Why New Pipelines Are Unnecessary
3 Proposed Pipelines
Are New Pipelines Needed?

Serve an Underserved Area

Provide Cheaper Service
Source of Gas Demand

Traditional Uses of Natural Gas
Traditional Uses of Natural Gas

Increasing Just 0.3% per year
Gas Needed for Power Plants

11 Power Plants in the 14 years
No Need for Two Pipelines

Only one need – new power plants

That need can be served by Existing Pipelines
Existing Pipelines Have Enough Capacity
Marcellus Serves NE Directly
5-6 Bcf/d Southbound
Columbia Gas Expansion

COLUMBIA IN WEST VIRGINIA & VIRGINIA

WEST VIRGINIA
- 2526 Miles of Existing Pipeline
- 34 Existing Compressor Stations
- 457 Employees
- $35 Million Annually in Salary

VIRGINIA
- 1139 Miles of Existing Pipeline
- 10 Existing Compressor Stations
- 97 Employees
- $7 Million Annually in Salary
SE Virginia
North Carolina
How Do We Know There is Enough Capacity?

Synapse Energy Economics

Analyzed Peak Usage

Traditional Uses Forecasted by LDC’s

New Power Plants from IRP’s
Survey of Resources

Existing Pipeline Capacity

Planned Expansions

Local Storage Capacity
ACP & MVP ARE NOT NECESSARY TO MEET NATURAL GAS DEMANDS NOW OR IN THE FUTURE

Winter peak-hour gas usage

- 800
- 700
- 600
- 500
- 400
- 300
- 200
- 100
- 0

- 2015
- 2016
- 2017
- 2018
- 2019
- 2020
- 2021
- 2022
- 2023
- 2024
- 2025
- 2026
- 2027
- 2028
- 2029
- 2030

COLUMBIA PIPELINE UPGRADE (WB XPRESS PROJECT)

Natural gas demand, high gas use

TRANSCO REVERSAL

Natural gas demand, low gas use

EXISTING NATURAL GAS CAPACITY AS OF 2015
Utility View

No response to “Open Season”

Pipelines are “Fully Subscribed”

Transco
Atlantic Sunrise
MVP
Utility View

- 24,600 MW of electric generation
- 6,455 miles of electric transmission
- 12,200 miles of natural gas transmission, gathering and storage pipeline
- 928 billion cubic feet of natural gas storage operated
- Cove Point LNG Facility
- 2.5 million electric customers in VA and NC
- 1.3 million natural gas customers in OH & WV
- 1.2 million non-regulated retail customers in 13 states (not shown)
- 252 MW of contracted solar generation in 6 states (not shown)
Need More Pipelines?

Utility View
Fits long-term plans
Ease of operations
Make money

Ratepayers & Citizens

No Thank You – we don’t need it
FERC’s View

Precedence Agreements are not enough to show need for a new pipeline

Affiliate Agreements do not prove Market Demand

But we approve nearly all applications
“Pipelines ... from the Gulf Region to the north are projected to reverse flow so that Marcellus production can serve the Virginia and Carolinas market.”

*U.S. Department of Energy*
Will They be Cheaper?
Transco Connection 2015

Virginia Southside Expansion

- Expansion from Transco’s Zone 6 Station 210 Pooling Point to Transco’s Cascade Creek, Pleasant Hill and proposed Brunswick delivery meters on the South Virginia Lateral.
- Shippers are Dominion Virginia Power for 250 MDth/d and Piedmont Natural Gas Company for 20 MDth/d.
- Capacity: 270 MDth/d.
- Target in-service date: 3Q 2015.
## Transportation Costs

<table>
<thead>
<tr>
<th></th>
<th>Transco</th>
<th>ACP</th>
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<tbody>
<tr>
<td>Total Rate Base</td>
<td>$0.491 billion</td>
<td>$4.986 billion</td>
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<tr>
<td>Rate of Return</td>
<td>15.34%</td>
<td>15.00%</td>
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<tr>
<td>Depreciation Rate</td>
<td>2.61%</td>
<td>2.50%</td>
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## Tariff

<table>
<thead>
<tr>
<th></th>
<th>Transco</th>
<th>ACP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Recourse Rate</td>
<td>$0.52785 /Dth</td>
<td>$1.7249 /Dth</td>
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<tr>
<td>Daily Demand</td>
<td>500,000 Dth/d</td>
<td>500,000 Dth/d</td>
</tr>
<tr>
<td>Annual Cost</td>
<td>$ 96 million</td>
<td>$314.8 million</td>
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</tbody>
</table>
Ratepayers Subsidize Pipeline

Ratepayers pay $218.5 million more /yr
Just for transportation
New Pipelines Cost More

New pipelines – not depreciated, cost more

Existing pipelines – mostly paid for by previous customers
Ratepayers pay $91 million more /yr to purchase the natural gas.
Not What they Told Us

ICF Study - $377 million /yr savings

ACP is the “only” way to access lower cost natural gas

Reality – Costs ratepayers over $300 million /yr for just 2 plants

More for the rest
Ratepayers Subsidize New Pipelines
Does it Serve the Public Good?

Not needed for adequate gas supply
Does it Serve the Public Good?

Not needed for adequate gas supply

Costs more than existing pipelines
Does it Serve the Public Good?

Not needed for adequate gas supply

Costs more than existing pipelines

Exists purely for private gain
Does it Meet the Standard for Eminent Domain?
Natural Gas Act

“...shall conform...with the practice and procedure...in the courts where the property is situated.”
Virginia Constitution

“... taking or damaging of private property is not for public use if the primary use is for private gain, private benefit, private enterprise...
“The condemnor bears the burden of proving the use is public, without a presumption that it is”
FERC Not Following Federal Law
NEPA Requires

Identify purpose and need for the action

Thoroughly evaluate alternatives

Not within jurisdiction of agency

Include no action alternative
Told CEQ No

FERC unable to do GHG evaluation

CEQ – we’ll show you how

Other federal agencies are doing it

OilChange Int’l will do it for them
Federal Energy Regulatory Commission

Independent agency
Federal Energy Regulatory Commission

Independent agency

Paid by the organizations it regulates
Federal Energy Regulatory Commission

Independent agency

Paid by the organizations it regulates

Ignores federal law & creates own guidelines
FERC – Do Your Job
Represent the People Too

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Projects</th>
<th>Capacity (MMcf/d)</th>
<th>Miles of Pipeline</th>
<th>Horsepower (HP)</th>
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<tbody>
<tr>
<td>2005</td>
<td>17</td>
<td>8,746.4</td>
<td>703.0</td>
<td>123,036</td>
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<tr>
<td>2006</td>
<td>19</td>
<td>8,480.6</td>
<td>1,241.4</td>
<td>306,557</td>
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<td>2007</td>
<td>28</td>
<td>18,874.2</td>
<td>2,591.2</td>
<td>849,110</td>
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<td>2008</td>
<td>24</td>
<td>13,954.2</td>
<td>2,084.1</td>
<td>648,838</td>
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<td>2009</td>
<td>23</td>
<td>9,781.0</td>
<td>953.9</td>
<td>728,129</td>
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<tr>
<td>2010</td>
<td>21</td>
<td>9,079.1</td>
<td>1,568.6</td>
<td>496,994</td>
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<td>2011</td>
<td>15</td>
<td>4,032.8</td>
<td>303.8</td>
<td>280,255</td>
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<td>2012</td>
<td>18</td>
<td>4,449.0</td>
<td>193.1</td>
<td>145,920</td>
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<td>2013</td>
<td>17</td>
<td>7,308.9</td>
<td>262.9</td>
<td>185,011</td>
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<td>2014</td>
<td>20</td>
<td>10,999.9</td>
<td>418.6</td>
<td>472,932</td>
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<tr>
<td>2015-Nov</td>
<td>20</td>
<td>9,537.0</td>
<td>262.9</td>
<td>292,490</td>
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<td><strong>Totals</strong></td>
<td><strong>105,243.1</strong></td>
<td><strong>10,583.5</strong></td>
<td><strong>4,529,272</strong></td>
<td></td>
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Source: FERC Commissioner Tony Clark

70 ACP’s
Public Pressure
Legislation
Much Bigger Issue
+ Plants = + Pipelines
New Pipelines

Pipelines are a symptom of a faulty Energy Policy
New Pipelines

Pipelines are a symptom of a faulty Energy Policy
Do We Need More Gas-fired Power Plants?
Dominion says YES!

ENGINEER
WE DO
PRECISION
GUESS WORK
BASED ON UNRELIABLE DATA
PROVIDED BY THOSE OF
QUESTIONABLE
KNOWLEDGE
1.5% Annual Demand Growth

2-3 times others in PJM
Based on questionable assumptions

The least questioned assumptions are often the most questionable.

~ Paul Broca
Obssolete Assumptions

Electricity usage grows with GDP

Bloomberg
Obsolete Assumptions

Electricity usage grows with population

![Graph showing the index of electricity usage from 1991-92 to 2011-12, with lines for total energy and energy per capita.]
Obsolete Assumptions

The only choice is to build more plants

Figure 6. Share of US electricity generation by resource in 2015
Obsolete Assumptions
The only choice is to build more plants

Figure 8. Share of US electricity generation by resource in 2030, with increased energy efficiency policies
Usage declines with Energy Efficiency

Figure 11. Estimated savings from both maintaining and increasing energy efficiency policies through 2030
20th Century Mentality

Expect the future to be like the past
Utilities Want to Make Money
Encouraged to build more

Cost-of-Service Rates
Plants + Lines + Fuel + People + Other
+ Profit = Rates
FERC Rates Distort the Market

15+% return for pipelines
10+% return for power plants
10+% return for transmission lines
15+\% \text{ return for pipelines}

10+\% \text{ return for power plants}

10+\% \text{ return for transmission lines}

Increases investment in gas infrastructure
Build Power Plants
Export Power

2 now – 3 more
Build Power Plants
Export Power

2 now – 3 more

4 proposed by IPP’s
Build Power Plants
Export Power

2 now – 3 more

4 proposed by IPP’s

20 new plants proposed in PA
Loophole in CPP

VA - a haven for gas-fired plants

Methane - gas about the same as coal

Greater CO₂ emissions from VA
Clean Power Plan
Mostly Accomplished

11 GW offline by 2015    12 more plants by 2020
But We have a BIG Problem

Rush to build gas plants – good for 10 yrs
Gas Prices Going Up

$2 now   $6 2025   $8 2030
Solar & Storage Going Down

How Cheap Can Solar Get?

2015: Solar is 1% of global electricity

When solar reaches 2% of 2015 global electricity demand

This is a future model of solar prices. Assumes 16% cost reduction of new solar electricity per doubling of scale. Solar costs unsubsidized. Natural gas prices do not include carbon pollution externalities.

Price of New Solar Electricity, $/kWh

- New Natural Gas Electricity Price
- Average Solar - Medium Sunlight Locations
- Lowest Cost Solar - Sunniest Locations

Graph by Ramez Naam
rameznaam.com/tag/solar/

2020?
2028?
2035?

5 Doublings, from 200GW in 2015 to 6,400 GW at a future point.
20 years? Difficult to Estimate.
Solar is Dispatchable

Projected cost of Li-On Battery $/kWh

Assumption: 16% /year Technology Cost Curve
Here Come the Batteries

Electricity storage will come standard with rooftop solar by the 2030s
Utility Disruption

Conventional Generating Units
Is This Possible?

CA – gas-fired plants not profitable

Batteries replacing peakers

Nuclear plants closing

Nuclear subsidies in NY to avoid new gas plants
Stranded Costs
Abrupt Change
Utilities with natural gas pipelines could be upended - Bloomberg

“These utilities are taking a risk that these will be stranded assets . . .”

Jon Wellinghoff
Former Chairman FERC
Who Pays?
What do we do?
Make it about economics

Be for – lower cost existing pipelines, more jobs (EE, solar) & lower rates

Be for – an vital, innovative economy

Be for – avoiding stranded costs
New Rules for Utilities

They prosper by serving you better
Financially Healthy
Without building more
Trade Old for New
They are not the Enemy
We do not curse the blind man who stumbles along the path.
Rather than focus on what we do not want
Create the world you want to live in
See it clearly
Know what you do want
Take action
Tell the Story
“Action without vision is only passing time, vision without action is merely day dreaming, but vision with action can change the world.”

- Nelson Mandela
Thank You!

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