Rising gas costs shift focus to coal

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TXU's Big Brown power facility outside Fairfield includes a lignite coal mine. TXU plans to build three new coal-fired plants.

For a decade, starting in 1995, Texas added power plant after power plant -- not one of them fueled by coal.

Those new plants represented nearly 35 gigawatts (a gigawatt is 1 billion watts) of electricity generating capacity, according to the Public Utility Commission of Texas, approaching half the state's current total. And nearly without exception, they were fueled by natural gas, a relatively clean-burning heat source that for more than a decade had remained laughably cheap with the price falling below $2 per 1,000 cubic feet as recently as 2001.

Then came 2005, Hurricanes Katrina and Rita, and natural gas at $14. Texas residential electric rates, which ranked in the middle of the 50 states in 2000, shot up to the country's 12th costliest in 2005.

That year Texans paid nearly 11 cents per kilowatt-hour for electricity, compared with just under 8 cents in 2000. It was a 38 percent increase, second only to Nevada in that five-year span.

Suddenly, old king coal -- pollution concerns and all -- began looking better than ever.

Now, among the state's announced power plants, coal power outnumbers planned natural gas plants by more than 2-to-1. That lead doesn't count TXU's cancellation of eight of its 11 announced coal plants, a move made as part of the pending acquisition of the company by two big investment firms. If those plants were counted, coal's advantage would jump to 4-to-1.

Coal's cost advantages look overwhelming.

Texas utilities can buy a ton of coal from producers in the Powder River Basin of Wyoming and Montana, load it in a railcar, ship it more than 1,000 miles and drop it at a generating plant for roughly $20 a ton at today's prices.

By the time that coal is burned to generate electricity, it costs a utility $2 or less for 1 million British thermal units, or Btu, said Steve Kopenitz, TXU Power's senior vice president of technical services. The same amount of heat would cost about $7 using natural gas.

It's true that it costs much more to build a coal plant than a natural gas plant, and that coal requires more pollution-control equipment as well as disposal of the tons of ash that burning coal produces. Still, at today's prices, coal is the winner.

Numbers like that have led even organizations like Environmental Defense to acknowledge that coal has a role in Texas' energy future.

"We're not against all coal plants all the time," said Jim Marston, regional director for Environmental Defense in Austin. "China and India are growing like crazy. They've got a lot of coal, and they're going to burn it," and so is Texas, he said. "So, let's try to get the cleanest coal technology we can."

A lot of coal is already burned in the United States to make electricity. In 2005, coal accounted for 49.7 percent of the electricity generated nationwide, according to the Energy Information Administration, part of the U.S. Department of Energy. Natural gas accounted for just 18.7 percent, a figure narrowly outstripped by nuclear power.

In Texas, the percentage of electricity generated by coal was 37.4 percent in 2005, while natural gas led the way at 49.4 percent. Although coal-fired units provide much of the day-in, day-out power, called base load, natural gas-fired units kick in as demand climbs and are particularly useful for providing peak power, when the grid demands a boost of electricity for just a few hours.

"We need to become more like the rest of the country in where we get our megawatts," said Bernard Weinstein, director of the Center for Economic Development and Research at the University of North Texas and the co-author of a recent study advocating increased use of coal. The study was financed by a group that includes utilities and industrial users.

"Our power costs are high because so much comes from natural gas," Weinstein said. When natural gas prices climb to $8 and $9 per 1,000 cubic feet, he said, "it keeps the Barnett Shale hopping, but it also means higher costs for businesses and households."

In Texas, burning coal for electricity has long meant burning lignite, a soft, low-grade coal found in a long vein that runs through East Texas. For example, TXU's four big coal-fired generating units all were built literally in the middle of the state's lignite fields. So was Texas Municipal Power Agency's coal plant in Grimes County, northwest of Houston, which provides power to Denton and three other Texas cities.

But lignite's role is changing. Texas Municipal Power converted its plant to burn hard coal from the Powder River Basin after 1995.

Gary Parsons, general manager of Texas Municipal Power Agency, said that when his organization's generating plant switched from lignite to coal, its emissions of sulfur dioxide and nitrous oxide dropped about 60 percent. It had another benefit, too: The plant will last longer.

"When we issued bonds to build the plant, we assumed its life would extend through 2018," or 35 years of service, Parsons said.

Now he estimates the plant, by burning cleaner fuel, will last through 2035, which translates into a happy 17 years of operation without debt repayments.

TXU also burns a mix that includes Powder River Basin coal at its four existing plants, Kopenitz said. That's because lignite deposits adjacent to those plants are playing out, he said. But TXU's three new coal-fired plants will be in new locations that have access to plenty of lignite, he said, and that's what they will burn.

Although lignite is dirtier than Powder River Coal, "the pollution-control equipment will bring emissions to the levels of our permits," Kopenitz said.

Marston said federal law requires utilities to examine energy-efficient alternatives to traditional power-plant designs, and his group has sued TXU over the issue. He especially thinks that TXU and other electricity generators should look at integrated gasification combined cycle (IGCC) technology, which heats coal in the presence of oxygen to produce a hydrogen-rich gas that can be burned and used to turn a turbine connected to a generator. Then the exhaust gas from that turbine is used to heat water to make steam to drive a second generator.

The two investment groups that have proposed to buy out TXU have said they will take bids for two IGCC facilities -- one using lignite and one using Powder River Basin coal -- that also capture carbon dioxide, a major greenhouse gas, if they are successful with their bid.

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