

Texas' Outsize Role in the Decline of the Powder River Basin Coal Industry

The Region's No. 1 Customer Is Changing Its Fuel Preference



**Institute for Energy Economics
and Financial Analysis**
IEEFA.org

August 2016

Tom Sanzillo, Director of Finance

Executive Summary

Texas burns more coal for electricity generation than any state in the nation, and much of that coal comes from the Powder River Basin.

Texas historically has been the single largest customer of PRB coal. As coal-fired plants in the Lone Star State continue to close, Powder River Basin mines will lose their biggest customers.¹

PRB coal sales to Texas² declined by 14 percent from 2010 to 2015 and have dropped even more precipitously this year: in the first five months of 2016, Texas coal purchases from the PRB declined by 48 percent compared to the first five months of 2015.³

Although Texas maintained a fairly steady average of 102 million tons of thermal coal consumed annually from 2010 through 2014, its consumption⁴ dropped to 87 million tons in 2015, a 13.5 percent year-over-year drop. Texas consumption will probably continue to decline in 2016.

This decline is part of a larger national trend in which coal-fired power has lost a significant share of the U.S. electricity-generation market over the past decade, going from 51 percent in 2007 to 33 percent today. This pattern is likely to persist over the next decade, with coal-fired generation falling to 20 percent.

The sharp drop in PRB sales to Texas—which is likely to continue as more coal-fired power plants experience financial distress—has major implications for several of the largest U.S. coal companies, including Peabody Energy, Alpha Natural Resources, Arch Coal, and Cloud Peak Energy, all of which operate mines on federal leases in the Powder River Basin.

Three of these companies—Peabody Energy, Alpha Natural Resources, and Arch—are currently in Chapter 11 bankruptcy. The fourth, Cloud Peak, has not declared bankruptcy but is exhibiting signs of financial distress. As these companies develop reorganization plans and seek new investors in the face of deteriorating coal markets, questions will arise as to whether there are customers for their coal.

The hardest-hit PRB mines are those that produce PRB 8400. Texas consumption of this coal dropped by 30 percent from 2010 through 2015. Peabody's Caballo and Rawhide mines lost 20 percent of their Texas business, as a result, and Cloud Peak's Cordero mine lost 50 percent of its business. A smaller producer, Western Fuel Associations, lost 100 percent of its Dry Fork mine business.

¹ Texas plants use two primary sources of coal: sub-bituminous coal produced in the Powder River Basin (PRB) in Wyoming and Montana (tracked by this paper) and lignite mines in Texas.

² This paper tracks the amount of coal mined, purchased and shipped to Texas from coal producers in the Powder River Basin. From a financial point of view we are concerned with actual coal sales, product delivered and revenues booked on coal company balance sheets. To derive these figures, The Institute for Energy Economics and Financial Analysis (IEEFA) relied upon a database prepared by SNL Energy. The data is drawn from the EIA 923 form that tracks coal deliveries, and enabled us to track coal deliveries to power plants from individual mines. We used this database to retrieve the annual quantities of coal purchased for 2010 and 2015 (as well as the first five months of 2016), for information on the heat content of each coal delivered, (found on SNL in Power Plant/Analytics/Fuel Contract Details). The EIA also issues an annual coal distribution report with an archive of past reports, which we used as a reference check.
http://www.eia.gov/coal/distribution/annual/pdf/o_14state.pdf.

³ See Appendix

⁴ Coal consumption is defined as the amount of coal actually burned for electrical power over the course of one year.

Steep decline in demand from Texas has put pressure on PRB producers to close mines, and pressure to do so grows as the persistence of low prices dims future profitability. Spot PRB coal prices for both 8400 Btu and 8800 Btu are at their lowest ever: \$7.15 and \$9.60 per ton, respectively. Current spot prices do not cover the cost of production for any PRB producer. Contract prices for PRB coal are also under pressure as Peabody, Alpha and Cloud Peak have posted modest but unsustainable cash margins on their PRB mines. Arch is posting negative margins.

As these companies emerge from bankruptcy they will face further challenges from declining demand—and further pressure to live up to promises that may be difficult to keep. Alpha, for example, is moving forward with a reorganization plan for its Powder River Basin assets. Analysts see those mines producing approximately 38 million tons of coal per year nationwide, even though the main buyers of that coal are buying less. Six of the seven Texas coal plants supplied by Alpha are reporting marginal profits or posting losses. Coal sales from Alpha's PRB operations, in the meantime, have declined by 44 percent during the first five months of 2016 compared to the five months of 2015.

The Texas electricity grid is relying increasingly on wind and natural gas. Coal plants—particularly those facing regulatory compliance issues—are simply no longer competitive.

The decline of coal-fired power in Texas is hurting PRB coal producers, and more problems loom. The shift in Texas is of special note because Texas is the country's largest electricity market and because Texas is a national leader in energy policy and development.

Texas Coal Consumption in the National Context

Overall coal consumption in the U.S. fell by 26 percent from 2010 to 2015, from 1 billion tons to 740 million tons.⁵ The decline was steady from 2010 through 2014, and then dropped precipitously, by over 100 million tons in 2015.

The U.S. Energy Information Administration estimates that coal consumption for electricity in the U.S. will decline further in 2016, to 674 million tons, and will increase in 2017.⁶ Demand for coal nationwide, however, is expected to remain flat or decline through 2040.⁷

Texas, which consumes the most coal of any state, burned on average 102 million tons of thermal coal per year from 2010 to 2014.⁸ That number—in line with the national trend—dropped precipitously in 2015, to 87 million tons, a 13.5 percent decline from the 2010-2014 average.

⁵ http://www.eia.gov/totalenergy/data/monthly/pdf/sec6_4.pdf

⁶ <http://www.eia.gov/beta/coal/data/browser/#/topic/20?agg=1,0&geo=g0fvvvvvvvvo&sec=g&freq=A&start=2001&end=2014&ctype=map<ype=pin&rtype=s&motype=0&rse=0&pin=> (See: Coal/Electric Sector Coal Consumption)

⁷ The longer term Annual Energy Outlook is projecting flat or declining production nationwide and in the western region through 2040 https://www.eia.gov/forecasts/aeo/data/browser/#/?id=15-AEO2016&cases=ref2016~ref_no_cpp&sourcekey=0

⁸ Coal consumption fluctuated during this period reaching a high of 110 million tons in 2011 and a low of 97 million in 2012. <http://www.eia.gov/beta/coal/data/browser/#/topic/20?agg=1,0&geo=g0fvvvvvvvvo&sec=g&freq=A&start=2001&end=2014&ctype=map<ype=pin&rtype=s&motype=0&rse=0&pin=>

Texas Coal Sources

Texas power plants receive coal from two primary sources: Texas lignite mines⁹ and Powder River Basin sub-bituminous mines. Texas is the largest consumer of PRB coal in the nation.¹⁰

Coal purchased by Texas coal plants from the Powder River Basin declined by 14 percent 2010 through 2015—from 64 million to 55 million tons. Texas coal plants received approximately 14 percent of the coal mined and shipped from the PRB in 2015, or 55 million of the total 399 million tons.¹¹

Table I: PRB Coal Purchased by All Texas Coal Plants (2010-2015)

Year	Tons of Coal	% Change
2010	64,031,230 ¹²	
2015	55,035,370	-14%

PRB coal is generally divided into two major types: lower-quality 8400 Btu coal and higher-quality 8800 Btu coal. Coal producers are shifting production and sales of PRB 8400 coal, which has thinner profit margins, toward coal with higher heat specification.¹³ From 2010 through 2015, sales of PRB 8400 Btu coal to Texas dropped by 29 percent¹⁴ and drove PRB's overall drop in sales to Texas (Table II).

Table II: Texas Coal Plant Purchases 8400 Btu versus 8800 Btu (2010-2015)

Type of PRB Coal	Year	Coal Production (in tons)	% Change
8400	2010	42,087,072	
8400	2015	29,653,218	-29%
8800	2010	21,944,158	
8800	2015	25,382,152	16%

⁹ Texas Lignite mines typically produce between 40 and 45 million tons per year.
<http://www.eia.gov/coal/production/quarterly/pdf/0121154q.pdf>

¹⁰ Texas typically receives from 52-58 million tons per year from Powder River Basin mines in Wyoming. Illinois is usually second to Texas receiving deliveries in the range of 45-52 million tons.
http://www.eia.gov/coal/distribution/annual/pdf/o_14state.pdf

¹¹ <http://www.eia.gov/coal/production/quarterly/pdf/0121154q.pdf>, p. 3

¹² The 2010 Annual Coal Distribution Report published by the EIA states that the PRB shipped 62 million tons to Texas in 2010.
http://www.eia.gov/coal/distribution/annual/archive/2010/o_10state.pdf, p.43. This study takes its coal purchase data from an SNL data base that tracks monthly coal sales from coal mines to power plants. The data is taken from EIA Form

¹³ Angelo Gonda and Molly Christian, *PRB coal output rallies after tough 2914*, SNL, May 6, 2015

¹⁴ Steve Piper, *Coal inventory drawdown begins on summer demand, natural gas rally*, SNL, June 30, 2016.

PRB coal purchases by Texas plants are likely to decline further in 2016.¹⁵ During the first five months of 2016, Texas coal purchases from the PRB declined by 48 percent¹⁶ from the same period in 2015.¹⁷

Table III shows the amount of PRB coal purchased by Texas coal plants from 2010-2015. Of the 9 million tons of coal sales to Texas that PRB producers lost from 2010 to 2015, the largest amount loss occurred at Cloud Peak's Cordero mine, Peabody's Caballo-Rawhide mines, Arch's Black Thunder mine, and Buckskin Mining Co.'s Kiewit mine. Alpha Natural Resources Eagle Butte/Belle Ayr¹⁸ and Peabody's North Antelope mine increased their sales to Texas customers—the latter reflecting a shift of business away from the company's Caballo-Rawhide properties. Although it has fared better than some of the other mines in the region, Eagle Butte-Belle Ayr are under financial stress in 2016.¹⁹

¹⁵ http://trib.com/business/energy/the-trouble-with-texas-the-lone-star-state-s-waning/article_98fba2c5-2f29-5847-8aa5-f6fd5e18122e.html

¹⁶ Appendix

¹⁷ Platts estimates that overall PRB coal production is down by 23 percent as of June 30, 2016 as compared to June 30, 2015. Platts Coal Trader, *S&P Global Coal Trader Analytics*, EIA Weekly Thermal Coal Production as of 6/30/16, July 1, 2016, p.2.

¹⁸ The W.A. Parish plant purchased 2.9 million tons of coal from Eagle Butte/ Belle Ayr, Caballo and Black Thunder from January to April 2015. In 2016 the three mines sold approximately 1.4 million tons of coal in the same January to April period.

¹⁹ http://trib.com/business/energy/coal-companies-continue-to-bleed-cash-in-bankruptcy/article_5f2022e3-ce7a-565e-8a97-fbf92d3f539.html

Table III: Amount of Coal Purchased From PRB Mines by Texas Coal Plant Operators (2010-2015)

Mine	Mine Owner	BTU	Year	Coal Purchased	% Change
Buckskin	Kiewit	8400	2010	3,780,542	
			2015	1,249,726	-67%
Caballo-Rawhide	Peabody	8400	2010	22,225,712	
			2015	17,667,026	-21%
Cordero	Cloud Peak	8400	2010	10,130,375	
			2015	5,076,580	-50%
Dry Fork	Western Fuels Assn.	8400	2010	979,897	
			2015	0	-100%
Eagle Butte-Belle Ayr	Alpha	8400	2010	4,970,546	
			2015	5,659,836	14%
Antelope	Cloud Peak	8800	2010	613,202	
			2015	1,351,635	120%
Black Thunder-Coal Creek	Arch	8800	2010	15,909,025	
			2015	14,130,568	-11%
North Antelope-Rochelle	Peabody	8800	2010	5,421,931	
			2015	9,899,949	83%
TOTAL			2010	64,031,230	
			2015	55,035,370	-14%

Risks Increase for PRB Producers as More Texas Plants Are Likely to Close

SNL Energy analyzed the Texas coal plant retirement landscape in an article published on July 8, 2016,²⁰ listing eight coal plants that are in financial distress. (See Table IV).

Table IV: Plants at Risk of Closing in Texas – Principal Coal Mines and Tonnage at Risk

Plant	Mines	Mine Owner	BTU	2015 Coal Tonnage (million tons)
Big Brown	Caballo/Rawhide	Peabody	8400	3.9
Coletto Creek	Black Thunder	Arch	8800	1
	North Antelope	Peabody	8800	0.9
Deely	Cordero	Cloud Peak	8400	1.4
	North Antelope	Peabody	8800	0.4
	Black Thunder	Arch	8800	0.5
Fayette	Eagle Butte/Belle Ayr	Alpha	8400	1.8
	Caballo/Rawhide	Peabody	8400	2.3
Gibbons Creek	Black Thunder	Arch	8800	1.9
Monticello	Caballo/Rawhide	Peabody	8400	2.5
Oklaunion	North Antelope	Peabody	8800	1
	Eagle Butte/Belle Ayr	Alpha	8400	0.6
Sandy Creek	Antelope	Cloud Peak	8800	1
	North Antelope	Peabody	8800	0.5
	Black Thunder	Arch	8800	0.5
Total				20.2

These eight plants accounted for 20.2 million tons of coal consumption in 2015, or over 37 percent of all coal shipped from the PRB to Texas in 2015. Peabody's Rawhide-Caballo mines are particularly at risk in these closure scenarios, as they sent over 60 percent of their annual production to Texas. Losing almost nine million more tons in sales from these mines would cut their sales to Texas in half. Cloud Peak's Cordero and Antelope mines will see a significant demand decrease as the Deely plant closure moves forward and as Sandy Creek's problems persist.²¹ Cloud Peak's Antelope mine is at risk of losing 100 percent of the 1.03 million tons it shipped to the Sandy Creek plant in 2015.

²⁰ Dan Testa, *ERCOT generators betting market will tighten when EFH exists Chapter 11*, SNL Energy, July 8, 2016.

²¹ https://www.moodys.com/research/Moodys-downgrades-Sandy-Creek-to-B2-from-Ba3-rating-outlook--PR_345617

Alpha Natural Resources will lose 40 percent of its PRB business from the closure of the Fayette and Oklaunion plants noted in the SNL analysis; Alpha's Eagle Butte-Belle Ayr mines supply five other plants in Texas (W.A. Parish²², Welsh²³, Limestone, Deely and Spruce). Of these seven plants, six are running in the red or marginal.²⁴ If Alpha were to lose business from all of the negative and marginal plants noted, (a worst-case scenario) it could lose 5 million of the 5.6 million tons it shipped to Texas in 2015.²⁵

During the first five months of 2016, Alpha has seen this risk materialize: The Company shipped 44 percent less coal to Texas than it did during the same period in 2015. In the first five months of 2015, Alpha's PRB mines supplied Texas coal plants with 2.4 million tons; in the first five months of 2016 that number fell to 1.3 million tons.

Kiewit's Buckskin mine and Western Fuel Association's Dry Fork Mine do not appear in Table IV because they do not supply the eight coal plants listed, but they both lost Texas sales, as shown in Table III. Buckskin lost 66 percent of its Texas sales between 2010 and 2015 and is experiencing signs of distress.²⁶ Dry Fork lost 100% of its Texas business since 2010.

PRB Coal Prices Compared to Cost of Production

The price of PRB coal is at historic lows and will most likely improve only marginally through 2017. While SNL sees a slow increase after 2017, the Institute for Energy Economics and Financial Analysis (IEEFA) sees that scenario as insufficient to sustain profitability for PRB coal producers.

SNL's Physical Market Survey shows 8400 Btu peaked at \$14.15 per ton in early 2011. Since then, prices have fluctuated. The Physical Market Survey lists current prices at \$8.30 per ton. Both SNL²⁷ and Platts²⁸ show current actual prices in the \$7.15 range.

The PRB 8800 product hit a high of \$15.50 per ton in 2010 and is now at \$9.60 according to SNL's Physical Market Survey. Platts is showing a current price of \$9.16.

SNL's long-term coal price forecast shows an upward trend for PRB prices for both 8400 and 8800 Btu coal. SNL has the 8400 product returning to its peak price of \$14.15, but not until 2032, and the 8800 product returning to its peak price of \$15.50, but not until 2029.

²² <http://fuelfix.com/blog/2016/02/29/nrg-energy-posts-6-billion-loss/>

²³ The Welsh plant is closing Unit 2 in 2016 approximately one third of its annual generation. Andrew Ergblom, *Moody's says coal retirements the 'x-factor' as renewables, pressure ERCOT prices*, SNL, March 28, 2016.

²⁴ Andrew Ergblom, *Moody's says coal retirements the 'x-factor' as renewables, pressure ERCOT prices*, SNL, March 28, 2016.

²⁵ According to Cowen and Company the new company emerging from Alpha's bankruptcy, Contura will produce 38 million tons of coal annually from its PRB mines. In 2015 the company mined 34.2 million tons from its two PRB properties. . Alpha's losses in the PRB alone will be between 3 and 4 million tons in 2016 which would bring the mined tons down well below the 38 million ton estimate for 2016. This would mean in subsequent years that no further plants in Texas would be closed or that Alpha acquires new customers at the same time Peabody and Arch are emerging from bankruptcy and other stressed coal producers are seeking new customers in a shrinking market. Cowen and Company, *Contura/ANR Reorg Preview*, July 8, 2016, p. 3.

²⁶ http://trib.com/business/energy/buckskin-mine-lays-off-as-coal-jobs-continue-to-disappear/article_fc45b6cc-7218-57f4-9dc5-84160b3d5df9.html

²⁷ SNL OTC Market Survey, July 1, 2016

²⁸ Platts July 1, 2016, OTC Broker Index (July 1, 2016)

Each of the largest coal producers in the region are showing actual contract prices for coal substantially higher than spot prices being reported. For the year ending 2015, Peabody showed PRB coal revenues received at \$13.45 per ton, Cloud Peak reported \$13.65 per ton²⁹ in the first quarter of 2016, Alpha reported \$11.24 per ton in the second quarter of 2015³⁰, and Arch coal reported revenues of \$13.29 per ton³¹ (see Table V).

Each company also has posted its cost of production in dollars per ton for PRB operations. Peabody showed \$9.97 per ton and posted a positive 2015 margin. Cloud Peak showed costs of \$10.84 and posted a positive margin. Alpha showed costs of \$10.44 and posted a positive margin.³² Arch Coal showed costs of \$14.79 and posted a negative margin.

Table V: Alpha, Arch, Cloud and Peabody: Recently Reported Per Ton Revenues and Expenses for PRB Coal

Timeframe	Company	Per Ton Revenue	Per Ton Expenses	Difference
2Q 2015	Alpha	\$11.24 ³³	\$10.44 ³⁴	\$0.80
3Q 2015	Arch Coal	\$13.29 ³⁵	\$14.79	-\$1.50
2Q 2016	Cloud Peak	\$12.62 ³⁶	\$10.84	\$1.78
2015 Form 10K	Peabody Energy	\$13.45 ³⁷	\$ 9.97	\$3.48

Those companies with positive margins for PRB coal have nevertheless posted enterprise-wide losses due in large part to overleverage. Modest margins posted by PRB producers evaporate once integrated into enterprise-wide balance sheets. For example, Peabody Energy's 2015 margin in the PRB was \$3.48 per ton in 2015. Its 2015 interest payments amount add \$2.28 to the per ton³⁸ cost of coal on an enterprise-wide basis. This reduces Peabody Energy's PRB margin to \$1.20 per ton. In the first quarter of 2016, Peabody's PRB sales declined by 33% and overall sales down 30 percent³⁹ compared with the first quarter of 2015. Lower sales add interest costs of \$3.00 per ton, reducing PRB coal margins to \$0.48 per ton.

²⁹ <http://investor.cloudpeakenergy.com/press-release/earnings/cloud-peak-energy-inc-announces-results-first-quarter-2016>

³⁰ <http://ir.alphanr.com/Cache/30565054.PDF?Y=&O=PDF&D=&FID=30548525&T=&OSID=9&IID=4100842>. This is the most recent posted filing of Alpha on its corporate website.

³¹ <http://news.archcoal.com/phoenix.zhtml?c=107109&p=irol-SECText&TEXT=aHR0cDovL2FwaS50ZW5rd2l6YXJkLmNvbS9maWxpbmcueG1sP2lwYWdlPTEwOTI3Mjk4JkRTRVE9MCZTRVE9MCZTUURFU0M9U0VDVEIPTI9FTIRJUkUmc3Vic2lkPTU3>, p. 31.

³² For 2015 as a whole Alpha West posted a \$22 million loss. <http://www.kccllc.net/alpharestructuring/document/1533931151002000000000002>

³³ The 2Q 2015 filing is the most recent filing posted on the Alpha website. <http://ir.alphanr.com/QuarterlyResults.aspx?iid=4100842>, August 3, 2015 p. 46.

³⁴ <http://ir.alphanr.com/QuarterlyResults.aspx?iid=4100842>, p. 47.

³⁵ <http://news.archcoal.com/phoenix.zhtml?c=107109&p=irol-sec>, p. 31.

³⁶ <http://investor.cloudpeakenergy.com/press-release/earnings/cloud-peak-energy-inc-announces-results-second-quarter-and-first-six-months-6>

³⁷ <http://www.peabodyenergy.com/content/120/press-releases>

³⁸ The company sold 228 tons of coal in 2015 and paid \$525.5 million in interest on an enterprise wide level. See Form 10 K, March 16, 2016, <http://www.peabodyenergy.com/content/162/sec-filings>, p. 37.

³⁹ <http://www.peabodyenergy.com/content/162/sec-filings>, Form 10Q, May 6, 2016, p. 51.

These business models are unsustainable. Arch Coal, Peabody Energy and Alpha Natural Resources have declared Chapter 11 bankruptcy. Cloud Peak Energy, the only pure-play PRB company, has not declared bankruptcy but is showing signs of financial distress.⁴⁰

More Problems Loom for PRB Coal Producers

Declining sales to Texas and declining coal prices in general have a direct bearing on the profitability of several PRB mines. They also affect the size of the viable coal reserves claimed by producers in their financial disclosure documents⁴¹ (this fact is evident even though those disclosures lack full transparency).⁴² The coal companies determine the size of the reserves based in large measure upon their assessment of future coal prices. As coal prices rise, the amount of coal that is profitable to mine increases. As prices decline, the opposite occurs. While the market price of coal has always fluctuated, producers now face the challenge of chronically low prices. This circumstance makes it urgent now for regulators to exercise substantial diligence on coal industry proven and probable coal reserve disclosures.

The many bankruptcies across the industry are a collective indication of the inability of coal companies to pay for current and future liabilities. As companies come out of bankruptcy, one of the most pressing questions will be how much truly minable coal will be available to them. Determining this accurately in a market that continues to decline is difficult. However, the broader trends call for companies to document the basis upon which they estimate coal reserves.

IEEFA research shows over two billion tons of PRB 8400 coal on the books of PRB coal producers. Cloud Peak's Cordero Rojo mine—one of the PRB mines most vulnerable to the decline in Texas demand noted in this paper—represented 29 percent of the company's total annual production in 2015 and carries 339 million tons of proven and probable reserves, making up 29 percent of Cloud Peak's total coal reserves.⁴³ Peabody's Caballo/Rawhide holdings—also at risk in the Texas coal-demand slowdown—accounted for 26.6 million tons of annual production in 2015, or 19 percent of the company's PRB production, and constitutes 942 million tons, or 32 percent, of Peabody's PRB proven and probable reserves.⁴⁴ All of Alpha Natural Resources 700 million tons of PRB reserves are held in 8400 Btu coal mines. Western's Dry Fork mine reports 250 million⁴⁵ of recoverable reserves and Kiewit's Buckskin mine an estimated 100 million tons.⁴⁶

⁴⁰ <http://www.zergwatch.com/2016/07/14/cloud-peak-energy-inc-nysecl-d-added-about-2-percent-in-value-since-last-earnings/>

⁴¹ <http://powersource.post-gazette.com/powersource/companies/2015/10/18/Coal-reserves-Unmined-or-unminable/stories/201510180092>

⁴² <https://www.sec.gov/rules/petitions/2012/petn4-654.pdf>

⁴³ <http://api40.10kwizard.com/cgi/convert/pdf/CLD-20160218-10K-20151231.pdf?ipage=10754057&xml=1&quest=1&rid=23§ion=1&sequence=-1&pdf=1&dn=1>

⁴⁴ <http://www.peabodyenergy.com/content/162/sec-filings>, Form 10K, 2015

⁴⁵ <https://www.westernfuels.org/member-services/mining-operations>

⁴⁶ Buckskin posted a 344 million ton reserve level in 2008. We estimate with overall production since then approximately 100 million tons remains.

<http://www.blm.gov/style/medialib/blm/wy/information/NEPA/cfodocs/haycreekii.Par.91229.File.dat/00DEIS-HayCreekII.pdf>, p. 50.

Conclusion

As PRB coal producers try to work their way out of bankruptcy and/or overcome severe financial distress they are fighting an uphill battle in a market that continues to decline.

PRB producers have already lost considerable business from Texas power plant operators—the biggest customers for PRB coal. The potential—even likely—loss of an additional 37 percent of demand for PRB coal by Texas will likely keep downward pressure on prices and increase pressure on some PRB mines to close.

Demand for PRB coal is likely to continue to fall further than widely acknowledged as Texas replaces its aging coal fleet with wind⁴⁷ and natural gas and as it develops a robust pipeline of solar⁴⁸ energy projects.

Texas is a national leader in energy policy and energy development and is likely to remain so. As the state continues to turn its electricity grid into a model for renewable energy and as a proving ground that shows the affordability, reliability and abundance of alternatives to coal, it will probably continue to serve as an example others will follow.

⁴⁷ <http://www.theatlantic.com/politics/archive/2016/07/are-the-winds-changing-for-renewable-energy/490250/>. See also: <http://ieefa.org/texas-wind-energy-boom/>

⁴⁸ <http://ieefa.org/blogs-texas-grid-operator-solar-replacing-coal/>

Institute for Energy Economics and Financial Analysis

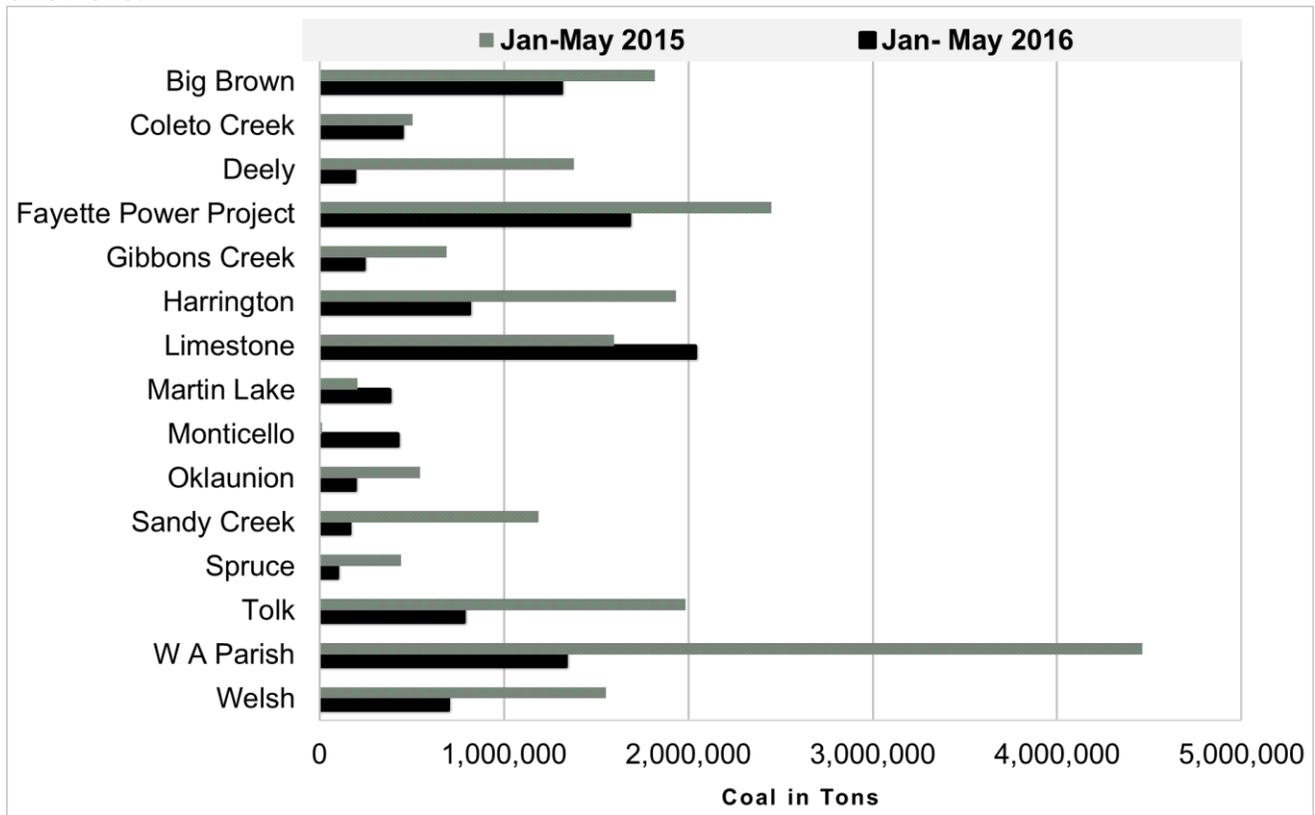
The Institute for Energy Economics and Financial Analysis (IEEFA) conducts research and analyses on financial and economic issues related to energy and the environment. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy and to reduce dependence on coal and other non-renewable energy resources. More can be found at www.ieefa.org

Tom Sanzillo

Tom Sanzillo, director of finance for IEEFA, is the author of several studies on coal plants, rate impacts, credit analyses, and public and private financial structures for the coal industry. He has testified as an expert witness, taught energy-industry finance training sessions, and is quoted frequently by the media. Sanzillo has 17 years of experience with the City and the State of New York in various senior financial and policy management positions. He is a former first deputy comptroller for the State of New York, where he oversaw the finances of 1,300 units of local government, the annual management of 44,000 government contracts, and where he had oversight of over \$200 billion in state and local municipal bond programs and a \$156 billion pension fund.

Sanzillo recently contributed a chapter to the Oxford Handbook of New York State Government and Politics on the New York State Comptroller's Office.

Appendix: Comparison of Coal Sales by Selected Texas Power Plants - January-May 2015 and 2016.



Selected Texas Power Plants Total Coal Sales in Tons - January-May 2015 and 2016.

