

Ameren plans massive investment in natural gas power

Aug 18 - St. Louis Post-Dispatch (MO)

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Ameren Missouri says it is planning to add 1,200 megawatts of combined cycle natural gas generation by 2020, investments the utility said are needed to comply with the Environmental Protection Agency's proposal to reduce carbon dioxide emissions linked to climate change.

The massive addition to the St. Louis utility's power generation portfolio would be roughly equal to the size of its nuclear power plant in Callaway County . And while the utility says its internal plans already called for more natural gas, it said new plants would be built sooner than necessary to meet customer demand.

"We don't really need that generation, but in order to comply with this, we need to install something to get that rate down because (EPA's proposal) is a rate-based formula," said Mike Menne , Ameren Corp. vice president of environmental affairs.

The addition would come around the same time the utility plans to retire its 840-megawatt Meramec power plant in south St. Louis County . But that retirement wouldn't reduce the utility's rate of carbon emissions without new, lower-carbon generation offsetting it.

Menne's comments came at a gathering organized by the Missouri Public Service Commission , which regulates the state's investor-owned utilities and is seeking feedback to determine comments it and other state agencies may submit to EPA on the proposed rule.

He did not specify the number of new plants under consideration, their location or the cost. Florida Power & Light Company recently commissioned a 1,200 MW combined cycle natural gas-fueled plant, the new Riviera Beach Next Generation Clean Energy Center in Palm Beach County, at a cost of approximately \$1.3 billion .

The federal government plans to finalize the rule in June, after which individual states have another year to craft at least a partial plan. Lawsuits are expected, and the final plan could look far different the proposal, potentially affecting early compliance plans at utilities.

The EPA's proposed rules released June 2 call for reducing carbon dioxide emissions from power plants by roughly 30 percent from 2005 levels. The rules call for different levels of reductions in each state depending on the makeup of power plants there.

In coal heavy- Missouri , the EPA is pitching a reduction of 21 percent. Ameren has said that its internal plan would get to roughly the same reductions envisioned by EPA , but that it will take about five years longer. It will cost an additional \$4 billion , Ameren says, to speed up implementation to meet the EPA's timeline.

"We get to the same spot about four years later," Menne said.

The EPA gives states two options to comply. The main approach is a rate-based formula that measures the amount of carbon emitted per unit of electricity. But the agency leaves open the option for states to pursue an overall reduction in carbon emissions.

~~Witness~~ Exhibit No. 44
Date 9-9-14 Reporter _____
File No. ER-2014-0207

Menne said Ameren initially liked that idea because of plans to retire its 60-year old Meramec power plant by 2022. But a mass-based approach could penalize a utility if demand grows and new power plants are built, and Menne said Ameren will probably prefer the rate-based approach.

But in order to make that work, it needs to add lower-carbon natural gas generation to replace the high-carbon coal plant.

Missouri , however, doesn't yet have enough natural gas pipelines to both heat homes in the winter and fuel thousands of megawatts of natural gas power plants, said Paul Ling , director of environmental compliance at Kansas City Power and Light , the investor-owned utility in the state's other large metropolitan region.

That's a concern Ameren shares, Menne said. "The thing we're most concerned about is can we get firm commitments to run these things?" he said.

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Hog-Waste-to-Energy Plant Under Construction



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An \$80 million hog-manure-to-energy project is under construction in Northern Missouri, developed and constructed by Roeslein Alternative Energy (RAE) in collaboration with Murphy-Brown of Missouri (MBM) the livestock production subsidiary of [Smithfield Foods](#).

Crews are installing impermeable covers on 88 existing lagoons to harvest biogas, also called renewable natural gas, from MBM hog finishing farms using [anaerobic digestion](#) technology developed and installed by RAE. The companies say the [waste-to-](#)

energy project is the largest of its kind, utilizing manure from one of the biggest concentrations of finishing hogs in the Midwest to create several hundred million cubic feet of renewable natural gas annually for regional distribution.

The project will demonstrate the environmental and economic benefits of using manure in a different way, says Rudi Roeslein, RAE president and CEO of Roeslein & Associates, a systems integration firm specializing in modular construction.

Impermeable synthetic covers will be placed on existing nutrient treatment lagoons where barn scraper technology will deliver raw nutrients of livestock manure to covered lagoons (*pictured*). The covers turn the lagoons into anaerobic digesters, where naturally occurring microorganisms decompose the manure in an oxygen free environment. Biogas rises to the top where it will be collected and cleaned of impurities.

What remains is more than 98 percent methane with about the same chemical composition as natural gas that can be used for vehicle fuel or injected into the natural gas grid system. The undigestible solid residue can be used by local farmers as a natural fertilizer and the water can be used for irrigation.

The companies expect renewable natural gas production to begin in late 2014.

In addition to using hog manure, RAE ultimately intends to produce renewable natural gas from cover crops harvested between growing seasons on prime agriculture land and grasses harvested from highly erodible farm ground converted to native grasslands.

In North Carolina, a 600 kW Storms Hog Power facility — the state's largest swine-waste-to-energy system — came on line in October 2013, and sustained peak or near peak output since April.