5	260 outcrop	Stripping underway. May include an auger operation. Approximately 2 million tons of reserve to be mined by surface methods.	4, 12
SC4.	Limon, 4 miles northwest of Cedar Point, Elbert County (T 8 S, R 58 W).	Limon Fuels Co., Limons, Colo.	...do....	0.3--1977 0.8--1978	Moisture--33% Ash--11%-17% Sulfur--0.17%-0.43% Btulb--7,000	Upper, 10 to 22; lower, 3 to 8.	65	Plan local sale of stoker coal (approximately 12,000 tpy). Additional production to utilities.	4, 12
SC5.	Station Creek Lignite, 5 miles southeast of Kiowa, Elbert County (T 8 S, R 61 & 62 W; T 9 S, R 61 & 62 W).	Cameron Engineers, Inc., Denver, Colo.	...do....	1--1982	Lignite	8 to 10	140	Would be dedicated to a mine mouth gasification plant.	4, 12
SC6.	Black Diamond, 6 miles southwest of Florence, Fremont County (T 20 S, R 70 W).	G.E.C. Minerals, Inc., Florence, Colo.	...do....	0.044--1976 0.06--1977	Moisture--8.9%-13% Ash--7.9%-17.1% Sulfur--0.3%-0.6% Btulb--10,000-11,290	6 to 7	100	Planned local sales to domestic and institution markets.	4, 12
SC7.	Cedar Canon, 4 miles southwest of Rockvale, Fremont County (T 19 S, R 70 W).	Cedar Canon Coal Co., Florence, Colo.	...do....	0.002--1976 0.003--1977	Moisture--9%-10% Ash--9.9% Sulfur--0.6% Btulb--12,290	5.5 to 6.1	70 maximum	Planned utility sales	4, 12
SC8.	G.E.C. S&A, 7 miles southwest of Florence, Fremont County (T 20 S, R 70 W).	G.E.C. Minerals, Inc., Florence, Colo.	...do....	Joint output with Black Diamond to total no more than 0.1.	Moisture--7.5%-8.2% Ash--9.5%-11.2% Sulfur--0.8%-1.3% Btulb--11,160-13,680	6 to 7	100 maximum	Formerly Corley Strip and Auger mine.	4, 12
SC9.	Hastings, 6 miles southwest of Florence, Fremont County.	Robert M. Hastings, Beulah, Colo.	...do....		Bituminous	5 to 8	2 to 20	New operation.....	3
SC10	No-Name, near Walsenburg, Huerfano County (T 27 S, R 67 W).	Groves-Calder, Walsenburg, Colo.	...do....	0.05 to 0.10-- 1979	.....do.....			Hold 9,400 acres of private leases and 1,200 acres of State leases.	4
SC11	Canadian Strip, 9.5 miles southeast of Walden, Jackson County (T 8 N, R 78 W).	Sigma Mining Co., Walden, Colo.	Strip....	0.12--1977	Moisture--12.8%-16.1% Ash--3.2%-19.2% Sulfur--0.6%-1.4% Btulb--10,500-11,160	34 to 40	20 to 25	Spot sales to utilities.	4
SC12	Grizzly Creek, 4 miles south of Hebron, Jackson County (T 7 N, R 80-81 W; T 6 N, R 80 W).	Zapata Colorado Mining Corp., Englewood, Colo.	...do....	0.5--1979 2.0--1980	Moisture--15%-20% Ash--5.5%-13.1% Sulfur--0.2%-1.0% Btulb--6,520-9,570	25	10 to 200	Possible sales to utilities out of State.	4, 12

SC13	Marr Strip No. 1, 9 miles southeast of Walden, Jackson County (T 9 N, R 78 W).	Kerr Coal Co., Walden, Colo.	...do....	0.3--1980	Moisture--11.0%-14.4% Ash--2.1%-10.8% Sulfur--0.2%-0.7% Btulb--10,040-13,290	60	230	Markets would be AMAX's Henderson mill and spot sales to utilities.	4
SC14	Hay Gulch, 4 miles southwest of Hesperus, La Plata County (T 35 N, R 11 W).	C&F Coal Co., Inc., Durango, Colo.	...do....	0.025--1978 0.05--1980	Moisture--5%-6% Ash--7%-10% Sulfur--0.6%-1.6% Btulb--11,800-14,000	7	70	100,000 tons of strippable coal available, remainder to be mined underground.	4, 12
SC15	Del Agua Strip, Del Agua, Las Animas County (T 31 S, R 65 W).	Del Agua Coal Co., Trinidad, Colo.	...do....	Small					19
SC16	Healey Strip, 1.5 miles northwest of Aguilar, Las Animas County.	Horner Coal Co., Aguilar, Colo.	...do....	0.15--1978	Moisture--2%-3% Ash--8%-9% Sulfur--0.6%-0.7% Btulb--12,256	3.6	50 maximum	Sales to utilities and institutions.	4, 12
SC17	Jewell Strip, 2 miles northwest of Aguilar, Las Animas County (T 30 S, R 65 W).	.....do.....	...do....	0.05--1977	Moisture--13.85% Ash--8.15% Sulfur--0.44% Btulb--9,207	3.6 to 5.0	60 maximum	Temporarily closed because of permit problems.	4, 12
SC18	Colowyo, 28 miles southwest of Craig, Moffat County (T 3 N, R 93 W).	Colowyo Coal Co., Craig, Colo.	...do....	0.25--1977 3.0--1980	Moisture--15% Ash--5% Sulfur--0.4% Btulb--10,500	2.7 to 12.3	300 maximum	Ten seams with a total thickness of 59.4 ft will be mined. Planned utility sales. Joint venture between W. R. Grace & Co. and Hanna Mining Co.	4, 12
SC19	Trapper (Craig), 6 miles southwest of Craig, Moffat County (Ts 5-6 N, R 91 W).	Utah International, Inc., Craig, Colo.	...do....	0.4--1977 2.2--1979	Moisture--16% Ash--5.7% Sulfur--0.3%-0.5% Btulb--9,500-11,500	11	40 to 120	Production dedicated to Craig powerplant. Formerly listed as unnamed. Includes Wilson Creek Project	4, 12
SC20	Williams Fork Strip No. 2, 6 miles southwest of Craig, Moffat County (T 6 N, R 91 W).	Empire Energy Corp., Craig, Colo.	...do....	Idle				Reopening depends on market for coal.	4
SC21	Nucla Strip, 4 miles northwest of Nucla, Montrose County (T 47 N, R 16 W).	Peabody Coal Co., Nucla, Colo.	...do....	0.11--1979	Moisture--6%-8% Ash--9.4% Sulfur--0.8% Btulb--11,550	1 to 5.5	30 to 55	Sells to Nucla powerplant.	4, 12
SC22	Denton Strip, 2 miles southwest of Milner, Routt County (T 6 N, R 86 W).	Milner Coal Corp., Milner, Colo.	...do....		Bituminous	9.5	60	Plans indefinite.....	4, 12
SC23	Edna, 4 miles north of Oak Creek, Routt County (T 4 N, R 86 W).	Pittsburg & Midway Coal Mining Co., Oak Creek, Colo.	...do....	1.0--1979 0.85--1980	Moisture--7.7%-12.5% Ash--3.3%-13.2% Sulfur--0.6%-2.1% Btulb--10,400-12,080	6	40 to 60	Ships to spot market and utilities.	4, 12
SC24	Eilt's Property, 2 miles south of Bear River, Routt County (T 6 N, R 87 W).	Sun Coal Co., Inc., Milner, Colo.	Strip (then under- ground).	0.15--1977 0.25--1978	Moisture--8% Ash--10% Sulfur--0.6% Btulb--10,500-12,000	8	100	Affiliated with A. T. Massey Coal Co.	4, 12
SC25	Energy Strip No. 1, 6 miles west of Haybro, Routt County (Ts 4-5 N, R 86 W).	Energy Fuels, Inc., Steamboat Springs, Colo.	Strip....	1.7--1978	Moisture--5.7%-10.4% Ash--8%-17.8% Sulfur--0.5%-0.6% Btulb--10,400-11,380	7.0 to 10.0	200	Ships to utilities...	4, 12

TABLE 39. - Future coal mines in Colorado--Continued

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
SC26	Energy Strip No. 2, 2 miles northwest of Haybro, Routt County (T 5 N, R 87 W).	Energy Fuels, Inc., Steamboat Springs, Colo.	Strip....	1.1--1978	Moisture--10% Ash--4.1%-9% Sulfur--0.5% Btulf--11,300-11,590	4.5 to 5.0	200	Ships to utilities....	4, 12
SC27	Energy Strip No. 3, 5 miles southeast of Milner, Routt County (T 5 N, R 86 W).	.....do.....	...do....	0.5--1978	Moisture--11% Ash--7.2%-9% Sulfur--0.5% Btulf--10,820-11,300	4.5 to 9	200	.....do.....	4
SC28	Hayden Gulch, 10 miles South of Hayden, Routt County.	W. R. Grace & Co., Denver, Colo.	...do....	1.0--1978		5 seams		County-owned coal....	20
SC29	Meadows No. 1, Routt County (T 6 N, R 87 W).	Sun Coal Co., Inc., Milner, Colo.	...do....					New operation.....	3
SC30	Seneca Strip No. 2, 7 miles southeast of Hayden, Routt County (Ts 5-6 N, R 87 W).	Seneca Coals, Ltd., Hayden, Colo.	...do....	1.5--1980	Moisture--8%-10% Ash--9.5% Sulfur--0.5% Btulf--10,500-11,130	9	30	Production dedicated to Hayden powerplant.	4, 12
SC31	Unnamed, 10 miles west of Steamboat Springs, Routt County.	Shell Oil Co., Houston, Tex.	...do....					Exploration under agreement with Merchants Petroleum Co. A long-range project. Coalbeds dip 8° to 14°.	19
UC1.	Blue Ribbon, 7 miles northeast of Paonia, Delta County (T 13 S, R 91 W).	Sunflower Energy Corp., Denver, Colo.	Under-ground.	0.01--1977 0.05--1980	Moisture--6.5% Ash--4.7% Sulfur--0.5% Btulf--13,600	6	250 to 800	Planned local coal sales.	4, 12
UC2.	Bowie, 2 miles northwest of Bowie, Delta County (T 13 S, R 91 W).	Coors Industries, Inc., Golden, Colo.	...do....		Moisture--2.9%-6.1% Ash--4.3%-8.1% Sulfur--0.4%-1.2% Btulf--12,700-13,500	16	1,800 to 2,000	Property held as alternate fuel source. Was the King mine owned by Juanita Coal and Coke Co.	4, 12
UC3.	Farmer, 4 miles northeast of Paonia, Delta County (T 13 S, R 91 W).	Pittsburg & Midway Coal Mining Co., Denver, Colo.	...do....	0.3--1980 1--1982	Moisture--6%-7% Ash--3.2%-5.4% Sulfur--0.4%-0.6% Btulf--11,500	5 to 11	2,200	Full capacity is dependent upon additional lease acquisition.	4, 12
UC4.	Orchard Valley, 3 miles northwest of Paonia, Delta County (T 13 S, R 92 W).	Colorado Westmoreland, Inc., Paonia, Colo.	...do....	0.5-0.7--1978 1--1980	Moisture--10%-11% Ash--3%-4% Sulfur--0.4%-0.44% Btulf--12,000	27	450 to 1,800	1977 production through May was 84,000 tons. Formerly the Converse mine.	3-4, 12
UC5.	Red Canon No. 1, 2 miles northwest of Cedaredge, Delta County (T 13 S, R 95 W).	Coalby Mining Co., Cedaredge, Colo.	...do....	0.005--1977	Moisture--14.5% Ash--6.7% Sulfur--0.7% Btulf--12,000	4	125 to 200	Planned local coal sales. Owner previously operated the Coalby No. 3 mine.	4, 12
UC6.	Golden Quality No. 5, 3 miles south of Canon City, Fremont County (T 20 S, R 70 W).	Golden Quality Coal Co., Canon City, Colo.	...do....	Idle 1976	Moisture--9.9-10.7% Ash--7.4%-10.4% Sulfur--0.4%-0.5% Btulf--10,920-11,400	6	2,000	Reopening date is uncertain.	4, 12
UC7.	Newlin Creek, Fremont County (T 20 S, R 69 W).	Newlin Creek Coal Corp., Canon City, Colo.	...do....		Moisture--9.5% Ash--9.1% Sulfur--1.6% Btulf--11,000-12,500 (est.)			New operation. Analytical information from old Newlin Creek mine directly to north.	3, 12

UC8.	Twin Pines, 2 miles south of Rockvale, Fremont County (T 20 S, R 70 W).	Twin Pines Coal Co., Canon City, Colo.	...do....	0.045--1977 0.045--1980	Moisture--8.9%-11% Ash--7.3%-12.8% Sulfur--0.6% Btulb--10,560-12,080	6 to 6½	75 to 200	Planned utility and local sales.	4, 12
UC9.	Eastside, 4 miles north of Silt, Garfield County (T 5 S, R 92 W).	Louis Bendetti, Silt, Colo.	...do....	0.001--1977 0.008--1979	Moisture--3%-4% Ash--6%-7% Sulfur--0.6%-0.8% Btulb--12,700-13,200	12.5 to 16	60	Planned local sales of stoker and lump coal.	4, 12
UC10	McClane Canyon (test site), Garfield County (T 7 S, R 102 W).	Sheridan Enterprises, Inc., Englewood, Colo.	...do....					New operation.....	3
UC11	Nu-Gap No. 3, 3.5 miles north of Silt, Garfield County (T 5 S, R 92 W).	Henry Bendetti Coal Co., Glenwood Springs, Colo.	...do....	0.001--1978	Moisture--3%-4% Ash--6% Sulfur--0.4%-0.5% Btulb--13,000	6.5	400 to 800	Planned local sales...	4, 12
UC12	Sunlight, 5.5 miles west of Carbondale, Garfield County (T 7 S, R 89 W).	Carbon King, Ltd., Golden, Colo.	...do....	0.012--1978	Moisture--4%-5.4% Ash--4%-8.5% Sulfur--0.5%-1.3% Btulb--13,500	7.5 to 10	370 to 1,500	Formerly the Four Mile mine.	4, 12
UC13	Bear, 1.5 miles east of Somerset, Gunnison County (T 13 S, R 90 W).	Bear Coal Co., Inc., Somerset, Colo.	...do....	0.2--1977	Moisture--4.5%-7% Ash--2.8%-8.9% Sulfur--0.4%-1.0% Btulb--12,170-13,690	7 to 12	1,200	Lease owned by Atlantic Richfield Co.	4, 12
UC14	Hawks Nest East No. 2, 2 miles east of Somerset, Gunnison County (T 13 S, R 90 W).	Western Slope Carbon, Inc., Somerset, Colo.	...do....	0.5--1978 0.75--1979	Ash--5%-7% Sulfur--0.3%-0.5% Btulb--12,500	9	1,600	Ships to CF&I Steel Corp.	4, 12
UC15	Hawks Nest West No. 3, 2 miles east of Somerset, Gunnison County (T 13 S, R 90 W).	.....do.....	...do....	0.5--1978 0.75--1979	Moisture--4.4%-7.1% Ash--3.2%-9.1% Sulfur--0.3%-0.5% Btulb--12,400-13,400	9	1,600 to 2,000	Production sold with coal from Hawks Nest East (No. 2).	4, 12
UC16	Mt. Gunnison No. 1, 1 mile southeast of Somerset, Gunnison County (T 13 S, R 90 W).	Atlantic Richfield Co., Denver, Colo.	...do....	0.5--1981 2.5--1985	Moisture--10.4% Ash--4.5% Sulfur--0.47% Btulb--11,846	8, 8, 25	1,500 to 1,600	Test adit called Sylvester Gulch. Planned utilities sales.	4, 12
UC17	O.C. Mine No. 2, 2 miles southeast of Baldwin, Gunnison County (T 15 S, R 86 W).	O.C. Mine Co., Gunnison, Colo.	...do....	0.004--1978	Moisture--9.5%-10.1% Ash--4.3%-6.0% Sulfur--0.3%-0.6% Btulb--11,500-12,500	5.5 to 6.0	1,800 to 2,000	Local sales.....	4, 12
UC18	Somerset, in town of Somerset, Gunnison County (T 13 S, R 90 W).	U.S. Steel Corp., Somerset, Colo.	...do....	1--1980	Moisture--3.8%-8.2% Ash--6.7%-12.0% Sulfur--0.4%-0.6% Btulb--12,070-12,970	18 to 25 7.7 11.2 7.4	2,000	All coal shipped to U.S. Steel Corp.'s Geneva plant near Provo, Utah.	4, 12
UC19	Blue Flame, 4 miles southwest of Hesperus, La Plata County (T 35 N, R 11 W).	Fidel Lobato, Durango, Colo.	...do....	Very small	Moisture--3.8% Ash--3%-5.9% Sulfur--0.7% Btulb--13,000-14,000	6	150 to 1,300	In preparation for production.	4, 12
UC20	Coal Gulch, La Plata County (T 35 N, R 10 W).	Arness-McGriffin Coal Co., Durango, Colo.	...do....	0.025--1978	Bituminous--coking type.	4 to 6	200+	New operation at Old Victory mine.	3-4, 12
UC21	King, 4 miles southwest of Hesperus, La Plata County (T 35 N, R 11 W).	King Coal Co., Hesperus, Colo.	...do....	0.02--1978	Moisture--2.4%-4.6% Ash--2%-7.3% Sulfur--0.15%-1.2% Btulb--12,700-14,000	6	284	Tied up in difficulties between owner and lessee.	4, 12
UC22	Peacock, 3 miles southwest of Hesperus, La Plata County (T 35 N, R 11 W).	Peacock Coal Co., Hesperus, Colo.	...do....	0.06--1978	Moisture--3.5%-10.7% Ash--3.4%-11.3% Sulfur--0.6%-4.0% Btulb--11,400-14,000	6	Unknown	Local sales.	4, 12

TABLE 39. - Future coal mines in Colorado--Continued

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
UC23	Lorencito, 2 miles east of Weston, Las Animas County (T 33 S, R 66 W; T 34 S, R 67 W).	Freeport Coal Co., Denver, Colo.	Under-ground.	0.5--1981 1.0--1982	Moisture--6% Ash--9% Sulfur--0.6% Btulb--13,700	4 to 9	200 to 900	Planned sales to eastern steel mills.	4
UC24	Maxwell (1-3/4 miles east of Vigil), Weston, Las Animas County (T 33 S, R 67 W).	CF&I Steel Corp., Pueblo, Colo.	...do...	1977 prep 0.10--1978 0.25--1979 0.60--1980		5	410 to 1,400	Production dedication to CF&I Steel Corp.'s Pueblo plant.	4, 12
UC25	Anchor-Tresner Unit, 12 miles north of Fruita, Mesa County (Ts 7, 8, 9 S, R 101 W).	Coal Mining Partners, Grand Junction, Colo.	...do....	0.125--1977 0.3--1978	Moisture--8% (washed) Ash--8% Sulfur--0.6%-1% Btulb--12,000	6 to 18.5	1,600	The old Farmers Coal mine at this site will not be reopened. New mine will be in higher seam. Planned out-of-State or industrial sales.	4, 9, 12
UC26	Cameo, 1 mile northeast of Cameo, Mesa County (T 10 S, R 98 W).	Cameo Coal Co., Palisade, Colo.	...do....	1977 prep 0.5--1979 0.9--1980+	Moisture--6%-8% Ash--7%-11% Sulfur--0.4%-0.6% Btulb--12,500	6 to 9.5	1,800	Planned sale to Mississippi Utility.	4, 12
UC27	CMC, 1 mile south of Cameo, Mesa County (T 10 S, R 98 W).	Cambridge Mining Co., Palisade, Colo.	...do...	0.15--1978 0.5--1979	Moisture--5%-6% Ash--7%-11% Sulfur--0.4%-0.6% Btulb--11,990-13,010	6.7 to 7	1,800 maximum	Planned sales to Arizona Public Service Co.	4, 12
UC28	McGinley No. 1, 13 miles northeast of Fruita, Mesa County (T 9 S, R 100 W).	Village Land Co. and Certified Realty, Denver, Colo.	...do....	0.025-0.1--1978 0.25--maximum	Moisture--8%-9% Ash--8%-9.8% Sulfur--0.6% Btulb--12,500	7 to 11	500 maximum	Cameo bed; includes old Hidden Treasure mine.	12
UC29	Wise Hill No. 5, 8 miles southwest of Craig, Moffat County (T 6 N, R 91 W).	Empire Energy Corp., Craig, Colo.	...do....	0.4--1977 0.6--1980	Moisture--16% Ash--5.8% Sulfur--0.5% Btulb--10,600-11,230	12 to 14	300 to 600+	Wise Hill mines. Nos. 6-9 are under development.	12
UC30	Bear Creek, 5 miles west of Redstone, Pitkin County (T 10 S, R 89 W).	Mid-Continent Coal and Coke Co., Carbondale, Colo.	...do....	0.13--1979	Moisture--6% Ash--6.5%-7% Sulfur--0.6% Btulb--13,980-15,200	7	3,000	Sells to Utah and California steel mills.	4, 12
UC31	Coal Basin, 6 miles northwest of Redstone, Pitkin County (T 10 S, R 89 W).	.....do.....	...do....	0.13--1979	Moisture--4.2% Ash--9.7% Sulfur--0.7% Btulb--13,600-15,150	7	3,000	.....do.....	4, 12
UC32	Dutch Creek No. 1, 5 miles west of Redstone, Pitkin County (T 10 S, R 89 W).	.....do.....	...do....	0.16--1979	Moisture--4.0% Ash--8.3% Sulfur--0.7% Btulb--14,000-15,280	7	3,000	.....do.....	4, 12
UC33	Dutch Creek No. 2, 5 miles west of Redstone, Pitkin County (T 10 S, R 89 W).	.....do.....	...do....	0.32--1979	Moisture--4.0% Ash--8.3% Sulfur--0.7% Btulb--14,000-15,280	7	3,000	.....do.....	4, 12
UC34	L. S. Wood, 6 miles northwest of Redstone, Pitkin County (T 10 S, R 89 W).	.....do.....	...do....	0.31--1979	See remarks	7	3,000	Sells to Utah and California steel mills. Analytical information approximately same as Dutch Creek No. 1.	4, 12

UC35	Thompson Creek No. 1, 8 miles southwest of Carbondale, Pitkin County (T 8 S, R 89 W).	Anschutz Coal Corp., Carbondale, Colo.	...do.....	0.035--1977 0.25--1978 0.5--1979	Moisture--2.3%-4.8% Ash--9%-14% Sulfur--0.6%-1.0% Btulb--13,000-13,900	8 6 to 10	400 to 1,300	Planned sales to steel mills in the United States and Japan.	4, 12
UC36	Thompson Creek No. 3, 8 miles southwest of Carbondale, Pitkin County (T 8 S, R 89 W).	.....do.....	...do.....	0.035--1977 0.25--1978 0.5--1979	Moisture--2.3%-3.6% Ash--8%-14% Sulfur--0.6%-1.0% Btulb--13,000-13,900	8 6 to 10	400 to 1,300	Planned sales to steel mills in the United States and Japan. Combined output with Thompson Creek No. 1.	4, 12
UC37	Gordon, 6 miles northeast of Rangely, Rio Blanco County (T 2 N, R 101 W; T 3 N, R 101 W).	Moon Lake Electric Co., Roosevelt, Utah.	2 under-ground; 1 surface	1.5--1980 2.3--1985 3.7--1990	Moisture--13% Ash--9% Sulfur--0.4% Btulb--11,000 (dried)	6 to 30	700 maximum	Plans depend upon development of power-plant for Inter-mountain Consumers Power Association of Sandy, Utah.	4, 12
UC38	Unnamed mine, Rio Blanco County (T 2 N, R 93 W).	Northern Natural Gas Co., Billings, Mont.						Exploration drilling being done by John T. Boyd Co. on American Fuel Corp. property.	2
UC39	Rienau No. 2, 6 miles northeast of Meeker, Rio Blanco County (T 2 N, R 93 W).	Sewanee Mining Co., Inc., Meeker, Colo.	Under-ground.	1976 prep 0.04--1978	Moisture--10%-11% Ash--2%-4% Sulfur--0.4% Btulb--13,200-13,400	20 to 24	150	Planned local sales. Formerly owned by American Fuels Corp.	4, 12
UC40	Apex No. 2, 4 miles northwest of Oak Creek, Routt County (T 4 N, R 86 W).	Sunland Mining Corp., Oak Creek, Colo.	...do.....	0.10--1977 0.25--1980	Moisture--6%-9.2% Ash--3%-12.1% Sulfur--0.5%-0.7% Btulb--12,400	4.5 to 6.0	400	Planned local sales...	4, 12
UC41	Blazer, 5 miles northwest of Milner, Routt County (T 7 N, R 87 W).	Blazer Fuels Co., Louisville, Colo.	...do.....	0.25--1977	Moisture--8%-9% Ash--9%-10% Sulfur--0.5%-0.6% Btulb--10,500-12,000	9	1,000 maximum.	Planned markets are unknown.	4, 12
UC42	Dawson Unit, 2 miles east of Hayden, Routt County (T 6 N, R 88 W).	Coal Fuels Corp., Rollinsville, Colo.	...do.....	0.1--1977 or 1978 2.0-4.0 maximum.	Moisture--7% Ash--8% Sulfur--0.5% Btulb--11,500	10 to 20	2,000	Planned sales to out-of-State industrial users and utilities.	4, 12
UC43	Sun, 5 miles southeast of Pagoda, Routt County (T 4 N, R 89 W).	Ruby Construction Co., Louisville, Ky.	...do.....	Planned 0.3	Moisture--11.2%-11.5% Ash--4.2%-7.5% Sulfur--0.4%-0.5% Btulb--10,900-11,600	5 to 10 5 seams	40 to 120	Marketing plans uncertain.	4, 12
UC44	Elder, 2 miles northwest of Norwood, San Miguel County (T 45 N, R 13 W).	Holland and Sons Mining Co., Naturita, Colo.	...do.....	0.001--1977 0.01--1978	Moisture--3% Ash--7%-8% Sulfur--0.7% Btulb--13,806-14,400	2.5 to 3.5	54	Local sales.....	4, 12
UC45	Lincoln, 3 miles south of Dacono, Weld County (T 1 N, R 68 W).	Imperial Coal Co., Erie, Colo.	...do.....	0.15--1977	Moisture--24% Ash--6.5%-8.5% Sulfur--0.3%-0.4% Btulb--9,100-9,500	8 to 12	425 maximum	Utility sales.....	4, 12
UC46	Peanut, 2 miles northwest of Crested Butte, Gunnison County (T 13 S, R 86 W).	U.S. Energy Corp., Riverton, Wyo.	...do.....		Anthracite	Thin		New operation on 1-million-ton reserve.	4

TABLE 40. - Future electric generating plants in Colorado

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References	
				Unit No.	Mega-watts				
CE1.	Nixon, probable location is near Fountain, El Paso County.	City of Colorado Springs Electric Department, Colorado Springs, Colo.	Coal--0.409.	1	200	Oct. 1979	Has 20-year contracts for coal. Coal requirement will increase to 899,000 tons by 1985. Coal to be supplied by Colowyo mine in Moffat County, Colo.	8, 23	
				2	350	Oct. 1983			
				3	200	Oct. 1985			
				Total	750				
CE2.	Craig (Yampa), south of Craig, Moffat County.	Colorado Ute Electric Association, Montrose, Colo.	Coal--1.2...	1	380	Apr. 1978	Has 35-year contracts with Utah International Inc. for coal supplied from a strip mine just south of the generating complex.	8, 23	
				...do.....	2	380			Apr. 1979
				...do.....	3	380			July 1981
				...do.....	4	380			July 1982
				Total	1,520				
CE3.	Pawnee, Fort Morgan, Morgan County.	Public Service Co. of Colorado, Denver, Colo.	Coal--1.73..	1	500	Apr. 1980	Has 20-year contracts for coal. Has 20-year coal contract with AMAX's Belle Ayr mine near Gillette, Wyo.	8, 23	
				...do.....	2	500			1981
				Total	1,000				
CE4.	Hatch Flats, northeast of Rangely, Rio Blanco County.	Intermountain Consumers Power Association, Sandy, Utah.	Coal--1.....		300-800	Late 1980's	Would use coal from leases held by Moon Lake Electric Association, Roosevelt, Utah. Feasibility study underway. Alternative: locate plant in Utah and transport coal from mine site.	12	
CE5.	Unnamed, southeastern Colorado...	Public Service Co. of Colorado, Denver, Colo.	Coal--1.73..	1	500	Apr. 1984	No coal contract. Site unknown. Units are reported to FPC as projected additions to company capacity.	8, 23	
				...do.....	2	500			Apr. 1986
				Total	1,000				
CE6.	Rawhide No. 1, 10 miles north of Wellington, Larimer County (T 10 N, R 68 W).	Platte River Power Authority, Fort Collins, Colo.	Coal--0.8...	1	225	June 1984	Planning stage.....	16, 23	
OE1.	Burlington, 4 miles north and 1 mile east of Burlington, Kit Carson County.	Tri-State Generation and Transmission Association, Denver, Colo.	Diesel 4,000 gph.		50	1978	Combustion turbine.....	11	
OE2.	Mt. Elbert Nos. 1-2, Twin Lakes, Lake County.	U.S. Bureau of Reclamation, WY-NE-CO Interconnected System, Denver, Colo.	Hydropower (pump storage).	1	100	Nov. 1977	Unit No. 2 construction contract awarded to Mitsui and Co. of San Francisco, Calif.	13	
				2	100	Feb. 1980			
OE3.	Dominguez, Grand Junction, Delta and Mesa Counties.	U.S. Bureau of Reclamation, Denver, Colo.	...do.....	1	18	1985+	Project is in planning stage. Feasibility report due in FY 1978.	13	
				5 units	100	1985+			
				Total	518				
OE4.	Crystal, Cimarron, Montrose County.	U.S. Bureau of Reclamation, Colorado River Storage Project, Denver, Colo.	Hydropower..		32	Oct. 1977		12	

TABLE 41. - Future coal conversion plants in Colorado

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
CL..	Watkins Lignite, near Watkins, Adams County.	Mintech Corp., Denver, Colo.	Gasification....	1983	250 MMcf/d	Engineering studies in progress.	19

TABLE 42. - Future oil shale facilities in Colorado

Map ref. No.	Project name and location	Company	Estimated output, Mbpd	Mine type	Date of initial operation	Remarks	References
01..	Parachute Creek (private land), 15 miles north of Grand Valley, Garfield County.	Colony Development Corp., Denver, Colo.	27	Underground	Indefinite	Proposed project on Colony Dow West property by Atlantic Richfield Corp. (60%) and the Oil Shale Corp. (40%). Shale production would be 66,000 tpd from a 60-ft horizon in the Mahogany Zone. Development suspended in October 1974 due to inflation and future crude oil price uncertainties.	2
02..	Paraho Demonstration Project, Rifle, Colo. (U.S. Naval Oil Shale Reserve No. 1).	Paraho Development Corp., Grand Junction, Colo.	7.3	...do.....	Ongoing...	Paraho is seeking participants in scaling up the Paraho hardware to a 42-ft-diameter retort capable of processing 11,500 tons of shale per day. Phase II of a 2-year \$13 million program to produce 100,000 barrels of shale oil for the Navy was completed in the spring of 1977. Paraho is negotiating a contract with the Navy to produce 65,000 barrels of shale oil for Phase III.	2
03..	Roan Creek Project, 6 miles southwest of Grand Valley, Garfield County.	Occidental Oil Shale, Inc., Grand Junction, Colo.	30 to 40	...do.....	...do.....	Field tests underway since 1973. Initial tests on a 30- by 30- by 70-ft column. Most recent test on a 120- by 120- by 275-ft column which produced 30,000 barrels of shale oil between December 1975 and June 1976. Another retort of similar dimensions was ignited in April 1977, and development of the third large scale retort is underway. Negotiations have resumed with DOE on a joint venture in situ project.	2
04..	Union Oil Project (private land), 10 miles north of Grand Valley, Garfield County.	Union Oil Co. of California, Los Angeles, Calif.	7	...do.....	Indefinite	Current plans are to proceed with a 1,000 tpd mine and 7,000 bpd retort, a modification of their rock pump retort, before expanding into commercial production. Studies on prototype facility nearly completed. Union is awaiting possible Federal financial participation on a cost-sharing basis through DOE.	2
05..	C-b Project (Federal Tract C-b), 15 miles northwest of Rio Blanco, Rio Blanco County (Southwest Piceance Basin).	Ashland Oil Co., Denver, Colo., and Occidental Petroleum Corp., Los Angeles, Calif.	57	...do.....	...do.....	In November 1976 Shell withdrew from project and Occidental joined. Modified development plan submitted Mar. 1, 1977, for in situ plant. Work resumed on tract when suspension expired Sept. 1, 1977.	2
06..	Rio Blanco Oil Shale Project (Federal Tract C-a), 20 miles southeast of Rangely, Rio Blanco County.	Gulf Oil Corp. and Standard Oil Co. (Indiana), Denver, Colo.	55.8 to 300	Open pit...	...do.....	Proposed open pit mine and plant combining Tosco II process and gas-combustion-type Paraho retorting. Lease suspension granted by Department of the Interior on Sept. 1, 1976. Environmental monitoring continuing. In situ technology being evaluated.	2
07..	Superior Oil Project (private land), 20 miles northwest of Meeker, Rio Blanco County.	The Superior Oil Co., Houston, Tex.	13.3 per module.	Underground	...do.....	Facilities proposed to be constructed in modules of 13,300 bpd from 28,000 tpd shale feed. Coproducts would be 4,400 tpd of 80% nahcolite, 700 tpd alumina, and 1,500 tpd soda ash. Land exchange with the Bureau of Land Management is pending.	2

TABLE 43. - Future uranium mines in Colorado

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity and year	Remarks	References
UM1.	Pitch, 5 miles east of Sargents, Gunnison County.	Homestake Mining Co., Denver, Colo.	Open pit.....	600 tpd	Proposed pit would be 1 mile long, 1,800 ft wide, and 700 ft deep and have an 11-year life. Project is awaiting State land reclamation permits.	15
UM2.	Durango Tailings Pile, just south of Durango, La Plata County.	Ranchers Exploration and Development Corp., Albuquerque, N. Mex.	.....do.....	280,000 tpy, 1979	Over a 5-year period, Ranchers would rework uranium mill tailings containing slightly less than 1 pound of uranium oxide per ton.	17
UM3.	C-G-26A, Mesa County (T 50 N, R 18 W).	Lois B. Foster, Grand Junction, Colo.	Underground...	100 tpm, 1982	DOE lease tract containing 937 acres and 30,000 royalty bid pounds in the Gateway area.	6
UM4.	C-G-27A, Mesa County (T 50 N, R 17 W).	Pioneer-Uravan, Inc., Grand Junction, Colo.	.....do.....	200 tpm, 1979	DOE lease tract containing 524 acres and 30,000 royalty bid pounds in the Gateway area.	6
UM5.	C-JD-5A, Montrose County (T 46 N, R 17 W).	.....do.....	.....do.....	200 tpm, 1980	DOE lease tract containing 24 acres and 30,000 royalty bid pounds in the Jo Dandy area.	6
UM6.	C-JD-7, Montrose County (T 46 N, R 17 W).	Cotter Corp., Golden, Colo...	Open pit and underground.	1,000 tpm, 1979	DOE lease tract containing 320 acres and 2,800,000 royalty bid pounds in the Joe Dandy area. Eighteen million cubic yards of overburden is to be stripped from the open pit.	6
UM7.	C-JD-7A, Montrose County (T 46 N, R 17 W).	.....do.....	Underground...	300 tpm, 1979	DOE lease tract containing 120 acres and 30,000 royalty bid pounds in the Jo Dandy area.	6
UM8.	C-JD-8, Montrose County (T 46 N, R 17 W).	.....do.....	.....do.....	300 tpm, 1979	DOE lease tract containing 813 acres and 375,000 royalty bid pounds in the Jo Dandy area.	6
UM9.	C-JD-8A, Montrose County (T 46 N, R 17 W).	Pioneer-Uravan, Inc., Grand Junction, Colo.	.....do.....	100 tpm, 1979	DOE lease tract containing 78 acres and 30,000 royalty bid pounds in the Jo Dandy area.	6
UM10	C-JD-9, Montrose County (T 46 N, R 17 W).	Cotter Corp., Golden, Colo...	.....do.....	1,000 tpm, 1978	DOE lease tract containing 897 acres and 850,000 royalty bid pounds in the Jo Dandy area.	6
UM11	C-WM-17, Montrose County (T 45 N, R 18 W).	.....do.....	.....do.....	100 tpm, 1981	DOE lease tract containing 283 acres and 30,000 royalty bid pounds in the Wedding Bell Mountain area. Half of lease tract is in San Miguel County.	6
UM12	C-WM-17A, Montrose County (T 45 N, R 18 W).	Robert Taylor, Grand Junction, Colo.	.....do.....	100 tpm, 1979	DOE lease tract containing 21 acres and 45,000 royalty bid pounds in the Wedding Bell Mountain area.	6
UM13	C-SM-18, Montrose County (T 48 N, R 17 W).	Cotter Corp., Golden, Colo...	.....do.....	300 tpm, 1982	DOE lease tract containing 916 acres and 1,300,000 royalty bid pounds in the Spring Mesa area.	6

UM14	C-AM-19A, Montrose County (T 48 N, R 17 W).	.....do.....	.....do.....	300 tpm, 1982	DOE lease tract containing 1,145 acres and 1,500,000 royalty bid pounds in the Atkinson Mesa area.	6
UM15	C-AM-20, Montrose County (T 48 N, R 17 W).	.....do.....	.....do.....	300 tpm, 1982	DOE lease tract containing 579 acres and 800,000 royalty bid pounds in the Atkinson Mesa area.	6
UM16	C-LP-21, Montrose County (T 46 N, R 17 W).	.....do.....	.....do.....	500 tpm, 1978	DOE lease tract containing 443 acres and 1,200,000 royalty bid pounds in the Long Park area. Using continuous miner.	6
UM17	C-LP-22A, Montrose County (T 47 N, R 17 W).	.....do.....	.....do.....	200 tpm, 1979	DOE lease tract containing 226 acres and 60,000 royalty bid pounds in Long Park area.	6
UM18	C-BL-23, Montrose County (T 47 N, R 17 W; T 46 N, R 17 W).	Ince Minerals, Gateway, Colo.	.....do.....	300 tpm, mid-year 1977.	DOE lease tract containing 339 acres and 375,000 royalty bid pounds in Bitter Creek area.	6
UM19	C-BL-23A, Montrose County (T 47 N, R 17 W).	Pioneer-Uravan, Inc., Grand Junction, Colo.	.....do.....	100 tpm, 1980	DOE lease tract containing 47 acres and 30,000 royalty bid pounds in Bitter Creek area.	6
UM20	C-BL-23B, Montrose County (T 46 N, R 17 W).	W. M. Huff, Grand Junction, Colo.	.....do.....	100 tpm, 1980	DOE lease tract containing 116 acres and 170,000 royalty bid pounds in the Bitter Creek area, Pioneer-Uravan is operator.	6
UM21	C-CM-24, Montrose County (T 48 N, R 17 W).	Nuclear Resources, Greenwich, Conn.	.....do.....	300 tpm, 1979	DOE lease tract containing 201 acres and 90,000 royalty bid pounds in Cub Mesa area.	6
UM22	C-CM-25, Montrose County (T 47 N, R 17 W).	Cotter Corp., Golden, Colo...	.....do.....	200 tpm, 1981	DOE lease tract containing 573 acres and 600,000 royalty bid pounds in the Cub Mesa area.	6
UM23	Naturita Tailings Pile, near Naturita, Montrose County.	Rancher Exploration and Development Corp., Albuquerque, N. Mex.	Open pit.....	120,000 tpy, 1979	Over a 5-year period Ranchers would rework uranium mill tailings containing slightly less than 1 pound of uranium oxide per ton.	17
UM24	C-SR-11A, San Miguel County (T 43 N, Rs 19-20 W).	Cotter Corp., Golden, Colo...	Underground...	200 tpm, 1981	DOE lease tract containing 1,304 acres and 300,000 royalty bid pounds in the Slick Rock area.	6
UM25	C-SR-12, San Miguel County (T 43 N, R 18 W).	Sheila Schabacker, Grand Junction, Colo.	.....do.....	300 tpm, 1977	DOE lease tract containing 399 acres and 180,000 royalty bid pounds in the Slick Rock area.	6
UM26	C-SR-14, San Miguel County (T 43 N, R 18 W).	Environmental Development, Ltd., Salt Lake City, Utah.	.....do.....	100 tpm, 1978	DOE lease tract containing 880 acres and 55,000 royalty bid pounds in the Slick Rock area. Leaseholder is George Fender, Loveland, Colo.	6
UM27	C-SR-14A, San Miguel County (Ts 43-44 N, R 19 W).	Pioneer-Uravan, Inc., Grand Junction, Colo.	.....do.....	50 tpm, 1981	DOE lease tract containing 21 acres and 30,000 royalty bid pounds in the Slick Rock area.	6
UM28	C-SR-15A, San Miguel County (T 44 N, R 19 W).	Walter Buchanan, Yuma, Ariz..	.....do.....	200 tpm, 1978	DOE lease tract, containing 171 acres and 275,000 royalty bid pounds in the Slick Rock area.	6
UM29	Letty Jones, San Miguel County (T 43 N, R 20 W).	Cotter Corp., Golden, Colo...	.....do.....	500 tpm, 1979	Sinking inclined shaft on private lease.	6
UM30	Unnamed, Weld County (T 10 N, R 62 W).	Wyoming Minerals Corp., Denver, Colo.	In situ leaching.			7

TABLE 44. - Future uranium mills and enrichment facilities in Colorado

Map ref. No.	Plant name and location	Operating company	Type	Initial operating date	Planned capacity	Remarks	References
UL1.	Canon City, Fremont County.	Cotter Corp., Canon City, Colo.	Uranium mill rehabilitation and expansion.			Twenty million dollars will be spent on mill rehabilitation and modification to beneficiate Western Slope ore. Due to water and licensing problems no mill will be built on the Western Slope. Mill products are molybdenum, uranium, and vanadium.	21
UL2.	Rifle Mill, just southwest of Rifle, Garfield County.	Union Carbide Corp., Grand Junction, Colo.		Early 1979	1,000 tpd.	Feasibility study underway to reopen uranium-vanadium ore processing circuit for custom ore.	18
UL3.	Pitch, east of Sargents, Gunnison County.	Homestake Mining Co., Denver, Colo.	Alkaline leach.	1979	600 tpd	Initial construction held up by permit delays.	15
UL4.	Durango Leach Site, near Durango, La Plata County.	Ranchers Exploration and Development Corp., Albuquerque, N. Mex.	Vat leach.....	1979	280,000 tpy	Ranchers would move mill tails from a site just south of Durango to an area where the tailings could be leached in impervious earthen tanks.	17
UL5.	Unnamed, White-water, Mesa County	Cotter Corp., Canon City, Colo.	Crushing and sampling plant	Fall 1978	150 tph	Steel work underway. Will ship crushed ore by rail to Cotter mill at Canon City, Colo.	21
UL6.	Naturita Leach Site, near Naturita, Montrose County.	Ranchers Exploration and Development Corp., Albuquerque, N. Mex.	Vat leach.....	Late 1977	120,000 tpy	Ranchers would leach uranium mill tailings in impervious earthen tanks.	17
UL7.	Precipitating Plant, Weld County (T 10 N, R 62 W).	Wyoming Minerals, Inc., Denver, Colo.	Ion exchange...	Early 1979	500,000 lb by U ₃ O ₈	Testing plant in operation.....	10
UL8.	Unnamed, western Colo.	Pioneer-Uravan, Inc., Grand Junction, Colo.	Acid circuit...	1981		Amenability studies underway. Plant may be sited in eastern Utah. Capacity, location, and participation by others will be announced in early 1978.	15

TABLE 45. - Future oil refineries in Colorado

Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Unnamed, Loma, Mesa County.	Hunt Oil Co., Moab, Utah.	Jan. 1978	2,500	Cost is \$1 million. Crude to be trucked from Cisco and Rangely fields. Necessary permits obtained from Colorado Department of Health. Mesa County Commissioners have approved zoning change for 40-acre plant site.	14
R2..	Unnamed, Commerce City, Adams County.	Continental Oil Co., Denver, Colo.	1977-1978	4,488	Expansion of present refinery.	5
R3..	Gary Western Refinery, Loma, Mesa County.	Gary Western Co., Denver, Colo.	1977-1978	3,000	.....do.....	15

TABLE 46. - Future railroads (related to energy development) in Colorado

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Remarks	References
		Origin	Destination					
1...	Denver & Rio Grande Western Railroad, Denver, Colo.	Craig, Moffat County, Colo.	Axial Basin (near Colowyo mine), south-east Moffat County, Colo.	25	Spur	1978.....	Would serve proposed mines in the area, connecting with Denver & Rio Grande Western mainline near Craig. Empire Energy mine is the interim loading point.	19
2...	.....do.....	Axial Basin, Moffat County, Colo.	Superior Oil Shale Project, 20 miles north-west of Meeker, Rio Blanco County, Colo.	25	Spur	Unknown..	Proposed extension of Denver & Rio Grande Western line. High uncertainty.	19

TABLE 47. - Future coal slurry pipelines in Colorado

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
CP1.	San Marco Pipe Line Co. (subsidiary of Houston Natural Gas Co., Houston, Tex.), and Denver & Rio Grande Western Railroad, Denver, Colo.	Walsenburg, Huerfano County, Colo.	Angleton, Tex.	820		Early 1980's.	24	Dependent upon legislation for right of eminent domain. Pipeline would cross railroads at 26 locations in Texas alone. Construction planned to begin in 1978; 550 hopper cars would be required to deliver coal from various Colorado mines to the Walsenburg preparation plant. A second source of coal, near Farmington, N. Mex., would be moved by a slurry line to join the mainline at Walsenburg. Water requirements are 10,000 afy; 21,000 bpd from deep wells and small storage projects.	19
CP2.	Houston Natural Gas Co., Houston, Tex., and Denver and Rio Grande Western Railroad, Denver, Colo.	Burnham, San Juan County, N. Mex.	Walsenburg, Colo.	167		1980	12	5.0 MMtpy. Line will join main slurry line at Walsenburg for coal transportation to Houston, Tex.	22

TABLE 48. - Future petroleum and natural gas pipelines in Colorado

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PP1.	Western Slope Gas Co., Denver, Colo.	(T 3 S, R 98 W) Rio Blanco County, Colo.	Tabernash, Grand County, Colo.	100	Natural gas.		12.75	Awaiting Bureau of Land Management permit approval.	1
PP2.	Rio Blanco Oil Shale Project, Denver, Colo.	Tract C-a, Rio Blanco County, Colo.	Amoco's Rangely Station, Rio Blanco County, Colo.	23.2	Crude shale oil.	Indefinite	10	Estimated cost \$3 million.	1

List of Data Sources for Colorado

1. Bureau of Land Management, Colorado State Office, through State Liaison Officer, July 1977.
2. Cameron Engineers. Synthetic Fuels. V. 14, No. 2, June 1977.
3. Colorado Division of Mines, Denver, Colo., through State Liaison Officer, July 1977.
4. Curtin, M. S., Colorado School of Mines, Golden, Colo., through State Liaison Officer, July 1977.
5. Denver Post (Denver, Colo.). July 4, 1977.
6. Energy Research and Development Administration, Grand Junction, Colo., through Bureau of Mines State Liaison Officer, July 1977.
7. Engineering and Mining Journal. 107th Annual Review and Outlook. V. 177, No. 3, March 1976, p. 192.
8. Federal Power Commission. Western Coal: Requirements by New Electric Utility Plants. An analysis of a Report by the Federal Power Commission: Status of Coal Supply Contracts for New Electric Generating Units 1976-1985. Economic Studies, Mar. 25, 1977.
9. Grand Junction Daily Sentinel (Grand Junction, Colo.). May 26, 1977.
10. Land Department, Wyoming Minerals Incorporated, through State Liaison Officer, July 1977.
11. Missouri River Basin Committee. Status of Electric Power Plants in the Missouri River Basin. October 1976.
12. Murray, D. K. Colorado Geological Survey, Denver, Colo., through State Liaison Officer, July 1977.
13. Planning Division, Bureau of Reclamation, through State Liaison Officer, July 1977.
14. Rocky Mountain News (Denver, Colo.). May 11, 1977.
15. _____. July 21, 1977, July 22, 1977, and Sept. 6, 1977.
16. _____. July 29, 1977.
17. San Miguel Basin Forum (Nucla, Colo.). Feb. 9, 1977.
18. Skillings Mining Review. V. 66, No. 26, June 25, 1977, p. 20.
19. Smith, J. B., Bureau of Mines State Liaison Officer, Denver, Colo. July 1977.
20. Steamboat Springs Pilot (Steamboat Springs, Colo.). June 1977.
21. The Four Corners Advisor. V. 2, No. 5, July 1977.
22. Walsenburg Huerfano World (Walsenburg, Colo.). Apr. 22, 1976.
23. Western Systems Coordinating Council Technical Staff, Salt Lake City, Utah. Ten-Year Coordinated Plan Summary 1977-1986. May 1977.

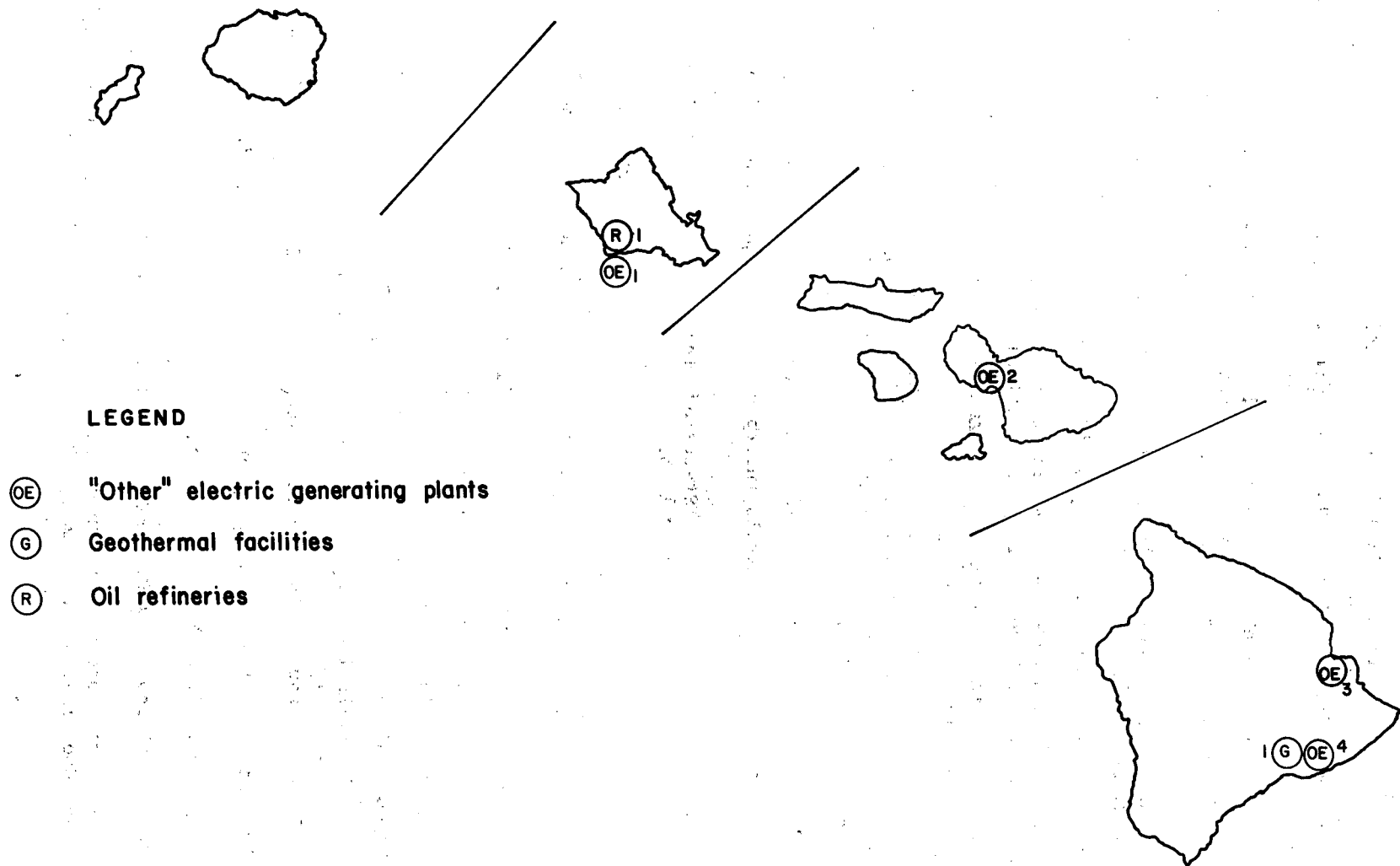


FIGURE 6: - Future energy-related projects in Hawaii.

Hawaii

Data on the following Hawaii projects are presented in tables 49-51. The map reference numbers correspond with the accompanying Hawaii map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
OE1.....	Kahe Plant.....	Hawaii Electric Co.
OE2.....	Maalaea Plant....	Do.
OE3.....	Hill Plant.....	Do.
OE4.....	Puna Plant.....	State-Federal Cooperative.
Geothermal facilities:		
G1.....	Puna Area.....	Hawaii Electric Co.
Oil refineries:		
R1.....	Unnamed.....	Hawaiian Independent Refinery, Inc.

TABLE 49. - Future electric generating plants in Hawaii

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
OE1.	Kahe Plant, Honolulu County, Oahu Island.	Hawaii Electric Co., Honolulu, Hawaii.	Oil.....	6	141.0	July 1980	Existing plant expansion....	1
OE2.	Maalaea Plant, Maui County, Maui Island.	.....do.....	Diesel-powered engine generator.	8	6.16	Nov. 1977	.....do.....	1
				9	6.16	Dec. 1978		
				10	13.0	1979		
				11	16.5	1980		
				Total	41.82			
OE3.	Hill Plant, Hilo, Hawaii County, Hawaii Island.	.....do.....	Oil.....	7	23.0	1982	.....do.....	1
OE4.	Puna Plant, Hawaii County, Hawaii Island.	State-Federal Cooperative, Honolulu, Hawaii.	Geothermal..		2.		Wellhead demonstration plant on one geothermal well will be installed if funds are provided by DOE.	1

TABLE 50. - Future geothermal facilities in Hawaii

Map ref. No.	Location	Company	Current status, plans, and other relevant information	References
G1..	Puna Area, Hawaii County, Island of Hawaii.	Hawaii Electric Co., Honolulu, Hawaii.	Test generator at Hawaii Geothermal Project's well. A wellhead unit to generate from 1.5 to 3.4 Mw. DOE is being approached for partial funding.	3

TABLE 51. - Future oil refineries in Hawaii

Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Unnamed, Ewa Beach, Honolulu County.	Hawaiian Independent Refinery, Inc., Honolulu, Hawaii.	Dec. 1977	8,000		2

List of Data Sources for Hawaii

1. Montgomery, F. R., Vice President in charge of Operations, Hawaii Electric Co., Honolulu, Hawaii, through William H. Kerns, Bureau of Mines State Liaison Officer, California and Hawaii, 1977.
2. Oil and Gas Journal. V. 75, No. 17, Apr. 25, 1977, p. 126.
3. State of Hawaii Department of Planning and Economic Development, Energy Resources Coordinator. 1976 Annual Report.

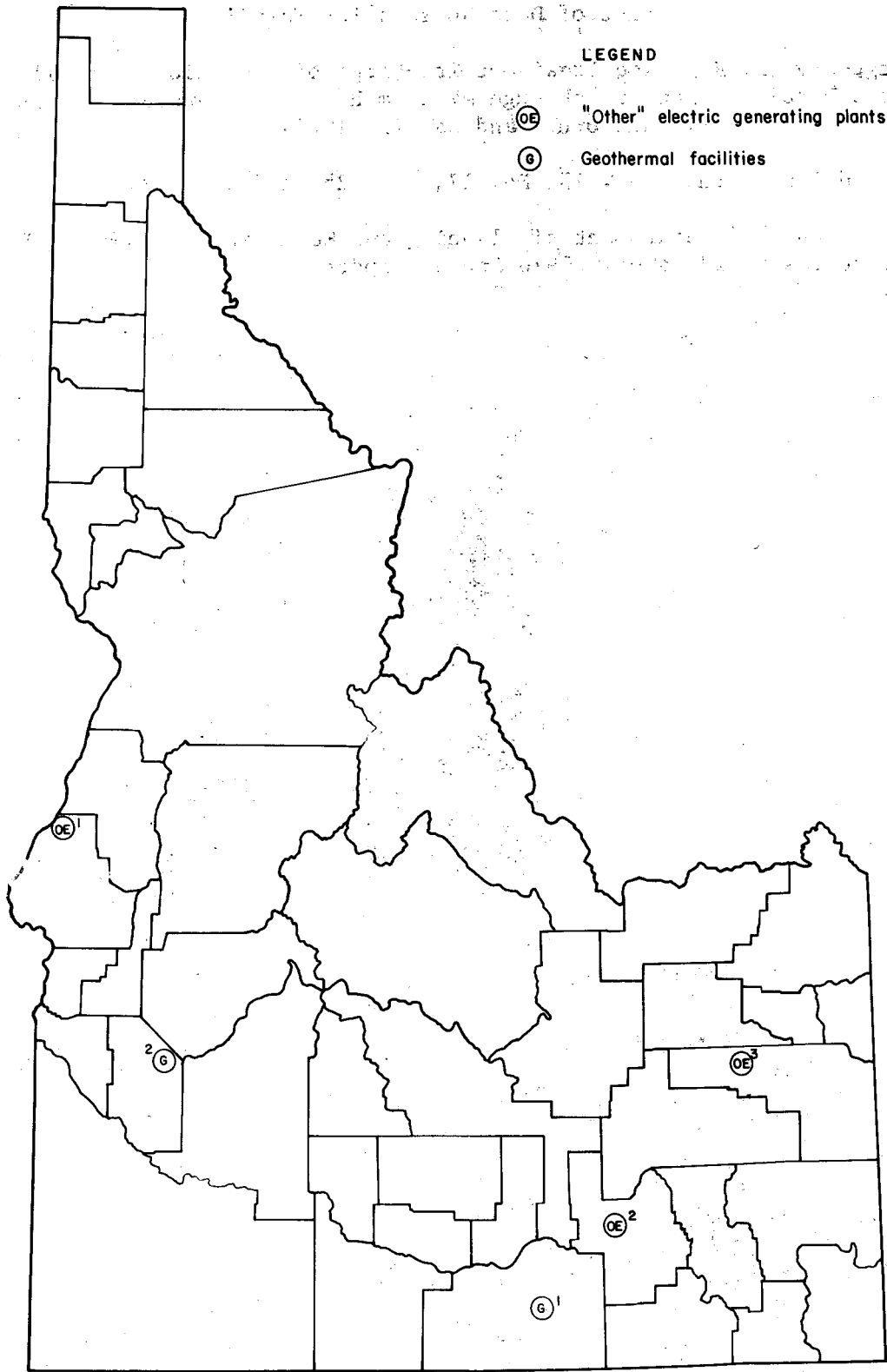


FIGURE 7: - Future energy-related projects in Idaho.

Idaho

Data on the following Idaho projects are presented in tables 52-55. The map reference numbers correspond with the accompanying Idaho map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
OE1.....	Brownlee Plant.....	Idaho Power Co.
OE2.....	American Falls Plant.	Do.
OE3.....	Upper Power Plant....	American Falls Irrigation District (Bureau of Reclamation).
Geothermal facilities:		
G1.....	Raft River Valley....	DOE and Raft River Cooperative.
G2.....	Boise Front.....	DOE research grant to Boise State University and the City of Boise.
Natural gas processing and storage facilities:		
N1.....	Unknown.....	Intermountain Gas Co.

TABLE 52. - Previously reported energy development projects that have been completed or canceled in Idaho

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Idaho Power Co., Boise, Idaho.	Pioneer Nos. 1-2, Orchard, Ada County.	X		Disapproved by referendum and Idaho Public Utilities Commission.

TABLE 53. - Future electric generating plants in Idaho

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
OE1.	Brownlee Plant, Snake River, Washington County.	Idaho Power Co., Boise, Idaho.	Hydropower.		225	Sept. 1979	Additional unit to hydroplant. Under construction.	3
OE2.	American Falls Plant, Snake River, Power County.	.....do.....	...do.....		93	Apr. 1978	Rebuilding of existing hydroplant facilities. Under construction.	3
OE3.	Upper Power Plant, Idaho Falls, Bonneville County.	American Falls Irrigation District (Bureau of Reclamation), Burley, Idaho.	...do.....		20		Plant being rebuilt. Produced 6 Mw before being destroyed in Teton Dam disaster.	2

TABLE 54. - Future geothermal facilities in Idaho

Map ref. No.	Location	Company	Current status, plans, and other relevant information	References
G1..	Raft River Valley, Malta, Cassia County.	DOE and Raft River Cooperative, Idaho Falls, Idaho.	Construction to begin on a 5-Mw generator in fall. Another 5-Mw generator to be added later. Raft River Cooperative will furnish the generator and DOE will build the test loop.	2
G2..	Boise Front, Boise, Ada County.	DOE research grant to Boise State University and the City of Boise, Idaho.	More pump testing is planned this summer depending upon additional grants. A pilot test was completed on the State Health Laboratory at Warm Springs Avenue. Pump testing is also planned this summer on two completed exploration wells.	1

TABLE 55. - Future natural gas processing and storage facilities in Idaho

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Unknown.....	Intermountain Gas Co., Boise, Idaho.	Unknown..	Unknown...	Continuing exploration in southwest and southeast Idaho for underground storage facilities.	4

List of Data Sources for Idaho

1. Boise State University, Boise, Idaho, through Bureau of Mines State Liaison Officer, July 15, 1977.
2. Idaho Department of Water Resources, Boise, Idaho, through Bureau of Mines State Liaison Officer, July 15, 1977.
3. Idaho Power Co., Boise, Idaho, through Bureau of Mines State Liaison Officer, July 15, 1977.
4. Intermountain Gas Co., Boise, Idaho, through Bureau of Mines State Liaison Officer, July 15, 1977.

Iowa

Data on the following Iowa projects are presented in tables 56-60. The map reference numbers correspond with the accompanying Iowa map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
CE1.....	Unnamed.....	City of Ames.
CE2.....	George Neal No. 4....	Iowa Public Service Co.
CE3.....	Council Bluffs No. 3.	Iowa Power & Light Co.
CE4.....	Ottumwa No. 1.....	Iowa Southern Utility Co.
CE5.....	Iowa State University Heating Plant No. 3.	Iowa State University of Science and Technology.
CE6.....	Muscatine No. 9.....	City of Muscatine.
CE7.....	Unnamed.....	Iowa-Illinois Gas & Electric Co.; Iowa Power & Light Co.; Iowa Public Service Co. plus several eastern Iowa municipal utilities.
OE1.....	Waterloo No. 3.....	Iowa Public Service Co.
OE2.....	Marshalltown Power Plant.	Iowa Electric Light & Power Co.
Generating plants receiving preliminary ESECA notice to convert to coal:		
E1.....	Wisdom Plant.....	Corn Belt Power Cooperative.
Terminal facilities:		
X1.....	Montrose.....	Iowa Gateway Terminal.
X2.....	Council Bluffs.....	Union Pacific Railroad and Alter Co.
Petroleum and natural gas pipelines:		
PP1.....	Iowa to Minnesota....	Williams Pipe Line Co.

TABLE 56. - Previously reported energy development projects that have been completed or canceled in Iowa

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Electric generating plants:				
Iowa Public Service Co., Sioux City, Iowa.	George Neal No. 3, Salix, Woodbury County.		X	
Do.....	Waterloo No. 2, Waterloo, Black Hawk County.		X	
Interstate Power Co., Dubuque, Iowa.	Lansing No. 4, Lansing, Allamakee County.		X	
Iowa Electric Light & Power Co., Cedar Rapids, Iowa.	Unsited nuclear....	?		Plant temporarily shelved, not in present plans.
Iowa Southern Utilities, Centerville, Iowa.	Burlington Nos. 1-2, Burlington, Des Moines County.	X		
Iowa Electric Light & Power Co., Cedar Rapids, Iowa.	Unsited, Nos. A-D..	X		Three units are being considered, to be constructed in Marshalltown.
Eastern Iowa Light and Power Cooperative, Wilton Junction, Iowa.	Unsited.....	X		
Coal mines:				
Big Ben Coal Co., Williamson, Iowa.	Big Ben No. 1, near Williamson, Lucas County.		X	

TABLE 57. - Future electric generating plants in Iowa

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Unnamed, Ames, Story County.	City of Ames, Ames, Iowa..	Coal, unknown		55	June 1981		3
CE2.	George Neal No. 4, Salix, Woodbury County.	Iowa Public Service Co., Sioux City, Iowa.	Coal--1.78...	4	576	May 1979	Will burn Wyoming coal.	3
CE3.	Council Bluffs No. 3, Council Bluffs, Pottawattamie County.	Iowa Power & Light Co., Sioux City, Iowa.	Coal--2.5....	3	650	Jan. 1979	.....do.....	3
CE4.	Ottumwa No. 1, Ottumwa, Wapello County.	Iowa Southern Utility Co., Centerville, Iowa.	...do.....	1	675	Jan. 1981	.....do.....	3
CE5.	Iowa State University Heating Plant No. 3, Ames, Story County.	Iowa State University of Science and Technology, Ames, Iowa.	Coal--0.4....	3	11	May 1977		3
CE6.	Muscatine No. 9, Muscatine, Muscatine County.	City of Muscatine, Muscatine, Iowa.	Coal--0.25...	9	150	1982	To burn Illinois coal..	3
CE7.	Unnamed, Muscatine, Muscatine County.	Iowa-Illinois Gas & Electric Co.; Iowa Power & Light Co.; Iowa Public Service Co. plus several eastern Iowa municipal utilities, Siouss City and Cedar Rapids, Iowa.	Coal--*2.5...		650	Jan. 1983	1,600-acre site 5 miles south of Muscatine; Iowa-Illinois will construct and operate; construction to start early 1979.	1
OE1.	Waterloo No. 3, Waterloo, Black Hawk County.	Iowa Public Service Co., Sioux City, Iowa.	Gas or oil...	3	65	May 1978		3
OE2.	Marshalltown Power Plant, Marshalltown, Marshall County.	Iowa Electric Light & Power Co., Cedar Rapids, Iowa.	...do.....	1	50	1978		5
				2	50	1979		
				3	50	1979		
				Total	150			

*Estimate, see appendix for explanation.

TABLE 58. - Generating plants receiving preliminary ESECA notice to convert to coal in Iowa

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity, megawatts	Remarks	References
E1..	Wisdom Plant, Spencer, Clay County.	Corn Belt Power Cooperative, Humboldt, Iowa.	Coal--0.1..	38	This unit is currently burning coal, but has gas firing capability.	2

TABLE 59. - Future terminal facilities in Iowa

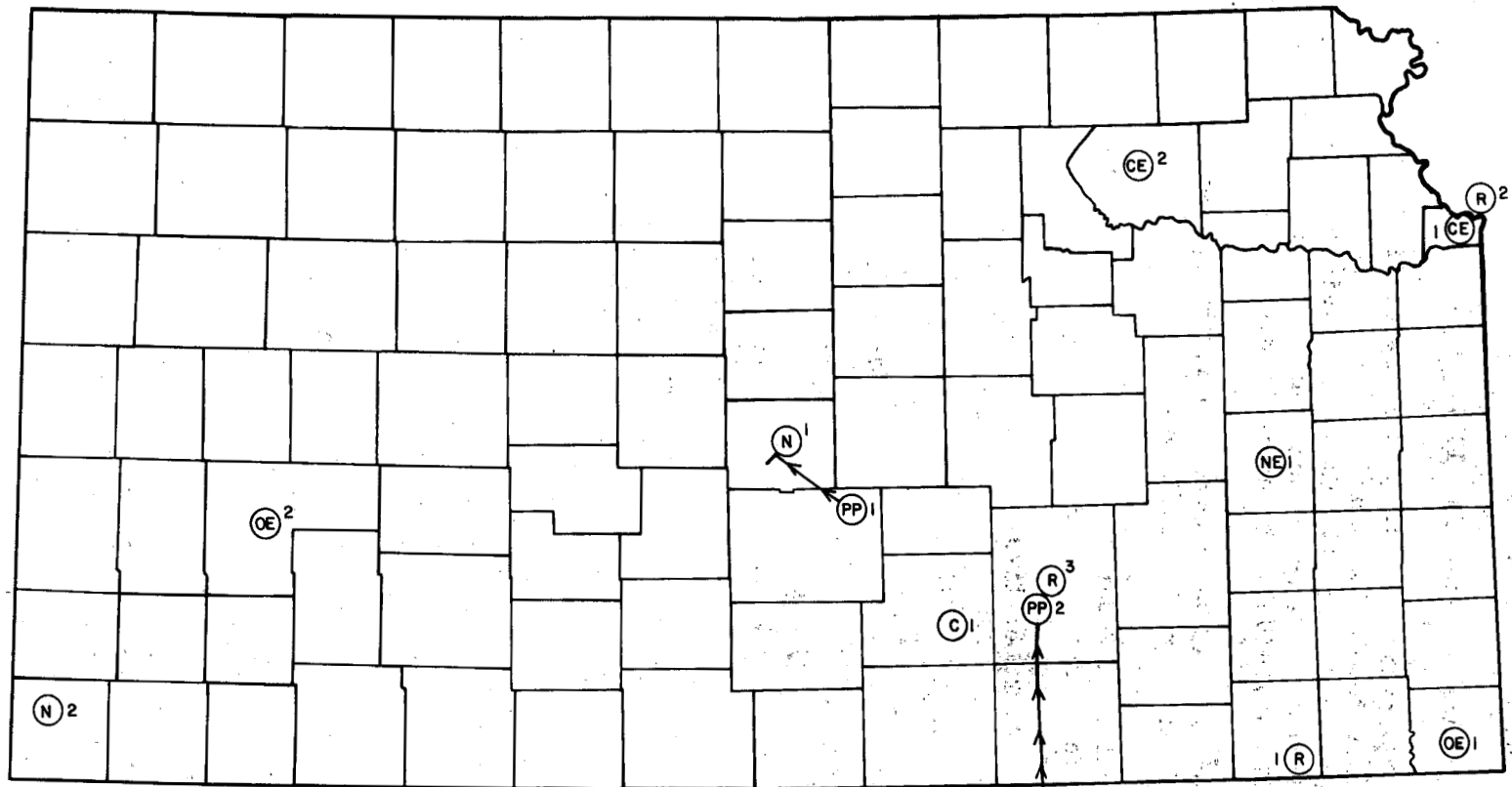
Map ref. No.	Terminal location	Operating company	Type	Capacity, MMtpy	Initial operating date	Remarks	References
X1..	Montrose, Iowa.	Iowa Gateway Terminal, Keokuk, Iowa.	Rail-to-barge	1 (expansion)	Unknown..	Present coal operation consists of barge to rail.	4
X2..	Council Bluffs, Iowa.	Union Pacific Railroad and Alter Co., Council Bluffs, Iowa.	...do.....	3	...do....	Trial barge shipments scheduled for 1977. Ample area is available for storage of coal when Missouri River is frozen over.	4

TABLE 60. - Future petroleum and natural gas pipelines in Iowa

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PPL	Williams Pipe Line Co., Tulsa, Okla.	Mason City, Iowa.	Cottage Grove, Minn.	Total, 130 (Minnesota portion, 106).	Crude oil.	Oct. 1977	18	Planned capacity is 80,000 bpd of crude oil. Source of crude will be South-western States.	6

List of Data Sources for Iowa

1. Coal Age. V. 82, No. 6, June 1977, p. 33.
2. Federal Energy News Press Release. Apr. 25, 1977.
3. Federal Power Commission, Washington, D.C. A Summary of FPC files was published as Federal Power Commission Report entitled, Western Coal: Requirements by New Electric Utility Plants, An Analysis of a Report by the Federal Power Commission: Status of Coal Supply Contracts for New Electric Generating Units 1976-1985. Economic Studies, Mar. 25, 1977.
4. Iowa Department of Transportation, Des Moines, Iowa, through Bureau of Mines State Liaison Officer, Mar. 17, 1977.
5. Iowa Electric Light & Power Co., Cedar Rapids, Iowa, through Bureau of Mines State Liaison Officer, Mar. 17, 1977.
6. Minnesota State Register. V. 2, p. 1529.



LEGEND

- Ⓢ Coal-fired electric generating plants
- Ⓢ Nuclear electric generating plants
- Ⓢ "Other" electric generating plants
- Ⓢ Coal conversion plants
- Ⓢ Natural gas processing or storage facilities
- Ⓢ Oil refineries
- Ⓢ Petroleum and natural gas pipelines

FIGURE 9: - Future energy-related projects in Kansas.

Kansas

Data on the following Kansas projects are presented in tables 61-66. The map reference numbers correspond with the accompanying Kansas map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
NE1.....	Wolf Creek.....	Kansas City Power and Light Co.
OE1.....	Plant Nos. 1-3.....	Empire District Electric Co.
OE2.....	Garden City GT No. 3.....	Sunflower Electric Cooperative
OE3.....	Unnamed.....	Central Kansas Power Co., Inc.
OE4.....	Mullergren No. 4.....	Central Telephone & Utilities Corp.
CE1.....	Nearman Creek Nos. 1-2.....	Kansas City Board of Public Utilities.
CE2.....	Jeffrey Energy Center Nos. 1-4.	Kansas Power and Light Co.
CE3.....	Unnamed.....	Central Telephone & Utilities Corp.
Coal conversion plants:		
C1.....	.....do.....	City of Wichita.
Natural gas processing and storage facilities:		
N1.....	.....do.....	Northern Natural Gas Co.
N2.....	.....do.....	Colorado Interstate Gas Co.
Oil refineries:		
R1.....	.....do.....	CRA Inc.
R2.....	.....do.....	Phillips Petroleum Co.
R3.....	.....do.....	Skelly Oil Co.
Petroleum and natural gas pipelines:		
PP1.....	Kansas.....	Peoples Natural Gas Co.
PP2.....	Oklahoma to Kansas.....	Osage Pipe Line Co.

TABLE 61. - Previously reported energy development projects that have been completed or canceled in Kansas

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Electric generating plants:				
Sunflower Electric Cooperative, Garden City, Kans.	Sunflower GT No. 2, Hays, Ellis County.		X	
City of McPherson, McPherson, Kans.	McPherson Plant No. 2, McPherson, McPherson County.		X	
Sunflower Electric Cooperative, Garden City, Kans.	Garden City GT No. 2, Garden City, Finney County.		X	
Central Kansas Power Co., Inc., Colby, Kans.	Unsitd Nos. 1-2, Central Kansas.	X		Present status unknown, possibly canceled. Do.
City of Mulvane, Mulvane, Kans.	Mulvane No. 5, Mulvane, Sumner County.	X		
Ottawa Water and Light Department, Ottawa, Kans.	Ottawa GT Nos. 2-3, Ottawa, Franklin County.	X		
Kansas City Power and Light Co., Kansas City, Mo., and Kansas Gas and Electric Co., Wichita, Kans.	LaCygne No. 2, LaCygne, Linn County.		X	
Kansas City Board of Public Utilities, Kansas City, Kans.	Quindaro Addition, Kansas City, Wyandotte County.		X	
Sunflower Electric Cooperative, Garden City, Kans.	Sunflower No. 3, Hays, Ellis County.	X		
Coal mines:				
Bill's Coal Co., Tulsa, Okla.	Bill's Coal Co., Osage County (T 17 S, Rs 14-15 E).	X		Canceled because of difficulty in finding market for coal (related to coal quality).

TABLE 62. - Future electric generating plants in Kansas

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
OE1.	Plant Nos. 1-3, Riverton, Cherokee County.	Empire District Electric Co., Joplin, Mo.	Oil.....	1	87	June 1978		2, 7
			Oil.....	2	87	June 1980		
			Coal--1.0..	3	300	June 1985		
			Total		474			
OE2.	Garden City GT No. 3, Garden City, Finney County.	Sunflower Electric Cooperative, Garden City, Kans.	Gas and oil	3	55	June 1978	Planning decision to be made.	1-2
OE3.	Unnamed Nos. 1-2, unsited, Central Kansas.	Central Kansas Power Co., Inc., Colby, Kans.	Unknown....	1	25	June 1979		4
			...do.....	2	25	June 1982		
			Total		50			
OE4.	Mullergren No. 4, unknown.	Central Telephone & Utilities Corp., Great Bend, Kans.	Oil.....	4	75	June 1985		1-2
CE1.	Nearman Creek Nos. 1-2, Kansas City, Wyandotte County.	Kansas City Board of Public Utilities, Kansas City, Kans.	Coal-- ^a 1.7	1	246	June 1978	Unit No. 1 under construction. A 1,000-ft railroad spur line completed.	1-3, 7
			(total, both units).	2	320	June 1982		
			Total		566			
CE2.	Jeffrey Energy Center, Nos. 1-4, Pottawatomie County (T 9 S, R 12 E)	Kansas Power and Light Co., Topeka, Kans.	Coal--8.4	1	680	June 1978	Nos. 1-2 under construction. New complex. Plans also call for 5-mile railroad spur line.	1-2, 7
			(total, all units).	2	680	June 1980		
				3	680	June 1982		
				4	680	June 1984		
Total		2,720						
CE3.	Unnamed No. 1, unsited, Central Kansas.	Central Telephone & Utilities Corp., Great Bend, Kans.	Coal--1.25	1	400	1986	Plans and site have not been determined.	4
NE1.	Wolf Creek, Burlington, Coffey County.	Kansas City Power and Light Co., Kansas City, Mo., and Kansas Gas and Electric Co., Wichita, Kans.	Nuclear....		1,150	Apr. 1983	Plant under construction. Pressurized water reactor. A 5,000-acre cooling reservoir and a 12-mile railroad spur are to be constructed.	1-2, 7

^aEstimated, see appendix for explanation.

TABLE 63. - Future coal conversion plants in Kansas

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
C1..	Unnamed, coal gasification plant, Wichita, Kans., Sedgewick County.	City of Wichita, Wichita, Kans., and Panhandle Eastern Pipe Line Co., Kansas City, Mo.	Lurgi process	Unknown..	275 MMcf/d	Feasibility study and hearings currently being held.	4

TABLE 64. - Future natural gas processing and storage facilities in Kansas

Map ref. No.	Terminal location	Operating company	Type	Capacity	Initial operating date	Remarks	References
N1..	Unnamed, Lyons, Rice County.	Northern Natural Gas Co., Greenwood, Colo.	Storage facility..		Unknown..		4
N2..	Unnamed, Richfield, Morton County.	Colorado Interstate Gas Co., Colorado Springs, Colo.	.....do.....		...do....		4

TABLE 65. - Future oil refineries in Kansas

Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Unnamed, Coffeyville, Montgomery County.	CRA Inc., Kansas City, Mo.	July 1979	17,130	Crude.....	5
R2..	Unnamed, Kansas City, Wyandotte County.	Phillips Petroleum Co., Bartlesville, Okla.	Unknown..	30,000	Desulfurization. Engineering stage, 1977.	6
R3..	Unnamed, El Dorado, Butler County.	Skelly Oil Co., Tulsa, Okla.	...do....	40,000	Hydrorefining. Feed pre-treated. Late 1977.	6

TABLE 66. - Future petroleum and natural gas pipelines in Kansas

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PP1.	Peoples Natural Gas Co., Pittsburgh, Pa.	Hutchinson, Reno County, Kans.	Lyons, Rice County, Kans.	32	Natural gas	Fall 1977	8	Planned.....	5
PP2.	Osage Pipe Line Co.; Skelly Oil Co., Tulsa, Okla.; Mobil Oil Corp., Oklahoma City, Okla.; and National Cooperative Refinery Association, McPherson, Kans.	Cushing, Okla.	Eldorado, Kans.	137	...do.....	Mid-1977	20	Under construction.	4

List of Data Sources for Kansas

1. Federal Energy Administration Liaison Office, Topeka, Kans. July 1977.
2. Federal Power Commission. Proposed Generating Capacity Changes for the Period 1975 Through 1984. Reported Apr. 1, 1975, in response to Docket R-362, Order 383-3.
3. Kansas City Board of Public Utilities, Kansas City, Kans. July 1977.
4. Kansas Geological Survey, Topeka, Kans. July 1977.
5. Oil and Gas Journal. V. 74, No. 40, Oct. 4, 1976, p. 112.
6. _____. V. 75, No. 17, Apr. 25, 1977, p. 126.
7. Steam-Electric Plant Factors. 1975.

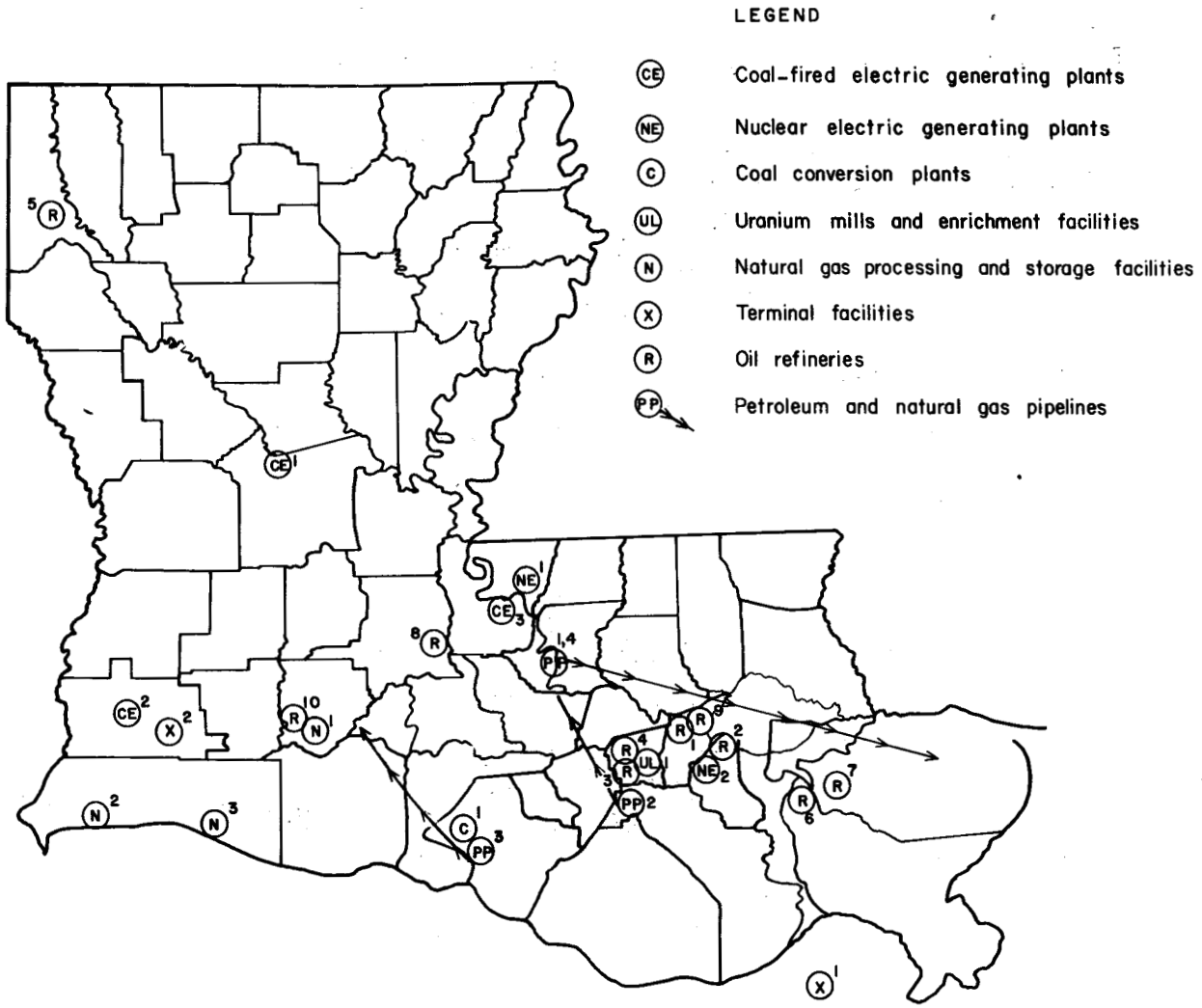


FIGURE 10. - Future energy-related projects in Louisiana.

Louisiana

Data on the following Louisiana projects are presented in tables 67-76. The map reference numbers correspond with the accompanying Louisiana map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
CE1.....	Rodemacher Plant.....	Central Louisiana Electric Co.
CE2.....	R. S. Nelson Plant.....	Gulf States Utilities.
CE3.....	Big Cajun, Plant No. 2..	Cajun Electric Power Cooperative.
NE1.....	River Bend Plant.....	Gulf States Utilities.
NE2.....	Waterford Plant.....	Louisiana Power and Light Co.
Coal conversion plants:		
C1.....	Lampco Plant.....	Louisiana Municipal Power Co.
Waste-to-fuel conversion plants:		
W1.....	Unnamed.....	City of Lafayette.
Geothermal facilities:		
G1.....	Unsite.....	Unknown.
Uranium mills and enrichment facilities:		
UL1.....	Uncle Sam Plantation Mill.	Freeport Minerals Co.
Natural gas processing and storage facilities:		
N1.....	Blue Water Gas Plant....	Exxon Co., U.S.A.
N2.....	Cameron-Meadows Plant...	Transcontinental Gas Pipe Line Co.
N3.....	Michigan Wisconsin Plant	Michigan Wisconsin Pipe Line Co.
Terminal facilities:		
X1.....	Offshore of Grand Isle..	LOOP, Inc.
X2.....	Lake Charles Terminal...	Panhandle Eastern Pipe Line Co.
Oil refineries:		
R1.....	Garyville Refinery.....	Marathon Oil Co.
R2.....	Good Hope Refinery.....	Good Hope Refining Co.
R3.....	North American Petroleum	North American Petroleum Corp.
R4.....	Convent Refinery.....	Texaco, Inc.
R5.....	Atlas Refinery.....	Atlas Co.
R6.....	Braithwaite Refinery....	LeGardeur International.
R7.....	Louisiana Refinery.....	Murphy Oil Corp.
R8.....	Hill Petroleum Co. Refinery.	Hill Petroleum Co.
R9.....	Mt. Airy Refinery.....	Mt. Airy Refining Co.
R10.....	Mermentau Refinery.....	Shepherd Oil Co.
Petroleum and natural gas pipelines:		
PP1.....	Louisiana to Florida....	Great Lakes Gas Transportation Co.
PP2.....	Louisiana.....	Louisiana Intrastate Gas Corp.
PP3.....	.....do.....	Do.
PP4.....	Louisiana to Florida....	Trans-Gulf Pipe Line, Inc.

TABLE 67. - Previously reported energy development projects that have been completed or canceled in Louisiana

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Electric generating plants:				
City of Lafayette, Lafayette, La.	Doc Bonin, Lafayette, Lafayette Parish.		X	
City of Houma, Houma, La.	Houma No. 16, Houma, Terrebonne Parish.		X	
Oil refineries:				
Tenneco, Inc., Chalmette, La.	Chalmette Refinery, Chalmette, St. Bernard Parish.		X	
Marathon Oil Co., Garyville, La.	Reserve Refinery, Reserve, St. John the Baptist Parish.		X	Formerly reported as ECOL, Ltd. Refinery. It was sold to Marathon in September of 1976 just prior to completion. Marathon plans an immediate \$170 million addition to the gasoline production area of the refinery. There will be no crude capacity increase.
Natural gas processing plants:				
Mobile Oil Corp., Iowa, La.	Iowa Natural Gas Processing Plant, Iowa, Calcasieu Parish.		X	
Placid Oil Co., Patterson, La.	Patterson Plant, Patterson, St. Mary Parish.		X	Construction completed. There is no gas line yet from offshore, so the plant is not yet in operation.
Shell Oil Co., Toca, La.	Toca Plant, Toca, St. Bernard Parish.		X	
Texaco, Inc., Berwick, La.	Floodway Plant, Berwick, St. Mary Parish.		X	
The Superior Oil Co., Lake Arthur, La.	Lowry Plant, Lake Arthur, Jefferson Davis Parish.		X	

TABLE 68. - Future electric generating plants in Louisiana

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Rodemacher Plant, Boyce, Rapides Parish.	Central Louisiana Electric Co., Pineville, La.	Coal--3.5 (total both units).	2 3 Total	530 530 1,060	1984 Unknown	No. 3 on indefinite hold. Construction has been delayed. Coal will be supplied by Kerr-McGee mine in Wyoming by unit train.	3
CE2.	R. S. Nelson Plant, Westlake, Calcasieu Parish.	Gulf States Utilities, Baton Rouge, La.	Coal--3.0 (total both units, at 50% load factor).	5 6 Total	540 540 1,080	Late 1985 Late 1986	Fuel will be Wyoming coal transported by unit train.	8
CE3.	Big Cajun, Plant No. 2, New Roads, Pointe Coupee Parish.	Cajun Electric Power Cooperative, New Roads, La.	Coal--4.0 (total both units).	1 2 Total	540 540 1,080	1979 1980	Construction began in March 1976. On schedule, Rocky Mountain coal by unit train to Mississippi River south of St. Louis, Mo., thence by barge to plant site.	2
NE1.	River Bend Plant, St. Francisville, West Feliciana Parish.	Gulf States Utilities, Baton Rouge, La.	Nuclear..... ...do.....	1 2 Total	940 940 1,880	Oct. 1983 Oct. 1985	Construction permit has been issued and clearance obtained from Nuclear Regulatory Commission.	8
NE2.	Waterford Plant, Taft, St. Charles Parish.	Louisiana Power and Light Co., New Orleans, La.	...do.....	3	1,165	Early 1981.	Under construction. Mississippi River will be water source for once-through cooling.	13

TABLE 69. - Future coal conversion plants in Louisiana

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
Cl..	Lampco Plant, Baldwin, St. Mary Parish.	Louisiana Municipal Power Co., Natchitoches, La.			78 MMcfd of 140 Btucf gas (115 Mw).	Active planning.....	21

TABLE 70. - Future waste-to-fuel conversion plants in Louisiana

Map ref. No.	Plant name and location	Operating company	Type and feedstock	Initial operating date	Estimated capacity	Remarks	References
W1..	Unnamed, unsited	Unknown..				The city of Lafayette, La., is beginning a feasibility study to synthesize methane from solid wastes, but project is still just a prospect.	10

TABLE 71. - Future geothermal facilities in Louisiana

Map ref. No.	Location	Company	Current status, plans, and other relevant information	References
G1..	Unsited.	Unknown	Louisiana may someday derive energy from geothermal-geopressure area along the Gulf Coast. It is anticipated to take 15 to 20 years of research and experiment to reach commercial applications. The possibility that the high-pressure, high-temperature waters may also be saturated with natural gas makes the deposits of greater interest. A DOE project south of Delcambre on Tigre Lagoon contracted to McNeese State University has had favorable results with a test hole.	10

TABLE 72. - Future uranium mills and enrichment facilities in Louisiana

Map ref. No.	Plant name and location	Operating company	Type	Initial operating date	Planned capacity	Remarks	References
UL1.	Uncle Sam Plantation Mill, Uncle Sam, St. James Parish.	Freeport Minerals Co., Uncle Sam, La.	Uranium oxide recovery.	Third quarter of 1978.	690,000 lb uranium oxide per year.	This facility is under construction. Phosphate rock from Florida would be shipped to Uncle Sam phosphoric acid plant. The uranium content of the rock would be recovered at the plant.	6

TABLE 73. - Future natural gas processing and storage facilities in Louisiana

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Blue Water Gas Plant, Estherwood, Acadia Parish.	Exxon Co., U.S.A., New Orleans, La.	Estimate third quarter of 1978.	950,000 Mcfd.....	\$40 million plant now under construction.	4
N2..	Cameron-Meadows Plant, Johnson Bayou, Cameron Parish.	Transcontinental Gas Pipe Line Co., United Transco Offshore Systems, Houston, Tex.	Nov. 1977	1,240,000 Mcfd. There are two separate streams to this drying facility UTOP & North High Island. They share control facilities but are dried separately.	\$15 to \$16 million project.	23
N3..	Michigan Wisconsin Plant, Grand Chenier, Cameron Parish.	Michigan Wisconsin Pipe Line Co., Detroit, Mich.	First quarter of 1978.	Initial capacity, 600,000 Mcfd. Capacity expansion is under construction.		15

TABLE 74. - Future terminal facilities in Louisiana

Map ref. No.	Terminal location	Operating company	Type	Capacity	Initial operating date	Remarks	References
X1..	Offshore, 18 miles south of Grand Isle, Jefferson Parish.	LOOP, Inc., (Louisiana Offshore Oil Port), Baton Rouge, La.	Deepwater port.	Initial capacity, 1.4 MMbpd expanding to 3.5 MMbpd.	Estimate end of 1980.		12
X2..	Lake Charles Terminal, Lake Charles, Calcasieu Parish.	Panhandle Eastern Pipe Line Co., and Trunkline Liquid Natural Gas Co., Houston, Tex.	Deepwater port and onshore gasification facilities.	3.3 trillion cu ft over a 20-year period.	1980	Import liquid natural gas from Algeria.	5

TABLE 75. - Future oil refineries in Louisiana

Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Garyville Refinery, Garyville, St. John the Baptist Parish.	Marathon Oil Co., Garyville, La.	Third quarter of 1979.	Expansion of gasoline capability. No increase in crude capacity.	Expansion.....	14
R2..	Good Hope Refinery, near Norco, St. Charles Parish.	Good Hope Refining Co., Norco, La.	Early 1978.	36,000	.....do.....	7
R3..	North American Petroleum, St. James, St. James Parish.	North American Petroleum Corp., St. James, La.		5,000	.....do.....	18
R4..	Convent Refinery, Convent, St. James Parish.	Texaco Inc., Convent, La.		200,000	This expansion plant is being held in abeyance. There is a \$100 million plus project underway to enable the plant to use foreign sour crude, that is, a sulfur removal plant plus new dock facilities and new crude storage tanks.	22
R5..	Atlas Refinery, Shreveport, Caddo Parish.	Atlas Co., Shreveport, La.	1979	40,000	Expansion, under construction.	1
R6..	Braithwaite Refinery, Braithwaite, Plaquemines Parish.	LeGardeur International, Braithwaite, La.	Unknown..	300,000	This project inactive, but still under consideration.	11
R7..	Louisiana Refinery, Meraux, St. Bernard Parish.	Murphy Oil Corp., Meraux, La.	Early 1979.	25,000	Expansion.....	17
R8..	Hill Petroleum Co. Refinery, Krotz Springs, St. Landry Parish.	Hill Petroleum Co., Krotz Springs, La.	Nov. 1977	5,000, expansion to 10,000.	Refinery completed, expansion underway. Blending 12 to 13 Mbpd of gasoline using produced and purchased gasoline.	9
R9..	Mt. Airy Refinery, Mt. Airy, St. John the Baptist Parish.	Mt. Airy Refining Co., Garyville, La.	7-8-77	15,000, running about 10,000 presently.	Still under construction, expansion.	16
R10.	Mermentau Refinery, Mermentau, Acadia Parish.	Shepherd Oil Co., Mermentau, La.	9-1-77	10,000		20

TABLE 76. - Future petroleum and natural gas pipelines in Louisiana

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PP1.	Great Lakes Gas Transportation Co., Detroit, Mich.	Baton Rouge, La.	Fort Lauderdale, Fla.	Unknown	Natural gas.	Completion 1978.	30	There are many pipeline construction projects planned, but most are short lines for gathering purposes, less than 20 miles long.	19
				10			26		
				6			20		
				12			4		
PP2.	Louisiana Intrastate Gas Corp., Pineville, La.	Thibodaux, La.	Plaquemine, La.	21	..do...	Mid-1977	30		19
				9			24		
				20			18		
PP3.	...do.....	Baldwin, La.	Duson, La...	31	..do...	Sept. 1977	16		19
PP4.	Trans-Gulf Pipe Line, Inc., New Orleans, La.	Baton Rouge, La.	Fort Lauderdale, Fla.	16	..do...	1978	18	Pending DOE approval.	19
				60			14		

List of Data Sources for Louisiana

1. Atlas Co., Shreveport, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
2. Cajun Electric Power Cooperative, New Roads, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
3. Central Louisiana Electric Co., Pineville, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
4. Exxon Co., U.S.A., New Orleans, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
5. Federal Power Commission. Draft Environmental Impact Statement for the Matagorda Bay Project, El Paso Eastern Co. et al, Docket Number CP 77-330 et al. July 1977.
6. Freeport Minerals Co., New Orleans, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
7. Good Hope Refining Co., Norco, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
8. Gulf States Utilities, Baton Rouge, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
9. Hill Petroleum Co., Krotz Springs, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
10. Jones, O. W., Bureau of Mines State Liaison Officer, Baton Rouge, La., July 19, 1977.
11. LeGardeur International, Braithwaite, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
12. LOOP Incorporated, Baton Rouge, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
13. Louisiana Power and Light Co., New Orleans, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
14. Marathon Oil Co., Garyville, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
15. Michigan Wisconsin Pipe Line Co., Detroit, Mich., through Bureau of Mines State Liaison Officer, July 19, 1977.
16. Mount Airy Refining Co., Garyville, La., through Bureau of Mines State Liaison Officer, July 19, 1977.

17. Murphy Oil Corp., Meraux, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
18. North American Petroleum Corp., St. James, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
19. Oil and Gas Journal. V. 75, No. 17, Apr. 25, 1977, pp. 184, 188.
20. Shepherd Oil Co., Mermentau, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
21. Status of Synfuels Projects. June 1977.
22. Texaco, Inc., Convent, La., through Bureau of Mines State Liaison Officer, July 19, 1977.
23. Transcontinental Gas Pipe Line, United Transco Offshore Systems, Houston, Tex., through Bureau of Mines State Liaison Officer, July 19, 1977.

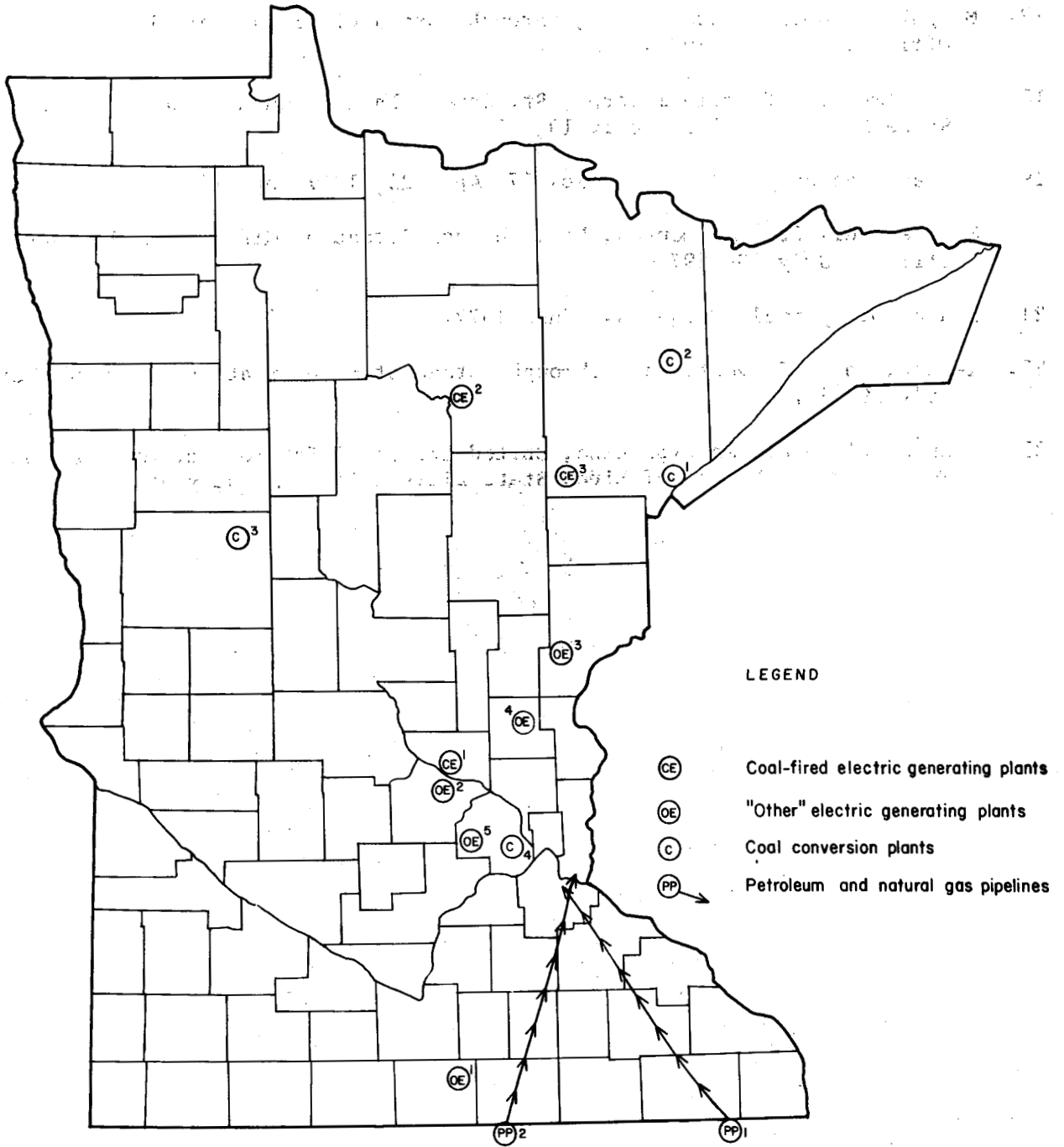


FIGURE 11: - Future energy-related projects in Minnesota.

Minnesota

Data on the following Minnesota projects are presented in tables 77-81.
The map reference numbers correspond with the accompanying Minnesota map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
CE1.....	Sherco Nos. 3-4.....	Northern States Power Co.
CE2.....	Clay Boswell No. 4.....	Minnesota Power & Light Co.
CE3.....	Floodwood.....	Do.
CE4.....	Unnamed.....	Northern States Power Co.
OE1.....	Wells No. 6.....	Wells Electric Association.
OE2.....	Maple Lake.....	United Power Association.
OE3.....	Pine City.....	Do.
OE4.....	Cambridge.....	Do.
OE5.....	St. Bonifacius.....	Cooperative Power Association.
Coal conversion plants:		
C1.....	University Physical Plant	University of Minnesota-- Duluth.
C2.....	Pelletizing Plant.....	Erie Mining Co.
C3.....	Land O'Lakes Heating Plant.	Land O'Lakes, Inc.
C4.....	Unnamed.....	U.S. Bureau of Mines.
Peat conversion plants:		
Pl.....	.....do.....	Minnesota Gas Co.
Petroleum and natural gas pipelines:		
PP1.....	Illinois to Minnesota....	Northern Pipe Line Co.
PP2.....	Iowa to Minnesota.....	Williams Pipe Line Co.

TABLE 77. - Previously reported energy development projects that have been completed or canceled in Minnesota

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Electric generating plants: Northern States Power Co., Minneapolis, Minn.	Sherburne Nos. 1-2, Becker, Sherburne County.		X	
Austin Utilities, Austin, Minn.	Northeast Station No. 2, Austin, Mower County.	X		

TABLE 78. - Future electric generating plants in Minnesota

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	Refer- ences
				Unit No.	Mega- watts			
CE1.	Sherco Nos. 3-4, Becker, Sherburne County.	Northern States Power Co., Minneapolis, Minn.	Coal--5.2 (total for both units).	3 4 Total	800 800 1,600	May 1981 May 1983	Lake Superior District Power Co. will own 40 Mw.	7
CE2.	Clay Boswell No. 4, Cohasset, Itasca County	Minnesota Power and Light Co., Duluth, Minn.	Coal--*1.9...	4	500	May 1980	Utility has contract with Peabody Coal Co. for Montana coal.	7, 11
CE3.	Floodwood, Floodwood, St. Louis County (formerly listed as Brookston).	.....do.....	Coal--3.2....		800	May 1984	Plant siting requirements completed. Application will be resubmitted to the Minnesota Energy Agency for a Certificate of Need. United Power Association will own 250 Mw. Utility has contract with Peabody Coal Co. for Montana coal.	7, 11
CE4.	Unnamed, unsited, see remarks.	Northern States Power Co., Minneapolis, Minn.	Coal--2.5....		800	May 1985	Minnesota Energy Agency has granted Certificate of Need. Site yet to be determined.	7
OE1.	Wells No. 6, Wells, Faribault County.	Wells Electric Associa- tion, Wells, Minn.	Fuel oil.....	6	4	May 1981		1
OE2.	Maple Lake, Maple Lake, Wright County.	United Power Association, Elk River, Minn.	.....do.....		23	May 1978		7
OE3.	Pine City, Pine City, Pine County.	.....do.....	.....do.....		23	May 1978		7
OE4.	Cambridge, Isanti County	.....do.....	.....do.....		23	May 1978		7
OE5.	St. Bonifacius, St. Bonifacius, Hennepin County.	Cooperative Power Association, Edina, Minn.	.....do.....		50	May 1978		7

*Estimated, see appendix for explanation.

TABLE 79. - Future coal conversion plants in Minnesota

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
C1..	University Physical Plant, Duluth, St. Louis County.	University of Minnesota-- Duluth, Duluth, Minn.	Gasification, Foster- Wheeler.	Apr. 1978	60 MM Btuh (150 to 300 Btucf) (about 6.4 MMcfd).	A \$4.8 million research plant to produce low Btu gas to fuel the University's heating plant. The project is being financed through a \$2.2 million grant from DOE with additional funding through the University and the State legislature.	2-3
C2..	Pelletizing Plant, Hoyt Lakes, St. Louis, County.	Erie Mining Co., Pickands Mather & Co., Operating Agent, Hoyt Lakes, Minn.	Gasification.	1979	270 MM Btuh (150 to 180 Btucf) (about 39 MMcfd)	A \$39 million demonstration project to produce low Btu gas to be used by Erie Mining Co. in its taconite pelletizing plant. DOE will provide \$23 million of the total cost, and Erie will supply the remaining funds. The plant will consume 500 tpd of coal, and the gas produced will provide one-third of the pellet plant's fuel requirements.	2, 10, 13
C3..	Land O'Lakes Processing Plant, Perham, Otter Tail County.	Land O'Lakes, Inc., Minneapolis, Minn.	.....do.....	1980	30 MM Btuh (200 Btucf) (about 3.6 MMcfd).	Montana and Wyoming coal will be used to produce low Btu gas for the company's cheese plant.	1, 4
C4..	Unnamed, Fort Snelling, Hennepin County.	Bureau of Mines, U.S. Department of the Interior, Twin Cities Metallurgy Research Center, Twin Cities, Minn.	Gasification, Wellman- Galusha.	1978	30 MM Btuh maximum (150 to 155 Btucf) (about 4.6 MMcfd).	Experimental plant. The Bureau of Mines will conduct and evaluate pelletizing tests made with low Btu gas produced from this plant. DOE will provide \$750,000 for installation of the gasifier.	2

TABLE 80. - Future peat conversion plants in Minnesota

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
Pl..	Unnamed, unsited, see remarks.	Minnesota Gas Co. (Minnegasco) Minneapolis, Minn.	Gasification	1982 or 1983.	80 MMcfd (synthetic natural gas) demonstration plant. Would probably expand to a full commercial size plant of 250 MMcfd when additional capacity is needed.	Minnegasco has been conducting studies since September 1974, on the feasibility of converting peat into synthetic natural gas. When current engineering studies and a pilot plant run are completed, the plant is planned to be built at an estimated cost of \$250 million. Exact plant site has not been selected, but the company has applied for a 25-year lease on State-owned lands within a 491-square-mile tract in Koochiching, Beltrami, and Lake of the Woods Counties in northwestern Minnesota, which will provide a site and feedstock for the plant. The 80 MMcfd plant would use about 6 MMtpy (30% moisture) of peat; the 250-MMcfd plant would use 18 MMtpy of peat.	1, 9

TABLE 81. - Future petroleum and natural gas pipelines in Minnesota

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PP1.	Northern Pipe Line Co., St. Paul, Minn.	Wood River, Ill.	Pine Bend, Minn.	Total, 450 (Minnesota portion, 99).	Crude oil.	1978	20 or 24	Initially, will pump approximately 120,000 bpd of crude oil to the Koch Refining Co.	6, 8
PP2.	Williams Pipe Line Co., Tulsa, Okla.	Mason City, Iowa.	Cottage Grove, Minn.	Total, 130 (Minnesota portion, 106).	Crude oil.	Oct. 1977	18	Planned capacity is 80,000 bpd of crude oil. Source of crude will be Southwestern States.	5, 12

List of Data Sources for Minnesota

1. Briggs, R. C., Bureau of Mines State Liaison Officer, Twin Cities, Minn., May 27, 1977.
2. Bureau of Mines, Twin Cities Metallurgy Research Center, Twin Cities, Minn., through Bureau of Mines State Liaison Officer, May 27, 1977.
3. Duluth News-Tribune (Duluth, Minn.). Jan. 16, 1977.
4. _____. Feb. 4, 1977.
5. Minneapolis Tribune (Minneapolis, Minn.). Aug. 3, 1976.
6. Minnesota Department of Natural Resources, St. Paul, Minn., through Bureau of Mines State Liaison Officer, May 27, 1977.
7. Minnesota Energy Agency, St. Paul, Minn., through Bureau of Mines State Liaison Officer, May 27, 1977.
8. Post-Bulletin (Rochester, Minn.). Jan. 10, 1977.
9. Rader, A. M., Assistant Vice President--Research, Minnesota Gas Co., through Bureau of Mines State Liaison Officer, May 27, 1977.
10. Skillings Mining Review. V. 66, No. 18, Apr. 30, 1977, p. 11.
11. The Evening Telegram (Superior, Wis.). Feb. 26, 1977.
12. State Register. V. 2, p. 1529.
13. Wall Street Journal (New York). Apr. 6, 1977.

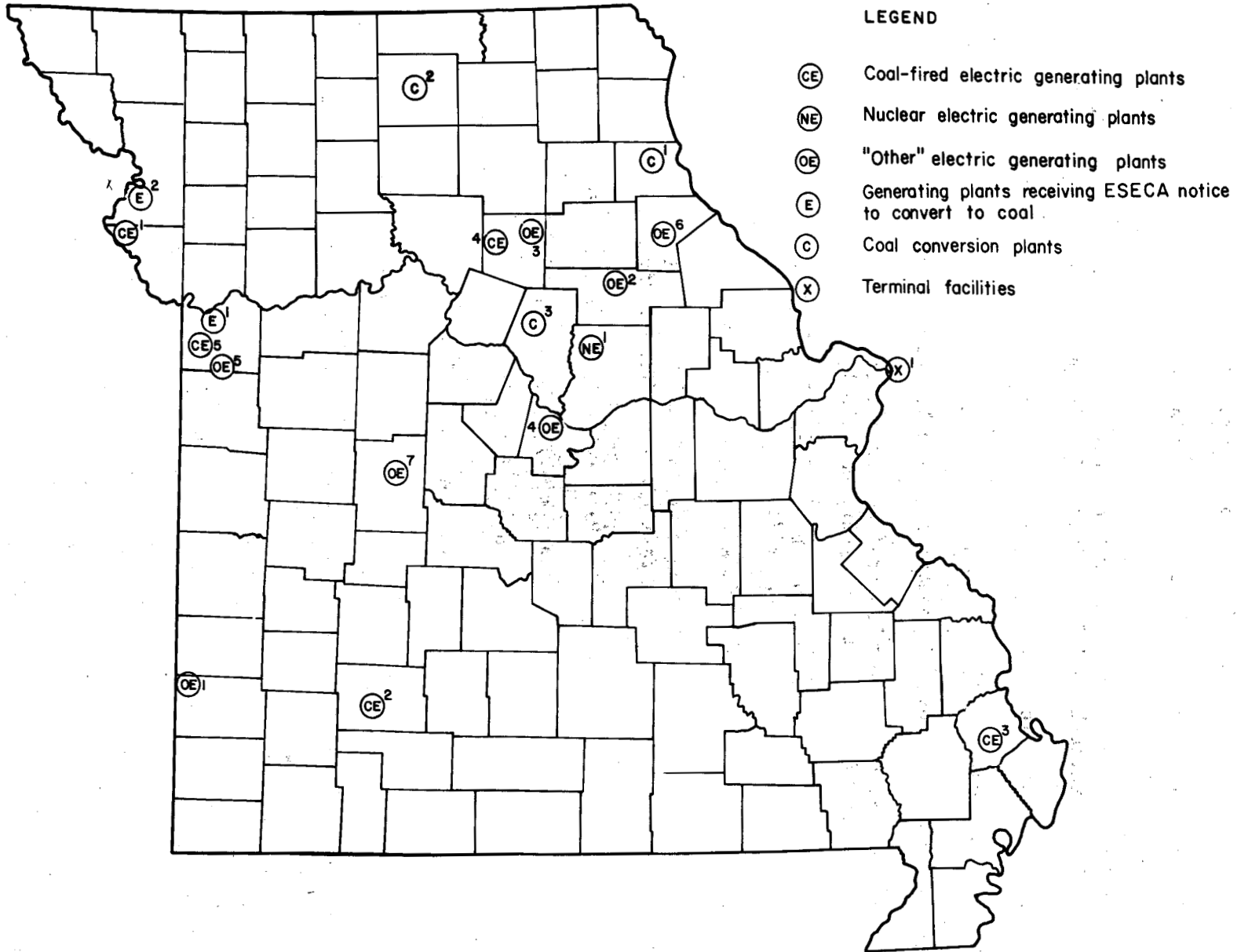


FIGURE 12: - Future energy-related projects in Missouri;

Missouri

Data on the following Missouri projects are presented in tables 82-86. The map reference numbers correspond with the accompanying Missouri map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
CE1.....	Iatan No. 1.....	Kansas City Power and Light Co.
CE2.....	Southwest No. 2.....	City of Springfield.
CE3.....	Sikeston Municipal.....	City of Sikeston.
CE4.....	Thomas Hill No. 3.....	Associated Electric Cooperative.
CE5.....	Blue Valley No. 4.....	City of Independence.
OE1.....	Empire Energy Center....	Empire District Electric Cooperative.
OE2.....	Union Electric Company..	Union Electric Co.
OE3.....	.....do.....	Do.
OE4.....	.....do.....	Do.
OE5.....	Greenwood Nos. 4-5.....	Missouri Public Service Co.
OE6.....	Clarence Cannon Nos. 1-2	Southwestern Power Administration.
OE7.....	Harry Truman Nos. 1-6...	Do.
NE1.....	Callaway Nos. 1-2.....	Union Electric Co.
Generating plants receiving preliminary ESECA notice to convert to coal:		
E1.....	Blue Valley.....	Independence Power and Light Department.
E2.....	Lake Road.....	St. Joseph Power and Light Co.
Coal conversion plants:		
C1.....	Missouri Energy Center..	Northeast Missouri Power Cooperative and Farmland Industries, Inc.
C2.....	Green Hills Project.....	Regional Planning Group plus combination of municipal utilities and electric cooperatives.
C3.....	Mid-Missouri Council of Governments.	Do.
Terminal facilities:		
X1.....	Unnamed, St. Louis.....	American Commercial Barge Lines and Burlington Northern, Inc.

TABLE 82. - Previously reported energy development projects that have been completed or canceled in Missouri

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Electric generating plants:				
Union Electric Co., St. Louis, Mo.	Rush Island Nos. 1-2, Crystal City, Jefferson County.		X	Units 1-2 combined will use 2.2 to 2.4 million tons of coal.
City of Springfield, Springfield, Mo.	Southwest No. 1, Springfield, Green County.		X	
Associated Electric Cooperative, Springfield, Mo.	New Madrid No. 2, New Madrid, New Madrid County.		X	
Missouri Public Service Co., Kansas City, Mo.	Greenwood No. 3, Greenwood, Jackson County.		X	Tested on May 23.
St. Joseph Light and Power Co., St. Joseph, Mo.	Substation No. 1, St. Joseph, Buchanan County.	X		Company buying power and will share in Iatan No. 1 capacity when it goes online in 1980. Scheduled to receive 157 Mw of Iatan's 726-Mw capacity.
City of Independence, Independence, Mo.	Blue Valley No. GT1, Independence, Jackson County.		X	
Do.....	Blue Valley No. GT2, Independence, Jackson County.	X		
Empire District Electric Cooperative, Joplin, Mo.	Asbury No. 2, Asbury, Jasper County.	X		This plant will be unit 3 of the Empire Energy Center, following 1-2, oil-fired turbines scheduled for 1978 and 1980. The coal-fired unit will be completed in 1985.
Kansas City Power and Light Co., Kansas City, Mo.	Northeast 13-14, Kansas City, Jackson County.		X	
Do.....	Riverside No. 1, near Kansas City, Jackson County.		X	This unit was built at Northeast Station instead of Riverside.
Union Electric Co., St. Louis, Mo.	Unsitd.....	X		
Do.....	Unsitd 1-5.....	X		
Missouri Public Service Co., Kansas City, Mo.	Unsitd Nos. 1-2.....	X		

TABLE 83. - Future electric generating plants in Missouri

Map ref. No.	Plant name and location	Operating company	Fuel, Mtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Iatan No. 1, Iatan, Platte County.	Kansas City Power and Light Co., Kansas City, Mo.	Coal--2.7....	1	630	1980	Will burn Wyoming coal...	2
CE2.	Southwest No. 2, Springfield, Greene County.	City of Springfield, Springfield, Mo.	Coal--0.65...	2	209	1986		2
CE3.	Sikeston Municipal, Sikeston, Scott County.	City of Sikeston, Sikeston, Mo.	Coal--0.6....		235	1980	Coal from south Illinois; limestone scrubbers will be used.	4
CE4.	Thomas Hill No. 3, Moberly, Randolph County.	Associated Electric Cooperative, Springfield, Mo.	Coal--0.8....	3	600	1981	Missouri coal.....	3
CE5.	Blue Valley No. 4, Independence, Jackson County.	City of Independence, Independence, Mo.	Coal--°0.5...	4	150	1983		2
OE1.	Empire Energy Center, Joplin Area, Jasper County.	Empire District Electric Cooperative, Joplin, Mo.	Oil.....	1	90	1978	To burn western coal. Heat recovery boiler.	5
			Oil.....	2	90	1980		
			Coal--°1.0...	3	300	1985		
			Coal, unknown	4	120	1988		
			Coal--°1.0...	5	300	1994		
			Total		900			
OE2.	Union Electric Co., Mexico, Audrain County.	Union Electric Co., St. Louis, Mo.	Oil.....	1	60	May 1978	Peak loading turbine generators to be operational approximately 200 hpy.	9
OE3.	Union Electric Co., Moberly, Randolph County.do.....	Oil.....	2	60	May 1978	Do.	9
OE4.	Union Electric Co., Jefferson City, Cole County.do.....	Oil.....	3	60	May 1978	Do.	9
OE5.	Greenwood Nos. 4-5, Greenwood, Jackson County.	Missouri Public Service Co., Kansas City, Mo.	Oil.....	4	73	1979		2
				5	60	1981		
				Total		133		
OE6.	Clarence Cannon Nos. 1-2, Center, Ralls County.	Southwestern Power Administration, Tulsa, Okla.	Hydropower...	1	27	Oct. 1979		7
			Hydropower	2	31	Aug. 1979		
			(reverse pump).	Total		58		
OE7.	Harry Truman Nos. 1-6, Warsaw, Benton County.do.....	Hydropower	1	Total	Mar. 1979		7
			(pump storage).	2	162	Apr. 1979		
				3		May 1979		
				4		June 1979		
				5		July 1979		
				6		Aug. 1979		
NE1.	Callaway Nos. 1-2, Fulton, Callaway County.	Union Electric Co., St. Louis, Mo.	Nuclear.....	1	1,150	1982	Project delay 1 year. Project completion date deferred 4 years to 1987	13
			.....do.....	2	1,150	1987	
				Total		2,300		

°Estimated, see appendix for explanation.

TABLE 84. - Generating plants receiving preliminary ESECA notice to convert to coal in Missouri

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity, megawatts	Remarks	References
E1..	Blue Valley, Independence, Jackson County.	Independence Power and Light Department, Independence, Mo.	Coal--0.14	60	This unit is already converted to coal with gas firing capability.	1
E2..	Lake Road (2 units), St. Joseph, Buchanan County.	St. Joseph Power and Light Co., St. Joseph, Mo.	Coal--0.36	134	.....do.....	1

TABLE 85. - Future coal conversion plants in Missouri

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
C1..	Missouri Energy Center, Palmyra, Marion County, (T 58 N, R 5 W, Secs. 10, 11, 14, 15).	Northeast Missouri Power Cooperative and Farmland Industries, Inc., Palmyra, Mo.	Koppers-Totzek, gasifiers, combined cycle, electric generation, ammonia production, methanol production.	1981	3 MMtpy coal	Planning stage, planning since 1973.	6
C2..	Green Hills Project, Milan, Sullivan County.	Regional Planning Group plus combination of municipal utilities and electric cooperatives, Milan, Mo.	Texaco synthesis gas generation process-combined cycle power generation.	1983	Three 100-Mw generators plus low Btu gasification for industrial use will use approximately 1 MMtpy of coal.	Funding being sought for feasibility and environmental impact studies. Legislation is required to allow municipal utilities to pool resources with other municipal or cooperative utilities to share costs and indebtedness as well as benefits.	8, 12
C3..	Mid-Missouri Council of Governments, Huntsdale, Boone County.	Regional Planning Group plus combination of municipal utilities and electric cooperatives, Columbia, Mo.	.....do.....	1983	.....do.....	.....do.....	8, 12

TABLE 86. - Future terminal facilities in Missouri

Map ref. No.	Terminal location	Operating company	Type	Capacity	Initial operating date	Remarks	References
XI..	Unnamed, St. Louis	American Commercial Barge Lines and Burlington Northern, Inc., Wood River, Ill.	Train to barge.	10 MMtpy	Unknown..	Will transfer western coal to barge for movement along Lower Mississippi and Ohio River Inland Waterway System. Propose Bi-State Development Agency Revenue Bonds for financing.	10-11

List of Data Sources for Missouri

1. Federal Energy News: Press Release. Apr. 25, 1977.
2. Federal Power Commission. Proposed Generating Capacity Changes for the Period 1975 Through 1984. Reported Apr. 1, 1975, in response to Docket R-362, Order 383-3.
3. _____. A Summary of FPC files was published as Federal Power Commission Report titled, Western Coal: Requirements by New Electric Utility Plants, An Analysis of a Report by the Federal Power Commission: Status of Coal Supply Contracts for New Electric Generating Units 1976-1985. Economic Studies, Mar. 25, 1977.
4. Inman, W., Manager, Sikeston Utilities, Sikeston, Mo., through Bureau of Mines State Liaison Officer, June 15, 1977.
5. Kansas City Star (Kansas City, Mo.). Dec. 12, 1976.
6. Missouri Coal Research Committee Report. Apr. 19, 1977.
7. Southwest Power Administration, Tulsa, Okla., through Bureau of Mines State Liaison Officer, June 15, 1977.
8. St. Louis Globe Democrat (St. Louis, Mo.). Mar. 15, 1977.
9. _____. Apr. 11, 1977.
10. _____. May 16, 1977.
11. St. Louis Post Dispatch (St. Louis, Mo.). Dec. 9, 1976.
12. _____. Mar. 15, 1977.
13. Union Electric Annual Report. 1977.

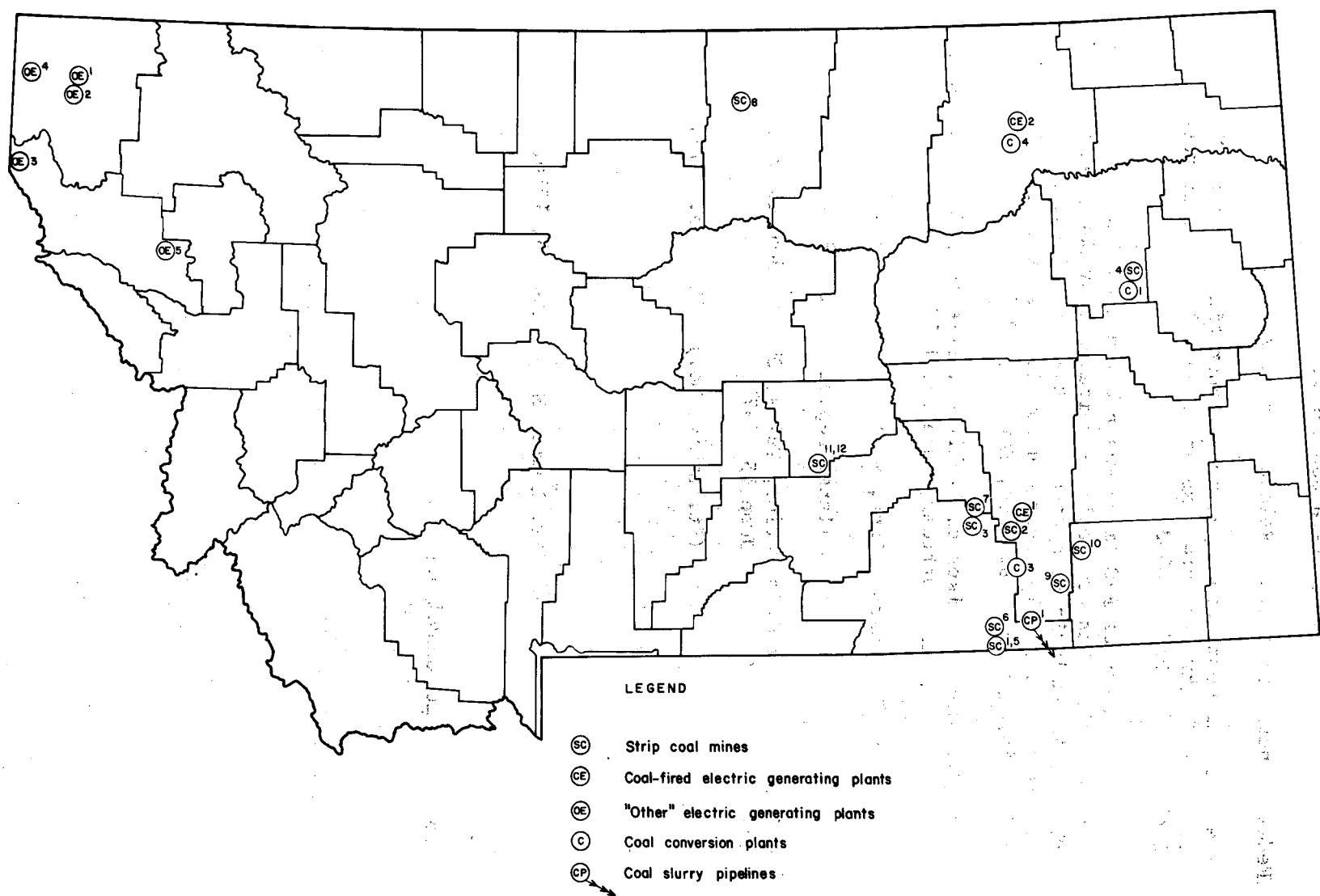


FIGURE 13: - Future energy-related projects in Montana.

Montana

Data on the following Montana projects are presented in tables 87-90. The map reference numbers correspond with the accompanying Montana map.

Map ref. No.	Project name	Company or agency
Coal mines:		
SC1.....	East Decker mine.....	Decker Coal Co.
SC2.....	Rosebud mine.....	Western Energy Co.
SC3.....	Sarpy Creek.....	Westmoreland Resources.
SC4.....	Circle West.....	Dryer Bros. Co.
SC5.....	Youngs Creek.....	Shell Oil Co.
SC6.....	Spring Creek.....	Pacific Power & Light Co.
SC7.....	East Sarpy Creek.....	Amax Coal Co.
SC8.....	Unnamed.....	Clay McCartney.
SC9.....	Nance mine.....	MONTCO.
SC10.....	Unnamed.....	Bob Smith.
SC11.....	.....do.....	Victor & Jack Carlson.
SC12.....	.....do.....	Paul Meged.
Electric generating plants:		
OE1.....	Libby Nos. 5-8.....	U.S. Army Corps of Engineers.
OE2.....	Libby Regulating Nos. 1-4	Do.
OE3.....	Noxon Rapids No. 5.....	Washington Water Power Co.
OE4.....	Kootenai Falls.....	Northern Lights, Inc.
OE5.....	Buffalo Rapids.....	Montana Power Co.
CE1.....	Colstrip Nos. 3-4.....	Do.
CE2.....	Energy Park.....	State of Montana.
CE3.....	Unnamed.....	Montana Power Co.
CE4.....	.....do.....	Basin Electric Power Cooperative.
Coal conversion plants:		
C1.....	Circle West Project.....	Dryer Bros. Co.
C2.....	Southeast Montana.....	Colorado Interstate Gas Co.
C3.....	Unnamed.....	Northern Natural Gas Co.
C4.....	Energy Park.....	State of Montana.
Coal slurry pipelines:		
CP1.....	Montana to Texas.....	Brown & Root, Inc.

TABLE 87. - Future coal mines in Montana

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
SC1.	East Decker mine and north extension of West Decker mine, near Decker, Big Horn County (T 9 S, R 40 E).	Decker Coal Co., Decker, Mont.	Strip.....	20.0--1981 (expansion).	Moisture--24.1% Ash--4.3% Sulfur--0.6% Btulb--9,400 Moisture--23.6% Ash--3.3% Sulfur--0.4% Btulb--9,700 Moisture--20.6% Ash--5.5% Sulfur--0.6% Btulb--9,900	Upper D1 seam, 26. Lower D1 seam, 18. D2 seam, 15	50 to 170 (overburden) 4 to 70 (parting) 50 to 70 (parting)	Mine would recover coal from 3 seams. Total production is estimated at 14 to 15 million tons in 1980 from the Decker mine and the East Decker expansion. A 2.5-mile railroad spur line is also planned.	9-10, 12
SC2.	Rosebud mine, Area A (expansion), Area B (new), Area C (new), Area D (new), Colstrip, Rosebud County.	Western Energy Co., Billings, Mont.	...do.....	19.1--1980 (expansion).	Moisture--24.6% Ash--8.9% Sulfur--0.7% Btulb--8,703	23	10 to 200	The estimated production capacity of 19.1 million tons in 1980 is contingent upon the construction of units 3-4 of the Colstrip complex. Area B began production in 1976. Areas C and D will begin production in 1980.	9-10, 12
SC3.	Sarpy Creek (Absaloka), Crow Indian Reservation, Big Horn County.	Westmoreland Resources, Billings, Mont.	...do.....	6.5--1980 15.0--1982 (expansion).	Moisture--23% Ash--11% Sulfur--0.7% Btulb--8,500	Rosebud, McKay, 30; Robinson, 20.	60 (overburden) 60 (interburden)	1982 production includes Tract II area.	2, 9-10
SC4.	Circle West, near Circle, McCone County (T 19 N, R 48 E).	Dryer Bros. Co. (a subsidiary of Burlington Northern, Inc.), Billings, Mont.	...do.....	5.0--1983	Moisture--34.9% Ash--6.9% Sulfur--0.5% Btulb--6,930	15	150	Planned. Water permits pending.	7, 9, 11
SC5.	Youngs Creek, Tanner Creek, Squirrel Creek, unnamed, Crow Indian Reservation, Big Horn County (T 9 S, Rs 38-39 E).	Shell Oil Co., Denver, Colo.	...do.....	6.0--1980 16.0--1985	Moisture--24% Ash--3.5% Sulfur--0.25% Btulb--9,400	4 seams, C 12, D 15, G 30, M 49		Four operations in the same area planned. Youngs Creek will be first developed. Production is projected to reach 32 million tons by 1992. Company has presently halted work on development. Estimated recoverable reserves of 1.35 billion tons.	3, 9
SC6.	Spring Creek mine, north of Decker, Big Horn County (T 8 S, Rs 39-40 E).	Pacific Power & Light Co., Portland, Oreg.	...do.....	10--1980				In preliminary planning stages. Applied for State permit July 1977.	9, 12
SC7.	East Sarpy Creek, Big Horn and Treasure Counties (T 2 N, R 38 E).	Amox Coal Co., Billings, Mont.	...do.....					In preliminary planning stages.	9, 12
SC8.	Unnamed, Chinook, Blaine County.	Clay McCartney, Chinook, Mont.	...do.....					.....do.....	9, 12
SC9.	Nance mine, Tongue River, Rosebud County.	MONICO, Billings, Mont.	...do.....		Moisture--25.1% Ash--3.6% Sulfur--0.35% Btulb--8,700-9,300	30 to 60		In preliminary planning stages. Name changed from Gustafson mine. WESCO Resources in IC 8719.	9, 12
SC10.	Unnamed, Coal Creek, Powder River County (T 3 S, R 45 E).	Bob Smith, Ashland, Mont.	Strip (expansion).	Unknown.....				Preliminary stages. Production 1,612 tons in 1976.	12
SC11.	Unnamed, Divide, Musselshell County (T 6 N, R 26 E).	Victor & Jack Carlson, Roundup, Mont.	...do.....	...do.....				Preliminary stages. Production 8,728 tons in 1976.	12
SC12.	Unnamed, Musselshell County (T 6 N, R 27 E).	Paul Megep, Roundup, Mont.	...do.....	...do.....				Preliminary stages. Production 8,251 tons in 1976.	12

TABLE 88. - Future electric generating plants in Montana

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Megawatts			
OE1.	Libby Nos. 5-8, north of Libby, Lincoln County.	U.S. Army Corps of Engineers, Omaha, Neb.	Hydropower...	5	105	Oct. 1983	An upgrading of units 1-4 is planned for 1983.	6, 8-9
				6	105	Jan. 1984		
				7	105	Apr. 1984		
				8	105	July 1984		
				Total	420			
OE2.	Libby Regulating Nos. 1-4, west of Libby, Lincoln County.	.....do.....	...do.....	1	7	July 1983	Regulating dam to prevent excessive fluctuation.	6, 9
				2	12	Sept. 1983		
				3	12	Jan. 1984		
				4	12	Apr. 1984		
				Total	43			
OE3.	Noxon Rapids No. 5, northwest of Thompson Falls on Clark Fork River, Sanders County.	Washington Water Power Co., Spokane, Wash.	...do.....	5	125	Nov. 1977	Addition to existing units totaling 430 Mw.	6, 8-9
OE4.	Kootenai Falls, Kootenai River, Lincoln County.	Northern Lights, Inc., Sand Point, Idaho.	...do.....		140 (2 units)	Not scheduled at present.	Project is in planning stage. Schedules are not available.	8-9
OE5.	Buffalo Rapids, Flathead River, Sanders County.	Montana Power Co., Billings, Mont., and Kootenai Indian Tribe, Montana.	...do.....		480	...do.....	Proposed project. Viability is undetermined at the present time.	8-9
CE1.	Colstrip Nos. 3-4, Colstrip, Rosebud County.	Montana Power Co., Billings, Mont.	Coal--7.1 (total, all units).	3	700	July 1980	Addition to existing 330-Mw No. 1 unit. The coal would be supplied by Western Energy's Rosebud mines.	6, 9, 11
				4	700	July 1981		
				Total	1,400			
CE2.	Energy Park, Glasgow Air Force Base, Valley County.	State of Montana, Department of Natural Resources, Helena, Mont.	Coal--°2.9 (total, all units).	1	300	Not scheduled at present.	See Energy Park in "Coal Conversion Plants" section following for further details.	9, 13
				2	300			
				3	300			
				Total	900			
CE3.	Unnamed, unsited..	Montana Power Co., Billings, Mont.	Coal--°1.1...		350	1986	Site and plans unknown. Unit is reported to FPC as proposed additions to company capacity.	6, 9
CE4.	.....do.....	Basin Electric Power Cooperative, Bismarck, N. Dak.	Coal, unknown		Unknown	Unknown...	Planning stage.	9

° Estimated, see appendix for explanation.

TABLE 89. - Future coal conversion plants in Montana

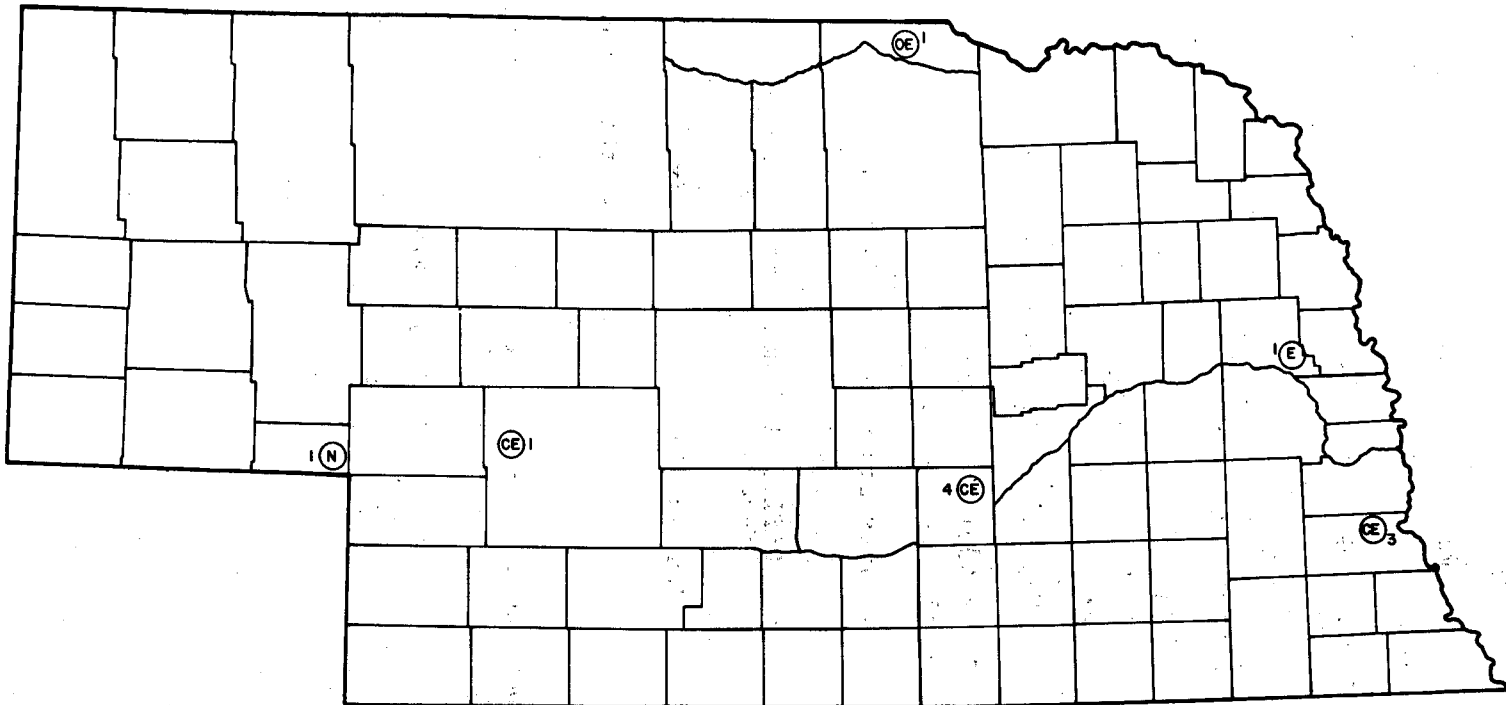
Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
C1..	Circle West Project, near Circle, McCone County.	Dryer Bros. Co., Billings, Mont. (a subsidiary of Burlington Northern, Inc.).	Ammonia plant and possible liquefaction.	1983	Ammonia, 1,000 tpd	Feasibility studies ongoing. Water permits pending. First stage requires 3 MMtpy of coal for production of 1,000 tpd anhydrous ammonia. Using coal eliminates the need for 12 billion cu ft annually of natural gas. Second stage is methanol plant and third stage is diesel fuel plant. All three stages would use 10 MMtpy coal. An agreement was signed in December 1975 between the company and the State of Montana regarding company payments to the State for an 18-month environmental study.	5, 9, 11
C2..	Southeast Montana	Colorado Interstate Gas Co., Colorado Springs, Colo.	Gasification..	Unknown..	250 MMcf.....	Westmoreland Coal Co. would supply coal at an estimated rate of 25,000 tpd.	9, 11
C3..	Unnamed, Northern Cheyenne Indian Reservation, Big Horn or Rosebud Counties (also northeast Wyoming).	Northern Natural Gas Co., Omaha, Nebr.	.....do.....	1981-- 2 units. 1984-- 2 units.	4 units, 250 MMcf each (ultimate Montana capacity will be 500 MMcf).	Ultimately four plants, each of 250 MMcf capacity. Two plants proposed for Northern Cheyenne Reservation and two for a site northeast of Gillette, Wyo. Peabody Coal Co. would supply coal at an estimated rate of 27,100 tpd for each of the four units.	1, 9, 11
C4..	Energy Park, Glasgow AFB, Valley County. See remarks.....	State of Montana, Department of Natural Resources, Helena, Mont.	Gasification and liquefaction.	Unknown..	See remarks.....	Recent study entitled "Site Suitability for an Energy Center at Glasgow AFB, Montana" discloses the possibility of an energy concept to be developed in two stages. Stage I would entail two units of syncrude about 50,000 bpd and 400 MMcf, 1 Lurgi 250-MMcf unit, and a 300-Mw generating plant. Stage II would entail two syncrude units of the above capacity, and two generating units of 300 Mw capacity each. In addition to the above plants, the Governor has created a task force to determine the feasibility of constructing a gasification plant in Montana to satisfy in-State demands. The study group will determine the capital required, the type of plant, location, ownership (State, private, or joint) or other alternatives to alleviate Montana's reliance on Canadian natural gas. DOE is contemplating a 50-Mw MHD electric generating unit near Butte, Mont.	9, 13

TABLE 90. - Future coal slurry pipelines in Montana

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
CPl.	Brown & Root, Inc., Houston, Tex., and Texas Eastern Transmission Corp., Houston, Tex.	Southeastern Montana (Big Horn or Rosebud Counties).	Houston, Tex.	1,260		Unknown..	36 to 48	Proposed line will traverse southwestern Montana, Wyoming, Nebraska, Oklahoma, and Texas. Planning is in progress. Capacity 21 to 39 MMtpy.	4, 9, 14-15

List of Data Sources for Montana

1. Coal Age. Summary of Announced Plans for Coal Conversion Plants. V. 80, No. 3, March 1975, pp. 94-95.
2. _____. New Coal Mine Development and Expansion Survey. V. 81, No. 2, February 1976, pp. 106-118.
3. Denver Post (Denver, Colo.). Sept. 24, 1975.
4. _____. Nov. 23, 1975.
5. Federal Energy Administration, Region VIII, Denver, Colo. 1976.
6. Federal Power Commission. Proposed Generating Capacity Changes for the Period 1975 Through 1984. Reported Apr. 1, 1975, in response to Docket R-362, Order 383-3.
7. Great Falls Tribune (Great Falls, Mont.). Sept. 18, 1975.
8. Harper, Z., Bonneville Power Administration, Portland, Oreg., through Bureau of Mines State Liaison Officer, 1976.
9. Krempasky, G. T., Bureau of Mines State Liaison Officer, Helena, Mont. June 1, 1977.
10. Montana Lieutenant Governor's Office, Helena, Mont., through Bureau of Mines State Liaison Officer, 1976.
11. Montana State Legislature. Montana Energy Policy Study. June 1975.
12. Montana, State of, Department of Lands, Helena, Mont., through Bureau of Mines State Liaison Officer, 1976.
13. Montana, State of, Report to the. Site Suitability for an Energy Center at Glasgow AFB, Mont.
14. Rocky Mountain News (Denver, Colo.). Nov. 16, 1975.
15. Western Resources Wrapup. Feb. 19, 1976.



LEGEND

- Ⓢ Coal-fired electric generating plants
- Ⓢ "Other" electric generating plants
- Ⓢ Generating plants receiving ESECA notice to convert to coal
- Ⓢ Natural gas processing and storage facilities

FIGURE 14: - Future energy-related projects in Nebraska.

Nebraska

Data on the following Nebraska projects are presented in tables 91-94. The map reference numbers correspond with the accompanying Nebraska map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
CE1.....	Gentleman Nos. 1-2.....	Nebraska Public Power District.
CE2.....	Unnamed.....	Do.
CE3.....	Nebraska City No. 1....	Omaha Public Power District.
CE4.....	Grand Island Power Plant.	City of Grand Island.
NE1.....	Unnamed.....	Nebraska Public Power District.
OE1.....	.....do.....	Do.
Generating plants receiving preliminary ESECA notice to convert to coal:		
E1.....	L. D. Wright Generating Station.	Fremont Department of Utilities.
Natural gas processing and storage facilities:		
N1.....	Big Springs Storage Field.	Kansas-Nebraska Natural Gas Co.

TABLE 91. - Previously reported energy development projects that have been completed or canceled in Nebraska

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Electric generating plants: Omaha Public Power Dist., Omaha, Nebr. City of Fremont, Fremont, Nebr.	Fort Calhoun No. 2, Fort Calhoun, Washington County. Fremont No. 8, Fremont, Dodge County	X	X	Postponed indefinitely by the Board of Directors of Omaha Public Power Dist.

TABLE 92. - Future electric generating plants in Nebraska

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	Refer- ences
				Unit No.	Megawatts			
CE1.	Gentleman Nos. 1-2, Sutherland, Lincoln County.	Nebraska Public Power Dist., Columbus, Nebr.	Coal--4.0 (total both units).	1 2 Total	600 600 1,200	May 1978 May 1981	Sutherland Reservoir is planned water source; Railroad spur to plant is installed.	1, 3- 5, 7
CE2.	Unnamed, unsited.....	.....do.....	Coal--2.0...		600	May 1984	Mid-Nebraska location. River reservoir required.	1
CE3.	Nebraska City No. 1, Nebraska City, Otoe County.	Omaha Public Power Dist., Omaha, Nebr.	.....do.....	1	575	May 1979	Plant 39% complete. Three-mile railroad spur to plant is also planned.	3-4
CE4.	Grand Island Power- plant, Grand Island, Hall County.	City of Grand Island, Grand Island, Nebr.	Coal--0.4...		100	May 1981		6
NE1.	Unnamed, unsited.....	Nebraska Public Power Dist., Columbus, Nebr.	Nuclear.....		1,000 (estimate)	1988	Initial planning stages.....	1
OE1.	Unnamed, Boyd County (Nos. 1-6).	.....do.....	Hydropower (pump storage).	1 2 3 4 5 6 Total	167 167 167 167 167 167 1,002	May 1990 May 1990 May 1991 May 1991 May 1992 May 1992	Located on Missouri River in Boyd County.....	1, 4-5

TABLE 93. - Generating plants receiving preliminary ESECA notice to convert to coal in Nebraska

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity, megawatts	Remarks	References
E1..	L. D. Wright Generating Station, Fremont, Dodge County.	Fremont Department of Utilities, Fremont, Nebr.	Gas to coal.....	29	Converting from gas to coal.	2

TABLE 94. - Future natural gas processing and storage facilities in Nebraska

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Big Springs Storage Field, Big Springs, Deuel County.	Kansas-Nebraska Natural Gas Co.; Phillipsburg, Kans.	Oct. 1977	39,000 Mcf		6

List of Data Sources for Nebraska

1. Buntain, R. E., Director of Power Supply, Nebraska Public Power District, Columbus, Nebr. June 28, 1977.
2. Coal Age. V. 82, No. 6, June 1977, p. 13.
3. Engineering News Record. V. 196, No. 21, May 20, 1976, p. 110.
4. Federal Power Commission. Proposed Generating Capacity Change for the Period 1975 Through 1984. Reported Apr. 1, 1975, in response to Docket R-362, Order 383-3.
5. Nebraska Public Power District, Columbus, Nebr. July 1977.
6. Nebraska State Energy Office, Lincoln, Nebr. July 1977.
7. Steam-Electric Power Plant Factors. 1975.

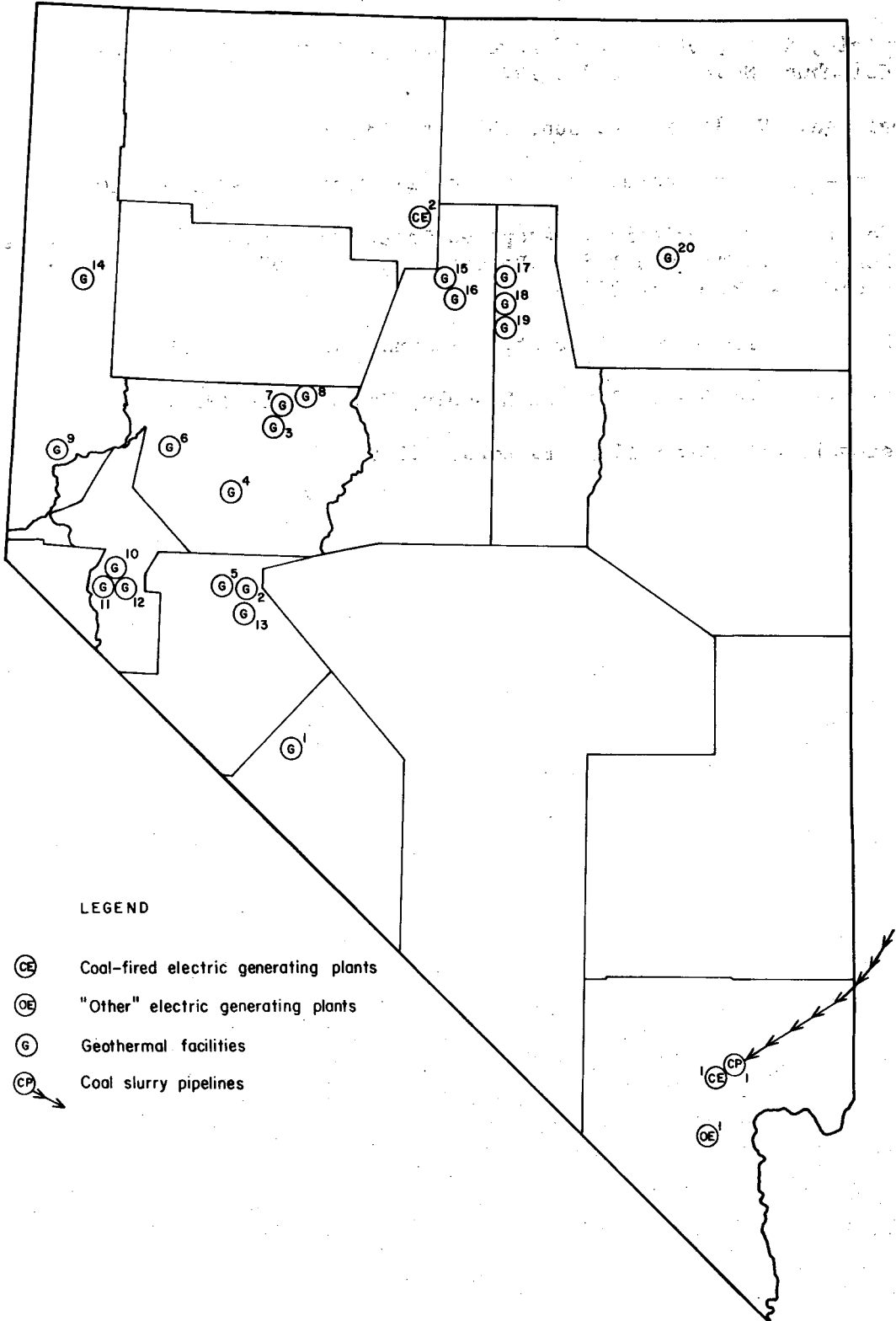


FIGURE 15: - Future energy-related projects in Nevada.

Nevada

Data on the following Nevada projects are presented in tables 95-97. The map reference numbers correspond with the accompanying Nevada map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
CE1.....	Harry Allen Nos. 1-4..	Nevada Power Co.
CE2.....	North Valmy Nos. 1-2..	Sierra Pacific Power Co.
OE1.....	Clark Station Nos. 1-2	Nevada Power Co.
Geothermal facilities:		
G1.....	Esmeralda County.....	Magma Power Co.
G2.....	Mineral County.....	Al-Aquitane Ltd.
G3.....	Churchill County.....	Do.
G4.....	.....do.....	Anadarko Production Co.
G5.....	.....do.....	Hunt Energy Corp.
G6.....	.....do.....	Chevron Oil Co.
G7.....	.....do.....	Dow Chemical Co.
G8.....	.....do.....	Sunoco Energy Development Co.
G9.....	Washoe and Storey Counties.	Hunt Energy Corp.
G10.....	Lyon County.....	Geonomics, Inc.
G11.....	.....do.....	Chevron Oil Co.
G12.....	.....do.....	Al-Aquitane Ltd.
G13.....	Mineral County.....	Republic Geothermal, Inc.
G14.....	Washoe County.....	Chevron Oil Co.
G15.....	Lander County.....	Do.
G16.....	.....do.....	Dow Chemical Co.
G17.....	Eureka County.....	Chevron Oil Co.
G18.....	.....do.....	Do.
G19.....	.....do.....	Do.
G20.....	Elko County.....	Union Oil Co. of California
Coal slurry pipelines:		
CP1.....	Utah to Nevada.....	Nevada Power Co.

TABLE 95. - Future electric generating plants in Nevada

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Harry Allen Nos. 1-4, near Las Vegas, Clark County (T 17 S, R 63 E).	Nevada Power Co., Las Vegas, Nev.	Coal--9.1 (total, all units).	1	500	June 1986	Nevada Public Service Commission has not received application for plant pending completion of EIS by BLM. A coal slurry pipeline is planned to transport coal from Alton, Utah, to plant. Four-mile railroad spur to plant is planned.	1-4, 6
				2	500	June 1987		
				3	500	June 1988		
				4	500	June 1989		
				Total		2,000		
CE2.	North Valmy Nos. 1-2, Valmy, Humboldt County (T 35 N, R 43 E).	Sierra Pacific Power Co., Reno, Nev.	Coal--1.0 (total, both units).	1	250	Oct. 1981	Nevada Public Service Commission has approved \$200 million expenditure for unit No. 1 of the total proposed \$370 million two-unit generating plant. Approval for the second unit is still pending.	1-4
				2	250	Oct. 1984		
				Total		500		
OE1.	Clark Station Nos. 1-2, Las Vegas, Clark County (T 20 S, R 61 E).	Nevada Power Co., Las Vegas, Nev.	Fuel oil No. 2...	1	70	June 1978	Application has been approved. Six months construction time is estimated for each unit.	2-4
				2	70	June 1979		
				3	70	June 1980		
				4	70	June 1981		
				Total		280		

TABLE 96. - Future geothermal facilities in Nevada

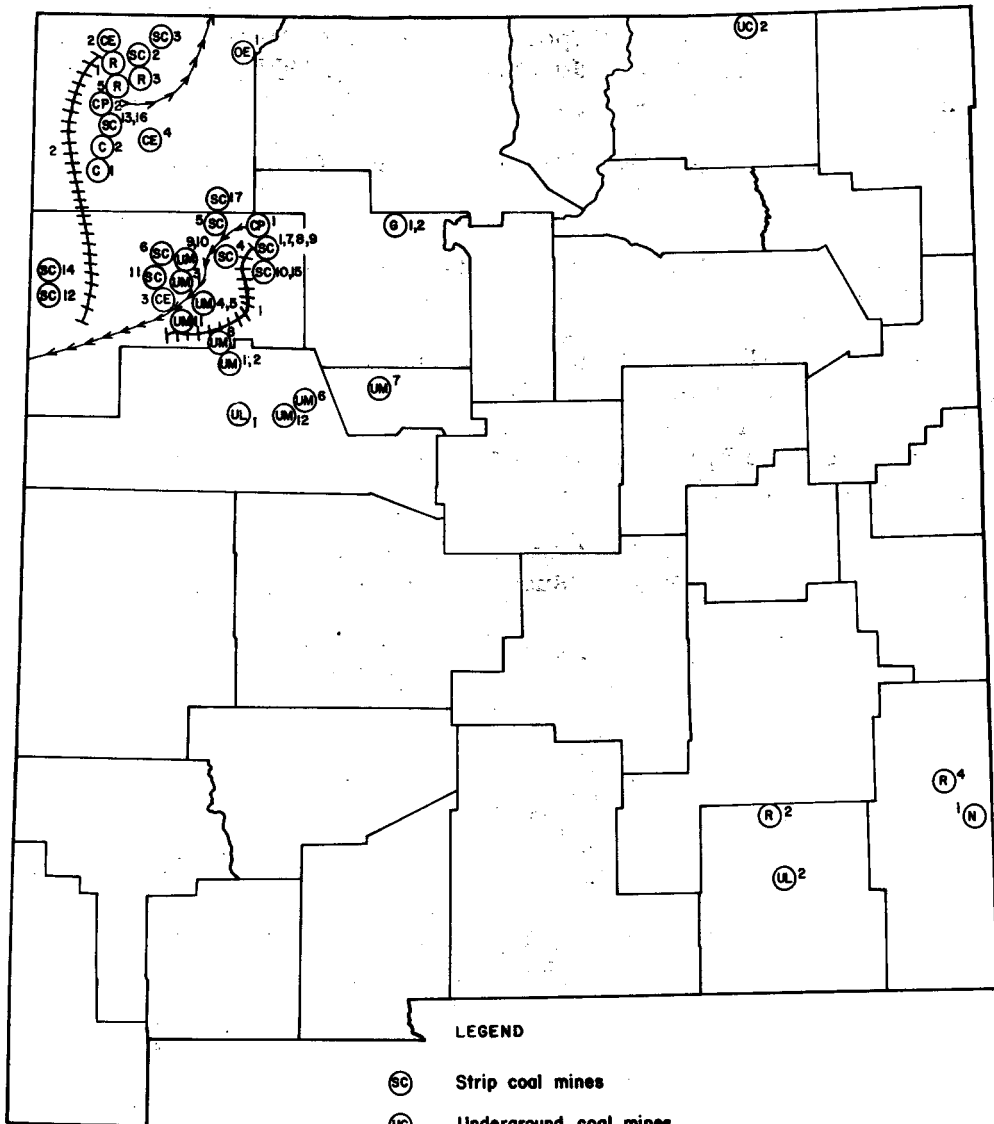
Map ref. No.	Location	Company	Current status, plans, and other relevant information	References
G1..	Esmeralda County (T 1 S, R 36 E)	Magma Power Co., Los Angeles, Calif.....	One exploratory hole has been drilled to a depth of 9,170+ ft.....	3, 5
G2..	Mineral County (T 12 N, Rs 33-34E).	Al-Aquitane Ltd., Calgary, Alberta, Canada	Company drilled 16 shallow temperature gradient holes, each to a depth of 500 ft.....	3, 5
G3..	Churchill County (Ts 20-21 N, R 34 E).	.....do.....	Drilled 16 shallow temperature gradient holes, 500 ft each.....	3, 5
G4..	Churchill County (T 16 N, Rs 30-31 E) (Salt Wells).	Anadarko Production Co., Houston, Tex.....	Company drilled 30 shallow temperature gradient holes, each to a depth of 500 ft.....	3, 5
G5..	Churchill County (Ts 16-19 N, Rs 31-34 E).	Hunt Energy Corp., Dallas, Tex.....	Drilled 40 shallow temperature gradient holes less than 500 ft.....	3, 5
G6..	Churchill County (T 20 N, R 28 E)	Chevron Oil Co., San Francisco, Calif.....	Drilled one shallow temperature gradient hole at approximately 500 ft.....	3, 5
G7..	Churchill County (Ts 22-23 N, Rs 35-36 E).	Dow Chemical Co., Pittsburg, Calif.....	Drilled 14 shallow temperature gradient holes at approximately 500 ft.....	3, 5
G8..	Churchill County (T 24 N, Rs 36-37 E).	Sunoco Energy Development Co., Dallas, Tex.	Drilled two shallow temperature gradient holes less than 500 ft.....	3, 5
G9..	Washoe and Storey Counties (Ts 17-20 N, Rs 20-21 E).	Hunt Energy Corp., Dallas, Tex.....	Drilled 17 shallow temperature gradient holes less than 500 ft.....	3, 5
G10.	Lyon County (Ts 10-11 N, R 25 E).	Geonomics, Inc., Berkeley, Calif.....	Drilled two shallow temperature gradient holes less than 500 ft and one temperature gradient hole at approximately 1,500 ft.	3, 5
G11.	Lyon County (Ts 10-11 N, Rs 25-26 E).	Chevron Oil Co., San Francisco, Calif.....	Drilled two shallow temperature gradient holes at approximately 500 ft.....	3, 5
G12.	Lyon County (Ts 10-11 N, R 25 E)	Al-Aquitane Ltd., Calgary, Alberta, Canada	Drilled five shallow temperature gradient holes less than 500 ft.....	3, 5
G13.	Mineral County (T 12 N, R 33 E).	Republic Geothermal, Inc., Santa Fe Springs, Calif.	Drilled one temperature gradient hole at approximately 1,500 ft.....	3, 5
G14.	Washoe County (T 29 N, R 23 E)...	Chevron Oil Co., San Francisco, Calif.....	Drilled one shallow temperature gradient hole at approximately 500 ft.....	3, 5
G15.	Lander County (T 31 N, R 47 E)...	.....do.....	Drilled two shallow temperature gradient holes at approximately 500 ft.....	3, 5
G16.	Lander County (Ts 31-33 N, Rs 47-49E).	Dow Chemical Co., Pittsburg, Calif.....	Geophysical exploration, resistivity.....	3, 5
G17.	Eureka County (Ts 29-30 N, Rs 48-49 E).	Chevron Oil Co., San Francisco, Calif.....	Geophysical exploration, magneto-telluric.....	3, 5
G18.	Eureka County (Ts 27-29 N, Rs 48-50 E).	.....do.....	Geophysical exploration, dipole-resistivity.....	3, 5
G19.	Eureka County (T 29 N, R 48 E)...	.....do.....	Drilled one shallow temperature gradient hole at approximately 500 ft.....	3, 5
G20.	Elko County (T 31 N, R 59 E)....	Union Oil Co. of California, Santa Rosa, Calif.	Drilled three shallow temperature gradient holes at approximately 250 ft.....	3, 5

TABLE 97. - Future coal slurry pipelines in Nevada

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
CP1.	Nevada Power Co., Las Vegas, Nev.	Bald Knolls, 8 miles south of Alton, Utah	H. Allen Powerplant, Arrow Canyon, Nev.	170		1982	22	Capacity 9.1 MMtpy	1-4, 6

List of Data Sources for Nevada

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3. McKinley, J. L., Administrative Manager, Western Systems Coordinating Council, Denver, Colo. 1976.
4. Nevada Public Service Commission, Carson City, Nev., through Bureau of Mines State Liaison Officer, 1976.
5. U.S. Bureau of Land Management, Reno, Nev., through Bureau of Mines State Liaison Officer, 1976.
6. Western Systems Coordinating Council Technical Staff, Salt Lake City, Utah. Ten-Year Coordinated Plan. Summary 1977-1986. May 1977.



LEGEND

- ⊙ SC Strip coal mines
- ⊙ UC Underground coal mines
- ⊙ CE Coal-fired electric generating plants
- ⊙ OE "Other" electric generating plants
- ⊙ C Coal conversion plants
- ⊙ G Geothermal facilities
- ⊙ UM Uranium mines
- ⊙ UL Uranium mills and enrichment facilities
- ⊙ N Natural gas processing and storage facilities
- ⊙ R Oil refineries
- ++ Railroads (related to energy development)
- ⊙ CP Coal slurry pipelines

FIGURE 16: - Future energy-related projects in New Mexico.

New Mexico

Data on the following New Mexico projects are presented in tables 98-108. The map reference numbers correspond with the accompanying New Mexico map.

Map ref. No.	Project name	Company or agency
Coal mines:		
UC1.....	Unknown.....	Texas Utilities Services.
UC2.....	York Canyon No. 1.....	Kaiser Steel Corp.
SC1.....	Unknown.....	Chaco Energy Co.
SC2.....	Gallo Wash Project.....	Tucson Gas and Electric Co.
SC3.....	San Juan mine.....	Western Coal Co.
SC4.....	Unknown.....	Chaco Energy Co.
SC5.....	Gallo Wash mine.....	Peabody Coal Co.
SC6.....	Sundance mine.....	Amcoal.
SC7.....	Star Lake-Bisti Nos. 1-2.	Arch Mineral Corp.
SC8.....	Star Lake-Bisti.....	Eastern Associated Coal Co.
SC9.....	.....do.....	Freeman United Coal Co.
SC10.....	Bisti mine.....	Western Coal Co.
SC11.....	Salt River Project.....	State of Arizona.
SC12.....	McKinley mine.....	Pittsburg and Midway Coal Co.
SC13.....	Burnham Complex mine.....	Consolidation Coal Co.
SC14.....	Gamerco.....	Carbon Coal Co.
SC15.....	Star Lake East mine.....	Peabody Coal Co.
SC16.....	Navajo mines.....	Utah International, Inc.
SC17.....	Unnamed.....	Cherokee Coal Co.
Electric generating plants:		
CE1.....	Plains Unit No. 1.....	Plains Electric Generating and Transmission Co.
CE2.....	San Juan Nos. 3-4.....	Public Service Co. of New Mexico
CE3.....	Unnamed.....	Navajo Indian Tribal Government.
CE4.....	Bisti Nos. 1-4.....	Public Service Co. of New Mexico
OE1.....	Navajo Dam Powerplant....	Navajo Indian Irrigation Project
OE2.....	Unnamed.....	Public Service Co. of New Mexico
Coal conversion plants:		
C1.....	Burnham Coal Gasification Complex.	El Paso Natural Gas Co.
C2.....	WESCO Coal Gasification Project.	Western Gasification Co.
Geothermal facilities:		
G1.....	Baca No. 1.....	Department of Energy.
G2.....	.....do.....	Union Oil Co. of California.
Uranium mines:		
UM1.....	Bernabe Montano mine.....	Continental Oil Co.
UM2.....	Crownpoint mine.....	Do.
UM3.....	Dalton Pass Area Project.	United Nuclear Corp.
UM4.....	Rio Puerco mine.....	Kerr-McGee Corp.
UM5.....	Roco Hondo mine.....	Do.

Map ref. No.	Project name	Company or agency
Uranium mines --		
Continued:		
UM6.....	Unknown.....	United Nuclear Corp.
UM7.....	.....do.....	Union Carbide Corp.
UM8.....	Ruby mine No. 1.....	New Mexico and Arizona Land Co.
UM9.....	Unnamed.....	Do.
UM10.....	.....do.....	Mobil Oil Corp.
UM11.....	.....do.....	Kerr-McGee Corp.
UM12.....	Jackpile-Paguete mine...	The Anaconda Co.
Uranium mills and enrichment facilities:		
UL1.....	Mt. Taylor mine.....	Gulf Mineral Resources Co.
UL2.....	Unnamed.....	Baker Industries Corp.
Natural Gas processing and storage facilities:		
N1.....	.....do.....	Tuco, Inc.
Oil refineries:		
R1.....	.....do.....	Caribou Four Corners Oil Co., Inc.
R2.....	.....do.....	Navajo Refining Co.
R3.....	.....do.....	Plateau, Inc.
R4.....	.....do.....	Southern Union Refining Co.
R5.....	.....do.....	Caribou Four Corners Oil Co., Inc.
Railroads:		
1.....	New Mexico.....	Atchison, Topeka, and Santa Fe Railway Co.
2.....	.....do.....	El Paso Natural Gas Co.
Coal slurry pipelines:		
CP1.....	New Mexico to Arizona...	Salt River System.
CP2.....	New Mexico to Colorado...	Houston Natural Gas Co.

TABLE 98. - Previously reported energy development projects that have been completed or canceled in New Mexico

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Coal mines:				
Kaiser Steel Corp., Fontana, Calif.....	West York Strip, near Raton, Colfax County.		X	
Uranium mines:				
Western Nuclear, Inc., Denver, Colo.....	Smith Lake, McKinley County.		X	
SOHIO, Albuquerque, N. Mex.....	Unnamed, northern Valencia County.		X	
Gulf Mineral Resources Co., Denver, Colo.	Mt. Taylor mine, Grants, southern McKinley County.		X	
SOHIO and Reserve Oil and Minerals Corp., Albuquerque, N. Mex.	JJ No. 1 mine, L-Bar Ranch, Valencia County.		X	
Ranchers Exploration and Development Corp., Grants, N. Mex., and Houston Natural Gas Co., Houston, Tex.	Johnny M mine, near Grants, Valencia County.		X	
United Nuclear Corp., Grants, N. Mex.....	Unnamed, McKinley County (T 17 N, R 14 W).		X	
Kerr-McGee Corp., and United Nuclear Corp., Grants, N. Mex.	Unnamed, McKinley County (T 17 N, R 16 W).		X	
Uranium mills and enrichment facilities:				
SOHIO and Reserve Oil and Minerals Corp., Albuquerque, N. Mex.	SOHIO L-Bar Uranium Project, Valencia County.		X	
Electric powerplants:				
Public Service Co. of New Mexico, Albuquerque, N. Mex.	San Juan No. 1, Waterflow, San Juan County.		X	

TABLE 99. - Future coal mines in New Mexico

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
UC1.	Unknown, north central N. Mex.	Texas Utilities Services, Dallas, Tex.		1980's				Memorandum of intent with Santa Fe Industries of Chicago for acquisition of 550 million tons.	2
UC2.	York Canyon No. 1, near Raton, Colfax County.	Kaiser Steel Corp., Fontana, Calif.	Underground.	0.7 (expansion)					1
SC1.	Unknown, Cuba, Star Lake area, McKinley County.	Chaco Energy Co., Albuquerque, N. Mex.	Strip.....	2--1980 8--1990			To 150	Environmental impact statement to be done. Reserves 200 million tons.	14
SC2.	Gallo Wash Project, Farmington, San Juan County.	Tucson Gas and Electric Co., Tucson, Ariz.	...do.....	1.8--1985 3--1993	Steam coal.		To 200	Coal to be used in a new generating plant, Springer-ville, Ariz.	15
SC3.	San Juan mine, north of Kirtland, San Juan County.	Western Coal Co. (New Mexico Public Service Co.), Albuquerque, N. Mex. Operated by Utah International, Inc., San Francisco, Calif.	...do.....	6.3--1982	...do...	4 to 16		Expansion.....	20
SC4.	Unknown, Hospah, McKinley County.	Chaco Energy Co., Albuquerque, N. Mex.	...do.....	2--1988 8--1995			To 150	Environmental impact statement to be done.	13
SC5.	Gallo Wash mine, McKinley County.	Peabody Coal Co., St. Louis, Mo.	...do.....	0.5--1986 3.0--2002					13
SC6.	Sundance mine, Bread Springs, McKinley County.	Amcoal, Fort Wingate, N. Mex.	Strip and underground	0.3--1980					11
SC7.	Star Lake, Bisti Nos. 1-2, near Estrella, San Juan County.	Arch Mineral Corp., St. Louis, Mo.	Strip.....	No. 1 0.3--1981 No. 2 0.3--1984					11
SC8.	Star Lake, Bisti, near Estrella, San Juan County.	Eastern Associated Coal Co., Pittsburgh, Pa.	...do.....	2.0--1982					11
SC9.	.....do.....	Freeman United Coal Co., Mt. Vernon, Ill.	...do.....	2.0--1982 3.0--1983					11

SC10	Bisti mine, near Estrella, San Juan County.	Western Coal Co. (New Mexico Public Service Co.), Albuquerque, N. Mex.	...do.....	0.3--1981 3.0--1982 6.0--1988 9.0--1990 12.0--1992					11
SC11	Salt River Project, McKinley County.	State of Arizona, Phoenix, Ariz.	...do.....	2.9--1986 5.4--1990 2.5--2022					11
SC12	McKinley mine, near Gallup, McKinley County.	Pittsburg and Midway Coal Co., Kansas City, Mo.	...do.....	5.0--1980 (expansion)	5 to 6		Mine expansion in progress.		19
SC13	Burnham Complex mine, near Burnham, San Juan County.	Consolidation Coal Co., Pittsburgh, Pa.	...do.....	3.0--1987	Multiple		Development date is dependent on construction of Burnham coal gasification complex.		17, 20
SC14	Gamerco, 3 miles northwest of Gallup, McKinley County.	Carbon Coal Co., Albuquerque, N. Mex.	...do.....	1.6--1979	..do...				6
SC15	Star Lake East mine, Estrella, McKinley County.	Peabody Coal Co., St. Louis, Mo.	...do.....	0.5--1983	..do...	6 to 10	Rail spur in final planning stage. Initial coal production anticipated in 1979. When completed would include seven surface mines, six underground mines, two rail lines and two 3,000-Mw powerplants.		9
SC16	Navajo mines, north of Burnham, San Juan County.	Utah International, Inc., San Francisco, Calif.	...do.....	9.60--1977 (expansion)	..do...	11 to 14			18, 20
SC17	Unnamed, San Juan Basin	Cherokee Coal Co., Tulsa, Okla., and Therco Energy Co.	...do.....	2.0--1980 20.0--1991			Coal to go to Texas utilities.		18

TABLE 100. - Future electric generating plants in New Mexico

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Plains unit No. 1, unsited.	Plains Electric Generating and Transmission Co., Algodones, N. Mex.	Coal.....	1	330	June 1982		16, 22
CE2.	San Juan Nos. 3-4, Waterflow, San Juan County.	Public Service Co. of New Mexico, Albuquerque, N. Mex.	Coal-4.4 (total, all units)	3 4 Total	486 468 954	May 1979 May 1981	No. 2 unit was the first constructed with a capacity of 330 Mw. Coal supplied by Utah International's San Juan mine. Plant will use 20,200 afy of water from the San Juan River.	20, 22
CE3.	Unnamed, 15 miles west of Crownpoint, McKinley County.	Navajo Indian Tribal Government, Window Rock, Ariz.	Coal.....		300-400	1987		13
CE4.	Bisti Nos. 1-4, San Juan County.	Public Service Co. of New Mexico, Albuquerque, N. Mex.	...do.....	1 2 3 4 Total	500 500 500 500 2,000	1982 1988 1990 1992		13
OE1.	Navajo Dam Power-plant, near Archuleta, San Juan County.	Navajo Indian Irrigation Project, unknown.	Hydropower.		23	1985		13
OE2.	Unnamed, unsited..	Public Service Co. of New Mexico, Albuquerque, N. Mex.	Hydropower (pump storage).		300	May 1985		13

TABLE 101. - Future coal conversion plants in New Mexico

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
Cl..	Burnham Coal Gasification Complex, 35 miles southwest of Farmington, San Juan County.	El Paso Natural Gas Co., El Paso, Tex.	Gasification, Lurgi process.	Completion mid-1978	288 MMcfd plant 1. 785 MMcfd final capacity. (Achieved through upgrading of first unit and construction of additional plant.).	Current reports are that project has been delayed indefinitely. Because of inflation, total complex costs are estimated at \$2 billion. A 6-year construction period is anticipated; 28,250 afy of water will be diverted and pipelined from San Juan River; 28,250 tpd of coal will be required as feedstock to plant 1.	17, 20
C2..	WESCO Coal Gasification Project, 30 miles southwest of Farmington, San Juan County.	Western Gasification Co. (a joint venture of Texas Eastern Transmission Corp., Houston, Tex., and Pacific Lighting Corp., Los Angeles, Calif.).	.....do.....		Plant 1--250 MMcfd Plant 2--250 MMcfd Plant 3--250 MMcfd Plant 4--250 MMcfd Total: 1,000 MMcfd	Current reports are that project has been delayed indefinitely. Because of inflation, total cost for the four plants is estimated at \$4 billion. A 9-year construction period is anticipated. Water requirements are estimated at 33,040 afy; 102,500 tpd of coal will be required as feedstock for the four plants.	17, 20

TABLE 102. - Future geothermal facilities in New Mexico

Map ref. No.	Location	Company	Current status, plans, and other relevant information	References
G1..	Baca No. 1 Land Grant, Valles Caldera, Sandoval County	Department of Energy, Los Alamos National Laboratories.	Two holes drilled west of Caldera as research project by Los Alamos Laboratory; testing and evaluation. Forecast: 1977-79--Continued fracturing and evaluation of results; possible drilling of additional holes. 1980-85--Possible decision to develop pilot facilities for heat exchanging in fractured holes. Map location is county specific.	7
G2..	.....do.....	Union Oil Co. of California, Los Angeles, Calif.	Approximately nine producible wells, of about 15 holes drilled in a 10-square-mile area; negotiations with utility over contract to sell steam. Forecast: 1977-79--Drilling of wildcat holes by other operators; constructions of first plant; continued development drilling. 1980-85--Further construction of plant facilities; definition of field dimensions; continued drilling and testing. Map location is county specific.	7

TABLE 103. - Future uranium mines in New Mexico

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity and year	Remarks	References
UM1.	Bernabe Montano mine, Grants (Mineral Belt), Valencia County.	Continental Oil Co., Denver, Colo.			Delineation of reserves, technical and economic feasibility studies.	5
UM2.	Crownpoint mine, Grants (Mineral Belt), Valencia County.	.....do.....	Underground		.....do.....	5
UM3.	Dalton Pass Area Project, Crownpoint, McKinley County	United Nuclear Corp., Grants, N. Mex.			Development.....	16
UM4.	Rio Puerco mine, Ambrosia Lake, McKinley County.	Kerr-McGee Corp., Grants, N. Mex.			Development work commenced in 1977.....	8
UM5.	Roco Hondo mine, Ambrosia Lake, McKinley County.	.....do.....			Development to begin in late 1977 or early 1978.	8
UM6.	Unknown, Laguna Reservation, Valencia County.	United Nuclear Corp., Grants, N. Mex.	Open pit...			10
UM7.	Unknown, Albuquerque, Bernalillo County.	Union Carbide Corp., Buffalo, N. Y.	In situ solution.		No construction to be made until after exploration is completed in 1978. Permit application to conduct experimental in situ solution mining tests.	18
UM8.	Ruby mine No. 1, 50 miles northwest of Grants, McKinley County.	New Mexico and Arizona Land Co., Phoenix, Ariz., and Western Nuclear, Inc., Denver, Colo.		500 tpd of ore	Exploration and development underway....	10
UM9.	Unnamed, Crownpoint, McKinley County.	New Mexico and Arizona Land Co., Phoenix, Ariz.		1977	Reserves, 20 million pounds. Feasibility studies underway.	10
UM10	Unnamed, Crownpoint area, McKinley County.	Mobil Oil Corp., New York, N.Y.	Underground	3,000 tpd of ore	Commercial quantities of ore proven.....	12
UM11	Unnamed, McKinley County....	Kerr-McGee Corp., and United Nuclear Corp., Grants, N. Mex.	...do.....		.....do.....	4, 12, 21
UM12	Jackpile-Paguete mine, Laguna Reservation, Valencia County.	The Anaconda Co., Grants, N. Mex.	Open pit...	12,000 tpd of ore		10

TABLE 104. - Future uranium mills and enrichment facilities in New Mexico

Map ref. No.	Plant name and location	Operating company	Type	Initial operating date	Planned capacity	Remarks	References
UL1.	Mt. Taylor mine, Valencia County.	Gulf Mineral Resources Co., Denver, Colo.				Location, type and size of mill to be announced at a later date.	13
UL2.	Unnamed, Carlsbad, Eddy County.	Beker Industries Corp., Greenwich, Conn.	Enrichment, uranium hexa-fluoride conversion	1978	23,500 tpy of uranium hexafluoride	Beker industries has announced its intent to build this plant. Specifications are currently being prepared.	3

TABLE 105. - Future natural gas processing and storage facilities in New Mexico

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Unnamed, Hobbs, Lea County	Tuco, Inc., Hobbs, N. Mex.	Completion Sept. 1977	75 MMcf/d Expander Method, 125,000 gpd demethanized product.		11

TABLE 106. - Future oil refineries in New Mexico

Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd of crude oil	Remarks	References
R1..	Unnamed, Farmington, San Juan County.	Caribou Four Corners Oil Co., Inc., Afton, Wyo.	Oct. 1977	CAT reform. 1,300 CAT HDT.... 1,500	New, October 1977.....do.....	11
R2..	Unnamed, Artesia, Eddy County.	Navajo Refining Co., Dallas, Tex.	Apr. 1977	CAT reform. 6,000		11
R3..	Unnamed, Bloomfield, San Juan County.	Plateau, Inc., Farmington, N. Mex.	Aug. 1977	Crude..... 5,900		11
R4..	Unnamed, Lovington, Lea County.	Southern Union Refining Co., Lovington, N. Mex.	Unknown	Crude..... 5,000		11
R5..	Unnamed, Kirtland, San Juan County.	Caribou Four Corners Oil Co., Inc., Afton, Wyo.	Dec. 1978	CAT reform. 1,200		11

TABLE 107. - Future railroads (related to energy development) in New Mexico

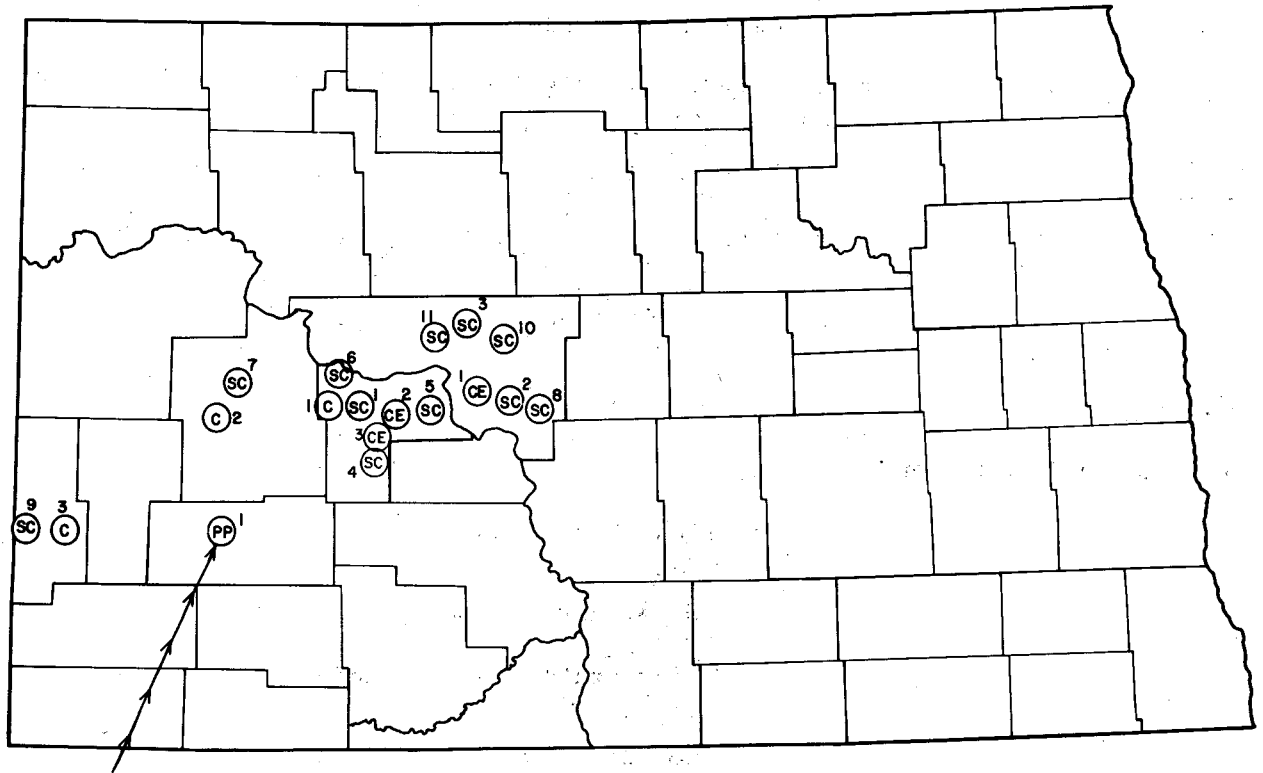
Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Remarks	References
		Origin	Destination					
1...	Atchison, Topeka, and Santa Fe Railway Co., Chicago, Ill.	Proposed Star Lake mine, McKinley County, N. Mex.	Santa Fe main-line at Prewitt, McKinley County, N. Mex.	72	Spur	Sept. 1978	The spur line will transport coal produced by Peabody's Star Lake mine for consumption at the Coronado powerplant near St. Johns, Ariz.	1
2...	El Paso Natural Gas Co., El Paso, Tex.	Gallup, McKinley County, N. Mex.	San Juan Powerplant, Shiprock, San Juan County, N. Mex.					13

TABLE 108. - Future coal slurry pipelines in New Mexico

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
CP1.	Salt River System, Phoenix, Ariz.	Star Lake, McKinley County, N. Mex.	Coronado Powerplant, St. Johns, Ariz.	180		Indefinite	16	4.0 MMtpy. This project is in the early stages of planning. Nothing definitive to date.	10
CP2.	Houston Natural Gas Co., Houston, Tex., and Denver and Rio Grande Western Railroad, Denver, Colo.	Burnham, San Juan County, N. Mex.	Walsenburg, Colo.	167		1980	12	5.0 MMtpy. Line will join main slurry line at Walsenburg for coal transportation to Houston, Tex.	21

List of Data Sources for New Mexico

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2. _____. V. 81, No. 7, July 1976, p. 41.
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15. _____. V. 88, No. 20, May 18, 1977, p. 1.
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18. _____. Draft Environmental Impact Statement, Four-Corners Powerplant and Navajo Mine. 1975.
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22. Western Systems Coordinating Council Technical Staff, Salt Lake City, Utah. Ten-Year Coordinated Plan Summary 1977-1986. May 1977.



LEGEND

- ⓈⓈ Strip coal mines
- ⒸⒺ Coal-fired electric generating plants
- Ⓒ Coal conversion plants
- ⓅⓅ Petroleum and natural gas pipelines

FIGURE 17: - Future energy-related projects in North Dakota.

North Dakota

Data on the following North Dakota projects are presented in tables 109-114. The map reference numbers correspond to the accompanying North Dakota map.

Map ref. No.	Project name	Company or agency
Coal mines:		
SC1.....	Coteau mine.....	The Coteau Properties Co.
SC2.....	Falkirk mine.....	The Falkirk Mining Co.
SC3.....	Nokota Co. mine No. 1.....	Nokota Co.
SC4.....	Beulah mine.....	Knife River Coal Mining Co.
SC5.....	Dakota Star mine.....	Consolidation Coal Co.
SC6.....	Renners Cove mine.....	Do.
SC7.....	Dunn Center mine.....	Amax Coal Co.
SC8.....	Washburn mine.....	Consolidation Coal Co.
SC9.....	Unnamed.....	Tenneco Coal Co.
SC10.....	Underwood mine.....	Consolidation Coal Co.
SC11.....	Garrison mine.....	Nokota Co.
Electric generating plants:		
CE1.....	Coal Creek Nos. 1-2.....	United Power Association & Cooperative Power Association.
CE2.....	Antelope Valley Station....	Basin Electric Power Cooperative.
CE3.....	Coyote Nos. 1-2.....	Montana-Dakota Utilities Co., and partners.
Coal conversion plants:		
C1.....	ANG Gas Plant.....	American Natural Gas Coal Gasification Co.
C2.....	Dunn Center.....	Natural Gas Pipe Line Co. of America.
C3.....	Unnamed.....	Tenneco Coal Co.
Railroads:		
1.....	Various.....	Burlington Northern, Inc.
Petroleum and natural gas pipelines:		
PP1.....	South Dakota to North Dakota	Koch Oil Co.

TABLE 109. - Previously reported energy development projects that have been completed or canceled in North Dakota

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Coal mines:				
Knife River Coal Mining Co., Bismarck, N. Dak.	Gascoyne mine, Gascoyne, Bowman County (Ts 130-131 N, R 99 W).		X	
Consolidation Coal Co., Stanton, N. Dak.	Glenharold mine, Stanton, Mercer and Oliver Counties (T 144 N, R 84 W).		X	
Baukol-Noonan, Inc., Minot, N. Dak.	Center mine, Center, Oliver County (T 141 N, R 84 W).		X	
Peabody Coal Co., St. Louis, Mo.	Unnamed, Heart Butte area, Grant County.	X		
Electric generating plants:				
Minnkota Power Cooperative, Grand Forks, N. Dak.	Square Butte, Center, Oliver County.		X	
Otter Tail Power Co., Fergus Falls, Minn.	Jamestown Nos. 1-2, Jamestown, Stutsman County.		X	
Coal conversion plants:				
El Paso Natural Gas Co., El Paso, Tex.	Unnamed, Stark, Dunn, and Bowman Counties.	X		
Peabody Coal Co., St. Louis, Mo.	Unnamed, Heart Butte area, Grant County.	X		

TABLE 110. - Future coal mines in North Dakota

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
SC1.	Coteau mine, near Beulah, Mercer County (Ts 145-146 N, Rs 87-88 W).	The Coteau Properties Co. (a subsidiary of The North American Coal Corp.), Bismarck, N. Dak.	Strip (lignite).	7 to 7.5--1981 14 to 15--1985	Moisture--36.0% Ash--7.4% Btulf--6,400-6,600	5 to 17	120 (maximum)	Coal production estimates are for powerplant and the gasification complex. A 125-MMcfd unit is scheduled for completion by 1981. This will be followed by an additional 125-MMcfd unit to double capacity.	5, 7, 15-16
SC2.	Falkirk mine, near Falkirk, McLean County (T 144 N, Rs 82-83 W).	The Falkirk Mining Co. (a subsidiary of the North American Coal Corp.), Bismarck, N. Dak.	...do.....	5.0 to 6.0--1981	Moisture--39.5% Ash--6.8% Sulfur--0.6% Btulf--6,415	2 seams, average for each is 11.	120 (maximum)	Mine development began in August 1975. Startup projected in mid-1978.	2, 7, 14
SC3.	Nokota Co. mine No. 1, Beulah, McLean County.	Nokota Co., Bismarck, N. Dak.	...do.....	6.6 after 1982					15
SC4.	Beulah mine, near Beulah, Mercer and Oliver Counties (T 143 N, Rs 87-88 W).	Knife River Coal Mining Co., Bismarck, N. Dak.	...do.....	2.2--1981 (expansion) (additional 2.2 after 1985).	Moisture--34%-37% Ash--5.8% Sulfur--0.5%-0.7% Btulf--6,700-6,900	3 beds, totaling 18 to 25.	50 to 120	1975 production estimated at 1.3 million tons.	7-8, 12, 15
SC5.	Dakota Star mine, north of Hazen, Mercer County.	Consolidation Coal Co., Denver, Colo.	...do.....	4.0 after 1985	Moisture--37% Volatiles--24% Fixed carbon--27% Ash--6%-7% Sulfur--0.7% Btulf--6,800-6,900	15 to 17	0 to 150		15
SC6.	Renners Cove mine, Renners Cove, Mercer County.	.....do.....	...do.....	3.0 after 1985	Moisture--37% Ash--7% Sulfur--0.7% Btulf--6,700-6,800	15	0 to 150		15
SC7.	Dunn Center mine, Dunn Center, Dunn County (T 145 N, R 93 W).	Amax Coal Co., Bismarck, N. Dak.	...do.....	13.0 to 14.0--1982	Moisture--34% Ash--8% Sulfur--0.8% Btulf--6,800	17 to 18	50 (maximum)	There is considerable opposition by area landowners and environmental groups which may cause delays. The proposed gasification plant may increase to four units requiring 52 MMtpy in the 1990's.	1, 3, 7, 9, 15
SC8.	Washburn mine, Washburn, McLean County.	Consolidation Coal Co., Denver, Colo.	...do.....	5.0 after 1985	Moisture--38% Ash--4.4% Sulfur--0.5% Btulf--7,100		0 to 100		9, 15
SC9.	Unnamed, south of Beach, Golden Valley County.	Tenneco Coal Co., Billings, Mont.	...do.....					Plans uncertain. Tenneco Coal Co. controls 1 billion tons of coal. May possibly be considering a uranium enrichment plant.	5
SC10.	Underwood mine, Underwood, McLean County.	Consolidation Coal Co., Denver, Colo.	...do.....	1.5 after 1985					15
SC11.	Garrison mine, Garrison, McLean County.	Nokota Co., Bismarck, N. Dak.	...do.....	3.30--1984					15

TABLE 111. - Future electric generating plants in North Dakota

Map ref. No.	Plant name and location	Operating company	Fuel, Mtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Coal Creek Nos. 1-2, near Falkirk, McLean County.	United Power Association & Cooperative Power Association, Bismarck, N. Dak.	Lignite--5.0 to 6.0 (total, both units).	1	450	1978	Plant construction is in progress. Coal will be supplied by the Falkirk mine. Plants will require 15,000 afy of water from the Missouri River. Water permit was approved by the State.	4-5, 7, 14
				2	450			
				Total	900			
CE2.	Antelope Valley Station Nos. 1-2, 9 miles north of Beulah, Mercer County.	Basin Electric Power Cooperative, Bismarck, N. Dak.	Lignite--5.2 (total, both units).	1	450	1981	Coal will be supplied by the Coteau mine. Plant will require 19,000 afy of water from Lake Sakakawea. State water permit was granted. Possible addition of a third 450-Mw unit in 1989.	4-5, 7, 15
				2	450				1984
				Total	900			
CE3.	Coyote Nos. 1-2, Beulah, Mercer County.	Montana-Dakota Utilities Co., and partners, Bismarck, N. Dak.	Lignite--2.2	1	440	1981	Coal will be supplied by Knife River Coal Co.'s Beulah mine. Plant will require 11,000 afy of water from Lake Sakakawea. State water permit was granted for Coyote 1.	4-5, 7, 15
				2	440				1985
				Total	880			

TABLE 112. - Future coal conversion plants in North Dakota

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
C1..	ANG Gas Plant, 6 miles northwest of Beulah, Mercer County (T 145 N, R 88 W).	American Natural Gas Coal Gasification Co., Bismarck, N. Dak.	Gasification, Lurgi process.	Unit 1--1982, unit 2, unknown.	Unit 1--125 MMcfd Unit 2--125 MMcfd	Considerable opposition. Environmental and financial problems may delay construction schedule. Plant has conditional permit from State of 17,000 afy of water from Lake Sakakawea. Unit 1 would consume approximately 5 Mtpy of lignite. Coal would be supplied by the Coteau mine.	1, 5-7, 15
C2..	Dunn Center, near Dunn Center, Dunn County.	Natural Gas Pipe Line Co. of America, Bismarck, N. Dak.	.....do.....	Unit 1--1982, units 2-4, uncertain.	Unit 1--250 MMcfd Unit 2--250 MMcfd Unit 3--250 MMcfd Unit 4--250 MMcfd	Environmental concerns, Federal leasing, local opposition, and financial problems may delay construction. Plant would consume 13 to 14 Mtpy of lignite to be supplied by Amax Coal Co.'s proposed mine near plantsite. The four-unit complex would consume 70,000 afy of water from Lake Sakakawea. Water permit was denied at May 24, 1976, Water Commission hearing.	5, 7, 15
C3..	Unnamed, south of Beach, Golden Valley County.	Tenneco Coal Co., Billings, Mont.	Gasification...			Initial planning stages. Possible water source is the Yellowstone River. Company plans are presently unknown. Tenneco controls 1 billion tons of coal. Site is not determined and plant may possibly be located in southeastern Montana. Uranium enrichment plant may be alternative to the gasification plant also.	5

TABLE 113. - Future railroads (related to energy development) in North Dakota

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Remarks	References
		Origin	Destination					
1...	Burlington Northern, Inc., St. Paul, Minn.						Upgrading all rail lines in State. Also proposing building 37.5 miles of spur line to new and expanding mines.	15

TABLE 114. - Future petroleum and natural gas pipelines in North Dakota

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PPI.	Koch Oil Co., Div. of Koch Industries, Inc., Wichita, Kans.	Buffalo, S. Dak.	Dickinson, N. Dak.	80 (65 miles in North Dakota).	Crude oil.	1977-1978	4	Project in the planning stage as of June 1, 1977.	10-11, 13

List of Data Sources for North Dakota

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2. _____. June 24, 1975; July 31, 1975.
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5. Jaeger, Jerry. Federal Energy Administration, Bismarck, N. Dak. Current Review of the Energy Status in North Dakota. Mar. 1, 1976.
6. Mermer, N. F., Vice President, American Gas Service Co. Presentation at the Lignite Symp., Grand Forks, N. Dak. May 14-15, 1975.
7. North Dakota State Planning Division. Some Tentative Figures on the Social Impact of Six Coal Conversion Plants in Dunn, Mercer, Oliver, and McLean Counties, North Dakota.
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11. Sioux Falls Argus-Leader (Sioux Falls, S. Dak.). July 26, 1975.
12. Sondreal, E. A., W. R. Kube, and J. L. Elder. Analysis of the Northern Great Plains Province Lignites and Their Ash: A Study of Variability. BuMines RI 7158, 1968, 94 pp.
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14. U.S. Bureau of Land Management. Environmental Analysis on the Falkirk Mine (draft). January 1976.
15. West Central North Dakota Regional Environmental Impact Statement Study Team, through Bureau of Mines State Liaison Officer, June 8, 1977.
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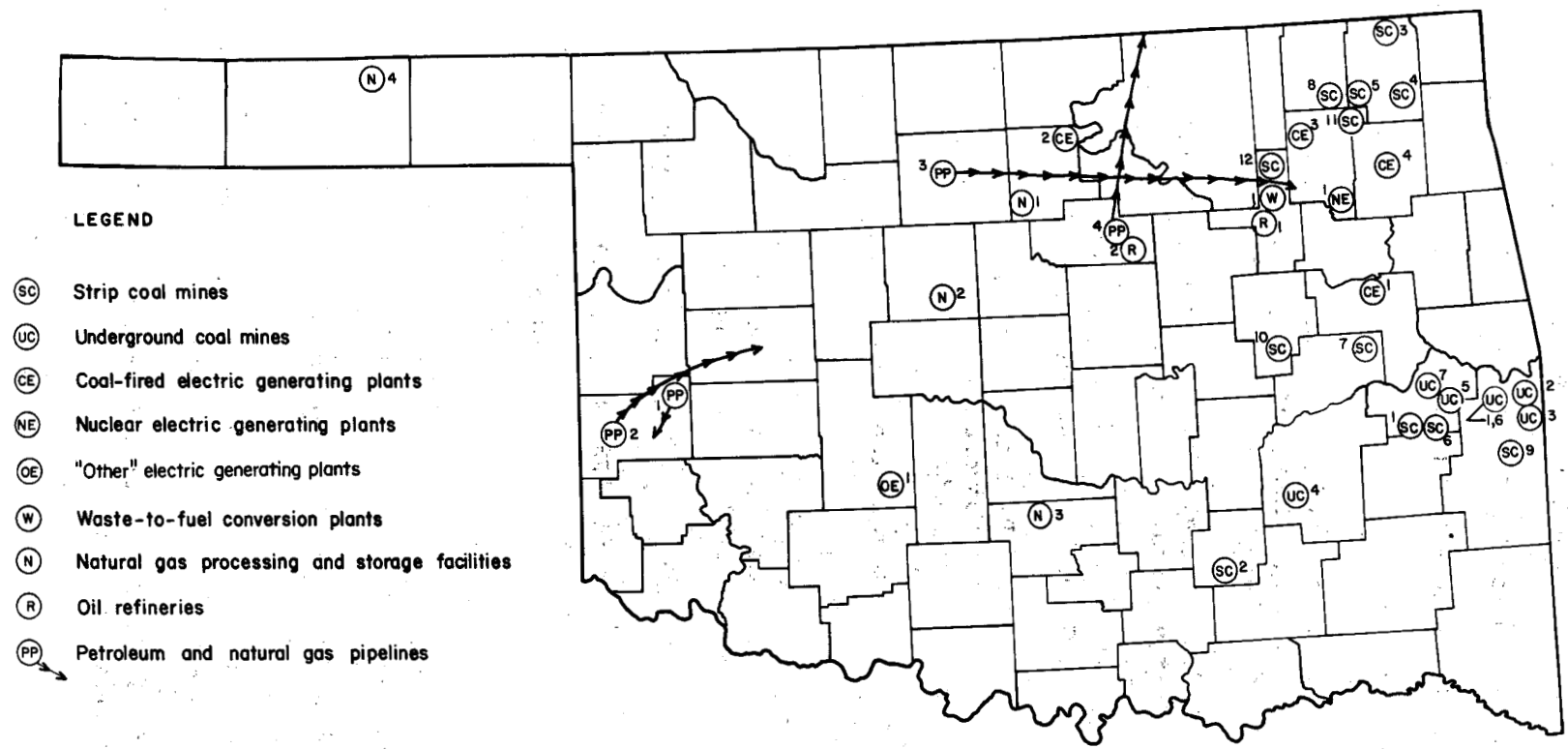


FIGURE 18. - Future energy-related projects in Oklahoma.

Oklahoma

Data on the following Oklahoma projects are presented in tables 115-121. The map reference numbers correspond with the accompanying Oklahoma map.

Map ref. No.	Project name	Company or agency
Coal mines:		
UC1.....	Garland No. 10.....	Garland Coal and Mining Co.
UC2.....	Unnamed.....	CF&I Steel Corp.
UC3.....	.....do.....	Armco Steel Corp.
UC4.....	.....do.....	Do.
UC5.....	.....do.....	Do.
UC6.....	.....do.....	Do.
UC7.....	Choctaw.....	Kerr-McGee Corp.
SC1.....	Unnamed.....	Garland Coal and Mining Co.
SC2.....	Krebbs No. 1.....	Alpine Construction Co.
SC3.....	No. 1.....	Paisano-Nodaway Enterprises, Inc.
SC4.....	Marvin Pool.....	Jess Hefner and Son.
SC5.....	Solar No. 1.....	Solar Excavating, Inc.
SC6.....	Danger Creek.....	Randall and Blake, Inc.
SC7.....	Burdett.....	Burdett Co.
SC8.....	Memory Valley.....	G & P Mining, Inc.
SC9.....	Pine Mountain.....	ICM Corp.
SC10.....	Joshua No. 1.....	Alan Churchill.
SC11.....	Stanbury No. 1.....	Jess Hefner and Son.
SC12.....	Kingery.....	Empire Construction, Inc.
Electric generating plants:		
NE1.....	Black Fox Nos. 1-2.....	Public Service Co. of Oklahoma
CE1.....	Muskogee No. 5.....	Oklahoma Gas and Electric Co.
CE2.....	Sooner Nos. 1-2.....	Do.
CE3.....	Northeastern Nos. 3-4.....	Public Service Co. of Oklahoma
CE4.....	Grand River Dam Authority No. 1	Grand River Dam Authority.
CE5.....	Unnamed Nos. 1-2.....	Western Farmers Electric Cooperative.
OE1.....	Anadarko Nos. 4-6.....	Do.
Waste-to-fuel conversion plants:		
W1.....	Northeastern Oklahoma Energy and Resource Recovery System.	Mustang Refuse Derived Fuel Co.
Natural gas processing and storage facilities:		
N1.....	Lucien Plant.....	Aminoil U.S.A., Inc.
N2.....	Kingfisher Plant.....	Phillips Petroleum Co.
N3.....	Maysville Plant.....	Warren Petroleum Corp.
N4.....	Hooker Plant.....	Dorchester Gas Corp.
Oil refineries:		
R1.....	Tulsa Refinery.....	Sun Oil Co.
R2.....	Cushing Refinery.....	Hudson Refining, Inc.
Petroleum and Natural gas pipelines:		
PP1.....	Oklahoma.....	El Paso Natural Gas Co.
PP2.....	.....do.....	Oklahoma Natural Gas Co.
PP3.....	.....do.....	Mid-American Pipeline Corp.
PP4.....	Oklahoma to Kansas.....	Osage Pipe Line Co.

TABLE 115. - Previously reported energy development projects that have been completed or canceled in Oklahoma

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Natural gas processing plants:				
Amoco Production Co., Tulsa, Okla.	Mooreland Plant, Mooreland, Woodward County.		X	
Do.....	Hitchcock Plant, Hitchcock, Blaine County.		X	
Texas Oil and Gas Corp., Dallas, Tex.	Woodward Plant, near Woodward, Woodward County.		X	
Electric generating plants:				
Public Service Co. of Oklahoma, Tulsa, Okla.	Riverside No. 2, Jenks, Tulsa County.		X	Gas and oil electric powerplant.
Do.....	Weleetka Nos. 5-6, Weleetka, Hughes County.		X	Oil-fired electric powerplant addition.
Do.....	Unnamed Nos. 1-2, unsited.....	X		Coal electric powerplant. No plans at present.
Do.....	CSR Joint, unsited.....	X		Coal electric powerplant.
Oklahoma Gas and Elec- tric Co., Oklahoma City, Okla.	Unsited Nos. 1-2.....	X		Gas and oil electric powerplant.
Do.....	Muskogee No. 4, Muskogee, Muskogee County.		X	Coal electric powerplant.
Ponca City Municipal Water and Light Department, Ponca City, Okla.	Ponca No. 2, Ponca City, Kay County.		X	Gas and oil electric powerplant.

TABLE 116. - Future coal mines in Oklahoma

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, inches	Depth or overburden thickness, feet	Remarks	References
UC1.	Garland No. 10, 2 miles south of Bikoshe, LeFlore County.	Garland Coal and Mining Co., Fort Smith, Ark.	Strip and underground.	0.25--1979		Hartshorne..	130	Old strip mine reopened. Will be converted to underground mine in 1978 or 1979 by CF&I Steel.	6, 11-12
UC2.	Unnamed, southeast of Spiro, LeFlore County.	CF&I Steel Corp., Pueblo, Colo.	Underground..	Unknown....		Hartshorne, 36 to 60.	700	Proposed. No plans finalized.	11-12
UC3.	Unnamed, south of Tahona, LeFlore County.	Armco Steel Corp., Middletown, Ohio.	Underground, drift mine.	0.2, unknown		Upper and Lower Hartshorne.	600 to 1,000.	Proposed. Active surface exploration. Low volatile coal. Property formerly controlled by Peabody Coal Co.	11-12
UC4.	Unnamed, near Savanna, Pittsburg County.	.....do.....	Underground..	Unknown....		McAlester, 48.		Proposed. High volatile, low-sulfur coal for coke blend, industrial or steam.	11-12
UC5.	Unnamed, near McCurtain, Haskell County.	.....do.....	.....do.....	.....do.....		Hartshorne, 72.	600 to 700	Proposed. No plans finalized. Low to medium volatile coking coal. Methane must be bled from gassy seams.	11-12
UC6.	Unnamed, near Bokoshe, LeFlore County.	.....do.....	.....do.....	.....do.....		Hartshorne..		Proposed. No plans finalized.	11-12
UC7.	Choctaw, 6 miles northwest of McCurtain, Haskell County.	Kerr-McGee Corp., Oklahoma City, Okla.	.....do.....	.....do.....	Moisture--1.2% Volatiles--19.3% Fixed carbon--73.9% Ash--5.6% Sulfur--0.8% Btulb--14,320 (U.S.B.M.)	Hartshorne, 48.	1,300 to 1,400.	Developed, bleeding methane. Startup 1977 or 1978.	11-12
SC1.	Unnamed, north of Lequire, Haskell County.	Garland Coal and Mining Co., Fort Smith, Ark.	Strip.....	.....do.....		Stigler coal, 16.		Coking coal, planning stage.	11-12
SC2.	Krebbs No. 1, southeast of Tupelo, Coal County.	Alpine Construction Co., Chickasha, Okla.	.....do.....	.....do.....				Permit granted.....	12
SC3.	No. 1, west of Welch, Craig County.	Faisano-Nodaway Enterprises, Inc., Taos, N. Mex.	.....do.....	.....do.....				.....do.....	12
SC4.	Marvin Pool, northwest of Vinita, Craig County.	Jess Hefner and Son, Chelsea, Okla.	.....do.....	.....do.....				.....do.....	12
SC5.	Solar No. 1, east of New Alluwe, Craig County.	Solar Excavating, Inc., Tulsa, Okla.	.....do.....	.....do.....				.....do.....	12
SC6.	Danger Creek, east of Lequire, Haskell County.	Randall and Blake, Inc., Littleton, Colo.	.....do.....	.....do.....				Permit application.....	12
SC7.	Burdett, east of Checotah, McIntosh County.	Burdett Co., Checotah, Okla.	.....do.....	.....do.....				Permit granted.....	12
SC8.	Memory Valley, east of New Alluwe, Nowata County.	G & P Mining, Inc., Chelsea, Okla.	.....do.....	.....do.....				.....do.....	12
SC9.	Pine Mountain, west of Heavener, LeFlore County.	ICM Corp., Tulsa, Okla.	.....do.....	.....do.....				.....do.....	12
SC10.	Joshua No. 1, northeast of Henryetta, Okmulgee County.	Alan Churchill, Henryetta, Okla.	.....do.....	.....do.....				.....do.....	12
SC11.	Stanbury No. 1, east of Chelsea, Rogers County.	Jess Hefner and Son, Chelsea, Okla.	.....do.....	.....do.....				.....do.....	12
SC12.	Kingery, south of Collinsville, Tulsa County.	Empire Construction, Inc., Tulsa, Okla.	.....do.....	.....do.....				.....do.....	12

TABLE 117. - Future electric generating plants in Oklahoma

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
NE1.	Black Fox Nos. 1-2, Inola, Rogers County.	Public Service Co. of Oklahoma, Tulsa, Okla.	Nuclear.....	1	1,150	1983	Seeking construction permit. Participants: Associated Electric Cooperatives, Springfield, Mo., 250 Mw. Western Farmers Electric Cooperative, Anadarko, Okla., 200 Mw.	2
				2	1,150	1985		
				Total	2,300			
CE1.	Muskogee No. 5, Muskogee County.	Oklahoma Gas and Electric Co., Oklahoma City, Okla.	Coal--°1.65.	5	515 (net)	Spring 1978	Coal will be supplied by ARCO's Black Thunder mine in Campbell County, Wyo.	1
CE2.	Sooner Nos. 1-2, south of Ponca City, Noble County.do.....	Coal--°3.3 (total, both units).	1	515 (net)	Spring 1979do.....	1
				2	515 (net)	Spring 1980		
				Total	1,030 (net)			
CE3.	Northeastern Nos. 3-4, Oologah, Rogers County.	Public Service Co. of Oklahoma, Tulsa, Okla.	Coal--°2.9 (total, both units).	3	450	May 1979	Coal to be supplied by Kerr-McGee mine near Gillette, Wyo., and Public Service Co. of Oklahoma mine near Sheridan, Wyo. Plant will accept combustible urban solid waste.	2
				4	450	May 1980		
				Total	900			
CE4.	Grand River Dam Authority No. 1, Pryor, Mayes County.	Grand River Dam Authority, Pryor, Okla.	Coal--1.9...	1	490	July 1981	Coal to be supplied from Wyoming sources.	5
CE5.	Unnamed, Nos. 1-2, unsited.	Western Farmers Electric Cooperative, Anadarko, Okla.	Coal.....	1	700	June 1982	Originally planned for oil and gas.	3
				2	700	June 1986		
				Total	1,400			
OE1.	Anadarko Nos. 4-6, Anadarko, Caddo County.do.....	Gas and oil.	4	100	Aug. 1977	Originally described as 230-Mw unit No. 4.	3
				5	100	Sept. 1977		
				6	100	Oct. 1977		
				Total	300			

°Estimated, see appendix for explanation.

TABLE 118. - Future waste-to-fuel conversion plants in Oklahoma

Map ref. No.	Plant name and location	Operating company	Type and feedstock	Initial operating date	Estimated capacity	Remarks	References
W1..	Northeastern Oklahoma Energy and Resource Recovery System, Tulsa, Tulsa County.	Mustang Refuse Derived Fuel Co., Oklahoma City, Okla.	Municipal solid waste.	Late 1979 Early 1980	1,000 tpd	To utilize Tulsa municipal solid waste and provide 180,000 tpy of refuse-derived fuel to Public Service Co. of Oklahoma north-eastern electric power generating plant, Rogers County. Metals and other recovered valuable commodities to be separately marketed. Waste handling to be coordinated with activities of Tulsa Solid Waste Management Department. System planning in progress by Williams Bros. Urban Ore, Inc.; Tulsa, Okla.	8

TABLE 119. - Future natural gas processing and storage facilities in Oklahoma

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Lucien Plant, Lucien, Noble County.	Aminoil U.S.A., Inc., Houston, Tex.	1977	16,000 Mcfd	Expander process to extract 44,800 gpd raw natural gas liquids mix. Old plant to be shut down.	10
N2..	Kingfisher Plant, Kingfisher, Kingfisher County.	Phillips Petroleum Co., Bartlesville, Okla.	1977	75,000 Mcfd	Expander plant to extract natural gas liquids.	10
N3..	Maysville Plant, Maysville, Garvin County.	Warren Petroleum Corp., Tulsa, Okla.	1977	50,000 Mcfd	Expansion of existing plant.....	10
N4..	Hooker Plant, Hooker, Texas County.	Dorchester Gas Corp., Amarillo, Tex.	1977	72,000 Mcfd	To replace existing 90,000 gpd natural gas liquids plant. New output 205,000 gpd natural gas liquids.	10

TABLE 120. - Future oil refineries in Oklahoma

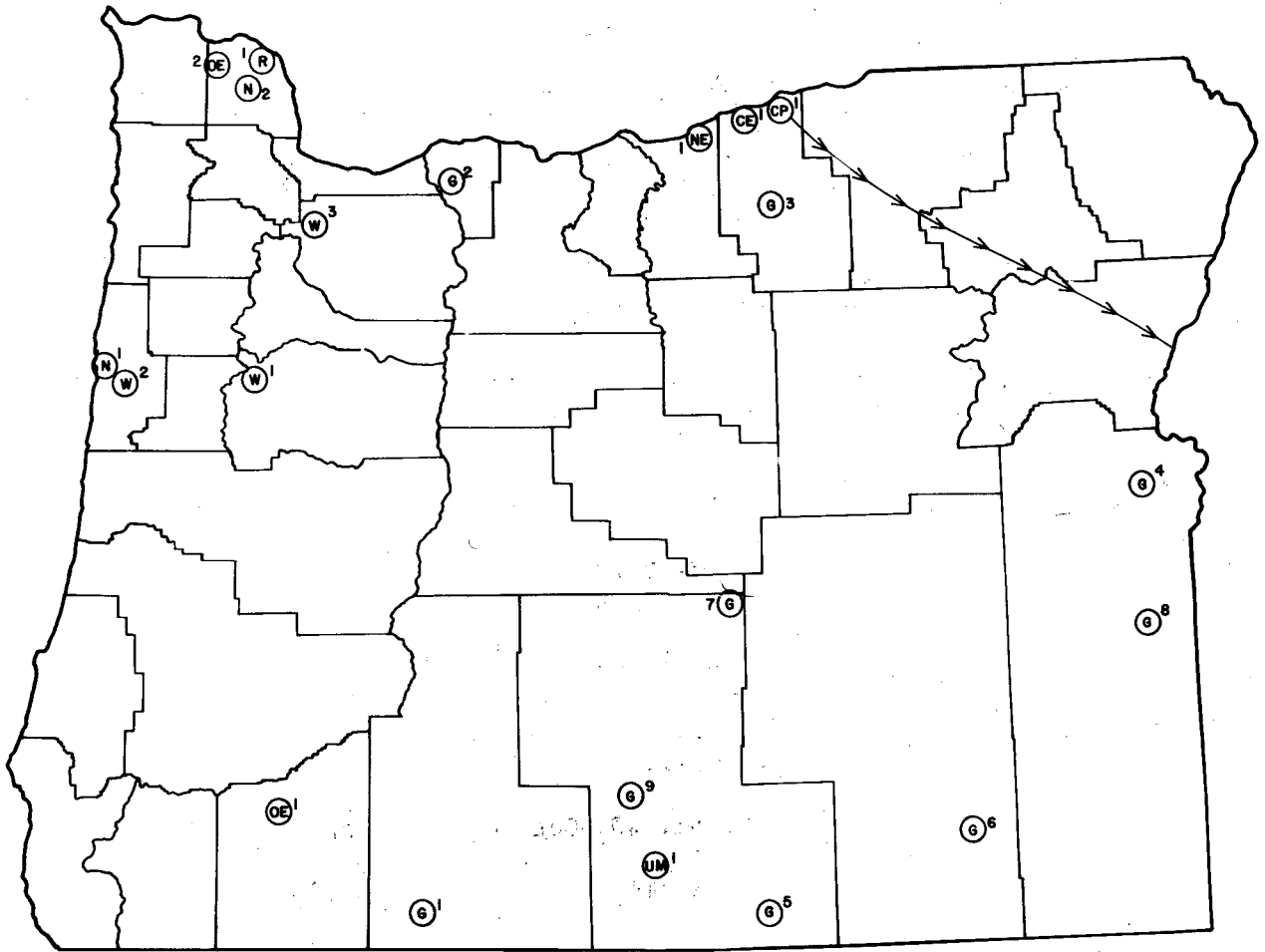
Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Tulsa Refinery, Tulsa, Tulsa County.	Sun Oil Co., Tulsa, Okla.	1978	391	Plant addition for lubes.....	9
R2..	Cushing Refinery, Cushing, Payne County.	Hudson Refining, Inc., Cushing, Okla.	Indefinite	15,000 (expansion)	Main units erected. No current work. To expand capacity from 20,000 to 35,000 bpd.	10

TABLE 121. - Future petroleum and natural gas pipelines in Oklahoma

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PP1.	El Paso Natural Gas Co., El Paso, Tex.	Vicinity of Elk City, Beckham County, Okla.		36	Natural gas.	1977	6-5/8 and 12-3/4.		10
PP2.	Oklahoma Natural Gas Co., Tulsa, Okla.	Mayfield, Beckham County, Okla.	Custer City, Custer County, Okla.	60	...do.....	1977	20	Under construction. To accept new gas production at Mayfield for ONG intrastate system.	10
PP3.	Mid-American Pipeline Corp., Tulsa, Okla.	Enid, Garfield County, Okla.	Tulsa, Port of Catoosa, Rogers County, Okla.	120	Petroleum products.	1977	6		10
PP4.	Osage Pipe Line Co., and Skelly Oil Co., Tulsa, Okla. Mobil Oil Corp., Oklahoma City, Okla. National Cooperative Refinery Association, McPherson, Kans.	Cushing, Okla.	Eldorado, Kans.	137	Natural gas.	Mid-1977	20	Under construction.	7

List of Data Sources for Oklahoma

1. Federal Power Commission. Oklahoma Gas and Electric Co., Oklahoma City, Okla., through Bureau of Mines State Liaison Officer, July 14, 1977.
2. _____. Public Service Co. of Oklahoma, Tulsa, Okla., through Bureau of Mines State Liaison Officer, July 14, 1977.
3. _____. Western Farmers Electric Cooperative, Anadarko, Okla., through Bureau of Mines State Liaison Officer, July 14, 1977.
4. Garland Coal and Mining Co., Fort Smith, Ark., through Bureau of Mines State Liaison Officer, July 14, 1977.
5. Grand River Dam Authority, Pryor, Okla., through Bureau of Mines State Liaison Officer, July 14, 1977.
6. Hudson Refining, Inc., Oklahoma City, Okla., through Bureau of Mines State Liaison Officer, July 14, 1977.
7. Kansas Geological Survey, Topeka, Kans., July 1977.
8. Mustang Refuse Derived Fuel Co., Okla., through Bureau of Mines State Liaison Officer, July 14, 1977.
9. Oil and Gas Journal. V. 74, No. 40, Oct. 4, 1976, pp. 117, 162.
10. _____. V. 74, No. 17, Apr. 25, 1977, pp. 175, 177, 184.
11. Oklahoma Geological Survey, Norman, Okla., through Bureau of Mines State Liaison Officer, July 14, 1977.
12. Oklahoma Chief Mine Inspector, Oklahoma City, Okla., through Bureau of Mines State Liaison Officer, July 14, 1977.
13. Sunday Oklahoman (Oklahoma City, Okla.). June 26, 1977.



LEGEND

- ⊙_{CE} Coal-fired electric generating plants
- ⊙_{NE} Nuclear electric generating plants
- ⊙_{OE} "Other" electric generating plants
- ⊙_W Waste-to-fuel conversion plants
- ⊙_G Geothermal facilities
- ⊙_{UM} Uranium mines
- ⊙_N Natural gas processing and gas storage facilities
- ⊙_R Oil refineries
- ⊙_{CP} Coal slurry pipelines

FIGURE 19: - Future energy-related projects in Oregon.

Oregon

Data on the following Oregon projects are presented in tables 122-129. The map reference numbers correspond with the accompanying Oregon map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
OE1.....	Lost Creek Nos. 1-2.....	U.S. Army Corps of Engineers
OE2.....	Beaver.....	Portland General Electric Co.
CE1.....	Boardman Plant.....	Do.
NE1.....	Pebble Springs Nos. 1-2....	Do.
Waste-to-fuel conversion plants:		
W1.....	DOE Pilot Plant.....	Bechtel Corp.
W2.....	Georgia-Pacific Toledo Mill	Georgia-Pacific Corp.
W3.....	Oregon City Pulp Mill.....	Publishers Paper Co.
Geothermal facilities:		
G1.....	Klamath Falls areas.....	Various.
G2.....	Mt. Hood areas.....	Do.
G3.....	Morrow County.....	Do.
G4.....	Vale and Bully Creek areas.	Do.
G5.....	Warner Valley and Crump Geyser areas.	Do.
G6.....	Alvord Valley and Desert areas.	Do.
G7.....	Glass Buttes areas.....	Do.
G8.....	Succor Creek and Owyhee areas.	Do.
G9.....	Summer Lake areas.....	Do.
Uranium mines:		
UM1.....	Area exploration, Fremont National Forest.	Exxon Company, U.S.A.
Natural gas processing and storage facilities:		
N1.....	LNG Plant.....	Northwest Natural Gas Co.
N2.....	Unnamed.....	Reichhold Energy Corp. and Northwest Natural Gas Co.
Oil refineries:		
R1.....	.....do.....	Cascade Energy, Inc.
Coal slurry pipelines:		
CP1.....	Wyoming to Oregon.....	Gulf Interstate Engineering Co.

TABLE 122. - Previously reported energy development projects that have been completed or canceled in Oregon

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Oil refinery: Charter Energy Co., Salt Lake City, Utah.	St. Helens Refinery, Columbia County.	X		
Electric generating plants: Portland General Electric Co., Portland, Oreg.	Trojan Nuclear Plant, Rainier, Columbia County.		X	Attained 90% of planned power output in January-February 1977; dropped to 30% in March; shut down for maintenance in April; and went to full operation at end of June. Has had startup problems.
Eugene Water and Electric Board, Eugene Oreg.	Weyco Waste Steam Utilization, Springfield, Lane County.		X	
Geothermal projects.....				All geothermal facilities listed in IC 8719 have been omitted from this report as they were classified as exploration projects and not future geothermal facilities. However, to maintain continuity new geothermal exploration projects developed since IC 8719 was published are included in this report.

TABLE 123. - Future electric generating plants in Oregon

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
OE1.	Lost Creek Nos. 1-2, Rogue River, near Shady Grove, Jackson County.	U.S. Army Corps of Engineers, Portland District, Portland, Oreg.	Hydropower.	1 2 Total	28 28 56	1977 (delayed until reservoir fills).	Construction completed in late 1976. Insufficient water in reservoir for testing or initial operation because of drought.	9
OE2.	Beaver (combined cycle addition), Clatskanie, Columbia County.	Portland General Electric Co., Portland, Oreg.	Fuel oil ..		150	Nov. 1977	Construction in progress. PGE's Beaver plant became operational in August 1974. Plant consists of six industrial-type combustion turbine units with total capacity of 439 Mw. Plant is being converted to combined cycle operation with increased peaking capacity of 150 Mw.	1
CE1.	Boardman Plant (Carty site), 12 miles southwest of Boardman, Morrow County.	.....do.....	Coal--*1.6.		30	July 1980	Site preparation for the \$300 million generating plant began in early 1976. Condenser cooling water will be pumped from the Columbia River to a marmade lake. The site could be used for an additional coal-fired unit as an alternative to nuclear units at Pebble Springs site. A pipeline to deliver coal from eastern Wyoming has been considered, but initially, at least, coal will come by rail.	7, 13
NE1.	Pebble Springs Nos. 1-2, 3 miles southeast of Arlington, Gilliam County.	.....do.....	Nuclear....	1 2 Total	1,260 1,260 2,520	July 1985 July 1988	Unit No: 1 delayed by legal challenges, extended public hearings about environmental hazards. Site certificate obtained for both units in 1972; 1975 ruling by Oregon Supreme Court ordered State Energy Facility Siting Council to reconsider the certification. Each unit is expected to cost in excess of \$1 billion. Columbia River water pumped to marmade lake to be used for condenser cooling. Date for second unit is tentative. Efforts in progress to solve certification problem.	1

*Estimated, see appendix for explanation.

TABLE 124. - Future waste-to-fuel conversion plants in Oregon

Map ref. No.	Plant name and location	Operating company	Type and feedstock	Initial operating date	Estimated capacity	Remarks	References
W1..	DOE Pilot Plant, Albany, Linn County.	Bechtel Corp. for Department of Energy, San Francisco, Calif.	Waste to oil	June 1977	Pilot plant initially to produce 250 gpd of high Btu heating oil from 3 tpd of wood chips.	Feasibility of converting wood waste, manure, and urban refuse to low-sulfur heating oil to be investigated. The plant was designed by Rust Engineering Co. of Birmingham, Ala., constructed by MAECON, Inc., of Santa Fe Springs, Calif., and is to be operated by Bechtel Corp. of San Francisco, Calif.	10-11
W2..	Georgia-Pacific Toledo Mill, Toledo, Lincoln County.	Georgia-Pacific Corp., Portland, Ore.	Old rubber tires and wood waste.	Being incorporated in operating plant.	Tires could provide up to 10% of boiler feed.	Experimental burning of old tires chopped to 1- to 2-in size and mixed with wood waste for burning in existing boilers to supply steam to mill operations. Tires have good Btu value and are expected to supply 5% or more of the plant energy needs. A 10% mixture with wood waste appears to be a maximum. If successful, could utilize the bulk of Oregon's old tire supply.	2
W3..	Oregon City Pulp Mill, Oregon City, Clackamas County.	Publishers Paper Co., Oregon City, Ore.	Municipal refuse.	1980	20 Mw.....	300,000 tpy of refuse from the Portland Metropolitan Service Dist. will be utilized in a \$25 million system which is expected to provide 30% of the pulp mill's requirement for electricity. Currently, the Oregon City plant uses 600 bpd of fuel oil or the equivalent in natural gas to supply steam for its operations. These fuels will no longer be needed when the refuse burning system is operational. The refuse will supply 200,000 lbh of steam. The Bechtel Corp. is designing the plant.	8-9

TABLE 125. - Future geothermal facilities in Oregon

Map ref. No.	Location	Company	Current status, plans, and other relevant information	References
			Over 2 million acres is reported either under lease or applied for in Oregon for geothermal exploration and development. Included are 1.2 million acres in noncompetitive Federal leases pending at the end of 1976. The U.S. Bureau of Land Management held three lease sales during 1976 and sold production rights to about 20,000 acres. The following list of permits and leases may result in geothermal energy production and was in effect in 1976-1977.	3
G1..	Klamath Falls, Klamath County ¹ ...	Weyerhaeuser and Pacific Power & Light Co., Portland, Oreg.	Hole spudded in 1975 and drilling completed to 2,006 ft final depth in 1976. Cased to total depth. Used for temperature monitoring.	3
G1..	.....do ¹	Thermal Power Co., San Francisco, Calif.	Issued June 1976. Hole drilled to 5,842 ft was being plugged in process of abandonment.....	3
G2..	Mt. Hood area, Clackamas County ¹	Oregon Department of Geology and Mineral Industries, Portland, Oreg.	Proposed to drill two holes to 2,000 ft. Project postponed because of withdrawal of access to Bull Run Reserve. Permit issued August 1976.	3
G3..	Morrow County ¹.....	.....do.....	Issued October 1976. Proposed to drill to 1,000 ft completed only to 850 ft. Hole used as a monitor...	3
G4..	Vale area, Malheur County ²	Republic Geothermal, Inc., Santa Fe Springs, Calif.	Permits issued October 1976 for two holes, 1,500- and 8,000-ft project postponed.....	3
G5..	Southern Warner Valley, Lake County ²	Chevron U.S.A., Inc., San Francisco, Calif.	Issued June 1976, 21 gradient holes.....	3
G4..	West of Vale, Malheur County ².....	.....do.....	Issued June 1976, 18 gradient holes.....	3
G6..	Alvord Valley, Harney County ².....	.....do.....	Issued June 1976, 13 gradient holes.....	3
G7..	Glass Buttes area, Lake and Deschutes Counties ²	Oregon Department of Geology and Mineral Industries, Portland, Oreg.	Issued May 1976, 11 gradient holes.....	3
G2..	Western Cascades, Clackamas County ².....	.....do.....	Issued June and October 1976, 15 gradient holes, including holes near Timberline Lodge and Snow Bunny, Mt. Hood.	3
G8..	Succor Creek, Malheur County ².....	.....do.....	Issued October 1976, 5 gradient holes.....	3
G4..	Bully Creek area, Malheur County ²	AMAX Exploration, Inc., Denver, Colo.	Issued November 1976, 44 gradient holes. Drilling in progress early 1977.....	3
G8..	Owyhee area, Malheur County ²	Hunt Oil Co., Dallas, Tex.	Issued March 1976.....	3
G4..	Vale area, Malheur County ²	Chevron U.S.A., Inc., San Francisco, Calif.	Issued May 1976.....	3
G5..	Warner Valley, Lake County ².....	.....do.....	Issued April 1976.....	3
G6..	Alvord Desert, Harney County ²	Geonomics, Inc., Berkeley, Calif.	Issued October 1976.....	3
G9..	Summer Lake, Lake County ²	Southern Union Production Co., Dallas, Tex.	Issued December 1976.....	3
G1..	Klamath Falls area, Klamath Falls County ⁴	Thermal Power Co., San Francisco, Calif.	Sold May 1976, 5 tracts, 1,787 acres.....	3
G9..	Summer Lake area, Lake County ⁴	Southern Union Production Co., Dallas, Tex.	Sold September 1976, 1 tract, 2,392 acres.....	3
G9..	.....do ⁴	Chevron U.S.A., Inc., San Francisco, Calif.	Sold September 1976, 1 tract, 2,282 acres.....	3
G4..	Vale, Malheur County ⁴	Union Oil Co., Los Angeles, Calif.	Sold December 1976, 2 tracts, 3,525 acres.....	3
G5..	Crump Geyser, Lake County ⁴	Chevron U.S.A., Inc., San Francisco, Calif.	Sold December 1976, 3 tracts, 4,880 acres.....	3
G1..	Klamath Falls, Klamath Falls County ⁴	Southern Union Production Co., Dallas, Tex.	Sold December 1976, 2 tracts, 2,848 acres.....	3

¹Active State permit for deep geothermal well.²Active State permit for shallow prospect well 500 ft or less.³Permit for geothermal exploration on Federal lands.⁴Federal geothermal lease sales in 1976.

TABLE 126. Future uranium mines in Oregon

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity and year	Remarks	References
UM1.	Area exploration, Fremont National Forest, Lake County (T 38 S, R 18 E)	Exxon Co., U.S.A., Houston, Tex.	Unknown	Unknown.	Exploration in progress. Exxon Co. obtained permits from the Federal Government to explore for uranium in the Fremont National Forest and also has obtained a 5-year lease to explore a privately owned parcel of 240 acres on which the State owns mineral rights. Drilling was conducted in 1976.	6-7

TABLE 127. - Future natural gas processing and storage facilities in Oregon

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	LNG Plant, McLean Point, Newport, Lincoln County	Northwest Natural Gas Co., Portland, Oreg.	June 1977 Plant completed. LNG available at later date	Capacity 1 billion cu ft. Liquefy on site 5 MMcfd. Useful as peaking facility.	Northwest Natural Gas Co. obtained contracts with Phillips Petroleum Co. and Marathon Oil Co. in 1974 to provide LNG from an Alaskan plant for delivery by ship to Newport. Restrictions imposed by the Federal Power Commission have delayed arrangements for shipping the LNG, and the source of supply is now uncertain. At present, natural gas from the Rocky Mountain area is being liquefied and stored at the plant site for peaking needs.	11-12
N2..	Unnamed, Upper Nehalem River Basin, Columbia County.	Reichhold Energy Corp. and Northwest Natural Gas Co., Tacoma, Wash.		Exploration in progress for underground storage for pipeline gas.	Nearly 10,000 ft of Tertiary marine rocks underlie Columbia County, and potential reservoir rocks are known to exist in the geologic section. Sub-surface data from past oil drilling show prospective storage zones for natural gas 3,000 to 4,000 ft below the surface on a large fold near the town of Mist. Test holes were drilled on the structure in 1975 and further drilling planned in 1977.	5-6

TABLE 128. - Future oil refineries in Oregon

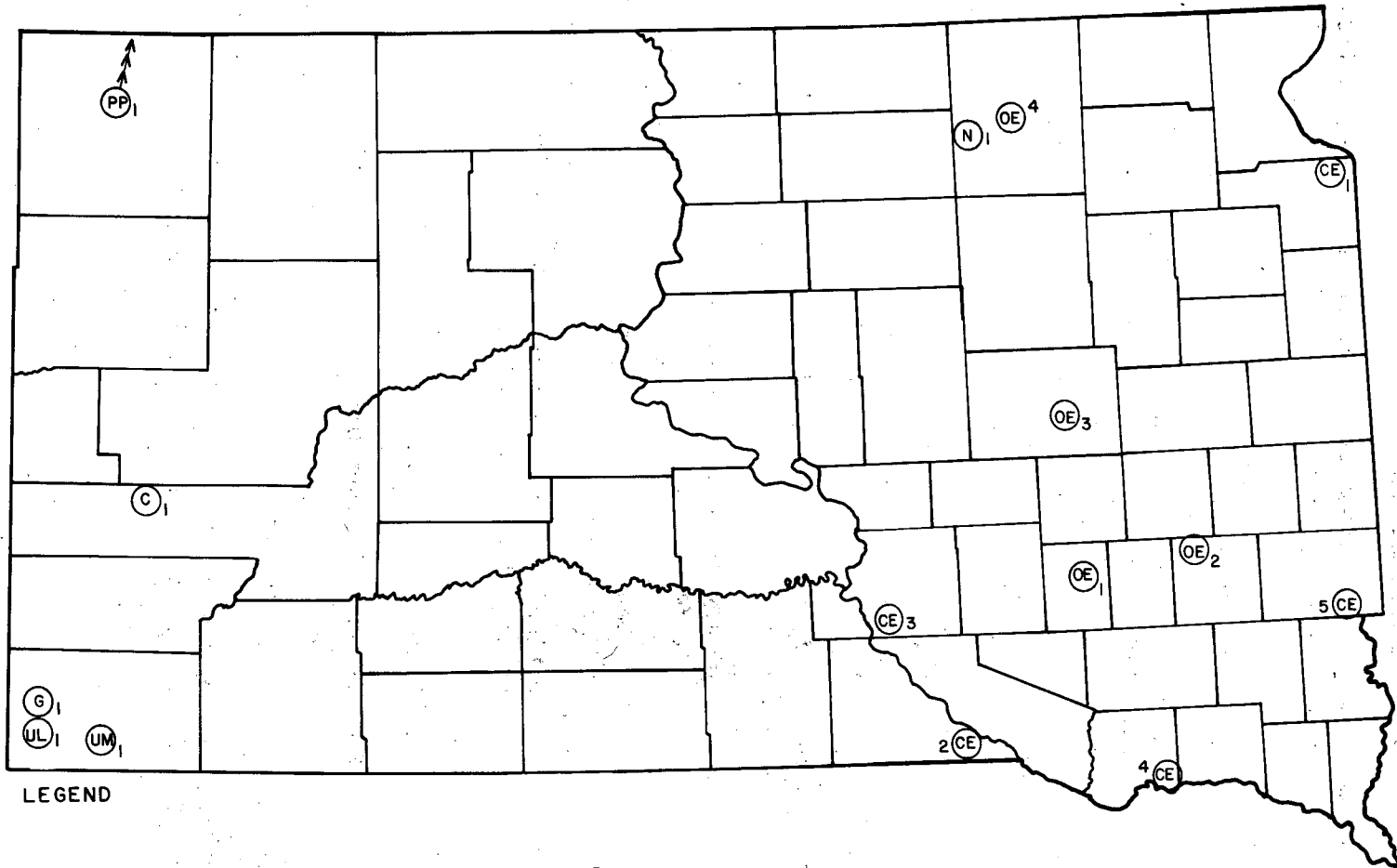
Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Unnamed, Rainier, Columbia County.	Cascade Energy, Inc., Portland, Oreg.	1980	30,000	Completed market feasibility study in 1977. Decision on construction awaiting financing and expected in fall 1977.	4-5

TABLE 129. - Future coal slurry pipelines in Oregon

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
CP1.	Gulf Interstate Engineering Co., Houston, Tex., and Northwest Pipeline Co., Salt Lake City, Utah	Near Gillette, Campbell County, Wyo.	Boardman, Oreg.	1,100		1980	20 to 24	Proposed route will cross Wyoming, Idaho, and Oregon.	12

List of Data Sources for Oregon

1. Bonneville Power Administration, Portland, Oreg. through Bureau of Mines State Liaison Officer, March 1977.
2. Georgia-Pacific Corporation, Portland, Oreg., through Bureau of Mines State Liaison Officer, May 27, 1977.
3. Hull, D. A., and F. C. Newton, Jr., Oregon Department of Geology and Mineral Industries, Portland, Oreg. Geothermal Activity in 1976. The Ore Bin, v. 39, No. 1, January 1977.
4. Oregon Department of Environmental Quality, Portland, Oreg., through Bureau of Mines State Liaison Officer, May 27, 1977.
5. Oregon Department of Geology and Mineral Industries. Oil and Gas Investigations 5, Prospects for Natural Gas Production and Underground Storage of Pipelines Gas in the Upper Nehalem River Basin, Columbia-Clatsop Counties, Oregon. 1976.
6. Oregon State Land Board, Salem, Oreg., through Bureau of Mines State Liaison Officer, May 27, 1977.
7. Portland General Electric Company, Portland, Oreg., through Bureau of Mines State Liaison Officer, May 27, 1977.
8. Snell, P. Publisher Paper Company, Oregon City, Oreg., through Bureau of Mines State Liaison Officer, May 27, 1977.
9. U.S. Corps of Engineers, Portland District, Portland, Oreg., through Bureau of Mines State Liaison Officer, May 27, 1977.
10. U.S. Energy Research and Development Administration, Albany, Oreg., through Bureau of Mines State Liaison Officer, May 27, 1977.
11. West, J. M., Bureau of Mines State Liaison Officer, Salem, Oreg., May 27, 1977.
12. Western Resources Wrapup. Feb. 19, 1976.
13. Western Systems Coordinating Council Technical Staff, Salt Lake City, Utah. Ten-Year Coordinated Plan Summary 1977-1986. May 1977.



LEGEND

- | | | | |
|---|---------------------------------------|---|---|
| Ⓢ | Coal-fired electric generating plants | Ⓢ | Uranium mills and enrichment facilities |
| Ⓢ | "Other" electric generating plants | Ⓢ | Natural gas processing and storage facilities |
| Ⓢ | Coal conversion plants | Ⓢ | Petroleum and natural gas pipelines |
| Ⓢ | Geothermal facilities | | |
| Ⓢ | Uranium mines | | |

FIGURE 20: - Future energy-related projects in South Dakota.

South Dakota

Data on the following South Dakota projects are presented in tables 130-137. The map reference numbers correspond with the accompanying South Dakota map.

Map ref. No.	Project name	Company or agency
Electric generating plants:		
CE1.....	Big Stone No. 2.....	Otter Tail Power Co.
CE2.....	Unnamed.....	Missouri Basin Municipal Power Agency.
CE3.....	Basin.....	East River Electric Power Cooperative.
CE4.....	Heartland.....	Heartland Consumer Power District.
CE5.....	Sioux Falls.....	Northern States Power Co.
OE1.....	Mitchell No. 4.....	Northwestern Public Service Co.
OE2.....	Unnamed.....	Do.
OE3.....	.....do.....	Do.
OE4.....	.....do.....	Do.
Coal conversion plants:		
C1.....	Lignite Gasification Pilot Plant.	Conoco Coal Development Co.
Geothermal facilities:		
G1.....	Edgemont.....	Western South Dakota Community Action, Inc.
Uranium mines:		
UM1.....	Burdock mine.....	Tennessee Valley Authority.
Uranium mills and enrichment facilities:		
UL1.....	Edgemont Plant.....	Do.
Natural gas processing and storage facilities:		
N1.....	Liquefied Natural Gas Plant.	Northwestern Public Service Co.
Petroleum and natural gas pipelines:		
PP1.....	South Dakota to North Dakota.	Koch Oil Co.

TABLE 130. - Previously reported energy development projects that have been completed or canceled in South Dakota

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Coal conversion plants: A joint venture of Northern States Power Co., Minneapolis, Minn.; Foster Wheeler Energy Corp., Livingston, N.J.; and Department of Energy.	NPS demonstration plant, 6 miles northeast of Sioux Falls, Minnehaha County.	X		

TABLE 131. - Future electric generating plants in South Dakota

Map ref. No.	Plant name and location	Operating company	Fuel, M Mtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Big Stone No. 2, Big Stone City, Grant County.	Otter Tail Power Co., Fergus Falls, Minn.	Lignite--2.5	2	440	1981	Addition to existing 440-Mw unit. Possible coal supply from Knife River Coal Mining Co., in North Dakota.	1, 4-5, 14
CE2.	Unnamed, Fairfax-Bonesteel area, Gregory County.	Missouri Basin Municipal Power Agency, Sioux Falls, S. Dak.	Coal--°0.8..		250	Unknown	Plant will consume Wyoming coal. Project is in very early study stages and, according to the State Energy Office, the project should be considered only a remote possibility at this time. Construction of a railroad spur line from the CNW mainline at Atkinson northeast to the plant site is planned.	1, 4, 14
CE3.	Basin, probable location in Brule County on Missouri River.	East River Electric Power Cooperative, Madison, S. Dak.	Coal--°0.5..		150	1980	Originally planned to use fuel oil but FEA would probably not give allocation to a new powerplant. East River Electric Cooperative currently obtains 55% of its power supply from the U.S. Bureau of Reclamation and 45% from Basin Electric Power Cooperative. Basin Electric and five other power groups are planning to construct a large coal-fired plant near Wheatland, Wyo. The outcome of this litigation will play a large role in determining if this plant is constructed to meet East River Cooperative's future electric requirements. (See also CE4.)	
CE4.	Heartland, southeastern South Dakota on Missouri River.	Heartland Consumer Power Dist., Madison, S. Dak.	Coal--°0.6..		200	1979	Exact location is unknown. The site is expected to be in the southeastern part of the State along the Missouri River, as tentative plans call for use of flowthrough water from the river. Expected coal source is Wyoming. The company is part of a consortium seeking authority to construct the powerplant at Wheatland, Wyo. The outcome of this litigation will affect construction plans for the Heartland facility. Hence the proposed project should be considered tentative at this time.	1, 4, 14
CE5.	Sioux Falls, 10 miles northeast of Sioux Falls, Minnehaha County.	Northern States Power Co., Minneapolis, Minn.	Coal--°0.6..		200	May 1978	Project is still in the early planning stages and should be considered tentative at this time.	1, 4, 14
OE1.	Mitchell No. 4, Mitchell, Davison County.	Northwestern Public Service Co., Huron, S. Dak.	Natural gas.	4	25	May 1979	According to State Energy Office, the likelihood of this facility is now uncertain because of tight supply of natural gas. Plant would most likely be used for peaking purposes.	1, 4-5, 14
OE2.	Unnamed, near Salem, McCook County.	.....do.....	.....do.....		22.5	1981	.....do.....	1, 4-5, 14
OE3.	Unnamed, Huron, Beadle County.	.....do.....	.....do.....		25	1980	Originally considered for study near Aberdeen, S. Dak. That location has been canceled and the site area at Huron, S. Dak., is being studied. According to the State Energy Office, the likelihood of this facility is uncertain because of the tight supply of natural gas. Plant would most likely be used for peaking purposes.	1, 4-5, 14
OE4.	Unnamed, Aberdeen, Brown County.	.....do.....	Fuel oil....		1	May 1978	\$3 million combustion turbine electric generating plant. The plant will be for supplemental production (peaking) to the company's base plants and is estimated to operate about 500 hpy.	2

*Estimated, see appendix for explanation.

TABLE 132. - Future coal conversion plants in South Dakota

Map ref. No.	Plant name and location	Operating company		Type and process	Initial operating date	Estimated capacity	Remarks	References
Cl..	Lignite Gasification Pilot Plant, 2 miles south of Rapid City, Pennington County.	Conoco Coal Co., Rapid S. Dak.	Development City,	Gasification CO ₂ acceptor process.	Completed 1972.	2 MMcfd	Operating sponsors include DOE (Office of Coal Research) and the American Gas Association. The plant will operate through 1977. There are no plans for operation beyond that date. Conoco officials proposed last year that funding be continued to provide for experiments in the production of low-Btu gas (375 Btucf). The proposal was made originally to the U.S. Office of Coal Research which has since been absorbed by the U.S. Department of Energy. DOE has recently approved funding through calendar year 1977.	1, 3, 7

TABLE 133. - Future geothermal facilities in South Dakota

Map ref. No.	Location	Company	Current status, plans, and other relevant information	References
Gl..	Edgemont, Fall River County	Western South Dakota Community Action, Inc., Rapid City, S. Dak.	Seven homes to be heated with hot water from an artesian well. Scheduled to be completed in fall 1977.	8

TABLE 134. - Future uranium mines in South Dakota

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity and year	Remarks	References
UM1.	Burdock mine, Burdock, Fall River County.	Tennessee Valley Authority, Chattanooga, Tenn.	Underground		Expected full production by mid-1981.	9

TABLE 135. - Future uranium mills and enrichment facilities in South Dakota

Map ref. No.	Plant name and location	Operating company	Type	Initial operating date	Planned capacity	Remarks	References
UL1.	Edgemont Plant, Edgemont, Fall River County (refurbish old mill). - or - New Mill, location not known but likely in either Fall River County or Custer County.	Tennessee Valley Authority, Chattanooga, Tenn.		1981	750 tpd	Site and mill process selections are expected to be made by October 1977.	9

TABLE 136. - Future natural gas processing and storage facilities in South Dakota

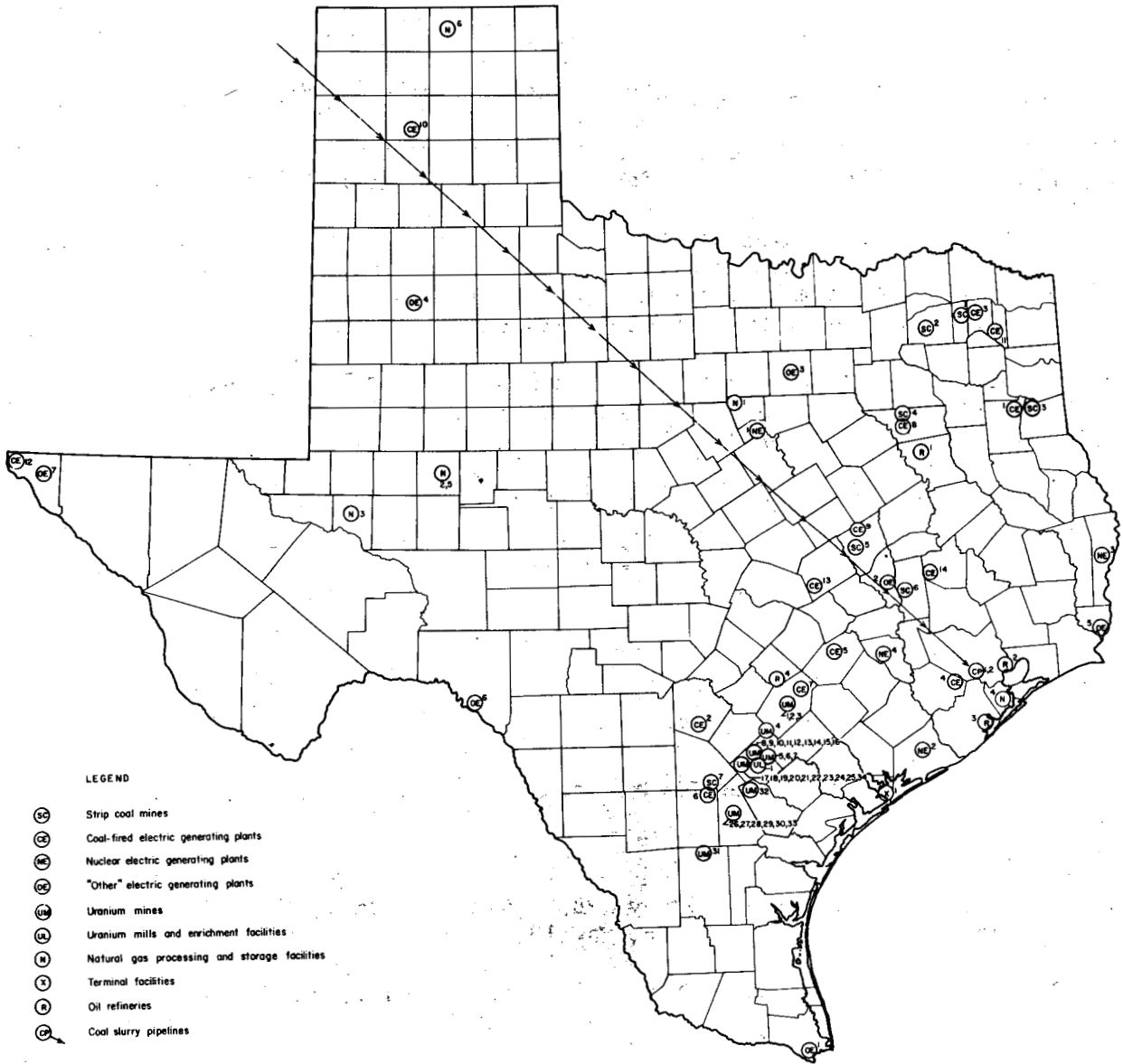
Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Liquefied Natural Gas Plant, Aberdeen, Brown County.	Northwestern Public Service Co., Huron, S. Dak.	1978	Equivalent storage of 400 MMcf of natural gas.	Plant cost is estimated between \$6 and \$6.5 million. Plant would liquefy pipeline natural gas at 260° below zero and store it for subsequent use during peak winter demand periods.	1, 4, 6, 11

TABLE 137. - Future petroleum and natural gas pipelines in South Dakota

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PPI.	Koch Oil Co., Div. of Koch Industries, Inc., Wichita, Kans.	Buffalo, S. Dak.	Dickinson, N. Dak.	80 (15 miles in South Dakota).	Crude oil	1977-1978	4	Project in the planning stage as of June 1, 1977.	10, 12-13

List of Data Sources for South Dakota

1. Aase, J. H., Bureau of Mines State Liaison Officer, Rapid City, S. Dak. 1977.
2. Aberdeen American News (Aberdeen, S. Dak.). May 5, 1977.
3. Coal News. Mar. 12, 1976.
4. Federal Energy Administration, State Liaison Office, Pierre, S. Dak., through Bureau of Mines State Liaison Officer, May 13, 1977.
5. Federal Power Commission. Proposed Generating Capacity Changes for the Period 1975 Through 1984. Reported Apr. 1, 1975, in response to Docket R-362, Order 383-3.
6. Rapid City Journal (Rapid City, S. Dak.). Aug. 20, 1975.
7. _____. Feb. 22, 1976.
8. _____. Feb. 2, 1977.
9. _____. May 12-13, 1977.
10. _____. June 3, 1977.
11. Sioux Falls Argus-Leader (Sioux Falls, S. Dak.). July 26, 1975.
12. _____. June 6, 1977.
13. South Dakota Geological Survey, Rapid City, S. Dak., through Bureau of Mines State Liaison Officer, May 13, 1977.
14. South Dakota State Energy Office, Pierre, S. Dak., through Bureau of Mines State Liaison Officer, May 13, 1977.



LEGEND

- SC Strip coal mines
- CE Coal-fired electric generating plants
- NE Nuclear electric generating plants
- OE "Other" electric generating plants
- UM Uranium mines
- UR Uranium mills and enrichment facilities
- NG Natural gas processing and storage facilities
- T Terminal facilities
- R Oil refineries
- SP Coal slurry pipelines

FIGURE 21: - Future energy-related projects in Texas.

Texas

Data on the following Texas projects are presented in tables 138-146. The map reference numbers correspond with the accompanying Texas map.

Map ref. No.	Project name	Company or agency
Coal mines:		
SC1.....	Monticello.....	Texas Utilities Generating Co.
SC2.....	Wallace No. 1.....	Eugene B. Shirley Co.
SC3.....	Martin Lake.....	Texas Utilities Generating Co.
SC4.....	Forest Grove.....	Do.
SC5.....	Twin Oaks.....	Do.
SC6.....	Gibbons Creek.....	Texas Municipal Power Pool.
SC7.....	San Miguel.....	Do.
Electric generating plants:		
CE1.....	Martin Lake Nos. 2-4.....	Texas Utilities Generating Co.
CE2.....	J. T. Deely No. 2.....	San Antonio Public Service Board.
CE3.....	Monticello No. 3.....	Texas Utilities Generating Co.
CE4.....	W. A. Parish Nos. 5-8.....	Houston Lighting and Power Co.
CE5.....	Fayette Nos. 1-2.....	Lower Colorado River Authority and City of Austin.
CE6.....	Texas Cooperative Nos. 1-2.	Texas Municipal Power Pool and Medina Electric Co.
CE7.....	Coletto Creek Nos. 1-2.....	Central Power and Light Co.
CE8.....	Forest Grove No. 1.....	Texas Power and Light Co.
CE9.....	Twin Oaks Nos. 1-2.....	Do.
CE10.....	Harrington Nos. 1-3.....	Southwestern Public Service Co.
CE11.....	Welsh Nos. 2-3.....	Do.
CE12.....	El Paso Plant.....	El Paso Electric Co.
CE13.....	Sandow No. 4.....	Texas Power and Light Co.
CE14.....	Gibbons Creek Nos. 1-3.....	Texas Municipal Power Pool.
CE15.....	Toke Nos. 1-2.....	Southwestern Public Services.
CE16.....	Unnamed.....	City Public Service Board of San Antonio.
CE17.....	.....do.....	Houston Lighting and Power Co.
NE1.....	Comanche Peak Nos. 1-2.....	Texas Utilities Generating Co.
NE2.....	South Texas Project Nos. 1-2	Houston Lighting and Power Co.
NE3.....	Blue Hills Nos. 1-2.....	Gulf States Utilities.
NE4.....	Allens Creek.....	Houston Lighting and Power Co.
OE1.....	Si Ray No. 9.....	City of Brownsville.
OE2.....	R. C. Dansby No. 1.....	City of Bryan, member of Texas Municipal Power Pool.
OE3.....	Handley No. 5.....	Texas Electric Service Co.
OE4.....	Holly Avenue No. 2.....	City of Lubbock.
OE5.....	Sabine No. 5.....	Gulf States Utilities.
OE6.....	Amistad Nos. 1-2.....	South Texas and Medina Cooperative.
OE7.....	Unnamed, Nos. 1-2.....	El Paso Electric Co.
Uranium mines:		
UM1.....	Griffin.....	Continental Oil Co.
UM2.....	Smith.....	Do.
UM3.....	Thomas-Knandel-Dybowski....	Do.
UM4.....	Korth-Hartman-Finch.....	Do.
UM5.....	Steinman.....	Do.
UM6.....	Banduch-Cochran.....	Do.
UM7.....	Cochran.....	Do.

Map ref. No.	Project name	Company or agency
Uranium mines (Con.):		
UM8.....	Kotzur.....	Continental Oil Co.
UM9.....	Pollok.....	Chevron U.S.A., Inc.
UM10.....	Swienizk.....	Do.
UM11.....	East Area.....	Do.
UM12.....	Kopecki.....	Continental Oil Co.
UM13.....	West Area.....	Chevron U.S.A., Inc.
UM14.....	Labus-Moczygamba.....	Do.
UM15.....	Moczygamba.....	Continental Oil Co.
UM16.....	Nieschwietz.....	Do.
UM17.....	Franklin-Swierc.....	Do.
UM18.....	Labus-Hoffman.....	Do.
UM19.....	Nieschwietz.....	Do.
UM20.....	Zamzow.....	Do.
UM21.....	Sickenius.....	Do.
UM22.....	Weddington.....	Do.
UM23.....	Garcia.....	Do.
UM24.....	Dziuk-Lyssy.....	Do.
UM25.....	W. Dziuk.....	Do.
UM26.....	Knisdell-Vaughn-Taylor.....	Do.
UM27.....	Dobie.....	Do.
UM28.....	Chapman.....	Do.
UM29.....	Felder.....	Exxon Co., U.S.A.
UM30.....	McLean.....	Do.
UM31.....	D.C.R.C.....	Continental Oil Co.
UM32.....	Pawnee mine.....	Intercontinental Energy Corp.
UM33.....	Zamzow.....	Do.
UM34.....	Rosenbrock mine.....	Conoco-Pioneer Co.
Uranium mills and enrichment facilities:		
UL1.....	Panna Maria Project.....	Chevron U.S.A., Inc.
Natural gas processing and storage facilities:		
N1.....	Northern Gas Plant.....	Northern Gas Products, Inc.
N2.....	Adobe Gas Plant.....	Adobe Oil and Gas Corp.
N3.....	Exxon Plant.....	Exxon Co., U.S.A.
N4.....	Houston Oil and Mineral Facility.	Houston Oil and Mineral Corp.
N5.....	Phillips Spraberry Plant...	Phillips Petroleum Co.
N6.....	Sherman Plant.....	Do.
Terminal facilities:		
X1.....	Matagorda Bay Terminal.....	El Paso Eastern Co.
Oil refineries:		
R1.....	Unnamed.....	J & W Refining Co.
R2.....	Baytown Refinery.....	Exxon Co., U.S.A.
R3.....	Unnamed.....	Dow Chemical Co.
R4.....	.....do.....	Gulf Energy Refining Co.
Coal slurry pipelines:		
CP1.....	Colorado to Texas.....	San Marco Pipe Line Co.
CP2.....	Montana to Texas.....	Wytex Oil Corp.

TABLE 138. - Previously reported energy development projects that have been completed or canceled in Texas

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Electric generating plants:				
Central Power and Light Co., Corpus Christi, Tex.	Barney M. Davis No. 2, Corpus Christi, Nueces County.		X	
Texas Utilities Co., Dallas, Tex.	Martin Lake No. 1, Tatum, Rusk County		X	
Houston Lighting and Power Co., Houston, Tex.	Greens Bayou Nos. 1-6, Houston, Harris County.		X	
City of Robstown, Robstown, Tex.	Unit No. 13, Robstown, Nueces County		X	
San Antonio Public Service Board, San Antonio, Tex.	J. T. Deely No. 1, San Antonio, Bexar County.		X	
City of Austin, Electric Power Department, Austin, Tex.	Decker No. 2, Austin, Travis County.		X	
West Texas Utilities Co., Abilene, Tex.	Phantom No. 2, Abilene, Taylor County		X	
Lower Colorado River Authority, Austin, Tex.	Unassigned No. 3.....	X		
Southwestern Electric Power Co., Shreveport, La.	Welsh No. 1, near Carson, Morris County.		X	
City of Greenville, Member of Texas Municipal Power Pool, Waco, Tex.	Greenville No. 3, Greenville, Hunt County.		X	
Texas Power and Light Co., Dallas, Tex.	Unsitd Nos. 3-4.....	X		
Lower Colorado River Authority, Austin, Tex.	T. C. Ferguson No. 1, Llano County..		X	
Coal gasification plants:				
Texas Utilities Service Co., Dallas, Tex.	Fairfield Gasification Project.....		X	Completed but not online.
Uranium mines:				
Conoco-Pioneer, Falls City, Tex...	Thomas mine, 19 miles northeast of Karnes City, Karnes County.		X	Mined out.
Do.....	Fort Worth National mine, 7 miles northwest of Karnes City, Karnes County.		X	Do.
Do.....	Hurt mine, 20 miles southeast of Jourdentown, Atascosa County.		X	Do.
Do.....	House mine, 20 miles north of George West, Live Oak County.		X	Do.
Westinghouse Corp., Lakewood, Colo.	Lamprecht mine, 12 miles north of George West, Live Oak County.		X	
Dalco-U.S. Steel Corp., Pittsburgh, Pa.	Burns mine, 7 miles southwest of George West, Live Oak County.		X	
U.S. Steel Corp., Pittsburgh, Pa..	Clay West mine, 8 miles southwest of George West, Live Oak County.		X	
Union Carbide Corp., New York, N.Y.	Palangana mine, 11 miles southwest of San Diego, Duval County.		X	
Westinghouse Corp., Lakewood, Colo.	Bruni mine, 39 miles east of Laredo, Webb County.		X	
Mobil Oil Corp., Denver, Colo.....	O'Hern mine, 43 miles east of Laredo, Webb County.		X	
Oil refineries:				
Atlantic Richfield Co., Los Angeles, Calif.	Houston Refinery, Houston, Harris County.		X	
Hudson Oil Corp., Westwood, Kans..	Unnamed, Bayport, Harris County.....	X		
Sigmor Corp., San Antonio, Tex....	Three Rivers Refinery, Three Rivers, Live Oak County.		X	
Natural gas processing and storage facilities:				
Mobil Oil Corp., Denver, Colo.....	East Canadian Plant, Canadian, Hemphill County.		X	
Amoco Production Co., Houston, Tex.	Amoco Plant, Andrews County.....		X	
Phillips Petroleum Co., Bartlesville, Okla.	Phillips Plant, Ector County.....		X	
General Crude Oil Co., Houston, Tex.	General Crude Plant, Karnes County..		X	
Exxon Co., U.S.A., Houston, Tex...	Exxon Plant, Matagorda County.....		X	
Do.....	Exxon Plant, Brazoria County.....		X	

TABLE 139. - Future coal mines in Texas

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
SC1.	Monticello, 4 miles west of Mt. Pleasant, Titus County.	Texas Utilities Generating Co., Dallas, Tex.	Strip...	7.0 to 10.0--1978 (expansion).	Moisture--33.4% Ash--12.4% Sulfur--0.6% Btulb--6,820	Wilcox lignite, 4 to 11.		Analytical information is taken from one core sample. An average of five samples taken from the mine area and other locations in the county showing moisture, 32.7%; ash, 8.6%; Btulb, 6,983; sulfur, 0.87% (as received). Mine opened in 1974. Planned production is estimated.	6
SC2.	Wallace No. 1, 5 miles south of Sulphur Springs in Hopkins County.	Eugene B. Shirley Co., Oklahoma City, Okla.	...do...	0.18	Not available	6	45 to 70		6
SC3.	Martin Lake, 4 miles southeast of Tatum, Panola County.	Texas Utilities Generating Co., Dallas, Tex.	...do...	4.0 to 16.0--1983 (expansion).	Moisture--32.8% Ash--8.3% Sulfur--0.86% Btulb--7,379	Wilcox lignite, 5 to 15.		Analytical information from one core sample taken from mine area. Planned production is estimated. Mine opened in 1976.	6
SC4.	Forest Grove, 6 miles northwest of Athens, Henderson County.	.....do.....	...do...	3.0 to 4.0--1982		Wilcox lignite, 7 to 12.		Startup in 1981. Planned production is estimated.	6
SC5.	Twin Oaks, 10 miles north of Franklin, Robertson County.	.....do.....	...do...	4.0 to 8.0--1984		Wilcox lignite, 3 to 12.		Startup in 1983. Planned production is estimated.	6
SC6.	Gibbons Creek, 8 miles north of Navasota in Grimes and Brazos Counties.	Texas Municipal Power Pool, Waco, Tex.	...do...	3.0 to 6.0--1982		Manning-Yegua lignites, 3 to 10.		Startup in 1981. Planned production is estimated.	6
SC7.	San Miguel, 15 miles south of Jourdantown, Atascosa and McMullen Counties.	.....do.....	...do...	3.0 to 5.0--1982		Yegua-Jackson lignites, 2 to 8.		Startup in 1979. Planned production is estimated.	6

TABLE 140. - Future electric generating plants in Texas

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Martin Lake Nos. 2-4, near Tatum, Rusk County.	Texas Utilities Generating Co., Dallas, Tex.	Lignite-- 12.0 to 16.0 (total, all units).	2	750	Feb. 1978	Mine mouth powerplant. Coal supplied by developing Martin Lake mine.	1, 3
				3	750	Feb. 1979		
				4	750	Feb. 1981		
				Total	2,250			
CE2.	J. T. Deely No. 2, San Antonio, Bexar County.	San Antonio Public Service Board, San Antonio, Tex.	Coal-oil--1.5.	2	447	July 1977	Sunoco Belle Fourche mine, Campbell County, Wyo., is possible coal source.	1, 3
CE3.	Monticello No. 3, near Mt. Pleasant, Titus County.	Texas Utilities Generating Co., Dallas, Tex.	Lignite-- ^a 3.9.	3	750	Mar. 1978	Third unit of mine-mouth complex. Total coal consumption for all three units will range from 8.0 to 10.0 MMtpy. Coal supplied by Monticello mine, Titus County.	1, 3
CE4.	W. A. Parish Nos. 5-8, Richmond, Ft. Bend County.	Houston Lighting and Power Co., Houston, Tex.	Coal-oil-gas-- 2.5 to 2.6.	5	660	Mar. 1978		1, 3
				6	660	Mar. 1979		
				7	750	Mar. 1981		
				8	750	Mar. 1981		
				Total	2,820			
CE5.	Fayette Nos. 1-2, northern Fayette County.	Lower Colorado River Authority and City of Austin, Tex.	Coal-oil--1.4.	1	550	June 1979	Coal for unit 1 will be supplied by Decker Coal Co. mine in Montana. Unit 2 coal supplier is not determined at present.	1, 3
				2	550	June 1980		
				Total	1,100			
CE6.	Texas Cooperative Nos. 1-2, northern McMullen County.	Texas Municipal Power Pool, south Texas, and Medina Electric Co., Waco, Tex.	Lignite--3.0..	1	400	Dec. 1979	Mine-mouth complex. Coal supply from developing San Miguel strip mine.	1, 3
				2	400	Dec. 1981		
				Total	800			
CE7.	Coletto Creek Nos. 1-2, northern Gonzales County.	Central Power and Light Co., Corpus Christi, Tex.	Coal--2.0.....	1	550	Dec. 1979	Coal supplier is undetermined at present.	1, 3
				2	550	Dec. 1985		
				Total	1,100			
CE8.	Forest Grove No. 1, eastern Henderson County.	Texas Power and Light Co., Dallas, Tex.	Lignite--4.0..	1	750	Jan. 1981	Mine-mouth powerplant. Coal supplied by proposed Forest Grove mine.	1, 3
CE9.	Twin Oaks Nos. 1-2, near Bremond, Robertson County.do.....do.....	1	750	Jan. 1982	Supplied by proposed Twin Oaks mine.	1, 3
				2	750	Jan. 1983		
				Total	1,500			
CE10	Harrington Nos. 1-3, near Amarillo, Potter County.	Southwestern Public Service Co., Amarillo, Tex.	Coal--1.1 (all units).	1	360	1977	Coal supply from ARCO Black Thunder mine, Campbell County, Wyo.	1, 3, 5
				2	360	June 1978		
				3	360	June 1980		
				Total	1,080			
CE11	Welsh Nos. 2-3, near Cason, Morris County.	Southwestern Electric Power Co., Shreveport, La.	Coal--1.8 (both units).	2	528	Feb. 1980	Coal supply from AMAX Belle Ayr mine, Campbell County, Wyo.	1, 3, 5
				3	528	Feb. 1982		
				Total	1,056			
CE12	El Paso Plant, El Paso, El Paso County.	El Paso Electric Co., El Paso, Tex.	Undetermined..		70	June 1979		1, 3
CE13	Sadow No. 4, near Rockdale, Milam County.	Texas Power and Light Co., Dallas, Tex.	Coal--3.0.....	4	575	Apr. 1981		1, 3

^aEstimated, see appendix for explanation.

TABLE 140. - Future electric generating plants in Texas--Continued

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE14	Gibbons Creek Nos. 1-3, near Huntsville, Walker County.	Texas Municipal Power Pool, Waco, Tex.	Lignite--3.0 (all units).	1 2 3 Total	400 400 400 1,200	Jan. 1982 Jan. 1983 Jan. 1984		1, 3
CE15	Toke Nos. 1-2, unsited.....	Southwestern Public Services, Amarillo, Tex.	Coal--1.1 (both units).	1 2 Total	565 565 1,130	June 1982 June 1984		1, 3
CE16	Unnamed, unsited.....	City Public Service Board of San Antonio, San Antonio, Tex.	Coal.....		375	May 1986		1, 3
CE17	Unnamed, Nos. 1-2, unsited..	Houston Lighting and Power Co., Houston, Tex.	Coal--5.5 (both units).	1 2 Total	750 750 1,500	Mar. 1983 Mar. 1984		1, 3
NE1.	Comanche Peak Nos. 1-2, Glen Rose, Somervell County.	Texas Utilities Generating Co., Dallas, Tex.	Nuclear.....	1 2 Total	1,150 1,150 2,300	Jan. 1981 Dec. 1982		1, 3
NE2.	South Texas Project Nos. 1-2, northeast Matagorda County.	Houston Lighting and Power Co., Houston, Tex.; City Public Service Board of San Antonio, San Antonio, Tex.; City of Austin, Austin, Tex. (joint ownership).	.....do.....	1 2 Total	1,200 1,200 2,400	1985		1, 3
NE3.	Blue Hills Nos. 1-2, Newton County.	Gulf States Utilities, Beaumont, Tex.	.....do.....	1 2 Total	998 998 1,996	Sept. 1985 Sept. 1987		1, 3
NE4.	Allens Creek, near Cochran, Austin County.	Houston Lighting and Power Co., Houston, Tex.	.....do.....		1,200	Jan. 1985		1, 3
OE1.	Si Ray No. 9, Brownsville, Cameron County.	City of Brownsville, Brownsville, Tex.	Gas and oil...	9	40	1977		1, 3
OE2.	R. C. Dansby No. 1, Bryan, Brazos County.	City of Bryan, member of Texas Municipal Power Pool, Bryan, Tex.	.....do.....	1	100	June 1978		1, 3
OE3.	Handley No. 5, Fort Worth, Tarrant County.	Texas Electric Service Co., Fort Worth, Tex.	.....do.....	5	425	Oct. 1977		1, 3
OE4.	Holly Avenue No. 2, Lubbock, Lubbock County.	City of Lubbock, Lubbock, Tex..	.....do.....	2	50	July 1978		1, 3
OE5.	Sabine No. 5, Bridge City, Orange County.	Gulf States Utilities, Beaumont, Tex.	.....do.....	5	480	June 1978		1, 3
OE6.	Amistad Nos. 1-2, near Del Rio, Val Verde County.	South Texas and Medina Cooperative, Victoria, Tex.	Hydropower....	1 2 Total	16 16 32	July 1979		
OE7.	Unnamed, Nos. 1-2, El Paso, El Paso County.	El Paso Electric Co., El Paso, Tex.	Oil.....	1 2 Total	50 50 100	June 1979 June 1981		4

TABLE 141. - Future uranium mines in Texas

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity and year	Remarks	References
UM1.	Griffin, 5.5 miles northwest of Nopal, Gonzales County.	Continental Oil Co., Houston, Tex.	Open pit..		Continental Oil Co. mines will be developed on a schedule to provide about 2,000 tpd of ore to the company's Conquista mill. Stripping of overburden began for some of these mines in April 1977.	6
UM2.	Smith, 4.2 miles northwest of Nopal, Gonzales County.	.....do.....	...do....	See UM1 remarks.		6
UM3.	Thomas-Knandel-Dybowski, 10.5 miles east of Gillett, in Gonzales and Karnes Counties.	.....do.....	...do....	.....do....		6
UM4.	Korth-Hartman-Finch, 9.5 miles east of Gillett, Karnes County.	.....do.....	...do....	.....do....		6
UM5.	Steinman, 7 miles east of Gillett, Karnes County.	.....do.....	...do....	.....do....		6
UM6.	Banduch-Cochran, 4.2 miles south-east of Gillett, Karnes County.	.....do.....	...do....	.....do....		6
UM7.	Cochran, 3.4 miles southeast of Gillett, Karnes County.	.....do.....	...do....	.....do....		6
UM8.	Kotzur, 3.2 miles southeast of Czystochowa, Karnes County.	.....do.....	...do....	.....do....		6
UM9.	Pollok, 7.5 miles northwest of Karnes City, Karnes County.	Chevron U.S.A., Inc., San Francisco, Calif.	...do....		Chevron mines will be developed on a schedule to provide about 2,500 tpd of ore to the company's mill near Panna Maria in late 1977.	6
UM10	Swienizk, 7 miles northwest of Karnes City, Karnes County.	.....do.....	...do....	See UM9 remarks.		6
UM11	East Area, 7 miles northwest of Karnes City, Karnes County.	.....do.....	...do....	.....do....		6
UM12	Kopecki, 2.3 miles south of Czystochowa, Karnes County.	Continental Oil Co., Houston, Tex.	...do....	See UM1 remarks.		6
UM13	West Area, 6.5 miles northwest of Karnes City, Karnes County.	Chevron U.S.A., Inc. San Francisco, Calif.	...do....	See UM9 remarks.		6
UM14	Labus-Moczygamba, 7 miles north of Karnes City, Karnes County.	.....do.....	...do....	.....do....		6
UM15	Moczygamba, 5.1 miles southwest of Falls City, Karnes County.	Continental Oil Co., Houston, Tex.	...do....	See UM1 remarks.		6
UM16	Nieschwietz, 6.1 miles southwest of Falls City, Karnes County.	.....do.....	...do....	.....do....		6
UM17	Franklin-Swierc, 6.8 miles southwest of Falls City, Karnes County.	.....do.....	...do....	.....do....		6
UM18	Labus-Hoffman, 3 miles south of Falls City, Karnes County.	.....do.....	...do....	.....do....		6
UM19	Nieschwietz, 2.1 miles northwest of Deweesville, Karnes and Wilson Counties.	.....do.....	...do....	.....do....		6
UM20	Zamzow, 1.5 miles southeast of Deweesville, Karnes County.	.....do.....	...do....	.....do....		6
UM21	Sickenius, 1.7 miles southeast of Deweesville, Karnes County.	.....do.....	...do....	.....do....		6
UM22	Weddington, 7.2 miles northwest of Coy City, Karnes County.	.....do.....	...do....	.....do....		6
UM23	Garcia, 8.9 miles southwest of Falls City, Karnes County.	.....do.....	...do....	.....do....		6
UM24	Dziuk-Lyssy, 4.5 miles west of Coy City, Karnes County.	.....do.....	...do....	.....do....		6
UM25	W. Dziuk, 5 miles west of Coy City, Karnes County.	.....do.....	...do....	.....do....		6
UM26	Knisdell-Vaughn-Taylor, 8.9 miles east of Whitsett, Live Oak County.	.....do.....	...do....	.....do....		6
UM27	Dobie, 4.7 miles southeast of Whitsett, Live Oak County.	.....do.....	...do....	.....do....		6
UM28	Chapman, 2 miles southeast of Whitsett, Live Oak County.	.....do.....	...do....	.....do....		6
UM29	Felder, 6 miles east of Three Rivers, Live Oak County.	Exxon Co., U.S.A., Houston, Tex.	...do....		Exxon Co., U.S.A., will produce 200,000 tpy of ore beginning late 1977.	6
UM30	McLean, 6 miles east of Three Rivers, Live Oak County.	.....do.....	...do....	See UM29 remarks.		6
UM31	D.C.R.C., 12.3 miles northwest of Freer, Duval County.	Continental Oil Co., Houston, Tex.	...do....	See UM1 remarks.		6
UM32	Pawnee mine, 27 miles northwest of Beeville, Bee County.	Intercontinental Energy Corp., Denver, Colo.	In situ solution.	1977		6
UM33	Zamzow, 11 miles north of George West, Live Oak County.	.....do.....	...do....	1978		6
UM34	Rosenbrock mine, 11 miles west of Karnes City, Karnes County.	Conoco-Pioneer Co., Falls City, Tex.	Open pit..	See UM1 remarks.		6

TABLE 142. - Future uranium mills and enrichment facilities in Texas

Map ref. No.	Plant name and location	Operating company	Type	Initial operating date	Planned capacity	Remarks	References
UL1.	Panna Maria Project, 8 miles north of Falls City, Kans.	Chevron U.S.A., Inc., San Francisco, Calif.	Acid leach.	1978	2,000 to 3,000 tpd.		6

TABLE 143. - Future natural gas processing and storage facilities in Texas

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity, Mcfd	Remarks	References
N1..	Northern Gas Plant, near Lipan, Hood County.	Northern Gas Products, Inc., Omaha, Nebr.	Mid-1977	15,000	Yield of 50,000 gpd of product.	6
N2..	Adobe Gas Plant, 7 miles east of Garden City, Glasscock County.	Adobe Oil and Gas Corp., Midland, Tex.	Sept. 1977	30,000		6
N3..	Exxon Plant, Crane County	Exxon Co., U.S.A., Houston, Tex.	1978	6,500	Replacement of processing plant at Sand Hill Plant.	8
N4..	Houston Oil and Mineral Facility, Texas City, Galveston County.	Houston Oil and Mineral Corp., Houston, Tex.	Oct. 1978	400,000		8
N5..	Phillips Spraberry Plant, Glasscock County.	Phillips Petroleum Co., Bartlesville, Okla.	1977	25,000		8
N6..	Sherman Plant, Hansford County.	.....do.....	May 1978	75,000		8

TABLE 144. - Future terminal facilities in Texas

Map ref. No.	Terminal location	Operating company	Type	Capacity	Initial operating date	Remarks	References
X1..	Matagorda Bay Terminal, Matagorda Bay, 5 miles northwest of Port O'Connor, Calhoun County.	El Paso Eastern Co., El Paso, Tex.	Deep water port.	1 billion cfd.	Unknown..	Will receive liquid natural gas from Algeria.	4

TABLE 145. - Future oil refineries in Texas

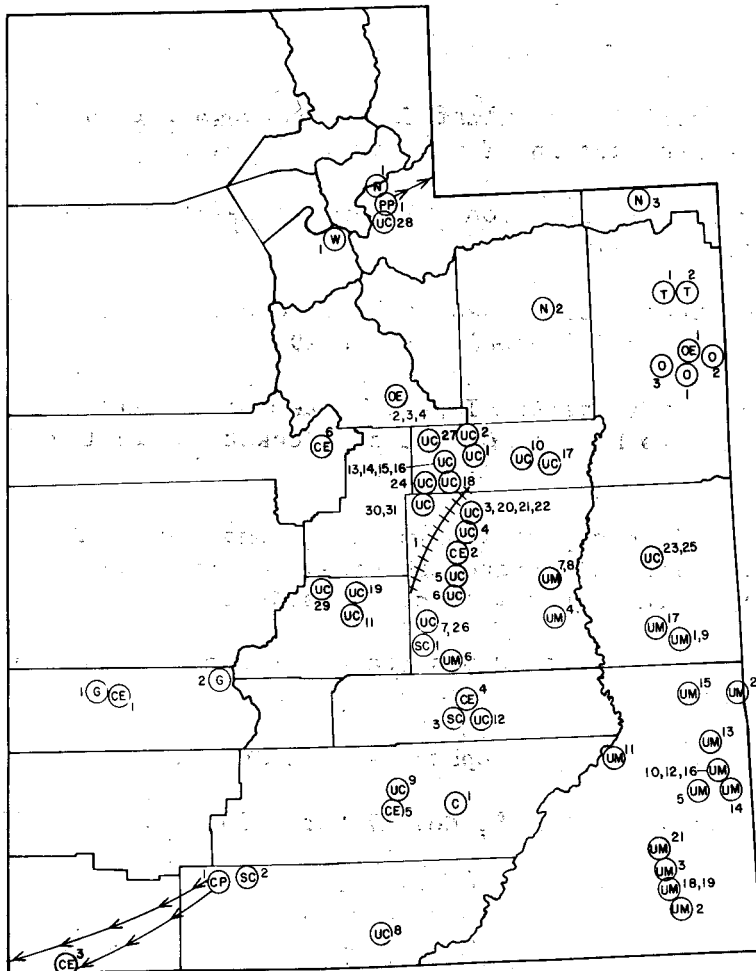
Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Unnamed, Tucker, Anderson County.	J & W Refining Co., Tucker, Tex.	Unknown	5,000 (expansion)	Expansion. Total capacity 20,100 bpd.	1-2
R2..	Baytown Refinery, Baytown, Harris County.	Exxon Co., U.S.A., Houston, Tex.	1977	250,000 (expansion)		Expansion. Total capacity 650,000 bpd.	1-2
R3..	Unnamed, Freeport, Brazoria County.	Dow Chemical Co., Midland, Mich.	1978	200,000	New.....	1-2
R4..	Unnamed, Luling, Caldwell County.	Gulf Energy Refining Co., San Antonio, Tex.	1977	30,000	New.....	1-2

TABLE 146. - Future coal slurry pipelines in Texas

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
CP1.	San Marco Pipe Line Co. (subsidiary of Houston Natural Gas Co., Houston, Tex.) and Denver and Rio Grande Western Railroad, Denver, Colo.	Walsenburg, Huerfano County, Colo.	Houston (Angelton), Tex.	820 to 1,000.		Early 1980's.	24		6
CP2.	Wytex Oil Corp., Houston, Tex.	Southeast Montana.	Houston, Tex.	1,260		Unknown..	36 to 48	Capacity, 21 to 39 MMtpy.	8

List of Data Sources for Texas

1. Electric Reliability Council of Texas, through Bureau of Mines State Liaison Officer, Austin, Tex., May 1977.
2. Federal Energy Administration. Trends in Refinery Capacity and Utilization. December 1975.
3. Federal Power Commission. New Coal-Fired Units in Texas Scheduled for Operation Between 1976-1985. March 1977.
4. _____. Draft Environmental Impact Statement for the Matagorda Bay Project, El Paso Eastern Co. et al, Docket Number CP77-330 et al. July 1977.
5. Glass, G. B. Directory of Wyoming Coal Companies and Contracts, Selected Other Industries, and State Agencies. Wyoming Geological Survey, January 1975, through Bureau of Mines State Liaison Officer, 1976.
6. Hawkins, M. E., Bureau of Mines State Liaison Officer, Austin, Tex., May 31, 1977.
7. Kansas Geological Survey, Topeka, Kans., July 1977.
8. Oil and Gas Journal. V. 75, No. 17, Apr. 25, 1977, pp. 175-176.



LEGEND

- ⊙ SC Strip coal mines
- ⊙ UC Underground coal mines
- ⊙ CE Coal-fired electric generating plants
- ⊙ OE "Other" electric generating plants
- ⊙ C Coal conversion plants
- ⊙ W Waste-to-fuel conversion plants
- ⊙ O Oil shale projects
- ⊙ T Tar sands project
- ⊙ G Geothermal facilities
- ⊙ UM Uranium mines
- ⊙ N Natural gas processing and storage facilities
- +++ Railroads (related to energy development)
- ⊙ CP Coal slurry pipelines
- ⊙ PF Petroleum and natural gas pipelines

FIGURE 22: - Future energy-related projects in Utah.

Utah

Data on the following Utah projects are presented in tables 147-159. The map reference numbers correspond with the accompanying Utah map.

Map ref. No.	Project name	Company or agency
Coal mines:		
UC1.....	Soldier Canyon.....	California Portland Cement Co. and Premium Coal Co.
UC2.....	Braztah Nos. 3-6.....	Braztah Corp.
UC3.....	Deer Creek.....	Americal Coal Co.
UC4.....	Wilberg.....	Do.
UC5.....	Straight Canyon.....	Utah Power and Light Co.
UC6.....	Ferron Canyon.....	Inspiration Development Co.
UC7.....	Emery.....	Consolidation Coal Co. and Kemmerer Coal Co.
UC8.....	John Henry mine.....	5M Corp.
UC9.....	Escalante.....	Utah Power and Light Co.
UC10.....	Unnamed.....	Centennial Coal Association.
UC11.....	.....do.....	Energy Reserves Group, Inc.
UC12.....	Intermountain Power Project Mines.	ICPA.
UC13.....	Utah No. 2.....	Valley Camp of Utah, Inc.
UC14.....	Belina No. 1.....	Do.
UC15.....	Belina No. 2.....	Do.
UC16.....	O'Connor No. 1.....	Do.
UC17.....	Unnamed.....	Island Creek Coal Co.
UC18.....	Star Point No. 3.....	Plateau Mining Co.
UC19.....	Southern Utah Fuels No. 1.	Southern Utah Fuels Co. and Coastal States Energy Co.
UC20.....	Rilda Canyon.....	Western American Energy Corp.
UC21.....	Swisher No. 5.....	Swisher Coal Co.
UC22.....	Huntington Canyon No. 4	Do.
UC23.....	Thompson mine.....	Western American Energy Corp.
UC24.....	King Mine No. 5.....	United States Fuel Co.
UC25.....	Black Ace.....	Harlan Management Corp.
UC26.....	Ivie Creek.....	Soldier Creek Coal Co.
UC27.....	Colombine No. 1.....	Itel Resources of Utah.
UC28.....	Black Hawk.....	Utah Coal and Energy, Inc.
UC29.....	Knight.....	Energy Reserves Group, Inc.
UC30.....	Unnamed.....	United States Fuel Co.
UC31.....	McKinnon Nos. 2-3.....	Energy Fuels Corp.
SC1.....	Emery Strip.....	Consolidation Coal Co. and Kemmerer Coal Co.
SC2.....	Unnamed.....	Nevada Power Co.
SC3.....	.....do.....	Atlas Minerals Corp.
Electric generating plants:		
OE1.....	White River.....	Uintah County Water District.
OE2.....	DYNE No. 1.....	U.S. Bureau of Reclamation.
OE3.....	Sixth Water.....	Do.

Map ref. No.	Project name	Company or agency
Electric generating plants--Continued:		
OE4.....	SYAR No. 1.....	U.S. Bureau of Reclamation.
CE1.....	Alunite Project.....	Alumet Co.
CE2.....	Emery Nos. 1-4.....	Utah Power and Light Co.
CE3.....	Warner Valley Nos. 1-2.	Nevada Power Co.
CE4.....	Intermountain Power Project Nos. 1-4.	ICPA.
CE5.....	Garfield Nos. 1-4.....	Utah Power and Light Co.
CE6.....	Nelphi No. 1.....	Do.
Coal conversion plants:		
C1.....	Unnamed.....	El Paso Natural Gas Co.
Waste-to-fuel conversion plants:		
W1.....	Supplementary Fuel Plant	Utah Power and Light Co.
Oil shale projects:		
O1.....	White River Shale Oil Project.	White River Shale Oil Corp.
O2.....	WESTCO.....	Western Oil Shale Corp.
O3.....	Sand Wash.....	The Oil Shale Corp.
Tar sands project:		
T1.....	Southwest Asphalt Ridge	AMINOIL USA, Inc.
T2.....	Northwest Asphalt Ridge	Department of Energy.
Geothermal facilities:		
G1.....	Roosevelt Hot Springs area.	Phillips Petroleum Co., Utah Power and Light Co., McCulloch Oil Corp., and Geothermal Kinetics, Inc.
G2.....	Cove Fort area.....	Union Oil Co.
Uranium mines:		
UM1.....	Small Fry.....	Ranchers Exploration and Development Corp.
UM2.....	Pete mine.....	Canyonlands Uranium, Inc.
UM3.....	DOE Lease.....	20th Century Energy, Inc.
UM4.....	Probe mine.....	Atlas Minerals Corp.
UM5.....	Dunn mine.....	Do.
UM6.....	Hidden Splendor mine...	Mineral Resource, Inc.
UM7.....	Four Corners.....	Atlas Minerals Corp.
UM8.....	Snow.....	Do.
UM9.....	Cane Creek.....	Do.
UM10.....	Calliham and Sage.....	Do.
UM11.....	Happy Jack.....	Do.
UM12.....	Wood.....	Do.
UM13.....	Geneva.....	S and S Mining Co.
UM14.....	Deremo.....	Union Carbide Corp.
UM15.....	La Sal-Snowball.....	Do.
UM16.....	Wilson-Silver Bell.....	Do.
UM17.....	Thornburg Memorial.....	Cotter Corp.
UM18.....	U-CW-2.....	Mineral West, Inc.
UM19.....	U-CW-2A.....	Dr. Floyd Taylor.

Map ref. No.	Project name	Company or agency
Uranium mines -- Continued:		
UM20.....	U-H-3.....	Atlas Corp.
UM21.....	U-E-4.....	Associated Energy Corp.
Natural gas processing and storage facilities:		
N1.....	Natural Gas Plant, Coalville.	Mountain Fuel Supply Co.
N2.....	Natural Gas Plant, Bluebell.	Gary Operating Co.
N3.....	Gas Storage Plant, Clay Basin.	Mountain Fuel Supply Co.
Railroads:		
1.....	Utah.....	Castle Valley Railroad Co.
Coal slurry pipelines:		
CP1.....	Utah to Nevada.....	Nevada Power Co.
Petroleum and natural gas pipelines:		
PP1.....	Utah to Wyoming.....	AMOCO Pipe Line Co.

TABLE 147. - Previously reported energy development projects that have been completed or canceled in Utah

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Coal mines: Peabody Coal Co., St. Louis, Mo.	Unnamed and unlocated (probable location in Emery County).	X		No further action or information.
Kaiser Industries, Inc., San Francisco, Calif.	Kaiparowits Project (4 mines), central Kane County.	X		
General Exploration Co., Price, Utah.	Gordon Creek No. 3, near Helper, Carbon County.		X	
Energy Plus (a subsidiary of Kandahar Resources, Vancouver, British Columbia).	Unnamed, near Vernal, Uintah County.	X		Do.
Utah Power and Light Co., Salt Lake City, Utah.	Huntington Canyon No. 2, Huntington, Emery County.		X	
Electric generating plants: Southern California Edison, Rosemead, Calif.	Kaiparowits Nos. 1-4, Kaiparowits Plateau, Kane County.	X		
Tar sands projects: Oil Development Co. of Utah and Oil Development Co. of Texas, Amarillo, Tex.	Gordon Flats, Tar Sand Triangle Deposit, Wayne County.	X		

TABLE 148. - Future coal mines in Utah

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
UC1.	Soldier Canyon, near Price, Carbon County.	California Portland Cement Co., and Premium Coal Co., Price, Utah.	Underground	1.0--1978	Moisture--4.5% Ash--8.4% Sulfur--0.5% Btulb--12,500			Firm plans for expansion. 1977 production estimated at 0.5 million tons.	3, 18-19, 21
UC2.	Braztah Nos. 3-6, near Castlegate, Carbon County (T 13 S, R 9 E)	Braztah Corp., Helper, Utah (a subsidiary of McCulloch Oil Corp.).	...do.....	6.5--1980 (expansion)	Moisture--5.7% Ash--9.7% Sulfur--0.5% Btulb--12,300	Castlegate B and D beds in production.		Mines 3-5 are presently in production. Mine 6 is being developed. Coal analysis is from the Braztah No. 3 mine. Present total capacity is 0.5 MMtpy.	3, 18-19, 21
UC3.	Deer Creek, near Huntington, Emery County.	American Coal Co., Huntington, Utah.	...do.....	2.2--1978 (expansion)	Moisture--3.5% Ash--5.6% Sulfur--0.6% Btulb--13,300			Expansion of existing mine. 1977 production estimated at 1 million tons.	3, 6, 18, 21
UC4.	Wilberg, near Orangeville, Emery County (T 17 S, R 7 E).	.....do.....	...do.....	2.2--1980	Moisture--5.4% Ash--9.2% Sulfur--0.6% Btulb--12,500	Hiawatha bed 13			3, 6, 18, 21
UC5.	Straight Canyon, near Castle Dale, Emery County.	Utah Power and Light Co., Salt Lake City, Utah.	...do.....	2.5--1980					3, 21
UC6.	Ferron Canyon, near Ferron, Emery County.	Inspiration Development Co., Ferron, Utah.	...do.....	1.0--1980				To be developed on private land. Plans are tentative.	3, 21
UC7.	Emery, near Emery, Emery County.	Consolidation Coal Co., Emery, Utah, and Kemmerer Coal Co., Frontier, Wyo.	...do.....	1.4--1980				Expansion of existing Old Browning mine.	3, 21
UC8.	John Henry mine, Kaiparowitz Plateau, Kane County.	5 M Corp., Hurricane, Utah.	...do.....	0.4--unknown				Opening delayed indefinitely.	3, 19
UC9.	Escalante, near Escalante, Garfield County.	Utah Power and Light Co., Salt Lake City, Utah.	Underground	6.0--1985				Project in planning stage. May be dependent on water availability and environmental issues. Mining would begin in 1981.	3, 21
UC10	Unnamed, Carbon County.	Centennial Coal Association (CT Corp. System, Denver, Colo.).	...do.....	0.5--1980				Mining plans in progress. Map location is county specific.	3, 22

TABLE 148. - Future coal mines in Utah--Continued

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
UC11	Unnamed, Sevier County.	Energy Reserves Group, Inc., (CT Corp. System, Denver, Colo.).	...do.....	1.0--1980				Mining plans in progress.	3, 22
UC12	Intermountain Power Project mines, Wayne County.	ICPA, Caineville, Utah.	...do.....	10.0--1985				Developed by Utah and California private utilities.	3, 21-22
UC13	Utah No. 2, near Clear Creek, Carbon County.	Valley Camp of Utah, Inc., Clear Creek, Utah.	...do.....	0.7--1978				Startup in 1976. Closed because of structural problems. Production estimate for 1977 is 0.15 million tons.	3, 18-19, 21
UC14	Belina No. 1, near Clear Creek, Carbon County.	.....do.....	...do.....	1.3--1978				Startup in 1976. Production estimate for 1977 is 0.16 million tons.	3, 18-19, 21-22
UC15	Belina No. 2, near Clear Creek, Carbon County.	.....do.....	...do.....	0.8--1979				Planned startup unknown..	3, 18-19, 21
UC16	O'Connor No. 1, near Clear Creek, Carbon County.	.....do.....	...do.....	0.2--1980				.....do.....	3, 18-19
UC17	Unnamed, near Sunny-side, Carbon County.	Island Creek Coal Co., Lexington, Ky.	Underground		Sulfur--0.5% Btulb--12,000	Seam 1, 6.8. Seam 2, 9.8.	1,200	200 million tons coal reserves. Planned startup unknown.	2-3
UC18	Star Point No. 3, near Wattis, Carbon County.	Plateau Mining Co., Price, Utah.	...do.....	1.0--1981				Planned startup in 1979. By 1981, Nos. 1-2 will be phased out and all production will come through No. 3 entry.	3
UC19	Southern Utah Fuels No. 1, Salina, Sevier County.	Southern Utah Fuels Co., Salina, Utah, and Coastal States Energy Co., Houston, Tex.	...do.....	1.5--1978 (expansion)				Production estimated at 1.0 million tons in 1977.	3, 19, 21
UC20	Rilda Canyon, Huntington, Emery County.	Western American Energy Corp. (CT Corp. System, Denver, Colo.).	...do.....	0.2, unknown				Planned startup unknown..	3, 19
UC21	Swisher No. 5, near Huntington, Emery County.	Swisher Coal Co., Price, Utah.	...do.....	0.2--1979	Moisture--6.5% Ash--4.9% Sulfur--0.6% Btulb--12,700	6 to 10		Old Larsen-Rigby mine. U.S. Geological Survey has received operating plans. Production to commence when approval received.	3, 18-19, 22

UC22	Huntington Canyon No. 4, near Huntington, Emery County.	.....do.....	...do.....	0.2, unknown	Moisture--4.8% Ash--5.3% Sulfur--0.6% Btulb--13,200	5 to 14	Old Leamaster mine. U.S. Geological Survey has received operating plans. Production to commence when approval received.	3, 18, 22
UC23	Thompson mine, Thompson, Grand County.	Western American Energy Corp. (CT Corp. System, Denver, Colo.).	...do.....	0.6--1979			Planned.....	3, 19
UC24	King mine No. 5, Hiawatha, Carbon County.	United States Fuel Co., Hiawatha, Utah.	...do.....	Unknown, 1978.				14
UC25	Black Ace, Thompson, Grand County.	Harlan Management Corp., Flagstaff, Ariz.	...do.....	Unknown			Proposed.....	14
UC26	Ivie Creek, Emery, Emery County.	Soldier Creek Coal Co., Price, Utah.	...do.....	Unknown			In exploration stage....	14
UC27	Colombine No. 1, Scofield, Carbon County.	Itel Resources of Utah, San Francisco, Calif.	...do.....	Unknown			Proposed.....	14
UC28	Black Hawk, Coalville, Summit County.	Utah Coal and Energy Inc., Salt Lake City, Utah.	...do.....	Unknown, 1978.				14
UC29	Knight, Salina, Sevier County.	Energy Reserves Group, Inc., Denver, Colo.	...do.....	0.5--1978				14
UC30	Unnamed, south of Hiawatha, Emery County.	United States Fuel Co., Hiawatha, Utah	...do.....	1.6--1981				3
UC31	McKinnon Nos. 2-3, west of Hiawatha, Carbon and Emery Counties.	Energy Fuels Corp., Denver, Colo.	...do.....	Unknown				
SC1.	Emery Strip, near Emery, Emery County.	Consolidation Coal Co., Emery, Utah, and Kemmerer Coal Co., Frontier, Wyo.	Strip.....	0.5, unknown			Tentative, presently in planning stage. No plan for production during 1977. Production beyond 1977 will depend on market situation.	3, 19
SC2.	Unnamed, near Alton, Kane County.	Nevada Power Co., Las Vegas, Nev.	...do.....	11.5--1982	Sulfur--1.1% Btulb--10,200	11	90 Impact statement in progress. Coal slurry pipeline from mine is planned. Proposed mine on boundary of Bryce Canyon National Park. U.S. Forest Service is objecting.	3, 6, 21-22
SC3.	Unnamed, Factory Butte, Wayne County.	Atlas Minerals, Moab, Utah.	...do.....	1.0--1980			Startup in 1976.....	3, 19, 21-22

TABLE 149. - Future electric generating plants in Utah

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
OE1.	White River, Vernal, Uintah County.	Uintah County Water Dist., Vernal, Utah	Hydropower..		3	1978		13, 19
OE2.	DYNE No. 1, Thistle, Utah County.	U.S. Bureau of Reclamation, Colorado River Storage Project, Salt Lake City, Utah.	....do.....	1	33	Jan. 1981		13, 21
OE3.	Sixth Water, Thistle, Utah County.	.....do.....	....do.....		90	Jan. 1981		13, 21
OE4.	SYAR No. 1, Thistle, Utah County.	.....do.....	....do.....	1	8	Jan. 1981		13, 21
CE1.	Alunite Project, Beaver County.	Alumet Co., Golden, Colo.	Coal--°0.2..		70	Unknown	Wah Wah Valley ground water will be water source.	22
CE2.	Emery Nos. 1-4, Castle Dale, Emery County.	Utah Power and Light Co., Salt Lake City, Utah.	Coal--°2.6..	1	400	June 1978	Total water requirements estimated at 14,000 afy. Units 3-4 formerly scheduled for Naughton, Wyo.	13,
				2	400	Apr. 1980		16,
				3	400	1983		18,
				4	400	1985		21
				Total	1,600			
CE3.	Warner Valley Nos. 1-2, St. George, Washington County.	Nevada Power Co., Las Vegas, Nev.	Coal--°1.6 (total, both units)	1	250	June 1981	Total water requirements estimated at 10,000 afy. Coal will be received by proposed slurry pipeline.	13,
				2	250	June 1982		16,
				Total	500			18,
							21	
CE4.	Intermountain Power Project Nos. 1-4, Caineville, Wayne County.	ICPA (Los Angeles Department of Water and Power), Los Angeles, Calif.	Coal--°10.0 (total, all units).	1	750	1983	Water requirements estimated at 50,000 afy.	13,
				2	750	1984		16,
				3	750	1985		21
				4	750	1986		
				Total	3,000			
CE5.	Garfield Nos. 1-4, Escalante, Garfield County.	Utah Power and Light Co., Salt Lake City, Utah.	Coal--°6.5 (total, all units).	1	500	1982		12,
				2	500	1985		16,
				3	500	Unknown		21
				4	500	Unknown		
				Total	2,000			
CE6.	Nephi No. 1, Nephi, Juab County.	.....do.....	Coal.....	1	500	June 1986		24

*Estimated, see appendix for explanation.

TABLE 150. - Future coal conversion plant in Utah

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
Cl..	Unnamed, central Garfield County	El Paso Natural Gas Co., El Paso, Tex.	Gasification	Unknown	864 MMcfd total.	Water requirements estimated at 52,000 afy. Plans are unknown, but El Paso has extensive coal reserves in Garfield and Kane Counties. Possible multiple units.	6

TABLE 151. - Future waste-to-fuel conversion plants in Utah

Map ref. No.	Plant name and location	Operating company	Type and feedstock	Initial operating date	Estimated capacity	Remarks	References
Wl..	Supplementary Fuel Plant, Salt Lake City, Salt Lake County.	Utah Power and Light Co., Salt Lake City, Utah.	Solid waste to heat for electrical generation.	Unknown	30 Mw	Solid waste burned with coal (20% waste, 80% coal). Feasibility studies completed.	12

TABLE 152. - Future oil shale projects in Utah

Map ref. No.	Project name and location	Operating company	Mine type	Planned capacity, Mbpd	Initial operating date	Remarks	References
01..	White River Shale Oil Project (Tract U-a, U-b), eastern Uintah County.	White River Shale Oil Corp., Salt Lake City, Utah.	Underground	50	Early 1980's	Consortium of Phillips Petroleum Co., Sun Oil Co., and SOHIO. Leases acquired, environmental studies underway, and applications submitted for water rights. Plant design and mine layout in initial planning stages. Further financing may be required.	9-10, 12, 21
02..	WESTCO in situ recovery experiment 16 miles southwest of Rangely, Colo., in Uintah County	Western Oil Shale Corp., Las Vegas, Nev.	In situ....	Pilot operation	Unknown	Consortium of Ashland Oil Co., SOCAL, Cities Service, Getty, Gulf, Mobil, Sun, and Standard of Indiana. Recovery of oil from oil shale fragments with an underground mine excavated by conventional methods. Further financing may be required.	8, 10-12, 21
03..	Sand Wash, 35 miles south of Vernal, Uintah County.	The Oil Shale Corp., Los Angeles, Calif.	Underground	75	1985	Has leased 14,900 acres from State of Utah. Planning underway. State of Utah officials have approved a proposal for the company to manage the 29 individual leases as one lease. Further financing may be required.	4, 10, 12, 15, 21

TABLE 153. - Future tar sands projects in Utah

Map ref. No.	Project name and location	Operating company	Mine type	Planned capacity, Mbd	Initial operating date	Remarks	References
T1..	Southwest Asphalt Ridge, near Vernal, Uintah County.	AMINOIL U.S.A., Inc., Houston, Tex.	Tar sands oil extraction.	1,250	1977-1978	Leases acquired and environmental studies underway. Water rights have been acquired and mine layout and plant design have been completed and in initial development stages.	12, 21
T1..	Northwest Asphalt Ridge, near Vernal, Uintah County.	Department of Energy, Laramie, Wyo. (on SOHIO Petroleum Co. property).	In situ tar sands oil extraction.	Unknown	1977-1978	DOE and SOHIO have completed lease arrangements. Planning is completed, materials stockpiled and initial experiments have been completed. DOE produced only 50 barrels of oil after 4 weeks of burning. If perfected, the process could help reach large quantities of oil in tar sands deposits too deep for commercial mining. Reverse combustion fire-flood method used.	12, 21

TABLE 154. - Future geothermal facilities in Utah

Map ref. No.	Location	Company	Current status, plans, and other relevant information	References
G1..	Roosevelt Hot Springs area, Beaver County	Phillips Petroleum Co., Utah Power and Light Co., McCulloch Oil Corp., Geothermal Kinetics, Inc., Salt Lake City, Utah.	Previous drilling results have been favorable. Continued drilling and testing through 1979 with possible powerplant construction in the 1980-1985 time period. Map location is county specific.	1, 5, 21
G2..	Cove Fort area, Beaver County.	Union Oil Co., Los Angeles, Calif.	Possible drilling in near future.....	5, 21

TABLE 155. - Future uranium mines in Utah

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity and year	Remarks	References
UM1.	Small Fry, near Moab, Grand County.	Ranchers Exploration and Development Corp., Albuquerque, N. Mex.			Mine acquired in 1975.....	11
UM2.	Pete mine, northeast of Bluff, San Juan County.	Canyonlands Uranium, Inc., Salt Lake City, Utah.			Reopening, was closed in 1969.....	4
UM3.	DOE Lease, Cottonwood Wash, San Juan County.	20th Century Energy, Inc., Boulder, Colo.	Underground	Unknown		7
UM4.	Probe mine, Green River Dist., Emery County.	Atlas Corp., Moab, Utah.....	...do.....	Unknown	Presently under development.....	7
UM5.	Dunn mine, northeast of Monticello, San Juan County.	.....do.....	...do.....	Unknown, 1977-1978	.....do.....	7
UM6.	Hidden Splendor Mine, northeast of Hanksville, Emery County (T 26 S, R 9 E).	Mineral Resource, Inc., (CT Corp. System, Denver, Colo.).		18,000 tpy	Reopening of mine closed in 1950's. Doran Hunt Co. is contractor.	4
UM7.	Four Corners, Black Box, Emery County.	Atlas Minerals, Big Indian mines, Moab, Utah.	...do.....	Unknown		20
UM8.	Snow, Black Box, Emery County.	.....do.....	...do.....	Unknown		20
UM9.	Cane Creek, Moab, Grand County	.....do.....	...do.....	Unknown		20
UM10	Calliham and Sage, northeast of Monticello, San Juan County.	.....do.....	...do.....	Unknown		20
UM11	Happy Jack, Orange Cliffs, San Juan County.	.....do.....	...do.....	Unknown		20
UM12	Wood Lease, northeast of Monticello, San Juan County.	.....do.....	...do.....	Unknown		20
UM13	Geneva, north of Monticello, San Juan County.	S and S Mining Co., Moab, Utah.....	...do.....	Unknown		20
UM14	Deremo, east of Monticello, San Juan County.	Union Carbide Corp., Grand Junction, Colo.	...do.....	Unknown		20
UM15	La Sal-Snowball, La Sal Junction, San Juan County.	.....do.....	...do.....	Unknown		20
UM16	Wilson-Silver Bell, northeast of Monticello, San Juan County.	.....do.....	...do.....	Unknown		20
UM17	Thornburg Memorial, northwest of Moab, Grand County.	Gotter Corp., Golden, Colo.....	...do.....	Unknown		20
UM18	U-CW-2, San Juan County (T 37 S, R 21 E).	Mineral West Inc., Monticello, Utah.	...do.....	100 tpm late 1978	A DOE lease tract containing 30 acres and 45,000 royalty bid pounds in the Cottonwood Wash area.	7
UM19	U-CW-2A, San Juan County (T 37 S, R 21 E).	Dr. Floyd Taylor, Boulder, Colo.....	...do.....	200 tpm 1978	A DOE lease tract containing 20 acres and 35,000 royalty bid pounds in the Cottonwood Wash area.	7
UM20	U-H-3, San Juan County (T 28 S, R 26 E).	Atlas Corp., Denver, Colo.....	...do.....	400 tpm 1980	A DOE lease tract containing 40 acres and 130,000 royalty bid pounds in the Hide-out Mesa area.	7
UM21	U-E-4, San Juan County (T 36 S, R 18 E) (T 36 S, R 19 E).	Associated Energy Corp., Salt Lake City, Utah.	...do.....	200 tpm 1979	A DOE lease tract containing 2,526 acres and 85,000 royalty bid pounds in the Elk Ridge area.	7

TABLE 156. - Future natural gas processing and storage facilities in Utah

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Natural Gas Plant, Coalville, Summit County.	Mountain Fuel Supply Co., Salt Lake City, Utah.			Enlargement of present plant.	23
N2..	Natural Gas Plant, Bluebell, Duchesne County.	Gary Operating Co., Englewood, Colo.			.....do.....	23
N3..	Gas Storage Plant, Clay Basin, Daggett County.	Mountain Fuel Supply Co., Salt Lake City, Utah.			New plant.....	23

TABLE 157. - Future railroads (related to energy development) in Utah

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Remarks	References
		Origin	Destination					
1...	Castle Valley Railroad Co.	Emery area, Emery County, Utah.	Price-Wellington area, Utah.	65	Spur	1979	Proposed spur line to Emery to serve coal mines in area. Will connect with DRGW mainline near Price or Wellington, Utah.	17

TABLE 158. - Future coal slurry pipelines in Utah

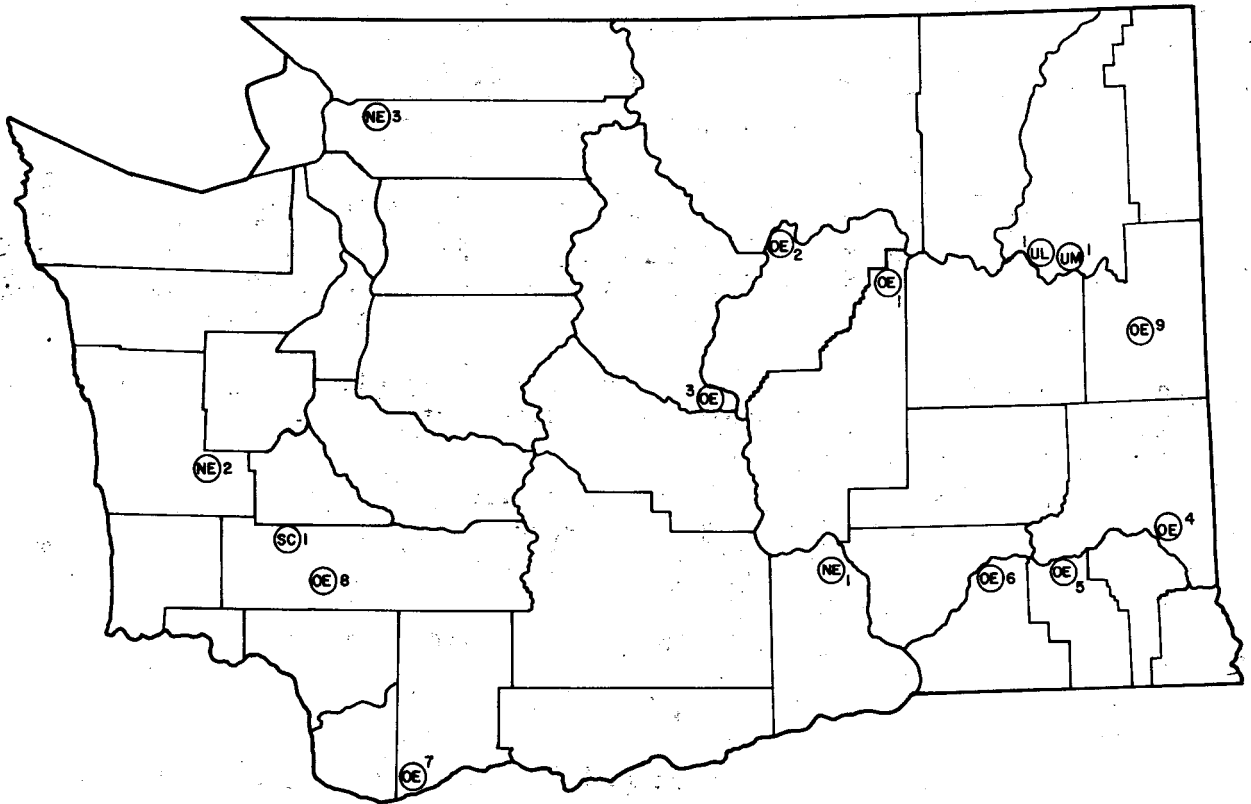
Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
CPI.	Nevada Power Co., Las Vegas, Nev.	Bald Knolls, 8 miles south of Alton, Utah	Parallel pipelines to St. George, Utah, and Arrow Canyon, Nev.	70-St. George. 170-Arrow Canyon.		1980-St. George. 1982-Arrow Canyon.	12-St. George. 22-Arrow Canyon.	Parallel lines to proposed Warner Valley powerplant at St. George, Utah, and proposed H. Allen powerplant at Arrow Canyon, Nev. Capacity, MMtpy: 2.3 St. George, 9.1 Arrow Canyon. Water source is 8,000 afy from underground wells.	12, 21

TABLE 159. - Future petroleum and natural gas pipeline in Utah

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PP1.	AMOCO Pipe Line Co., Woods Cross, Utah.	Pineview near Coalville, Summit County, Utah.	Evanstown, Wyo.	39	Crude oil pipeline.	Unknown		Enlargement of existing pipeline.	23

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6. Denver Federal Executive Board Subcommittee To Expedite Energy Development. A Listing of Proposed, Planned or Under Construction Energy Facilities in Federal Region VIII, 1975.
7. Energy Research and Development Administration, Grand Junction, Colo., through U.S. Bureau of Mines State Liaison Officer, 1977.
8. Engineering and Mining Journal. V. 176, No. 3, March 1975, p. 255.
9. _____. V. 176, No. 5, May 1975, p. 61.
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11. _____. 107th Annual Review and Outlook. V. 177, No. 3, March 1976, p. 42.
12. Federal Energy Administration, Region III, Denver, Colo. 1976.
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18. U.S. Mining Enforcement and Safety Administration, District 9, Denver, Colo. Projected Coal Mine Production Activity, Oct. 17, 1975.
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20. _____. Utah Energy Resource Data. June 16, 1975.
21. _____. Utah Energy Resource Data. March 1976.
22. Utah Oil, Gas and Mining Division, Salt Lake City, Utah, through Bureau of Mines State Liaison Officer, 1977.
23. Western Systems Coordinating Council Technical Staff, Salt Lake City, Utah. Ten-Year Coordinated Plan Summary 1977-1986, May 1977.
24. Wilson, S. R., Bureau of Mines State Liaison Officer, Salt Lake City, Utah. 1976.



LEGEND

- ⊙ SC Strip coal mines
- ⊙ NE Nuclear electric generating plants
- ⊙ OE "Other" electric generating plants
- ⊙ UM Uranium mines
- ⊙ UL Uranium mills and enrichment facilities

FIGURE 23. - Future energy-related projects in Washington.

Washington

Data on the following Washington projects are presented in tables 160-165. The map reference numbers correspond with the accompanying Washington map.

Map ref. No.	Project name	Company or agency
Coal mines:		
SC1.....	Centralia mine.....	Washington Irrigation and Development Co.
Electric generating plants:		
OE1.....	Grand Coulee, Nos. G22-G24	U.S. Bureau of Reclamation.
OE2.....	Chief Joseph, Nos. 17-27..	U.S. Army Corps of Engineers.
OE3.....	Rock Island, Nos. 1-8.....	Chelan County Public Utilities Dist.
OE4.....	Lower Granite, Nos. 4-6...	U.S. Army Corps of Engineers.
OE5.....	Little Goose, Nos. 4-6....	Do.
OE6.....	Lower Monumental, Nos. 4-6	Do.
OE7.....	Bonneville, Nos. 11-18....	Do.
OE8.....	Mayfield, No. 4.....	Tacoma Department of Public Utilities.
OE9.....	Combustion Turbine, Nos. 1-2.	Washington Public Power System.
NE1.....	Hanford, Nos. 1-2, 4.....	Do.
NE2.....	Satsop, Nos. 3, 5.....	Do.
NE3.....	Skagit, Nos. 1-2.....	Puget Sound Power and Light Co.
Uranium mines:		
UM1.....	Sherwood mine.....	Western Nuclear, Inc.
Uranium mills:		
UL1.....	Sherwood Mill.....	Do.
Terminal facilities:		
X1.....	Unknown.....	Unknown.

TABLE 160. - Previously reported energy development projects that have been completed or canceled in Washington

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Coal mines:				
Coastal Energy and Coal Corp., Tucson, Ariz.	Hamilton mine, near Hamilton, Skagit County.	X		
Roger Farrar and Arthur Young Co., Seattle, Wash.	Rosalind No. 1, unknown.....	X		

TABLE 161. - Future coal mines in Washington

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
SC1.	Centralia mine, Centralia, Lewis County.	Washington Irrigation and Development Co., Centralia, Wash.	Strip (expansion).	5.00--1981	Moisture-- 23.5%. Ash--14.5% Sulfur-- 0.65%. Btulb-- 8,100.	3 seams, 40		Production in 1976 was 3.8 million tons. 92% of production from thickest seam.	2

TABLE 162. - Future electric generating plants in Washington

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References						
				Unit No.	Mega-watts									
OE1.	Grand Coulee, Nos. G22-G24, No. 10 uprate, Nos. PG9-PG12, Grand Coulee Dam, Grant County.	U.S. Bureau of Reclamation, Columbia Basin Project (Federal Columbia River Power System), Boise, Idaho.	Hydropower	G22	700	Dec. 1977	Additions to existing Grand Coulee units on Columbia River. No. 10 rewind will increase plant size from 108 to 125 Mw.	1, 3-5						
				G23	700	Mar. 1978								
				G24	700	Sept. 1978								
				10	17	Nov. 1978								
				(uprate)										
				PG9	50	Oct. 1979								
				PG10	50	Feb. 1980								
				PG11	50	June 1980								
				PG12	50	Oct. 1980								
				Total	2,317									
				OE2.	Chief Joseph, Nos. 17-27, Columbia River, Douglas County.	U.S. Army Corps of Engineers (Federal Columbia River Power System), Portland, Oreg.			...do....	17	95	July 1977	Additions to existing Chief Joseph units on Columbia River.	1, 3-5
										18	95	Aug. 1977		
19	95	Nov. 1977												
20	95	Feb. 1978												
21	95	May 1978												
22	95	July 1978												
23	95	Sept. 1978												
24	95	Nov. 1978												
25	95	Jan. 1979												
26	95	Mar. 1979												
27	95	May 1979												
Total	1,045													
OE3.	Rock Island, Nos. 1-8, Columbia River, Chelan County.	Chelan County Public Utilities Dist., Wenatchee, Wash.	...do....	8	51	Feb. 1978	Additions to existing units on Columbia River.	1, 3-5,						
				7	51	Mar. 1978								
				6	51	Apr. 1978								
				5	51	June 1978								
				4	51	Aug. 1978								
				3	51	Oct. 1978								
				2	51	Dec. 1978								
				1	51	Feb. 1979								
Total	408													
OE4.	Lower Granite, Nos. 4-6, Snake River, Whitman County.	U.S. Army Corps of Engineers (Federal Columbia River Power System), Portland, Oreg.	...do....	4	135	Jan. 1978	Addition to existing units on Snake River.	1, 3-5						
				5	135	Apr. 1978								
				6	135	May 1978								
				Total	405									
OE5.	Little Goose, Nos. 4-6, Snake River, Columbia County.	...do.....	...do....	4	135	Feb. 1978do.....	1, 3-5						
				5	135	May 1978								
				6	135	June 1978								
Total	405													
OE6.	Lower Monumental, Nos. 4-6, Snake River, Walla Walla County.	...do.....	...do....	4	135	Feb. 1979do.....	1, 3-5						
				5	135	Mar. 1979								
				6	135	Apr. 1979								
				Total	405									
OE7.	Bonneville, Nos. 11-18, Columbia River, Skamania County.	...do.....	...do....	18	66.5	May 1981		1, 3-5						
				17	66.5	July 1981								
				16	66.5	Sept. 1981								
				15	66.5	Nov. 1981								
				14	66.5	Jan. 1982								
				13	66.5	Mar. 1982								
				12	66.5	May 1982								
				11	66.5	July 1982								
Total	532.0													
OE8.	Mayfield, No. 4, Mayfield Reservoir, Lewis County.	Tacoma Department of Public Utilities, Tacoma, Wash.	...do....	4	40	Jan. 1980		3, 5						
OE9.	Combustion Turbine, Nos. 1-2, Spokane County.	Washington Public Power System, Richland, Wash.	Fuel oil..	1	33	Oct. 1978		5						
				2	32	Oct. 1979								
Total				65										
NE1.	Hanford, Nos. 1-2, 4, Richland, Benton County.	...do.....	Nuclear...	2	1,100	June 1980	Water source is Columbia River.	1, 3-6,						
				1	1,250	Sept. 1981								
				4	1,250	Mar. 1983								
				Total	3,600									
NE2.	Satsop, Nos. 3, 5, Satsop, Grays Harbor County.	...do.....	...do....	3	1,240	May 1983	Water source is Satsop River.	1, 3-6						
				5	1,240	Nov. 1984								
				Total	2,480									
NE3.	Skagit, Nos. 1-2, Sedro Wooley, Skagit County.	Puget Sound Power and Light Co., Bellevue, Wash.	...do....	1	1,288	July 1983	Water source is Skagit River.	1, 3-6						
				2	1,288	July 1986								
				Total	2,576									

TABLE 163. - Future uranium mines in Washington

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity and year	Remarks	References
UM1.	Sherwood mine, Welpinit, Stevens County (T. 28 N, R 37 E).	Western Nuclear, Inc., Denver, Colo.	Open pit.	2,000 tpd, June 1978.	Ore reserves estimated at 4 million pounds of U ₃ O ₈ .	2, 5

TABLE 164. - Future uranium mills and enrichment facilities in Washington

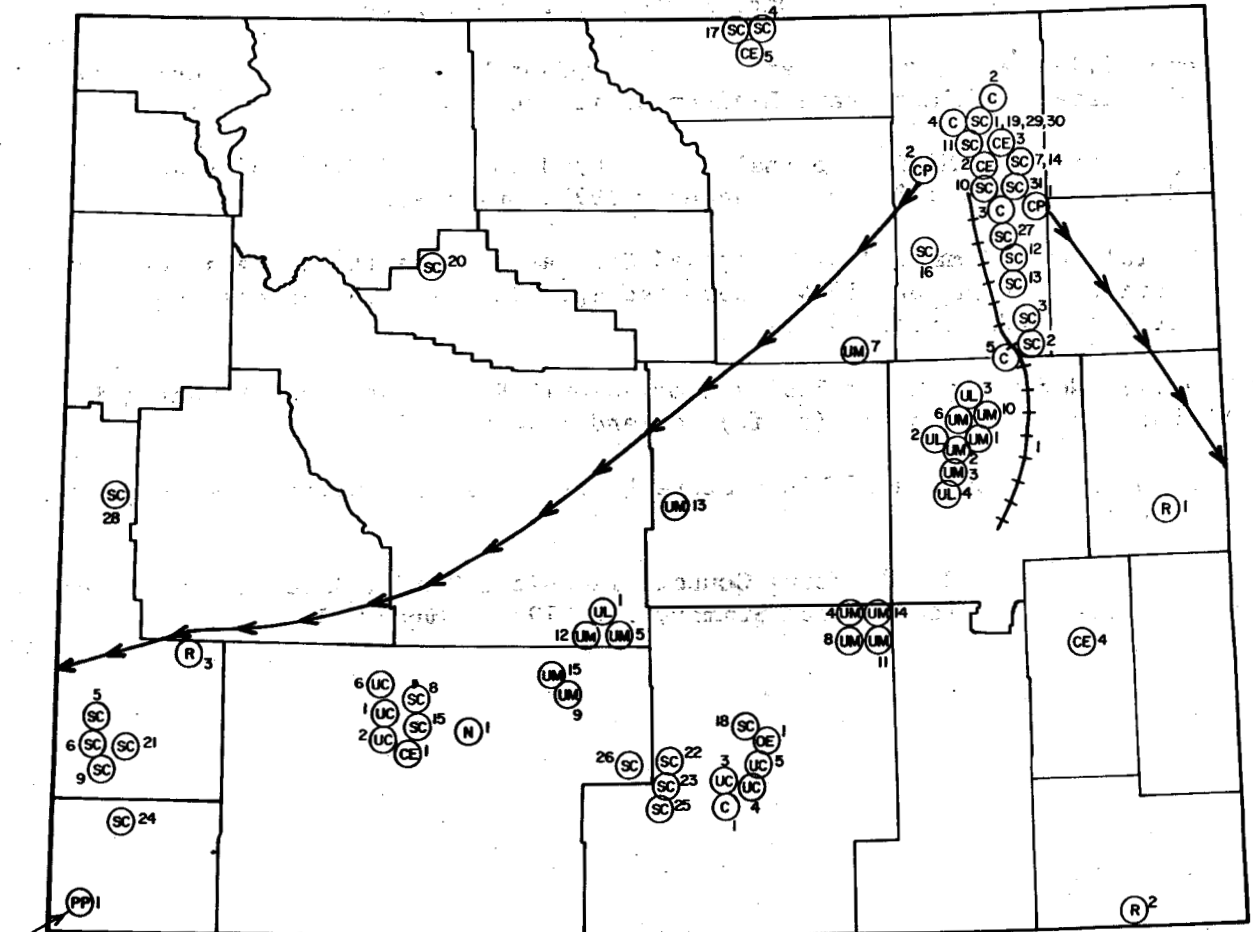
Map ref. No.	Plant name and location	Operating company	Type	Initial operating date	Planned capacity	Remarks	References
UL1.	Sherwood Mill, Welpinit, Stevens County (T 28 N, R 37 E).	Western Nuclear, Inc., Denver, Colo.	Uranium solvent extraction.	July 1978	2,000 tpd of ore.	Ore from Sherwood mine.	2, 5

TABLE 165. - Future terminal facilities in Washington

Map ref. No.	Terminal location	Operating company	Type	Capacity	Initial operating date	Remarks	References
X1..	Unknown....	Unknown....				One or more terminals may be located in the State as well as pipelines crossing the State for both Alaskan oil and gas. Markets will be refineries in the Midwest. Also, some refineries in the State will expand. All plans are tentative and uncertain at the present time.	5

List of Data Sources for Washington

1. Bonneville Power Administration. Powerplant Employment Estimates on file at Bureau of Mines State Liaison Office, Olympia, Wash., 1975.
2. Engineering and Mining Journal. 1977 E/MJ Survey of Mine and Plant Expansion. V. 178, No. 1, January 1977, pp. 57-70.
3. Federal Power Commission. Proposed Generating Capacity Changes for the Period 1975 Through 1984. Reported Apr. 1, 1976, in response to Docket R-362, Order 383-3.
4. Pacific Northwest River Basins Commission. Review of Power Planning in the Pacific Northwest (draft), calendar year 1975.
5. Welch, J. R., Bureau of Mines State Liaison Officer, Olympia, Wash., May 13, 1977.
6. Western Systems Coordinating Council Technical Staff, Salt Lake City, Utah. Ten-Year Coordinated Plan Summary 1977-1986. May 1977.



LEGEND

- ⊙ SC Strip coal mines
- ⊙ UC Underground coal mines
- ⊙ CE Coal-fired electric generating plants
- ⊙ OE "Other" electric generating plants
- ⊙ C Coal-conversion plants
- ⊙ UM Uranium mines
- ⊙ UL Uranium mills and enrichment facilities
- ⊙ N Natural gas processing and storage facilities
- ⊙ R Oil refineries
- + Railroads (related to energy development)
- ⊙ CP Coal slurry pipelines
- ⊙ PP Petroleum and natural gas pipelines

FIGURE 24: - Future energy-related projects in Wyoming.

Wyoming

Data on the following Wyoming projects are presented in tables 166-176. The map reference numbers correspond with the accompanying Wyoming map.

Map ref. No.	Project name	Company or agency
Coal mines:		
SC1.....	Rawhide.....	Carter Mining Co.
SC2.....	Rochelle.....	Peabody Coal Co.
SC3.....	Black Thunder.....	Atlantic-Richfield Co.
SC4.....	Big Horn No. 1.....	Big Horn Coal Co.
SC5.....	Sorensen.....	Kemmerer Coal Co.
SC6.....	Elkol.....	Do.
SC7.....	Wyodak North and South.	Wyodak Resources Development Corp.
SC8.....	Jim Bridger mine.....	Bridger Coal Co.
SC9.....	Skull Point.....	FMC Corp.
SC10.....	Belle Ayr.....	Amax Coal Co.
SC11.....	Eagle Butte.....	Do.
SC12.....	Cordero.....	Sunoco Energy Development Co.
SC13.....	Jacobs Ranch.....	Kerr-McGee Corp.
SC14.....	East Gillette.....	Do.
SC15.....	Black Butte.....	Black Butte Coal Co.
SC16.....	Thunderbird.....	El Paso Natural Gas Co.
SC17.....	PSO mine.....	Ash Creek Mining Co.
SC18.....	Medicine Bow.....	Medicine Bow Coal Co.
SC19.....	Buckskin mine.....	Shell Oil Co.
SC20.....	Grass Creek.....	Northwestern Resources.
SC21.....	Twin Creek Project.....	Rocky Mountain Energy Co.
SC22.....	Red Rim.....	Do.
SC23.....	China Butte.....	Do.
SC24.....	South Haystack.....	Do.
SC25.....	Atlantic Rim.....	Do.
SC26.....	Cherokee.....	Do.
SC27.....	Pronghorn.....	Consolidation Coal Co.
SC28.....	Cravat.....	Cravat Coal Co.
SC29.....	Stevens North.....	Western Fuels Association.
SC30.....	North Gillette.....	Peabody Coal Co.
SC31.....	Caballo.....	Carter Mining Co.
UC1.....	Stansbury No. 1.....	Stansbury Coal Co.
UC2.....	Rainbow No. 8.....	Columbine Mining Co.
UC3.....	Vanguard No. 2.....	Energy Development Co.
UC4.....	Vanguard No. 3.....	Do.
UC5.....	Carbon County Coal mine	Carbon County Coal Co.
UC6.....	Long Canyon.....	Rocky Mountain Energy Co.
Electric generating plants:		
CE1.....	Jim Bridger No. 4.....	Pacific Power and Light Co.
CE2.....	Wyodak Nos. 1-2.....	Black Hills Power and Light Co.
CE3.....	Gillette No. 1.....	Unknown.
CE4.....	Laramie River Nos. 1-3.	Tri-State Generation and Transmission Association.
CE5.....	Sheridan Project.....	Pacific Power and Light Co.
OE1.....	Seminole No. 4.....	U.S. Bureau of Reclamation.

Map ref. No.	Project name	Company or agency
Coal conversion plants:		
C1.....	Hanna Project.....	DOE, Laramie Energy Research Center.
C2.....	Unnamed.....	Northern Natural Gas Co.
C3.....	Hoe Creek.....	DOE.
C4.....	Unnamed.....	Carter Oil Co.
C5.....	.....do.....	Panhandle Eastern Pipe Line Co.
Uranium mines:		
UM1.....	Highland mine.....	Exxon Co., U.S.A.
UM2.....	Bill Smith mine.....	Kerr-McGee Corp.
UM3.....	Morton Ranch.....	United Nuclear Corp.
UM4.....	UJV Operation.....	Getty Oil Co.
UM5.....	Crooks Gap.....	Western Nuclear, Inc.
UM6.....	Bear Creek.....	Rocky Mountain Energy Co.
UM7.....	Unnamed.....	U.S. Energy Corp.
UM8.....	.....do.....	Union Carbide Corp.
UM9.....	.....do.....	Mineral Exploration Co.
UM10.....	Nubeth.....	Nuclear Dynamics.
UM11.....	Unnamed.....	Wold Nuclear, Inc.
UM12.....	.....do.....	Utah International, Inc.
UM13.....	Hope mine.....	Uranex Corp.
UM14.....	Jenkins Project.....	Primary Fuels, Inc.
UM15.....	Unnamed.....	Mineral Exploration Co.
Uranium mills:		
UL1.....	Jeffrey City Mill.....	Western Nuclear, Inc.
UL2.....	Bill Smith Mill.....	Kerr-McGee Corp.
UL3.....	Bear Creek.....	Rocky Mountain Energy Co.
UL4.....	Morton Ranch.....	United Nuclear Corp.
Natural gas processing and storage facilities:		
N1.....	Table Rocks.....	Colorado Interstate Gas Co.
Oil refineries:		
R1.....	Unnamed.....	C&H Refinery.
R2.....	.....do.....	Husky Oil Co.
R3.....	.....do.....	Southwestern Refining Co.
Railroads:		
1.....	Wyoming.....	Burlington Northern, Inc.
Coal slurry pipelines:		
CP1.....	Wyoming to Arkansas.....	Kansas-Nebraska Natural Gas Co.
CP2.....	Wyoming to Oregon.....	Gulf Interstate Engineering Co.
Petroleum and natural gas pipelines:		
PP1.....	Utah to Wyoming.....	AMOCO Pipeline Co.

TABLE 166. - Previously reported energy development projects that have been completed or canceled in Wyoming

Company	Project name and location	Change in status		Remarks
		Canceled	Completed	
Coal mines:				
Texaco, Inc., Story, Wyo...	Unnamed, Lake DeSmet area, coal gasification plant and strip mine.	X		Plans uncertain.
Peter Kiewit & Sons Co., Omaha, Neb.	Whitney mine, Sheridan County (Ts 57-58 N, R 83 W).	X		Do.
Falcon Coal Co., Lexington, Ky.	Unnamed, near Felix, Campbell County (T 51 N, R 74 W).	X		
Coal conversion plants:				
Champlin Petroleum Co. and Union Pacific Railroad, Fort Worth, Tex.	Unnamed, northeast Uinta County.	X		
Oil refineries:				
Burlington Northern, Inc., Billings, Mont.	Osage Plant, Osage, Weston County.		X	
Electric generating plants:				
Pacific Power and Light Co., Portland, Oreg.	Jim Bridger Nos. 2-3, Rock Springs, Sweetwater County.		X	
Uranium mills and enrichment facilities:				
Highland Mill, southwest of Bill, Converse County.	Exxon Co., U.S.A., Houston, Tex.		X	In operation. Expansion of existing facilities.

TABLE 167. - Future coal mines in Wyoming

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, millions tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden thickness, feet	Remarks	References
SC1.	Rawhide, near Gillette, Campbell County.	Carter Mining Co., Gillette, Wyo.	Strip.....	8.5--1980	Moisture--31.0% Ash--6.0% Sulfur--0.4% Btulb--8,100	Wyodak-Anderson, No. 1, 25, No. 2, 82.	20 to 240	Formerly North Rawhide.....	6-7, 17-18
SC2.	Rochelle, southern Campbell County (T 42 N, R 70 W).	Peabody Coal Co., St. Louis, Mo., and Douglas, Wyo.	...do.....	5.0 to 11.0--1985	Moisture--28.0% Ash--5.6% Sulfur--0.3% Btulb--8,400	Wyodak-Anderson, 52.	20 to 150	Panhandle Eastern Pipe Line Co., proposed to build a gasification plant 15 miles northeast of Douglas, Wyo. Production schedule depends on construction of the gasification plant.	7, 17-18, 31
SC3.	Black Thunder, south of Gillette, Campbell County (T 43 N, R 70 W).	Atlantic-Richfield Co., Los Angeles, Calif., and Gillette, Wyo.	...do.....	7.0 to 10.0--1980 20.0--1982	Moisture--28.1% Ash--4.8% Sulfur--0.3% Btulb--8,600	Wyodak-Anderson, 60 to 73.	15 to 240	Delayed by Sierra Club injunction. Mining plan approved by Interior.	7, 17-18, 31
SC4.	Big Horn No. 1, Sheridan County (T 57 N, R 84 W).	Big Horn Coal Co., Sheridan, Wyo.	...do.....	1.5--1980 (expansion).	Moisture--24.5% Ash--5.8% Sulfur--0.7% Btulb--9,300	Monarch, 22 to 26 Dietz No. 2, 21 to 25. Dietz No. 3, 10 to 11.	15 to 250	Expansion to meet contractual obligations.	17-18, 31
SC5.	Sorensen, near Kemmerer, Lincoln County (Ts 20-21 N, Rs 116-117 W).	Kemmerer Coal Co., Frontier, Wyo.	...do.....	3.0 to 4.7--1980 (expansion).	Moisture--20.9% Ash--4.8% Sulfur--0.6% Btulb--9,500	Adaville seams, 4 to 35.	25 to 140	Expansion of present mine for increase of Utah Power & Light's Naughton plant from 710 to 1,540 Mw.	17, 31
SC6.	Eikol, near Kemmerer, Lincoln County (Ts 20-21 N, Rs 116-117 W).	.....do.....	...do.....	1.1--1980 (expansion).	Moisture--20.4% Ash--3.0% Sulfur--0.7% Btulb--10,200	Adaville No. 1, 80 to 100.	25 to 140	Thick Adaville No. 1 coal is reserved for this commercial tipple; spot sales expected to increase.	17-18, 31
SC7.	Wyodak mine, near Gillette, Campbell County (T 50 N, R 71 W).	Wyodak Resources Development Corp., Gillette, Wyo.	...do.....	2.2--1980 (expansion).	Moisture--29.2% Ash--9.6% Sulfur--0.8% Btulb--8,200	Wyodak-Anderson, 80 to 110.	20 to 110	Expansion of present mine for new 330-Mw Wyodak powerplant.	17-18, 22, 31
SC8.	Jim Bridger mine, Rocks, Sweetwater County (Ts 20-21 N, Rs 100-101 W).	Bridger Coal Co., Rock Springs, Wyo. (a subsidiary of Pacific Power and Light Co.).	...do.....	7.5--1980 (expansion).	Moisture--20.5% Ash--9.7% Sulfur--0.5% Btulb--9,300	Deadman, 15 to 30	40 to 150	Captive mine expansion for powerplant.	6, 17, 31
SC9.	Skull Point, FMC mine, south of Kemmerer, Lincoln County (T 20 N, R 117 W).	FMC Corp., Kemmerer, Wyo.	...do.....	1.0 to 2.0--1980 (expansion).	Moisture--20.9% Ash--4.8% Sulfur--0.6% Btulb--9,500	Adaville No. 1, 40 to 60.	40 to 120	Opened in 1975. A 4.5-mile railroad spur line is also planned.	17-18, 31
SC10.	Belle Ayr, south of Gillette, Campbell County (Ts 47-48 N, R 71 W).	Amax Coal Co., Indianapolis, Ind., and Gillette, Wyo.	...do.....	10.0 to 15.0--1980 (expansion).	Moisture--26.2% Ash--5.3% Sulfur--0.6% Btulb--8,800	Wyodak-Anderson, 70.	15 to 200	Expansion of present mine. Draft EIS released. 1977 production estimated at 15 million tons. (Formerly Belle Ayr South.)	6, 17-18, 22, 31
SC11.	Eagle Butte (formerly Belle Ayr North), north of Gillette, Campbell County (Ts 51-52 N, R 72 W).	Amax Coal Co., Indianapolis, Ind.	...do.....	30--1980	Moisture--29.2% Ash--9.6% Sulfur--0.8% Btulb--8,200	Wyodak-Anderson, 2 benches, 50 to 120.	6 to 325	1978 opening planned.....	6-7, 17-18, 22, 31

SC12	Cordero, south of Gillette, Campbell County (T 47 N, R 71 W).	Sunoco Energy Development Co., Gillette, Wyo.	...do.....	12.0--1986		Wyodak-Anderson, 3 benches, each 20.	200	Subsidiary of Sun Oil Co...	6-7, 17-18, 31
SC13	Jacobs Ranch, south of Gillette, Campbell County (T 43 N, R 70 W).	Kerr-McGee Corp., Oklahoma City, Okla., and Gillette, Wyo.	...do.....	14.0--1983	Moisture--29.0% Ash--5.8% Sulfur--0.5% Btulb--8,500	Wyodak-Anderson, 3 benches, 10 to 150.		Planned opening in 1977....	6-7, 17-18, 31
SC14	East Gillette, east of Gillette, Campbell County (T 50 N, R 71 W).	Kerr-McGee Corp., Oklahoma City, Okla.	...do.....	5.0 to 11.0--1980		Wyodak-Anderson, 50 to 75.	Less than 200.	.....do.....	6-7, 17-18, 22, 31
SC15	Black Butte, near Point-of-Rocks, Sweetwater County (T 19 N, R 100 W).	Black Butte Coal Co., Sheridan, Wyo. (a joint venture of Peter Kiewit & Sons Co., Omaha, Nebr., and Rocky Mountain Energy Co., Denver, Colo.).	...do.....	4.2--1980	Moisture--17.7% Ash--8.5% Sulfur--0.4% Btulb--9,700	Deadman, Ute, Lebar, Nuttal, Overland, Gibraltar, Black Butte, Maxwell, and Hall, 5 to 26.	40 to 150	Opening planned for 1977. A 3-mile railroad spur line is also planned.	6, 17-18, 22, 31
SC16	Thunderbird, Campbell County.	El Paso Natural Gas Co., El Paso, Tex., and Western Fuels Association, Torrington, Wyo.	...do.....	3.0--1980	Moisture--27.7% Ash--13.4% Sulfur--0.6% Btulb--7,600	Felix and Ulm, 12 to 15.	Less than 150.	Tentative. Joint Development agreement signed. Have 20,000 acres of prospecting permits formerly held by Wold & Jenkins. Surface lease only.	6-7, 18, 22, 31
SC17	PSO mine, Roush-Gregory property, Sheridan County (T 58 N, R 84 W).	Ash Creek Mining Co., (formerly Public Service Co. of Oklahoma), Lakewood, Colo.	...do.....	0.5--1978		Anderson, 20 Dietz, 40 to 50			7, 17-18, 31
SC18	Medicine Bow, near Hanna, Carbon County (Ts 23-24 N, Rs 83-84 W).	Medicine Bow Coal Co., St. Louis, Mo. (a subsidiary of Rocky Mountain Energy Co. and Arch Minerals Co.).	...do.....	3.6--1980 (expansion).	Moisture--12.0% Ash--7.5% Sulfur--0.5% Btulb--10,200	Bed Nos. 62-66, 3 to 60.	20 to 200	Opened in 1975.....	6, 17-18
SC19	Buckskin mine, north of Gillette, Campbell County.	Shell Oil Co., Houston, Tex.	...do.....	4.0--1980	Btulb--8,200	Wyodak-Anderson, 100.		Tentative.....	7, 17, 31
SC20	Grass Creek, near Grass Creek, Hot Springs County (T 46 N, R 99 W).	Northwestern Resources, Billings, Mont. (a subsidiary of Western Energy Co.).	...do.....	0.7--1980 (expansion).	Moisture--12.1% Ash--9.0% Sulfur--0.4% Btulb--10,800	Mayfield, 24 to 32.	2	Requesting permission to expand mine to 700,000 tpy.	31
SC21	Twin Creek Project, near Kemmerer, Lincoln County (T 21 N, R 116 W).	Rocky Mountain Energy Co., Denver, Colo., and Peter Kiewit & Sons Co., Omaha, Nebr.	...do.....	3.0--1980		Adaville coals, 5 to 60.	40 to 710	Adjacent to Kemmerer Coal Co. operation. In planning stages.	18, 22, 31
SC22	Red Rim, southwest of Rawlins, Carbon County (T 20 N, R 90 W).	Rocky Mountain Energy Co., Denver, Colo.	...do.....	2.5--1980				Joint venture with Energy Development Co.	18
SC23	China Butte, southwest of Rawlins, Carbon County (T 18 N, R 91 W).	.....do.....	...do.....	1.0 to 3.0--1980 4--1982	Sulfur--0.49% Btulb--8,692	4 seams: A, 4.6 B, 16.4 C, 8.6 D, 8.1	0 to 150	Joint venture with Arch Mineral Corp.	18

TABLE 167. - Future coal mines in Wyoming--Continued

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity, million tons and year	Analytical information	Coalbed thickness, feet	Depth or overburden, feet	Remarks	References
SC24	South Haystack, Uinta County (Ts 16-17 N, Rs 117-118 W).	Rocky Mountain Energy Co., Denver, Colo.	Strip.....	2.5 to 3.0--1978	Moisture--20.0% Ash--5.43% Sulfur--0.33% Btulb--9,660	40 to 70	200	Joint venture with Peter Kiewit & Sons, Omaha, Nebr.	20
SC25	Atlantic Rim, Carbon County (T 18 N, R 90 W).	.....do.....	...do.....	2--1983	Moisture--13.7% Ash--5.69% Sulfur--0.89% Btulb--10,698	5 seams, 3 to 9.5.	20 to 150	Joint venture with Drummond Co., Jasper, Ala.	20
SC26	Cherokee, Sweetwater County (T 20 N, R 92 W).	.....do.....	...do.....	6--1984	Moisture--21.92% Ash--14.56% Sulfur--1.75% Btulb--8,000	Upper, 8 to 20, Lower, 22 to 32.	Up to 150	Joint venture with Pacific Power and Light Co., Portland, Oreg.	20
SC27	Pronghorn, Campbell County (T 47 N, R 71 W).	Consolidation Coal Co., Pittsburgh, Pa.	...do.....	5--1981	Moisture--26.96% Ash--5.3% Sulfur--0.42% Btulb--8,590	65 to 80	50 to 250	Joint venture with Mobil Oil Corp., Denver, Colo.	20
SC28	Cravat, Lincoln County (T 35 N, R 116 W).	Cravat Coal Co., Hopedale, Ohio.	...do.....	Unknown				Size of mine uncertain....	20
SC29	Stevens North, Campbell County (Ts 36-37 N, Rs 74-75 W).	Western Fuels Association, Torrington, Wyo.	...do.....	5--1985				Supply coal for Laramie River Powerplant.	20
SC30	North Gillette, Campbell County (Ts 51-52 N, Rs 71-72 W).	Peabody Coal Co., St. Louis, Mo.	...do.....	1985				Plan to be onstream in 1985.	20
SC31	Caballo, south of Gillette, Campbell County (T 48 N, Rs 70-71 W).	Carter Mining Co., Gillette, Wyo. (formerly Carter Oil Co.).	...do.....	12--1980		Wyodak-Anderson, 70.	20 to 200	In planning stages.....	7, 18, 31
UC1.	Stansbury No. 1, north of Rock Springs, Sweetwater County (T 20 N, Rs 104-105 W).	Stansbury Coal Co., Denver, Colo. (a joint venture of Rocky Mountain Energy Co. and Potash Corp. of America).	Underground	1.4--1980	Moisture--17.5% Ash--4.7% Sulfur--1.1% Btulb--10,500	Rock Springs Nos. 1, 3, 7-9, 9 to 11.	1,800	Opening planned for 1976...	17-18, 22, 31
UC2.	Rainbow No. 8, near Rock Springs, Sweetwater County (T 18 N, R 105 W).	Columbine Mining Co., Glenwood Springs, Colo.	...do.....	0.2--1980 (expansion).	Moisture--11.4% Ash--4.2% Sulfur--0.9% Btulb--11,700	Rock Springs No. 7, 4 to 6.	300	Entire production is converted into synthetic coke by use of additives at minemouth plant. Coke is sold to Monsanto Co. phosphorus plant, Soda Springs, Idaho.	17-18
UC3.	Vanguard No. 2, near Hanna, Carbon County (T 22 N, R 82 W).	Energy Development Co., Hanna, Wyo. (a subsidiary of Iowa Public Service Co.).	...do.....	1.0 to 2.0--1980	Moisture--13.0% Ash--11.5% Sulfur--0.4% Btulb--9,800	Bed No. 50, 9 to 15.	300		6, 17
UC4.	Vanguard No. 3, near Hanna, Carbon County (T 22 N, R 82 W).	.....do.....	...do.....	0.5--1978	Moisture--9.6% Ash--5.7% Sulfur--0.7% Btulb--11,213	Bed No. 65, 9		Now active.....	6, 17-18
UC5.	Carbon County Coal mine (formerly Hanna), near Elmo, Carbon County (Ts 22-23 N, Rs 80-81 W).	Carbon County Coal Co., Hanna, Wyo. (Rocky Mountain Energy Co., Denver, Colo.).	...do.....	2.5--1980	Moisture--11.5% Ash--6.6% Sulfur--0.9% Btulb--10,665	No. 80, 16 No. 82, 9	300 to 800	In planning stages. Expect 90% recovery. 1978 opening planned. Joint venture with Dravo Corp.	18, 22, 27, 31
UC6.	Long Canyon, northwest of Superior, Sweetwater County (T 21 N, R 104 W).	Rocky Mountain Energy Co., Denver, Colo.	...do.....	Unknown				Joint venture with Sunoco Energy Development Co.	18

TABLE 168. - Future electric generating plants in Wyoming

Map ref. No.	Plant name and location	Operating company	Fuel, MMtpy for coal	Capacity		Initial operating date	Remarks	References
				Unit No.	Mega-watts			
CE1.	Jim Bridger No. 4, Rock Springs, Sweetwater County.	Pacific Power and Light Co., Portland, Oreg.	Coal--°5.4.....	4	500	Dec. 1979	Planned additions to existing 500-Mw unit. Coal supplied by "captive" Bridger coal mine.	16, 22, 31
CE2.	Wyodak Nos. 1-2, Gillette, Campbell County.	Black Hills Power and Light Co., Rapid City, S. Dak.	Coal--°1.1.....	1 2 Total	330 330 660	May 1983	Plan to use reclaimed waste water from Gillette municipal sewage disposal system. Coal will be provided by Wyodak mine.	16, 22
CE3.	Gillette No. 1, Gillette, Campbell County.	Unknown.....	Coal--°1.1.....	1	330	1988	Possible plant in Gillette area. May expand by 500 Mw in 2000.	15, 23
CE4.	Laramie River Nos. 1-3, Wheatland, Platte County.	Tri-State Generation and Transmission Association, Sioux Falls, S. Dak.	Coal--°4.8 (total, all units).	1 2 3 Total	500 500 500 1,500	Apr. 1980 Oct. 1981 Apr. 1983	Coal will be supplied by Sun Oil's Cordero mine and possibly the Thunderbird Project.	7, 16, 23
CE5.	Sheridan Project, Sheridan, Sheridan County.	Pacific Power and Light Co., Portland, Oreg.	Coal--°1.6 (total, all units).		500		Proposed plant at Sheridan. Peter Kiewit & Sons Co. will supply the coal.	3
OE1.	Seminole No. 4, Seminole Dam, Carbon County.	U.S. Bureau of Reclamation, Denver, Colo.	Hydropower.....	4	4	1977	Addition to three existing units totaling 32 Mw.	16

*Estimated, see appendix for explanation.

TABLE 169. - Future coal conversion plants in Wyoming

Map ref. No.	Plant name and location	Operating company	Type and process	Initial operating date	Estimated capacity	Remarks	References
C1..	Hanna Project, Carbon County, (T 22 N, R 81 W).	DOE, Laramie Energy Research Center, Laramie, Wyo.	In situ gasification.	Experiments in progress.			21
C2..	Unnamed, Powder River Basin, Campbell County (also southeastern Montana).	Northern Natural Gas Co., Omaha, Nebr., and Cities Service Gas Co., Oklahoma City, Okla.	Gasification..	2 units--1981, 2 units--1984	4 units, each 250 MMcfd (ultimate Wyoming capacity will be 500 MMcfd).	Ultimately four plants of 250 MMcfd each. Two plants are proposed for northern Cheyenne Reservation in Montana and two north of Gillette, Wyo. Peabody would supply coal at an estimated 27,100 tpd for each unit.	5, 24
C3..	Hoe Creek, 20 miles south of Gillette, Campbell County.	Department of Energy, Lawrence Livermore Laboratory, Livermore, Calif.	In situ gasification.	Experiments in progress.		Explosive fracturing of coal at 150-ft depth. Ultimate goal is to produce a medium-Btu gas which can be upgraded to pipeline quality.	9
C4..	Unnamed, north of Gillette, Campbell County.	Carter Oil Co., Denver, Colo., and Exxon Co., U.S.A., Houston, Tex.	Gasification..	1982	250 MMcfd.....	Studies and planning began in 1974.....	2, 26
C5..	Unnamed, northeast of Douglas, Converse County.	Panhandle Eastern Pipe Line Co., Houston, Tex.	Gasification, Lurgi process	1980-1981	270 MMcfd.....	Seeking water rights. Construction postponed. Peabody's Rochelle mine will supply coal at an estimated rate of 25,000 tpd. Current reports express doubt as to whether project will ever be constructed.	2, 5, 26

TABLE 170. - Future uranium mines in Wyoming

Map ref. No.	Mine name and location	Operating company	Mine type	Planned capacity and year	Remarks	References
UM1.	Highland mine, southwest of Bill, Converse County.	Exxon Co., U.S.A., Houston, Tex., and Casper, Wyo.	Underground..	3,000 to 3,200 tpd.	Open pit in operation. Underground under construction.	13, 31
UM2.	Bill Smith mine, southwest of Bill, Converse County.	Kerr-McGee Corp., Oklahoma City, Okla., and Glenrock, Wyo.	Open pit and underground.	700 tpd initial rate in 1978.	Underground operation to start first. Possibility for three underground and several open pit operations. Company signed contract for delivery of 20 million pounds of uranium to Public Service Electric and Gas Co. of New Jersey between 1980 and 1995.	13, 31
UM3.	Morton Ranch, southwest of Bill, Converse County (Ts 35-36 N, Rs 72-73 W).	United Nuclear Corp., Casper, Wyo.	...do.....	100 tpd initial rate in 1978.	Open pit to begin first.....	12-13, 31
UM4.	UJV Operation, Shirley Basin area, Carbon County (Ts 27-28 N, R 78-79 W).	Getty Oil Co., Los Angeles, Calif., and Casper, Wyo.	Open pit.....	1,000 tpd of ore.	Reported 15- to 20-year operation planned. Old Petrotoomics mine.	12, 31
UM5.	Crooks Gap, Green Mountain, near Jeffrey City, Fremont County (T 28 N, R 91 W).	Western Nuclear, Inc., Denver, Colo., and Jeffrey City, Wyo.	Open pit and underground.	1,500 tpd, 1978.	Expansion of mining operations. Present capacity is 600,000 lby of U ₃ O ₈ .	12-13, 31
UM6.	Bear Creek, west of Bill, Converse County (Ts 38-39 N, Rs 72-73 W).	Rocky Mountain Energy Co., Denver, Colo.	Open pit.....	1,000 tpd, 1978.	Mine life estimated at 12 years. Joint venture with Mono Power Co. Southern California Edison Co. and San Diego Gas & Electric Co. have contracted for entire output.	14, 28, 31
UM7.	Unnamed, near Kaycee, Johnson County (T 44 N, R 81 W).	U.S. Energy Corp., Riverton, Wyo.	...do.....	0.5 to 1.0 MMtpy.	In planning stage.....	3
UM8.	Unnamed, Shirley Basin, Carbon County (T 26 N, R 94 W).	Union Carbide Corp., New York, N.Y.	...do.....	0.5 to 1.0 MMtpy.	.....do.....	31
UM9.	Unnamed, northeast Sweetwater County.	Mineral Exploration Co. (a subsidiary of Union Oil Co. of California, Los Angeles, Calif.).	...do.....	1978	Joint venture with Silver Bell Industries. Construction to be completed in 1978.	7, 31
UM10	Nubeth, Converse County.	Nuclear Dynamics, Phoenix, Ariz.			Joint venture exploration program with Bethlehem Steel Corp. reports finding extensive mineralization in northeastern Wyoming. Probable location is Converse County. Development plans are not known. Map location is not site specific.	14
UM11	Unnamed, Shirley Basin, Carbon County.	Wold Nuclear, Inc., Casper, Wyo.			Company has recently purchased reserves from Silver Bell Industries of Denver, Colo. Map location is not site specific.	28
UM12	Unnamed, Green Mountain, Fremont County.	Utah International, Inc., San Francisco, Calif.	...do.....		Plans a series of nine pits. Awaiting State approval.	8
UM13	Hope mine, Natrona County (T 37 N, R 86 W).	Uranex Corp., Buena Park, Calif.	...do.....	100 tpd of ore.		20
UM14	Jenkins Project, Shirley Basin, Carbon County (T 27 N, R 78 W).	Primary Fuels, Inc., Houston, Tex.	...do.....		Planning stage.....	20, 31
UM15	Unnamed, 34 air miles northwest of Rawlins, Sweetwater County.	Mineral Exploration Co. (a subsidiary of Union Oil Co. of California, Los Angeles, Calif.).	...do.....	1978	Estimate the reserves at 15 million tons of ore.	7, 20

TABLE 171. - Future uranium mills and enrichment facilities in Wyoming

Map ref. No.	Plant name and location	Operating company	Type	Initial operating date	Planned capacity	Remarks	References
UL1.	Jeffrey City Mill, Jeffrey City, Fremont County.	Western Nuclear, Inc., Denver, Colo., and Jeffrey City, Wyo.	Mill	1977-1978	2 MMLby U ₃ O ₈ .	Expansion program at mining operation.	13, 31
UL2.	Bill Smith Mill, southwest of Bill, Converse County.	Kerr-McGee Corp., Oklahoma City, Okla., and Glenrock, Wyo.	Mill	1978	700 tpd initial rate.		13, 31
UL3.	Bear Creek, west of Bill, Converse County.	Rocky Mountain Energy Co., Denver, Colo., and Casper, Wyo.	Mill	1977-1978	1,000 tpd initial rate.	Output contracted to Southern California Edison Co. and San Diego Gas & Electric Co.	14
UL4.	Morton Ranch, southwest of Bill, Converse County.	United Nuclear Corp., Albuquerque, N. Mex., and Casper, Wyo.	Mill	1978	100 tpd initial rate.		13

TABLE 172. - Future natural gas processing and storage facilities in Wyoming

Map ref. No.	Facility name and location	Operating company	Initial operating date	Throughput or storage capacity	Remarks	References
N1..	Table Rocks, Table Rocks, Sweetwater County.	Colorado Interstate Gas Co., Colorado Springs, Colo.	1978	60,000 to 120,000 Mcfd.	Sour gas plant. Expect 90 to 270 tpd of sulfur. Madison gas zone.	20

TABLE 173. - Future oil refineries in Wyoming

Map ref. No.	Refinery name and location	Operating company	Initial operating date	Throughput capacity, bpd crude oil	Remarks	References
R1..	Unnamed, Lusk, Niobrara County.	C&H Refinery, Lusk, Wyo...	Early 1978	Crude..... 2,000 Vac..... 2,000		26
R2..	Unnamed, Cheyenne, Laramie County.	Husky Oil Co., Cody, Wyo..	May 1978	Crude..... 5,400	Expansion...	26
R3..	Unnamed, Labarge, Lincoln County.	Southwestern Refining Co., Corpus Christi, Tex.	Planned	Crude..... 1,000	...do.....	26

TABLE 174. - Future railroads (related to energy development) in Wyoming

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Remarks	References
		Origin	Destination					
1...	Burlington Northern, Inc., St. Paul, Minn., and Chicago and Northwestern Transportation Co., Chicago, Ill. ¹	Gillette, Campbell County, Wyo.	Douglas, Converse County, Wyo.	126	Mainline	1977 or 1978.	Single track with numerous sidings. Project approved by Interstate Commerce Commission in January 1976. Construction began in 1976.	4, 19, 22

¹ In addition to these projects, probably there will be many spur lines constructed from the various listed future energy facilities to the railroad mainlines in Wyoming. These have not been listed.

TABLE 175. - Future coal slurry pipelines in Wyoming

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
CP1.	Kansas-Nebraska Natural Gas Co., Phillipsburg, Kans., and Energy Transportation Systems, Inc., Casper, Wyo.	Powder River Basin, Campbell County, Wyo.	White Bluff, Ark.	1,036		1980	38	25 MMtpy, 15,000 afy from underground wells in the Madison Formation. Delayed in obtaining rights-of-way across railroad lines.	1, 7, 10-11, 30
CP2.	Gulf Interstate Engineering Co., Houston, Tex., and Northwest Pipeline Co., Salt Lake City, Utah.	Near Gillette, Campbell County, Wyo.	Boardman, Oreg.	1,100		1980	20 to 24	Proposed route will cross Wyoming, Idaho, and Oregon.	1, 10-11, 25, 30

TABLE 176. - Future petroleum and natural gas pipelines in Wyoming

Map ref. No.	Operating company	Proposed route		Length, miles	Type	Initial operating date	Pipe diameter, inches	Remarks	References
		Origin	Destination						
PP1.	AMOCO Pipeline Co., Woods Cross, Utah.	Pineview, near Coalville, Summit County, Utah.	Evanston, Wyo.	39	Crude oil.	Unknown..		Enlargement of existing pipeline.	29

List of Data Sources for Wyoming

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29. Utah Oil, Gas and Mining Division, Salt Lake City, Utah, through Bureau of Mines State Liaison Officer, 1977.
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APPENDIX.--METHODS USED IN DATA ESTIMATES

Because of data gaps encountered in generating plants' annual coal consumption, a factor was computed for IC 8719 for use in estimating needed data. All estimates in this report are carryovers from IC 8719. The annual coal consumption estimates for electric generating plants are based on a factor of 3.2 million tons per thousand megawatts of capacity. This factor was obtained from data on the San Juan Generating Station in New Mexico and assumed to be representative for other projects.