



**EASTERN
NORTH CAROLINA**

CHALLENGE:

To provide reliable energy resources and stabilize costs for existing and prospective new industries in eastern North Carolina.

SOLUTION:

Four energy companies form a joint venture to build a 600-mile pipeline that will help the region meet rising demand for natural gas and generate \$11.7 million in annual economic activity in N.C.



POWER PLAY

Utilities unite to bring a natural-gas pipeline to eastern North Carolina, bolstering the state's energy resources.

BY EDWARD MARTIN

“Turn right up there off the main road, go a little ways and take another right,” the clerk at the country store says. He adds with a grin, “I don’t think you’ll miss it.” His meaning is soon clear: The pine plantations that line both sides of River Road in the tiny rural community of Cofield suddenly give way to a massive industrial complex.

Its inner workings are even more striking than finding the plant here on the upper Chowan River, where tugboats nudge barges of scrap metal to its dock. Figures in fireproof hoods go about their jobs in what could be the caldera of a volcano. Roaring, 3,000-degree furnaces belch orange flame as overhead cranes shuttle cauldrons of molten metal toward rollers that flatten it into steel plate.

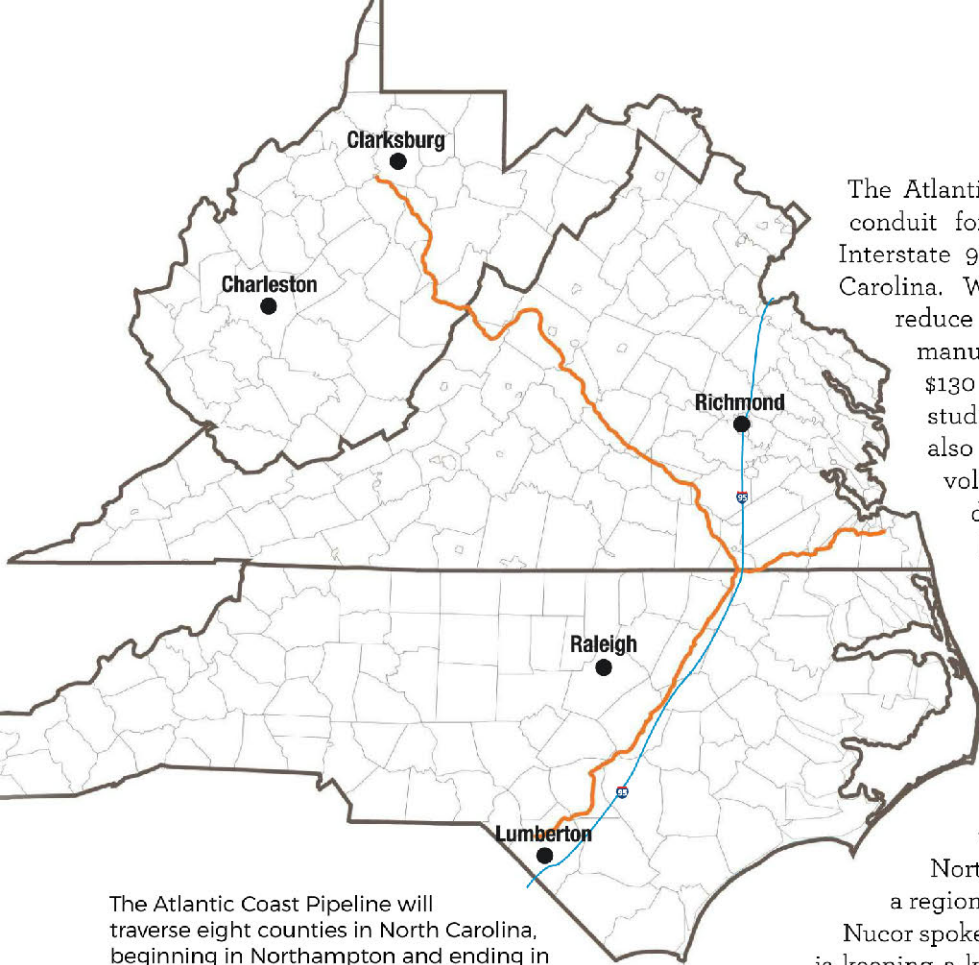
Charlotte-based Nucor Corp.’s Hertford County steel plant began production in 2000. Nucor is the nation’s largest steel maker and one of the world’s largest recyclers, and this plant alone can turn out more than \$1 billion worth of steel annually. Nearly 480 employees here typically earn about \$90,000 a year, almost triple Hertford’s average.

To the southwest and about 90 miles inland is another plant, but one more attuned to its rural Tar Heel setting. Forklifts dart about, unloading hundreds of tons of orange-hued sweet potatoes, Nash County’s second largest crop to tobacco. The potatoes tumble along conveyor wash lines, on the way to being sliced, pureed, dehydrated, ground into flour or otherwise processed.

Carolina Innovative Food Ingredients Inc. supplies the global food industry with filler materials for soups, baked goods, pet food and other products. The company is part of Richmond, Va.-based Universal Corp., whose separate, 1.2 million-square-foot Universal Leaf subsidiary nearby is among the world’s largest tobacco processors.

Dissimilar as they are, the steel and food manufacturers have a bond. Nucor is widely considered North Carolina’s largest industrial energy user, and Universal is one of eastern North Carolina’s largest natural-gas consumers, says Rich Worsinger, director of energy resources for the nearby city of Rocky Mount. Within two years, the two could have something else in common.

The Atlantic Coast Pipeline will provide natural gas to power stations including Duke Energy’s Sutton Energy Complex in Wilmington. The combined-cycle plant came online in November 2013, replacing a 59-year-old coal plant.



The Atlantic Coast Pipeline will traverse eight counties in North Carolina, beginning in Northampton and ending in Robeson, reflecting \$1.2 billion in capital expenditures in the state.

The Atlantic Coast Pipeline is a proposed \$5 billion conduit for natural gas that will roughly parallel Interstate 95 for nearly 200 miles in eastern North Carolina. When completed in late 2018, it could reduce or stabilize energy costs for these manufacturers and others by more than \$130 million a year, according to economic studies commissioned by its builders. It could also reassure prospective new industries of the volume and reliability they need and trigger development on a scale unseen in eastern North Carolina.

Natural gas, which emits half as many carbon pollutants as coal, is soaring in demand from industries and utilities seeking lower energy costs and environmental bragging rights, says David Trusty, a spokesman for Piedmont Natural Gas Co., whose territory covers eastern North Carolina. He compares the Atlantic Coast Pipeline's impact on North Carolina to "bringing a major interstate to a region that didn't have one previously."

Nucor spokeswoman Katherine Miller says the company is keeping a keen eye on the pipeline's progress through federal and state regulatory and licensing channels. It uses electricity to power its furnaces that melt the scrap metal and natural gas to fire its tempering, reheating and austenitizing — or hardening — operations. "We couldn't operate without it," she says of natural gas. As with other Tar Heel homes and businesses that rely on electricity, the pipeline's reach will exceed its signature blue flame. "With natural gas being used in greater and greater amounts to generate electricity, our indirect use of it through electricity consumption is also growing."

Others in eastern North Carolina are eager for the pipeline too. In Greenville, John Chaffee, president of NCEast Alliance, a private nonprofit economic-development agency whose area encompasses more than a million residents, hopes it will put an end to tales echoed by many of the region's industry hunters. "Over my almost 40-year career, I've repeatedly had companies tell me, 'Sorry, we can't consider that site because the gas company is telling us it can't guarantee a good supply of natural gas,'" he says. "This, we think, will be largely a remedy for that circumstance."

Over the last 15 years, Rocky Mount has had numerous industry prospects that needed more gas than the city or Piedmont could offer, says Worsinger, who until recently was chairman of Washington, D.C.-based American Public Gas Association, representing about 700 municipal gas utilities. "They were always told the same thing: 'We're maxed out.' They say, 'Thank you, but we're going [some place] where more natural gas is available.' Now, I'm going to have a huge transmission pipeline running just west of Rocky Mount."

ANNUALLY, THE ATLANTIC COAST PIPELINE IS EXPECTED TO GENERATE:

- ▶ **\$48 MILLION**
LABOR INCOME BENEFIT IN NC
- ▶ **\$82 MILLION**
GROSS STATE PRODUCT
- ▶ **\$134 MILLION**
AVERAGE ENERGY COST SAVINGS FOR NC CONSUMERS
- ▶ **\$11.7 MILLION**
IN ECONOMIC ACTIVITY IN NC
- ▶ **925 JOBS**

• • •

The pipeline originates near one of the country's largest concentrations of natural gas, in the Marcellus and Oneida regions of north-central West Virginia. In early 2014, Duke Energy Corp. and Piedmont Natural Gas, now a division of Duke after the Charlotte-based utility bought it for \$4.9 billion in October 2016, set out to tap it to fuel construction of new natural-gas electricity plants and to meet growing customer demand. About 80% of the pipeline's capacity will go to generating electricity for its power plants, says Duke spokeswoman Tammie McGee, and the remainder directly to homes, industry and businesses. Including electricity generation, more than 90% of the pipeline's total capacity is spoken for before construction begins, though its planned 1.5 billion cubic feet per day volume, which utility analysts say is equivalent to the energy needs of 5 million homes, can be expanded to 2 billion cubic feet.

"We've built five gas plants in North Carolina since 2011 and have two more planned," adds Tom Williams, Duke's external affairs director. One of the proposed sites is in Asheville, the other is in South Carolina, and additional plants are scheduled, though sites have not yet been chosen. "Our carbon [emissions are] down 28% since 2005 and 6% in 2015 alone," because of reduced coal-plant production.

Meanwhile, abundant Marcellus and Oneida shale gas is producing surpluses and driving down commodity prices. "We use about 2 billion cubic feet per year," says Worsinger, referring to the Rocky Mount system of about 27,000 electricity customers and 17,000 natural-gas users. While he never expected gas to fall below \$5, it had fallen to half that price in mid-2016. "Through fracking and shale gas, natural gas has become plentiful, and the price has dropped."

Measured in dekatherms (one thousand cubic feet), the common method of billing customers, Piedmont's benchmark or wholesale cost was as high as \$11.50 per dekatherm as recently as 2008, says Trusty. By summer of 2015, it had dropped to \$2.25. And power-intensive manufacturers such as Nucor and Universal aren't the only customers who benefit from lower costs.

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KATHERINE MILLER
NUCOR

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**“
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AND RENEWABLES AREN'T
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**DAVID TRUSTY
PIEDMONT NATURAL GAS**

Rocky Mount, like more than 30 other municipalities in eastern North Carolina, is a member of the North Carolina Eastern Municipal Power Agency. The group for decades purchased power both wholesale and through ownership stakes in about a half dozen power plants and then distributed it to 270,000 local customers, who sometimes railed about high prices. In 2015, a subsidiary of Duke Energy bought the agency's generating stakes for \$1.25 billion and in turn agreed to sell it wholesale power for 30 years.

“After the sale, we became a wholesale customer of Duke, and the pipeline will provide an additional stable source of shale gas from West Virginia and western Pennsylvania that's less expensive than gas from the Gulf Coast area for electric generation,” Worsinger says. “There were a lot of concerns about our power costs. Now, we'll have rate parity.”

Pending approval by the Federal Energy Regulatory Commission in early 2017, the pipeline will soon inch from the mountains near Clarksburg, W. Va., a total of nearly 600 miles through central Virginia to North Carolina's Northampton County, and from there, to its terminus in Robeson County.

It's an expensive undertaking – the construction impact in North Carolina alone will be about \$680 million and create more than 4,400 jobs. Virginia's Dominion Resources Inc., which will build and operate the pipeline, originally planned to own 45%, while Duke Energy, the nation's largest utility holding company, would own 40% and Piedmont would own 10%. (Duke agreed to sell an undisclosed portion of its interest in the project to Dominion following the acquisition of Piedmont.) AGL Resources Inc., the Atlanta-based parent company of Virginia Natural Gas Co., will own 5%.

Natural-gas use is expected to increase about 3.5% annually through 2035. “Piedmont saw the growth in demand, and realized it didn't have enough capacity to meet it,” says Duke Energy's McGee. “Utilities like Duke and Dominion are moving away from coal and more to natural gas for a lot of reasons. Some are environmental, but also, some plants have just simply aged out and it's not economical to bring



Facilities such as Duke Energy's 620-megawatt Buck Combined Cycle Station in Rowan County combine gas combustion turbines and steam turbines to convert natural gas to electricity.

them up to emissions standards. We've already retired 11 coal plants in North Carolina and built newer, more efficient gas plants,” including several in eastern North Carolina.

After Duke and Piedmont sought a builder and operator for the pipeline, Dominion won the bidding. Its subsidiary, Dominion North Carolina Power, also supplies about 120,000 electricity customers in northeastern North Carolina, including the Outer Banks. Helping set the stage for the pipeline is North Carolina's longstanding reliance on a sole source for the entire state's natural gas. Snaking through the Piedmont countryside west of Charlotte and northward, the Transco pipeline, owned by Tulsa, Okla.-based Williams Cos., began as a single line in the 1950s and has since expanded into four side-by-side lines along the same right of way.

Transco, short for Transcontinental, is the largest natural-gas conduit in the country, carrying 11 billion cubic feet of gas per day, about seven times what the Atlantic Coast Pipeline will carry. It supplies North Carolina, mostly through Piedmont Natural Gas, and much of the East Coast, including half of the gas used in New York City. Branching out from the main transmission line is a web of distribution lines in North Carolina, fueling many users such as Nucor, 200 or more miles from the main line.

Chaffee, the NCEast Alliance CEO, explains Transco's limitations. “When you're at the end of the distribution line, pressure drops as you get farther and farther from the source,” he says. “If all of a sudden you're in the month of

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January and have a cold snap, the gas company calls and says, 'Sorry, we're going to have to cut your service.' Major industrial users are the first to go, and if you're trying to recruit manufacturers, that's a serious liability."

Without the new pipeline, it's uncertain if the region could land another Nucor, says Gary Brown, director of Northampton County's Economic Development Commission. "From everything I've heard from Piedmont Natural Gas, the end supplier for our area, that's the case." Piedmont's Trusty says the company can adequately supply existing customers, but another major industry could require a scramble.

North Carolina is one of few U.S. states without redundant pipelines, says Duke's McGee. A sober reminder struck on an August night in 2005 when Hurricane Katrina slammed into the Gulf Coast. It didn't damage the Transco pipeline, but it shut down scores of natural-gas processing plants, wells and other components along the coast. Soon, North Carolina industries were hit with soaring prices and fluctuating supply. Similar spikes occurred during the record cold of 2015.

When Katrina hit, about 23% of U.S. natural gas came from the Gulf, Trusty says. Prices spiked from about \$5 or \$6 per thousand cubic feet to upward of \$12 to \$15. Now, he estimates about 10% of the East Coast supply comes from the Gulf as production has shifted north to the shale gas region of West Virginia, Pennsylvania and Ohio.

The buried Atlantic Coast Pipeline, which will be 42 inches in diameter for about 330 miles from West Virginia through Virginia, will drop to 36 inches for its 186-mile Tar Heel segment. Northampton will get the greatest direct economic punch with about 22 miles of the line. It also will host a compressor station and a regional office. Smithfield in Johnston County is also gaining a pipeline office. "We've traditionally been an agriculture-based economy, but in the last 30 years or so, we've undergone industrial diversification," says Brown, Northampton's economic director. About two dozen of the more than 50 permanent pipeline jobs will be set in Northampton, joining an industrial base that includes West Fraser Timber Co.,

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