

**2001 Annual Review and Forecast of**

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# **UTAH COAL**

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**Production and Distribution**

**January 2003**

**by the  
Utah Geological Survey and Utah Energy Office  
of the Department of Natural Resources**

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# EXECUTIVE SUMMARY

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While U.S. annual coal production established a record high in 2001, Utah's annual coal production was its second highest, only 45,000 short tons less than the 1996 record. Total U.S. coal production was 1.12 billion tons, the eighth consecutive year that production exceeded the one-billion-ton mark, while Utah produced 27.02 million tons of coal. The U.S. exported 48.7 million tons of coal in 2001, which was 17 percent lower than the previous year, while Utah exports were 20 percent lower than in 2000, at 2.40 million tons. The value of coal produced in Utah was almost \$480 million in 2001.

Utah coal operators distributed 26.80 million tons of coal in 2001, the fourth highest ever, but down by over 0.8 million tons from 2000 levels. Decreases in shipments to electric utilities inside Utah, overseas exports, and Utah coke plants overshadowed increased consumption by electric utilities outside Utah, and by the industrial and residential/commercial sectors both in and outside of Utah. During 2002, Utah coal production should decrease to about 24.7 million tons. This significant drop is due to the loss of the overseas export and local coking markets, and the depressed U.S. economy.

Utah's coal mines remain among the most productive underground mines in the U.S. Utah's productivity rate was just

below two tons per miner-hour (tpmh) in the early 1980s, but has risen since then to levels near six tpmh in the late 1990s. In 2000, Utah achieved its highest productivity rate with 6.91 tpmh. During 2001, Utah coal miners achieved a slightly lower productivity rate of 5.98 tpmh, and this drop was due in part to difficult conditions encountered at the Skyline and Horizon mines.

Utah's high productivity is largely credited to excellent management, a capable engineering and geological staff, a high degree of mechanization, and a highly skilled workforce. These factors, in conjunction with thick, relatively flat-lying coal beds, have led to lower costs and competitive prices for Utah coal which, in turn, have enhanced the market for the state's coal.

Electric utilities consume the bulk of Utah's coal production. The power plants of PacifiCorp's Utah Power and Light (UP&L) subsidiary and the Intermountain Power Agency (IPA) purchased 12.48 million tons in 2001. Together these plants purchased slightly less than half of all Utah production, making the local electric utility sector the state's largest coal customer. Domestic electric utilities outside of Utah consumed 7.42 million tons of Utah coal in 2001. Altogether, domestic electric utilities consumed about 74

percent of Utah's coal production. Including the 2.4 million tons exported to Pacific Rim utilities, electric utilities consumed 83 percent of all the coal produced in Utah in 2001.

In 2001, Utah coal's second largest consuming sector was composed of industrial customers (3.80 million tons). Out-of-state industrial consumption was a record 3.06 million tons in 2001, and was used primarily by chemical and cement plants in California and Nevada, while small amounts went to other western states. Kennecott consumed about half of the industrial coal used in Utah. Various cement and lime plants consumed the remainder of the 2001 industrial coal shipments to instate customers.

The third largest consuming sector in 2001 was the Pacific Rim export market (2.40 million tons). Exports to the Pacific Rim were 0.5 million tons below the 2000 level, and exports are expected to be minimal in 2002.

Far behind exports were the coke-plant, and residential-commercial market segments. The Utah coke market purchased 0.697 million tons of coal in 2001, but this market will end with the permanent closure of the Geneva coke ovens in late 2001. Residential and commercial customers, both in and outside Utah, purchased almost 0.65 million tons of Utah coal in 2001.

# 2001 Utah Coal Production

## INTRODUCTION

This report was prepared from information collected from questionnaires sent to Utah coal producers and consumers of Utah coal, or from data available to the public in company financial reports and news releases. In past years, the Energy Office of the Utah Department of Natural Resources solely prepared this annual coal report. However, due to staff reductions, the Energy Office and the Utah Geological Survey cooperated in preparing this year's annual coal report.

In 2001, production of coal in Utah surpassed 27.02 million tons, the second highest production level in 131 years, exceeded only by the 1996 level of 27.07 million tons (see Appendix, Tables A and B).

## MINER PRODUCTIVITY

During 2001, a total of 1,564 coal miners produced 27,024,233 short tons of coal. Production in 2001 increased from 2000 levels by 3.9 percent while employment decreased by more than 6.9 percent, which, in turn, caused productivity per miner per year to increase, but productivity per hour to drop. Miner productivity increased from 16,100 tons per year in 2000 to 17,280 tons per year in 2001. Productivity per miner hour decreased slightly from 6.91 tpmh to 5.98 tpmh.

Fewer employees worked longer hours resulting in an increased productivity per worker, but a drop in productivity per hour (see Appendix, table A, and table 1).

## PRODUCTION BY COAL FIELD

The Wasatch Plateau coal field was once again the leading coal producer in 2001 (see

Appendix, Maps 1 and 2). More than 81 percent of Utah's 2001 coal production (21.9 million tons) came from this field while the Book Cliffs accounted for the remaining 19 percent (5.1 million tons). Production from the Book Cliffs increased significantly for the second year in a row, while production from the Wasatch Plateau field dropped for the second year. The Emery coal

Table 1. Utah Coal Industry Production, Employment, Productivity and Prices.

	Production Million Short Tons	Employment No. Of Employees	Productivity Tons/Miner Hour	Prices \$/Ton
1982	16.91	4,296	2.05	29.42
1983	11.82	2,707	2.59	28.32
1984	12.25	2,525	2.94	29.20
1985	12.83	2,563	2.80	27.69
1986	14.26	2,881	3.08	27.64
1987	16.52	2,650	3.25	25.67
1988	18.16	2,559	3.69	22.85
1989	20.51	2,471	4.42	22.01
1990	22.01	2,791	4.10	21.78
1991	21.87	2,292	4.79	21.56
1992	21.02	2,106	5.13	21.83
1993	21.72	2,161	5.47	21.17
1994	24.44	2,024	6.01	20.07
1995	25.05	1,989	6.41	19.11
1996	27.07	2,077	5.91	18.50
1997	26.43	2,091	5.57	18.34
1998	26.60	1,950	6.19	17.83
1999	26.49	1,843	6.09	17.36
2000	26.92	1,672	6.91	16.93
2001	27.02	1,564	5.98	17.76
2002	24.68	1,535	6.00	17.33

2002 values are forecast

field, the only other field with significant production in recent years, had no production between 1992 and 2001, but will resume production in 2002.

During 2002, the expected production from the Wasatch Plateau coal field will be about 18.98 million tons, representing 76.9 percent of total production. In contrast, about 5.67 million tons, or 23 percent, of Utah's 2002 coal production is expected to come from the Book Cliffs coal field. For 2002, the Emery coal field will, for the first time in 10 years, see a minimal amount of new coal production (see Appendix, Table C). Production from this field will likely grow in the next few years because it has extensive untapped potential for development.

## **PRODUCTION BY COUNTY**

On a county basis, during the 1960s and 1970s Carbon County was the leading producer, with Emery County second, and Sevier County producing small amounts. During the 1980s, coal production from Carbon and Emery Counties was roughly equal, but by the 1990s Emery County became the leading producer. In 1999, Sevier County moved past Carbon County into second place in coal production. For 2001, Emery County produced 14.33 million tons, Sevier County produced 7.00 million tons, and Carbon County produced 5.69 million tons of coal (Appendix Table D).

Emery County became the leading producer in the 1990s, when Skyline mine, owned by Canyon Fuel LLC, and the now closed Star Point mine of Cyprus Plateau, shifted production from leases in Carbon County to those in Emery County. At the time, these two mines accounted for about 27 percent of Utah's coal production (Appendix Table D). More recently, however, production at the Skyline mine has shifted back to Carbon County. With Cyprus Plateau discontinuing coal production at its Carbon County mines, production from Emery County should continue to be about twice that of Carbon County. Sevier County production increased for 2001, surpassing the seven million ton mark, and should maintain this higher level for a number of years.

## **PRODUCTION BY LAND OWNERSHIP**

Coal mined from federal leases during 2001 decreased significantly to 18.3 million tons. Its contribution as a percentage of total state production was 67.8 percent, a decrease of about 13.8 percent below 2000 figures. The reduction came about mainly as a result of Genwal shifting its coal production from federal to state leases, Soldier Canyon's shift to the Dugout Canyon mine, and the cessation of coal production from the Willow Creek mine.

Production from state lands did not reach the one-million-

ton mark during the period from 1981 through 1991. From 1992 through 1994, production from state lands briefly climbed above one-million-ton mark, but fell back below that level until 1999. During 1999, coal production from state leases jumped ten-fold to 3.07 million tons, and for 2000 increased another 31 percent. In 2001, there was another 34 percent increase as coal production from state lands reached 5.39 million tons.

As a percentage of total production, production from state leases historically only accounted for 1 to 5 percent of the total. During 1992 and 1993, state production increased to 6 and 7 percent, but fell back to 5 percent in 1994. From 1995 through 1998, the percentage of coal produced from state lands varied from 1.1 to 2.3 percent. The percentage of coal production, as well as the corresponding tons of coal, increased ten-fold in 1999 as Soldier Canyon Coal Company shifted nearly all of its production from the Soldier Canyon mine to the Dugout Canyon mine. At the same time, Genwal's Crandall Canyon mine shifted 60 percent of its production from federal to state leases. During 2001, the production from state leases surpassed the five-million-ton mark, while the percentage of the total coal production increased to about 20 percent.

Production of coal from fee, or private, lands has gradually increased from 1995 levels of 461,000 tons, or 1.8 percent of

total Utah production, to 2.09 million tons, or 7.8 percent of total production in 2000 (see Appendix Table E). Coal produced from fee lands increased again in 2001 to 2.93 million tons and represented almost 11 percent of total state production.

Production from county lands in Utah has always been minimal and erratic. During 2001, coal production from county-owned lands amounted to 0.33 million tons.

## **PRODUCTION BY MINING METHOD**

During 2001, eight longwall panels in eight different mines accounted for 21.5 million tons of Utah's production, or about 79 percent of total production. Longwall production averaged more than 2.6 million tons of coal per panel per year. Eighteen continuous miner sections produced a total of 5.5 million tons of coal in 2001, for an average of 308,000 tons annually per machine. In past years, some continuous miner sections have produced between 400,000 and 600,000 tons per year.

# UTAH COAL MARKETS: DISTRIBUTION OF UTAH COAL

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## INTRODUCTION

The historical distribution of Utah coal since 1990 is summarized in Table A of the appendix. During that period, distribution of Utah coal fluctuated, but overall, there has been an increase in the amount of Utah coal used.

During 2001, coal distribution dipped slightly from the previous year to 26.80 million tons. Distribution of Utah coal to consumers inside the state reached 13.66 million tons, or nearly half the coal sold during the year. Distribution to consumers in other states in 2001 totaled 10.73 million tons, about 1.0 million tons more than in 2000. Overseas exports for 2001 amounted to 2.4 million tons, about 0.56 million tons less than the 2000 export level.

## ELECTRIC UTILITY MARKETS

Starting more than two decades ago, electric utility consumption of Utah coal surpassed the combined consumption levels of industrial coal and coke plant coal and became the top market for Utah coal operators. In 2001, about 74 percent of the coal distributed from Utah was consumed to generate electricity in Utah and other states. Including exports, 83 percent of Utah's coal shipments are consumed to generate electricity (figure 1).

## Out-of-State Markets

During 2001, distribution of Utah coal to out-of-state markets increased by about 10.9 percent from the 2000 level. In 2001, Utah shipped a total of 7.4 million tons to out-of-state electric utility customers, an increase of 0.8 million tons from the previous year's level (Appendix Table F).

About 66.5 percent of the 2001 shipments went to coal-fired power plants in Nevada. Shipments of Utah coal to Nevada utilities increased by 12.5 percent over 2000 levels.

The amount of coal sold to out-of-state electric utilities other than Nevada rose from the 2000 level of 2.2 million tons to nearly 3.6 million tons in 2001. Tennessee received the 59 percent of Utah's electric utility coal shipped to the east of Utah, with smaller amounts going to 10 other states. Genwal was the major shipper to

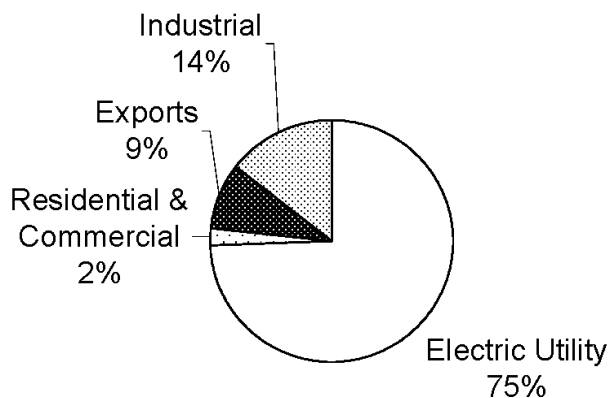
Tennessee with smaller amounts from Lodestar, West Ridge, CO-OP and Canyon Fuel (Skyline). The total of 2001 shipments to Tennessee increased by 0.23 million tons from 2000 levels.

## Distribution to Nevada

In Nevada, four electric power generation facilities burn bituminous or subbituminous coal. Two of these plants, Nevada Power Company's Reid Gardner plant, and Sierra Pacific Power Company's North Valmy plant, burn Utah coal, and the Pinon Pine Power plant is designed to gasify coal, but has been running strictly on natural gas for the past few years. Shipments of Utah coal to Nevada electric utilities reached 3.86 million tons in 2001. This was an increase of 12.5 percent from the 2000 level.

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**Figure 1. 2001 distribution of Utah coal by market sector.**





### *Reid Gardner Plant*

In 2001, the Reid Gardner plant, rated at 636 megawatts (MW), purchased a total of 2.1 million tons of coal from six Utah mines and burned 1.8 million tons for a net generation of 3,969 gigawatt hours (GWh) of electricity. All of the coal purchased by the Reid Gardner plant came from Utah. During 2002, the Reid Gardner plant is expected to consume 1.98 million tons of coal for a net generation of 4,292 GWh of electricity.

### *North Valmy Plant*

The two units of Sierra Pacific Power Company's North Valmy plant (jointly owned with Idaho Power Company) have a combined generation capacity of 521 MW and, depending on the coal quality, were originally designed to burn about 1.45 million tons of coal per year. In 2001, shipments of Utah coal to the North Valmy plant totaled 1.86 million tons, exceeding the 2000 level. Sierra Pacific did not purchase any coal from Black Butte Coal Company near Rock Springs, Wyoming as it did in previous years.

In 2001, North Valmy's two units burned 1.64 million tons of coal to generate 3,580 GWh of net electricity. During 2002, this plant is expected to consume 1.84 million tons of coal and generate 4,080 GWh of net electricity.

### *Pinon Pine Power Plant*

In 1995, the Department of Energy's Clean Coal Technology Programs (CCTP) provided

half of the funding to construct the Pinon Pine Power plant, a 107-MW electric generation plant located at Sierra Pacific Power Company's Tracy Station, located 17 miles east of Reno, Nevada. This unit did not use any coal during 2000 or 2001.

The plant, completed in 1997, is designed to demonstrate commercial feasibility of an Integrated Gasification Combined Cycle (IGCC) generator fed by an air-blown, pressurized, fluidized-bed, coal-gasification system. The unit's net design generating efficiency is about 40.7 percent, which would make it the most efficient coal-based unit in the country. Further, because the fuel produced by the gasifier is cleaned, the amount of NO<sub>x</sub> and SO<sub>2</sub> is reduced by over 90 percent, and the process results in 25 percent less CO<sub>2</sub> emissions for the same amount of electricity generated. This

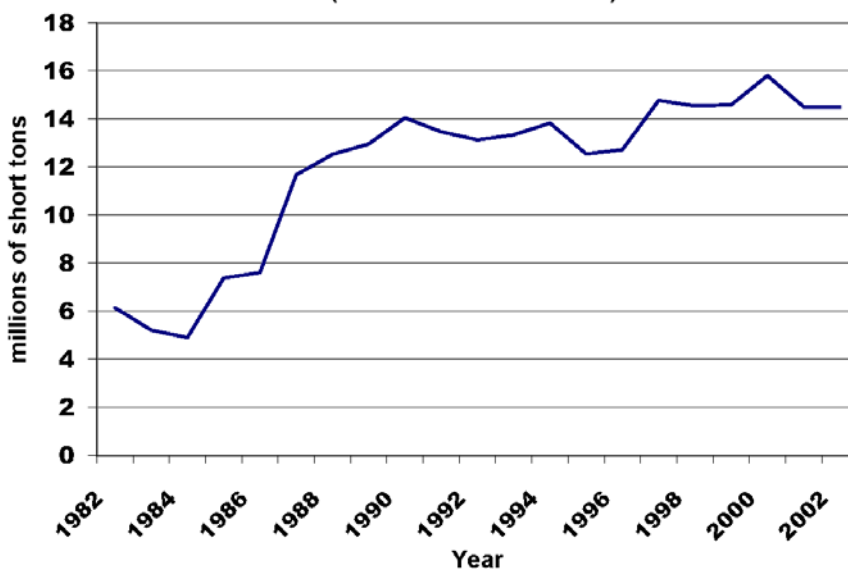
unit also uses 20 percent less water to generate the same amount of electricity as conventional generators, which makes it a very desirable unit in the arid region western U.S.

The IGCC is designed to consume different grades of coal, which could amount to 320,000 tons per year. This unit's fuel flexibility allows it to use natural gas, coal or any combination of the two for maximum fuel cost savings. The unit's other advantage is its ability to generate electricity by consuming only natural gas when the coal gasifier is down for repair or maintenance.

### *Utah Markets*

Utah coal consumed within the state to generate electricity amounted to nearly 12.5 million tons in 2001 (figure 2). This was 86 percent of all the coal shipped to the state's electric utility plants.

**Figure 2. Coal distributed to electric utilities in Utah.  
(2002 value is forecast)**



### *Hunter Plant*

In 2001, the Hunter units (I, II, and III) of PacifiCorp, with a combined nameplate rating 1440 MW, consumed an estimated 3.5 million tons of Utah coal to generate about 7,300 GWh of net electricity. The majority of the coal came from the company's Trail Mountain and Deer Creek mines. Additional coal was purchased from other Utah producers such as the SUFCO and West Ridge mines. In 2002, this plant is expected to be working at a somewhat reduced level, similar to 2001, due to the weak Utah and regional economies.

### *Huntington Plant*

In 2001, Huntington's units (I and II), with a combined nameplate rating of 996 MW, consumed an estimated 2.9 million tons of coal produced from PacifiCorp's Deer Creek mine to generate about 6,500 GWh of net electricity. During 2002, this plant is expected to consume the same amount of coal and produce a similar amount of net electricity.

### *Carbon Plant*

In 2001, the Carbon plant, with a nameplate rating of 188.6 MW, consumed an estimated 630,000 tons of coal to generate about 1,350 GWh of electricity. During 2002, this plant is expected to consume another 630,000 tons of coal to again generate 1,350 GWh of net electricity.

In 2001, coal shipments to all of PacifiCorp's Utah power plants decreased to about 7.1

million tons from the 2000 level of 7.9 million tons. The coal stockpiles at these Utah plants also likely decreased to some extent to make up for the drop in coal received.

### *IPP Plant*

In 2001, the two units of the Intermountain Power plant (IPP), of the Intermountain Power Agency (IPA), with a total nameplate capacity of 1,640 MW, burned 5.34 million tons of coal to generate 14,141 GWh of net electricity for the state of California. During 2002, this plant will begin a planned upgrade to the rated capacity by having the high-pressure turbine replaced on unit 2 to raise its generating capacity from 830 to 950 megawatts. During 2002, the plant will burn at least 5.2 million tons of coal to generate about 14,000 GWh of electricity, nearly all of which will be sold outside Utah. All of the plant's coal may not come from Utah, since previous financial reports have indicated that IPA is exploring alternative fuel strategies that may include purchases of petroleum coke or non-Utah coal. The company also takes advantage of hydropower during the spring and summer runoff in the Northwest to reduce the coal burned.

### *Bonanza Plant*

During 2001, Deseret Generation and Transmission's (DG&T) Bonanza plant, with a rated capacity of 420 MW, consumed 2.01 million tons of coal to generate 3,880 GWh of net electricity. DG&T pur-

chased 2.03 million tons of coal from the Deserado mine, located 36 miles east of the Bonanza plant in Colorado. During 2002, the plant will consume an estimated 2.05 million tons of coal, and generate a net 3,872 GWh of electricity.

## **UTAH COKING COAL MARKET**

The market for coking coal in Utah has been limited to Geneva Steel Company's operations in Vineyard, Utah, which until recently was the only integrated steel mill operating west of the Mississippi River. Located 45 miles south of Salt Lake City, the plant used to manufacture hot-rolled steel plate, sheet, and pipe for markets primarily in the western and central U.S. Competition from low-priced steel imports forced the company into Chapter 11 bankruptcy in February 1999. The company emerged from bankruptcy in December 2000, but idled all of its production operations and permanently closed its coke ovens in November 2001 in response to a depressed U.S. and world economy.

Coal purchased by Geneva Steel to make coke totaled 0.941 million tons during 2000. To meet its requirement of low-to mid-volatile hard coking coal, Geneva Steel negotiated contracts with eastern producers in Pennsylvania, Virginia, and West Virginia, as well as a producer from the Canadian province of British Columbia. High-volatile coal for 2000

came primarily from western Colorado, and 5,000 tons were purchased from the West Ridge mine in Utah. The plant consumed nearly all the coal purchased to make coke for steel production.

Improvements made to Geneva Steel's blast furnace in the late 1990s meant that the company's aging coke-making plant could no longer keep up with iron production coke demand during 2000. Geneva overcame this constraint by purchasing 195,000 tons of coke from China to augment its own manufactured supply, and produced about 2.0 million tons of raw steel.

During 2001, Geneva Steel purchased the majority of its metallurgical coal from several eastern states. Additional coal was purchased from British Columbia, Canada, and the western states of Colorado and Utah. From the eastern U.S., Geneva bought 271,000 tons of medium-volatile Virginia coking coal from Pittston Coal Sales. Furthermore, Geneva purchased 107,000 tons of high quality West Virginia coking coal from True Energy's Fire Creek mine. Lastly, 10,000 tons of eastern U.S. coal was purchased from Metcoal Sales. In 2001, Geneva also purchased 100,000 tons of medium-volatile coal from Fording Coal Limited's Fording Eagle mine. This mine is located in the southeast corner of British Columbia just 70 miles north of the U.S.-Canadian border. From Utah, Geneva bought 10,000 tons of high-volatile coal

from West Ridge Resources, and 40,000 tons from Lodestar Energy, both from Carbon County, Utah. The total coking coal shipments received from all sources for 2001 was 697,000 tons.

During 2002, Geneva will not purchase any coal to make coke because of the decision to permanently shut down its coke ovens. All coke for future production of raw steel will have to be purchased.

## **COGENERATION AND INDUSTRIAL MARKETS**

### ***Cogeneration***

California cogeneration facilities received about 0.99 million tons of Utah coal in 2001. The cogeneration market for Utah coal in California presently includes six coal-fired generation units.

#### ***Stockton Plant***

Stockton, California is the site of the first coal-fired cogeneration facility ever to burn Utah coal. This plant is operated by Air Products Manufacturing Corporation and began commercial operation in March 1988. This 49.9 MW unit is capable of consuming 220,000 tons of coal per year to generate about 425 GWh of net electricity.

In 2001, the plant purchased 109,000 tons of coal, all of which came from Utah. The plant consumed about 119,000 tons of coal to generate a total of 452 GWh of net electricity.

An adjacent corn wet-milling plant consumed about 33 GWh of the electricity produced and all of the by-product steam produced by the plant. During 2002, this plant will purchase about 123,000 tons of coal and is planning to generate 450 GWh of net electricity.

#### ***Mt. Poso***

In May 1989, a coal-fired, cogeneration facility was built by Mt. Poso Cogeneration Company, a joint venture of the Ahlstrom Development Corporation, Pacific Generation Company, and Bechtel Enterprises, Inc. The 49.9 MW plant is located in the San Joaquin Valley and is operated by Millennium Energy Company. The facility provides by-product steam for enhanced oil recovery at the Mt. Poso Field-West. During 2001, Mt. Poso purchased 154,000 tons of Utah coal, 41,000 tons of petroleum coke, and 22,000 mcf of gas. The plant consumed 147,000 tons of coal, as well as some pet coke and natural gas to generate 392 GWh of net electricity.

During 2002, this unit is expected to consume 158,000 tons of coal, about 40,000 tons of pet coke, and 24,000 mcf of natural gas to generate 428 GWh of net electricity.

#### ***ACE Plant***

The largest coal-fired cogeneration facility in California, with 96 MW of installed electric generation capacity, is owned by ACE Cogeneration Company, and operated by Millennium Energy, LLC. This facility

is located in Trona, California and started operation in September 1990. North American Chemical Company's two soda ash plants adjacent to the ACE plant use the steam by-product. This facility has the capacity to burn 300,000 to 400,000 tons of coal per year to generate between 650 to 850 GWh of electricity. During 2001, the company purchased 334,000 tons of Utah coal and burned 338,000 tons of coal and 22,000 mcf of gas to generate 677 GWh of net electricity. This unit is expected to burn about 321,000 tons of coal as well as 12,000 mcf of gas to generate 771 GWh of net electricity during 2002.

#### *Rio Bravo Plant*

Constellation Operating Services runs a cogeneration plant in Bakersfield, California, comprised of two 38.5 MW units (Rio Bravo Poso and Rio Bravo Jasmin). Construction of this plant started in December 1987 and it came on-line in March 1990.

During 2001, Rio Bravo Poso purchased 73,720 tons of Utah coal and burned 73,547 tons to generate 281 GWh of net electricity, which was ultimately sold to PG&E. The Rio Bravo organization used the steam by-product in its oil field for enhanced oil recovery (EOR) operations. During 2002, this plant is forecast to consume 75,000 tons of coal and generate 277 GWh of net electricity.

Rio Bravo Jasmin purchased 69,074 tons of Utah

coal and burned 69,461 tons to generate 252 GWh of net electricity in 2001, which was sold to Southern California Edison. Rio Bravo oil field also used the steam by-product of this unit for EOR operations. During 2002, this plant is expected to purchase and burn about 71,000 tons of Utah coal, and generate close to 277 GWh of net electricity.

#### *POSDEF Plant*

The Port of Stockton District Energy Facility (POSDEF) plant is a 45 MW cogeneration facility located in Stockton, California. This plant is owned by a partnership of National Power Company and ESI. ESI, a wholly owned subsidiary of Florida Power Company, runs the plant's daily operation under the name of Port of Stockton District Energy Facility Power Company L.P. The steam by-product from this plant goes to three processing facilities within the same industrial complex: California Cedar Products Company, which manufactures cedar wood products including Dura Flame logs, and Cargill and Liquid Sugar, both of which import raw sugar from Hawaii and manufacture various food products for human and animal consumption. This cogeneration unit consumes up to 200,000 tons of coal per year. The coal supply contract for this company is with Oxbow Carbon and Minerals, Inc. of Colorado (previously known as Pacific Basin Resources). During 2001, this company purchased 113,000 tons of coal, all of it

from Utah. This unit consumed 132,000 tons of coal to generate 250 GWh of net electricity. For the foreseeable future, it is likely that all of the coal for this unit will be supplied by low-cost Utah mines.

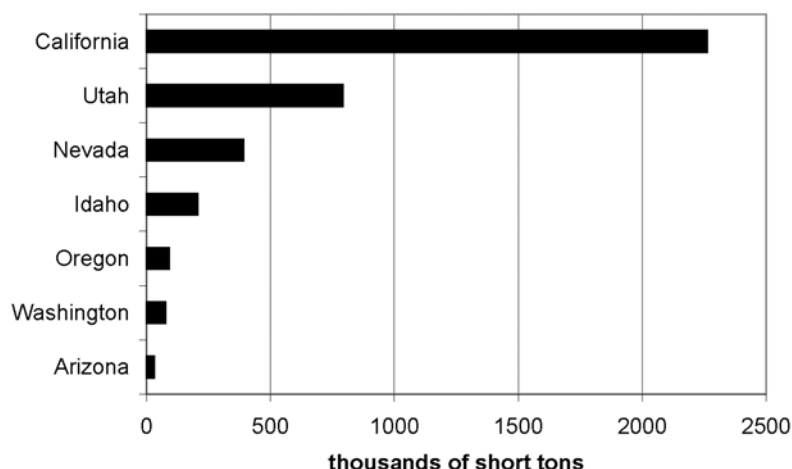
#### ***Non-Utah Industrial Markets***

Since 1989, shipments of Utah coal to other states for industrial consumption has fluctuated between 2 and 3 million tons per year. During 2001, an all time high was established at 3.06 million tons. California was the largest recipient of industrial coal shipments, with its cement manufacturing plants receiving 2.26 million tons (74 percent, figure 3) of all industrial coal shipped from Utah. Other states receiving Utah coal for industrial use in 2001 were: Nevada, 390,000 tons; Idaho, 206,000 tons; Oregon, 90,000 tons; Washington, 76,000 tons; and Arizona, 31,000 tons. Base on responses to our industry survey, the total 2002 out-of-state sales of Utah coal for industrial consumption is forecast to be about 3.02 million tons.

#### ***Utah Industrial Markets***

In 2001, Utah's industrial coal consumption increased 16 percent, from 639,000 tons in 2000 to 743,000 tons. Kennecott Copper Corporation consumed about 50 percent of the total to generate electricity. Several other industrial firms, ranging from Geneva Steel to lime plant operations, had combined purchases of nearly

**Figure 3. 2001 distribution of industrial coal by state.**



98,000 tons of Utah coal in 2001. For 2002, industrial coal consumption in Utah is expected to remain around 700,000 tons per year.

#### *Kennecott Copper Corporation*

During 2001, Kennecott purchased about 372,000 tons of Utah coal and consumed the same amount, along with 451 million cubic feet of natural gas, to generate 745 GWh of net electricity. The coal purchased in 2001 increased by nearly five percent in comparison with the previous year's figure.

In 2002, Kennecott's coal-fired electric generation plant will purchase and consume about 400,000 tons of coal, while reducing gas consumption to 125 million cubic feet, to generate 808 GWh of net electricity.

#### *Holcim (US), Incorporated*

The Devils Slide plant has been a part of Holcim (US), Inc. since 1986. A series of mergers and acquisitions established Holcim (US), Inc., as one

of the largest cement companies in North America. Holcim (US), comprised of 19 cement plants and 113 distribution terminals in most U.S. states and three provinces of Canada, has 89.3 percent of its common stock controlled by Holcim, Ltd., of Switzerland.

In November 1997, Devils Slide commenced operations of a new plant. From 1998 through 2000, the new plant purchased and consumed between 57,000 and 64,000 tons of Utah coal, between 120 and 292 million cubic feet of natural gas, 4,000 to 11,500 tons of tires, and between 5,800 and 6,000 tons of diaper plastic material to produce cement. During 2001, the Devils Slide plant purchased 53,160 tons of Utah coal, along with 103.7 million cubic feet of natural gas, slightly more than 10,000 tons of tires and 6,193 tons of diaper plastic material, to produce about 700,000 tons of raw cement. During 2002, the plant is expected to purchase 59,000

tons of Utah coal, along with 7,000 tons of coke, 100 million cubic feet of natural gas, 10,500 tons of tires, and 6,200 tons of diaper plastic material to produce 683,000 tons of cement.

#### *Ashgrove Cement Company*

The Ashgrove Cement, located in Leamington, Utah, was built in 1980, and expanded operations in 1995 to increase production to its current capacity of 850,000 tons of clinker per year. Ashgrove also added a new 30,000-ton cement silo for increased storage capacity.

During 2000, Ashgrove purchased 120,000 tons of Utah coal, and burned 122,000 tons in addition to 9,000 gallons of diesel fuel and 32,000 mcf of natural gas to produce 878,000 tons of clinker that went into making 867,000 tons of cement. Usually, the amount of cement produced is about four percent greater than the amount of clinker because of the added gypsum; however, during 2000 not all the clinker produced was used to make cement. This cement plant should remain at levels of production and coal consumption similar to the 2000 level for the foreseeable future.

## RESIDENTIAL AND COMMERCIAL COAL MARKETS

### Non-Utah Markets

For 2001, demand for residential and commercial coal outside Utah was relatively high at 254,000 tons, an 80 percent increase from 2000. Over the past 20 years, demand for Utah coal from other states for residential and commercial needs has typically been a small segment that has fluctuated between 50,000 and 300,000 tons per year. In 2001, more than 75 percent of this coal was sent to California, with small amounts also going to Washington, Idaho, Nevada, and Colorado. For 2002, this market segment is forecast to have a slight decrease in demand due to the weak regional economy.

### Utah Markets

During 2001, coal consumption residential and commercial users in Utah increased by 479 percent to 394,000 tons (Appendix table A). From the new all-time low in 2000, consumption by this sector rebounded to a new high, a dramatic swing in two years.

Utah demand for residential and commercial coal is strongly affected by the price of natural gas, a competing fuel. When the price of natural gas is high compared to coal, as it has been recently, residential and commercial consumers switch fuels from gas to coal. Conversely, when the natural gas

price is low compared to coal, natural gas becomes the more attractive fuel.

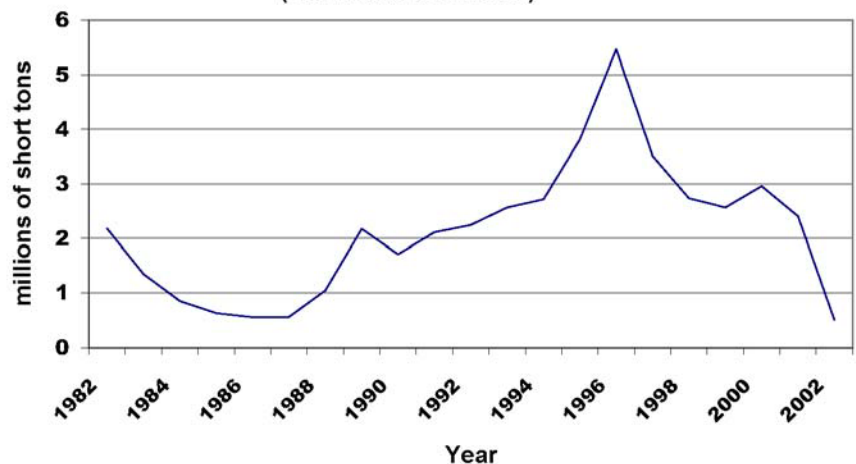
## OVERSEAS EXPORTS

Coal exports to the Pacific Rim countries dropped in 2001 to 2.40 million tons (figure 4). A strong American dollar and intense competition from Australian, Chinese, and Indonesian coal producers are expected to reduce Utah's 2002 overseas coal exports to minimal levels.

their high heat content and low sulfur content, and because U.S. coal producers are considered among the most reliable.

A major competitor for Utah for Pacific Rim customers is coal exported from Australia. While Utah producers have steadily reduced the cost of production and price of their coal over the past decade, they have been unable to control the strength of the U.S. dollar compared to the Australian dollar.

**Figure 4. Utah coal exports to Pacific Rim countries.**  
(2002 value is forecast)



Among all U.S. coal producing states, Utah is uniquely situated to serve the coal export market. Its low-cost, low-sulfur and high-Btu coal is closer to West Coast ports for shipment to Pacific Rim countries than any other U.S. coal source. In general, the U.S. has mainly been a swing supplier in the export market, because U.S. coals are often more expensive than coal from other countries. Coals from the U.S. are generally valued for

While the Pacific Rim market was one of the fastest growing markets in the world over the past decade, Utah's share of that market has been strongly affected by strength of the U.S. dollar compared to the Australian dollar and other currencies during this period. When the U.S. dollar has been strong, Utah coal exports to the Pacific Rim tend to drop. The U.S. dollar has been particularly strong in the past few years relative to other currencies.

cies and this has lead to a strong drop in sales of Utah coal to the Pacific Rim export market. In 2001, the export market was weak, and a more significant drop in exports is expected in 2002.

# Coal Imports

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Utah's recent coal imports have been used for coal-fired power generation and coking applications. There have been no imports for the industrial, residential, or commercial sectors. In 2001, companies operating in Utah imported 2.68 million tons of coal.

In the past, Geneva Steel imported low to medium-volatile bituminous coking coal to mix with Utah's high-volatile coal for the coke making. The use of Utah coal ended in February 1994, when the coal supply contract between Geneva and the Sunnyside Reclamation and Salvage Company expired. Since that time, Geneva has relied entirely on out-of-state coking coal and coke for steel production, thus accounting for

a major increase in the amount of imported coal to Utah. While Geneva purchased a small amount of Utah coal from the West Ridge and White Oak mines in 2001, no coal will be used in steel making in Utah in the future with Geneva's permanent shut down of the coking ovens at the end of 2001. Imported coke will be used in any future raw steel production should Geneva, or some successor, restart the facilities in Utah County.

The other major importer of coal to Utah is the Deseret Generation and Transmission Company, which bought coal from nearby Colorado for use at the Bonanza coal-fired electric generating plant in Uintah County. The Bonanza plant

purchased 1.53 million tons of coal from the Deserado mine in Colorado for its 2000 electric generation needs. In 2001, imports to the Bonanza plant increased to 2.03 million tons as it began a higher level of electric generation as a result of plant improvements.

No coal was imported for the residential and commercial sectors in 2001, and there are no indications that coal will be imported for these sectors in the future. Compared to the 2.68 million tons imported in 2001, the combined imports of coal into Utah for all uses are expected to drop to 2.05 million tons in 2002.



# Activities Of Utah Coal Operators

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## **Energy West Mining Company**

Energy West Mining Company is the coal-mining subsidiary of PacifiCorp, which is itself a subsidiary of Scottish Power. Energy West Mining Company had a successful year in 2001, achieving a total production of 5.26 million tons of coal from the Deer Creek and Trail Mountain mines. Each mine utilized one longwall production section, but the Deer Creek mine used two continuous miner development sections. The Deer Creek mine produced 4.34 million tons from the northern portion of the East Mountain Property known as the North Rilda Canyon area. The production from the Trail Mountain mine was less than originally anticipated, since the company decided to forego mining the last two longwall panels on the existing federal leases because of safety issues. Production from the Trail Mountain Mine ended in mid-March 2001, and totaled 0.924 million tons for the year. After skipping the mining of the last two panels, the labor force was mostly laid off, some retired, and a few were transferred to the Deer Creek mine. Machinery and equipment were removed from the mine, and it was sealed and abandoned.

Each of the mines produced relatively low-ash coal throughout the year. As a result, the preparation plant at the Hunter Power plant was used

only as a coal blending facility. All of the coal produced was consumed in the PacifiCorp-owned Huntington, Hunter, and Carbon steam-fired power plants. Due to a problem with its turbine, the Hunter number one unit experienced an unexpected shut down from November 2000 through early May 2001, thus reducing PacifiCorp's fuel requirements for 2001.

With the closure of the Trail Mountain mine, PacifiCorp has diversified its fuel supply options. New coal supply contracts have been signed with various other Utah coal producers.

## **Canyon Fuel Company, LLC**

Overall, the U.S. coal industry saw domestic demand for coal increase late in 2000. Increasing demand for Utah coal late in the year, while initially quite subtle, became more pronounced in the early months of 2001. That market change finally translated into rising prices for Utah coal. This upward trend in demand and coal prices has been dampened by a weaker U.S. economy as a result of the tragic events in September 2001. However, Arch Coal, Inc., a majority owner of Canyon Fuel Company (CFC), listed in its 2000 Annual Report several underlying conditions, which it believes will sustain a stronger future coal market. They are:

- Coal producers throughout the United States are essentially sold out for 2002, indicating supply is dwindling.
- Utility stockpiles are at 25-year low levels.
- Most mines are operating near maximum capacity, and limited low-cost, incremental tonnage could be mined.
- Because many coal companies now have their shares listed on the NYSE, producers have become less production-driven while becoming more attuned to market forces.
- It could take a year or longer for any substantial new capacity to come on line.
- Rail congestion in the West, especially in the Powder River Basin, and regulatory challenges in the East will deter expansion efforts.
- With lower-cost reserves becoming depleted and mining moving progressively to costlier reserves, especially for small producers, upward pressure is put on prices.

Electric utilities continue to view Utah coal as an important and economical fuel source. In fact, in 2001, CFC's shipments to domestic electric utilities increased by more than 50 percent over 2000's sales into that market, including shipments to several Mid-western utilities (many for the first time). CFC has also found that many cogeneration plants in California, with their newfound demand for electricity as a result of the state's recent power

shortage, have increasingly looked to coal to provide the majority of their solid fuel requirements. The demand for Utah coal as a kiln feedstock in both cement and lime production, plus its use for power generation in private applications by mining companies in various activities, continues to be constant.

The one dark spot on the market horizon involves the overseas export market, where Utah coal faces stiff competition from Australian, Chinese, and Indonesian coal producers due to the strong American dollar. In late 2001, CFC took a charge of \$10.1 million to write off its investment in the LAXT coal terminal in expectation of a weak future coal export market.

In April 2001, the Dugout Canyon mine installed a refurbished longwall mining machine that was previously used at its Skyline mine, and production for 2001 increased to 1.98 million tons. This longwall installation is intended for short-term use, and will be used to provide production only through September 2002, when a new longwall will be installed. Most of the increased production will be used for power generation in Utah and Nevada.

In 1999, CFC's SUFCO mine was the successful bidder for the BLM's lease sale of the 60 million-ton Pines Lease Tract. Mining of the first longwall panel in that lease began in the second half of 2001, and completion of that first panel is

expected late in 2002. For the next several years, the Pines Lease will provide most of SUFCO's production.

The SUFCO mine was a beneficiary of PacifiCorp's closure of the Trail Mountain mine in early 2001, when PacifiCorp announced a new long-term coal supply agreement for CFC to supply substantial quantities of coal to its Utah power plants. The initial test coal, shipped in late 2000, was blended with other coals at the plant and provided satisfactory results. SUFCO's sales volume to PacifiCorp increased significantly in 2001. In 2002, the use of SUFCO coal will increase further at the PacifiCorp plants, as SUFCO becomes a more important component in their coal blending plans.

CFC's Skyline mine had a relatively good year in 2001, and produced over 3.7 million tons of coal. This level of production was achieved in spite of significant water inflows encountered as mining proceeded toward deeper reserves on the western side of the existing leases.

#### ***Lodestar Energy Inc.***

Lodestar's White Oak mine completed retreat mining of its underground reserves in September of 2001, when reclamation and permanent abandonment was begun. Lodestar obtained a permit, and has begun recovery of barrier-pillar coal near the portals by surface mining methods as part of its reclamation of the portal area of the mine. This new surface

mining operation, which has about two years of reserve life, is named the Whisky Creek mine.

Lodestar's Horizon mine was idle during 2000, while a small rehabilitation crew prepared the underground portion of the mine for renewed operation. The company received approval of its mine plan in 2001 from the federal Office of Surface Mining, and the Utah Division of Oil, Gas and Mining. Production at the Horizon mine began late in 2001, but was suspended again in early 2002 because the old mine workings were more extensive than expected and mining conditions were difficult.

#### ***Andalex Resources, Inc.***

In March 2001, Andalex moved its longwall from the Aberdeen mine of the Tower Division to the West Ridge mine, a joint venture of Andalex and the IPA. Aberdeen mine was idled, but mining continued in the Centennial seam of the Pinnacle mine. Andalex utilized one continuous miner section to produce close to 0.3 million tons in 2001. They may add another continuous miner section in 2002, which could increase production to as much as 0.75 million tons.

All the coal left in the existing leases of the Pinnacle and the Aberdeen mines is considered "fringe-area coal" that is best produced by continuous miner methods. The company is considering leasing some deeper coal to the north of existing leases. This coal could

be mined by longwall methods. In the meantime, the Tower Division mines should keep producing between 0.5 and 0.75 million tons per year.

Andalex continues to use the Wildcat loadout for its own coal as well as coal from its joint-venture operations of Genwal and West Ridge Resources. Presently, the Wildcat loadout is handling 4 million tons per year.

#### ***Genwal Resources, Inc.***

The Crandall Canyon Mine, operated by Genwal Resources, Inc., experienced another banner year in 2001 by producing nearly 4 million tons of coal. Production comes from one longwall unit and two continuous miner units. One continuous miner unit develops the gate entries for the longwall, and the other develops the main entries and mines non-longwall reserves. Once again in 2001, Genwal's hard working and dedicated employees helped the company be one of the safest and most productive mines in the nation.

Longwall reserves on its current leases will be exhausted in 2003. Therefore, Genwal has applied to the BLM for reserves in a tract called the South Crandall LBA. This tract would add 10 million tons of high-quality coal that could be recovered by continuous miners.

#### ***West Ridge Resources, Inc.***

West Ridge mine, which is co-owned by Andalex and IPA, started its longwall operation in May 2001. Production for the

year was nearly 2.3 million tons. This mine is capable of producing 3 million tons of coal per year with about 100 employees. During 2002, West Ridge could produce nearly 3 million tons of coal.

West Ridge is mining low-ash, high-Btu coal that should prove attractive to consumers. The Sunnyside bed mine at West Ridge has been used for making coke in the past, and has potential future use for this application.

#### ***CO-OP Mining Company***

CO-OP Mining Company was started in 1940 and has operated continuously for the past 60 years. CO-OP is an independent coal producer of lower sulfur, high-Btu coal and operates in the Bear Canyon area near Huntington, Utah. Annual production was 0.81 million tons in 1999, and 1.04 million tons in 2000. In 2001, the Bear Canyon number 1 and 2 mines produced a total of 1.25 million tons, a new record for the company. CO-OP's marketing has been directed at industrial consumers, households, and utilities in Utah, Nevada, and to a lesser extent in the Mid-western U.S., east of the Mississippi River.

CO-OP controls in excess of 30 million tons of coal reserves, consisting of private, fee and federal coal, of which approximately 75 percent of the reserves are private and fee coal. The reserves are located east and west of Bear Canyon, though current mining operations are west of Bear Canyon.

There are three minable beds on the property. These include the Tank, Blind Canyon, and Hiawatha beds. The Tank is the uppermost bed, the Blind Canyon the middle bed, and the Hiawatha is the lowest bed. CO-OP is presently mining in the Tank bed. Coal thickness varies between 8 and 10 feet in the Tank bed, 12 and 20 feet in the Blind Canyon, and 5 and 9 feet in the Hiawatha. Mining is conducted with continuous miner and shuttle car equipment. The company has the capability to run three sections, but currently two sections are in operation.

#### ***Plateau Mining Corporation***

Plateau Mining Corporation halted coal production from its two Utah operations in 2000. Both the Star Point No. 2 and the Willow Creek mines produced a high-quality, steam coal product for the western United States and Pacific Rim export markets. Plateau Mining was purchased from Cyprus Amax Minerals Company by RAG American Coal Holding Inc.

The Star Point operation, located in the Wasatch Plateau coal field, produced only 89,000 tons from the Wattis seam before it closed in March 2000. The portals have been sealed and mine facilities have been reclaimed. The seven-million-ton coal waste pile has been sold to the Sunnyside Cogeneration facility.

At the Willow Creek mine, approximately 1.37 million tons of coal was produced in 2000

before a July 31 mine fire resulted in the deaths of two miners, and closure of the mine. By November 2000, all the miners and staff associated with mining activity were laid off, and the property was put up for sale. Amwest Exploration, a venture of the Utah Railway, investigated reopening the Willow Creek mine, but withdrew its offer in early 2002, and the mine has begun reclamation.

# Coal Leasing Activity in Utah

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There were no federal coal lease sales during 2000 and there was only one tract sold in 2001. The only tract leased in 2001 was the Whitmore Canyon tract, which was sold to Andalex Resources and the IPA, who jointly bid \$11.46 million for the tract.

## ***Genwal Resources, Inc.***

Genwal Resources filed for an LBA on June 6, 2000 for 880 acres of federal coal lease property in all or parts of sections 4, 5, 8 and 9 of Township 16 South, Range 7 East, containing some 8 million tons of recoverable coal. This tract is called Little Bear Canyon, and is located south of the Crandall Canyon mine. This tract was originally part of the already leased Mill Fork tract, but due to a lack of adequate information about the area, the U.S. Bureau of Land Management (BLM) and U.S. Forest Service (FS) decided to drop it from the Mill Fork tract. The FS has completed an Environmental Assessment analysis, and geological and engineering work has been completed for this new tract, which should be offered for sale in the second quarter of 2003.

## ***Energy West Mining Company***

Energy West Mining Company submitted a Lease by Application (LBA) request on February 26, 1991, for 7,864 acres in the Cottonwood Canyon area of the Wasatch Pla-

teau coal field in Emery County. In reviewing this LBA request, the Tract Delineation Team noted some areas where adjustments could be made in the tract configuration. The team modified the western edge of the tract where the management plan of the FS identified lands as unsuitable for coal leasing because of the need to protect the Joes Valley escarpment. Conversely, the team recommended inclusion of additional land to fill the gap left between the LBA request and existing PacifiCorp leases on the east. As a result, the configuration recommended by the Tract Delineation Team for the Cottonwood Canyon tract includes all or parts of sections 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 32 and 33 in Township 17 South, Range 6 East, in total 9,243.87 acres containing 75 million tons of recoverable coal.

There were two areas of concern prior to going out to bid: 1) determination of the area of surface disturbance, an issue which has to be resolved by the FS, and 2) the effect of mining-induced seismicity on the nearby Joes Valley Reservoir dam, an issue which has to be resolved with the Bureau of Reclamation. The School and Institutional Trust Lands Administration (SITLA) has arranged for the University of Utah Geology Department to study the seismicity of the area

and its possible effect on Joes Valley Reservoir dam. An environmental analysis to allow for leasing would take two years to be completed. Therefore, at the earliest, it would be several years before this tract could be offered for sale. PacifiCorp, which originally submitted the LBA request, has withdrawn its interest in this tract since closing their adjacent Trail Mountain mine. Thus, there is little impetus to move forward with leasing this tract.

## ***Canyon Fuel Company, LLC***

In 1998, Canyon Fuel Company, LLC submitted an LBA request for 2,692 acres of federal land containing about 36 million tons of recoverable coal in the Flat Canyon tract. The tract covers all or parts of Sections 21, 28 and 33 of Township 13 South, Range 6 East and all of Sections 4 and 5 of Township 14 South, Range 6 East. Delineation of this tract was completed by end of June 1999, and work on National Environmental Policy Act (NEPA) compliance was started. NorWest Engineers conducted the technical study for this tract. The draft EIS was released by the BLM and FS in May 2002, with plans to complete the final EIS before the end of that year. CFC has informed the BLM that there is no urgency to have this tract put up for sale because its operational plans for the Skyline mine have changed. The company has decided to mine

northward onto its Winter Quarters lease rather than pursuing coal reserves to the west of the Skyline mine.

In December 1999, SITLA declared of its readiness to offer its portion of the Dugout Canyon tract for lease. This tract consists of 2,360 acres of land covering all or parts of sections 17, 19, 20, 21, 28, 29 and 30 of Township 13 South, Range 13 East, containing 12.2 million tons of recoverable coal. In December 1999, CFC offered \$800,000 for this tract, and was turned down. Subsequent negotiations between SITLA and Canyon Fuel arrived at a fair market bonus bid of \$1,000,000, to be paid over nine years. The 20-year lease has a starting date of September 1, 2000, and covers up to 6 million tons of production. The lease agreement further stipulates that for all coal beyond the first 6 million tons of production, CFC would pay an additional deferred bonus of one and one-half percent of the gross value of the coal produced.

#### ***Andalex Resources, Inc.***

During March 1997, Andalex Resources purchased the B Canyon coal reserve from BP

America, a British Petroleum subsidiary, and began development mining with continuous miners in 2000. Andalex installed a longwall mining machine in 2001, and this should allow production to increase to at least 3 million tons per year. The B Canyon reserve (renamed West Ridge) should increase Andalex's recoverable coal reserves by at least 40 million tons.

AMCA Coal Company, the leasing agent for Andalex Resources, filed for an LBA in July 1997 for a 1,603-acre federal coal lease covering all or parts of sections 1, 12, and 13 of Township 14 South, Range 13 East, and sections 6, 7 and 18 of Township 14 South, Range 14 East, and section 35 of Township 13 South, Range 13 East. The regional coal team delineated a coal tract, named Whitmore Canyon, containing 1646.34 acres and some 14.8 million tons of recoverable coal. The tract is adjacent to the original B Canyon lease. After completing the required economic and environmental analyses, the BLM offered the tract for sale in late 2001. On December 17, 2001, a joint bonus bid by Andalex and IPA

of about \$11.46 million was announced as the winning bid.

In late 2001, AMCA Coal Company also nominated federal coal lands to the north of its current leases at the Tower mine complex in Deadman Canyon. The BLM is still analyzing data and conducting an environmental assessment for this tract, which has been named the Summit Tract. A 2003 lease sale for this tract is likely.

#### ***North Horn Tract***

The North Horn Mountain area, covering parts of Townships 18 and 19 South, and Ranges 6 and 7 East, contains a large reserve of unleased coal. Although tract boundaries have not been formally delineated and no tract is ready to be offered for lease, several coal operators have shown interest in this area. SITLA, which acquired an interest in the coal in this area as part of the Grand Staircase-Escalante exchange, is compiling baseline geologic and environmental information in preparation for offering a tract containing its holdings for lease.

# 2002 Outlook for Utah's Coal Industry

## Prices

Over the past two decades, the price paid per ton of Utah coal has generally declined (figure 5). In 1984, the average price per ton of Utah coal was \$29.20. During 2000, a similar ton of coal sold for \$16.93 per ton. This represents a decrease of 42 percent in current dollars, but a decrease of almost 62.2 percent on a constant dollar basis.

From 1990 to 1993, the average price per ton of coal hovered between \$21 and \$22. From 1994 through 2000, the price of Utah coal dropped each year, reaching a low of \$16.93 in 2000. In 2001, for the first time in many years, the average price paid per ton of Utah coal increased to \$17.76, or nearly a five percent increase from the 2000 level. This rise in coal price reflected

the effect of the California energy crisis on overall energy prices for 2001. A weakening U.S. economy at the end of 2001 promises to lower energy prices for 2002 and the average price paid for Utah coal. For 2002, the average price of coal will probably be about \$17.33 per ton.

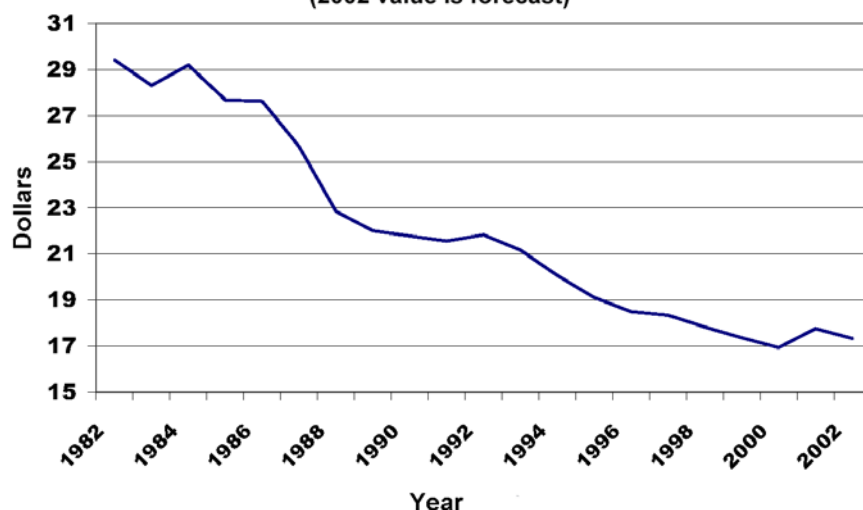
The average spot price of coal stood at \$14.33 during 1996, having fluctuated between \$13.50 and \$15.07, and then started to rise during the first quarter of 1997, and ended the year at \$16.63 for an average value of \$16.51. During 1998, spot prices stayed around \$16.63 and finished the second quarter of 1999 at the same level. During the third quarter of 1999 the spot price dropped down to \$16.00 and it was further reduced to \$15.25 in the fourth quarter of 1999.

During 2000, the spot price of Utah coal stayed around \$15.00 per ton. During the first half of 2001, the spot price for Utah coal gradually increased from \$15 to \$21, and then leveled off during the second half of the year at about \$22.25 per ton.

During 2002 Utah coal production will likely decrease by 2.3 million tons, from 27.0 to about 24.7 million tons. The decrease in production is due to a lower demand for Utah coal from Pacific Rim countries. A strong U.S. dollar means Asian consumers can purchase cheaper coal from Australian, Chinese, and Indonesian coal producers.

Changes in the price for Utah coal are not only a function of changes in international supply and demand or exchange rates, but also a function of the availability of coal in neighboring states, especially Colorado and Wyoming. For example, production problems at RAG American's Twenty Mile mine in Colorado contributed to rising Utah coal prices in 1996. Conversely, the existence of an oversupply in Colorado would play a role in depressing the price of Utah coal. The availability of vast amounts of low-cost, surface-minable coal from Wyoming's Powder River Basin has had a dramatic effect on lower coal prices throughout the western U.S. in the last decade.

**Figure 5. Average Utah coal price.**  
(2002 value is forecast)



## **Production**

Utah coal production for 2002 will be about 24.7 million tons, which is among the highest levels of production in Utah's 132-year history of coal production. Three factors will account for this high level of production: 1) strong demand for steam coal from electric utilities in Utah and Nevada; 2) increased demand for low-sulfur coal from eastern U.S. utilities; and 3) increased industrial consumption of Utah coal.

In 2002, shipments of Utah coal to domestic electric utilities, industrial, and residential and commercial markets will hold steady, while overseas export shipments are expected to fall off dramatically. Exports, recently the second or third largest market segment for Utah coal producers, will drop to the smallest market segment in 2002.

In the Wasatch Plateau coal field, production at CFC's Skyline mine could decrease by more than one million tons in 2002. Lodestar's coal production could experience a considerable decrease in 2002 as old reserves are exhausted and new mines are being developed. CO-OP's 2002 production is expected to match 2001 levels. The Crandall Canyon mine of Andalex will likely see production decrease somewhat in 2002 as existing reserves near depletion. Energy West's overall 2002 production will drop with the closure of the Trail Mountain mine in 2001, and unexpected geologic problems have hindered an in-

crease in production from the Deer Creek mine during 2002. The SUFCO mine of CFC will likely see a five percent increase in production over the record 7.0-million-ton level achieved in 2001.

In the Book Cliffs coal field, the mines of Andalex's Tower Division will likely see production decrease somewhat as their existing reserves near depletion, while the company's West Ridge mine could show a production increase of over 40 percent. The Soldier Canyon mine of CFC will continue its standby status in 2002, while production from the Dugout Canyon mine could increase by 20 percent or more.

A bright spot for Utah in 2002 will be the restarting of coal production from the Emery coal field for the first time in more than a decade. CONSOL Energy's reopening of the Emery underground mine will add a small amount of coal to Utah's 2002 total.

## **Distribution**

During 2002, production and distribution of Utah coal will probably stay slightly below 25 million tons. Distribution of coal to all domestic customers is expected to be close to levels established in 2001, while the amount of coal exported overseas will drop by nearly 2 million tons.

The first round of sulfur emission reductions required by the Clean Air Act led to the Tennessee Valley Authority (TVA) and White Oak Mining and Construction Company

signing a ten-year contract on January 1, 1995 for annual delivery of 1.5 million tons. Another 10-year coal contract for delivery of 0.5 million tons per year was signed on the same date between the TVA and Genwal Coal Company. These two contracts marked the first time in a decade that Utah coal began to flow to electric utilities in the east on a long-term basis, even though numerous spot sales had been made. Those 2 million tons of additional coal demand, guaranteed through 2005, was a boost to Utah's coal industry.

In addition to shipments to the TVA, two Utah companies are also sending coal to two electric utilities in Illinois. The market forecast for the next 10 years indicates that eastern U.S. electric utility demand for Utah coal should be about 4 million tons per year.

Distribution of Utah coal to electric utilities within the state should show very little year-to-year change, unless new facilities are built or some of the older units are retired. There is no indication that either will happen in 2002. Proposed expansions of the IPP or Hunter coal-fired power plants would probably not materialize until 2008 at the earliest.

The only factor that could materially affect electric utility coal consumption in Utah is the occurrence of a year with higher precipitation in the Pacific Northwest. Increased hydropower availability results in less consumption of Utah



coal because IPP curtails operation of its coal-fired units and purchases lower-cost hydropower.

During 2002, the IPP power plant will purchase and burn as much, or slightly more, coal as it did in 2001. PacifiCorp coal consumption for 2002 will also increase slightly, as long as there are no unexpected outages at its power plants. DG&T's Bonanza plant is not forecast to use any Utah coal in 2002. Barring any new development during the next five years, the electric utility sector's consumption of Utah coal within the state should remain around 14.5 million tons per year.

Distribution of Utah industrial coal outside the state during 2002 will decrease slightly from 3.06 million tons sold in 2001, while industrial consumption within the state is expected to increase slightly from the 0.74 million tons sold in 2001. The future consumption of industrial coal outside of the state is expected to increase gradually throughout the next decade.

Residential and commercial demand will remain flat in 2002, and probably until the U.S.

economy improves, or until natural gas prices in the Rocky Mountain area increase. Future improvement in this consuming sector is ultimately tied to the price of natural gas. Some commercial operations may begin switching from natural gas to coal.

Finally, the 2002 export market will decrease by about 80 percent, or 2 million tons. Sales of Utah coal to the export market will be difficult as long as there are a strong group of competitor coal producers in the western Pacific, a weak Pacific Rim economy, and a strong U.S. dollar.

In general, the outlook for Utah's coal industry is bright, despite some coal operators facing reserve depletion at existing mines, and the need to permit and open new mines. A number of successful new mines have come on line in Utah in recent years, and these operations have been expanding to meet the demand for low-sulfur Utah coal. Several companies have applied for new federal coal leases to maintain or expand their existing Utah operations. From 1996 through 2000, Utah coal operators saw an annual shift in supply as

nine new mines opened and eight existing mines closed. Surprisingly, high levels of productivity were maintained despite these many changes. This dynamic supply picture continued in 2001, when the White Oak and Trail Mountain underground mines both closed, and the Whisky Creek surface mine and the Emery underground mine both opened. No mine openings or closures are anticipated in 2002.

Coal production in Utah has enjoyed generally steady growth since the mid-1980s. Within the past decade, coal production has more than doubled, while coal prices have continually declined. This accomplishment is a testament to the industry's innovation in productivity.

In 2002, all domestic consuming coal sectors within and outside of Utah are expected to have a strong showing. Coal contracts with eastern utilities should add permanence to electric utility consumption outside of Utah. Only the overseas coal export market remains a problem for Utah coal operators in the near future.

## Federal, Legislative and Other Issues

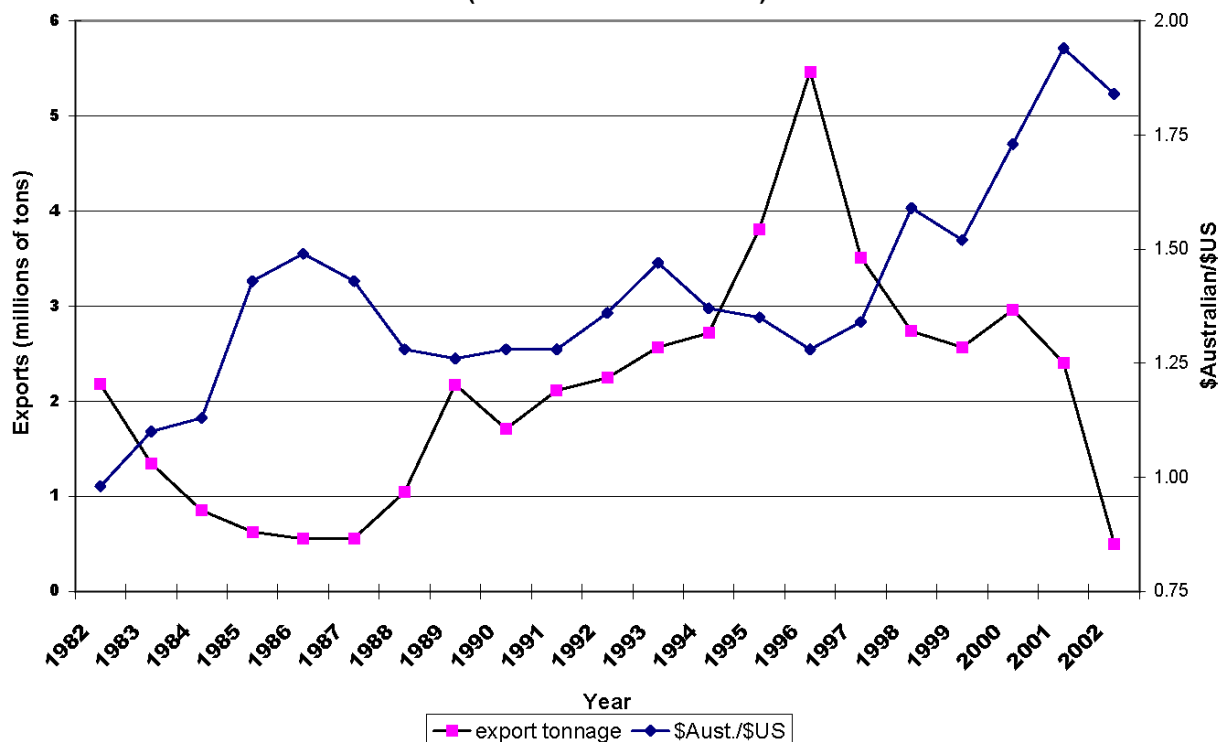
### Devaluation of Currency

The relative strength of the U.S. dollar compared to other foreign currencies affects the competitiveness of the price of Utah coal in the export market. During the 1970s and early 1980s (until 1982), the Australian dollar had a higher value than the American dollar. During the following four years, the Australian dollar fell precipitously in value, hitting a new low of 1.49 Australian dollars to American dollars in 1986. The next two years (1987 and 88) witnessed some strengthening in the value of the Australian currency and during the eight years from 1989 through 1996, the value of the Australian dollar was relatively constant, with

slight fluctuations from year to year around 1.28 Australian dollars to the American dollar (see graph, figure 6). During this period (1990 - 1996), Utah coal exports grew from 1.7 million ton per year to 5.5 million ton per year (see Appendix Table 1). From 1996 to 1998, the value of the Australian dollar fell more than 20 percent with respect to the American dollar. Recognizing that the bench-mark currency used in coal contracts in the Pacific Rim, and for that matter in the most of the rest of the world, is the American dollar, as of 1998, Australian coal operators could realize 25 percent more return in their devalued dollars than they did two years earlier.

This increase in profits allowed Australian coal operators much more room to discount their prices and compete more vigorously with Utah coal operators. Utah coal exports to the Pacific Rim fell from 5.5 million tons in 1996 to 3.5 million tons in 1997, then again to 2.7 million tons in 1998, and to 2.5 million tons in 1999. Exports rose to nearly 3 million tons in 2000, but fell to 2.4 million tons in 2001. Comparison of the value of the Australian dollar with that of Utah coal exports to Pacific Rim countries shows a negative correlation between these two factors (see figure 6). Generally, when the value of the dollar rises, the amount of Utah coal exports drop.

Figure 6. Exchange rate versus export volume.  
(2002 value is forecast)



### ***Mercury Content of Coal***

The second phase of the 1990 Clean Air Act Amendment went into effect on January 1, 2000. Some electric utility companies have already contracted for lower-sulfur coal and some are counting on the purchase of emission allowances as a way to comply. But, as more companies try to meet their emission limitations by purchasing emission allowances, the price of an allowance could go up, and thus make low-sulfur coal, as found in Utah, more attractive.

Utah coal has other advantages than just low sulfur. Utah's high-Btu coal emits as much as 12 percent less carbon dioxide per net generated kilowatt-hour of electricity than other low-Btu coals. Utah coals also emit smaller amounts of other harmful chemicals per kilowatt-hour of electricity generated; one of these chemicals is methyl mercury. So far, emission of mercury has not been regulated, but indications are that it will be regulated in the future.

The U.S. Geological Survey has published a report concerning the mercury level in various U.S. coals and an estimate of mercury emissions when those coals are burned. The study confirms the existence of low levels of mercury in many Utah coals. Unfortunately, when burned, Utah coals tend to release elemental mercury rather than mercury in an oxidized state. This form of mercury is difficult to recover using existing emission control technologies. The specific requirements of any mercury emission reduction regulations will be key in determining whether Utah coal will have an advantage or disadvantage in the market place as a low-mercury product.

### ***Coal-Based Jet Fuel***

Research conducted by the Energy Institute of Pennsylvania State University indicates a coal-based jet fuel can be superior to petroleum-based fuel because it burns hotter, cleaner, safer and faster. Jet planes burning coal-based fuel

could theoretically fly at least nine times the speed of sound.

Petroleum-based fuel, with its straight-line hydrocarbon structure, can burn well at temperatures of 600 degrees Fahrenheit or less. As the speed of a jet plane increases, the engine operating temperature also increases. At higher temperatures, the fluid fuel becomes unstable and could cause fouling of the engine and the fuel line. The Penn State research study, funded by the U.S. Air Force, shows that the ring-like hydrocarbon makeup of the coal-based fuel can operate well in temperatures as high as 900 degrees Fahrenheit without fouling the engine. Tests at temperatures higher than 1,400 degrees Fahrenheit have also been conducted with good results.

If the findings of this research prove favorable, there is a good chance that a prototype engine may be available in the near future. Should the use of a coal-based fuel in newly developed jet engines become a reality, it would bode well for the coal industry.

# Appendix

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Table A  
Historical Production, Distribution, and Consumption of Coal in Utah  
Thousand Short Tons

YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
PRODUCTION	22,012	21,875	21,015	21,723	24,422	25,051	27,071	26,428	26,600	26,491	26,920	27,024	24,684
DISTRIBUTION	21,680	21,673	21,339	21,935	23,441	25,443	27,816	25,407	26,974	26,180	27,629	26,798	24,755
E U OUTSID UTAH	3,373	3,608	4,000	3,914	4,841	6,570	7,258	5,638	7,704	6,910	6,639	7,419	7,400
E U IN UTAH	14,053	13,472	13,136	13,343	13,839	12,550	12,728	14,780	14,545	14,593	15,807	14,508	14,500
C P OUTSID UTAH	0	0	0	0	0	0	0	0	0	0	0	0	0
C P IN UTAH	1,296	1,310	1,182	1,089	1,198	1,062	1,120	1,106	1,110	728	941	648	0
IND OUTSIDE UTAH	2,327	2,158	2,006	2,146	2,322	2,399	2,339	2,164	2,749	2,529	2,892	3,055	3,000
IND IN UTAH	619	624	497	614	647	642	517	665	680	830	634	792	780
R/C OUTSIDE UTAH	59	76	81	134	308	68	51	60	82	75	141	254	225
R/C IN UTAH	82	320	347	228	157	182	260	96	212	107	82	394	350
OVERSEAS EXPORTS	1,708	2,112	2,245	2,567	2,717	3,811	5,468	3,513	2,735	2,567	2,960	2,404	500
TOTAL IMPORTS	2,137	2,007	2,155	2,100	2,588	1,841	1,925	2,615	2,715	2,159	2,467	2,676	2,000
IMPORTS E U	1,449	1,310	1,517	1,501	1,495	779	805	1,509	1,733	1,431	1,531	2,028	2,000
IMPORTS C P	679	695	629	579	1,089	1,062	1,120	1,106	928	728	936	648	0
IMPORTS IND	7	2	9	20	4	0	0	0	0	0	0	0	0
IMPORTS R/C	2	0	0	0	0	0	0	0	0	0	0	0	0
COAL OPERATORS	13	12	12	11	10	9	9	10	10	10	10	10	11
ACTIVE MINES	18	16	16	15	14	13	12	15	15	14	14	12	13
EMPLOYEES	2,791	2,292	2,106	2,161	2,024	1,989	2,077	2,091	1,950	1,843	1,672	1,564	1,535
PRODUCTIVITY,T/M	4.22	4.79	5.13	5.47	6.01	6.41	5.91	5.57	6.12	6.09	6.91	5.89	6.00
AVERAGE PRICE \$/T	22.78	21.56	21.83	21.17	20.07	19.11	18.50	18.34	17.83	17.36	16.93	17.76	17.33
<b>TOTAL VALUE \$MM</b>	479.4	471.6	458.8	459.9	490.2	478.7	500.8	484.7	474.2	459.8	455.8	479.8	427.7

Values for 2002 are forecast. Market sector distribution figures include imports.

EU = Electric Utilities, CP = Coke plants, IND = Industrial, R/C = Residential and Commercial

Table B

**Utah Coal Production(Net) by Coal mine, 2001**  
 Thousand Short Tons

<b>Company</b>	<b>Mines</b>	<b>County</b>	<b>Coal field</b>	<b>Production</b>
Energy West	Deer Creek,	Emery	Wasatch Plateau	4,338
	Trail Mountain	Emery	Wasatch Plateau	924
Canyon Fuel	Skyline #1&3	Emery/Carbon	Wasatch Plateau	3,822
	Dugout Canyon	Carbon	Book Cliffs	1,981
	SUFCO	Sevier	Wasatch Plateau	7,001
Lodestar	White Oak #2	Carbon	Wasatch Plateau	559
	Horizon	Carbon	Wasatch Plateau	23
	Whisky Creek	Carbon	Wasatch Plateau	1
West Ridge	West Ridge	Carbon	Book Cliffs	2,298
Genwal	Crandall Canyon	Emery	Wasatch Plateau	3,996
Co-op	Bear Canyon	Emery	Wasatch Plateau	1,254
Andalex	Aberdeen	Carbon	Book Cliffs	531
	Pinnacle	Carbon	Book Cliffs	296
<b>Total</b>				<b>27,024</b>

Table C

**Utah Coal Production by Coal Field**  
Thousand Short Tons

<b>Year</b>	<b>Wasatch Plateau</b>	<b>Book Cliffs</b>	<b>Emery</b>	<b>Sego</b>	<b>Coalville</b>	<b>Others</b>	<b>Total</b>
1870-1981	166,404	234,547	5,723	2,654	4,262	2,332	<b>415,922</b>
1982	12,342	3,718	852	0	0	0	<b>16,912</b>
1983	10,173	1,568	88	0	0	0	<b>11,829</b>
1984	10,266	1,993	0	0	0	0	<b>12,259</b>
1985	9,386	2,805	640	0	0	0	<b>12,831</b>
1986	10,906	2,860	503	0	0	0	<b>14,269</b>
1987	13,871	2,348	269	0	33	0	<b>16,521</b>
1988	15,218	2,363	548	0	35	0	<b>18,164</b>
1989	17,146	2,785	586	0	0	0	<b>20,517</b>
1990	18,591	3,085	336	0	0	0	<b>22,012</b>
1991	18,934	2,941	0	0	0	0	<b>21,875</b>
1992	18,631	2,384	0	0	0	0	<b>21,015</b>
1993	19,399	2,324	0	0	0	0	<b>21,723</b>
1994	22,079	2,343	0	0	0	0	<b>24,422</b>
1995	22,631	2,420	0	0	0	0	<b>25,051</b>
1996	23,616	3,455	0	0	0	0	<b>27,071</b>
1997	22,916	3,512	0	0	0	0	<b>26,428</b>
1998	22,708	3,892	0	0	0	0	<b>26,600</b>
1999	23,572	2,919	0	0	0	0	<b>26,491</b>
2000	22,967	3,953	0	0	0	0	<b>26,920</b>
<b>2001</b>	<b>21,919</b>	<b>5,106</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>27,024</b>
2002	18,891	5,668	35	0	0	0	<b>24,684</b>
<b>Cumulative Production</b>	<b>523,675</b>	<b>293,321</b>	<b>9,545</b>	<b>2,654</b>	<b>4,330</b>	<b>2,332</b>	<b>835,856</b>

Values for 2002 are forecast and are not included in the total.

Table D **Utah Coal Production by County** (in thousands of short tons)

<b>Year</b>	<b>Carbon</b>	<b>Emery</b>	<b>Sevier</b>	<b>Summit</b>	<b>Iron</b>	<b>Kane</b>	<b>Others</b>	<b>Total</b>
1870-1959	211,028	49,166	4,046	4,012	521	45	2,846	<b>271,664</b>
1960	3,698	1,137	49	20	50	0	1	<b>4,955</b>
1961	3,916	1,124	47	20	52	0	0	<b>5,159</b>
1962	3,105	1,077	49	20	46	0	0	<b>4,297</b>
1963	3,493	752	47	18	48	1	0	<b>4,359</b>
1964	3,752	848	47	17	54	2	0	<b>4,720</b>
1965	3,779	1,101	61	13	36	2	0	<b>4,992</b>
1966	3,380	1,170	65	15	4	2	0	<b>4,636</b>
1967	2,971	1,113	72	13	3	2	0	<b>4,174</b>
1968	3,062	1,167	70	13	3	2	0	<b>4,317</b>
1969	3,367	1,200	72	12	4	2	0	<b>4,657</b>
1970	3,349	1,292	79	13	0	0	0	<b>4,733</b>
1971	3,347	1,097	158	12	0	12	0	<b>4,626</b>
1972	2,956	1,656	184	6	0	0	0	<b>4,802</b>
1973	2,866	2,445	339	0	0	0	0	<b>5,650</b>
1974	2,754	2,901	391	0	0	0	0	<b>6,046</b>
1975	2,984	3,126	827	0	0	0	0	<b>6,937</b>
1976	3,868	3,057	1,043	0	0	0	0	<b>7,968</b>
1977	4,390	3,107	1,337	0	0	0	4	<b>8,838</b>
1978	4,005	3,640	1,558	0	0	0	50	<b>9,253</b>
1979	5,292	5,147	1,657	0	0	0	0	<b>12,096</b>
1980	5,096	6,319	1,821	0	0	0	0	<b>13,236</b>
1981	6,123	5,609	2,076	0	0	0	0	<b>13,808</b>
1982	8,335	6,329	2,248	0	0	0	0	<b>16,912</b>
1983	4,194	5,404	2,231	0	0	0	0	<b>11,829</b>
1984	5,293	4,825	2,141	0	0	0	0	<b>12,259</b>
1985	6,518	4,516	1,797	0	0	0	0	<b>12,831</b>
1986	6,505	5,404	2,360	0	0	0	0	<b>14,269</b>
1987	7,495	6,765	2,228	33	0	0	0	<b>16,521</b>
1988	7,703	7,801	2,625	35	0	0	0	<b>18,164</b>
1989	8,927	8,531	3,059	0	0	0	0	<b>20,517</b>
1990	8,810	10,315	2,887	0	0	0	0	<b>22,012</b>
1991	5,816	12,980	3,079	0	0	0	0	<b>21,875</b>
1992	3,386	15,049	2,580	0	0	0	0	<b>21,015</b>
1993	2,642	15,528	3,553	0	0	0	0	<b>21,723</b>
1994	4,523	16,330	3,569	0	0	0	0	<b>24,422</b>
1995	3,801	17,344	3,906	0	0	0	0	<b>25,051</b>
1996	5,985	16,872	4,214	0	0	0	0	<b>27,071</b>
1997	6,956	14,533	4,939	0	0	0	0	<b>26,428</b>
1998	7,206	13,675	5,719	0	0	0	0	<b>26,600</b>
1999	4,514	16,214	5,763	0	0	0	0	<b>26,491</b>
2000	4,615	16,399	5,906	0	0	0	0	<b>26,920</b>
<b>2001</b>	<b>5,689</b>	<b>14,334</b>	<b>7,001</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>27,024</b>
2002	6,066	11,144	7,474	0	0	0	0	<b>24,684</b>
<b>Cumulative</b>		<b>329,399</b>	<b>87,900</b>	<b>4,272</b>	<b>821</b>	<b>70</b>	<b>2,901</b>	<b>835,857</b>

Values for 2002 are forecast and are not included in the total.



Table E **Utah Coal Production by Landownership** (in thousand of short tons)

Year	Federal Land		State Land		County Land		Fee Land		Total
	Tons	Percentage	Tons	Percentage	Tons	Percentage	Tons	Percentage	
1980	8,663	65.5%	1,105	8.3%	0	0.0%	3,468	26.2%	<b>13,236</b>
1981	8,719	63.1%	929	6.7%	0	0.0%	4,160	30.1%	<b>13,808</b>
1982	10,925	64.6%	998	5.9%	0	0.0%	4,989	29.5%	<b>16,912</b>
1983	6,725	56.9%	419	3.5%	0	0.0%	4,685	39.6%	<b>11,829</b>
1984	8,096	66.0%	285	2.3%	0	0.0%	3,878	31.6%	<b>12,259</b>
1985	9,178	71.5%	510	4.0%	0	0.0%	3,143	24.5%	<b>12,831</b>
1986	11,075	77.6%	502	3.5%	0	0.0%	2,692	18.9%	<b>14,269</b>
1987	13,343	80.8%	488	3.0%	0	0.0%	2,690	16.3%	<b>16,521</b>
1988	15,887	87.5%	263	1.4%	0	0.0%	2,014	11.1%	<b>18,164</b>
1989	16,931	82.5%	375	1.8%	153	0.7%	3,058	14.9%	<b>20,517</b>
1990	17,136	77.8%	794	3.6%	606	2.8%	3,476	15.8%	<b>22,012</b>
1991	18,425	84.2%	942	4.3%	144	0.7%	2,364	10.8%	<b>21,875</b>
1992	17,760	84.5%	1,384	6.6%	136	0.6%	1,735	8.3%	<b>21,015</b>
1993	19,099	87.9%	1,682	7.7%	116	0.5%	826	3.8%	<b>21,723</b>
1994	22,537	92.3%	1,227	5.0%	243	1.0%	415	1.7%	<b>24,422</b>
1995	23,730	94.7%	571	2.3%	289	1.2%	461	1.8%	<b>25,051</b>
1996	25,996	96.0%	446	1.6%	15	0.1%	614	2.3%	<b>27,071</b>
1997	25,161	95.2%	339	1.3%	0	0.0%	928	3.5%	<b>26,428</b>
1998	24,954	93.8%	297	1.1%	37	0.1%	1,312	4.9%	<b>26,600</b>
1999	21,982	83.0%	3,071	11.6%	65	0.2%	1,373	5.2%	<b>26,491</b>
2000	20,812	77.3%	4,021	14.9%	0	0.0%	2,087	7.8%	<b>26,920</b>
<b>2001</b>	<b>18,369</b>	<b>68.0%</b>	<b>5,386</b>	<b>19.9%</b>	<b>331</b>	<b>1.2%</b>	<b>2,939</b>	<b>10.9%</b>	<b>27,024</b>
2002	17,994	72.9%	4,695	19.0%	0	0.0%	1,995	8.1%	<b>24,684</b>

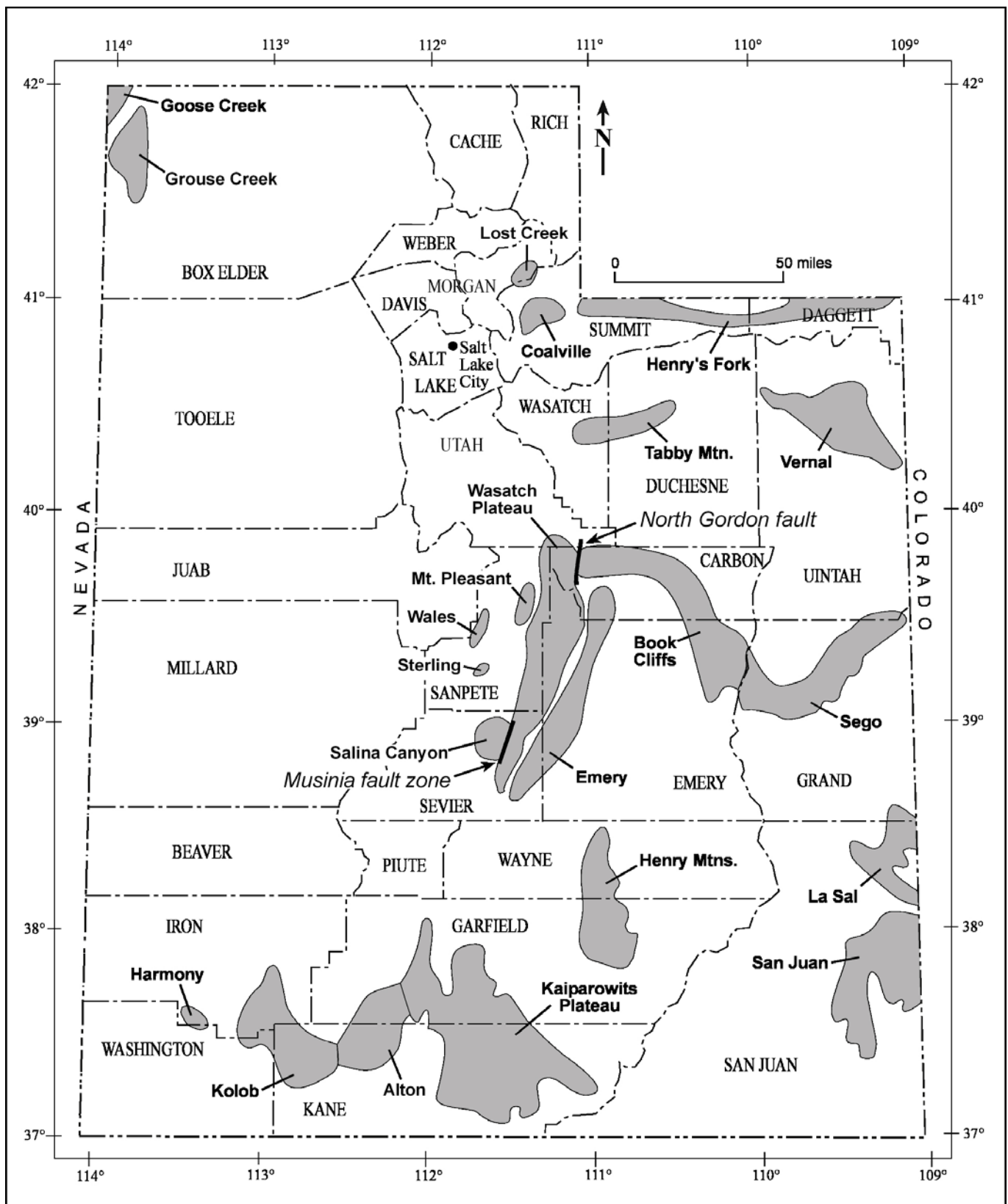
Values for 2002 are forecast.

Table F

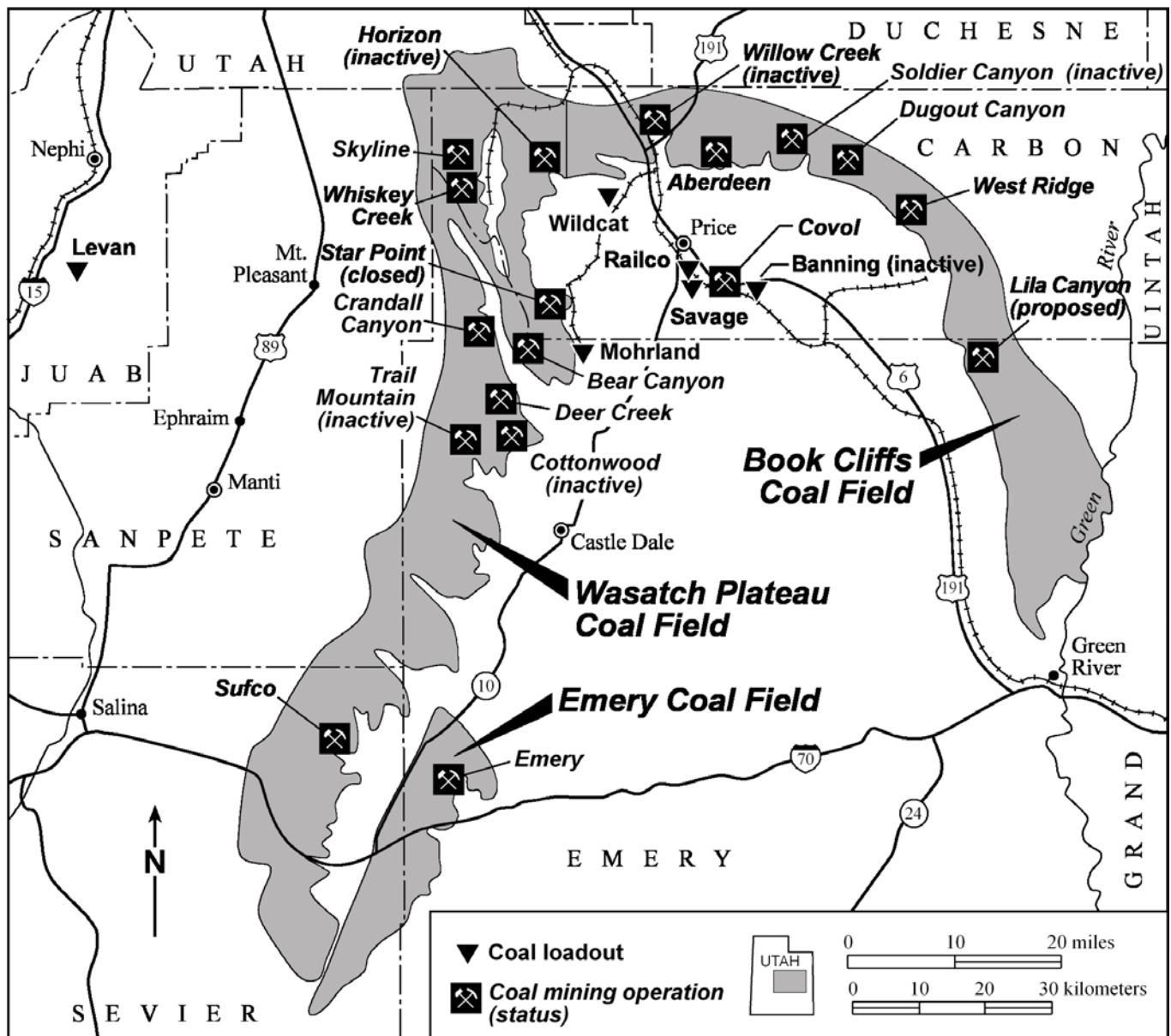
**Distribution of Utah Coal 2001**

By Destination and End-Use, Thousand Short Tons (\*0 = small amounts)

<b>Destination</b>	<b>Electric Utilities</b>	<b>Other Industrial</b>	<b>Residential &amp; Commercial</b>	<b>Total</b>
Arizona	0	31	0	31
California	133	2,262	196	2,591
Colorado	23	0	0	23
Idaho	0	206	7	213
Illinois	57	0	0	57
Louisiana	78	0	0	78
Michigan	25	0	0	25
Minnesota	40	0	0	40
Missouri	565	0	0	565
Montana	0	0	*0	*0
Nevada	3,856	390	7	4,253
Ohio	20	0	0	20
Oregon	265	90	0	356
Pennsylvania	256	0	0	256
Tennessee	1,886	0	0	1,886
<b>Utah</b>	<b>12,481</b>	<b>792</b>	<b>393</b>	<b>13,666</b>
Virginia	52	0	0	52
Washington	0	76	21	97
Wisconsin	187	0	0	187
Pacific Rim	2,404	0	0	2,404
<b>Total</b>	<b>22,325</b>	<b>3,847</b>	<b>626</b>	<b>26,798</b>



Map 1. Location of Utah coal fields.



Map 2. Location and status of Utah coal mining operations as of early 2002.