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Highlights

- Utah's coal industry has played a significant role in the economic development of the state for well over a century.
- Three features are particularly important for understanding its past and possible future development: 1) its low sulfur content, 2) its high heating value, and 3) the fact that coal production in Utah takes place in very deep underground mines.
- At present, Utah's recoverable reserves of coal are 2.7 billion tons, while cumulative coal production to date is just over 1 billion tons.
- Utah's current coal production, which occurs in Carbon, Emery, and Sevier counties, is used mostly in electricity generation. The two industries have been historically linked in Utah. The most important barrier to further growth in coal-fired electricity generation is the cost of reducing emissions of those pollutants required by current and potential future regulation.
- The total employment impacts of 2007 Utah coal production are estimated to be 4,703 jobs, which includes 1,888 in direct employment plus 2,815 additional jobs. Additional population estimated to be supported by these jobs is 7,055. These impacts are, not surprisingly, concentrated in the coal counties.
- Statewide employment impacts rise from 4,703 in 2007 to 6,320 in 2014 in all scenarios. Both the Low and Middle scenarios then turn down to reach 3,524 (Low Scenario) and 4,430 (Middle Scenario) in 2030. The High Scenario continues to increase to a peak of 6,298 in 2022, and then declines to reach 5,775 in 2030.
- In all scenarios, coal production in Carbon County declines. In 2007, Carbon accounted for nearly half of the coal produced in the state, with Sevier accounting for 28 percent and Emery accounting for 24 percent. In all three scenarios, Carbon production falls beneath that of Emery and, in two out of three, also below Sevier. In all scenarios, Emery becomes the largest coal-producing county in the state.
- Total statewide employment impacts from coal-fired power plants rise from 8,368 in 2007 to 10,387 in 2030. Given the power plant's direct employment of 1,100 in 2007, these are very high total employment impacts, a ratio of 7.6 to 1.
- Federal coal royalty payments disbursed to Utah in 2008 were $12.0 million. Rents and royalties paid for coal production on SITLA lands were $10.5 million in 2008. Property taxes charged against coal mines in Utah were $4.2 million and against coal-fired power plants were $26.2 million in 2008.

Utah's Coal Industry: Economic Contributions and Future Prospects

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Introduction

Utah's coal industry has played a significant role in the economic development of the state for well over a century. The future of the industry is dependent upon a constellation of economic, technical, and policy developments. The first section of this paper presents an overview of the coal industry in Utah, examining characteristics, trends, and policy context over time, as well as future prospects. The second section presents 2007 economic and demographic impacts of coal production on the coal mining counties of Carbon, Emery, and Sevier, as well as the rest of the state. The impacts of three future coal production scenarios from 2008 through 2030 are also evaluated. At present, coal provides most of the fuel for electric power generation in Utah. Although the contribution of coal to the state's electricity production into the future is subject to some considerable uncertainty, economic impacts of power plants are considered as well.

Overview

By the time Mormon settlers discovered coal near Cedar City in 1850, the "rock that burns" was already well on its way to becoming king in the eastern United States. Though still a few decades shy of overtaking wood as the nation's leading source of energy, coal was rapidly replacing it as the fuel of choice for steam locomotives. In cities like Baltimore, street lamps were burning coal-based gas. Pennsylvania's anthracite coal, having been dismissed as a fuel earlier in the century and once famously relegated to sidewalk gravel in Philadelphia, was beginning to challenge—and would eventually overcome—charcoal as a heat source in iron making.

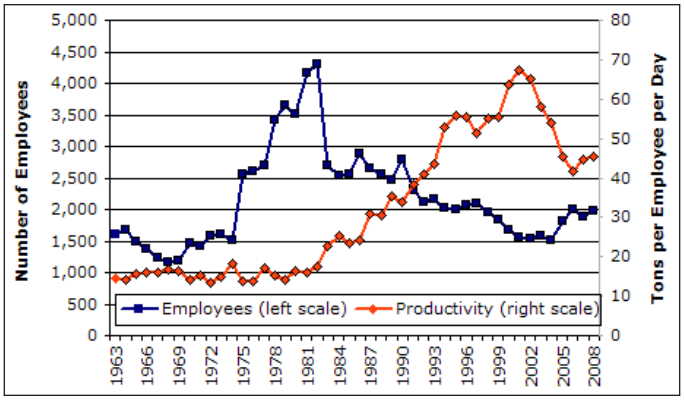
But Utah's coal boom would have to wait until 1882, when the arrival of the Rio Grande Western Railroad opened the Carbon County coal fields. The immediate and pronounced impact of the railroad is apparent from the fourfold increase in production from 52,000 tons in 1881 to 200,000 tons in 1883—the first full year after the railroad's completion. By 1900, annual production had

surpassed 1 million tons and coal mining employed nearly 1,000 persons.

Though annual coal production by the end of the 20th century was about 20 times greater than in 1900, the number of those employed in coal mining had only approximately doubled. The increasing productivity of labor—the average amount of coal produced per worker over some given amount of time (typically, one day)—due to the displacement of labor by machinery is an ongoing feature of Utah coal production, with implications for the future contribution of the coal mining industry to Utah's broader economy. In the earliest days, coal mining was highly labor intensive—typically involving only a miner, hand tools, and a cart. It was soon discovered that much of the work of chipping at the coal with a pickaxe could be saved with the use of explosives. Production became increasingly capital intensive through the turn of the century, as pneumatic drills, trams, railways, and cutting machines were introduced and quickly deployed. Though 90 percent of Utah coal was hand-mined in 1911, by 1915 hand-mined coal had fallen to 48 percent of total coal produced, with the percent cut by machine rising from 3 percent to 50 percent. Labor productivity naturally paralleled this trend. In 1890, labor productivity was 2.57 tons per employee per day, but by the 1920s this had more than doubled. The trend of increasing capitalization generally continued through the 20th century, with the deployment of continuous and longwall mining machines being particularly important. In spite of productivity declines in recent years, the average amount of coal produced per employee per day had risen to 46 tons by 2008. Figure 1 shows the labor productivity of Utah's coal industry since 1963.

Three features of Utah's coal are particularly important for understanding its past and possible future development. First is its low sulfur content. When coal is burned in an electric power plant, the sulfur it contains combines with oxygen to produce sulfur dioxide. Sulfur dioxide is "considered harmful to public health and the environment" and is regulated by the Environmental Protection Agency pursuant to the Clean Air Act. New coal plants, being subject to more stringent emission standards than plants built decades ago, are required to remove a large fraction of the sulfur dioxide from their exhaust gas before it exits the stack and enters the atmosphere. Removing sulfur dioxide is costly both in that it entails additional capital costs and its operation consumes a part of the power generated (termed "parasitic energy loss"). The more sulfur present in the coal or the larger the fraction that must be removed from the exhaust gas, the higher the equipment costs and the greater the parasitic energy loss. This means that, all else being equal, as low-sulfur coals—like those typically found in Utah and Wyoming—can generate power at lower costs, they are also able to command a higher price. If national air quality standards for sulfur dioxide tighten—as EPA has recently proposed—Utah's coal industry would fare better relative to its counterparts mining high-sulfur eastern coals.

Figure 1
Productivity of Utah Coal Mining



Source: Utah Geological Survey, *Utah Energy and Mineral Statistics.*

Another distinguishing feature of Utah's coal is its "heating value," an expression of the energy released when coal is burned. Coal is a bulky fuel compared with its heating value. Whereas the heating value of a typical ton of oil (about 280 gallons)—a once-popular fuel in electric power generation—is about 38 million British thermal units (BTU), the heating value of a typical ton of coal ranges from approximately 13,000 BTU (about the same as for a ton of firewood) for lignite and the subbituminous coals to 26,000 BTU for bituminous and anthracite coals. For two otherwise equal coals, the one with the higher heating value will ordinarily fetch a higher price. A typical Utah coal is bituminous, with a heating value of 24,000 BTU—about 50 percent higher than that of Wyoming's subbituminous coal. Thus, low sulfur but high energy content are two advantages Utah's coal has relative to most of the country's other coals.

The most conspicuous and important difference between Utah and Wyoming coal is how the deposits at operating mines are situated in the ground. Whereas all of Utah's present coal production takes place in deep underground mines, almost all of Wyoming's coal reserve is close enough to the surface (within a few hundred feet) to make less expensive surface mining techniques applicable. Prior to the early 1970s most of the coal mined in the U.S. was produced in underground mines. That situation began to reverse in the mid-1970s when production from Wyoming's Powder River Basin began in earnest. In 2008, surface-mined coal accounted for 70 percent of U.S. production. Labor productivity from surface-mining operations like those of the Powder River Basin is three times higher than that of Utah's underground mining operations—though a ton of Powder River Basin coal at the mine is worth less (heating value and market value) than a ton of Utah coal. Other factors held fixed, expensive underground mining techniques put Utah coal at a commercial disadvantage compared with surface-mined coal.

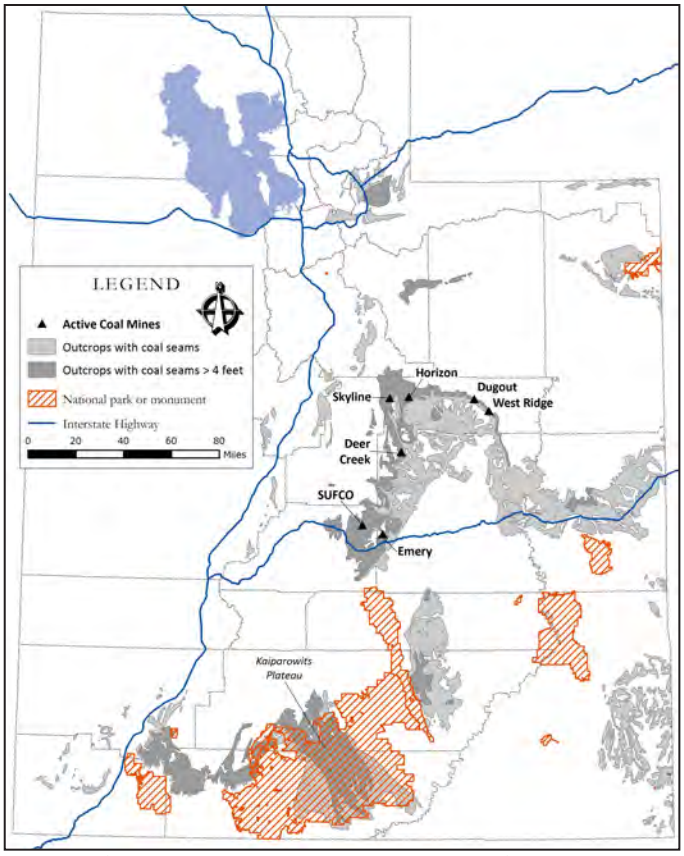
Coal Reserves and Production

Reserves

As of 2009, Utah's estimated recoverable reserves of coal amounted to 2.7 billion tons (1 percent of U.S.), of which 212 million tons are located in mines that are currently producing. Another 212 million tons of coal suited to surface mining are counted among Utah's total estimated recoverable reserves,

though all of Utah's producing reserves are in underground mines. Because the Energy Information Administration's measure of Utah's estimated recoverable reserves includes only resources economically mineable and also located on land that is not off-limits to mining, it does not include the very rich Kaiparowits Plateau field located in Kane and Garfield counties. Before deducting that part of the resource that would be uneconomical to mine at present, the Kaiparowits field contains about 9 billion tons of coal. But the field was effectively put off-limits for development in 1996 when then-President Clinton designated over 1.7 million acres of southern Utah as the Grand Staircase–Escalante National Monument. Figure 2 shows the state's major coal seams and active mines.

Figure 2
Utah Coal Seams and Active Mines



Source: Bureau of Economic and Business Research and Utah Automated Geographic Reference Center.

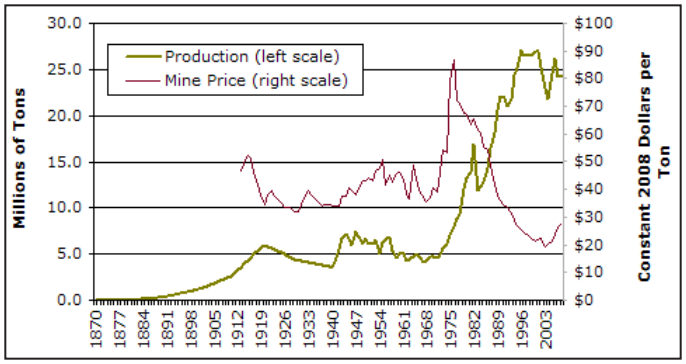
Production

By the end of 2008 cumulative coal production in Utah had surpassed 1 billion tons. To put this in perspective, consider that in 2008 alone the U.S. produced almost 20 percent more than Utah's entire historical production through 2008, while Wyoming produced an amount equal to almost half of Utah's cumulative production.

The distribution of Utah's coal production is historically and presently concentrated in Carbon, Emery, and Sevier counties. Between 1870 and 1959, 78 percent of the coal produced in Utah came from Carbon County. Carbon County's share of total coal production since 1960 fell to 27 percent as production greatly increased in Emery and Sevier counties. There is presently no coal production outside of these three counties, which collectively account for 99 percent of all the coal ever mined in Utah.

Figure 3 shows Utah coal production since 1870. A rapid increase in production is seen just prior to World War I, with production levels peaking near the end of the conflict. The subsequent slowdown during the 1920s, given the rapid economic growth taking place in the U.S. at the time, might best be described as a return to peacetime market conditions. Production was tempered during the 1930s by the Great Depression, but strongly spurred on just before and during World War II. In the succeeding 25 years, coal lost ground in every major market except electric power generation. Between the early 1970s and the early 1990s, production growth was interrupted only by national recessions. Production in 2008 was 24.3 million tons—near the most recent 15-year average of 25.3 million tons and well above the most productive year of the 1980s (17.1 million tons in 1989). The rapid growth during this time period has leveled off in recent years.

Figure 3
Utah Coal Production Since 1870



Note: Production figures prior to 1940 are decadal. "Mine Price" is the price of coal at the mine and excludes transportation charges.
Sources: Bureau of Economic and Business Research, *A Brief History of the Utah Coal Industry*, 1977 (for data through 1960); Utah Geological Survey, *Utah Energy and Mineral Statistics* (for data since 1960).

Markets

Coal-fired generation now accounts for 50 percent of U.S. net electricity generation. If coal-fired electricity generation is important nationally, it is much more so in Utah. In 2008, coal-fired generation originating in Utah produced 38 out of a total 46.6 BKWH of net electricity—82 percent of net generation. Though this is well above the U.S. average, it's actually a step down from the period of 1980–2005, when coal averaged 94 percent of generation. This recent departure is not because coal-based generation has decreased, but because the share of gas-fired generation has increased faster than total generation. Between 2005 and 2008, gas-fired generation increased its share from 3 percent (1.2 BKWH) to 16 percent (7.4 BKWH).

Challenges

Apart from any hidden costs ("negative externalities") arising, for example, from the pollutants emitted as a combustion byproduct, coal-fired generation is among the least expensive means for

producing electricity. Of critical importance to Utah's coal industry in the future is the extent to which efforts to internalize some of coal's negative externalities are successful.

Within the last several years there were four new coal-fired power units still planned for construction in Utah: An 86-megawatt addition to Deseret Power's 500 MW Bonanza power plant near Vernal, a 900 MW addition to two existing 900 MW units at the Intermountain Power Agency's (IPA) Intermountain Power Project (IPP) near Delta, a 400 MW addition to PacifiCorp's three-unit Hunter Plant near Castle Dale, and a 270 MW unit at a new plant in Sigurd. These four proposals have been intensely challenged on the basis of their potential environmental impacts—mainly greenhouse gas emissions and traditional air pollution—and the economic uncertainty arising out of a looming but highly unsettled regime for regulating CO_2.

Options for Coal-Based Electricity Generation

The most important barrier to further growth in coal-fired generation is the cost of reducing emissions of those pollutants traditionally regulated by the Clean Air Act and those that might be, under a looming but as yet unknown regime for limiting emissions of greenhouse gases like CO_2. As the challenges to current proposals show, even the possibility of such limits can hold up new coal-fired generation. Provided the demand for coal stays closely tied to the demand for electricity, the prospects for coal mining will be linked to how readily coal-based power generation can adapt, if necessary, to accommodate more stringent emissions requirements.

While a substantial charge for CO_2 would decrease the competitiveness of coal-fired electricity generation, provided carbon capture and sequestration turns out to be a viable process there appear to be several options available that would allow Utah to continue to lean on coal for a substantial portion of its energy needs.

Economic Impacts

Coal production in Utah generates economic impacts because it is classified as either export base or import substitution production. Most Utah coal is used by power plants that in turn sell electricity to customers in Utah and other states. Because Utah has coal-fired power plants, it does not have to purchase electricity from out-of-state producers. This means that coal production in Carbon, Emery, and Sevier counties generates economic impacts for the producing counties as well as for the state as a whole. In addition to the jobs and income generated by the coal operators (termed "direct impacts"), other firms supply equipment and services to the coal producers. Some of these firms employ people who reside in the coal counties or elsewhere in Utah, and these are categorized as "indirect impacts." Then, all of the jobs (direct and indirect) generate incomes that support households which in turn demand goods and services, some of which are produced in the coal-producing counties or elsewhere in Utah (termed "induced impacts"). All of these economic impacts generate tax revenues and support a larger population than would otherwise be possible. Of course, a larger population demands more services (police, sanitation, education, etc.) as well as infrastructure (roads, water, sewer, etc.), and these are generally provided by state and local government.

The economic and demographic impacts of coal production for 2007 and for scenarios of production from 2008 through 2030 have been evaluated here using the REMI 29-region, 23-sector model built for Utah. The population and economy of each county in Utah are represented in the model. The sum of the impacts of all counties is equivalent to the state impact. Direct economic activity for 2007 and beyond was imputed to the coal-producing counties according to actual production levels in 2007 and scenarios into the future. For this study, the RIMS II and IMPLAN models were also used to calibrate state-level parameters.

In 2007, 24.3 million tons of coal were produced in Utah. The county distribution, in millions of tons, was 11.8 in Carbon, 5.8 from Emery, and 6.7 from Sevier. Estimated direct employment at the mines and their facilities was 1,888, with employment of 770 in Carbon, 753 in Emery, and 360 in Sevier.

Total employment impacts (direct plus all others) of 2007 coal production are estimated to be 4,703, which includes the above-mentioned 1,888 in direct employment plus 2,815 additional jobs, a ratio of 2.5-to-1. Not surprisingly, most of these employment impacts (4,017, or 85 percent of the total) are concentrated in the coal counties, with 686 in the rest of the state. About half of the employment impacts in the coal counties are estimated to have occurred in Carbon County. On a statewide basis, 42 percent of employment impacts were in Carbon County, 28 percent in Emery County, 16 percent in Sevier County, and 15 percent in the rest of the state.

Population impacts associated with this additional economic activity totaled 7,055 persons in 2007. This is the additional population supported by the economic impact of coal mining in 2007. This includes population impacts of 2,936 in Carbon County, 1,964 in Emery County, 1,127 in Sevier County, and 1,029 in the rest of the state.

Nominal earnings impacts for 2007 are estimated to be $196.3 million for the state. These were distributed within the state as follows: $62.6 million in Carbon County, $47.4 million in Emery County, $18.2 million in Sevier County, and $68.1 million in the rest of the state.

An estimated $0.8 million in local tax revenue in 2007 is associated with these earnings impacts. They are estimated to have been distributed as follows: $0.3 million for Carbon County, $0.1 million for both Emery and Sevier counties, and $0.3 million for the rest of the state. State tax revenues generated by these earnings impacts are an estimated $15.0 million; $4.8 million generated in Carbon County, $3.5 million in Emery County, $1.4 million in Sevier County, and $5.3 million for the rest of the state.

Production Scenarios

The future of coal mining in Utah is dependent on a complex set of economic, geological, technical, and political factors. Electric

utilities consume the largest share of coal produced in Utah, and this should continue to be the case into the foreseeable future. According to the Energy Information Administration, coal will continue to provide the largest share of energy for U.S. electricity generation, even as alternative energy sources are developed. Assuming that Utah mining operations remain competitive relative to other potential coal and alternative energy sources, mines should continue to produce to at least 2030, although there is some uncertainty.

The Utah Geological Survey (UGS) prepared a set of coal projection scenarios to be used in this study: Low, Middle, and High production (Tables 1a–1c). In all three scenarios, the UGS assumed that there is a continued depletion at existing mines. In the Low Scenario, new mines have difficulty with permitting, and demand declines due to the development of affordable alternative fuels and increased greenhouse gas regulation. Growth is further restricted in this scenario as export markets do not develop. In the Middle Scenario, new mines are permitted and begin to produce coal, but demand growth is slow as older electric generation plants are shut down and not replaced. The High Scenario also assumes the development of new reserves, but, in addition, increasing demand. This increase in demand is from three sources: 1) successful carbon-capture technology and, in consequence, new power plants; 2) successful implementation of coal-to-liquids and coal-to-gas plants; and 3) increasing exports to the Pacific Rim.

Table 1a
Utah Coal Production, 2000–2030:
Low Scenario
(Thousands of Tons)

Year	Carbon	Emery	Sevier	Subtotal	Other	Total
2000	4,615	16,399	5,906	26,920	0	26,920
2001	5,689	14,334	7,001	27,024	0	27,024
2002	6,007	11,692	7,600	25,299	0	25,299
2003	7,091	8,852	7,126	23,069	0	23,069
2004	8,772	5,477	7,568	21,817	0	21,817
2005	9,618	7,372	7,567	24,556	0	24,556
2006	11,560	6,662	7,908	26,131	0	26,131
2007	11,811	5,765	6,712	24,288	0	24,288
2008	11,400	5,700	6,900	24,000	0	24,000
2009	10,500	6,000	7,000	23,500	0	23,500
2010	10,500	6,000	7,000	23,500	0	23,500
2011	10,500	6,000	7,000	23,500	0	23,500
2012	10,500	7,000	7,000	24,500	1,000	25,500
2013	10,500	7,000	7,000	24,500	1,000	25,500
2014	10,500	8,000	7,000	25,500	2,000	27,500
2015	8,500	9,000	6,000	23,500	2,000	25,500
2016	6,500	9,000	6,000	21,500	2,000	23,500
2017	4,500	10,000	6,000	20,500	2,000	22,500
2018	2,500	9,000	6,000	17,500	2,000	19,500
2019	2,500	9,000	6,000	17,500	2,000	19,500
2020	1,500	9,000	6,000	16,500	2,000	18,500
2021	500	8,000	6,000	14,500	2,000	16,500
2022	500	8,000	6,000	14,500	2,000	16,500
2023	500	8,000	5,000	13,500	2,000	15,500
2024	500	8,000	5,000	13,500	2,000	15,500
2025	500	8,000	5,000	13,500	2,000	15,500
2026	500	8,000	5,000	13,500	2,000	15,500
2027	500	7,000	5,000	12,500	2,000	14,500
2028	500	7,000	5,000	12,500	2,000	14,500
2029	500	7,000	5,000	12,500	2,000	14,500
2030	500	7,000	5,000	12,500	2,000	14,500

Note: Historical data through 2007, projections from 2008 through 2030.
Source: Utah Geological Survey.

Table 1b
Utah Coal Production, 2000–2030:
Middle Scenario
(Thousands of Tons)

Year	Carbon	Emery	Sevier	Subtotal	Other	Total
2000	4,615	16,399	5,906	26,920	0	26,920
2001	5,689	14,334	7,001	27,024	0	27,024
2002	6,007	11,692	7,600	25,299	0	25,299
2003	7,091	8,852	7,126	23,069	0	23,069
2004	8,772	5,477	7,568	21,817	0	21,817
2005	9,618	7,372	7,567	24,556	0	24,556
2006	11,560	6,662	7,908	26,131	0	26,131
2007	11,811	5,765	6,712	24,288	0	24,288
2008	11,400	5,700	6,900	24,000	0	24,000
2009	10,500	6,000	7,000	23,500	0	23,500
2010	10,500	6,000	7,000	23,500	0	23,500
2011	10,500	6,000	7,000	23,500	0	23,500
2012	10,500	7,000	7,000	24,500	1,000	25,500
2013	10,500	7,000	7,000	24,500	1,000	25,500
2014	10,500	8,000	7,000	25,500	2,000	27,500
2015	9,500	9,000	6,000	24,500	2,000	26,500
2016	8,500	9,000	6,000	23,500	2,000	25,500
2017	6,500	10,000	6,000	22,500	2,000	24,500
2018	4,500	10,000	6,000	20,500	2,000	22,500
2019	4,500	11,000	6,000	21,500	2,000	23,500
2020	3,500	12,000	6,000	21,500	2,000	23,500
2021	2,500	12,000	6,000	20,500	2,000	22,500
2022	2,500	12,000	6,000	20,500	2,000	22,500
2023	2,500	12,000	5,000	19,500	2,000	21,500
2024	2,500	12,000	5,000	19,500	2,000	21,500
2025	2,500	12,000	5,000	19,500	2,000	21,500
2026	2,500	12,000	5,000	19,500	2,000	21,500
2027	2,500	11,000	5,000	18,500	2,000	20,500
2028	2,500	11,000	5,000	18,500	2,000	20,500
2029	2,500	11,000	5,000	18,500	2,000	20,500
2030	2,500	11,000	5,000	18,500	2,000	20,500

Note: Historical data through 2007, projections from 2008 through 2030.
Source: Utah Geological Survey.

All three scenarios follow the same assumed production path from 2008 through 2014, with annual production declining from 24.0 million tons in 2008 to 23.5 million tons each year from 2009 through 2011. Production increases to 25.5 million tons in both 2012 and 2013, and then increases further to 27.5 million tons in 2014. All three scenarios decline from 2015 through 2019, with the Middle and High scenarios taking the same path to reach 23.5 million tons and the Low Scenario declining to 19.5 million tons. From 2020 to 2030, the growth paths diverge, with the Low Scenario continuing to decline to reach 14.5 million tons annually for each year from 2027 through 2030 and the Middle Scenario declining to 20.5 million tons annually over the same period. In the High Scenario, production also declines from 2014 to a level of 22.5 million tons in 2018, but then increases to a constant annual production of 30.5 million tons from 2022 to 2026. In this scenario, annual production drops to 29.5 million tons for the remainder of the projection period (2027–2030) (Figure 4).

In the last year of historical data (2007), Carbon County accounted for nearly half (49 percent) of the coal produced in the state, with Sevier accounting for 28 percent and Emery accounting for 24 percent. In all three scenarios, Carbon

production falls beneath that of Emery and, in two out of three, also below Sevier. In all scenarios, Emery becomes the largest coal-producing county in the state, and a smaller amount of production (2.0 million tons annually) is developed outside the current three-county coal region.

In all three scenarios, Carbon County coal production is constant at an annual rate of 10.5 million tons from 2009 through 2014. In the Low Scenario, production collapses to 0.5 million tons by 2021 and remains there throughout the rest of the projection period. In the Middle Scenario, Carbon County production also declines, but maintains a steady output at 2.5 million tons annually from 2021 through 2030. In the High Scenario, coal production declines to 3.5 million tons in Carbon County in 2021, then rebounds to a steady annual output of 5.5 million tons from 2023 through 2030.

For Emery County, all scenarios follow the same path through 2017 to increase steadily to annual production of 10.0 million tons. In the Low Scenario, production declines to reach 7.0 million tons for each year from 2027 through 2030. The Middle Scenario increases to plateau at 12.0 million tons from 2020 through 2026, then declines to a steady annual production of 11.0 million tons for the duration of the projection. In the High Scenario, Emery County coal production rises to 18.0 million tons in the years 2022 through 2026, then declines to an annual rate of 17.0 million tons from 2027 through 2030.

Table 1c
Utah Coal Production, 2000–2030:
High Scenario
(Thousands of Tons)

Year	Carbon	Emery	Sevier	Subtotal	Other	Total
2000	4,615	16,399	5,906	26,920	0	26,920
2001	5,689	14,334	7,001	27,024	0	27,024
2002	6,007	11,692	7,600	25,299	0	25,299
2003	7,091	8,852	7,126	23,069	0	23,069
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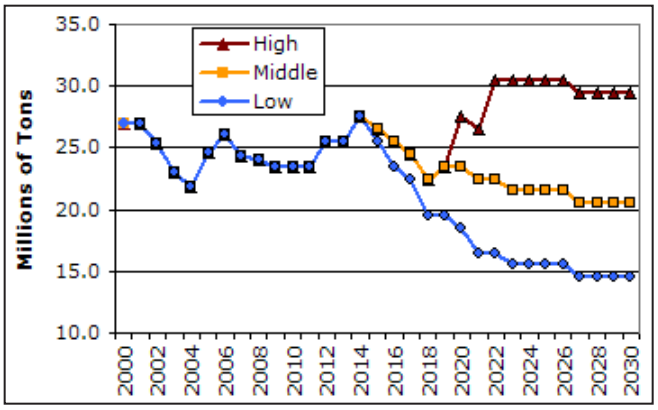
2008	11,400	5,700	6,900	24,000	0	24,000
2009	10,500	6,000	7,000	23,500	0	23,500
2010	10,500	6,000	7,000	23,500	0	23,500
2011	10,500	6,000	7,000	23,500	0	23,500
2012	10,500	7,000	7,000	24,500	1,000	25,500
2013	10,500	7,000	7,000	24,500	1,000	25,500
2014	10,500	8,000	7,000	25,500	2,000	27,500
2015	9,500	9,000	6,000	24,500	2,000	26,500
2016	8,500	9,000	6,000	23,500	2,000	25,500
2017	6,500	10,000	6,000	22,500	2,000	24,500
2018	4,500	10,000	6,000	20,500	2,000	22,500
2019	4,500	11,000	6,000	21,500	2,000	23,500
2020	4,500	15,000	6,000	25,500	2,000	27,500
2021	3,500	15,000	6,000	24,500	2,000	26,500
2022	4,500	18,000	6,000	28,500	2,000	30,500
2023	5,500	18,000	5,000	28,500	2,000	30,500
2024	5,500	18,000	5,000	28,500	2,000	30,500
2025	5,500	18,000	5,000	28,500	2,000	30,500
2026	5,500	18,000	5,000	28,500	2,000	30,500
2027	5,500	17,000	5,000	27,500	2,000	29,500
2028	5,500	17,000	5,000	27,500	2,000	29,500
2029	5,500	17,000	5,000	27,500	2,000	29,500
2030	5,500	17,000	5,000	27,500	2,000	29,500

Note: Historical data through 2007, projections from 2008 through 2030.
Source: Utah Geological Survey.

Figure 4
Utah Coal Production, 2000–2030



Note: Historical data through 2007, projections from 2008 through 2030.
Source: Utah Geological Survey.

Sevier County has an identical coal production projection in all three scenarios. Production declines in three steps, from 7.0 million tons annually in the years 2009 through 2014, then 6.0 million tons annually from 2015 through 2022, and finally to 5.0 million tons annually from 2023 through the end of the projection period.

Impacts of Production Scenarios

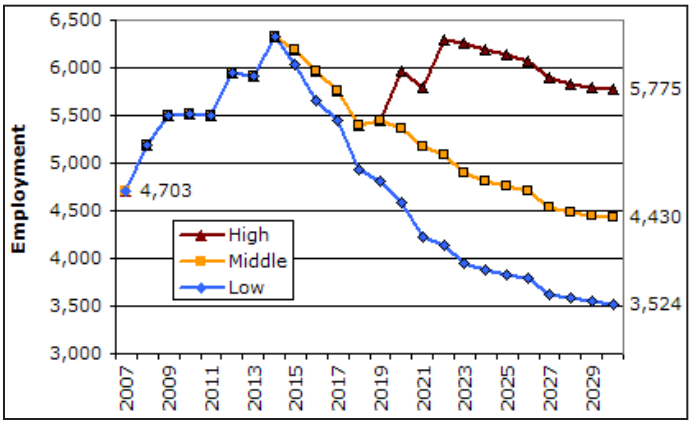
Summary impact results for each of the three scenarios for all areas are shown in Tables 2a through 4.

Statewide employment impacts rise from 4,703 in 2007 to 6,320 in 2014 for all scenarios. Both the Low and Middle scenarios then turn down to reach 3,524 (Low Scenario) and 4,430 (Middle Scenario) in 2030. The High Scenario increases to a peak of 6,298 in 2022, then declines to reach 5,775 in 2030. These are shown in Figure 5.

In the Low Scenario, population impacts follow a path of increase from 7,055 in 2007 to eventually peak at 9,744 in 2020, and then decline to reach 8,524 in 2030. The Middle Scenario generally increases to peak in 2024 at 10,665, then declines to 10,158 in 2030. The High Scenario mostly shows growth throughout the projection period, terminating at 12,316 in 2030.

Nominal earnings, local tax revenue, and state tax revenue impacts are higher in 2030 than in 2007 for all three scenarios. From 2007 to 2030, nominal earnings impacts increase from $196.3 million to $426.6 million in the Low Scenario, $542.8 million in the Middle Scenario, and $719.4 million in the High Scenario. Over the same period, nominal local government revenue impacts increase from $0.8 million to $1.6 million in the Low Scenario, $2.0 million in the Middle Scenario, and $2.6 million in the High Scenario. Nominal state government revenue impacts increase from $15.0 million in 2007 to 2030 levels of $32.7 million in the Low Scenario, $36.5 million in the Middle Scenario, and $55.1 million in the High Scenario.

Figure 5
State Employment Impacts, 2007–2030



Source: Bureau of Economic and Business Research, University of Utah analysis using the REMI model.

Carbon County Scenario Impacts

Summary impact results for each of the three scenarios for Carbon County are also shown in Tables 2a through 4.

Impacts follow the general path of the coal production scenarios. In all scenarios, coal production in Carbon County declines from 2007 to 2030. In 2007, Carbon County accounted for nearly half of the coal produced in the state, with Sevier County accounting for 28 percent and Emery County accounting for 24 percent. In all three scenarios, Carbon County production falls beneath that of Emery and, in two out of three, also below Sevier. In all scenarios, Emery becomes the largest coal-producing county in the state, and a smaller amount of coal production is developed outside the current three-county coal region.

Carbon County employment impacts, shown in Figure 6, fall from 1,957 in 2007 to reach 701 in the Low Scenario, 977 in the Middle Scenario, and 1,378 in the High Scenario in 2030.

In the Low Scenario, population impacts follow a path of increase from 2,936 in 2007 to eventually peak in 2017 at 3,368, and then decline to 2,344 in 2030. The Middle Scenario generally increases to peak in 2019 at 3,515, then declines to 2,967 in 2030. The High Scenario mostly shows slow growth throughout the projection period, terminating at 3,758 in 2030.

Nominal earnings, local tax revenue, and state tax revenue impacts are higher in 2030 than 2007 for all three scenarios. There is a similar pattern of increasing until 2014, then declining until 2021, then again increasing until 2030. From 2007 to 2030, nominal earnings impacts increase from $62.6 million to $65.5 million in the Low Scenario, $91.9 million in the Middle Scenario, and $130.7 million in the High Scenario. Over the same period, nominal local government revenue impacts remain flat at $0.3

Table 2a
Summary Impacts: Low Scenario
(Dollar Amounts are Millions of Current Dollars)

	2007					2030				
	Employment	Population	Earnings	Local Revenue	State Revenue	Employment	Population	Earnings	Local Revenue	State Revenue
Carbon County	1,957	2,936	$62.6	$0.31	$4.8	701	2,344	$65.5	$0.33	$5.0
Emery County	1,309	1,964	$47.4	$0.09	$3.5	1,220	2,186	$132.1	$0.26	$9.9
Sevier County	751	1,127	$18.2	$0.09	$1.4	548	1,200	$42.7	$0.21	$3.3
Coal Counties	4,017	6,026	$128.2	$0.50	$9.8	2,469	5,730	$240.3	$0.81	$18.2
Rest of State	686	1,029	$68.1	$0.27	$5.3	1,055	2,794	$186.3	$0.75	$14.5
Total State	4,703	7,055	$196.3	$0.77	$15.0	3,524	8,524	$426.6	$1.55	$32.7

Share of Total	Employment	Population	Earnings	Local Revenue	State Revenue	Employment	Population	Earnings	Local Revenue	State Revenue
Carbon County	41.6%	41.6%	31.9%	40.6%	31.9%	19.9%	27.5%	15.4%	21.1%	15.3%
Emery County	27.8%	27.8%	24.1%	12.3%	23.5%	34.6%	25.6%	31.0%	17.0%	30.2%
Sevier County	16.0%	16.0%	9.3%	11.8%	9.4%	15.6%	14.1%	10.0%	13.8%	10.2%
Coal Counties	85.4%	85.4%	65.3%	64.7%	64.8%	70.1%	67.2%	56.3%	51.9%	55.7%
Rest of State	14.6%	14.6%	34.7%	35.3%	35.2%	29.9%	32.8%	43.7%	48.1%	44.3%
Total State	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

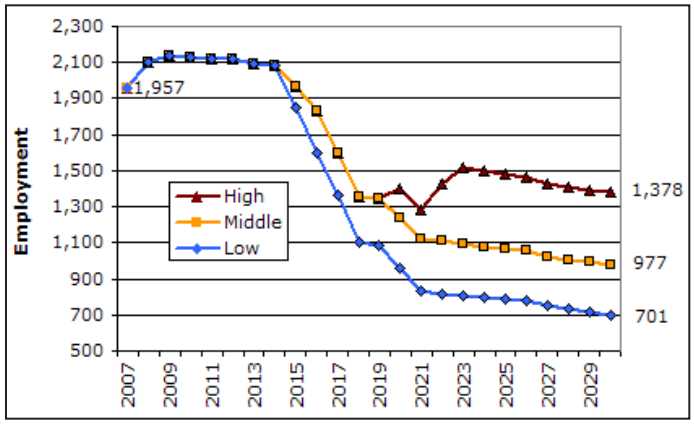
Note: Shading indicates the area's share of the category is projected to be smaller in 2030 than in 2007; unshaded cells are projected to be larger.
Sources: Economic and demographic impacts generated using the REMI model. Revenue impacts generated by BEBR.

Table 2b
Summary Impacts—Changes from 2007 to 2030: Low Scenario
(Dollar Amounts are Millions of Current Dollars)

	Levels					Percentages				
	Employment	Population	Earnings	Local Revenue	State Revenue	Employment	Population	Earnings	Local Revenue	State Revenue
Carbon County	−1,256	−592	$2.9	$0.01	$0.2	−64.2%	−20.1%	4.6%	4.6%	4.6%
Emery County	−89	223	$84.7	$0.17	$6.3	−6.8%	11.3%	178.6%	178.6%	178.6%
Sevier County	−203	74	$24.5	$0.12	$1.9	−27.0%	6.5%	134.3%	134.3%	134.3%
Coal Counties	−1,548	−296	$112.0	$0.31	$8.4	−38.5%	−4.9%	87.4%	61.4%	86.6%
Rest of State	369	1,765	$118.2	$0.47	$9.2	53.8%	171.5%	173.7%	173.7%	173.7%
Total State	−1,179	1,470	$230.2	$0.78	$17.6	−25.1%	20.8%	117.3%	101.0%	117.2%

Sources: Economic and demographic impacts generated using the REMI model. Revenue impacts generated by BEBR.

Figure 6
Carbon County Employment Impacts, 2007–2030



Source: Bureau of Economic and Business Research, University of Utah analysis using the REMI model.

million in the Low Scenario, while increasing to $0.5 million in the Middle Scenario and $0.7 million in the High Scenario. Nominal state government revenue impacts increase from $4.8 million in 2007 to 2030 levels of $5.0 million in the Low Scenario, $7.0 million in the Middle Scenario, and $10.0 million in the High Scenario.

Emery County Scenario Impacts

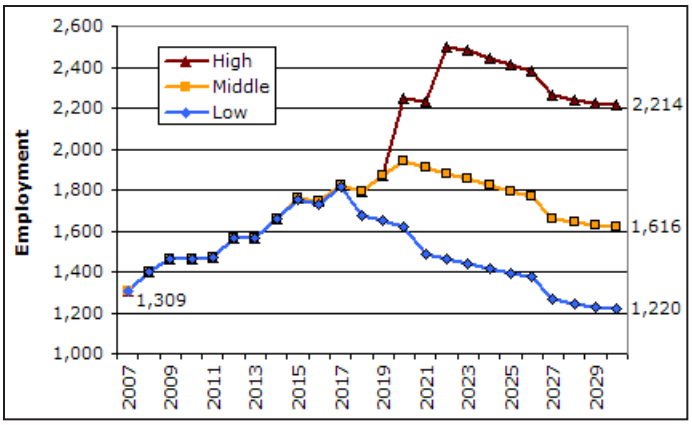
Summary impact results for each of the three scenarios for Emery County are also shown in Tables 2a through 4.

The impacts measured here follow the general path of the coal production scenarios. Coal production in Emery County declines from 2007 to 2030 in the Low Scenario, increases somewhat in the Middle Scenario, and increases in the High Scenario. In all scenarios, Emery becomes the largest coal-producing county in the state.

Emery County employment impacts follow a pattern of increasing to a peak and then declining in all scenarios, as shown in Figure 7. From an initial employment impact of 1,309 in 2007, employment peaks in 2017 in the Low Scenario at 1,812, in 2020 in the Middle Scenario at 1,940, and in 2022 in the High Scenario at 2,501. While all scenarios decline from these peaks, both the Middle and High Scenarios result in higher employment impacts in 2030 than in 2007. Employment impacts for 2030 are 1,220 in the Low Scenario, 1,616 in the Middle Scenario, and 2,214 in the High Scenario.

Population impacts for Emery County are higher in 2030 than in 2007 for all three scenarios. These population impacts generally increase from 2007 to 2019 in all three scenarios, growing from 1,964 in 2007 to 2,475 in the Low Scenario and to 2,804 in both the Middle and High Scenarios. From 2019 to 2030, population impacts decline to reach 2,186 in the Low Scenario, stay mostly flat to reach 2,720 in the Middle Scenario, and increase to 3,457 in the High Scenario.

Figure 7
Emery County Employment Impacts, 2007–2030



Source: Bureau of Economic and Business Research, University of Utah analysis using the REMI model.

Table 3
2030 Summary Impacts: Middle Scenario
(Dollar Amounts are Millions of Current Dollars)

	Employment	Population	Earnings	Local Revenue	State Revenue
Carbon County	977	2,967	$91.9	$0.46	$7.0
Emery County	1,616	2,720	$175.1	$0.35	$13.1
Sevier County	552	1,208	$43.0	$0.21	$3.3
Coal Counties	3,145	6,895	$310.0	$1.02	$23.5
Rest of State	1,285	3,263	$232.9	$0.93	$18.1
Total State	4,430	10,158	$542.8	$1.96	$41.6

2030 Share of State

	Employment	Population	Earnings	Local Revenue	State Revenue
Carbon County	22.1%	29.2%	16.9%	23.5%	16.9%
Emery County	36.5%	26.8%	32.3%	17.9%	31.5%
Sevier County	12.5%	11.9%	7.9%	11.0%	8.0%
Coal Counties	71.0%	67.9%	57.1%	52.4%	56.4%
Rest of State	29.0%	32.1%	42.9%	47.6%	43.6%
Total State	100%	100%	100%	100%	100%

2007–2030 Change

	Employment	Population	Earnings	Local Revenue	State Revenue
Carbon County	–980	32	$29.3	$0.15	$2.2
Emery County	307	757	$127.7	$0.26	$9.5
Sevier County	–199	82	$24.8	$0.12	$1.9
Coal Counties	–872	870	$181.7	$0.53	$13.7
Rest of State	599	2,234	$164.8	$0.66	$12.8
Total State	–273	3,104	$346.5	$1.18	$26.5

Note: Shading indicates the area's share of the category is projected to be smaller in 2030 than in 2007; unshaded cells are projected to be larger.
Sources: Economic and demographic impacts generated using the REMI model. Revenue impacts generated by BEBR.

Nominal earnings, local tax revenue, and state tax revenue impacts are higher in 2030 than 2007 for all three scenarios for Emery County. From 2007 to 2030, nominal earnings impacts increase from $47.4 million to $132.1 million in the Low Scenario, $175.1 million in the Middle Scenario, and $240.2 million in the High Scenario. Over the same period, nominal local government revenue impacts increase from $0.1 million to $0.3 million in the Low Scenario, $0.4 million in the Middle Scenario, and $0.5 million in the High Scenario. Nominal state government revenue impacts increase from $3.5 million in 2007 to 2030 levels of $9.9 million in the Low Scenario, $13.1 million in the Middle Scenario, and $17.9 million in the High Scenario.

Sevier County Scenario Impacts

Summary impact results for each of the three scenarios for Sevier County are also shown in Tables 2a through 4.

Coal production drives the impacts measured here. All three scenarios are nearly identical for Sevier County, with coal production declining from 2007 to 2030. Employment impacts rise from 751 in 2007 to 1,006 in 2009, then decline to reach roughly 552 in 2030, as shown in Figure 8. Population impacts follow the same general path, increasing from 1,127 in 2007 to 1,509 in 2009, then declining to about 1,208 in 2030. Nominal earnings, local tax revenue, and state tax revenue impacts are all higher in 2030 than in 2007 for all three scenarios, following an uneven path through time. Nominal earnings impacts increase from $18.2 million in 2007 to approximately $43.0 million in 2030. Nominal local government revenue impacts increase from $0.1 million in 2007 to $0.2 million in 2030. Nominal state government revenue impacts increase from $1.4 million in 2007 to about $3.3 million in 2030.

Table 4
2030 Summary Impacts: High Scenario
(Dollar Amounts are Millions of Current Dollars)

	Employment	Population	Earnings	Local Revenue	State Revenue
Carbon County	1,378	3,758	$130.7	$0.65	$10.0
Emery County	2,214	3,457	$240.2	$0.48	$17.9
Sevier County	558	1,218	$43.4	$0.22	$3.4
Coal Counties	4,150	8,433	$414.3	$1.35	$31.3
Rest of State	1,625	3,883	$305.1	$1.22	$23.7
Total State	5,775	12,316	$719.4	$2.57	$55.1

2030 Share of State

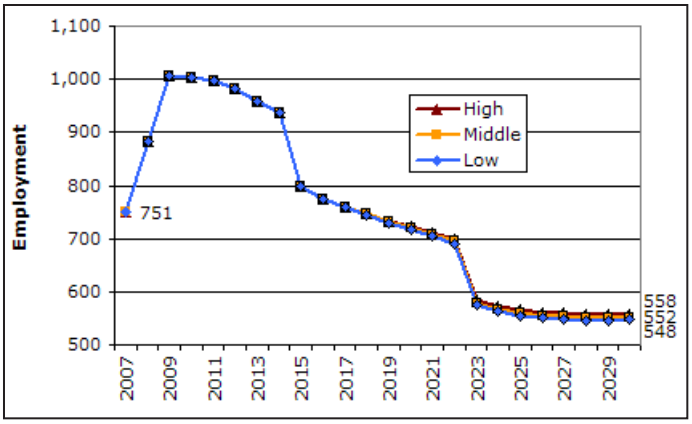
	Employment	Population	Earnings	Local Revenue	State Revenue
Carbon County	23.9%	30.5%	18.2%	25.4%	18.2%
Emery County	38.3%	28.1%	33.4%	18.7%	32.6%
Sevier County	9.7%	9.9%	6.0%	8.4%	6.1%
Coal Counties	71.9%	68.5%	57.6%	52.5%	56.9%
Rest of State	28.1%	31.5%	42.4%	47.5%	43.1%
Total State	100%	100%	100%	100%	100%

2007–2030 Change

	Employment	Population	Earnings	Local Revenue	State Revenue
Carbon County	–579	823	$68.1	$0.34	$5.2
Emery County	905	1,494	$192.8	$0.39	$14.4
Sevier County	–193	92	$25.1	$0.13	$2.0
Coal Counties	133	2,408	$286.0	$0.85	$21.6
Rest of State	939	2,854	$237.0	$0.95	$18.4
Total State	1,072	5,262	$523.0	$1.80	$40.0

Note: Shading indicates the area's share of the category is projected to be smaller in 2030 than in 2007; unshaded cells are projected to be larger.
Sources: Economic and demographic impacts generated using the REMI model. Revenue impacts generated by BEBR.

Figure 8
Sevier County Employment Impacts, 2007–2030



Source: Bureau of Economic and Business Research, University of Utah analysis using the REMI model.

Power Plant Impacts

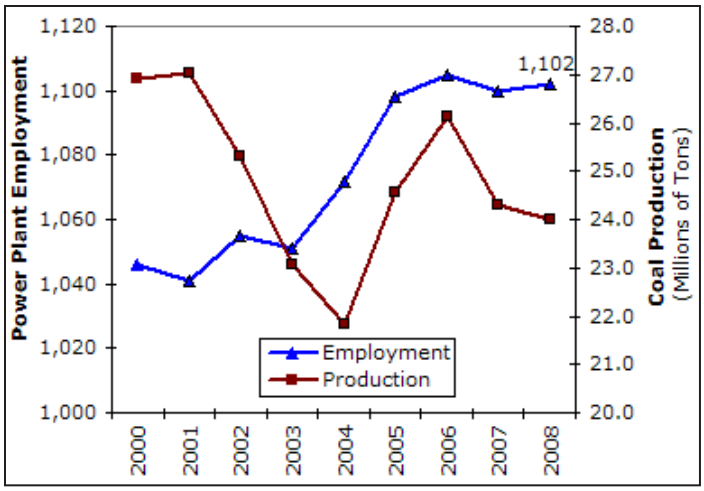
No discussion of the economic impacts of Utah coal production would be complete without consideration of electricity generation from coal plants. Certainly these plants are, at present, the greatest source of demand for Utah coal. In 2007, a record volume of coal was delivered to electric utilities located in Utah. According to Michael Vanden Berg of the Utah Geological Survey, no new plants are expected to be built for the foreseeable future, so the demand should remain relatively flat. Employment in Utah's coal-fired power plants (NAICS 221112) and annual coal production (in millions of tons) are shown in Figure 9. Employment in these power plants has remained around 1,100 recently.

Average annual employment in 2007 was 1,100. The distribution of employment that was assumed for this analysis is shown in Table 5.

State-Level Scenario Impacts

Summary impact results for the middle scenario for the state of Utah are shown in Table 6. Statewide employment impacts rise from 8,368 in 2007 to 10,387 in 2030. Given the power plant's direct employment of 1,100, these are very high total employment impacts, a ratio of 7.6 to 1. This is because of the high wages of the industry in combination with the in-state purchases required by the plants. Importantly, the coal purchases are not included in these impacts. They are in addition.

Figure 9
Utah Coal Production and Power Plant Employment, 2000–2008



Sources: Utah Department of Workforce Services and Utah Geological Survey.

Table 5
2007 Employment in Coal-Fired Power Plants by County

County	Jobs
Carbon	70
Davis	3
Emery	354
Millard	380
Salt Lake	86
Uintah	177
Utah	30
Total	1,100

Source: BEBR estimates from DWS data.

In the middle scenario population impacts increase from 12,552 in 2007 to reach 28,510 in 2030. Nominal earnings, local tax revenue, and state tax revenue impacts are all higher in 2030 than in 2007. From 2007 to 2030, nominal earnings impacts increase from $346.4 million to $1,179.7 million in 2030. Over the same period, nominal local government revenue impacts increase from $1.4 million to $4.6 million. Nominal state government revenue impacts increase from $24.5 million in 2007 to $83.3 million in 2030.

Because of the speculative nature of the specific location and type of power plant construction and closure, the high and low scenarios were not modeled for this part of the study.

Additional Fiscal Impacts

In addition to employment and wage impacts, the coal industry also has fiscal impacts on the local areas in which it operates. Fiscal impacts refer to impacts on government finances and tax collections. The coal industry is subject to the tax laws common to all businesses; there are also impacts unique to the industry.

Production on federal land is subject to a royalty payment under the Mineral Lands Leasing Act of 1920. This royalty is paid to the Minerals Management Service, an agency within the U.S. Department of Interior. A portion of the federal mineral royalties is returned to the state of origin, generally one-half. Royalties from production on Indian lands are returned to the appropriate tribe, not to the state government. The states have full discretion as to the distribution of federal mineral royalties as long as priority is given to areas with economic and/or social impacts from leasing activities. The Minerals Management Service does not release federal mineral royalty data at the county level, but statewide data are available.

Federal mineral royalties due to coal production in Utah have decreased in recent years, from $33.2 million in fiscal year 2001 to less than $23.0 million in 2008 (Table 7). Coal production accounted for just 5 percent of the royalties paid for mineral production on federal land in Utah in 2008. There was also an additional $905,500 paid in bonuses and rents on federal mineral leases. These are fees associated with awarding federal mineral leases and maintaining the leases until production is initiated. Table 7 includes royalties due to coal production, but does not include bonus or rent payments for federal coal leases. Of the $23.0 million paid in federal mineral royalties by the coal industry in Utah, $12.0 million was returned to the state government.

Table 7
Federal Coal Royalty Payments and Disbursements to Utah, 2001–2008
(Constant 2008 Dollars)

Year	Royalties Paid to U.S.	Disbursed to Utah
2001	$33,205,069	$17,594,615
2002	$25,599,536	$12,957,504
2003	$25,034,853	$10,534,127
2004	$28,196,683	$15,044,196
2005	$30,681,304	$15,347,252
2006	$29,037,311	$14,247,010
2007	$25,595,118	$12,752,867
2008	$22,955,578	$12,006,072

Years are federal fiscal years.
Source: U.S. Department of the Interior, Minerals Management Service.

The School and Institutional Trust Lands Administration (SITLA) controls mineral rights on approximately 4.4 million acres in Utah. These lands are held in trust for Utah's public schools and 11 other beneficiaries. They were established at statehood and through land exchanges with the federal government. During fiscal year 2008, royalties paid for coal mining on SITLA lands totaled $10.5 million (Table 8). This was 7 percent of total SITLA revenue for the year. These funds are not returned to the county of origin, but are placed in a permanent fund managed by the state treasurer on behalf of the public schools or distributed to the appropriate beneficiary as mandated. Dividends and interest from the Public School Fund are distributed annually to all Utah public schools based on an established formula.

The individual counties levy property taxes on natural resources developed within their borders, including coal, metallic minerals, and oil and gas. The Utah State Tax Commission centrally assesses coal properties based on the discounted cash flow of expected future production. The local county treasurers bill and collect the taxes. Property taxes are levied by

Table 6
Power Plants, Middle Scenario: Summary Impacts
(Dollar Amounts are Millions of Current Dollars)

Year	Employment	Population	Earnings	Local Revenue	State Revenue
2007	8,368	12,552	$346.4	$1.4	$24.5
2008	8,804	13,206	$375.1	$1.5	$26.5
2009	9,120	13,680	$398.7	$1.6	$28.2
2010	9,232	13,848	$410.7	$1.6	$29.0
2011	9,293	13,940	$431.5	$1.7	$30.5
2012	9,333	14,000	$452.7	$1.8	$32.0
2013	9,344	15,256	$474.7	$1.9	$33.5
2014	9,363	16,767	$497.8	$2.0	$35.2
2015	9,386	18,139	$523.6	$2.1	$37.0
2016	9,402	19,367	$548.9	$2.2	$38.8
2017	9,428	20,481	$575.1	$2.3	$40.6
2018	9,489	21,480	$605.6	$2.4	$42.8
2019	9,559	22,410	$638.8	$2.5	$45.1
2020	9,636	23,267	$674.5	$2.7	$47.7
2021	9,738	24,068	$714.1	$2.8	$50.4
2022	9,827	24,797	$755.6	$3.0	$53.4
2023	9,919	25,465	$800.4	$3.1	$56.5
2024	10,010	26,072	$847.4	$3.3	$59.9
2025	10,089	26,616	$896.7	$3.5	$63.4
2026	10,166	27,086	$948.8	$3.7	$67.0
2027	10,236	27,515	$1,003.0	$3.9	$70.9
2028	10,295	27,897	$1,059.6	$4.2	$74.9
2029	10,345	28,227	$1,118.4	$4.4	$79.0
2030	10,387	28,510	$1,179.7	$4.6	$83.3

Notes: Historical data for 2007, projections from 2008 through 2030. Earnings is by place of work, not place of residence. Employment is a jobs count consistent with the Bureau of Economic Analysis definition and also measured at the place of work. State revenue impacts are income taxes, sales taxes, and other taxes. Local revenue impacts are total general sales and use taxes and restaurant taxes.
Sources: Economic and demographic impacts generated using the REMI model. Revenue impacts generated by BEBR.

numerous units of local government, including county and city governments, school districts, and special service districts. Table 9 shows property taxes charged against coal mines in Carbon, Emery, and Sevier counties from 2000 to 2008. These three counties account for more than 99 percent of coal property taxes in the state. Over the period, total taxes paid to the three counties were fairly constant, fluctuating between $4.1 million and $4.6 million, with a spike to $5.6 million in 2006 (all amounts are in constant 2008 dollars). Coal property taxes in Carbon County were only slightly higher in 2008 ($2.1 million) than they were in 2000 ($1.9 million). In Sevier County, coal taxes were essentially unchanged in 2008 compared with 2000, at roughly $1.2 million. However, Emery County saw coal property taxes decline from $1.3 million in 2000 to $824,000 in 2008.

Counties also levy property taxes on power plants, based on their fair market value (Table 10). Carbon, Emery, Millard, and Uintah are the only counties in the state with coal-fired power plants according to the U.S. Department of Energy. Emery County currently receives the most property taxes from coal-fired plants, charging $13.4 million in 2008. There are two plants in the county, the three-generator Hunter plant and the two-generator Huntington plant. Both are operated by PacifiCorp and have a combined nameplate capacity of 2,468 MW. Millard County charged $10.4 million in taxes in 2008 on the two-generator Intermountain Power Project plant, which is operated by the City of Los Angeles with a total nameplate capacity of 1,640 MW. Uintah County's single-generator Bonanza plant paid almost $1.5 million in taxes in 2008. It is operated by the Deseret Generation and Transmission Co-op and has a nameplate capacity of 500 MW. There are two coal-fired power plants in Carbon County: PacifiCorp's two-generator Carbon plant, with a total capacity of 189 MW, and Sunnyside Cogeneration Associates' single-generator plant burning waste coal, with a maximum capacity of 58 MW. The county charged $831,000 in property taxes against the two plants in 2008. All told, Utah's coal-fired power plants paid almost $26.2 million in property taxes in 2008.

Note: This paper was excerpted from a much larger study entitled The Structure and Economic Impact of Utah's Coal Industry, *which was sponsored by the Utah Governor's Public Lands Policy Coordination Office. It is available online at http://bebr.utah.edu.*

BEBR

Table 8
Rents and Royalties Paid for Coal Production on SITLA Lands, 2000–2008
(Constant 2008 Dollars)

Year	Revenues	Garfield Co.	Total
2000	$5,269,226	$30,917	$5,300,143
2001	$7,421,084	$181,948	$7,603,032
2002	$7,598,359	$118,340	$7,716,699
2003	$4,750,554	$109,505	$4,860,059
2004	$3,988,161	$113,029	$4,101,189
2005	$1,666,740		$1,666,740
2006	$5,084,333		$5,084,333
2007	$7,069,694		$7,069,694
2008	$10,546,508		$10,546,508

Note: Years are fiscal years, July 1 to June 30. Revenues consist of lease rentals, royalties, and bonus payments from coal mines on trust lands in Carbon, Emery, and Sevier counties. The Garfield County lease was a special business arrangement that terminated in 2004 without any coal production.
Source: School and Institutional Trust Lands Administration.

Table 9
Property Taxes Charged Against Coal Mines, 2000–2008
(Constant 2008 Dollars)

Year	Carbon	Emery	Sevier	Total
2000	$1,919,753	$1,341,346	$1,207,865	$4,468,964
2001	$1,984,907	$1,112,081	$1,214,826	$4,311,814
2002	$1,916,019	$1,107,510	$1,088,523	$4,112,052
2003	$2,319,574	$1,041,682	$1,052,776	$4,414,032
2004	$2,176,454	$1,306,930	$1,131,553	$4,614,936
2005	$1,719,635	$1,018,394	$1,636,483	$4,374,512
2006	$2,690,528	$1,024,162	$1,885,720	$5,600,411
2007	$2,449,053	$605,127	$1,336,949	$4,391,130
2008	$2,121,553	$824,366	$1,241,458	$4,187,377

Source: Utah State Tax Commission, Property Tax Division Annual Reports.

Table 10
Property Taxes Charged Against Coal-Fired Power Plants, 2000–2008
(Constant 2008 Dollars)

Year	Carbon	Emery	Millard	Uintah	Total
2000	$905,623	$17,366,626	$17,758,666	$3,941,820	$39,972,736
2001	$899,785	$17,230,299	$17,333,522	$3,724,173	$39,187,779
2002	$782,137	$14,978,350	$16,357,297	$3,678,422	$35,796,206
2003	$923,649	$13,910,567	$15,433,344	$3,696,689	$33,964,250
2004	$864,711	$13,096,201	$14,582,382	$3,498,665	$32,041,959
2005	$854,149	$12,369,513	$13,541,690	$3,437,457	$30,202,808
2006	$861,243	$13,133,879	$12,243,164	$1,894,125	$28,132,411
2007	$810,946	$13,227,529	$11,419,130	$1,663,557	$27,121,161
2008	$831,042	$13,427,356	$10,443,781	$1,484,168	$26,186,347

Source: Utah State Tax Commission, Property Tax Division Annual Reports.

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