

12. PRESENTATION REGARDING THE PROPOSED ATLANTIC COAST PIPELINE

As discussed last month, I've invited representatives from Dominion Resources to provide you with an informational briefing regarding its recent announcement to join with Duke Energy, Piedmont Natural Gas and AGL Resources in a joint venture to build and own a \$4.5 billion - \$5 billion, 550-mile natural gas pipeline from West Virginia to North Carolina, with a spur traversing Southampton County en route to Chesapeake.

Dominion is also scheduled to provide an informational open house for landowners within the proposed study corridor on Thursday, September 25 from 5:00 to 6:30 p.m. at the Regional Workforce Development Center, Paul D. Camp Community College, 100 North College Drive, Franklin. They'll also remain available later that evening for other interested members of the general public from 6:30 p.m. to 8:00 p.m.

Please come prepared with questions.



Atlantic Coast Pipeline Fact Sheet

Increasing the availability of natural gas supplies in West Virginia, Virginia and North Carolina is important to the economy and environment of the region. It can mean more jobs, lower prices to heat and power homes and businesses, and cleaner air.

To meet that need, Dominion is proceeding to build a new natural gas pipeline. The Atlantic Coast Pipeline, formerly known as the Southeast Reliability Project, would originate in Harrison County, W. Va., run to Greensville County, Va., and then south into eastern North Carolina. A lateral extension is planned from the Virginia-North Carolina border to Hampton Roads.

The benefits of natural gas are clear. The newfound abundance of domestic supplies has made it a low-cost energy source that is decreasing the nation's dependence on foreign imports. When burned, natural gas produces significantly lower emissions than coal, including just half the carbon.

The pipeline would provide a dependable supply of natural gas for electric utilities in the region looking to use natural gas as a cleaner option to generate electricity. It also would help local gas utilities serve their customers with a new, reliable source of supply, and permit businesses to build or expand their operations.

Length: Approximately 550 miles

Pipe: 42-inch diameter in West Virginia and Virginia; 36-inch diameter in North Carolina; 20-inch diameter to Hampton Roads

Capacity: 1.5 billion cubic feet/day

Three Compressor Station Locations:

1. West Virginia (near beginning of route)
2. Central Virginia
3. Near Virginia/North Carolina state line

Route: The final pipeline route has not been selected. Dominion is conducting surveys and will determine the best route based on landowner input and an assessment of environmental, historic and cultural impacts.

Outreach and Schedule

Dominion has notified landowners along a 400-foot wide study corridor. Preliminary survey work and route planning is under way. If the decision is made to move ahead with the project, Dominion must obtain approval from the Federal Energy Regulatory Commission (FERC). The FERC will coordinate with other federal and state agencies to thoroughly address land, air, water, noise, species, economic impacts and other issues. The proposed pipeline would be designed, constructed, operated and maintained in accordance with FERC and U.S. Department of Transportation standards, and all other applicable regulations, standards and guidelines for safety.

Dominion also is committed to providing a variety of opportunities to gather input from stakeholders. All federal, state and local permits and right-of-way access will be obtained prior to starting pipeline construction.

| Activity | Expected Timing |
|-------------------------|-----------------|
| Survey/route planning | May-Dec. 2014 |
| FERC Pre-Filing Request | Fall 2014 |
| FERC Application | Summer 2015 |
| FERC Certificate | Summer 2016 |
| Construction | 2017-2018 |
| In-service | Late 2018 |

About Dominion

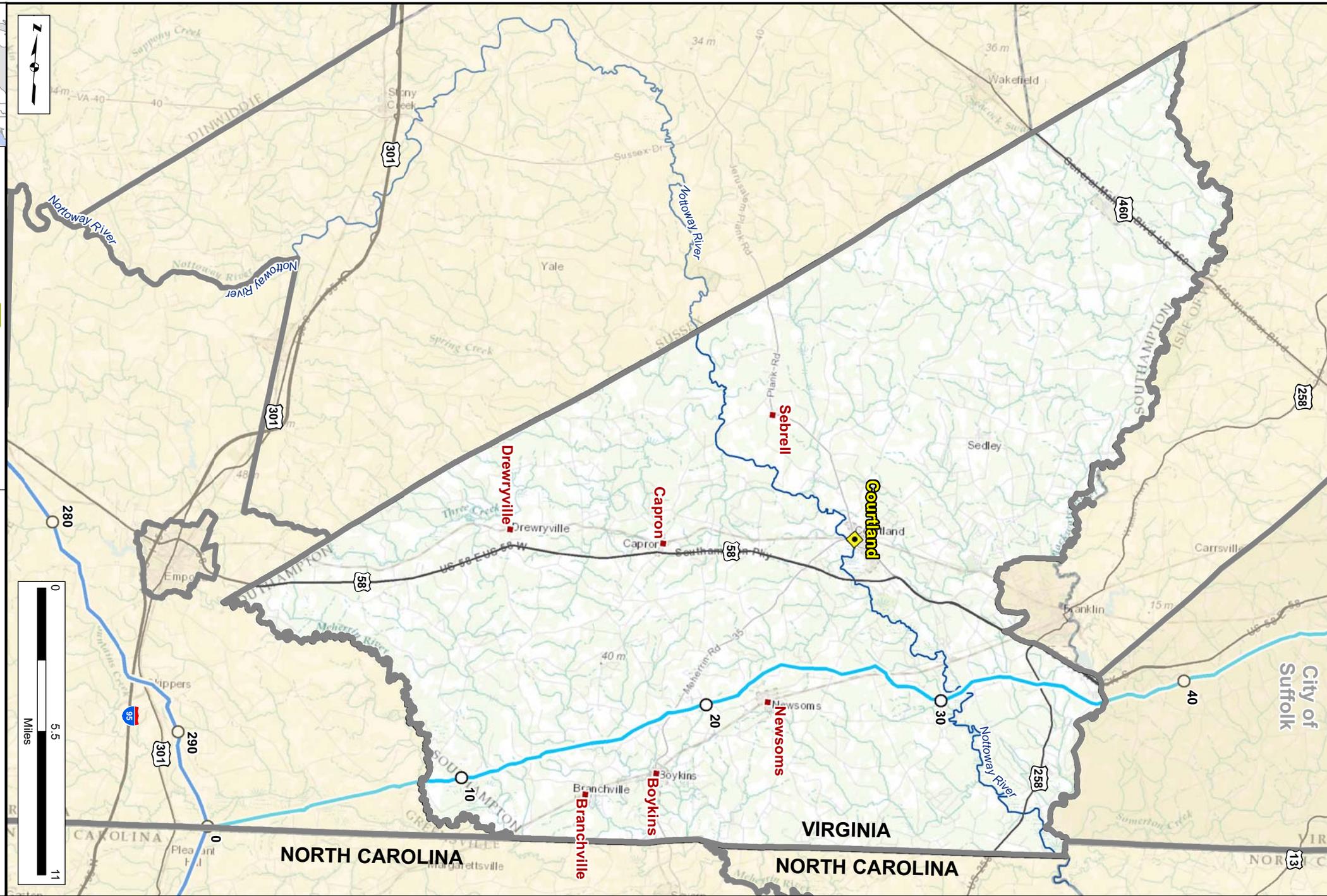
With more than 100 years of service, Dominion is one of the nation's most experienced operators of natural gas pipelines and storage systems. It operates nearly 8,000 miles of interstate pipeline in six states.

Contact information:

Landowners: 1-888-895-8716

General Inquiries: ACpipeline@dom.com

Website: www.dom.com/ACpipeline



City, FSEDI hope to tap into Atlantic pipeline

Published 9:40am Wednesday, September 17, 2014
The Tidewater News

FRANKLIN—Hoping to provide natural gas to the community, the city and Franklin Southampton Economic Development Inc. are seeking to talk with Dominion Power representatives about tapping into the Atlantic Coast Pipeline, which is proposed to come through Southampton County, said City Manager Randy Martin.

As discussions take place, Martin hopes to bring back good news to the Franklin City Council, particularly where they can bring natural gas into areas that can impact economic development opportunities.

Martin said that 92 percent of the flow from the pipeline is already accounted for by sources involved in financing the pipeline. However, that leaves 8 percent of what is coming down up for grabs for communities and organizations to make bids along the route.

“It would have to be on a grand scale, as this is a high-pressure line. For example, an industrial park or things of that nature,” Martin said. “But we are told that there is an opportunity for us to get in on the pipeline.

“As I understand it, 8 percent of that line is going to be significant. Where that leaves us? I don’t know yet.”

He said that based on where it is crossing Route 258, it seems feasible that they could create a direct pipeline route to Pretlow Industrial Park, and then back into town.

Martin said he and other city and economic development officials would be at the Open House meeting on Thursday, Sept. 25, in the Regional Workforce Development Center at Paul D. Camp Community College. The session will be in two parts: from 5 to 6:30 p.m., landowners within the proposed study corridor; from 6:30 to 8 p.m., landowners and the public.

Dominion is not the only energy company involved in this pipeline, which would go from West Virginia down into North Carolina. It will also have a leg that travels through Southampton County on its way to Chesapeake.

Duke Energy, Piedmont Natural Gas and AGL Resources are the other energy companies investing in this \$4.5 billion to \$5 billion proposed pipeline.

If everything goes as scheduled, construction would start in 2016 and the project would be completed in 2018.

Governor: Gas-pipeline project "game changer" for industry, homeowners

By PETER BACQUÉ
Richmond Times-Dispatch



Governor Terry McAuliffe is joined by Dominion Chairman and CEO Tom Farrell and Hank Linginfelter, executive vice president for distribution operations at AGL Resources and chairman of Virginia Natural Gas at a press conference announcing a natural gas pipeline that would be built by Dominion and Duke Energy.

Dominion Resources will joint venture with three other major energy companies to build and own a \$4.5 billion- \$5 billion, 550-mile natural gas pipeline from West Virginia through the state to North Carolina.

The project is "a game-changer" for Virginia industry and homeowners, Gov. Terry McAuliffe said at a standing-room-only announcement in the Capitol this morning. "It will spur economic growth in all parts of the commonwealth."

The proposed Atlantic Coast Pipeline project will be "an energy superhighway," McAuliffe said.

The pipeline will have a \$4 billion economic development impact in Virginia, creating 8,800 new jobs, including 5,000 directly related to the line's construction, and produce \$14.6 million in revenue for the state, the governor said.

Dominion Resources will join with Duke Energy, Piedmont Natural Gas and AGL Resources in the joint venture to build and own the pipeline.

"The Atlantic Coast Pipeline is a transformational project for our region," said Thomas F. Farrell II, Dominion Resources's president, chairman and CEO, in a joint statement with Lynn J. Good of Duke Energy, Thomas E. Skains of Piedmont Natural Gas and John W. Somerhalder II of AGL Resources, chief executives of the joint venture partners.

"Natural gas is increasingly important for advanced electricity generation, contributing to significantly lower greenhouse gas and other emissions," they said. "The project will also provide more reliable access to new sources of natural gas, keeping consumers' energy costs down – even during the coldest and hottest weather."

The partnership, called Atlantic Coast Pipeline LLC, will own the pipeline initially proposed by Dominion Resources as the Southeast Reliability Project.

It is designed in part to meet the needs identified in requests for proposals last April by Duke Energy and Piedmont, and in June by Virginia Power Services Energy.

The line would deliver natural gas to growing customer markets in Virginia and North Carolina, providing new direct access to the natural gas flowing in ever greater amounts from the Marcellus and Utica gas shale basins of West Virginia, Pennsylvania and Ohio.

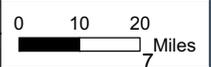
Environmentalists took immediate issue with the project. "Today Governor McAuliffe has made a huge mistake that harms the environment," said Mike Tidwell, executive director of the Chesapeake Climate Action Network, in a statement.

The governor "has regretfully embraced a Dominion gas pipeline project that threatens to contribute significantly to the climate crisis," Tidwell said, saying that the pipeline "would incentivize more fracking across the region and contribute to emissions of methane, a powerful heat-trapping gas which, according to growing scientific data, could disrupt the climate on par with coal."

The pipeline would begin in Harrison County, W.Va., and stretch to Robeson County, N.C. A spur from the main pipeline would go east to Chesapeake in Virginia.

The project has already drawn strong opposition in Virginia's Nelson County, which would be home to about 35 miles of the pipeline. Homes and businesses along Virginia 151 sport blue placards that say "No pipeline."

During a public meeting in Nelson County last month, Dominion officials said a 125-foot-wide right-of-way would be required during construction. Once construction is completed, a 75-foot right-of-way would be required to maintain the pipeline. The pipeline would be 3 to 5 feet below ground, depending on the topography of the area and intended use of the land above.



Pipeline raises questions, some answers

Brian Carlton bcarlton@newsvirginian.com | Posted: Saturday, July 26, 2014 7:00 am

Residents of Augusta County are concerned about what happens to their property rights, once Dominion Power decides on a route for the proposed natural gas pipeline. The group, who presented a 500-signature petition opposing the pipeline to Augusta County supervisors on Wednesday, say they just don't have enough information about what might happen.

While a definite route has yet to be finalized, the current 460-mile proposal would look to impact the area south of Staunton, part of Stuarts Draft and portions of the George Washington National Forest. The pipeline would start in the Marcellus and Utica shale production areas in West Virginia, then travel 214 miles through Virginia to Lumberton, North Carolina. The company hopes to build the pipeline in 2017 and put it into service by 2019 at the latest.

Susan Baker would be directly impacted by the pipeline, if it travels along the projected path. She lives off of Bethel Green Road in Staunton and wants to know what will happen to her drinking water, if the pipeline comes in.

"Any type of blasting or heavy duty drilling in this area could have an impact on our water supply," Baker said. "We haven't heard yet from the company, so we don't have an idea of what will happen if the pipeline comes through."

Also for Baker and other residents opposed to the line, a main concern is about property rights. They want to know if company officials can be ordered off the property. Dominion officials announced plans earlier this summer to survey properties along the proposed route. The problem is, thanks to the Code of Virginia, there are only limited things that a person can do to prevent them from entering.



Source: Dominion Power

JOHN G. OWNBY/TIMES-DISPATCH

S l s h d q h

A look at the pipeline's proposed route

Section 56-49.01 of the code outlines the rights of natural gas companies to enter private property. It states that any group operating as a natural gas company “may make such examinations, tests, hand auger borings, appraisals and surveys for its proposed line or location of its works as are necessary.” Those examinations can be made to meet any regulatory requirement or to select the best location or route, in this case for a pipeline. The code goes on to state that “for such purposes, by its duly authorized officers, agents or employees, [the company] may enter upon any property without the written permission of its owner,” as long as the group met three requirements. First, the company had to request the owner’s permission first to inspect the property. Second, the owner hasn’t given permission by the date the company planned to come and third, the company has to give the owner notice of intent to enter the property. While that allows people to walk on the land, vehicles are another case. Company officials can use “motor vehicles, self-propelled machinery and power equipment on property only after receiving the permission of the landowner or his agent.”

That request to the owner has to be done by certified mail and no fewer than 15 days before officials want to come on the property. If the company violates those stipulations, then they can’t enter. Otherwise however, even without permission, the surveying wouldn’t be considered as trespassing.

“Any entry authorized by this section shall not be deemed a trespass,” the code reads, further stating that the company will have to pay for any damage caused by their visit.

Questions about the pipeline

Baker wasn’t the only resident to voice concerns over the potential impact. Multiple emails have come into the News Virginian over the past week, looking for answers. Aside from Baker however, each declined to go public with their questions. People want to know how large the pipe will be and how much the easement will take up.

In talking with the News Virginian earlier this month, Dominion officials said that their proposed project would be accessible for local businesses. Dominion Energy Director of Communications Jim Norvelle said it would be an open access pipeline, with taps possible for larger customers along the route. While Norvelle said that wouldn’t include individual homes or smaller businesses, he did expect to connect with local gas distribution companies and other larger groups.

Concerns had also been raised about the pipeline possibly stretching 50 inches in diameter, compared to the 20-inch pipeline Columbia Gas currently operates in Augusta County. Norvelle had no answers for that, saying the diameter hasn’t been decided yet and would depend partially on what the survey results show, to determine what size pipe can fit in a specific area.

Officials from Dominion announced they would appear at the Aug. 13 meeting of the Augusta County Board of Supervisors to provide an update and answer questions. Company officials also promised a similar visit to supervisors in nearby Nelson County.



The Economic Impact of the Atlantic Coast Pipeline in West Virginia, Virginia, and North Carolina

The one-time construction activity of the Atlantic Coast Pipeline can inject an annual average of \$456.3 million into the economy of the three-state combined region of West Virginia, Virginia, and North Carolina, supporting 2,873 annual jobs in the region from 2014 to 2019. When the pipeline is in full operation, the project is estimated to have an annual impact in the three-state region of \$69.2 million that can support 271 regional jobs from 2019 onward. The project can also generate significant tax revenue for three state governments. This report does not quantify other significant benefits that will be derived from construction of the project, including additional opportunities for new manufacturing, greater stability in energy prices, and environmental improvements through the increased use of cleaner-burning natural gas as a source of electric generation.

Prepared
for **Dominion Resources**

Richmond, Virginia

1309 East Cary Street
Richmond, Virginia 23219
804.649.1107 (phone)
804.644.2828 (fax)

Cleveland, Ohio

1025 East Huron Road
Cleveland, Ohio 44115
216.357.4730 (phone)
216.357.4730 (fax)

Table of Contents

| | |
|---|-----------|
| 1. EXECUTIVE SUMMARY..... | 3 |
| 2. BACKGROUND..... | 6 |
| 3. ECONOMIC IMPACT METHODOLOGY..... | 8 |
| 4. ECONOMIC IMPACT OF THE ATLANTIC COAST PIPELINE IN THE THREE-STATE REGION..... | 10 |
| 4.1. ONE-TIME ECONOMIC IMPACT FROM CONSTRUCTION..... | 10 |
| 4.2. ECONOMIC IMPACT OF ONGOING OPERATION..... | 12 |
| 4.3. FISCAL IMPACT FOR WEST VIRGINIA, VIRGINIA, AND NORTH CAROLINA STATE GOVERNMENTS..... | 13 |
| 4.3.1. <i>Tax Revenue from Capital Expenditure</i> | 13 |
| 4.3.2. <i>Tax Revenue from Operation</i> | 14 |
| 5. ECONOMIC IMPACT OF THE ATLANTIC COAST PIPELINE IN INDIVIDUAL STATES..... | 16 |
| 5.1. ECONOMIC IMPACT IN WEST VIRGINIA..... | 16 |
| 5.1.1. <i>One-Time Economic Impact of Construction</i> | 16 |
| 5.1.2. <i>Economic Impact of Ongoing Operation</i> | 16 |
| 5.1.3. <i>Fiscal Impact for the State Government</i> | 17 |
| 5.2. ECONOMIC IMPACT IN VIRGINIA..... | 17 |
| 5.2.1. <i>One-Time Economic Impact of Construction</i> | 17 |
| 5.2.2. <i>Economic Impact of Ongoing Operation</i> | 18 |
| 5.2.3. <i>Fiscal Impact for the State Government</i> | 18 |
| 5.3. ECONOMIC IMPACT IN NORTH CAROLINA..... | 19 |
| 5.3.1. <i>One-Time Economic Impact of Construction</i> | 19 |
| 5.3.2. <i>Economic Impact of Ongoing Operation</i> | 19 |
| 5.3.3. <i>Fiscal Impact for the State Government</i> | 20 |
| 6. CONCLUSION..... | 21 |
| APPENDIX: IMPACT STUDY GLOSSARY..... | 22 |

1. Executive Summary

The Atlantic Coast Pipeline (ACP) is a major interstate natural gas pipeline construction and operation initiative proposed by Dominion Resources (Dominion) and three other major U.S. energy companies—Duke Energy, Piedmont Natural Gas, and AGL Resources. The project involves constructing about 550 miles of natural gas pipeline, as well as three compressor stations and other associated facilities across three states—West Virginia, Virginia, and North Carolina. Total capital expenditures for this project are estimated to be \$4.6 billion.¹ The development of ACP will occur from 2014 to 2019, with operation commencing in late 2018. A project of such magnitude will have significant impact in the three states along the pipeline.²

The impact of the Atlantic Coast Pipeline in the three-state combined region is as follows:

- From 2014 through 2019, capital spending on ACP can generate an annual average of \$456.3 million in economic impact (including direct, indirect, and induced) in the three-state region, supporting 2,873 jobs per year. The cumulative impact of construction is estimated to be \$2.7 billion that can support 17,240 cumulative jobs in the three-state region.
- From 2019 onward, ongoing operation can produce a total of \$69.2 million in annual economic impact (including direct, indirect, and induced) in the three-state region, supporting a total of 271 jobs annually.
- Ongoing operation of the pipeline can generate annual tax revenue of \$418,443 from 2019 onward for the three state governments. Capital expenditure can also generate an annual average of \$4.2 million in total tax revenue for the three state governments from 2014 to 2019.

The economic impact of the Atlantic Coast Pipeline in the state of West Virginia is as follows:

- Among total capital expenditure of \$4.6 billion, an estimated \$882.6 million will be spent in West Virginia. From 2014 through 2019, capital spending on ACP can generate an annual average of \$79.8 million in economic impact (including direct, indirect, and induced) in West Virginia, supporting 516 jobs per year. The cumulative impact of construction is estimated to be \$478.7 million that can support 3,093 cumulative jobs in the state.
- From 2019 onward, ongoing operation can produce a total of \$15.6 million in annual economic impact (including direct, indirect, and induced) in West Virginia, supporting a total of 74 jobs annually.

¹ The \$4.6 billion in capital expenditures used in this study is at the lower end of the range of \$4.5 billion to \$5 billion stated by the partnership in its September 2, 2014 news release on the project. The cost allocations used in this study are based on reasonable estimates at the time of the development of this report and are subject to modification as the project advances.

² The study area is defined as the states of West Virginia, Virginia, North Carolina, and the three-state combined region.

- Ongoing operation of the project can generate annual tax revenue of \$113,678 from 2019 onward for the state government. Capital expenditure can also generate an annual average of \$661,059 in total tax revenue for the state from 2014 to 2019.

The economic impact of the Atlantic Coast Pipeline in the state of Virginia is as follows:

- Of \$4.6 billion in total capital expenditure, \$2.5 billion is estimated to be spent in Virginia. From 2014 through 2019, capital spending on ACP can generate an annual average of \$236.5 million in economic impact (including direct, indirect, and induced) in Virginia, supporting 1,462 jobs per year. The cumulative impact of construction is estimated to be \$1.4 billion that can support 8,774 cumulative jobs in the state.
- From 2019 onward, ongoing operation of ACP can produce a total of \$37.8 million in annual economic impact (including direct, indirect and induced) in Virginia, supporting a total of 118 jobs annually.
- Ongoing operation can generate annual tax revenue of \$233,027 from 2019 onward for the state government. Capital expenditure can also generate an annual average of \$2.4 million in total tax revenue for the state from 2014 to 2019.

The economic impact of the Atlantic Coast Pipeline in the state of North Carolina is as follows:

- Of the total \$4.6 billion in capital expenditure, \$1.2 billion is estimated to be spent in North Carolina. From 2014 through 2019, capital spending on ACP can generate an annual average of \$113.4 million in economic impact (including direct, indirect, and induced) in North Carolina, supporting 738 jobs per year. The cumulative impact of construction is estimated to be \$680.2 million that can support 4,426 cumulative jobs in the state.
- From 2019 onward, ongoing operation can produce a total of \$11.7 million in annual economic impact (including direct, indirect, and induced) in North Carolina, supporting a total of 52 jobs annually.
- Ongoing operation can generate annual tax revenue of \$71,738 from 2019 onward for the state government. Capital expenditure can also generate an annual average of \$1.1 million in total tax revenue for the state from 2014 to 2019.

Additionally, this study does not include estimates, on either a statewide or local basis, of local property taxes on Atlantic Coast Pipeline facilities. However, these taxes are likely to provide an important and stable source of revenue for local governments once the pipeline begins operations.

Economic impact of the Atlantic Coast Pipeline in all three states as well as the combined region is summarized in Table 1.1.

Table 1.1: Atlantic Coast Pipeline Impact Summary

| | | | Direct Impact | Total Impact | State Tax Revenue |
|-----------------------------|--|-----------------------------|----------------|----------------|--------------------|
| West Virginia | Onetime Capital Expenditure (Annual Average, 2014-2019) | Spending (\$Million) | \$49.3 | \$79.8 | \$661,059 |
| | | Employment | 299 | 516 | |
| | Ongoing Operation (Annual 2019 Onward) | Spending (\$Million) | \$9.4 | \$15.6 | \$113,678 |
| | | Employment | 24 | 74 | |
| Virginia | Onetime Capital Expenditure (Annual Average, 2014-2019) | Spending (\$Million) | \$140.2 | \$236.5 | \$2,439,441 |
| | | Employment | 827 | 1,462 | |
| | Ongoing Operation (Annual 2019 Onward) | Spending (\$Million) | \$24.3 | \$37.8 | \$233,027 |
| | | Employment | 39 | 118 | |
| North Carolina | Onetime Capital Expenditure (Annual Average, 2014-2019) | Spending (\$Million) | \$68.3 | \$113.4 | \$1,063,354 |
| | | Employment | 430 | 738 | |
| | Ongoing Operation (Annual 2019 Onward) | Spending (\$Million) | \$7.6 | \$11.7 | \$71,738 |
| | | Employment | 18 | 52 | |
| Three-State Regional | Onetime Capital Expenditure (Annual Average, 2014-2019) | Spending (\$Million) | \$257.8 | \$456.3 | \$4,163,854 |
| | | Employment | 1,557 | 2,873 | |
| | Ongoing Operation (Annual 2019 Onward) | Spending (\$Million) | \$41.3 | \$69.2 | \$418,443 |
| | | Employment | 82 | 271 | |

Note: Numbers may not sum due to rounding

Source: Chmura Economics & Analytics

2. Background

The Atlantic Coast Pipeline (ACP) is a major interstate natural gas pipeline construction and operation initiative proposed by Dominion Resources (Dominion) and three other major U.S. energy partners—Duke Energy, Piedmont Natural Gas, and AGL Resources. The project involves constructing about 550 miles of natural gas pipeline, as well as compressor stations and associated facilities across three states—West Virginia, Virginia, and North Carolina (Figure 2.1). This pipeline will transport and supply shale gas from West Virginia to major customers such as power plants and other businesses in Virginia and North Carolina. By providing a new independent gas pipeline in the region, the project can increase flexibility and reliability of the gas supply for businesses and residents. More importantly, an alternative gas pipeline will allow for competition, thus potentially lowering gas prices for customers. In addition, the gas pipeline will pass through new areas which could generate economic development opportunities for communities along the pipeline.

The project team plans to submit a pre-filing request to the Federal Energy Regulatory Commission (FERC) in Fall 2014 and file an official FERC application in Summer 2015. Upon approval, the construction would start in Fall 2016 with completion in late 2018.

An economic and fiscal impact assessment was requested by Dominion to understand the impact of the Atlantic Coast Pipeline in West Virginia, Virginia, and North Carolina. Dominion contracted Chmura Economics & Analytics (Chmura) to conduct this study.

The remainder of this report is organized as follows:

- Section 3 explains the Chmura methodology for economic and fiscal impact analysis
- Section 4 analyzes the economic and fiscal impact of the Atlantic Coast Pipeline in the three-state combined region
- Section 5 estimates the economic and fiscal impact of the Atlantic Coast Pipeline in the individual states of West Virginia, Virginia, and North Carolina
- Section 6 offers a summary and conclusion

Below is a map of the Atlantic Coast Pipeline in the study corridor.

Figure 2.1: Map of the Atlantic Coast Pipeline



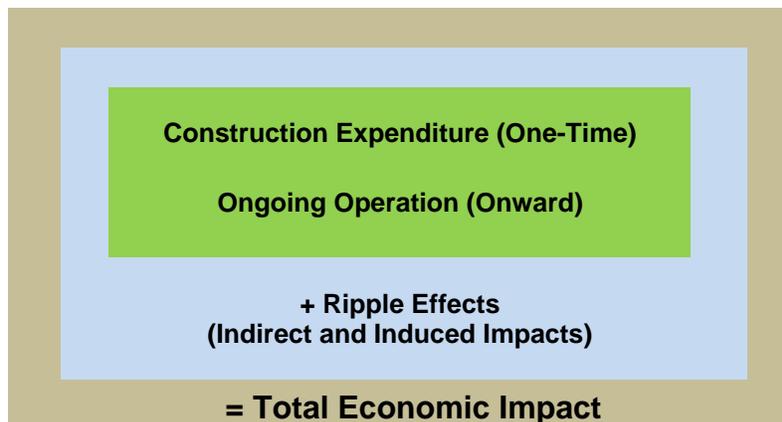
3. Economic Impact Methodology

The economic impact of the Atlantic Coast Pipeline on regional and state economies will occur in two phases:

1. The one-time economic impact from project construction. The impact includes activities such as: construction of the new pipeline, compressor stations and associated facilities; design and preparation of the project; and equipment installation.
2. The ongoing operation of the natural gas pipeline. The impact comes primarily from revenue generated from transporting and distributing natural gas to businesses and residential customers.

While the two components above constitute the direct economic impact of the Atlantic Coast Pipeline, total economic impact also includes ripple effects from the direct impact. Ripple effects, categorized as indirect and induced impacts,³ measure secondary benefits that can be generated by project construction and operation. Using pipeline construction as an example, the indirect impact is increased sales and employment that occur for local businesses that sell supplies and services to the construction companies, such as truck transportation, construction materials suppliers, and equipment rentals. The induced impact is increased sales and employment that occur in local communities when construction workers spend their wages. The benefactors of induced impact are primarily consumer-related businesses such as retail stores, restaurants, and personal services.⁴

Figure 3.1: Economic Impact Analysis Framework



³ See the appendix for terms and definitions.

⁴ In analyzing the state impact, ripple effects only capture benefits to state businesses from direct spending in each state.

Background data for the direct impact, such as operational cost and capital expenditure, were provided by Dominion. Indirect and induced impacts were estimated with IMPLAN Pro⁵ software after the direct impact was identified. Total operational cost and capital expenditure were input into the various IMPLAN model sectors to estimate indirect and induced impacts for each sector. These impacts were aggregated to yield estimates of the overall economic impact of the Atlantic Coast Pipeline in three states, and the three-state combined region.

In addition to the spending and employment impact, this study also estimates the fiscal impact of the Atlantic Coast Pipeline on state governments. In terms of the ongoing operation of the gas pipeline, state governments will collect individual and corporate income tax revenue from the project. During construction, three state governments can benefit from individual and corporate income tax from capital expenditure, paid by contractors.

⁵ *IMPLAN Professional* is an economic impact assessment modeling system developed by the Minnesota IMPLAN Group that is often used by economists to build economic models that estimate the impacts of economic changes in local economies.

4. Economic Impact of the Atlantic Coast Pipeline in the Three-State Region

4.1. One-Time Economic Impact from Construction

The Atlantic Coast Pipeline is an undertaking that requires a significant amount of capital investment spanning multiple years. The project involves constructing 548 miles of interstate natural gas pipeline. More than half the pipeline (292 miles) will be situated in Virginia, 78 miles will be in West Virginia, and 178 miles will be in North Carolina. Outside the main pipeline, the project also involves construction of three compressor stations (one in each state), as well as eight measurement and regulation (M&R) stations. West Virginia will host two M&R stations, while Virginia and North Carolina will each have three M&R stations.

Table 4.1: Atlantic Coast Pipeline Structure Summary

| | West Virginia | Virginia | North Carolina | Three-State Total |
|---|---------------|----------|----------------|-------------------|
| Pipeline (Miles) | 78.0 | 292.1 | 178.0 | 548.1 |
| Compressor Stations | 1 | 1 | 1 | 3 |
| Measurement & Regulation (M&R) Stations | 2 | 3 | 3 | 8 |

Source: Dominion

Preliminary estimates show that the total cost of the project is estimated to be \$4.6 billion. Spending is expected to occur from 2014 to 2019, with the largest portion spent in both 2017 and 2018 (Table 4.2). In terms of geographic distribution, Virginia will receive over half of the total capital investment since half of the pipeline will be located there.

Table 4.2: Capital Investment of the Atlantic Coast Pipeline

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
|----------------|--------|---------|---------|-----------|-----------|--------|-----------|
| West Virginia | \$5.8 | \$34.4 | \$135.6 | \$260.6 | \$437.7 | \$8.5 | \$882.6 |
| Virginia | \$18.6 | \$107.0 | \$416.7 | \$670.3 | \$1,233.1 | \$24.9 | \$2,470.7 |
| North Carolina | \$8.8 | \$51.4 | \$198.1 | \$345.0 | \$616.8 | \$12.9 | \$1,233.1 |
| Total | \$33.2 | \$192.9 | \$750.4 | \$1,276.0 | \$2,287.6 | \$46.3 | \$4,586.4 |

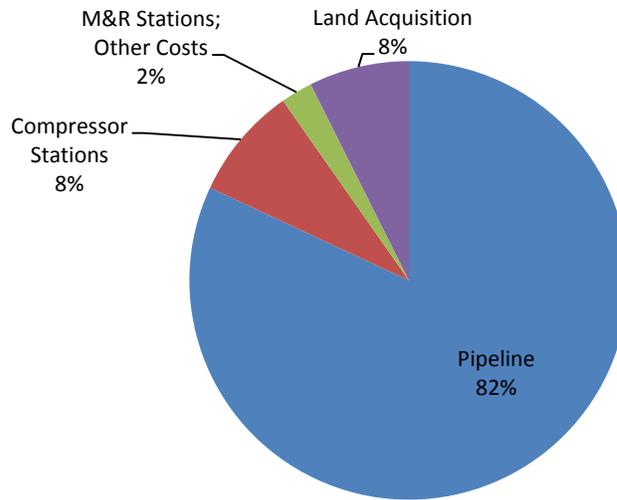
Source: Dominion

Note: Numbers may not sum due to rounding

Total capital expenditure will be used to acquire land, construct the pipeline, and construct the compressor and M&R stations. Of the total capital expenditure, 82% is expected to be spent on constructing pipelines (including the cost of purchasing pipes), 8% on the construction of compressor

stations, and 2% on the construction of M&R stations (Figure 4.1). In addition, it is expected that over \$300 million would be spent (8% of total cost) to acquire land in the three states.⁶

Figure 4.1: Construction Cost Breakdown



Source: Dominion

Although the project team will use regional firms for supplies and services whenever possible, not every product and service needed for pipeline construction is available in West Virginia, Virginia, or North Carolina. Consequently, some of the services and products will be purchased from firms outside the three-state region. Chmura used information from Dominion to estimate the percentage of capital expenditure that will be spent within the region. At the state level, for example, since the pipeline mills will be located outside the three-state region, the purchase of gas pipes will go to firms outside the region. However, it is estimated that 50% of construction labor cost will be spent within the region. For the compressor and M&R stations, it is estimated that 5% of the equipment will be purchased from businesses located within the three-state region.⁷

Table 4.3 details the estimated one-time economic impact of capital spending of the Atlantic Coast Pipeline in the three-state region.⁸ From 2014 to 2019, estimated spending activities associated with the project could generate \$1.5 billion in cumulative direct economic impact in the region. This would directly create 9,343 cumulative jobs during the construction period. The indirect impact in the three-state region is estimated to total \$551.7 million and could support 3,380 cumulative jobs from 2014 through 2019 for firms supporting pipeline and related facility construction, such as site preparation and truck transportation. The induced impact is expected to produce \$639.3 million in spending that would support 4,517 cumulative jobs in the three-state region during the construction phase. The induced jobs are

⁶ Source: Dominion. The land cost represents a transfer of property whose economic impact is uncertain. It is a best practice in economic impact studies to exclude land cost in the economic impact analysis.

⁷ Source: Dominion.

⁸ The economic impact in each state is analyzed in Section 5.

concentrated in consumer service-related industries such as restaurants, professional and personal services, and retail stores.

Table 4.3: One-Time Economic Impact of Construction of the Atlantic Coast Pipeline in the Three-State Region

| | | Direct | Indirect | Induced | Total |
|----------------------------|----------------------|-----------|----------|---------|-----------|
| Total (2014-2019) | Spending (\$Million) | \$1,546.9 | \$551.7 | \$639.3 | \$2,737.9 |
| | Employment | 9,343 | 3,380 | 4,517 | 17,240 |
| Annual Average (2014-2019) | Spending (\$Million) | \$257.8 | \$91.9 | \$106.6 | \$456.3 |
| | Employment | 1,557 | 563 | 753 | 2,873 |

Note: Impacts are measured in the year when they occur. Numbers may not sum due to rounding

Source: IMPLAN Pro 2012, Dominion, and Chmura

The above numbers represent the six-year cumulative economic impact. On an annual average basis, construction activities of the Atlantic Coast Pipeline are expected to inject \$456.3 million (including direct, indirect, and induced impacts) into the economy of the three-state region and support 2,873 jobs from 2014 through 2019. Of this, is an estimated annual direct impact of \$257.8 million in spending that could support 1,557 jobs. The annual indirect impact is estimated to be \$91.9 million in spending that could support 563 jobs, and the annual induced impact is estimated to be \$106.6 million in spending that could support 753 jobs. The economic impact of each year varies, depending on the investment volume and spending categories.

4.2. Economic Impact of Ongoing Operation

From November 2018 onward, the economic impact of the Atlantic Coast Pipeline will come from its ongoing operation. The annual economic impact is estimated for 2019, which is the first full year of operation. The project will employ approximately 82 permanent workers in the region—24 in West Virginia, 39 in Virginia, and 18 in North Carolina.⁹ Those jobs will be located at the compressor stations as well as in the transmission offices. To simulate the economic effects of ongoing project operation, modeling is based upon IMPLAN sector 337, which corresponds to the North American Industry Classification System (NAICS) code 486: pipeline transportation.

The economic impact of the Atlantic Coast Pipeline's ongoing operation is presented in Table 4.4. The estimated total annual economic impact (direct, indirect, and induced) is \$69.2 million (measured in 2019 dollars), which could support 271 jobs in the three-state region. In terms of direct impact, ongoing operation is estimated to have an annual direct spending impact of \$41.3 million¹⁰ while employing 82 workers. An additional indirect impact of \$15.3 million and 99 jobs will benefit other regional businesses

⁹ Source: Dominion.

¹⁰ The direct spending figure represents gross sales of the Atlantic Coast Pipeline estimated by the IMPLAN model, with the input of total labor and operational cost supplied by Dominion. The model treats ACP as a stand-alone business. As a result, this figure includes spending on labor, equipment maintenance, routine capital expenditure, supplies, and profits.

that support operation, such as equipment maintenance and repair. The number of jobs created due to the induced impact is estimated to be 90 with associated annual spending of \$12.6 million. The induced impact is generated when employees spend their income at restaurants, personal services, retail stores, and similar establishments.

Table 4.4: Annual Economic Impact of the Atlantic Coast Pipeline’s Ongoing Operation in the Three-State Region (2019 Dollars)

| | Direct | Indirect | Induced | Total Impact |
|----------------------|--------|----------|---------|--------------|
| Spending (\$Million) | \$41.3 | \$15.3 | \$12.6 | \$69.2 |
| Employment | 82 | 99 | 90 | 271 |

Note: Numbers may not sum due to rounding

Source: IMPLAN Pro 2012, Dominion, and Chmura

4.3. Fiscal Impact for West Virginia, Virginia, and North Carolina State Governments

Capital expenditure and ongoing operation of the Atlantic Coast Pipeline will also generate tax revenue for the state governments of West Virginia, Virginia, and North Carolina. Major tax revenue for the state governments will come from state individual and corporate income tax. Table 4.5 illustrates the tax rates for the three states.¹¹ To be conservative, only tax revenue from the direct impact is estimated in this section.¹²

Table 4.5: State Income Tax Rates

| | Individual Rate | Corporate Rate |
|----------------|---------------------------------------|---------------------------------------|
| West Virginia | 3.0%-6.5% | 6.50% |
| Virginia | 2.0%-5.75% | 6.00% |
| North Carolina | 5.80% in 2014, 5.75% from 2015 onward | 6.00% in 2014, 5.00% from 2015 onward |

Source: The Tax Foundation

4.3.1. Tax Revenue from Capital Expenditure

During the construction phase, the three state governments are expected to receive a total of \$24.0 million in individual income tax revenue and \$1.0 million in corporate income tax revenue from 2014 through 2019 (Table 4.6). To arrive at this estimate, Chmura first estimated the percentage of total capital expenditure that is paid as labor cost and then estimated the percentage that would be corporate

¹¹ Virginia and West Virginia have a progressive individual income tax, with earnings in different income brackets subject to different tax rates. The rate used in this study is based on the assumed wages of construction and pipeline workers. North Carolina passed a tax reform in 2013 which reduced corporate income tax rate, and implemented a flat individual income tax rate.

¹² This approach is recommended by Burchell and Listokin in *The Fiscal Impact Handbook*. Source: Burchell, R.W. and D. Listokin. 1978. *The Fiscal Impact Handbook: Estimating Local Costs and Revenues of Land Development*. Center for Urban Policy Research. New Brunswick, NJ: Rutgers, The State University of New Jersey.

profit for businesses involved in the Atlantic Coast Pipeline. For example, for construction businesses, the IMPLAN model estimates that 34.5% of total revenue is paid as employment compensation while 1.4% of total revenue is profit. Chmura applied those percentages to the total capital expenditure before applying state individual and corporate income tax rates.

Table 4.6: Tax Revenue for State Government from Capital Expenditure

| | | Cumulative | Annual Average |
|-------------------|-----------------------|---------------------|--------------------|
| West Virginia | Individual Income Tax | \$3,813,782 | \$635,630 |
| | Corporate Income Tax | \$152,574 | \$25,429 |
| | State Total | \$3,966,356 | \$661,059 |
| Virginia | Individual Income Tax | \$14,108,726 | \$2,351,454 |
| | Corporate Income Tax | \$527,919 | \$87,986 |
| | State Total | \$14,636,645 | \$2,439,441 |
| North Carolina | Individual Income Tax | \$6,063,321 | \$1,010,554 |
| | Corporate Income Tax | \$316,805 | \$52,801 |
| | State Total | \$6,380,126 | \$1,063,354 |
| Three-State Total | Individual Income Tax | \$23,985,829 | \$3,997,638 |
| | Corporate Income Tax | \$997,298 | \$166,216 |
| | Regional Total | \$24,983,127 | \$4,163,854 |

Source: Chmura Economics & Analytics

On an annual average basis, the three state governments can receive \$4.2 million in tax revenue per year from capital investment activities from 2014 through 2019. Of this total, annual tax revenue of \$2.4 million will go to Virginia's state government, \$1.1 million to North Carolina's state government, and \$0.7 million to West Virginia's state government.

4.3.2. Tax Revenue from Operation

After the Atlantic Coast Pipeline is in operation, the states through which it traverses are expected to receive \$418,443 per year from individual income tax—based on the estimated wages of workers in compressor stations, transmission offices, and corporate offices. Among the three state governments, Virginia would receive \$233,027 per year, West Virginia would receive \$113,678 per year, and North Carolina would receive \$71,838 per year.¹³

¹³ The corporate income tax paid by ACP to the three state governments is not included in this analysis.

Table 4.7: Tax Revenue for State Governments from Pipeline Operation

| | | Annual Average (2019 Onward) |
|--------------------------|------------------------------|-------------------------------------|
| West Virginia | Individual Income Tax | \$113,678 |
| Virginia | Individual Income Tax | \$233,027 |
| North Carolina | Individual Income Tax | \$71,838 |
| Three-State Total | Individual Income Tax | \$418,443 |

Source: Chmura Economics & Analytics

5. Economic Impact of the Atlantic Coast Pipeline in Individual States

5.1. Economic Impact in West Virginia

5.1.1. One-Time Economic Impact of Construction

Of \$4.6 billion in total capital expenditure, \$882.6 million is expected to be spent in the state of West Virginia. Using the same assumptions of in-state/out-of-state spending, Table 5.1 details the estimated one-time economic impact of capital spending in West Virginia. From 2014 through 2019, it is estimated that spending activities associated with the project could generate \$295.9 million in cumulative direct economic impact in the state. This would directly create 1,796 cumulative jobs during the construction period. The indirect impact in West Virginia is estimated to total \$84.0 million and could support 531 cumulative jobs from 2014 through 2019 for firms supporting the pipeline and related facility construction. The induced impact is expected to produce \$98.8 million in spending that would support 767 cumulative jobs in West Virginia. On an annual average basis, construction activities of the Atlantic Coast Pipeline are expected to inject \$79.8 million (including direct, indirect, and induced impacts) into the economy of West Virginia and support 516 jobs from 2014 to 2019.

Table 5.1: One-Time Economic Impact of Construction of the Atlantic Coast Pipeline in West Virginia

| | | Direct | Indirect | Induced | Total |
|-------------------------------|----------------------|---------|----------|---------|---------|
| Total (2014-2019) | Spending (\$Million) | \$295.9 | \$84.0 | \$98.8 | \$478.7 |
| | Employment | 1,796 | 531 | 767 | 3,093 |
| Annual Average (2014-2019) | Spending (\$Million) | \$49.3 | \$14.0 | \$16.5 | \$79.8 |
| | Employment | 299 | 88 | 128 | 516 |

Note: Impacts are measured in the year when they occur. Numbers may not sum due to rounding

Source: IMPLAN Pro 2012, Dominion, and Chmura

5.1.2. Economic Impact of Ongoing Operation

The economic impact of the Atlantic Coast Pipeline’s ongoing operation in West Virginia is presented in Table 5.2. The estimated total annual economic impact (direct, indirect, and induced) is \$15.6 million (measured in 2019 dollars), which could support 74 jobs in the state. In terms of direct impact, ongoing operation of the project is estimated to have an annual direct impact of \$9.4 million while employing 24 workers.¹⁴ The employment represents workers located in the compressor station as well as those in transmission support and in corporate positions. An additional indirect impact of \$3.8 million and 26 jobs

¹⁴ The West Virginia portion of the pipeline may not directly generate cash revenue. This number is estimated by allocating overall revenue into three states based on employment and operational cost.

will benefit other West Virginia businesses that support the operation. The number of jobs created due to the induced impact is expected to be 24 with an associated annual spending of \$2.4 million.

Table 5.2: Annual Economic Impact of the Atlantic Coast Pipeline’s Ongoing Operation in West Virginia (2019 Dollars)

| | Direct | Indirect | Induced | Total Impact |
|----------------------|--------|----------|---------|--------------|
| Spending (\$Million) | \$9.4 | \$3.8 | \$2.4 | \$15.6 |
| Employment | 24 | 26 | 24 | 74 |

Note: Numbers may not sum due to rounding

Source: IMPLAN Pro 2012, Dominion, and Chmura

5.1.3. Fiscal Impact for the State Government

Capital expenditure and ongoing operation of the Atlantic Coast Pipeline will also generate tax revenue for West Virginia’s state government.

During the construction phase from 2014 through 2019, the state government is expected to receive an annual average of \$635,630 in individual income tax revenue and \$25,429 in corporate income tax revenue, for a total of \$661,059 per year (Table 5.3). After the pipeline is in operation, the West Virginia government is expected to receive \$113,678 per year from individual income tax.

Table 5.3: Tax Revenue for State Government-West Virginia

| | | Cumulative | Annual Average |
|-----------------------------|---------------------------|--------------------|------------------|
| Construction (2014-2019) | Individual Income Tax | \$3,813,782 | \$635,630 |
| | Corporate Income Tax | \$152,574 | \$25,429 |
| | Total Construction | \$3,966,356 | \$661,059 |
| Operation (2019 Onward) | Individual Income Tax | | \$113,678 |
| | Total Operation | | \$113,678 |

Source: Chmura Economics & Analytics

5.2. Economic Impact in Virginia

5.2.1. One-Time Economic Impact of Construction

Of the total \$4.6 billion in capital expenditure, \$2.5 billion is expected to be spent in the state of Virginia. Using the same assumptions of in-state/out-of-state spending, Table 5.4 details the project’s estimated one-time economic impact of capital spending in Virginia. From 2014 through 2019, it is estimated that spending activities associated with the project can generate \$841.3 million in cumulative direct economic impact in the state. This would directly create 4,965 cumulative jobs during the construction period. The indirect impact in Virginia is estimated to total \$266.1 million which could support 1,602 cumulative jobs from 2014 through 2019 for firms supporting the pipeline and related facility construction. The induced impact is expected to produce \$311.5 million in spending that would support 2,207 cumulative jobs in Virginia. On an annual average basis, construction activities of the Atlantic Coast Pipeline are expected to inject \$236.5 million (including direct, indirect, and induced impacts) into the economy of Virginia and support 1,462 jobs from 2014 to 2019.

Table 5.4: One-Time Economic Impact of Construction of the Atlantic Coast Pipeline in Virginia

| | | Direct | Indirect | Induced | Total |
|-------------------------------|----------------------|---------|----------|---------|-----------|
| Total (2014-2019) | Spending (\$Million) | \$841.3 | \$266.1 | \$311.5 | \$1,418.9 |
| | Employment | 4,965 | 1,602 | 2,207 | 8,774 |
| Annual Average (2014-2019) | Spending (\$Million) | \$140.2 | \$44.4 | \$51.9 | \$236.5 |
| | Employment | 827 | 267 | 368 | 1,462 |

Note: Impacts are measured in the year when they occur. Numbers may not sum due to rounding

Source: IMPLAN Pro 2012, Dominion, and Chmura

5.2.2. Economic Impact of Ongoing Operation

The economic impact of the Atlantic Coast Pipeline’s ongoing operation in Virginia is presented in Table 5.5. The estimated total annual economic impact (direct, indirect, and induced) of ongoing operation is \$37.8 million (measured in 2019 dollars), which can support 118 jobs in the state. The estimated annual direct impact is \$24.3 million, supporting 39 jobs. An additional indirect impact of \$7.6 million and 42 jobs will benefit other regional businesses that support ACP operation. The number of positions created due to the induced impact is estimated to be 37 with associated annual spending of \$5.9 million.

Table 5.5: Annual Economic Impact of the Atlantic Coast Pipeline’s Ongoing Operation in Virginia (2019 Dollars)

| | Direct | Indirect | Induced | Total Impact |
|----------------------|--------|----------|---------|--------------|
| Spending (\$Million) | \$24.3 | \$7.6 | \$5.9 | \$37.8 |
| Employment | 39 | 42 | 37 | 118 |

Note: Numbers may not sum due to rounding

Source: IMPLAN Pro 2012, Dominion, and Chmura

5.2.3. Fiscal Impact for the State Government

Similarly, capital expenditure and ongoing operation of the Atlantic Coast Pipeline will generate tax revenue for Virginia’s state government.

During the construction phase from 2014 through 2019, the state government is expected to receive an annual average of \$2.4 million in individual income tax revenue and \$87,986 in corporate income tax revenue, for a total of \$2.4 million per year (Table 5.6). After the pipeline is in operation, the Virginia state government is expected to receive \$233,027 per year from individual income tax.

Table 5.6: Tax Revenue for State Government-Virginia

| | | Cumulative | Annual Average |
|-----------------------------|---------------------------|---------------------|--------------------|
| Construction (2014-2019) | Individual Income Tax | \$14,108,726 | \$2,351,454 |
| | Corporate Income Tax | \$527,919 | \$87,986 |
| | Total Construction | \$14,636,645 | \$2,439,441 |
| Operation (2019 Onward) | Individual Income Tax | | \$233,027 |
| | Total Operation | | \$233,027 |

Source: Chmura Economics & Analytics

5.3. Economic Impact in North Carolina

5.3.1. One-Time Economic Impact of Construction

Of total capital expenditure of \$4.6 billion, an estimated \$1.2 billion will be spent in the state of North Carolina. Using the same assumptions of in-state/out-of-state spending, Table 5.7 details the estimated one-time economic impact of capital spending in North Carolina. From 2014 through 2019, it is estimated that spending activities associated with the project could generate \$409.7 million in cumulative direct economic impact in the state. This would directly create 2,582 cumulative jobs during the construction period. The indirect impact in North Carolina is estimated to total \$128.9 million and can support 812 cumulative jobs from 2014 through 2019. The induced impact is expected to produce \$141.6 million in spending that would support 1,032 cumulative jobs in North Carolina. On an annual average basis, construction activities of the Atlantic Coast Pipeline are expected to inject \$113.4 million (including direct, indirect, and induced impacts) into the economy of North Carolina and support 738 jobs from 2014 through 2019.

Table 5.7: One-Time Economic Impact of Construction of the Atlantic Coast Pipeline in North Carolina

| | | Direct | Indirect | Induced | Total |
|----------------------------|----------------------|---------------|-----------------|----------------|--------------|
| Total (2014-2019) | Spending (\$Million) | \$409.7 | \$128.9 | \$141.6 | \$680.2 |
| | Employment | 2,582 | 812 | 1,032 | 4,426 |
| Annual Average (2014-2019) | Spending (\$Million) | \$68.3 | \$21.5 | \$23.6 | \$113.4 |
| | Employment | 430 | 135 | 172 | 738 |

Note: Impacts are measured in the year when they occur. Numbers may not sum due to rounding

Source: IMPLAN Pro 2012, Dominion, and Chmura

5.3.2. Economic Impact of Ongoing Operation

The economic impact of the Atlantic Coast Pipeline's ongoing operation in North Carolina is presented in Table 5.8. The estimated total annual economic impact (direct, indirect, and induced) is \$11.7 million (measured in 2019 dollars), which can support 52 jobs in the state. In terms of direct impact, the ongoing operation is estimated to have an annual direct impact of \$7.6 million while employing 18 workers. An additional indirect impact of \$2.2 million and 18 jobs will benefit other regional businesses that support operation. The number of jobs created due to the induced impact amounts to 16 with associated annual spending of \$1.9 million.

Table 5.8: Annual Economic Impact of the Atlantic Coast Pipeline's Ongoing Operation in North Carolina (2019 Dollars)

| | Direct | Indirect | Induced | Total Impact |
|----------------------|---------------|-----------------|----------------|---------------------|
| Spending (\$Million) | \$7.6 | \$2.2 | \$1.9 | \$11.7 |
| Employment | 18 | 18 | 16 | 52 |

Note: Numbers may not sum due to rounding

Source: IMPLAN Pro 2012, Dominion,, and Chmura

5.3.3. Fiscal Impact for the State Government

For North Carolina, during the construction phase from 2014 through 2019, the state government is expected to receive an annual average of \$1.0 million in individual income tax revenue and \$52,801 in corporate income tax revenue, for a total of \$1.1 million per year (Table 5.9). After the pipeline is in operation, the North Carolina state government is expected to receive \$71,738 per year from individual income tax.

Table 5.9: Tax Revenue for State Government- North Carolina

| | | Cumulative | Annual Average |
|--------------------------|---------------------------|--------------------|--------------------|
| Construction (2014-2019) | Individual Income Tax | \$6,063,321 | \$1,010,554 |
| | Corporate Income Tax | \$316,805 | \$52,801 |
| | Total Construction | \$6,380,126 | \$1,063,354 |
| Operation (2019 Onward) | Individual Income Tax | | \$71,738 |
| | Total Operation | | \$71,738 |

Source: Chmura Economics & Analytics

6. Conclusion

In conclusion, the Atlantic Coast Pipeline will generate significant economic impact in three states along the pipeline in West Virginia, Virginia, and North Carolina. From 2014 through 2019, capital spending on ACP could generate an annual average of \$456.3 million in economic impact (including direct, indirect, and induced) for the three-state region, supporting 2,873 jobs per year. The cumulative impact of construction is estimated to be \$2.7 billion that can support 17,240 cumulative jobs in the three-state region. From 2019 onward, ongoing operation of the pipeline project could produce a total of \$69.2 million in annual economic impact (including direct, indirect and induced) in the three-state region, supporting a total of 271 jobs annually. Ongoing operation can generate annual tax revenue of \$418,443 from 2019 onward for the three state governments. Capital expenditure can also generate \$25.0 million in total tax revenue from 2014 through 2019.

Economic impact in each individual state varies, depending on a set of factors—such as the length of the pipeline in each state, and how many compressor stations, M&R stations, other facilities, and the number of employees located in each state. The tax revenue for state governments also depends on the tax rate for each jurisdiction.

More importantly, with the booming natural gas exploration and extraction industry in the United States, power companies are increasing usage of natural gas for electricity generation. Natural gas is an environmentally responsible alternative to coal, since there is much less greenhouse gas emission. Another advantage is that abundant natural gas supply keeps prices low for consumers. The trend is that natural gas is playing an increasingly important role in supplying American electricity. Natural gas pipelines such as the Atlantic Coast Pipeline are a critical component to ensure dependability of the energy infrastructure in West Virginia, Virginia, and North Carolina.

Appendix: Impact Study Glossary

IMPLAN Professional is an economic impact assessment modeling system. It allows the user to build economic models to estimate the impact of economic changes in states, counties, or communities. It was created in the 1970s by the Forestry Service and is widely used by economists to estimate the impact of specific events on the overall economy.

Input-Output Analysis—an examination of business-business and business-consumer economic relationships capturing all monetary transactions in a given period, allowing one to calculate the effects of a change in an economic activity on the entire economy (impact analysis).

Direct Impact—economic activity generated by a project or operation. For construction, this represents activity of the contractor; for operations, this represents activity by tenants of the property.

Overhead—construction inputs not provided by the contractor.

Indirect Impact—secondary economic activity that is generated by a project or operation. An example might be a new office building generating demand for parking garages.

Induced (Household) Impact—economic activity generated by household income resulting from direct and indirect impact.

Multiplier—the cumulative impact of a unit change in economic activity on the entire economy.

Atlantic Coast Pipeline

Frequently Asked Questions

Category: GENERAL

Why was the Southeast Reliability Project renamed the Atlantic Coast Pipeline?

Four major U.S. energy companies – Dominion, Duke Energy, Piedmont Natural Gas and AGL Resources – formed a joint venture to build and own the proposed Atlantic Coast Pipeline (ACP), originally proposed by Dominion as the Southeast Reliability Project. The name has changed but the purpose of the project is the same – provide clean-burning natural gas supplies to growing markets in Virginia and North Carolina.

Why is this project being considered?

There is a need for additional natural gas infrastructure to better serve existing and growing customer demand, improve service reliability and allow for customer growth and economic development. The ACP Project would also improve gas supply for Mid-Atlantic markets, thereby promoting price stability and enhancing economic opportunity. For example, this project will provide a new supply of natural gas for Duke Energy's electric generation and will serve the growing customer needs for Piedmont Natural Gas and Virginia Natural Gas – a division of AGL Resources. Additionally, the ACP would help the project partners meet new air emission regulations while continuing to meet their obligation to supply electricity or natural gas to their customers at reasonable rates.

Has Dominion determined a proposed route yet?

We have a study corridor, but the best possible route with the least impact to the environment, cultural and historic areas, geological resources, etc., has not been determined.

What is the length of the pipeline?

Approximately 550 miles, between an origination point in Harrison County, W.Va., southeast to Greensville County, Va., and toward southern North Carolina. This includes an almost 70-mile-long pipeline to Hampton Roads.

What is the proposed diameter, capacity and operating pressure of the pipeline?

The ACP would have a 42-inch diameter in West Virginia and Virginia, 36-inch diameter in North Carolina and 20-inch diameter in the extension to Hampton Roads. The capacity would be 1.5 billion cubic feet per day. The ACP would be an "open access" pipeline, with taps possible for larger customers along the route. The Maximum Allowable Operating Pressure (MAOP) will be 1,440 psig.

Could producers tap into the ACP to move their natural gas into the gas "grid?" Would that be technically possible or commercially feasible?

The ACP would be considered open access, which means the pipeline would be open to producers and the market, providing both with the ability to tap into the pipeline for natural gas capacity. However, the purpose of this pipeline is to move abundant natural gas from the Marcellus and Utica shale basins of Ohio, West Virginia and Pennsylvania to markets requesting access to this low-cost energy supply.

Is there a cost estimate for the project?

The anticipated investment for the Atlantic Coast Pipeline is \$4.5 billion to \$5 billion.

How many total jurisdictions are affected in the three states?

That number is dependent on the final route.

Who are the customers?

Duke Energy and Piedmont Natural Gas submitted a request for proposals earlier this year that identified their need for additional supplies of natural gas to growing markets in North Carolina. Virginia Power Services Energy, which purchases fuel for Dominion's fleet of power stations, also identified a need for fuel reliability from other sources. AGL Resources would use these additional natural gas supplies to serve its growing market in Chesapeake and Hampton Roads. PSNC Energy, based in North Carolina, also plans to be a customer of the pipeline under a 20-year contract, pending regulatory approvals. Dominion was selected to provide natural gas transportation and the joint venture was formed.

What other types of customers are being considered?

While it would not be feasible to connect individual homes or small businesses directly to the pipeline, we do expect to connect with various local gas distribution companies, as capacity permits, and with power generators that would use improved access to natural gas to provide electricity for consumers while meeting new environmental air regulations.

When would the project begin?

If approved, we would anticipate project construction in 2017 and 2018, with service to our customers beginning as early as late 2018.

Would the proposed pipeline be bi-directional?

No, it is not being designed that way. The purpose of this proposed project is to move Marcellus Shale gas from Ohio, West Virginia and Pennsylvania to Virginia and North Carolina in response to growing market needs both for power generation and for local distribution to consumers.

Note: The natural gas industry is changing because of the abundance of natural gas in the Marcellus Shale field. Historically, natural gas pipelines were built to move gas from their production areas in Gulf Coast and Rocky Mountain states to the Eastern U.S. Now, because of the amount of natural gas in the Marcellus and Utica Shale fields, producer and market demand have led to some of these pipelines being reversed, sending natural gas from the Ohio-West Virginia-Pennsylvania shale field to Gulf Coast and Rocky Mountain states.

Will the natural gas transported by the Atlantic Coast Pipeline be exported overseas?

No. This project is about meeting the very real and growing energy needs of consumers and businesses in Virginia and North Carolina, not for export.

It has been said that the gas in the pipeline would be dirty and unusable until processed or "cracked," and that requires a major facility. How would it be possible for there to be local access to the gas in the pipeline if this were the case?

The natural gas in the pipeline would be "pipeline quality gas," so, if any processing is needed, it would be done before the gas goes into the pipeline. The majority of Marcellus shale gas is classified as "dry" and

does not require processing to meet the criteria for “pipeline quality gas.” “Wet” natural gas, which contains liquids such as butane, propane, isobutane and others, requires processing.

How many compressor stations would be needed for the project?

Three compressor stations are planned – one at the beginning of the pipeline in West Virginia, one in Buckingham County, Virginia, and one near the Virginia-North Carolina state line.

Would compressor stations being built along the route release toxic gases into the air and cause noise vibrations that will drive away wildlife?

Any environmental emissions from compressor stations would be within allowable limits set by federal and state law, subject to air quality permits, or Dominion would not be able to operate the station. Any noise emissions would also be within allowable limits, which are usually set by the state or the locality. Again, we would not be able to operate the station if we violated these regulations.

How do you deal with the challenging topography and geology (specifically karst topography in western Virginia)?

Dominion has transmission pipelines in the Appalachian Mountains and is well accustomed to building and operating in rugged terrain. The U.S. Geological Survey says that karst topography occurs over about 40 percent of the land area located east of the Mississippi River. There are many hundreds – if not thousands – of miles of natural gas pipelines crossing areas of karst topography today. Dominion would take all due care and precautions in those locations just as we would across the rest of the route.

Why not using existing rights of way, following electric transmission lines or along highways?

We prefer to co-locate with existing rights of way where possible, but oftentimes it is not feasible. For example, electric transmission lines can traverse steep terrain in ways pipelines cannot. In addition, there often is not enough room along highway rights of way or there are other restrictions.

Why not just focus on renewable energy and conservation?

Dominion is moving ahead with renewable energy investments, including solar, wind and renewable biomass. Our offshore wind project in the Atlantic Ocean is one of the most advanced wind projects in the United States. Renewable energy is a growing and important alternative, but it cannot by itself produce enough electricity to make up for so many coal-fired power stations expected to close, along with an increasing energy demand in the region.

Would this project scar the land, devalue property, and disrupt the nature of our communities?

There are about 2½ times as many miles of existing natural gas pipelines in both Virginia and North Carolina as there are miles of interstate highways. Because virtually all of the pipeline facilities are underground, most people never realize they are there. That would also be the case with the ACP. After construction, pipeline rights of way can be farmed and used for livestock grazing, recreation and many other activities.

Is it dangerous to live near a natural gas pipeline?

Natural gas pipelines have an excellent safety record. One safety incident is one too many in Dominion’s view, but the number of incidents nationally is very small given the more than 300,000 miles of natural

gas pipelines in the country. Pipelines are the safest way to transport energy. Dominion is dedicated to building, monitoring and maintaining the ACP safely.

Atlantic Coast Pipeline

Frequently Asked Questions

Category: LANDOWNER

I received a survey permission letter from Dominion but now the project name has changed from the Southeast Reliability Project to the Atlantic Coast Pipeline, how does that affect landowners?

Nothing changes. Landowners will continue to receive correspondence from Dominion or Dominion Transmission on behalf of the Atlantic Coast Pipeline (ACP) and all documents previously produced and signed remain valid. The name has changed, but the project details remain the same.

What would the right of way on my property look like after the pipeline is built?

A “typical” transmission pipeline in a forested area would look like a cleared strip of grass. Where the pipeline runs through an agricultural field, it would likely go unnoticed.

How much right of way would be needed during construction, as well as once the pipeline goes into operation?

The right of way during construction would typically be about 125 feet wide and after construction about 75 feet wide for the 42-inch diameter segments in West Virginia and Virginia. The right of way during construction would typically be about 110 feet wide and after construction about 50 feet wide for the 36-inch diameter segment in North Carolina. The right of way during construction would typically be 75 feet wide and after construction about 50 feet wide for the 20-inch diameter segment to the Hampton Road area in Virginia.

Would the pipeline be placed in the middle of the right of way?

The pipeline would typically be in the center of permanent right of way, but it doesn't have to be.

How wide of an area are you surveying for the proposed pipeline route?

We sent letters to landowners within a 400-foot wide study corridor along the route informing them that surveying will begin this summer. As the study corridor includes national and state forests, parks, cultural and historic resources, wetlands, etc., we are meeting with the appropriate stakeholders to make sure we have the best information to select the best route possible with the least impact to the environment, cultural and historic resources.

How long will surveying last?

We anticipate that most of the survey along the route will be completed this year. Some survey activities could continue into next year.

Do the surveyors attempt to call landowners before entering?

The land agent will attempt to contact the landowner prior to the beginning of any survey work.

Does the proposed study corridor cross any public lands?

The proposed study corridor crosses the Monongahela and George Washington National Forests, the

Blue Ridge Parkway and the Appalachian Trail. Dominion has met and will continue to meet with the public agencies that are responsible for these public lands and look for the best possible route with the least impact to the environment, historic and cultural resources, just as we are meeting with individual landowners.

How will landowners be notified about the project?

Landowners along the initial study corridor were notified beginning May 15 by letter. Dominion will remain in contact with them throughout the process by mail, phone and in-person meetings. As route modifications are identified, newly affected landowners would be notified by letter as soon as possible. As the project moves forward, additional information will be made available through the project website.

As a landowner, how will I know if my land will be accessed — or not — for the proposed pipeline project?

Letters were sent only to those property owners whose land is crossed by the 400-foot wide study corridor. If a landowner did not receive a letter from Dominion, then their property is not currently being considered for the proposed project. If route modifications are made that affect properties beyond the initial 400-foot wide study corridor, then Dominion would make contact with those new landowners by letter before any surveys or studies take place.

Does surveying the route mean Dominion would have access for construction of the pipeline?

No. Before a final route is selected at the end of the regulatory review process, Dominion would seek a separate easement agreement from all affected property owners prior to construction.

Does Dominion need the landowner's permission to do the surveying?

Dominion prides itself on the positive, long-term landowner and community relationships that it maintains. Although state regulations do not require landowner permission to enter the property to conduct these surveys and studies, we are hopeful that landowners will not object because they are an important part of the route selection process. For example, landowners can be very helpful in pointing out early in the process where to avoid springs, family cemeteries, gardens, planned home sites, and other features important to the route selection process. Conducting these surveys and environmental studies is required as part of the permitting process for a project such as this.

Under state laws, Dominion has the right in West Virginia, Virginia and North to access private property for surveying by following rules set forth by the states. For example, in Virginia, Dominion must send a letter to all landowners along the study corridor advising them that we are seeking their permission to survey. If we do not receive a response, then a second letter is sent by certified mail advising them that we will be on their property to survey on or after the date identified in the letter.

What if a landowner objects to the survey and wants Dominion to stay off his or her property?

If a landowner objects and asks us to stay off his or her property, at that time Dominion will honor the request. We will continue to work with the landowner until an agreement is reached or a court order is obtained affirming Dominion's legal right to survey. We are hopeful that this last step would not be needed.

West Virginia, Virginia and North Carolina Code encourage projects such as ACP that are planned to meet the public need and authorize companies such as Dominion to enter a landowner's property to conduct the required surveys. If a landowner objects and asks us to stay off his or her property, we have the option to go to court to seek access to the property. Again, we are hopeful that this last step would not be needed.

Does Dominion have eminent domain authority?

Eminent domain is an action of last resort. Dominion is committed to fair and equitable treatment of landowners whose property would be crossed by our pipeline, and our first priority is to reach an agreement without having to resort to eminent domain.

The federal Natural Gas Act of 1938 laid the groundwork for an exhaustive approval process that requires the pipeline builder to show the project is in the public good. Similar to roads and schools, energy is essential for modern life. There is a thorough review covering everything from public safety and environmental issues to cultural and historic resources and reasonable alternatives. The public is encouraged to participate. Only after this process is completed, and the project is approved by the Federal Energy Regulatory Commission (FERC), are we granted the authority to move forward. We reach agreement with landowners about 95 percent of the time, with eminent domain proceedings only, if necessary, with compensation determined by a judge.

Would landowners be compensated? Why or why not?

Once Dominion determines the proposed route of the pipeline, negotiations would begin with affected landowners. Property owners would be compensated for granting an easement agreement. Landowners also would be compensated if any damage occurs to their property from the initial survey and environmental studies through the project's completion.

Would Dominion buy or lease the property that it needs to construct and operate the pipeline?

Neither. Dominion obtains an easement from the landowner, which grants to Dominion the right to install, operate and maintain a pipeline on the landowner's property while the landowner continues to retain ownership of the land. We make a one-time payment to landowners for easement rights and pay for any damages to crops or timber. Short of building something permanent such as a building or a swimming pool or removing soil, which are prohibited, the landowner can use the right of way for most activities such as growing crops or raising animals.

If my property is selected, how deep would the pipeline be buried in the ground?

The trench would be approximately nine to ten feet deep. About three feet of soil would be under the 42-inch diameter pipe and about three feet of soil on top.

If a route modification is made that takes the study corridor off my property, is that a permanent decision?

As we continue our surveys and agency and landowner consultations, we may find that other route modifications will be needed. This is one reason we do not send letters immediately to landowners whose property may no longer be under consideration. That status could change before we determine the best route with the least impacts.

Are landowners limited by what they can do with a pipeline on their property?

In most cases, landowners would be able to use the pipeline right of way as they did before construction, as long as that use does not conflict with the rights granted to Dominion through the easement. For example, agricultural activities, such as growing crops and pasturing livestock, can resume as soon as the

land is ready. However, operating the pipeline safely is a top priority so some restrictions would apply, such as restricting the future placement of buildings and other permanent structures, or planting trees within the right of way. These restrictions would be clearly identified within the easement agreement, which describes in more detail the specific rights landowners and Dominion would have.

In agricultural areas where crops are harvested, the pipeline would be buried with four feet of cover to accommodate tilling and planting operations. Most commonly used farm equipment (tractors, hay equipment, wagons, spreaders, plows, etc.) can traverse across the pipeline without causing any harm. If unusually heavy equipment is a possibility, we would ask the landowner to provide us with the weight and wheel configuration and analyze the impact to the pipeline to determine if it is acceptable.

For more information on this process and what it means to have a pipeline on your property, the Federal Energy Regulatory Commission has published a pamphlet entitled, “An Interstate Natural Gas Facility on My Land? What Do I Need to Know?” which is available online at www.ferc.gov or by calling the FERC Office of External Affairs at (866) 208-3372.

Is Dominion planning public information sessions along the route?

Yes. An initial series of open houses has been scheduled. Thirteen open houses will be held beginning Monday, September 15 and continuing for two weeks. They are scheduled in various locations in communities along the proposed study corridor. The schedule is included on the project website. Dominion will host additional open houses after the regulatory process begins. The Federal Energy Regulatory Agency will also host a series of public scoping meetings. Landowners and stakeholders will receive invitation letters for those meetings, and other public input opportunities will be posted on the project website.

Has Dominion communicated with government officials about the project?

Dominion’s government affairs representatives have begun informing federal, state, county and locality elected officials as well as other stakeholders along the study corridor to notify them about the project and to seek input and feedback.

When will Dominion provide additional information to government officials and the general public about the project? Has a date been set?

We have met and will continue to meet with government officials and the public during this process.

If I am a landowner and have questions, whom do I contact?

Doyle Land Services is assisting Dominion with the project and their representatives should be able to answer most landowner questions. Landowners also can call toll free at 888-895-8716 and one of our right of way representatives will follow up with you.

If I am not a landowner but have additional questions, whom do I contact?

For anyone else who has non-landowner related questions, please email us at ACpipeline@dom.dom or call toll-free at 844-215-1819 and we will respond in a timely manner.

Federal Energy Regulatory Commission (FERC) Environmental Review Process

Lead Federal Agency
FERC Process

Applicant
Atlantic Coast Pipeline (ACP) Process

Receives Applicant's request to conduct its review of the project within FERC's NEPA Pre-Filing Process

Assesses market need and project feasibility

Formally approves Pre-Filing Process, issues PF Docket Number to ACP and begins project review

ACP studies potential project sites and routes, identifies stakeholders, requests use of FERC's Pre-Filing Process

FERC participates in ACP's public open houses

ACP updates government officials/general public and sponsors public open houses

Issues Notice of Intent to prepare an EA/EIS; opens NEPA scoping period to seek public comments on the project

Public Input Opportunities

Holds NEPA scoping meetings and site visit in the project area; consults with interested agencies

FERC receives formal application from SERP

Atlantic Coast Pipeline files formal application with the FERC

Issues Preliminary Draft EIS or EA to cooperating agencies for review

FERC issues Draft EIS or EA, opens comment period, and holds meetings in the project area to hear public comments on the Draft EIS

Public Input Opportunities

FERC responds to comments, revises the Draft EIS, issues Final EIS

APPROVES OR DENIES PROJECT

(If approved)

Atlantic Coast Pipeline incorporates final recommendations and requirements from regulatory agencies before proceeding with construction and operation of project.

✓ *Public input opportunities*