

Copyright
by
Kaulie Janae Lewis
2018

**The Report Committee for Kaulie Janae Lewis
Certifies that this is the approved version of the following report:**

When Coal Leaves Texas

**APPROVED BY
SUPERVISING COMMITTEE:**

Supervisor:

Robert Brenner

Kevin Robbins

When Coal Leaves Texas

by

Kaulie Janae Lewis

Report

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Master of Arts

The University of Texas at Austin

May 2018

Abstract

When Coal Leaves Texas

Kaulie Janae Lewis, MA

The University of Texas at Austin, 2018

Supervisor: R.B. Brenner

Abstract: The recent closure of a lignite mine outside Elgin, Texas, and its related coal plant offers an insight into how the state's electric grid — and its rural communities — may react to a coming age of Texas green energy.

Table of Contents

When Coal Leaves Texas:	1
Bibliography:	13
Vita:	15

WHEN COAL LEAVES TEXAS

In October 2017, Luminant, the largest energy production company in Texas, issued a rare series of news releases. The company was planning to shutter first one coal plant, then two more.

“These two plants are economically challenged in the competitive (Texas) market,” stated the second release, which announced the closure of the Sandow power plant in Milam County and the Big Brown plant in Freestone County, both east of Interstate 35, between Waco and Austin. The company attributed the decision to “sustained low wholesale power prices, an oversupplied renewable generation market, and low natural gas prices, along with other factors.”

Though they represent a fraction of the state’s energy capacity, the removal of the Luminant plants will have ripple effects, experts predict. Come summer, Texans will likely see spikes in their energy prices. “Our models show prices going up this year — just a temporary blip — but we’re going to start seeing more spiky summers” as cuts to coal-fired plants affect the cost of power, said Josh Rhodes, a research fellow with the University of Texas at Austin’s Energy Institute.

Broadly, these closures point to a shift in the state’s energy makeup. More and more renewable energy sources have begun to drive legacy coal plants off the grid, a move analysts say has been coming for a while. Where exactly it will lead appears to be anyone’s guess.

Texas is most commonly associated with the oil and gas industries — and, more recently, with a booming renewable energy market — but the state also is a serious producer and consumer of coal. With wide bands of lignite deposits across the eastern and southern reaches of the state, mining activities have continued for more than a

century. Texas ranks first in the country for coal consumption and seventh for coal production.

Increasingly, environmental regulations, low natural gas prices and that same booming renewable market are driving outdated coal plants and their affiliated mines off the Texas power grid. The most recent round of closures has removed as much as 12 percent of the state's total coal energy capacity, according to the UT-Austin Energy Institute.

And while the loss of coal power will change the state's energy market, these closures are also hitting small communities and driving a new wave of environmental concerns. Nowhere is this more obvious than in the town of Elgin, which was home to the Three Oaks mine until early this year.

Downtown Elgin looks remarkably like it did in the 1940s. Rows of low brick buildings surround a small square, where the Chamber of Commerce is housed in a red trailer. The train tracks that first brought passengers to — and cotton from — the town still carry freight trains.

This community of fewer than 10,000 people, about 25 miles northeast of Austin, is better known for producing sausage than coal; Elgin bills itself as “The Sausage Capital of Texas.” Despite its proximity, most Austin residents were unaware that a lignite strip mine operated so close to the capital — or that there are many such mines in the state.

Though coal mining in the Elgin area dates to the late 19th century, those early mining activities had largely ceased by the 1950s. As Elgin's sausage and brick industries expanded and Austin's population sprawl drew more long-distance commuters to the area, coal was far from residents' thoughts.

That changed in the late 1990s, when power company Alcoa announced plans to open a new lignite mine just outside Elgin.

"At that time, Alcoa had a huge aluminum smelter and coal plants up near Rockdale and a strip mine up there, and they were running out of lignite for their plants," remembered Travis Brown, who lives about 20 miles northeast of Elgin, halfway to nearby Rockdale. "So they were going to open a new strip mine down in our community."

The announcement motivated Brown to co-found Neighbors for Neighbors, a citizens group organized to fight the planned mine.

"A lot of us were really upset and concerned about the impact on our lives and health and property values and water," Brown said. "So we organized and directly fought for over five years. We opposed every permit they had to have — there's a half dozen different state and federal permits — and we lost every one of those." Alcoa got its mine.

Some Elgin residents are focused on what losing the coal industry might mean for their community; others are still animated by the memory of those bruising fights. When asked about the Three Oaks mine, normally gregarious Debbie Wahrmond, a local historian, dropped her voice almost to a whisper. "I shouldn't talk about that in these walls," she said from inside Elgin's Depot Museum, looking up towards the corners of the room as if afraid of being heard or filmed.

But as she continued leading a tour of Elgin's Depot Museum, Wahrmund occasionally mentioned the mine, subtly and quickly, before turning her attention back to the exhibits.

"We really fought those guys," she said. Half an hour later, she added: "I think we won. I think we won."

But "winning" the fight over the mine doesn't feel like an unqualified victory. With an average resident income of slightly more than \$45,000 a year, decently paying jobs in Elgin aren't hard to find — but the good ones are well worth holding on to. Until the beginning of this year, workers at the nearby Three Oaks mine could expect to bring home more than \$50,000 a year. Now, 300 of those jobs have disappeared, a source of no small anxiety for locals.

"People losing their jobs, the impact on the local communities, yeah, that's a concern to those of us who live out there," Brown said. "I have neighbors who either work out there or used to work out there, and all the local places are going to be impacted to a certain degree by that."

The impact makes criticizing coal in Elgin a difficult thing to do. "Some people who once fought this mine have all opted to keep their heads down now," said David Cortez, a community organizer with the Sierra Club of Texas who has worked in the state's coal country for eight years. "People here try to be respectful, because these communities are connected and they know that even if they don't like the mines and the plants, they probably know somebody who worked there. It's kind of a company town in that way."

Cortez argues that Luminant and its parent company, Vistra Energy, should be held responsible for the impact on the town and landowners, but knows full well that won't happen. "They'll pay their business debts and be gone," he said.

Still, he can't help but wonder, "What would community reinvestment plan look like? What would Luminant have to do to make sure these communities are OK?"

Texas is the largest consumer of coal in the U.S. and the leading producer of lignite, the lowest grade of coal. Far less energy-dense than other forms of the fossil fuel, lignite also contains more pollutants like sulfur and nitrogen oxides than other coal varieties. Its prevalence is a major contributor to the state's emissions of carbon dioxide and sulfur dioxide, which are the highest in the nation.

But lignite has a serious advantage in Texas — it's extremely plentiful, with reserves running in a large band down the eastern portion of the state.

Of the 18 mines with current permits in the state, 10 are listed as active by the U.S. Department of Labor's Mine Safety and Health Administration. In 2017, combined they produced over 36 million tons of lignite coal. Of those, almost 29 million tons were produced by Luminant-operated mines.

The second-highest producing mine? Three Oaks, located outside Elgin.

Like most lignite coal mines, Three Oaks was responsible for supplying only one plant: Sandow Power Plant, in nearby Rockdale.

"Lignite doesn't have a lot of energy per mass, so that's why the power plants are located right next to the coal mines — it's too expensive to move the coal," said Carey

King, assistant director of the UT-Austin Energy Institute. “It's like if you were gonna just move around dirt and try to burn it. That wouldn't be cost-effective, and lignite is closer to dirt than other coal.”

That’s why when Luminant announced plans to shutter the Sandow plant, the Three Oaks mine was slated for closure as well. The number of jobs lost total over 300, a significant blow to the local communities that supplied workers for both sites.

The shutdown of Luminant’s Sandow, Big Brown and Monticello plants can be seen as part of a national trend, King said.

“Across the U.S., the coal power plants are becoming uncompetitive because of natural gas prices but also because renewables push down wholesale electricity prices,” he said. “There have been many other coal plants retired in other parts of the country but it hadn't hit Texas before this.”

As the U.S. power mix has shifted away from coal — in the past eight years it fell from supplying 51 percent of the nation’s energy to 31 percent, according to the Union of Concerned Scientists — more and more plants are facing a hard economic future. Sandow and Big Brown marked the 13th and 14th coal-powered plants to announce retirement in 2017, according to the Sierra Club of Texas, and reports from energy analysts have found that an additional 14 Texas coal-fired plants are currently uneconomic, meaning they aren’t turning a profit and could be vulnerable if the state’s energy prices continue to drop. Those 14 plants, combined with the three Luminant shuttered, account for 60 percent of all the coal power in Texas.

Even so, “we didn’t see Sandow 5 closing any time soon,” said Cortez, the Sierra Club organizer. “It was newer, only 10 years old, and built under tighter regulation. We didn’t see it going down.”

Sandow 5, one component of the larger Sandow Power Plant, may have been a relatively recent and environmentally clean addition to Luminant's energy fleet— built after the passage of major clean air legislation, it was required to meet higher environmental standards than previous plants — but it was an exception to the rule. Sandow 4, the other half of the plant, was built in the 1970s, like much of Texas' coal capacity, and had a reputation as a high polluter.

Like all other power plant closures in Texas, Luminant's plan to shut down the Sandow, Big Brown and Monticello operations had to be approved by the Energy Reliability Council of Texas. ERCOT, as it's known, is responsible for managing the state's power grid — the only state-specific grid in the contiguous U.S.

Only a few years ago, ERCOT refused to allow several coal plants to exit the grid, fearing the loss of power capacity could compromise the grid's stability, Luminant's 2017 petitions were granted quickly, though. ERCOT had 60 days from the time of the closure announcements to review the reliability of the Texas grid; it approved the plant closures in 24.

The closures marked the removal of 4,100 megawatts of coal-powered energy capacity from the Texas grid, or about 21 percent of the state's total coal capacity. Now, wind energy has passed coal to become the second most productive energy source in the state, placing Texas a strange position: It's now the largest U.S. grid to rely so heavily not only on renewable energy but also on a renewable source that isn't exactly known for its reliability. After all, the wind only blows so often and so much — and that's causing ERCOT and state energy experts some anxiety.

“The thought is still that these coal plants going away wouldn't cause us to not have enough power generation,” King said. “But the grid wants to have excess capacity

to provide power during times of peak demand, and now you're taking away some of that and replacing it with things that don't operate at full capacity in the summer. So there are people who are worried there's not enough dispatchable power out there, but for the next couple of years we probably seem okay.”

“We're the biggest grid with the most renewable power, so we're really kind of the test bed for a decent size grid on this,” King said.

In the short term, ERCOT is predicting “record-breaking peak usage this summer season,” according to the agency’s Summer 2018 Seasonal Assessment of Resource Adequacy report. “This anticipated record demand, combined with recent plant retirements and delays in some planned resources, is expected to result in tight reserves that could trigger the need for ERCOT to deploy such resources as ... contracted Emergency Response Service capacity to maintain sufficient operating reserve levels,” the report warned.

That means Texas could see rolling blackouts this summer in a worst-case scenario: peak energy demands surpassing available power.

Blackouts don't seem likely, according to Rhodes, of the Energy Institute. But cuts to coal-fired power in the state will affect the availability and price of power over the summer months, both in 2018 and moving forward, he said.

Price spikes won't immediately filter down to most consumers, Rhodes said, though the increased cost of energy will eventually reach them. He's more concerned about the spiky, uncertain prices triggering a response from the Texas Legislature.

“We don't want this to become a political football,” he said. “We can't manipulate this market, and the Legislature should just let it operate.”

Rhodes argues that the wholesale market prices of energy in Texas should be looked at in context. While summer peaks may be higher, the general cost of power in the state is lower than it has been in a long time, thanks to the boom of renewable sources. But it's those lower prices that are driving traditional, fossil-fuel-powered plants off the grid, and that may prevent further investment in replacement plants.

In the U.S., there's only one coal plant under construction — a small one in Fairbanks, Alaska. "I don't know what they're planning to do with it," Rhodes said. He doesn't expect any more to follow.

In Texas, numerous new renewable power sites are under construction or are actively being planned — over a gigawatt of solar power is slated to enter the ERCOT grid, along with over 20 megawatts of new wind generation.

But because renewable energy sources don't require fuel and are heavily subsidized, they're able to bid into the ERCOT grid at negative prices, driving down the overall price paid to energy plants. For plants with higher fuel and operating costs, like the three Luminant shuttered, this can be more than enough to drive them off the market.

While coal may not be the future of Elgin, the industry's impact is far from over. The Three Oaks Mine is no longer producing lignite coal, but it remains a strip mine. Under state regulations, Luminant and its parent company, Vistra, are required to reclaim the mined land, returning it to "a condition that is as good as, or better than, it was before mining," according to the Texas Railroad Commission's Surface Mining and Reclamation Division.

Cortez believes that's mostly talk.

"The landowners out there are worried" about the mine reclamation, he said. "They're wondering, 'What are we going to get stuck with?' Because mine reclamation in Texas doesn't mean much. They just put some dirt on top, plant some grass and have a nice day."

David Spence, a law professor at UT-Austin specializing in energy regulation, said mines like Three Oaks are often reclaimed in stages with the goal of restoring the land to its original use, though he points out this often isn't possible. "If you strip a forest off the top, you can't replace that," he said. "If it was farmland, you try to put it back, but that isn't easy to do."

Though reclamation activities are underway at Three Oaks, there's no way to know how long they'll take, Spence said.

When the mine was initially permitted in the late 1990s, Alcoa, the original operator, was required to file a reclamation plan and self-bond for the cost of the inevitable reclamation work. When Luminant acquired the mine, it assumed those costs as well. But those bonds are only held for five to 10 years after the initial reclamation is completed, after which any remaining collateral is returned to the companies who submitted them.

That may not be long enough to fully assess the long-term impacts of the strip mines, Spence said.

"Mining is a dirty business, and with these strip mines there's a real risk of acid mine drainage and runoff that can be a problem" for surrounding water sources, Spence said. Three Oaks, which covers a portion of Carrizo-Wilcox aquifer, is at risk of this acid

leeching. And while the groundwater of reclaimed sites is monitored for safety, the oversight is mostly left to mining companies to complete.

When Debbie Wahrmund was asked what reclamation at the site would look like, the Elgin historian and longtime employee of the Texas Commission on Environmental Quality laughed. Reclamation in Texas is a joke, she said.

“We used to say they named it Three Oaks because that’s all they were going to leave,” said Wahrmund, a longtime landowner in the area and one directly affected by the mine; a conveyor belt ran through her land, only a few hundred feet from her house, carrying lignite from the Three Oaks mine to Sandow.

She said the region used to be known for its trees and vegetation.

“Now we’ll have scenic lookouts over a beautiful reclaimed mine,” she joked, bitterly. “The woods, the fields, those things are gone forever.”

Wahrmund is also worried about the aquifer and water sands underlying the mine site. In order to keep the mine from flooding, Luminant would often drain or reroute groundwater from the area. But once those water sources are cut or redirected, “you can never put that together again,” Wahrmund said.

Unlike the woods, fields and aquifers, the economy surrounding the communities that once benefited from Luminant’s plants and mines will likely bounce back quickly. Wahrmund and Brown said their friends and neighbors who used to work at Three Oaks are already finding replacement work in the area.

It won’t be easy, Brown said, but he believes the shift from fossil fuels to other, greener industries will likely strengthen the area over time. “For Elgin and some of these others, their future economies aren’t tied to a coal-fired power plant and a strip mine,” Brown said. “They’re tied to Austin, and some of these communities have been very

smart and proactive in trying to piggyback onto the tech industry in Austin and attract new, clean industries out here.”

“The long-term benefits are going to far outweigh the short-term losses,” he said. “We're going to have cleaner air, there'll be less health problems related to breathing pollution, there will be less direct damage to groundwater out there.... And the bottom line is they never should have put that strip mine out there, they never should have built that new coal plant.”

Bibliography

- Vistra Energy. (2017, Oct. 13). "Luminant to Close Two Texas Power Plants [Press Release]." Retrieved from <https://investor.vistraenergy.com/investor-relations/news/press-release-details/2017/Luminant-to-Close-Two-Texas-Power-Plants/default.aspx>.
- Luminant. (2017, Oct. 6). "Luminant Announces Decision to Retire Its Monticello Power Plant [Press Release]." Retrieved from <https://www.luminant.com/luminant-announces-decision-retire-monticello-power-plant/>.
- No Author. (2018, Jan. 18). "Texas: Profile Analysis." U.S. Energy Information Administration. Retrieved from <https://www.eia.gov/state/analysis.php?sid=TX>.
- Mosier, J. (2018, Oct. 6). "East Texas coal plant, once a big polluter, snuffed out by cheap natural gas." *The Dallas Morning News*. Retrieved from <https://www.dallasnews.com/business/energy/2017/10/06/east-texas-coal-plant-big-polluter-snuffed-cheap-natural-gas>.
- Mosier, J. (2018, Oct. 13). "Texas' largest power generator speeds up coal's decline with closure of two more plants." *The Dallas Morning News*. Retrieved from <https://www.dallasnews.com/business/energy/2017/10/13/texas-largest-power-generator-speeds-coals-decline-closure-two-plants>.
- No Author. (2016, March 23). "ERCOT: Renewables to Hold Down Power Prices in the Lone Star State." Moody's Investors Service. Retrieved from <https://www.documentcloud.org/documents/3022115-Moody-s-Report-on-Coal-Plants-in-ERCOT.html>.
- Blum, J. (2017, Nov. 1). "Texas letting one coal plant shutter, undecided on two others." *The Houston Chronicle*. Retrieved from <https://www.chron.com/business/energy/article/State-will-decide-in-mid-December-if-Texas-needs-12323854.php>.

No Author. (2017, Oct. 13). "Reactions - Luminant Energy to Close Big Brown, Sandow Coal Plants." Sierra Club - Lone Star Chapter. Retrieved from <https://www.sierraclub.org/texas/blog/2017/10/reactions-luminant-energy-close-big-brown-sandow-coal-plants>.

No Author. (2018, March 1). "Preliminary: Seasonal Assessment of Resource Adequacy for the ERCOT Region (SARA)." ERCOT. Retrieved from <http://www.ercot.com/content/wcm/lists/143976/SARA-PreliminarySummer2018.pdf>.

King, C. (2018, Feb. 19). Phone interview.

Cortez, D. (2018, Feb. 23). Phone interview.

Wahrmund, D. (2018, March 2). Personal interview.

Brown, T. (2018, March 7). Phone interview.

Rhodes, J. (2018, March 21). Personal interview.

Wahrmund, D. (2018, March 23). Personal interview.

Spence, D. (2018, April 9). Phone interview.

Wahrmund, D. (2018, April 18). Personal interview.

Vita

Kaulie Lewis is a writer and editor from Lubbock, Texas. Her written work has been featured in *The Millions* and *NonDoc*; as an editor, she has worked on pieces published in *The Texas Tribune*, *Texas Music Magazine*, *The Missouri Review* and as part of the *Voces Oral History Project*.

Email kaulielewis@gmail.com

This report was typed by Kaulie Janae Lewis