Annual Review and Forecast of

UTAH COAL

Production and Distribution 2002

Prepared by the Utah Energy Office
Department of Natural Resources

www.energy.utah.gov

Printed November 2003

STATE OF UTAH
NATURAL RESOURCES
Utah Energy Office

ANNUAL REVIEW AND FORECAST OF UTAH COAL 2002

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Cover photographs provided by Bureau of Land Management and Utah Geological Survey

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EXECUTIVE SUMMARY

For the first time in many years coal prices in the United States rose across the board, particularly for metallurgical coal and coke products. The turnaround may be due to several factors: gradually improving economic conditions, both domestically and abroad; rising demand for electricity, half of which is coal-fired; a decline in coal production, both in Utah and across the country; and concerns about the price and availability of natural gas and petroleum products, some of which can substitute for coal. Industry analysts predict that coal will take a slightly larger share of total U.S. energy during 2003.

The price of Utah coal rose by an average 71 cents per ton, or 4.0 percent, to $18.47. Nationally, utility coal for power production rose by just 16 cents per ton, but industrial coal rose by more than a dollar, and coking coal for steelmaking rose by almost five dollars per ton. In spite of higher prices, estimated total Utah coal revenues declined by $12.6 million, due primarily to a 6.4 percent decline in production.

Utah mines produced about 25.3 million tons of coal during 2002, down 6.4 percent from a near-record high production of just over 27.0 million tons in 2001. Total U.S. coal production also declined, from a record 1.13 billion tons in 2001 to 1.09 billion tons in 2002, a drop of 3.5 percent. These tandem declines can be attributed to several factors: substantial stockpiles from high production in 2001; continuing sluggish economic conditions; gradual depletion of lower-cost coal reserves, conflicts over environmental, regulatory and legal matters; relatively mild winter weather in some parts of the country; and imports of low cost coal from foreign countries.

Utah mines, though highly productive, are located somewhat far from major markets and transportation routes. Also, as the best coal seams are depleted, it is increasingly difficult to match the chemistry of different Utah coals to specialized combustion requirements mandated by air quality standards. Meanwhile, Utah miners may be the best in the world at working efficiently under difficult underground conditions and broad-ranging regulatory constraints.

Export markets for U.S. coal declined to near record lows during 2002, and disappeared entirely for Utah coal by the end of the year. The continuing strength of the U.S. dollar is blamed for most of the decline; however, foreign coal, particularly from Australia, is being mined and marketed more efficiently, and is well located to serve growing Pacific Rim demand. Australia is now the world's leading coal exporter.

During 2002, the financial insolvency of prominent national mining insurance companies preceded the shutdown of several U.S. mines, including two in Utah. Coal production also slowed regionally, with overall production for the western states staying consistent with the previous year. U.S. sales of metallurgical coal was a bright spot, as export demand helped push prices to more than $51.00 per ton, more than twice the average price for Utah bituminous coal.

Coke is no longer produced in measurable amounts in Utah, due to depletion of coke-quality coal fields and the continuing decline of heavy industry across the United States. As is typical of U.S. economic downturns, the current domestic recession hit the industrial sector hard, and recovery is expected to be weak for manufacturing. The same has proven true in Utah: in years past, central Utah was host to hundreds of coke ovens that supported thousands of jobs. The permanent closure of Geneva Steel eliminated the last Utah consumer of coking coal, and eliminated the need for in-bound shipments of coke and taconite for steel production.

Production of synthetic fuel from coal waste and run-of-mine is a rising star; more than 40 plants across the United States have come into production to take advantage of federal tax credits. The Covol/DTE facility near Price, Utah is the only "synfuel" plant west of the Mississippi River.

The outlook for 2003 should follow recent trends: continuing consolidation of coal mines and their parent companies as marginal producers fail or are absorbed by others, increasing use of technology to meet the risk and complexity of mining marginal reserves, and long-term growth in demand for electricity across the United States.

Utah coal will be devoted primarily to electric power generation, including cogeneration industrial plants in Nevada and California. Utah mines will continue to run efficiently, under increasingly difficult conditions, as lower

cost coal reserves are depleted. Progress will need to be made on leasing and permitting new tracts of coal adjacent to existing mines, so that a steady supply of new reserves can be approved for mining in advance of demand.

Natural gas has made in-roads as a competing fuel for power production; however, a recent rise in in natural gas prices, caused in part by the recently expanded Kern River pipeline, continues to keep coal the low-cost option for power generation in the Intermountain West.

Commercial and residential demand for coal continues to decline as natural gas networks gradually expand in rural areas, and outdated coal-fired equipment is gradually replaced.

The most persistent question raised by coal consumers at the end of 2002 is how well Utah mines will continue to provide a stable supply of high-quality coal in the face of reserve depletion, low prices and mine closures.

UTAH COAL PRODUCTION 2002

INTRODUCTION

This report was prepared by the Utah Energy Office, at the Department of Natural Resources, as part of its program to provide analysis and statistics for all energy sources in Utah. Data for the report were gathered directly from coal producers and consumers, with comparisons made to national data, news reports and related sources. John Blake, of the Utah School and Institutional Trust Lands Administration (SITLA) and staff from the Utah Geological Survey were particularly involved in their respective sections of this report. Effort was made to assure that all data and conclusions were reviewed by appropriate parties. Predictions about the industry are uncertain and will be the subject of continuing study. Making estimates of usable coal in Utah fields is particularly challenging, but will be of increasing interest in future years.

Economic recession has affected energy production and consumption since the turn of this new century. Coal production in the United States totaled about 1.09 billion tons in 2002, down from 1.13 billion tons the year before. Utah coal production followed suit, in part due to dwindling export markets that as recently as 1996 totaled about 5.5 million tons.

Nationally, coal producers responded to the economy by slowing production by 2.8 percent. In the west, Wyoming was among the few states showing a production increase. Utah coal production in 2002 totaled about 25.3 million tons, down from a 1996 record of 27.1 million tons (Table 1). This production decrease also resulted in a decline of sales revenue from $480 million in 2001 to $467 million in 2002, a 2.6 percent decrease.

Export markets for Utah coal dwindled during 2002, reducing the demand burden on Utah mines by about 1.5 million tons from the year before, and by about 4.6 million tons in comparison to Utah's peak export year of 1996. Only about 3.6 percent of total Utah coal shipments were to foreign countries during 2002, but these were closeout shipments on previous-year contracts. Nationally, exports continued to decline to 39.7 million tons, down 60.8 percent from a decade ago.

The Utah coal industry follows national trends in the declining number of mines and mining companies. During 2002, six active Utah mines reported increases in production, while five reported declines. Three new mine operations opened while none closed; however, all three new mines closed after the end of 2002, and another closure is pending.

Nationally, 60 percent of coal comes from mines producing more than one million tons per year. By contrast, more than 90

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

Year	Production	Employment	Productivity	Prices
	Thousand short tons	Number of Employees	Tons/Miner Hour	$/Ton (current dollars)
1982	16,912	4,296	2.05	29.42
1983	11,829	2,707	2.59	28.32
1984	12,259	2,525	2.94	29.20
1985	12,831	2,563	2.80	27.69
1986	14,269	2,881	3.08	27.64
1987	16,521	2,650	3.25	25.67
1988	18,164	2,559	3.69	22.85
1989	20,517	2,471	4.42	22.01
1990	22,012	2,791	4.10	21.78
1991	21,875	2,292	4.79	21.56
1992	21,015	2,106	5.13	21.83
1993	21,723	2,161	5.47	21.17
1994	24,422	2,024	6.01	20.07
1995	25,051	1,989	6.41	19.11
1996	27,071	2,077	5.91	18.50
1997	26,428	2,091	5.57	18.34
1998	26,600	1,950	6.19	17.83
1999	26,491	1,843	6.09	17.36
2000	26,920	1,672	6.91	16.93
2001	27,024	1,564	5.98	17.76
2002	25,299	1,525	6.83	18.47
2003*	25,720	1,452	7.00	18.86

Source: UEO Coal Company Questionnaires

*Forecast

percent of Utah coal production came from mines producing more than a million tons per year. This fact helps explain Utah's high miner productivity, but also portends vulnerability, because trouble at any one mine jeopardizes a large fraction of Utah's coal production commitment.

MINER PRODUCTIVITY

Consolidation of Utah coal production into fewer, larger operations reflects the need for advancing technology to reach deeper, more difficult seams. As such, the number of miners continues to decline as larger and more efficient equipment replaces manual labor.

In 2002, just 1,525 employees produced about 25.3 million tons of coal, or about 16,600 tons per employee (Table 1). Manpower efficiency continues to be strong, with miner productivity at 6.8 tons per man-hour. If Consol's start-up operation is excluded, then existing mines set a new in-state record of more than 7.0 tons per miner hour, up from the previous best of 6.9 in the year 2000.

Utah mines are also run at high rates of equipment utilization. On average, Utah facilities are deeper and more expensive to operate than is the case nationally. Over time, low-cost reserves are depleted, and coal operators resort to seams with more difficult geologic problems. Consolidation of Utah mines and more intensive operations at remaining facilities may mean that coal consumers are more vulnerable to supply disruptions when production problems occur, such as water intrusion, fires, or geological faults. The 2,800 feet of overburden at Andalex's Aberdeen seam illustrate the depths to which Utah miners are going.

The increasing complexity of Utah coal mining is also exemplified by the pending closure of Skyline mine, formerly the highest producing mine in Utah. Skyline coal will be difficult to replace because other Utah mines are running at high rates of utilization, and because Skyline coal quality has been good. Also, given that coal blending is increasingly required to achieve specific combustion efficiency and emission requirements, blending lower-quality coal with Skyline's high-quality coal will no longer be an option.

PRODUCTION BY COAL FIELD

Mines in the Wasatch Plateau once again led production in 2002, yielding more than 19.6 million tons, or 77.7 percent of the state's total. This amount is lower, in both tonnage and relative share, than last year. With the closure of Trail Mountain and White Oak mines in 2001, along with other losses, Wasatch Plateau mines essentially shouldered the state's entire production decline in 2002. Meanwhile, Book Cliffs mines increased production by more than half a million tons, raising their portion of Utah's supply of coal to 22.2 percent. The Emery coal field appeared on the scene for the first time in more than a decade as Consol's Emery Deep mine produced enough tonnage for sample deliveries in search of contracts.

During 2003, Wasatch Plateau mines may not recoup their share, considering that Sufco is running at full capacity, and all three Lodestar facilities have since closed. It appears that Crandall Canyon's opportunities for long term steady production have been compromised, as Andalex was outbid by Pacificorp for convenient Mill Fork reserves.

Meanwhile, production at West Ridge, Aberdeen/Pinnacle and Dugout Canyon are expected to continue making equipment changes that will result in higher production in the Book Cliffs field. Emery Deep mine may be successful in obtaining contracts for production from its large, easily accessible seams even though transportation costs from this location are high.

Utah has other fields containing good quality coal, but most of these fields are either too small to be mined economically at current prices, are restricted by land use regulation, or are too remote for economical transportation to market.

PRODUCTION BY COUNTY

Production between Carbon, Emery and Sevier counties has become more balanced in recent years, and particularly since last year. Emery County mines lead at 46.2 percent of total, with more than 11.6 million tons produced. Carbon County increased from 21.1 percent last year to 23.7 percent in 2002. Sevier County boosted its share to 30.0 percent, solely on the basis of Sufco's continuing record production in the midst of closure or decline of other mines.

For a time, Canyon Fuel's Skyline mine and the Star Point mine of Cyprus Plateau were Utah production leaders, shifting pro-

duction to or from leases in both Carbon and Emery counties. Star Point is now gone, and Skyline is scheduled to close in 2004, thus ending an era and requiring the continuing strength of state-leading Sufco and hard-pressed Book Cliffs mines to meet high demand for coal.

PRODUCTION BY LANDOWNERSHIP

Federal leases continue to shoulder the burden of coal market demands, yielding a steady 18.4 million tons of coal, or 72.6 percent of total product. That share is 4.6 percent higher than last year, only because coal production declines during 2002 were relatively smaller on federal lease mines than on state, county and private lands. The strength of Sufco, West Ridge and Deer Creek, along with the rise of Andalex mines, will keep federal leases the primary source of Utah coal for some time.

Coal production on state lands declined by more than one million tons during 2002, or about 60 percent of the state's production loss during the year. In the future, state lands will continue to produce substantially more than in recent decades on the strength of Deer Creek and the rise of Dugout Canyon mine. As recently as 1998, state lands produced as little as 1.1 percent of Utah's coal.

The reliance of C.W. Mining Company's Co-op mine on "fee" land will keep private landowners an important piece of the coal supply puzzle, even though production on their Co-op Bear Canyon property also declined during 2002. Overall, coal production on private land declined by about 636,000 tons, but still retained a market share of 9.1 percent, several times higher than the average share during the 1990s. Production on county lands was very small with little prospect for change.

In summary, coal production on federal land comes out roughly the same as last year, at 18.4 million tons, with Deer Creek declining by more than a million tons. Meanwhile, the combined increases of Crandall Canyon, Dugout Canyon, Skyline, Sufco and West Ridge made up the difference.

On state land, Crandall Canyon was down 848,000 million tons and Dugout Canyon was down 185,000, for a net loss of more than one million tons.

On private, or fee land, Deer Creek production was down by 82,000 tons, Co-op was down by 297,000 tons, Lodestar mines were up by 62,000 tons, and Skyline was off by 471,000 tons. Andalex's Pinnacle and Aberdeen mines were up by 26,000 tons, while Dugout Canyon was up by 100,000 tons.

PRODUCTION BY MINING METHOD

During 2002, six longwall mining machines in separate mines accounted for slightly more than 19.7 million tons of coal, or 77.9 percent of the state yield. Twenty-one continuous miner devices produced almost 5.1 million tons, for 20.2 percent of state yield. Some 278,000 tons of coal were produced in the state's only surface mine, Lodestar's Whisky Creek. The processing of old waste coal piles by Constellation's Sunnyside Cogeneration plant is not generally counted as primary mining, but rather as reclamation activity. Constellation has more recently added Star Point coal wash waste to its fuel supply.

Production from each of six longwall machines averaged roughly 3.4 million tons of coal in 2002, while 21 continuous miners each produced about 247,000 tons during the year.

UTAH COAL MARKETS 2002: DISTRIBUTION OF UTAH COAL

Last year's coal report correctly predicted a decline in coal production during 2002. In fact, production dropped by more than 1.7 million tons, from 27.0 million to 25.3 million. That loss was reflected in coal distribution, which dropped by an even larger percentage to about 24.4 million tons, a decline of 2.4 million or about 9.0 percent.

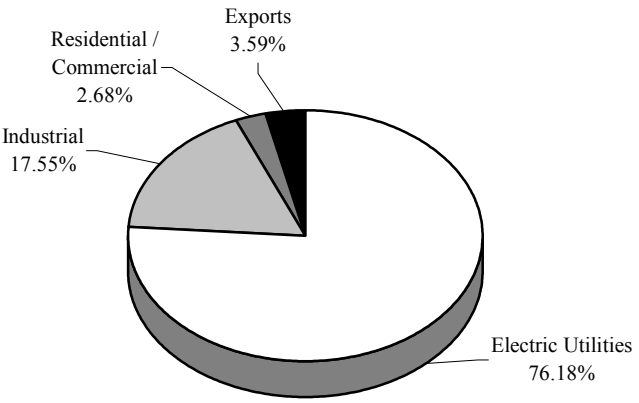
That result is consistent with a market-driven slowdown in which production reacts more slowly than deliveries resulting in rising inventory. In some cases, inventory was accumulated at points of consumption as well, obscuring the extent to which economic recession has blunted consumption. For instance, Utah's Hunter plant stockpiled 1.5 million tons of coal on account of Pacificorp's accelerated closeout of the Trail Mountain mine due to poor conditions and depleted reserves.

ELECTRIC UTILITY MARKET

Approximately 18.6 million tons of Utah coal went to electric utilities in 2002, not counting coal exports to foreign countries that may have been destined for utility power generation as well (Figure 1). That represents a decline of 6.8 percent from 2001. The entire decline in deliveries was among out-of-state consumers. Utility coal consumption in Utah (including imports) actually rose slightly during 2002 (Figure 2).

Deliveries on previous export contracts continued through the first quarter of 2002, then ended completely, for a total delivery of 875,000 tons, or just 16.0 percent of peak year exports in 1996. As a result, the percentage of Utah coal going to power generation declined from 83.3 percent in 2001 to 79.8 percent in 2002. This change is consistent with national trends in which natural gas and hydroelectric power have recently encroached on coal's domination as an energy source for power generation.

Figure 1 - Distribution of Utah Coal by Market Sector, 2002



Out-of-State Electric Utility Market

Utility coal deliveries to other states were down 25.2 percent for the year, losing a total of nearly 1.9 million tons. By contrast, in-state deliveries of Utah utility coal rose by 4.2 percent.

Nevada Plants - Reid Gardner and North Valmy Power Plants

The recent merger of Nevada Power Company and Sierra Pacific Resources Company brought the Reid Gardner and North Valmy power plants under central management. Reid Gardner serves Las Vegas, while Valmy is located near Battle Mountain, Nevada. Neither plant experienced unusual operating conditions during 2002. Power production and coal consumption varied within the usual range, and no dramatic changes are expected.

As such, reliance by these two plants on Utah coal is expected to continue, with purchases varying routinely between mines based on regular market habits. The joint company recognizes the upcoming closure of Skyline mine and has adjusted its balance of contract and spot market purchases accordingly. These power plants typically keep 30 to 45 days of coal stockpiled on site and have not reported any significant issues with coal quality or delivery reliability.

The geographic advantage of Utah coal is illustrated by Reid Gardner purchases of Utah coal in

2002. This 636-megawatt (MW) Nevada power plant purchased a total of 1.8 million tons of coal, all of which came from Utah mines except for about 260,000 tons.

After a record year in 2001, North Valmy coal purchases totaled about 1.7 million tons in 2002. This plant produced 4,180 GWh in 2002, up from 3,970 GWh in 2001. The forecast for 2003 is 4,040 GWh. Again, this predicted annual difference is considered normal variation, and not based on any noteworthy change in markets, equipment, or energy supply issues.

A new State of Nevada power resources draft plan will be presented for industry review and public hearings in 2003 and could promulgate policy affecting the use of coal for power in Nevada.

Utah Electric Utility Market

Pacificorp Power Plants

The Hunter, Huntington and Carbon thermal units are controlled by Pacificorp, which has filed an updated Integrated Resource Plan (IRP) with the Utah Public Service Commission. The plan projects the need for 4,000 MW of additional electric power capacity during the first ten years of the 20-year IRP. For the region including Utah, power demand is expected to grow by more than two percent per year. To meet that need, the company would like to pursue a diverse portfolio of conservation programs (called "demand side management" or DSM), renewable energy sources, and additional thermal units that are fired by either coal or natural gas.

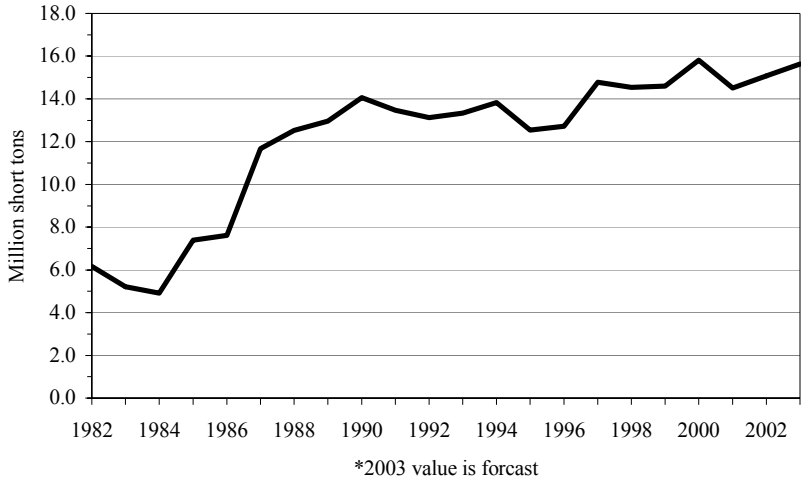
The least-cost portfolio calls for at least four new thermal units, three fired by natural gas and one by coal. Three of these units would be located in the eastern portion of Pacificorp's service area, which includes Utah.

The IRP provides for long-term evaluation of the viability of a new coal-fired base-load thermal unit, and says that, nationally, natural gas has emerged as the industry's thermal resource of choice. According to the IRP filing, ". . . the long term impacts of atmospheric emissions cast doubt upon the viability of coal-fired generation." The plan also acknowledges that increasing reliance on natural gas for power generation has reached the point where issues of gas supply and price volatility are now also issues of price and supply of electric power itself.

After a long period when few power plants were added to the western states' grid, a sudden burst of power plant construction, 95 percent of which is fired by natural gas, may only temporarily meet demand. Moreover, increasing reliance on natural gas for power production may make electricity prices less predictable, due to underlying volatility of natural gas prices.

Pacificorp predicts that a gap will emerge between power demand and resources available for power production. The IRP notes that the potential benefit of expanding existing thermal plants includes the fact that they do not require the cost and uncertainty of acquiring new power plant sites and power line corridors. Emerging clean coal technologies are not included in the portfolio's analysis due to expected high cost.

Figure 2 - Coal Distributed to Electric Utilities in Utah, 1982-2003



Hunter I, II and III

Built in 1980, each of the Hunter I and II units yield 662 net MW on nameplate ratings of 488 MW. The more recent Hunter III unit, completed in 1983, yields 460 net MW on a rating of 495 MW. A fourth unit at Hunter is the next logical expansion of the system, as hinted in the Pacificorp IRP described above. For now, the new gas peaking plants at

West Valley City and Gadsby adequately supply peak, as well as some baseload demand.

A significant increment of new power can be squeezed from existing turbines when, during overhaul, they may be upgraded for approval to run on overpressure, typically raising yield by 50 MW. Hunter I suffered an extended forced outage during 2000 that required Pacificorp to purchase power from the open market during a period of coincidentally high prices. Such episodes are prone to occur more often as rising power demand confronts four difficulties: aging power plants, an over-stressed regional grid, the difficulty of getting regulatory approval for new coal-fired plants, and potential over-reliance on price-volatile, gas-fired power.

The Hunter power plant has a technology-leading coal blending facility that has captured national attention by allowing the flexibility and precision in coal-blending that are increasingly required for meeting air emission standards. Hunter can also lightly wash some of its coal to remove sulfur, but due to high cost, has not done so for years.

Preliminary conceptual plans have identified Hunter as a potentially good candidate for a fourth combustion unit of about 575 MW. Expansion at the existing site avoids the need for costly land use permitting and makes use of existing power line rights-of-way. Preliminary application has been made for regulatory review of this option. Based on much cheaper coal in Wyoming and Montana, expansion of an existing plant in one of those states could have been more competitive were it not for power transmission weaknesses through that area.

Pacificorp's IRP filing concludes that, somewhere in the 2008-2012 timeframe, a new 575 MW base load coal-fired thermal unit (ostensibly as Hunter IV) would be a valuable addition to the company portfolio. Questions regarding air emission regulations and the cost-effectiveness and reliability of new coal combustion technology would have to be resolved favorably.

Hunter power production was higher in 2002 than in 2001, with plant equivalent availability for units I and II running at 92 percent. Unit III availability averaged 83 percent. The three Hunter units are delivering at 90 percent of capacity, after completing a five-week overhaul in 2002. Hunter had begun stockpiling coal after Pacificorp determined that poor seam conditions warranted mining-out Trail Mountain quickly. The resulting 1.5 million ton stockpile allowed Hunter to stay fueled during the overhaul and during two recent longwall moves by Sufco, which also supplies the plant. Contracts with Canyon Fuel allow some flexibility in the mix of coal coming from either Sufco or Dugout Canyon. This dual-source arrangement is particularly important because of air quality problems associated with burning Dugout Canyon's relatively high-sulfur coal.

Huntington I and II

Huntington power plant was completed in 1977, and currently produces a maximum 895 MW on a rating of 944 MW. For 2002, power generation totaled a net of 5,960 GWh, on consumption of 2.71 million tons of coal. In 2001, Huntington generated 6,230 GWh on 2.67 million tons of coal.

Carbon Power Plant

The two-unit Carbon power plant was completed in 1957, and can deliver up to 175 MW of power, based on a nameplate rating of 189 MW. In 2002 the plant consumed 615,000 tons of coal, resulting in generation of 1,320 GWh of net electricity. Power generation was 50 GWh higher in 2001, on coal consumption of 632,000 tons. The Carbon plant increased consumption of fuel oil from about 80,000 gallons to almost 110,000 gallons.

Intermountain Power Agency

The Intermountain Power Agency (IPA) and its Intermountain Power Project Corporation (IPP) were created in 1976 to meet growing power needs of some 23 public agencies and municipalities in Utah that were previously supplied primarily from the Colorado River Storage Project. The Los Angeles Department of Water and Power is the operating agent, as nearly all IPP power is exported to 27 California municipalities until such time as Utah allotments are called in to meet in-state demand.

The IPA plant contains two coal-fired steam turbines, with a combined original rating of about 1,500 MW that began operation in 1986. In recent years, gross capacity has been up-rated to about 1,640 MW.

Plans are underway to add a third coal combustion unit of about 950 MW, for the purpose of expanding service potential to a total of 43 Utah communities and to municipalities in New Mexico, Arizona and possibly other states. Very little of this supplemental capacity will be made available to California. The third unit may be

in operation by 2009, will cost about $1.75 billion to construct, and will raise IPP's annual coal consumption from 5.4 to 7.5 million tons.

IPA is supplied by two Utah coal mines owned jointly with Andalex Resources. IPA expects to continue using Andalex coals; however, West Ridge coal will have to be blended in order to stay within sulfur limits. Concern also exists with regard to projections of quantity and quality of coal. Acceptable limits of sulfur, sodium, ash and Btu content may become more difficult to maintain.

Evidence of potential problems with reserves is also reflected in Andalex's efforts to conduct longwall operation deeper than 2,500 feet at the Tower complex. Independently, Andalex is also considering installation of longwall equipment for newly leased coal seams adjacent to Crandall Canyon that are thinner than the usual minimum of six feet thick. If successful, these measures will help assure a stable supply of suitable coal for all three IPP units, although IPA, like so many other coal users, is broadly exploring a variety of coal markets as a hedge against potential problems with its current best options.

IPA also notes the growing role of land use restrictions in how reserves are planned for use; an increasing number of company decisions regarding reserves, new leases, and panel openings are affected by environmental and land use concerns that take the form of stipulations in leases and operating permit specifications. This situation is echoed by a number of coal interests, some of whom have suggested a more active, cooperative role between all parties, so that coal tracts are assembled in the most useful manner.

IPP generated about 13,500 GWh in 2002, with revenue of $608 million. Coal consumption totaled more than 5.4 million tons. Coal originated from both company-owned mines and as well as Sufco and Dugout Canyon.

At present, small amounts of IPA and Andalex-controlled coal are sold to eastern states, but only until IPP demand rises to absorb all production. IPP has pledged to use Utah coal for its third combustion unit.

UTAH COKING COAL MARKET

Geneva Steel has been Utah's erstwhile solitary coke producer for many years. The historic plant, having once been the only integrated steel-making facility west of the Mississippi, finally closed for good in late 2001. Aside from the loss of jobs and industry in Utah, the Geneva legacy includes a number of coal-related effects: Deseret Generation's Bonanza power plant is now the last major importer of non-Utah coal; Utah has exhausted its reserves of naturally suitable coking coal; Sunnyside Reclamation is gradually consuming the large pile of waste coal that was produced for the old steel-making operation during generations past; and rail shipments of Utah coal to points east no longer have a cost break arising from back-haul shipments of taconite delivered to Geneva.

As recently as 2000, West Ridge and Lodestar were both shipping coal for blending with mid-volatile coal from other states to make coke at the Geneva works. This report notes that tonnages of various Utah coals were shipped in 2002 to other states for either blending or direct use. In particular, Constellation's blending of petroleum coke with coal at its California plants is a steady market for Utah mines.

It is known that heavy industry in Utah has been declining for many years, with the closure of Geneva Steel serving as the lead example. As such, the need for metallurgical coal and coke has declined to nearly nothing, and there are no longer significant coke ovens in Utah.

Pacific States Steel continues to use about 60 tons of coke per day for steel production; however, all of their coke is supplied from Alabama. This was even the case in years past when Geneva coking ovens were still in operation.

Utah is home to more than 30 foundries. Foundry supply companies indicate that most of these facilities have discontinued use of coal and are now fired by natural gas or electricity. Some universities and specialty metal shops, particularly those doing decorative metalwork, continue to use coke, and some of them produce their own coke from coal. At least one Utah company sells about one ton per year of coal for coking purposes.

COGENERATION MARKET

Out-of-State Cogeneration Plants

Millennium – Ace Plant

This 113 MW cogeneration facility is located north of Bakers-

field, near Ridgecrest, California. Owned and operated by a consortium of companies that include El Paso Energy and Constellation, the plant supplies a variable amount of process steam to the IMC Chemical plant, and sells the electrical output to Southern California Edison.

The plant runs on Utah coal exclusively, which during 2002 totaled some 318,000 tons from three Utah mines. The plant projects steady market and production conditions during 2003.

When available, the plant also burns as much as 100,000 tons per year of petroleum coke, blended with coal, as a lower cost alternative to pure coal combustion. Small amounts of natural gas are used for re-starting combustors after periodic shutdown for maintenance.

Unlike some other cogeneration plants, Ace keeps a stockpile of at least 70 to 80 days on hand. The company's fuel manager worries that the pattern of mine closures in Utah will eventually require the purchase of coal from other states. At present the plant does not buy any non-Utah coal, but has made efforts to assure the availability of ample sources, and generally purchases at least half of each year's coal supply on contract, with the remainder being purchased on the spot market.

Stockton Plant

Air Products Manufacturing Corporation of California created this cogeneration plant to supply process heat and power for local agriculture processing in 1988. The plant consumed 115,000 tons of Utah coal and produced almost 440 GWh.

Mt. Poso

Located in the San Joaquin Valley, this 50 MW cogeneration plant is operated by Millenium Energy and is similar to nearby Constellation facilities. At least five percent of net power production is for steam devoted to enhancing the recovery of crude oil from nearby oil fields. The remainder is sold to the regional electricity grid. This plant produced nearly 400 GWh of power during 2002.

Mt. Poso consumed about 135,000 tons of Utah coal, primarily from Sufco and Skyline, with smaller amounts from Lodestar and Crandall Canyon. Mt. Poso also consumes small amounts of natural gas.

Rio Bravo Poso

Constellation Operating Services uses Utah coal at a number of cogeneration plants that are based on circulating fluidized bed combustion to produce process heat as well as power. The Rio Bravo Poso facility is nameplated at 38.5 MW. Five percent of steam production at Poso is for enhancing the recovery of crude oil. The remainder is sold into the regional power grid.

Through 2002, Rio Bravo Poso purchased all of its coal from Utah, for a total of about 63,000 tons. They also purchased roughly 55,200 tons of petroleum coke and consumed about 100,000 gallons of propane.

Rio Bravo Jasmin

Like Rio Bravo Poso, located seven miles away, this Constellation-owned cogeneration plant exemplifies the advantages of dual-fuel use and cogeneration capability. Located in the midst of the Bakersfield, California oil field, the power plant supplies five percent of its thermal production for down-hole enhanced oil recovery, while the remainder is sold to Southern California Edison. Rio Bravo Jasmin has annual receipts of more than 70,000 tons of Utah coal, but also takes advantage of nearby, inexpensive petroleum coke from the petroleum refinery that serves the Bakersfield area.

During 2002, the plant purchased about 77,000 tons of coal from Utah, an 8,000-ton increase from the year before. Petroleum coke purchases also rose by a similar percentage to a total of more than 55,000 tons. This plant also uses minor amounts of natural gas.

Power production for Rio Bravo Jasmin was up substantially, from 252 GWh in 2001 to 319 GWh in 2002. The forecast is for a minor decline in coal purchases in 2003 and a comparable, unimportant drop in power production.

POSDEF Plant

The Port of Stockton District Energy Facility (POSDEF) supplies its legally mandated minimum five percent of process steam to three local manufacturers: Liquid Sugars, Cargill and Cedar Products. The remainder of its power production goes to Pacific Gas and Electric. The plant burned some 171,000 tons of Utah coal during 2002, and generated 325 GWh of power on a fluidized bed combustor rated at 50 MW. The plant also burns widely varying amounts of petroleum coke and waste tires, totaling 8,550 tons

and 283 tons, respectively, for the year.

The plant and its fellow cogeneration members in the California Ash Council have raised concerns regarding difficulties experienced in simultaneously maintaining steady power production while also complying with stringent California air quality standards. Utah coal is at the center of those concerns, and testing of various coals, including samples from a variety of Utah mines, reveals complex problems with energy level and emission compliance. Of equal concern is the maintenance of contracts for supply, which include on-going challenges in rail transportation cost and reliability.

These concerns have reached the point where exploration of new coal sources has added emphasis to plans for dredging the Port of Stockton. Dredging will make it possible for large international vessels, displacing up to 60,000 tons of coal, to enter the port. POSDEF typically keeps some 20,000 to 40,000 tons of coal on hand, while supply security concerns have prompted plans to double that amount.

Utah Cogeneration Plants

Sunnyside Cogeneration Plant

Opened in 1993, Sunnyside Salvage and Reclamation Company was designed as a cogeneration plant operated by Constellation Operating Services, which also runs several out-of-state cogeneration plants. The plant is located at Sunnyside, Utah, east of Price. Original plans to host a tomato-growing commercial greenhouse operation did not develop; instead, the plant is delivering its full 58 MW (net 51 MW) to Pacificorp and is running at a widely varying 91 percent rate of plant utilization.

Sunnyside was designed to use circulating fluidized bed combustion (CFB) to consume 500,000 annual tons of waste left behind by coal-washing facilities at the now-closed Sunnyside mine. The ten million ton waste pile was left behind by Geneva Steel from the old Sunnyside mine that supplied metallurgical coke from 1950 to 1990. The Constellation plant operates under rules of the Federal Public Utility Regulatory Policies Act (PURPA) for small-scale power generators. More recently, Constellation also acquired the coal-washing waste piles from the now-closed Cyprus-Plateau Star Point mine. This waste coal contains higher energy, at 5,700 Btu per pound, and lower-sulfur, at 0.67 percent, than does Sunnyside's wash waste, which grades at 5,500 Btu per pound and 1.2 percent sulfur. Blending these two fuels, in combination with limestone for removing sulfur dioxide, provides emission control compliance and a projected fuel supply for 25 years. The plant employs 23 people, with 15 more at the Savage Company fuel preparation site.

INDUSTRIAL MARKET

Out-of-State Industrial Market

Out-of-state deliveries of industrial coal rose by more than 488,000 tons during 2002, in spite of softening demand for utility coal (Figure 3). A total of 3.5 million tons were delivered, of which about 2.7 million tons went to California. This coal is technically designated for industrial use, however most of it ends up generating power for the California electrical grid. This fact is consistent with the decline of U.S. industrial power consumption and the rise of consumer markets. The Constellation power plant at Sunnyside, Utah is particularly exemplary: the commercial agriculture component of the coal waste combustion project did not develop at all. Instead, 100 percent of net power production goes directly to the Pacificorp grid where it can be consumed by any client.

During 2002, industrial coal shipments to Nevada declined by 75,000 tons, and shipments to Washington by 18,000 tons. Among nearby states, only Idaho increased its use of industrial coal.

Utah Industrial Market

Ashgrove Cement

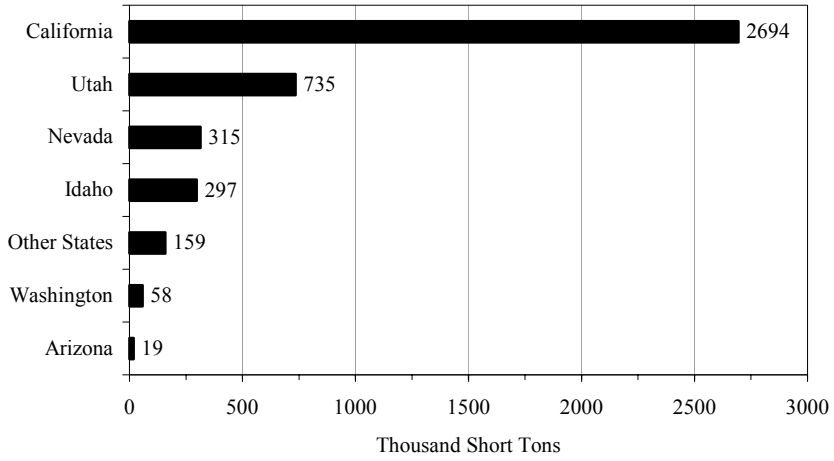
Located between Delta and Nephi, Utah, this 25 year old cement plant was modernized in 1995 to a production capacity of 900,000 tons of cement per year. The facility purchased 109,000 tons of Utah coal.

Holcim, Inc.

The Devil's Slide plant consumed slightly more than 60,000 tons of Utah coal during 2002, as well as using other fuels. The result was production of 642,000 tons of clinker as a base for more than 700,000 tons of cement during 2002.

The Holcim plant, located about 15 miles south of Morgan, Utah, also uses Utah coal. However, the plant has reached a

Figure 3 - Distribution of Industrial Coal by State, 2002



commitment agreement with EPA for a 20 percent reduction in CO_2 emissions. That agreement will strongly affect fuel use patterns in the future, and the comparable price of natural gas is now a major factor in plant planning.

The outlook for 2003 includes a lengthy maintenance outage that, when combined with other economic and market issues, will result in a 10,000 ton reduction in Utah coal use from 2002.

Kennecott

Kennecott Copper, a subsidiary of international mining giant Rio Tinto, purchased nearly 400,000 tons of Utah coal during 2002. The 2003 forecast is for about 420,000 tons. The plant generated 881 GWh of power for the year, based on a rating capacity of about 450 MW, with the same level projected for 2003.

Of substantial concern to the company is the general rise in coal prices at a time when copper is selling at $0.80 per pound rather than a reasonably profitable $1.00 per pound. Kennecott is also concerned about the long-term stability of coal producers in Utah. Kennecott practices "just-in-time" coal inventory, keeping very little in stockpile. Achieving proper ash fusion temperature is crucial for Kennecott copper smelting, and long-range concern focuses on maintaining supplies of suitable coal, particularly in the wake of closures at many of Utah's primary coal mines.

RESIDENTIAL AND COMMERCIAL MARKETS

Utah mines reported deliveries of 372,000 tons of coal for Utah commercial and residential use in 2002, a decline of 21,000 tons or 5.3 percent (Figure 1). This is consistent with an economic slowdown that affected other sectors of the economy. In contrast, out-of-state commercial and residential use of Utah coal rose by 21.0 percent, for reasons that are not clear.

It is likely that a substantial portion of coal tonnage delivered to commercial users is destined for industrial use, particularly for commercial wholesaler purchases. Such amounts may be important, because they illustrate how the commercial and residential use of coal is being supplanted by natural gas and electricity. Meanwhile, small-scale industrial coal use may be more robust than generally thought.

A statewide search identified about 20 coal retail companies. Most of these have been in business for many years, and were formerly large suppliers of coal. In recent years, all of them have seen drastically reduced sales with about 90 percent of remaining coal confined to residential fireplace and stove use. In former times, retail stores, large commercial buildings, school districts and small-scale industrial companies were major markets. Gradual expansion of natural gas supply networks has rendered coal use obsolete. The declining number of people who are at home during the day also makes coal-fired boilers inconvenient.

Retail suppliers note an additional decline in coal sales due to relatively warm winters in recent years. In contrast, boilers fired by waste oil continue on, and sometimes even replace coal-fired boilers due to the rising availability of oil discarded by Utah's burgeoning fleet of motor vehicles.

A few retail and wholesale suppliers continue to supply coal to persistent users, mostly in remote areas, or where fuel switching is desirable to offset periodic price spikes for competing fuels. Specialty coal from out-of-state serves a variety of purposes and sells for as much as $300 per ton. There are likely some unnamed institutional users and public facilities that still use coal, as suggested by wholesale and retail out-

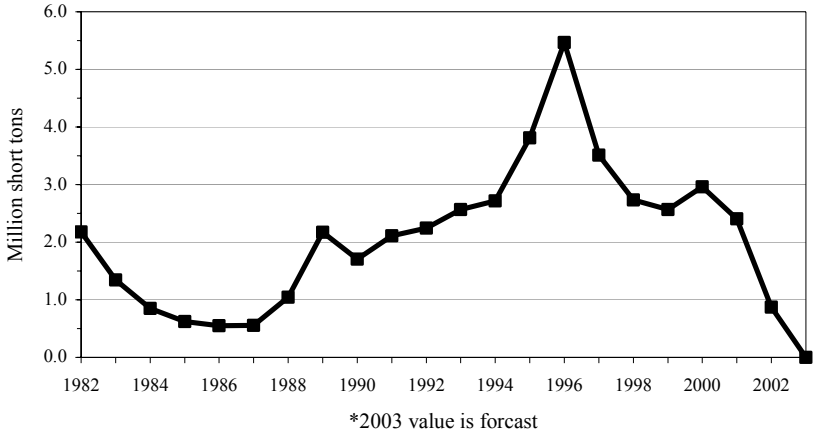
lets in Utah, but these sources prefer not to disclose customer data.

OVERSEAS EXPORTS

Utah's primary export market for coal has been Asia, but overseas markets have been declining in recent years and stopped completely during 2002 (Figure 4). One important cause of this decline is the high cost of transporting Utah coal to the western coast. Also, coal suppliers in Australia, China, Indonesia, and other countries are using a combination of low labor costs, high quality coal, aggressive marketing, and inexpensive ocean shipping to compete successfully against North American coal sources.

A rebound for Utah's coal export market is not expected for the near future because the modern, coal-dedicated Los Angeles Export Terminal (LAXT) has been closed and dismantled. This $200 million facility opened in 1997 and was capable of handling nearly ten million tons of coal per year, providing a world-class gateway to Asian markets. Less than five years later the facility was closed, removing the last dedicated, high-capacity coal loading facility from which Utah coal might profitability export coal to foreign countries.

Figure 4 - Utah Coal Exports, 1982-2003



COAL IMPORTS 2002

DESERET GENERATION AND TRANSMISSION – BONANZA PLANT

Deseret Generation and Transmission (DG&T) is governed by six cooperative organizations that together consume about one-third of the power produced by the single 400 MW combustion unit at the Bonanza plant, located in Utah near the Utah-Colorado border. The plant has been running as high as 98 percent utilization based upon rising customer demand. DG&T has wholesale power contracts with such entities as Constellation and Sempra that can be used or allowed to expire as power demands of the cooperative require.

Coal is supplied via electric railroad from the Deserado mine, a wholly owned subsidiary located in Colorado, about 50 miles east of the power plant.

There is some interest in adding 80 to 100 MW of additional power in the form of a new combustion unit fired by waste coal that is segregated by the pre-combustion sorting process. That coal runs to below 5,000 Btu per pound and would otherwise be land filled.

The power plant's stockpile varies by as much as 200,000 tons and at present, the pile is being expanded in anticipation of geologic difficulties at the Deserado mine. Mine operations are based on longwall equipment, and in the near future, they will encounter dike intrusions that may slow production. Over-stocking coal at the power plant will serve as a hedge against the risk of prolonged slow production. Cutting through the upcoming difficult formations may span 2 or 3 years of production.

The Bonanza plant commonly purchases Utah coal from a variety of mines, including a 2002 purchase of 75,000 tons. Major equipment overhauls are anticipated on a three-year cycle, and scheduled maintenance takes equipment off-line for several days each year.

During 2002, the Bonanza plant produced 3,920 GWh of net power and purchased 2.1 million tons of coal. Power production for 2003 is projected to reach 3,460 GWh on purchases of slightly below two million tons.

MINOR COAL IMPORTS

As noted in the section on coking coal, no large-scale coke users remain in Utah. However, small amounts of coal coke are consumed at foundries, ceramic and metalwork facilities. Some of that coke is produced locally for on-site use from either Utah coal or coal from out-of-state. The amount of such uses has become too small to be tracked accurately and no longer has any measurable effect on the overall Utah coal market.

As noted above, Pacific States Steel and some retail suppliers continue to use or distribute out-of-state coal. These include a few retail stores that sell Pennsylvania anthracite coal for home use. This hard, clean-burning "boutique" coal is preferred over Utah coal for home fireplaces and stoves. A survey of Utah retailers shows that at least ten tons of Pennsylvania anthracite is consumed in Utah each year. An undetermined quantity is sold from Utah outlets on its way to sub-markets in Idaho and other states. Suppliers frequently identify Co-op as a popular source for commercial and residential bituminous coal.

ACTIVITIES OF COAL OPERATORS 2002

ANDALEX RESOURCES, INC.

The Tower Division of Andalex Resources, Inc. owns and controls the Centennial Mines complex, which consist of the Aberdeen mine operating in the Aberdeen or Castlegate "A" seam, and the Pinnacle mine which operates in both the Gilson and Centennial seams. Andalex is also a co-owner with the Intermountain Power Agency (IPA) of both West Ridge Resources, Inc., which operates the West Ridge mine, and Genwal Resources, Inc., which operates the Crandall Canyon mine. Andalex's current coal holdings are located entirely within the State of Utah. Andalex parentage evolved from Canadian surface mines in the last century, to surface and underground mines in Kentucky during the 1970's and 1980's. The Tower operation began in 1980.

The Centennial Mines – Aberdeen and Pinnacle

In 1975 Andalex bought federal leases at the Centennial Project and began operation in 1980. The Deadman Canyon area has been mined by small family operations and by at least eight different entities at one time or another, some dating back more than 80 years.

Pinnacle was Andalex's first mine in the Gilson seam, which eventually migrated to the Centennial seam via rock tunnels. Pinnacle is now "second mining" areas in both the Gilson and Centennial seams. Burn areas, rock splits, and lease boundaries have limited new development, and consequently the Pinnacle mine will be closing in 2005-2006. During the next couple of years, men and equipment will be located where the maximum economic recovery can be achieved.

In the Aberdeen mine, the main shafts are being shifted from the eastern margins to the west where gate roads will be developed for longwall installation in 2004. New leases in the Summit Creek area should be in operation by 2005. Overall Aberdeen-area production is projected to last to about 2012 based in part upon successfully acquiring additional Bureau of Land Management (BLM) reserves in the Summit Creek area. However, concern has been raised regarding the use of longwall equipment at cover depths of 2,800 to 3,000 feet. This has never been done before in the United States, and if they are successful, production may rise to a reliable 1.5 millions tons per year.

Aberden coal quality is generally good despite some areas of high sulfur, but extraction will be limited to the speed with which methane gas can be removed.

Andalex's Apex mine, in the Lower Sunnyside seam, was sealed in 1999 as a result of depleted economic reserves. The Lower Sunnyside seam in this area is four feet in thickness, and significant improvements in market conditions could reopen the mine. By contrast, further east in the Book Cliffs, at the West Ridge mine, the Lower Sunnyside seam is eight feet thick, and in much of the old Kaiser workings, the seam is more than 12 feet thick.

West Ridge Mine

West Ridge mine is equally owned by Andalex Resources, Inc. and IPA. The mine is located near Sunnyside, Utah in the Book Cliffs coal field. Sulfur content is typically high for this region, and the cost of dealing with methane gas intrusion is a limiting factor to production.

Production in 2002 reached 2.8 million tons, on equipment capacity of about three million tons. Produced stock on hand rose by more than 100,000 tons from a previous-year stockpile of about 330,000 tons. Nominally, almost two million tons of coal went directly to utility power production; however, as noted elsewhere, much of the industrial deliveries resulted in producing power at California cogeneration facilities that have only a small obligation to industrial processes.

Crandall Canyon Mine

Crandall Canyon mine is also equally owned by Andalex and IPA. The mine is located 17 miles west of Huntington in the Wasatch Plateau coal field. The mine is currently using one longwall machine and one continuous miner in the Hiawatha seam. The current high-production longwall reserves will be depleted in 2003, so production will drop from 3.2 million tons in 2002 to approximately one million tons in 2003. Production in future years will consist mainly of pulling pillars that will yield slightly less than 500,000 tons per

year for about a decade. Additional annual production may be realized on Genwal's recently acquired South Crandall federal lease which likely holds between five and ten million tons in two seams.

Crandall Canyon coal is typically blended with higher-sulfur West Ridge coal in order to meet combustion emissions requirements. Panel 18 is now done, and Panel 19 will be done by May 2003. After that, only continuous miner equipment will be used.

Genwal's future in Crandall Canyon is blocked in part by Pacificorp's successful bid to lease tracts holding 60 million tons in abutting federal reserves known as Mill Fork.

The vast majority of Crandall Canyon's 3.2 million tons of production went to producing electricity at power plants.

CANYON FUEL COMPANY, LLC

Arch Coal, Inc., of St. Louis, Missouri, the second largest coal producer in the United States, owns 65 percent of Canyon Fuel Company, LLC. Itochu Coal International, a Japanese company, owns the remaining 35 percent. This company operates three underground coal mines in Utah: the Sufco mine in Sevier County near Salina, the Dugout Canyon mine in Carbon County near Wellington, and the Skyline mine near Scofield in Carbon and Emery counties. All three Canyon Fuel mines use continuous miners for development work and longwall machines for production. No Canyon Fuel coal is planned for foreign export in 2003 or 2004, and the company's financial interest in the Los Angeles Export Terminal ended when that facility was dismantled.

Sufco Mine

The Sufco mine has surpassed all production marks previously set in Utah. Opened in 1941, Sufco is currently Utah's most productive mine, yielding 7.6 million tons in 2002, 30.0 percent of the state's annual production. It ranks as the twentieth most productive mine in the United States and third among underground mines.

Eighty-seven percent of Sufco's 7.6 million tons of production is from longwall panels running at 75 percent utilization due to limitations of beltline size and surface handling equipment. All current-year production has been sold in advance, with about 4 million tons going to Utah power plants. In addition, some coal goes to Salina by truck, then to Kennecott and other truck-direct customers, depending on individual quality requirements. Other coal is trucked to Levan, which then moves through by rail to IPP, Sierra Pacific Power, or Nevada Power. About 126,000 tons went to Japan through the first quarter of 2002, with none since, and none anticipated in the near future. Sufco anticipates similar production and customers during 2003.

Production from federal lease property in the Pines tract may not last as long as currently projected due to splits in the coal seam in the eastern reaches of the lease. New reserves are contemplated in the adjacent Muddy tract under a proposed Utah School and Institutional Trust Lands Administration (SITLA) lease that may be consummated as early as 2004. Transition to new reserves would be aided by potentially better truck access along the proposed new Quitchupah road, which is currently under study.

The Hiawatha seam extends more than 11 miles into the mountainside, with Sufco access dipping at about one degree, or about 100 feet per mile -- relatively flat by industry standards. Heating value of the product is running at 11,000 to 11,400 Btu per pound, which is a little lower than other Wasatch Plateau bituminous coals. Overburden depth runs from zero to 1,800 feet and the mine face is now 11 miles from the portal. As of 2002, remaining coal reserves total about 105 million tons.

Dugout Canyon Mine

Canyon Fuel's newest underground mine is located in Carbon County at approximately 7,100 feet elevation in Dugout Canyon of the Book Cliff coal field. In September of 2002, Arch Coal installed new longwall equipment to replace the low profile, continuous miners that had been transferred from the Skyline mine in 2001. Production in 2002 was 2.1 million tons, and production for 2003 is projected to exceed 3.1 million tons.

Development work using continuous miners will be completed in the Rock Canyon seam in March 2003, while longwall extraction of the Rock Canyon seam will be completed by February 2004. The longwall equipment will subsequently be relocated to the Gilson seam, the lower seam of the reserve, which is located on a federal and state lease to the east of the Rock Canyon reserve. Gilson seam coal quality will vary based upon seam thickness and

random in-seam partings. These partings will also result in fluctuating run-of-mine ash levels. In addition, sulfur levels will meet compliance, and heat content will range from 11,800 to 12,200 Btu per pound.

Mining conditions at Dugout are typical of Book Cliff mines and are characterized by high-strength coal seams sandwiched between strong, stiff sandstones and deep overburden. These factors often result in "bounce" prone mining conditions. For example, mine "bounce" resulted in the loss of portions of two panels in the Rock Canyon seam, which increased out-of-seam dilution and resulted in an increase of mined ash levels.

All seams in the Book Cliff coal field liberate methane. However, methane levels in the Rock Canyon seam have been less than studies originally predicted. In addition, Dugout discovered additional old workings in the Gilson seam which were not shown on available maps when the mine was started in 1998. Proximity of the unknown, old workings to the new workings required pumping water from the old workings before continuing further development in the Gilson seam. This activity took 30 days to complete.

Approximately 350,000 tons of high-ash coal from Dugout is currently stored at the Savage coal terminal. This coal is being blended with low-ash coal using a Gamma Metric (nuclear device) unit that measures ash in real time during the loading process.

Dugout continues to maintain the approved mining permits and surface facilities at the Soldier Canyon mine located west of Dugout. Recoverable reserves remain in the Sunnyside, Rock Canyon and Gilson seams and depending upon future coal pricing, these reserves could be mined.

Skyline Mine

Arch Coal, Inc. plans to idle the Skyline mine in 2004 due to high cost of production and weak market conditions. This operation produced 3.5 million tons of coal in 2002 and has been projected to produce about 2.6 million tons in 2003.

Already difficult mining conditions were worsened in August of 2001 when a fracture system was encountered and flooded a continuous miner section with water from the Star Point sandstone beneath the coal seam. Operations were idled for 14 days as pumps and pipes were installed to provide a pumping system designed to handle about 20,000 gallons per minute.

Coal reserves at Skyline are predominantly federal leases in the Manti-LaSal National Forest, with a small amount of fee coal beneath private lands in both the north and south areas of the property.

The mine began construction in 1980 with issuance of the first underground mine plan approval in the western United States under the 1977 SMRCA regulations. Skyline began underground development in September 1981 and set national records for production per man-hour a decade later.

Idling of Skyline mine will leave about 25 million tons of readily available coal for later development in the Winter Quarters lease area. Skyline has successfully developed main entries through a narrow opening between its old workings and the Winter Quarter mine workings, which were abandoned in the 1920s. Mining permits are in place to develop the Winter Quarters lease, and mining has been halted about 500 feet into the lease area. In addition, further potential reserves in the unleased Flat Canyon tract to the west could add another 20 million tons of reserve, however, these reserves may be prone to water intrusion.

Mining of the southwest portion of the lease area will be completed early in the second quarter of 2004, at which time the mine will be idle. When the mine is reactivated, the Winter Quarters lease would provide roughly seven years of production, after which operations might be moved into the unleased Flat Canyon tract.

Mechanical drainage of water from Skyline has lowered the potentiometric surface of water in the Star Point sandstone by about 300 feet in the area of the largest inflows into the mine. Quality of the water being discharged is excellent, averaging about 400 mg/L total dissolved solids. Initially, all the mine discharge water was pumped to Eccles Creek and subsequently to Scofield Reservoir. However, in close cooperation with PacifiCorp, the mine is now discharging about half the total mine discharge water to Electric Lake, where it can be used as cooling water at the Huntington Power Plant.

Skyline's operating costs are somewhat higher than other Utah longwall mines; however, its coal is of high value, containing less than 0.5 percent sulfur, less than eight percent moisture and about 12,000 Btu per pound in the run-of-mine product. Skyline coal is suitable for blending with higher-sulfur coals. Methane gas is not a

problem and is generally below detection limits.

Projected high costs for development in the Winter Quarters area prevents Arch Coal from committing the capital necessary to continue operation at this time. However, a modest increase in the sales price of Utah coal could change the outlook at Skyline.

C.W. MINING COMPANY

Co-op / Bear Canyon Mine

Production by this privately owned company is based on continuous miner equipment located in the Tank seam on the east side of Bear Canyon. Products are marketed directly by C.W. Mining Company. Located in Huntington Canyon, across from Deer Creek, Co-op began coal production in about 1940 from a seam in Trail Canyon. Operations moved to Bear Canyon in about 1980. Production has increased substantially in recent years, with tonnage topping the million-ton mark in 2001 and then declining slightly to 960,000 in 2002.

Three-fourths of company reserves are located on private land, with the remainder on federal land. Current operations are on the west side of the highest of three seams that pass through both sides of Bear Canyon. West side reserves are nearing depletion, however the resulting move across the canyon may be hindered by a lack of sufficient drill holes to verify quality and quantity of coal. Reserves in the lower Blind Canyon and Hiawatha seams on the east are the most accessible, and production could begin by 2004. Co-op is capable of producing more than one million tons per year, while reserves could total more than 40 million tons.

The company is planning to begin retreat mining in 2004, pulling pillars under the Wild Horse Ridge escarpment. Co-op recently acquired the Hiawatha mine and former town site on federal land, where old workings played out adjacent to unleased reserves. Co-op may be able to reach that coal via tunnels from existing workings.

CONSOLIDATION COAL COMPANY

Emery Deep Mine

The new Emery Deep mine is the first activity in the Emery coal field in more than a decade. Since the end of 2002, this reopened mine had not produced appreciable coal from its new workings, however sample coals were being prepared for marketing.

Previous mine workings at this site were idled, sealed and infilled in 1989. A new portal created 2.1 miles from the main access reaches the seam through old workings at a depth of 57 feet. At year end, one continuous miner section was producing 1,600 tons per day. This seam dips at eight degrees to the northwest and is roughly 12 feet thick.

Consol is now in the process of selling the mine to C & P Coal and apparently did not submit a bid response to IPA's recent solicitation. At last check, Consol had some 95,000 tons stockpiled on site, with the goal of reaching 125,000 by April 2003. There may be 22 million tons available, at a recovery rate of 50 percent within the permit boundary. The mine is based on two federal leases with BLM and a small amount of SITLA land. It is believed that Consol's leased reserve would last more than a decade at production rates similar to other major Utah mines, or about two million tons per year.

There are more reserves to the south of the Emery Deep mine along with a scatter of old mines such as Dog Valley, Sun Valley, Browning and many others. The entire area has produced nine to ten million tons of coal since the 1940's. These were primarily surface mines, while Emery Deep is under cover ranging in thickness from 50 to 800 feet.

Ash content of Emery Deep coal measures roughly seven percent, energy content runs about 12,400 Btu per pound on about seven percent moisture, and sulfur ranges to about one percent. Consol is leaving behind pillars for now with an eye to getting a permit to pull them later. As a result, the rate of extraction is 35 percent of total coal and could reach 60 percent if pillars were pulled. Consol leaves about one foot of coal at the bottom and four feet at the top since the concentration of sulfur rises toward the top of the seam. Emery is expected to resume production in late 2003 under C&P Coal.

LODESTAR

Whisky Creek

Closeout of Lodestar's White Oak mine occurred during 2001, so no underground coal production was recorded there during 2002. However, good coal left around the portals resulted in reopening the site as Utah's only

surface mine, called Whisky Creek. Some 500,000 tons were thought to be available by "benching back" two 20-foot thick seams of good quality. Once mining commenced, estimates of recoverable coal were revised upward to 800,000 tons. About 278,000 tons were recovered before operation ceased, leaving more than 500,000 tons behind.

A related cause of the mine's closure was reclamation bonds held with Frontier Insurance. Essentially, Lodestar collapsed when Frontier collapsed, and without viable reclamation bonds, the Utah Division of Oil, Gas and Mining (DOGM) was compelled to issue a cessation order to protect existing assets that might be needed for post-mining reclamation.

Assets have since been sold, and mine reserves were purchased by the Blue Ridge Company. Surface operations could be restarted if reclamation bond agreements can be reached with DOGM.

Horizon Mine

Bankruptcy also forced the closure of Lodestar's Horizon mine in early 2003, and a separate Lodestar mine in Colorado. Horizon reserves were subsequently purchased by the Hidden Splendor Company. Coal production from Horizon totaled 110,000 tons in 2002. Some six million tons of accessible coal remain.

Mine closure was caused by several factors that together resulted in unprofitability: the seam gradually thinned and was broken-up by numerous faults, there were several old workings and extensive water intrusion, and there was limited access to a nine-mile long unpaved mountain road. In addition, equipment costs have continued to rise while coal prices have been dropping.

Together, Horizon and Whisky Creek mines shipped 388,000 tons of coal that were ultimately destined for utility power generation.

PACIFICORP, ENERGY WEST MINING COMPANY

Deer Creek Mine

The Deer Creek mine is owned by PacifiCorp, a subsidiary of Scottish Power, and operated by Energy West Mining Company. The coal is mined exclusively for PacifiCorp's Hunter and Huntington plants. Deer Creek produced almost 4.0 million tons in 2002 with the Huntington and Hunter plants receiving 2.8 million and 1.1 million tons, respectively. With the closure of the Trail Mountain mine in 2001, approximately 50 percent of PacifiCorp's statewide requirements are now supplied through purchased coal.

Economical reserves from Deer Creek's Hiawatha seam, North Rilda area, are expected to be depleted by the third quarter of 2004, while coal from the Blind Canyon seam are expected to be depleted by the third quarter of 2005. Longwall production from the adjacent Mill Fork reserves is expected to commence during the last quarter of 2005, and continuous miner development is scheduled to start in mid-2003.

While most of the Deer Creek/Mill Fork reserves are associated with federal leases, the first 22.3 million tons of coal mined in Mill Fork will be from a SITLA lease. SITLA acquired this lease as part of a land swap with the BLM in January 1999. After 22.3 million tons are mined, the lease reverts back to the BLM. Production from the Mill Fork lease is expected to range between 4.0 and 4.5 million tons annually.

Mill Fork reserves are typical of Wasatch Plateau coal seams. There is little faulting and gas, and the water intrusions are manageable. While thin seams have been encountered during the development from Deer Creek to Mill Fork, coal quality appears favorable; sulfur is expected to be less than 0.5 percent and Btu content is in excess of 11,500 Btu per pound. Mill Fork coal is under heavy cover, which causes potential ground control problems. PacifiCorp is evaluating the development of Rilda Canyon as another access point into the Mill Fork tract.

OTHER COAL OPERATORS

Covol/DTE Synthetic Fuel Plant

Production of coal-based synthetic fuel has begun to affect the coal industry. Federal Section 29 "tax credit law" provides for conversion of marginal coal into more valuable "synfuel." Nationally, production of synthetic fuel from coal has increased from 49 million tons in 2001 to 83 million tons in 2002.

Headwaters, Inc., a Utah company, markets technical methods and products for converting coal into "synthetic fuel" as a qualifier for Section 29 tax credits. The coal pelletizing plant located

adjacent to the Savage load-out facility near Price, Utah was sold to Detroit Edison (DTE) but continues to be managed by Covol Fuels, a Headwaters Company.

Synthetic fuel aims to reduce U.S. dependence on foreign energy sources by promoting the transformation of marginal fuel, such as high ash coal, into suitable boiler feed. The DTE Utah synfuel facility is processing some 400,000 tons of lower grade coal from Dugout Canyon mine and has handled tonnage from Bear Canyon, Sufco, and the now-closed Lodestar Horizon mine.

Section 29 tax benefits can also be applied to reduce the net cost of extracting good quality run-of-mine coal from otherwise high-cost, unprofitable operations. With relatively small changes in market conditions, the cash value of synfuel credits could bring mines such as White Oak and others closer to reopening. Synfuel beneficiation does not, by itself, reduce undesirable coal qualities such as sulfur and ash volumes. Instead, the transformation helps yield a level cost per Btu, regardless of ash volume. Combustion quality is modified, resulting in reduced carbon content in ash and therefore provides a wider range of options for both coal blending and straight combustion. Some coal blending, including addition of lime, may also occur at the DTE Utah synfuel facility.

Because of financial incentives and air quality concerns, synthetic fuel production, as well as with sales of reagents, other chemicals, and technical services, have all risen sharply in recent years. Headwaters and its affiliates are the leading U.S. synfuel producers, with production rising from 5.4 million tons in 2000 to 24.9 million tons in 2002. Headwaters has also experienced a substantial increase in sales and revenues for coal-related products including reagents, nano-catalysts for destroying undesirable VOCs (volatile organo-carbons), and binders. Since 1998, sales of reagents have grown from nothing to about nine million tons in 2002.

Headwaters recently acquired Industrial Services Group, Inc., the nation's largest handler of coal combustion products (ash) for secondary product lines. Twenty-four of the nation's roughly 50 synfuel plants are licensed to use Covol technology, and the Price-area DTE Utah synfuel facility is the only plant of its kind west of the Mississippi. This fact reflects the geographic weight of coal-fired plants in the East, the cost of coal transportation out of Utah, and the fact that Btu content tends to run about 800 Btu per pound higher in Eastern bituminous than in Utah coal. The primary advantage of Utah coal is its relatively low-sulfur content, making it suitable for blending to achieve compliance.

In spite of rapid increases in sales, overall national synfuel plant capacity remains underutilized. The DTE Utah synfuel facility, as is typical of other synfuel plants, can process up to 250 tons of coal per hour, but is running at lower capacity, producing roughly 1.5 million tons per year. The sensitivity of power plants to changes in combustion quality and pollution control requirements has retarded market penetration of synfuel. Headwaters is looking for long-term contracts; meanwhile, most production enters the spot market. About half of Utah synfuel production is devoted to Utah power plants, about 20 percent goes to California power plants, a similar amount to plants in the eastern United States, and the remainder is for miscellaneous industrial use.

In 2003, the IRS will be questioning the validity of chemical tests used to obtain "private letter rulings" that are required for obtaining lucrative Section 29 tax credits. Allegedly, IRS scrutiny is affecting the production and sale of coal-waste synfuel and related assets.

COAL LEASING ACTIVITY IN UTAH 2002

INTRODUCTION

At the national level, some concern has been raised that leasing of new coal resources is not keeping pace with the depletion of leased coal reserves at existing mines. Given the increasing lead-time necessary to bring new coal mines into operation, leasing trends in Utah suggest the need for monitoring the economic, technological, and regulatory conditions under which miners operate.

Current leasing activity reflects the gradual consolidation of mines and operators in Utah, and the gradual depletion of easy-to-mine coal. Aside from existing leases, a diminishing number of larger tracts of good coal are available for new coal production. For most of these tracts, environmental studies and/or lease coal stipulations will require years of lead-time.

It is important to note that Utah's high mine productivity relies upon modern longwall equipment that is viable only with large, relatively clean coal seams. A number of coal operators and consumers have expressed concerns about the lack of tracts large enough to support economical longwall mining and yet also yield coal that is sufficiently low in both sulfur and sodium. The fact that the leasing and permitting process is complex, time-consuming and often subject to severe restrictions on surface facilities leaves operators with the relatively constrained option of extending existing underground operations into new lease areas.

MAJOR TRACTS

Three tracts of Utah School and Institutional Trust Lands Administration (SITLA) land are of growing interest: the Muddy, North Horn and Cottonwood. These tracts were transferred in part to SITLA as a result of coal reserves exchanged during the creation of the Grand Staircase Escalante National Monument.

The transfer agreement provided that SITLA would collect $13 million in coal royalty payments on the Cottonwood tract before reversion to federal control. For the North Horn tract, 100 million tons of coal could be extracted before the property reverts to the federal government. For the Muddy Tract, in combination with a newly leased Dugout Canyon tract, the tonnage total would be 34 million before reversion.

Environmental data are being gathered on the North Horn and Muddy tracts. There is some disagreement as to whether or not a formal environmental impact study (EIS) would be invoked under provisions of the National Environmental Policy Act (NEPA); however, at the very least, such work would have to be done as part of any mine plan approval. Three years of baseline environmental evaluation should become available by Spring 2004 for determining what stipulations would appear in lease agreements between mine operators and SITLA.

EIS compilation for the Muddy tract is being expedited on behalf of Canyon Fuel Company's interest in smoothing the eventual transition from the Sufco mine as reserves in the Pines area are gradually depleted. The Grand Staircase exchange agreement does not preclude Bureau of Land Management (BLM) from simultaneously leasing other coal reserves, particularly if doing so could create parcel aggregations that are large enough for efficient longwall mining.

The Cottonwood tract, located in the Trail Mountain area, began as a 1991 lease-by-application (LBA) by Pacificorp for its now-closed Trail Mountain mine, with access to occur through its Deer Creek mine. Coal would be carried across the canyon to the old Cottonwood mine loadout. More recently, industry speculation suggests that Pacificorp's new owner, Scottish Power, may be reconsidering its mining assets, perhaps focusing more closely on its core business of generating power. Meanwhile, Genwal, which was out-bid by Pacificorp for the Mill Fork tract, will need a replacement for its diminishing Crandall Canyon reserves.

Concern has been raised that mining the Cottonwood tract could affect the integrity of Joe's Valley Dam. Seismic shaking or "bouncing" routinely results as underground coal is removed and the roof is allowed to collapse as the miners' retreat. A draft Forest Service EIS will be released in 2004 that evaluates various options for dealing with that risk.

Unlike Cottonwood and Muddy, North Horn is not adjacent to existing facilities, thus requiring an entirely new mine operation and more development lead-time. It is important to note that tonnage and royalty estimates were made at an earlier time when

less was known about the reserves. It is possible that, due to a variety of geologic, environmental and evolving market factors, these tracts may be able to produce more or less than the amounts provided by the agreement.

The Cottonwood coal tract was conveyed to SITLA by federal land exchange P.L.105-335 in 1998. The tract reverts to federal control after $13 million in royalties are received by the SITLA.

The North Horn coal tract was acquired by SITLA in 1998. This tract is of special interest because it is not captive to any mine and may therefore attract greater competitive lease interest. This tract also contains one of the largest untapped coal reserves in the Wasatch Plateau, but may be tainted by high levels of sodium. The BLM holds confidential data on North Horn coal which could aid in determining the market value of the mineral. Coal beds in the North Horn extend much further west than the tracts acquired by SITLA in the 1998 land exchanges and present a target for potential future exchanges.

The Muddy coal tract was acquired by SITLA in 1998. The Muddy is located on the southern end of the Wasatch Plateau and may be captive to Sufco mine, operated by Canyon Fuel Company. Canyon Fuel recently completed a series of exploration drill holes in anticipation of leasing. SITLA plans to offer the tract for competitive bid for lease as other reserves in the area are depleted.

Aside from the Cottonwood, North Horn and Muddy tracts, there are few other readily viable coal tracts available for near-term leasing in the Wasatch Plateau. This picture could change if new technology allows confident mining at depths below current practice or about 2,800 feet of overburden. Small tracts of coal in the San Pitch Mountains and Ferron Canyon area might be viable for exploitation, but only by continuous miner equipment. Severe faulting and other geologic problems make longwall panels uneconomic.

OTHER SITLA-RELATED LEASING ISSUES

SITLA controls more than 115,000 acres of coal-bearing land in Utah, which contains more than 607 million tons of recoverable coal. Most of the active SITLA coal fields are in the Wasatch Plateau, totaling almost 31,000 acres. An additional 11,650 acres of active fields are found in the Book Cliffs. Inactive SITLA coal holdings are found in Northern Castle Valley, John's Valley, Henry Mountains, Kolob, Alton and Kairparowits Plateau coal fields. These total more than 72,000 acres and contain about 380 million tons of coal. SITLA leases involve the following active Utah mines: Crandall Canyon, Bear Canyon, Dugout Canyon, and West Ridge. A SITLA lease for the Soldier Canyon mine is no longer active, and the mine has been closed due to operational problems.

Coal lands within ML 42648, 42649 and 44365 were acquired by SITLA as part of in-lieu selection approved List Number 329 in 1985. Lands within ML 42648 and 42649 were covered by federal coal leases at the time of the in-lieu selection. These were relinquished in exchange for preference right leases. ML 44365 was first offered for lease in 1989. All of these lands are managed under the Sage Point coal unit plan.

John's Valley was surveyed by the Utah Geological Survey for coal resources in 1963 at the request of the SITLA. As a result of finding substantial coal there, SITLA acquired an indemnity selection in 1965. The success of other coal-bearing regions has so far precluded the need for developing John's Valley. In 1999, a group of investors entered a coal exploration agreement with an option to lease with SITLA. Coal in the area is generally low rank, but merits further study.

SPECIFIC TRACTS

West Ridge

A recent lease to West Ridge augments the existing seven million tons in that tract which were under previous lease option. That deal was part of an approved mine plan. SITLA also has some unleased land in the Lila Canyon area of the Book Cliffs. Other SITLA leases with Andalex are not yet in production at West Ridge mine due to environmental opposition that has resulted in additional review by the Utah Division of Oil, Gas and Mining. Discussions between SITLA and various entities continue on a variety of potential new leases, but no new agreements have been announced since the end of 2002.

Dugout Canyon

A coal interest in the Dugout Canyon coal tract was acquired by SITLA pursuant to the Utah Schools and Federal Land Ex-

change, P.L. 105-335, in 1998. The Dugout Canyon tract was offered for lease in late 1999, and a lease agreement with Canyon Fuel Company was reached in September of 2001. Development of that new portion of the Dugout Canyon mine may begin as early as 2005 with construction of entries.

Other Tracts

Willow Creek contains the oldest active coal leases on Utah trust land. Mines in the area have struggled with gassy conditions that have caused two fires, both on federal lands. These mines are now closed. The West Ridge coal tract was acquired by SITLA through P.L. 105-335 in 1998 by fee title. This land will not revert to the federal government.

The Mill Fork coal tract was acquired by SITLA pursuant to P.L. 105-335 in 1998. Only the mineral interest was acquired and reverts to the federal government after 22.3 million tons of coal have been produced. In 1999, Pacificorp successfully bid $25 million for the lease. Mill Fork contains two mineable seams, the Hiawatha and the Blind Canyon. Pacificorp plans to access the coal through the nearby Deer Creek mine. BLM and SITLA are reviewing resource recovery and protection plans submitted by Pacificorp. Federal coal lease U06039 was recently amended to improve access by abutting its property line against the Mill Fork tract. Pacificorp continues to drill the property to better characterize its geology. Mining is expected to begin in 2004.

The Emery coal tract was created by aggregating SITLA sections that were received upon statehood with six non-SITLA sections acquired in 1984, totaling more than 5,400 acres of coal-bearing territory. Drilling indicates up to 13 coal beds that are generally thin and may be high in ash, sulfur and moisture.

OUTLOOK FOR UTAH'S COAL INDUSTRY FOR 2003

According to the BP Statistical Review of World Energy 2003, coal was the fastest growing energy source in the world during 2002, with world consumption increasing by 6.9 percent and U.S. coal consumption increasing by 1.4 percent. The sheer abundance of coal reserves in the United States, and the low cost of power generation per unit of input fuel will assure coal's place in the U.S. energy picture for several decades.

On the state level, coal demand in Utah will likely remain high due to in-state power plant commitment to bituminous combustion and the state's resilient air shed capacity. Demand for Utah coal will continue to rise in California and Nevada for these same reasons.

PRICES

Utah coal mine operators anticipate that the price of Utah coal will rise to about $18.86 per ton during 2003, an increase of 2.1 percent over 2002 (Table 1). That would mean three consecutive years of rising prices for Utah coal, for a total increase of 11.4 percent since 2000. In contrast, prices over the past two decades have generally been declining (Figure 5). In current dollars Utah coal prices reached $29.20 per ton in 1984, and in constant dollars, prices peaked in 1996 at $60.39 per ton.

The three-year rising price for Utah coal may be due in part to coal supply problems in eastern states and more recently to gradually improving economic conditions in the United States. Meanwhile, the prices may be limited by the availability of vast quantities of low cost coal from Wyoming's Powder River Basin and the rise of low cost coal exports from Australia, Indonesia and other foreign countries.

PRODUCTION

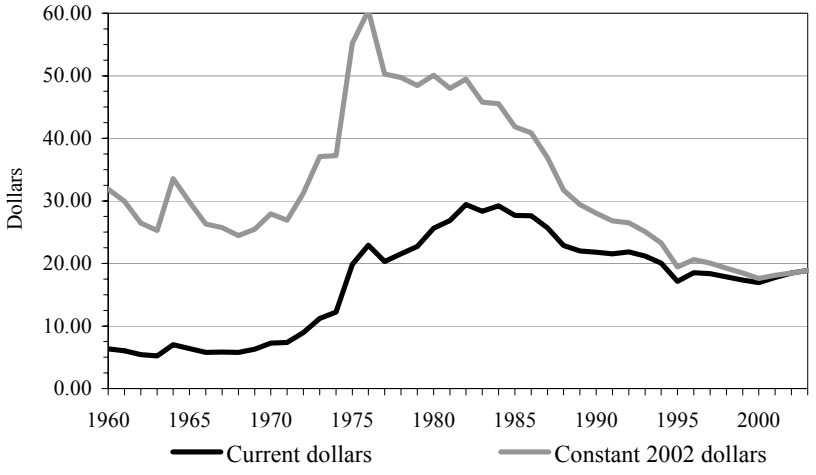
Utah coal mine operators expect to produce 25.7 million tons of coal in 2003, an increase of 1.7 percent over 2002. This is consistent with Pacificorp's expectation that regional electric power demand will grow at roughly two percent per year. Some of that new demand is expected to be met by natural gas-fired power generation and renewable energy sources; however, the vast majority of new power generation capacity anticipated for construction in Utah over the next decade will probably be coal-fired.

The dominance of longwall mining machines in Utah is expected to keep miner productivity at a record level of about 7.0 tons of coal per labor hour during 2003. This report acknowledges that two Utah mines closed in early 2003, so projections for the year show a corresponding decline in the number of mines and operators. Also, coal mine employment should continue to decline through 2003 by approximately 73 coal miners, to a total of 1,452.

Projected coal production is based entirely on domestic needs, as no Utah coal operators have acknowledged contracts for coal sales overseas. However, a number of potential foreign buyers continue to test samples of Utah coal, as do potential coal buyers in several states.

The closure of two Lodestar mines in 2003 reduces the total potential Utah coal production by

Figure 5 - Average Price of Utah Coal, 1960-2003



*2003 value is forecast

several hundred thousand tons from the 2002 projection. It is also possible that the new Emery Deep mine will not acquire significant production contracts during 2003. As a result, coal production in Utah will rely more heavily upon a shrinking number of large producers. For instance, two Canyon Fuel Company mines, Sufco and Skyline, should produce more than 11 million tons during 2003. When combined with Pacificorp's Deer Creek mine and Genwal's Crandall Canyon mine, the Wasatch Plateau coal field will continue to dominate coal production in Utah.

Meanwhile, Andalex's West Ridge and Canyon Fuel's Dugout Canyon mines are rising stars, and are predicted to produce close to five million tons of coal in the Book Cliffs. This helps keep Carbon County a vital part of the Utah coal picture.

Other Utah coal operators are expected to maintain steady production. This report did not find evidence that any new mines will open during 2003.

DISTRIBUTION

The U.S. dollar has recently weakened, but remains too strong to restore price competitiveness with foreign coals. Utah demand for electricity is rising at about two percent per year, and coal deliveries (including imports) for power production in Utah are expected to increase by 560,000 tons, or 3.7 percent over 2002. Coal deliveries to out-of-state utilities are expected to grow to 6.5 million tons, or 16.9 percent higher than 2002, but still well below the 1998 record year deliveries of 7.7 million tons. Little change is expected in coal demand by the industrial, commercial and residential sectors, both in state and elsewhere.

A proposed expansion of the IPP power plant near Delta, Utah, would consume more than two million tons of Utah coal when operations begin in about 2009. Meanwhile, Pacificorp projects the need for at least one more coal-fired power plant in the Utah region over the next decade that would require more than one million tons of coal per year, with a plant life of 50 years.

The current popularity of natural gas for power generation in Utah could be moderated by a recent rise in the price of that fuel. This change resulted from national-level supply problems and the expansion of Kern River pipeline capacity to California. This allowed Wyoming natural gas to escape low price captivity in the intermountain west.

Utah's Deseret Generation and Transmission power plant continues to rely entirely on Colorado coal, but is willing to quickly switch to Utah coal if the Deserado mine experiences difficulty during upcoming mine equipment changes. In Utah, there are no other substantial users of out-of-state coal, and no new ones are expected.

RESERVES

Available coal reserves are adequate to supply Utah mines at current production levels for several years. In addition, several large tracts of unleased coal on federal land, some of which is located close to existing mine operations, may become available for mine permitting in the next few years. Crandall Canyon will need to acquire new reserves in the next few years, and Sufco will be proceeding toward opening new leases in the Muddy tract as its reserves in the Pines area are depleted.

FEDERAL, LEGISLATIVE AND OTHER ISSUES 2002

LAND USE REGULATION

Aside from state and local standards, the 1977 Federal Surface Mining Control and Reclamation Act (SMCRA) promulgated standards for preventing undue environmental degradation at existing mines and cleaning up damage and waste at closed mines that escaped regulation in past generations. The Federal Office of Surface Mining (U.S. Department of the Interior) helps the Utah Division of Oil, Gas and Mining (DOGM) with the costs required to ensure compliance with SMCRA standards.

Hundreds of abandoned, small-scale "wagon mines" dot the Utah landscape, particularly in Summit and Iron Counties as well as in counties where coal production still occurs. According to DOGM, the process of regulating mines covered by SMCRA is proceeding smoothly, after many years of working out relationships between state, federal and mining interests. For instance, reclamation of the Des Bee Dove coal mine has been completed successfully in spite of difficult conditions.

The U.S. Circuit Court of Appeals for the District of Columbia recently sided with an Interior Department decision that interprets SMCRA as allowing underground mining, as long as adequate effort is made to either prevent subsidence or else compensate for it. Legal challenges to the Interior's interpretation would have required that subsidence from underground mining be regulated as if it were surface mining.

At present, the U.S. Environmental Protection Agency (EPA) is reconsidering its recent adoption of rules that allow expansion or modification of power plants without undertaking extensive environmental review. If changed, more plants will need to install expensive, up-to-date anti-pollution equipment.

An appellate court recently overturned a U.S. District court injunction that banned the filling of valleys with coal mine overburden, while the EPA, Army Corps of Engineers and other agencies moved forward on a proposed joint review process that would streamline regulatory review of such fills. The outcome of expected further litigation and administrative rule action will help determine the accessibility of billions of tons of low-sulfur coal in several eastern states, with implications for the competitive position of western coals.

Finally, a U.S. Department of Energy advisory panel has proposed the extension of research on nuclear energy to include a range of non-electric applications, including coal gasification that might, in turn, expand the energy value and environmental suitability of the nation's most abundant fossil fuel.

EPA REGULATION OF AIR EMISSIONS

Mercury is a natural earth element that is almost always found chemically bound-up in other compounds. The burning of any substance containing mercury, such as coal, releases that mercury which can then turn into toxic methyl mercury. Methyl mercury bio-accumulates upward in the food chain where it can eventually affect human health.

On December 15, 2000, the U.S. Environmental Protection Agency (EPA) determined that it would regulate mercury emissions from coal-fired power plants under section 112 of the 1990 Clean Air Act, which requires "maximum achievable control technology." These regulations will be proposed by December 2003, finalized by December 2004, and enforced beginning in December 2007. Up to a 90 percent reduction of mercury emissions may be required.

Although Utah coal from the Book Cliffs and Wasatch Plateau contains substantially less mercury than other U.S. coals, Utah coal also has low chlorine content and basic ash**,** which limit the effectiveness of existing pollution control technologies to remove mercury from combustion gases. Regulatory uncertainty further complicates the impact of mercury regulations. Several competing bills that modify existing law (including the President's Clear Skies Act of 2002) have been introduced in Congress. Regardless of the outcome, mercury regulations could produce shifts in the competitive position of competing fuels such as natural gas or otherwise affect the competitive position of different coals, both domestic and international.

Current research is testing a number of mercury control technologies, including the new DOE GP-254 process. GP-254 uses ultraviolet light to induce chemi-

cal changes that bond mercury to other flue gas elements that are relatively easy to remove from the stack. A key feature is the affordability of the new process, which makes it attractive to power plants using lower rank coal. Low rank coal releases more mercury per unit of power produced, and that mercury is typically more difficult to clean from stack gas.

Under the Clean Air Act and other federal legislation, sulfur dioxide emissions have dropped by 75 percent between 1970 and 1998. The Bush Administration proposes a "Clear Skies" program that would further reduce nitrous and sulfurous emissions, with an additional benefit of reducing mercury emissions by about 15 tons, or some 30 percent, within the next generation. Nine clean coal programs are currently funded or proposed, one of which aims to reduce mercury emissions by 90 percent.

APPENDIX

Table A **Net Coal Production in Utah by Coal Mine, 2002**

Thousand Short Tons

Company	Mine	County	Coal Field	Production
Andalex Resources Inc.	Aberdeen	Carbon	Book Cliffs	37
	Pinnacle	Carbon	Book Cliffs	662
Canyon Fuel Co.	Dugout Canyon	Carbon	Book Cliffs	2,080
	Skyline #3	Emery/Carbon	Wasatch Plateau	3,477
	Sufco	Sevier	Wasatch Plateau	7,600
Consolidation Coal Co.	Emery Deep	Emery	Emery	26
Co-op Mining Co.	Bear Canyon	Emery	Wasatch Plateau	957
Energy West Mining Co.	Deer Creek	Emery	Wasatch Plateau	3,984
Genwal Resources Inc.	Crandall Canyon	Emery	Wasatch Plateau	3,248
Hidden Splender Resources Inc.	Horizon	Carbon	Wasatch Plateau	110
Lodestar Energy Inc.	Whisky Creek #1	Carbon	Wasatch Plateau	278
West Ridge Resources, Inc.	West Ridge	Carbon	Book Cliffs	2,840
Total				25,299

Source: UEO Coal Company Questionnaires

*Forecast

Table B **Coal Production in Utah by Coal Field, 1982-2003**

Thousand Short Tons

Year	Wasatch Plateau	Book Cliffs	Emery	Sego	Coalville	Others	Total
1870-1981	166,404	234,547	5,723	2,654	4,262	2,332	415,922
1982	12,342	3,718	852	0	0	0	16,912
1983	10,173	1,568	88	0	0	0	11,829
1984	10,266	1,993	0	0	0	0	12,259
1985	9,386	2,805	640	0	0	0	12,831
1986	10,906	2,860	503	0	0	0	14,269
1987	13,871	2,348	269	0	33	0	16,521
1988	15,218	2,363	548	0	35	0	18,164
1989	17,146	2,785	586	0	0	0	20,517
1990	18,591	3,085	336	0	0	0	22,012
1991	18,934	2,941	0	0	0	0	21,875
1992	18,631	2,384	0	0	0	0	21,015
1993	19,399	2,324	0	0	0	0	21,723
1994	22,079	2,343	0	0	0	0	24,422
1995	22,631	2,420	0	0	0	0	25,051
1996	23,616	3,455	0	0	0	0	27,071
1997	22,916	3,512	0	0	0	0	26,428
1998	22,708	3,892	0	0	0	0	26,600
1999	23,572	2,919	0	0	0	0	26,491
2000	22,967	3,953	0	0	0	0	26,920
2001	21,919	5,106	0	0	0	0	27,025
2002	19,654	5,619	26	0	0	0	25,299
2003*	19,700	5,920	100	0	0	0	25,720
Cumulative Production	563,029	304,860	9,671	2,654	4,330	2,332	886,876

Source: UEO Coal Company Questionnaires

*Forecast

Table C **Coal Production in Utah by County, 1960-2003**

Thousand Short Tons

Year	Carbon	Emery	Sevier	Summit	Iron	Kane	Others	Total
1870-1959	211,028	49,166	4,046	4,012	521	45	2,846	271,664
1960	3,698	1,137	49	20	50	0	1	4,955
1961	3,916	1,124	47	20	52	0	0	5,159
1962	3,105	1,077	49	20	46	0	0	4,297
1963	3,493	752	47	18	48	1	0	4,359
1964	3,752	848	47	17	54	2	0	4,720
1965	3,779	1,101	61	13	36	2	0	4,992
1966	3,380	1,170	65	15	4	2	0	4,636
1967	2,971	1,113	72	13	3	2	0	4,174
1968	3,062	1,167	70	13	3	2	0	4,317
1969	3,367	1,200	72	12	4	2	0	4,657
1970	3,349	1,292	79	13	0	0	0	4,733
1971	3,347	1,097	158	12	0	12	0	4,626
1972	2,956	1,656	184	6	0	0	0	4,802
1973	2,866	2,445	339	0	0	0	0	5,650
1974	2,754	2,901	391	0	0	0	0	6,046
1975	2,984	3,126	827	0	0	0	0	6,937
1976	3,868	3,057	1,043	0	0	0	0	7,968
1977	4,390	3,107	1,337	0	0	0	4	8,838
1978	4,005	3,640	1,558	0	0	0	50	9,253
1979	5,292	5,147	1,657	0	0	0	0	12,096
1980	5,096	6,319	1,821	0	0	0	0	13,236
1981	6,123	5,609	2,076	0	0	0	0	13,808
1982	8,335	6,329	2,248	0	0	0	0	16,912
1983	4,194	5,404	2,231	0	0	0	0	11,829
1984	5,293	4,825	2,141	0	0	0	0	12,259
1985	6,518	4,516	1,797	0	0	0	0	12,831
1986	6,505	5,404	2,360	0	0	0	0	14,269
1987	7,495	6,765	2,228	33	0	0	0	16,521
1988	7,703	7,801	2,625	35	0	0	0	18,164
1989	8,927	8,531	3,059	0	0	0	0	20,517
1990	8,810	10,315	2,887	0	0	0	0	22,012
1991	5,816	12,980	3,079	0	0	0	0	21,875
1992	3,386	15,049	2,580	0	0	0	0	21,015
1993	2,642	15,528	3,553	0	0	0	0	21,723
1994	4,523	16,330	3,569	0	0	0	0	24,422
1995	3,801	17,344	3,906	0	0	0	0	25,051
1996	5,985	16,872	4,214	0	0	0	0	27,071
1997	6,956	14,533	4,939	0	0	0	0	26,428
1998	7,206	13,675	5,719	0	0	0	0	26,600
1999	4,514	16,214	5,763	0	0	0	0	26,491
2000	4,615	16,399	5,906	0	0	0	0	26,920
2001	5,689	14,334	7,001	0	0	0	0	27,024
2002	6,007	11,692	7,600	0	0	0	0	25,299
2003*	6,127	11,993	7,600	0	0	0	0	25,720
Cumulative Production	423,628	352,084	103,100	4,272	821	70	2,901	886,876

Source: UEO Coal Company Questionnaires

*Forecast

Table D **Coal Production in Utah by Landownership, 1980-2003**

Thousand Short Tons

Year	Federal Land	Percent of Total	State Land	Percent of Total	County Land	Percent of Total	Fee Land	Percent of Total	Total
1980	8,663	65.5	1,105	8.3	0	0.0	3,468	26.2	13,236
1981	8,719	63.1	929	6.7	0	0.0	4,160	30.1	13,808
1982	10,925	64.6	998	5.9	0	0.0	4,989	29.5	16,912
1983	6,725	56.9	419	3.5	0	0.0	4,685	39.6	11,829
1984	8,096	66.0	285	2.3	0	0.0	3,878	31.6	12,259
1985	9,178	71.5	510	4.0	0	0.0	3,143	24.5	12,831
1986	11,075	77.6	502	3.5	0	0.0	2,692	18.9	14,269
1987	13,343	80.8	488	3.0	0	0.0	2,690	16.3	16,521
1988	15,887	87.5	263	1.4	0	0.0	2,014	11.1	18,164
1989	16,931	82.5	375	1.8	153	0.7	3,058	14.9	20,517
1990	17,136	77.8	794	3.6	606	2.8	3,476	15.8	22,012
1991	18,425	84.2	942	4.3	144	0.7	2,364	10.8	21,875
1992	17,760	84.5	1,384	6.6	136	0.6	1,735	8.3	21,015
1993	19,099	87.9	1,682	7.7	116	0.5	826	3.8	21,723
1994	22,537	92.3	1,227	5.0	243	1.0	415	1.7	24,422
1995	23,730	94.7	571	2.3	289	1.2	461	1.8	25,051
1996	25,996	96.0	446	1.6	15	0.1	614	2.3	27,071
1997	25,161	95.2	339	1.3	0	0.0	928	3.5	26,428
1998	24,954	93.8	297	1.1	37	0.1	1,312	4.9	26,600
1999	21,982	83.0	3,071	11.6	65	0.2	1,373	5.2	26,491
2000	20,812	77.3	4,021	14.9	0	0.0	2,087	7.8	26,920
2001	18,369	68.0	5,386	19.9	331	1.2	2,939	10.9	27,025
2002	18,365	72.6	4,353	17.2	278	1.1	2,303	9.1	25,299
2003*	18,700	72.7	4,390	17.1	280	1.1	2,350	9.1	25,720

Source: UEO Coal Company Questionnaires

*Forecast

Table E **Distribution of Utah Coal, 2002**

Thousand Short Tons

Destination	Electric Utilities	Other Industrial	Residential and Commercial	Total
Arizona	0	19	0	19
California	129	2,694	0	2,823
Colorado	0	*	0	*
Idaho	0	297	5	302
Illinois	1,018	0	0	1,018
Iowa	0	0	2	2
Minnesota	0	0	253	253
Missouri	10	0	0	10
Montana	0	0	*	*
Nevada	3,267	315	0	3,582
Pennsylvania	282	0	0	282
Tennessee	557	0	0	557
Utah	**13,009**	**735**	**372**	**14,116**
Washington	0	58	23	81
Wyoming	0	0	*	*
Other States	299	159	0	458
Overseas Exports	875	0	0	875
Total	19,446	4,278	654	24,378

Source: UEO Coal Company Questionnaires

*Amounts less than 500 tons

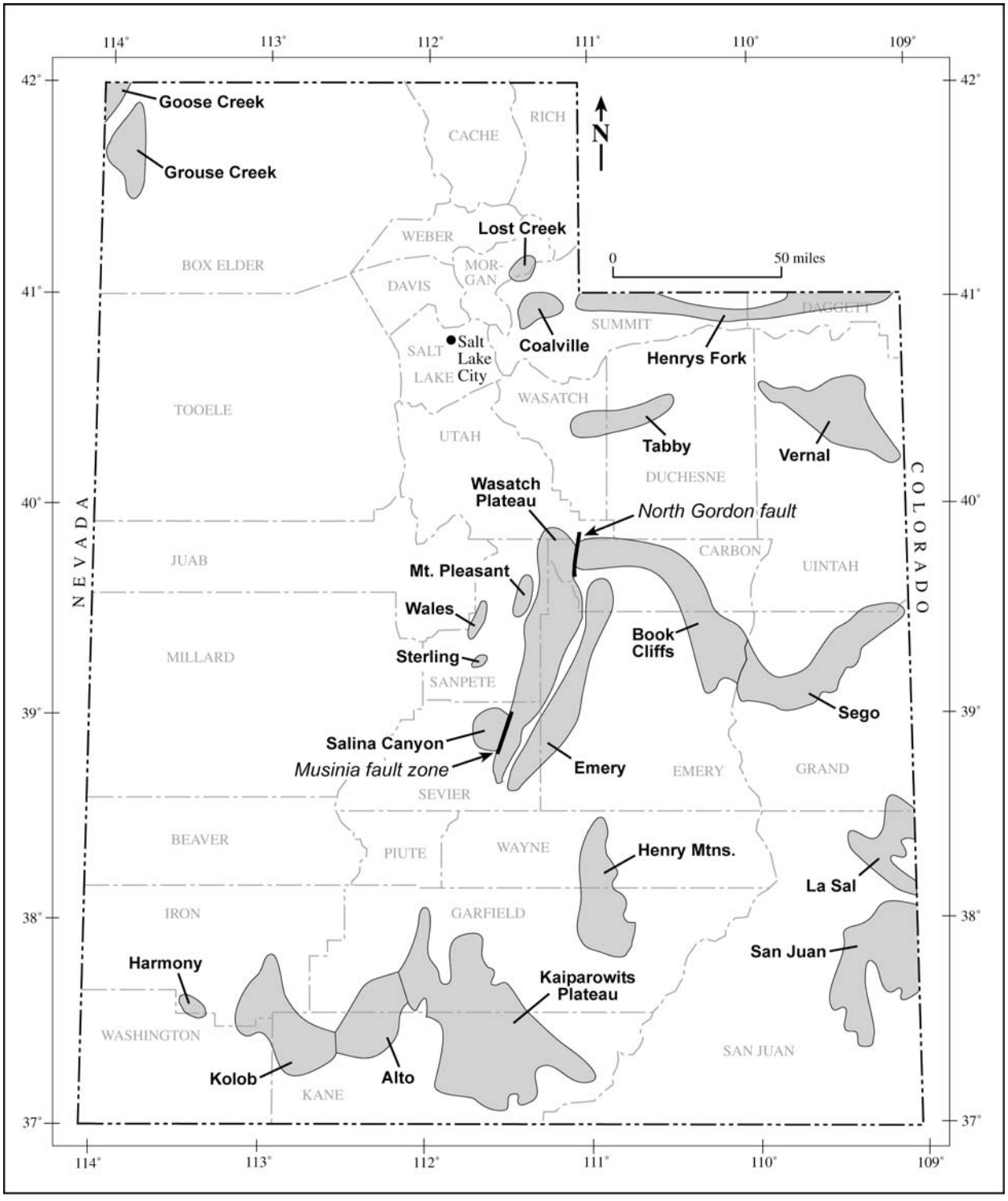
Table F **Historical Production, Distribution and Prices of Coal in Utah, 1991-2003**

Thousand Short Tons

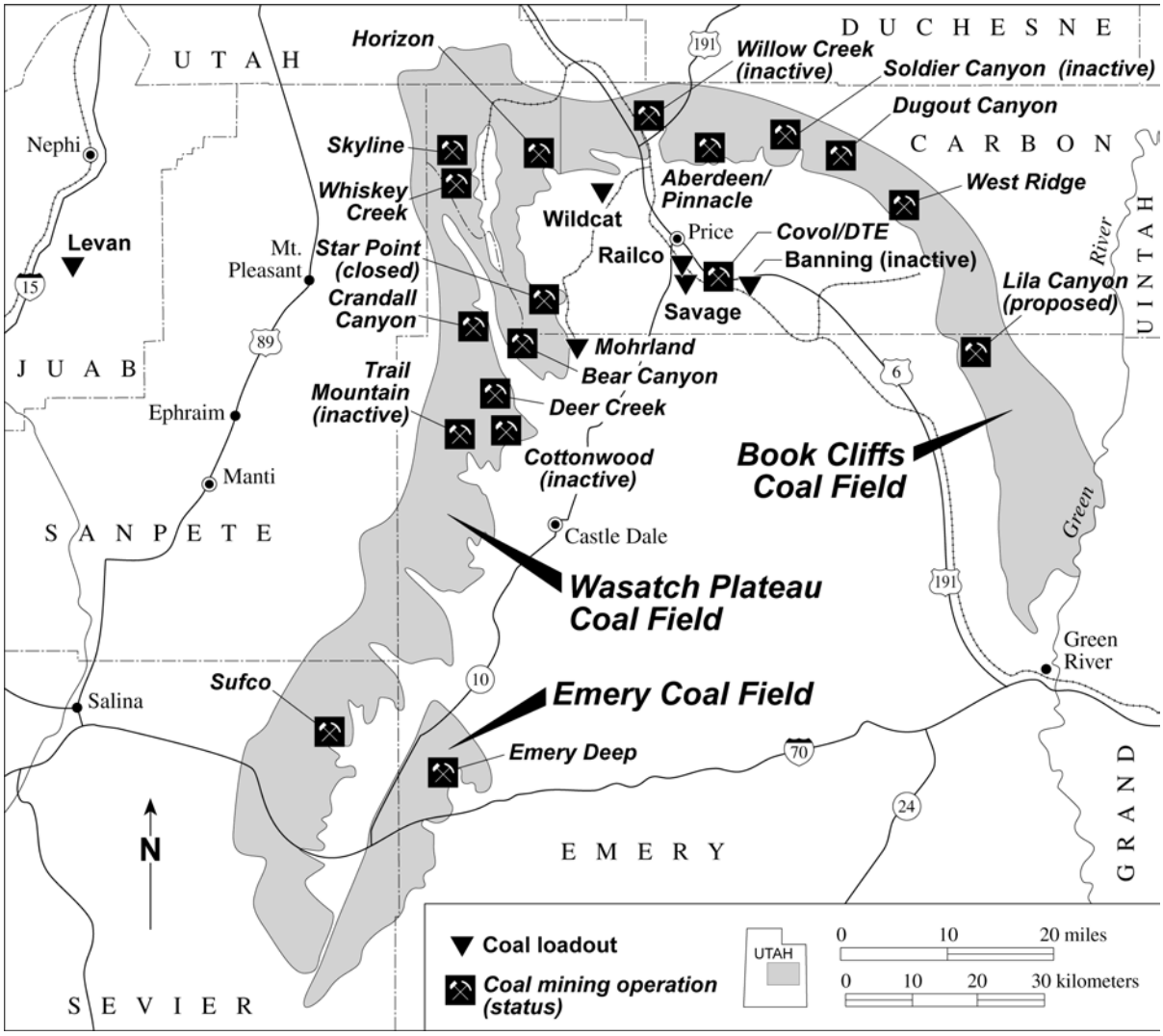
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003*
Production	21,875	21,015	21,723	24,422	25,051	27,071	26,428	26,600	26,491	26,920	27,024	25,299	25,720
Total Distribution (excludes imports)	21,673	21,339	21,935	23,441	25,443	27,816	25,407	26,974	26,180	27,629	26,798	24,378	25,047
Electric Utilities outside Utah	3,608	4,000	3,914	4,841	6,570	7,258	5,638	7,704	6,910	6,639	7,419	5,562	6,500
Electric Utilities in Utah (includes imports)	13,472	13,136	13,343	13,839	12,550	12,728	14,780	14,545	14,593	15,807	14,508	15,083	15,638
Coke Plants outside Utah	0	0	0	0	0	0	0	0	0	0	0	0	0
Coke Plants in Utah (includes imports)	1,310	1,182	1,089	1,198	1,062	1,120	1,106	982	728	941	648	0	0
Industrial outside Utah	2,158	2,006	2,146	2,322	2,399	2,339	2,164	2,749	2,529	2,892	3,055	3,543	3,600
Industrial in Utah (includes imports)	624	497	614	647	642	517	665	680	830	634	792	751	735
Residential/Commercial outside Utah	76	81	134	308	68	51	60	82	75	141	254	282	270
Residential/Commercial in Utah	320	347	228	157	182	260	96	212	107	82	394	372	360
Overseas Exports	2,112	2,245	2,567	2,717	3,811	5,468	3,513	2,735	2,567	2,960	2,404	875	0
Total Imports	2,007	2,155	2,100	2,588	1,841	1,925	2,615	2,715	2,159	2,467	2,676	2,090	2,056
Imports - Electric Utilities	1,310	1,517	1,501	1,495	779	805	1,509	1,733	1,431	1,531	2,028	2,074	2,041
Imports - Coke Plants	695	629	579	1,089	1,062	1,120	1,106	928	728	936	648	0	0
Imports - Industrial	2	9	20	4	0	0	0	0	0	0	0	16	15
Imports - Residential/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Coal Operators	12	12	11	10	9	9	10	10	10	10	10	9	8
Number of Active Mines	16	16	15	14	13	12	15	15	14	14	12	12	12
Number of Employees	2,292	2,106	2,161	2,024	1,989	2,077	2,091	1,950	1,843	1,672	1,564	1,525	1,452
Productivity (tons / miner hour)	4.79	5.13	5.47	6.01	6.41	5.91	5.57	6.12	6.09	6.91	5.89	6.83	7.00
Average price ($ / ton)	21.56	21.83	21.17	20.07	19.11	18.50	18.34	17.83	17.36	16.93	17.76	18.47	18.86
Total value (millions)	471.6	458.8	459.9	490.1	478.7	500.8	484.7	474.3	459.9	455.8	479.9	467.3	485.1

Source: UEO Coal Company Questionnaires

*Forecast



Map 1 – Location of Utah coal fields (courtesy of the Utah Geological Survey).



Map 2 – Location and status of Utah coal mining operations at the end of 2002 (courtesy of the Utah Geological Survey).

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