

UTAH MINING

PROSPECTS FOR UTAH LOOK GOOD

The region enjoys its first boom in over a generation

BY LEE BUCHSBAUM



Utah's coal market maybe on the upswing. Analysts believe 2006 production could break state records. Above, Andalex's West Ridge loadout fills another coal truck.

Throughout virtually all of Sam Quigley's nearly 29-year career with Andalex Resources Inc. in Utah, the coal market he's known has been flat and depressed, with fierce competition between rival producers to increase whatever market share was available. Despite possessing a high Btu, low ash and very low sulfur product, overall demand for Utah coal has almost always seemed less than what was possible. Rising to Vice President of Operations, Quigley once again, in 2004, saw that production was down, falling—according to the recently published *Annual Review and Forecast of Utah Coal*—for the third consecutive year to 21.8 million tons, the lowest level in 11 years. Employment too sank down to only 1,523 people, at least a 25 year low.

But 2004 may have been the nadir of Utah's slump. Driven by a decreasing supply of competitive coals and stronger local power generation demand, 2005 was 180° different from its predecessor. With the market for Utah coal expanding and with several low priced long term contracts expiring, operators enjoyed higher prices and, according to the report's author, Michael Vanden Berg, a geologist for the Utah Geological survey, were initially projecting a nearly 3 million ton production increase to 24.4 million tons as Arch Coal,

Andalex, CONSOL Energy and PacifiCorp ramped up their operations or re-opened closed facilities.

However, the biggest increase may yet come in 2006 as many of these mines realize gains from recently completed capacity increasing construction projects and Arch and CONSOL move toward full production from their new Skyline North Lease and the re-opened and rebuilt Emery mines. Indeed, several analysts speculate that Utah's 2006 production may well jump another 10% or more, perhaps even breaking state records by moving above the 27 million ton mark. And this without the opening of several large new metallurgical mines being planned by Bob Murray's UtahAmerican and Bronco Energy.

The downward trend in Utah coal led to the shutdowns of Arch's Skyline mine and CONSOL's Emery facility. Cost pressures associated with geologic, labor or materials issues nearly across the board likely accelerated the mine closures in the area. Simply put, with coal prices being depressed and material costs rising, going after Utah's deeper and often gassier reserves, and mining through increasingly challenging and complex geologic situations became unprofitable.

Today, however, a combination of advanced mining techniques, and a state reported 13% rise in prices over the last two years are propelling the upswing, and allowing more resources to achieve viability. Even more, Unita spot prices, according to the Federal Energy Information Administration, have shot up to \$37 a ton from only \$17 in 2002. Also, sustained markets for metallurgical coal is renewing interest in Utah's inactive coking reserves, with both Bronco and UtahAmerican seeking permits to mine in areas that haven't seen any activity in more than 40 years.

LEADING UTAH PRODUCERS RAMP UP

Currently, coal is being mined in three separate fields in a horseshoe shaped region in east central Utah that stretches across Emery, Carbon, and Sevier counties. In 2004, 60% of the state's coal came from the Wasatch Plateau, mostly from Arch's SUFCO mine, Utah's most productive mine (at 7.6 million tpy in 2004), and arguably the most productive and one of the safest underground operations west of the Mississippi, and surprisingly, one of the oldest as well.

Just under 40% of Utah's production, or 8.5 million tons, came from the Book Cliffs coalfield to the east, split between Andalex's Aberdeen, Pinnacle and West Ridge mines (a combined 4.67 million tons in 2004) and Arch Coal's Dugout Canyon (3.8 million tons).

In 2002, CONSOL's Emery mine reopened (idled in 1990) in the Emery coalfield which is located mainly along the long valley east of the Wasatch. Idled yet again in August 2003, it reopened a year later and produced a quarter million tons by the end of 2004. But in 2005, they're anticipated to exceed 1 million.

Also, in the Wasatch plateau, PacifiCorp's Energy West subsidiary (the third largest mining company in the state) operates the Deer Creek mine which produced 3.4 million tpy in 2004. As a captive operation, it produces what is required for PacifiCorp's Huntington, Hunter, and Carbon power plants (combined, these plants consume almost 7 million tons per year and also purchase from other Utah sources as well). Deer Creek uses continuous miner sections and a longwall, working in two seams separated by approximately 60-80 feet.

Arch Coal's Canyon Fuel Co., however, is Utah's production leader. The company's three mines (SUFCO, Dugout Canyon and Skyline North Lease) accounted for 55% of Utah's 2004 total and 51% of the projected 2005 totals. Andalex's four operations comprised another 26% and Energy West's Deer Creek mine, made up most of the rest of the state's production. These percentages changed in 2005 as CONSOL's Emery mine increased production and Skyline began ramping up toward full production in a brand new reserve area in the Lower O'Connor "A" seam in Carbon County.

Skyline is a real success story for Arch, and illustrates how the market is beginning to rebound. Closed in 2001 due to challenging geologic conditions driving up production costs, Skyline began 2004 with only 18 employees. With rebounding prices, they currently have 165 and are looking for at least 10 more. Given the sustained higher prices for Utah's coal, Arch has been ramping up production at their SUFCO and Dugout Canyon mines as well.

"We're using two CM's now," reported Wess Sorensen, Skyline's general manager, as the mine prepares for the longwall. "In the past we did 3 million tpy with two longwalls, but we ran into some severe geological challenges." The mine was then closed in 2001. But given the coal's high quality 11,700-11,800 Btu, 8.5% ash, 7%-8% moisture, and the current market conditions, Arch determined that the timing was right to begin harvesting those new North Lease reserves. "Arch has invested over \$40 million in this new mine," reported Sorensen. "Now we've got the equipment we need, and are repairing and preparing the longwall and face conveyors. We've already been through both CM units and sections, and overhauled and repaired our feeder breaker."

MSHA reported that Skyline was able to mine more than 200,000 tons throughout 2005, and the *Annual Review and Forecast* states that Arch hopes to produce more than 1 million tons from the new operation in 2006.

Skyline will use their existing 850 foot longwall to access their substantial reserve base, operating it for two shifts.

At the southern end of the Wasatch Plateau, Arch's SUFCO mine, already the state's largest, continues to find innovative ways to reach new levels of production. The oldest continually operated coal mine in the western U.S. (since 1941), SUFCO produced roughly 7.5 million tons of 11,400 Btu, 8.5% ash and .35% sulfur coal out of the upper Hiawatha seam during 2005. And over the



Tammy Jolley, a longwall miner, cuts coal at Arch Coal's SUFCO mine.

course of the year, the mine has undertaken several projects to further increase capacity. "We're stepping up a notch," said Ken May, SUFCO's general manager.

In 2005, they installed an underground coal bunker and have done some additional expansion work on their tippie as well. "Run time is the secret for us," said May. "We try to run our longwall and mainline belts 20 hours a day."

SUFSCO's new coal bunker helps with surge capacity. "Our longwall is capable of producing 5,000 tph, but we can only run 2,200-2,500 tph because of our main line belt capacity," said May. "The goal is to get a constant flow of 2,500-3,000 tph and run the longwall at closer to design capability and bring on more production." The new bunker will allow the longwall to have surges of 4,500 tph, but the bunker will control the feed onto the main belts.

With reserves the envy of many mines across the nation, SUFCO is so large it takes 25 miles of belting just to get the coal from the longwall to the surface and 45 minutes to drive crews to the coal face. "We have a big issue getting our people to work," said May, "and we have three 10 hour overlapping shifts to get a hot seat change underground." SUFCO, one of the earliest longwall mines in the U.S., currently runs a 930 feet wide longwall. "We've been blessed with an excellent reserve," said May. "The panel that we're in now is right at 3 miles. It takes us about 10 months to extract that, yielding us 6.5 million tons of great coal."

Back in the Book Cliff's field, Canyon Fuel's other Utah operation, Dugout Canyon, has also been adjusting to the

spike in demand and prices by increasing its production steadily from just over 2 million short tons in 2002, to 3.8 million in 2004. By the third quarter of 2005, they had already produced 3.45 million tons with a goal, according to the *Annual Review and Forecast*, of 4.4 million short tons.

Since early 2004, production has moved into the Gilson seam which is stratigraphically lower than the Rock Canyon seam where Dugout had been producing up until then. Using a longwall at depths of 2,000 or more feet in this coal field has presented a number of geological challenges which have led Dugout to borrow from Andalex's playbook and use barrier pillars as well to help settle the mountain and limit bounce problems. Also, while moving into the Gilson seam, Dugout has had to work through several inseam partings and a large sand channel, forcing the mine to begin washing more of its coal.

While these may have temporarily slowed production, Dugout's workforce has been able to innovatively work around these issues and increased productivity. "We hold regular meetings with the employees and that's what makes us so successful," said Dugout's new General Manager Erwin Sass. "Employee involvement has made the difference, the employees are going to get stagnant without their input, leading to what I call 'paradigm paralysis'. You treat your employees with respect and dignity and you address the issues that come up so you have a solid 24 hour level of communication."

Dugout has a reserve base of at least 30-35 million tons, which will increase as their wash plant is built and is in operation later in 2006. This may also help Dugout to continue to increase production, perhaps up

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Sam Quigley, vice president-operations, Andalex Resources.

to 5 million tons. “There is still a lot of mining to be done here,” said Sass, “but there needs to be more technology in place to help us go after deeper coal.”

TRANSPORTATION CONCERNS

One of the greatest challenges to Utah’s industry is the relative isolation of most of its current operating mines. Since the 1970s, most have been located closer to outcrops within the Book Cliffs or the Wasatch Plateau, several miles away from existing, operating rail routes.

As an example, SUFCO is saddled with an 82 mile trip to a rail head. “We’ve been able to succeed only because of workforce productivity,” May said.

While transportation costs are high now, the company believes it would have been more expensive to preserve the rail route than to build a trucking facility in Levan. “Because of their flexibility, we’re delivering more by truck,” May said.

The lack of rail access has forced Utah’s coal operators to use truck haulage to ship raw coal either to distant loadouts, power plants, or industrial customers directly. This has in turn spawned several successful symbiotic relationships with several trucking companies that have become a vital link in the production chain. “One of the successes with transport are the two companies we use: Barney Trucking and Robinson Transportation,” May said. “Glen Barney and Art Robinson started here in the 1940s hauling with a single truck, 4 tons at a time on dirt roads. Now they’ve grown to be among the largest trucking companies in Utah. We work very

closely with them and they always deliver very well for us.”

Even though it’s the largest operation in the state, SUFCO maintains an extremely small footprint in the mountain. “We’re only disturbing 12 acres of ground,” said May, “and only have about 15,000 tons live storage, so we have to move our coal almost as soon as we bring it to the surface. The way in which those trucks maintain such a carefully choreographed ballet here on mountain over windy roads, 24/7, in all kinds of weather is a story in itself. And the fact that we can produce 1/3 of the coal in Utah with so little footprint illustrates again Arch’s commitment to environmental stewardship and responsibility.”

Although relatively close to a railhead, Arch’s Skyline facility is located much higher in elevation than the other Utah mines. Given the terrain, Arch opted to employ a 2.2 mile long pipe/tube conveyor system that, in order to prevent spillage over the length of the conveyor, folds over on itself. Its flexibility allows it to move along the contours of the mountainside, over steep grades, and around tight corners. “We go that extra mile to protect the environment,” said Sorensen, who is understandably proud of what is the largest operating belt of its kind in the U.S.

Also, given the suddenness of the industry’s local recovery, operating infrastructures that were designed to facilitate smaller quantities of production may eventually need to be expanded. One example is the Savage Coal Terminal load-out south of Price. Owned by the coal haulage company, Savage Coal Services,

this one facility, with its one silo, is used by several different coal operators. Given the vagaries of train times, coal cannot be loaded into the silo prior to a train’s arrival as the UP schedule is difficult to anticipate. That can create logistical challenges.

A recurring concern however is the viability and amount of Utah’s long-term coal reserves, especially with more than 9 billion tons locked up in off-limits-to-production at the Grand Staircase-Escalante National Monument (aka the Kaiparowits Plateau).

According to several analysts, Utah has a finite 20-25 million tpy market. It’s not that the reserves aren’t there, it’s a question of producing high quality coals at economically feasible levels. But within the region that most Utah coal is currently being mined, the reserve base is becoming limited with perhaps deteriorating geologic conditions and coal qualities. As utilities and electrical providers expand their capabilities, new mines will have to be built to serve their needs. Over the next 15 years, the remaining greenfield coal tracts, of which there are several, will come into play.

ANDALEX’S FAMILY MATTERS

Toward the end of 2005, fairly quietly, Andalex announced that, after years of being privately held by the Scottish Mitchell-Green Family, the firm was finally up for sale. “Andalex is people oriented,” said Quigley. “Throughout my career, they’ve gone way beyond normal company standards to be considerate of the workforce. Peter and Mary Jean Green had a genuine affection for and sense of responsibility toward us.” When Andalex entered the Utah market in the mid 1970s, Quigley was their first employee in the state. “Initial production didn’t begin until 1980. It was a leap of faith. By late 1970, the oil shocks were over, and after 1982, it’s been pretty hard times with fairly depressed prices for 20 years. These are the biggest boom times in recent memory.”

Despite the recession in the industry, Andalex never closed. “All my contemporaries went to work for various coal and energy companies,” said Quigley, “but I’ve been fortunate that for 29 years, I’ve been able to work for Andalex.”

Andalex has been owned since its inception by the Mitchell-Green family. The Mitchell family originally became involved in the coal mining business in 1835 with operations in Scotland and subsequently began operating in Canada and the U.S. in 1911 and 1976, respectively. The U.S. coal business subsequently grew through a series of acquisitions of operations and

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Federal coal leases over the next several years to include the existing Andalex operations in Utah, as well as operations in Eastern and Western Kentucky. The family began shifting its ownership interests away from coal about a decade ago to focus on real estate and investments primarily in Europe. The Canadian business, Luscar Ltd., was sold in 1996 and the Eastern and Western Kentucky operations were divested by mid-1998. Andalex is the last remaining piece of the Mitchell-Green family's coal investment holdings.

"This has been a very difficult decision as the Mitchell family has been in the coal industry continuously since 1835 and I have been involved with Andalex since its beginning in 1976," said Peter Green, chairman of Andalex. "After our long involvement in the coal business we now feel it is time to focus on our growing business interests in different areas. It is our intention that Andalex be sold as a unit."

Andalex's employee commitment is the story behind the company's Wildcat rail loadout northwest of Price. In the mid 1980s, the company received a large contract with the Intermountain Power Agency which necessitated both more tonnage and more coal deliveries. To fulfill the latter required the construction of a new loadout. But after 1982, the Utah coal market had plummeted. "We tried as much as possible to maintain a steady workforce," said Quigley. "So, to avoid laying off our miners, rather than contract the loadout construction, we took half our underground workforce and built the Wildcat loadout ourselves, beginning in 1984. Our underground employees did 90% of the steel fabrication, 75% of the electrical work and poured 100% of the concrete. We built our own electrical substation and did almost all the interior wiring—even the engineering was done in house. Very few companies would accept this challenge." Wildcat loaded its first train in April 1985. The facility is designed to load 4 million tons a year and Andalex has shipped 44 million tons thus far.

Andalex not only built the facility themselves, but they designed it so that it could load and reclaim coal simultaneously, without using a coal silo. "Since we often don't know which trains will come in and when," said Quigley, "if the wrong train comes in we can be flexible. We can load trains in less than two hours, with each 105 ton car being finished in 68 seconds. On top of everything, we've operated Wildcat for 16 years without a lost time accident."



This is the site of UtahAmerican Energy's Lila Canyon mine.

In January 2006, Andalex is scheduled to release detailed information on its holdings and certainly operators from across the country will be reviewing this information.

FUTURE PROSPECTS

Bob Murray's planned UtahAmerican Energy, Inc. Lila Canyon mine, located south of other operations in the Book Cliffs, has been going through the permitting process for the last five years facing resistance from environmental groups all throughout. Lila Canyon's reserves consist of the old U.S. Steel/Kaiser Steel properties, and the coal has a 12,200 Btu with 0.9% sulfur or less. The coal also cokes, having a free-swelling index of about 5, and, once again, is a candidate for the metallurgical market. "It appears that we will soon get our final permits to construct UtahAmerican's Lila Canyon mine," said Murray. "It is our hope to have two continuous miners operating in early 2007, with a third in late 2007. Startup of the longwall is projected for November 2008."

Planned to be a 5 million tpy facility, the Lila Canyon mine will be difficult to build. "We cannot disturb the Book Cliffs," Murray said. "So, we'll be forced to drive two rock tunnels from the valley floor eastward and upward, intersecting the coal seam as it dips downward to the east, and then drive outside on the Book Cliffs for ventilating air."

However, the planned operation has the advantage of only being three miles from the mainline of the Union Pacific Railroad, which will be extended right to the mine site. "It is our intent to sell the vast majority of UtahAmerican's projected output for its first 10 years of operation prior to actual construction of the mine," said Murray. "Based on our meetings with potential electric utility customers over the past year, this should be accomplished reason-

ably expeditiously. Our potential customers recognize that the 11-13 foot coal seam, combined with the attractive quality and shipping logistics, should be a very reliable supplier of base load production for many years to come."

Bronco Energy is less advanced in their desire to re-open the former U.S. Steel Columbia mine which has been closed since the 1960s. With its high quality met coal reserves, Bronco feels that there is a strong market demand. At the end of the day, higher potential prices are renewing interest for the reserves. But between environmental roadblocks and other regulatory hurdles, as well as the potentially challenging geologic conditions, it's proving an uphill battle to return to the southern Book Cliffs—despite the quality of the coal there.

The issues surrounding Bronco and UtahAmerican are the same issues that are beginning to loom for the entire Utah coal industry: as reserves deplete, where will operators turn to mine the coal the state needs for its power? As it stands now, the vast majority of Utah's best coal remains off limits. For folks like Sam Quigley, who are witnessing Utah's first "boom" in over a generation, it's a question of how long it can last, and if the expansion can be sustained for another generation. If the Grand Staircase remains off limits, then some of the best and most economically available (albeit at the moment geographically and transport challenged) coal will be kept off the marketplace.

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