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Appalachia Infrastructure
From Backwoods to Front and Center

April 29, 2014

MarkWest's Houston, PA Processing and Fractionation Complex

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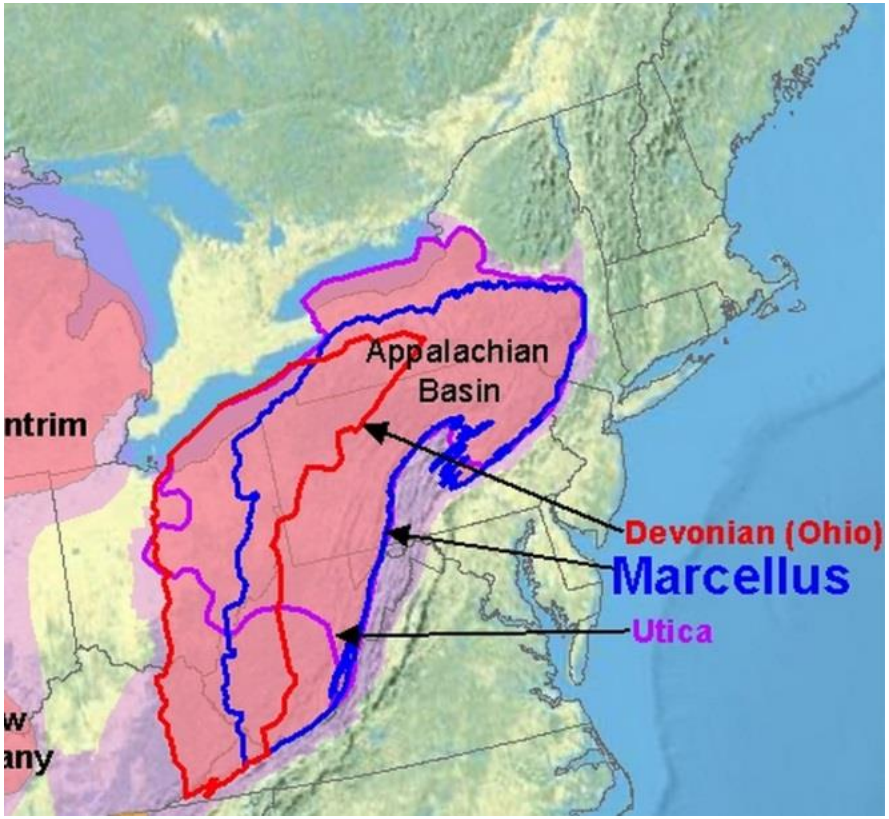
Why This Piece on Appalachia?



What is this Piece?

- The third in a series of infrastructure studies (following the Permian & Eagle Ford) that accompany our E&P analyst's in-depth basin studies.
- We summarize both existing and planned infrastructure and analyze what we think will happen to basis and what additional infrastructure is needed.
- At the end, about 50 pages are devoted to overviews of each players' midstream assets in Appalachia, so don't let the size of this piece deter you from diving in.

Why Appalachia?

- Biggest, baddest basin there is when it comes to gas production. It's the gift that keeps on giving, even in a $4 gas environment.
- At ~14.5 bcf/d, Appalachia accounts for ~19% of U.S. gas production. Assuming that overall U.S. gas production grows at ~2%/yr, we see Appalachia accounting for 31% by 2020.
- When we started the piece cold, six months ago we thought that gas basis was important, but that there were also going to be issues around other infrastructure. Wrong – ***right now it's all about gas basis and takeaway capacity,*** so that's what the majority of this piece is focused on.

Source: EIA

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Appalachia Gas Takeaways: Pipeline Nirvana

- ***Huge Gas Growth Ahead:*** We see Appalachia production growing at a 8.9% CAGR, from 14.5 bcf/d at YE'13 to ~26 bcf/d by 2020. Production in the SW portion of the region will grow much more rapidly (13.7% CAGR) than in the NE part of the region (4.2% CAGR).
- ***Northeast Now a Net Exporter…:*** Local NE gas production now exceeds average annual demand. By 2015, we look for regional production to exceed average demand for all but the 3 peaking months of the year. By 2019, regional supply should exceed peak monthly winter demand.
- ***…Driving the Reversal of Every Major Pipeline:*** To move gas out of the NE, pipelines have on the drawing board or under way almost 15 bcf/d of new projects. On top of that the industry is working on >9 bcf/d of new projects to either alleviate regional bottlenecks or find ways to get this gas to incremental markets. But all that takes time and money.
- ***Basis Under Pressure Until 2017:*** There is a slug of projects (3.5 bcf/d out of the SW and 1.7 bcf/d out of the NE) that come online by early '16 that should take away some of the pressure. However, with current excess gas in the region, the lag time to bring some of projects online, and continued growth in production, we think basis will remain under pressure until 2017. In the interim, as SW Appalachia gas production accelerates, we think SW basis is more at risk of deterioration than in NE Appalachia. A caveat is this summer, when the industry is going to need local production to refill very low levels in local gas storage reservoirs.
- ***Costs to Exit the NE Moving Higher:*** As for costs, a year ago, backhaul rates to the Gulf Coast were ~40c/mcf with 8-year terms. New rates to the Gulf Coast are now going for ~60-70c with 15+ year terms. We are even hearing about some contracts signed for 60-year terms.
- ***Low-Hanging Fruit has Been Harvested:*** And projects are going to get more expensive from here. So far, producers have been willing to sign up for 60-70c rates. If they creep up much more, we think the industry will recall memories of the original contracts signed for capacity on Rockies Express at >$1/mcf, and they may start to push back.
- ***Gas Pipeline Nirvana:*** Pipes are in the driver's seat for the first time in almost a decade. Not only are they filling up capacity on under-utilized long-haul pipelines via back-haul and reversal projects, but also for a while, some of the pipes will earn for both north and southbound flows.

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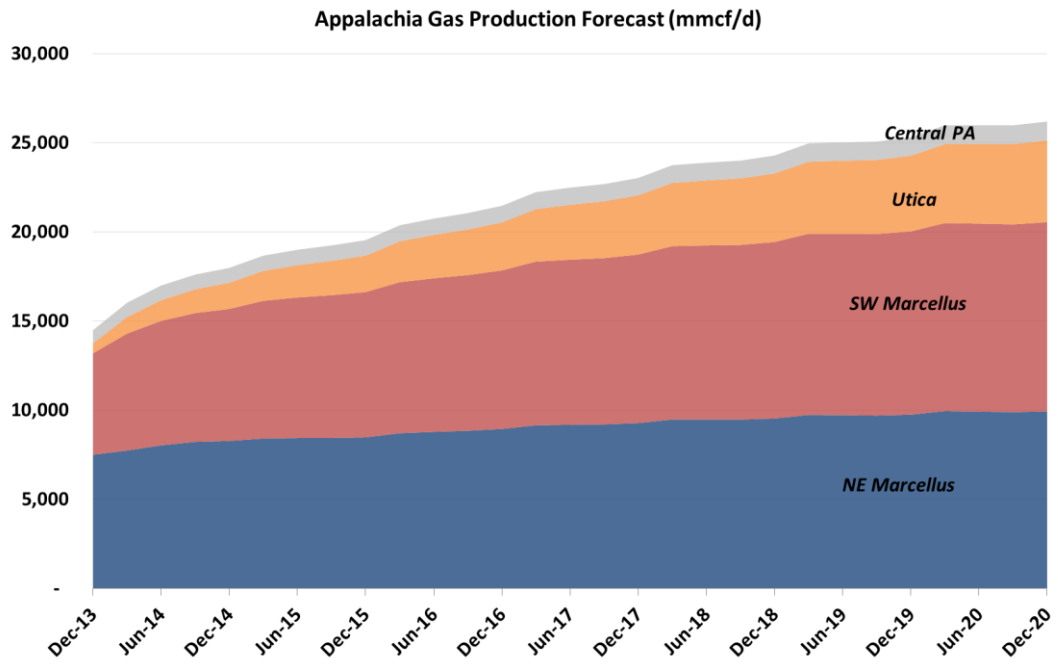
Appalachia NGL Takeaways: Get Ready for Takeoff!

- ***NGL Supply Growing More Rapidly than Gas Production:*** We see NGL supply growing at a 32.3% CAGR vs. 8.9% for gas as: 1) we begin to produce ethane driven by blending limitations and by completion of de-ethanizers and ATEX; and 2) incremental wet-gas drilling. We see NGL production growing from the current ~145 mbpd to >1,000 mbpd by 2020.
- ***Appalachia Basin is Different:*** Most basins send raw NGLs to market and then frac them near petchem demand centers. Appalachia producers and midstream providers have initially opted for a different approach: keeping the ethane in the stream and blending it with dry gas, building C3+ (propane+) fracs, using the propane for local demand needs, and exporting excess C4+ via rail, truck and barge. But you can only do all that up to a certain extent.
- ***Bucking Up Against Limitations – Ethane:*** We have reached pipeline spec limitations on blending ethane, and just in time, de-ethanizers have come online and the ATEX ethane line was completed. We think there will be excess de-ethanization capacity until mid '16. After that, additional capacity will be needed to supply the proposed Mariner East 2 and Utopia projects (assuming ATEX is expanded), or the ethane will be shipped south on a new y-grade pipeline.
- ***Producers Will Continue to Reject Some Ethane:*** Given no local demand and the distance to the Gulf Coast, there is no economic incentive to extract ethane until at least the end of the decade. So actual ethane production will be below potential ethane production. We assume current ethane rejection of 150 mbpd grows over time to 200 mbpd.
- ***Bucking Up Against Limitations – Propane:*** It is no coincidence that the amount of C3 frac capacity that has been announced almost exactly equals the amount of local demand plus expected exports. For now, there is still enough local demand to soak up all the local production. By Q2'15, however, local propane production will exceed both average local demand and C3 frac capacity. At that point, all C3+ will need to be exported out of the region as a y-grade product.
- ***Need for a Y-Grade Pipeline:*** While we don't have a strong opinion on which of the two major proposed y-grade pipelines will get built (WPZ/BWP Bluegrass or KMP/MWE EMG UMTP), we do see a need for a raw NGL pipeline by YE '16. By that point in time, the industry will be producing ~200 mbpd of excess C3+.
- ***Need for Additional Processing:*** With the rapid ramp-up in wet gas production in WV, SW PA and the Utica, the region is going to need additional processing capacity post 2015. And, with utilization rates expected to run near 90% by 2016, there is little margin for planned or unplanned downtime. Following completion of the 7.9 bcf/d of planned plants by mid-'16, we see the need for another ~3.2 bcf/d of processing capacity by 2020. Assuming a standard 200 mmcf/d plant, that's 16 more plants, or ~4 new plants per year post 2016.

Setting the Stage

Appalachia Gas Production – Growth is Far from Over…



- Our estimate for YE'13 Appalachia gas production is ~14.5 bcf/d, comprised of:
  - ~7.5 bcf/d in NE Marcellus (in NE PA)
  - ~5.7 bcf/d in SW Marcellus (SW PA & WV)
  - ~0.6 bcf/d in Utica (OH), and
  - ~0.7 bcf/d in Central PA
- ***By 2020, we see production almost doubling, to ~26.3 bcf/d,*** composed of gains of:
  - ~2.5 bcf/d in NE Marcellus
  - ~4.9 bcf/d in SW Marcellus
  - ~4.0 bcf/d in the Utica, and
  - ~0.3 bcf/d in Central PA
- ***So, while NE Marcellus production has dominated the picture (and experienced the worst basis differentials), the bulk of incremental production will come from the SW portion of the play.***
- Production estimate assumes a roughly flat rig count in the SW (54) and NE (30) Marcellus and an increase to 59 rigs from 35 rigs in the Utica over the next 36 months.
- For simplicity, our definition of Appalachia gas excludes legacy Appalachia production in KY, VA and NY.

Source: DI Desktop, USCA

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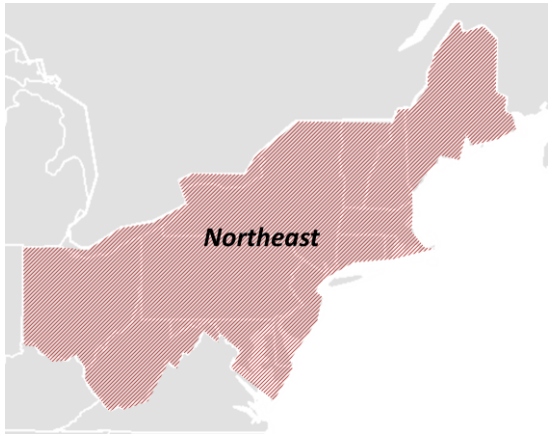
...Forcing Dramatically Changing Pipeline Flows

Northeast Natural Gas Supply and Demand

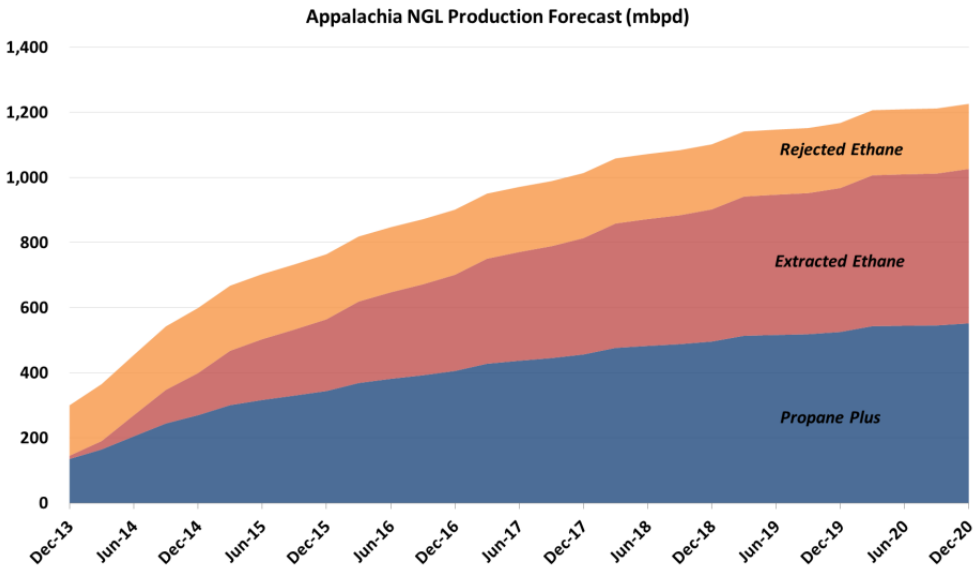
Supply Source (Bcf/d)	2007	2010	2013	2016E	2020E
Local Production	1.2	2.5	11.7	21.1	26.1
Net Canadian Imports	2.9	1.6	0.5	(1.0)	(3.0)
Net LNG Imports	0.9	0.6	0.2	0.0	(0.7)
Net NE US Pipeline Imports	**7.2**	**8.0**	**1.6**	**(5.1)**	**(5.8)**
Total Supply/Demand	**12.3**	**12.7**	**14.0**	**15.0**	**16.6**



- Chart to the left shows a high level overview of the changing pipeline flows in and around the Northeast since 2007. Additionally, we project how those will change by 2020.
- Annual numbers represent averages throughout the year, as actual gas flows at any point during the year will vary widely depending on the season.
- While net U.S. pipeline imports into the NE peaked in 2010 at ~8 bcf/d, ***in 2014 the NE will be a net exporter of natural gas.***
- By 2020, we think the NE will be a net exporter of ~10 bcf/d (we're assuming ~0.7 bcf/d of LNG, ~3 bcf/d to Canada, and ~6 bcf/d to other regions in the U.S.).

Source: EIA, SNL, USCA

Appalachia NGL Production – Ride the Wave



- ***Our estimate for Q4'13 Appalachia NGL production is ~145 mbpd,*** comprised of:
  - ~135 mbpd of C3+
  - ~10 mbpd of extracted ethane
  - In addition, we estimate ~150 mbpd of ethane is being rejected.
- ***By 2020, production will grow to >1,000 mbpd,*** composed of:
  - ~550 mbpd of C3+
  - ~475 mbpd of extracted ethane
  - In addition, we estimate ~200 mbpd of ethane rejection.
- Excluded from these numbers is ~40 mbpd of local refinery production of propane.
- Key assumptions for forecasted NGL production is a liquids yield of 5.5 GPM in SW PA and WV, 6 GPM in the Utica condensate window and 4.7 GPM in the Utica wet gas window. We also assume NGL barrel composition of 55%/45% for ethane/C3+.

Source: DI Desktop, USCA

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E&P Operators – Can't Know the Players Without a Program

NE PA Producers (Dec '13 Production)

Company	Production (mmcf/d)	Active Rigs	2013 Hz Permits
Chesapeake	2,147	6	412
Cabot	1,511	4	160
Southwestern	670	4	260
Talisman	527	1	76
Anadarko	549	1	130
Chief Oil & Gas	402	4	162
NFG	329	1	40
Shell	336	2	34
Range Resources	224	2	47
Other	822	2	281
Total	**7,517**	**27**	**1,602**

SW PA-Dry Producers (Dec '13 Production)

Company	Production (mmcf/d)	Active Rigs	2013 Hz Permits
EQT	510	6	151
Chevron	358	3	113
Rice	208	3	56
Range Resources	92	0	20
Consol	72	0	11
Other	226	1	98
Total	**1,466**	**13**	**449**

Rigs as of 4/23/14

SW PA-Wet Producers (Dec '13 Production)

Company	Production (mmcf/d)	Active Rigs	2013 Hz Permits
Range Resources	541	4	234
EQT	254	0	12
Consol	103	2	55
Rex Energy	88	0	16
XTO	63	1	65
Chesapeake	52	0	29
Other	55	3	120
Total	**1,156**	**10**	**531**

Ohio Producers (Sep '13 Production)

Company	Production (mmcf/d)	Active Rigs	2013 Hz Permits
Chesapeake	237	8	87
Gulfport	81	6	47
Antero	66	5	47
Enervest	33	0	1
Rex Energy	19	0	20
Eclipse Resources	0	4	15
Consol	0	3	21
Other	107	6	122
Total	**544**	**32**	**360**

West Virginia Producers (Dec '12 Production)

Company	Production (mmcf/d)	Active Rigs	2013 Hz Permits
Antero	388	10	210
EQT	289	3	69
Chesapeake	272	1	45
Consol	123	1	31
Cabot	53	0	0
Noble	0	6	67
Other	531	10	267
Total	**1,657**	**25**	**622**

- An important part of the midstream puzzle is understanding the location and size of the upstream operators.
- Charts to left show the most active producers in each region of Appalachia by the most recently available production, number of active rigs, and number of horizontal permits filed in 2013.
- Most active producers in the region include Chesapeake, Cabot, Range, EQT, Southwestern, Antero, Consol, Gulfport, and Chevron.
- Not included in the charts to left is Central PA, which accounts for another ~740 mmcf/d and ~7 active rigs.

Source: DI Desktop, USCA

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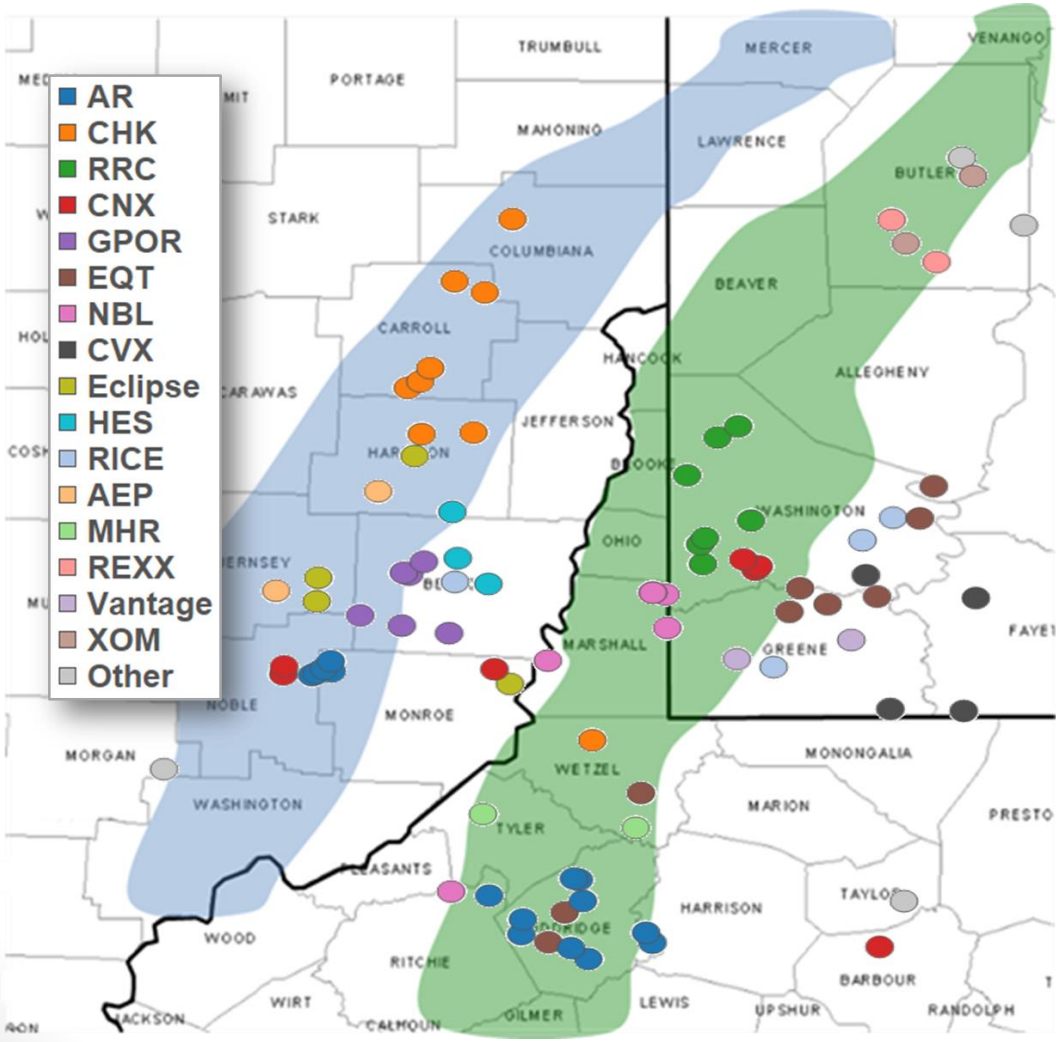
Snapshot of Current E&P Activity – SW Marcellus/Utica



Rich Utica Rich Marcellus

Source: DI Desktop, USCA

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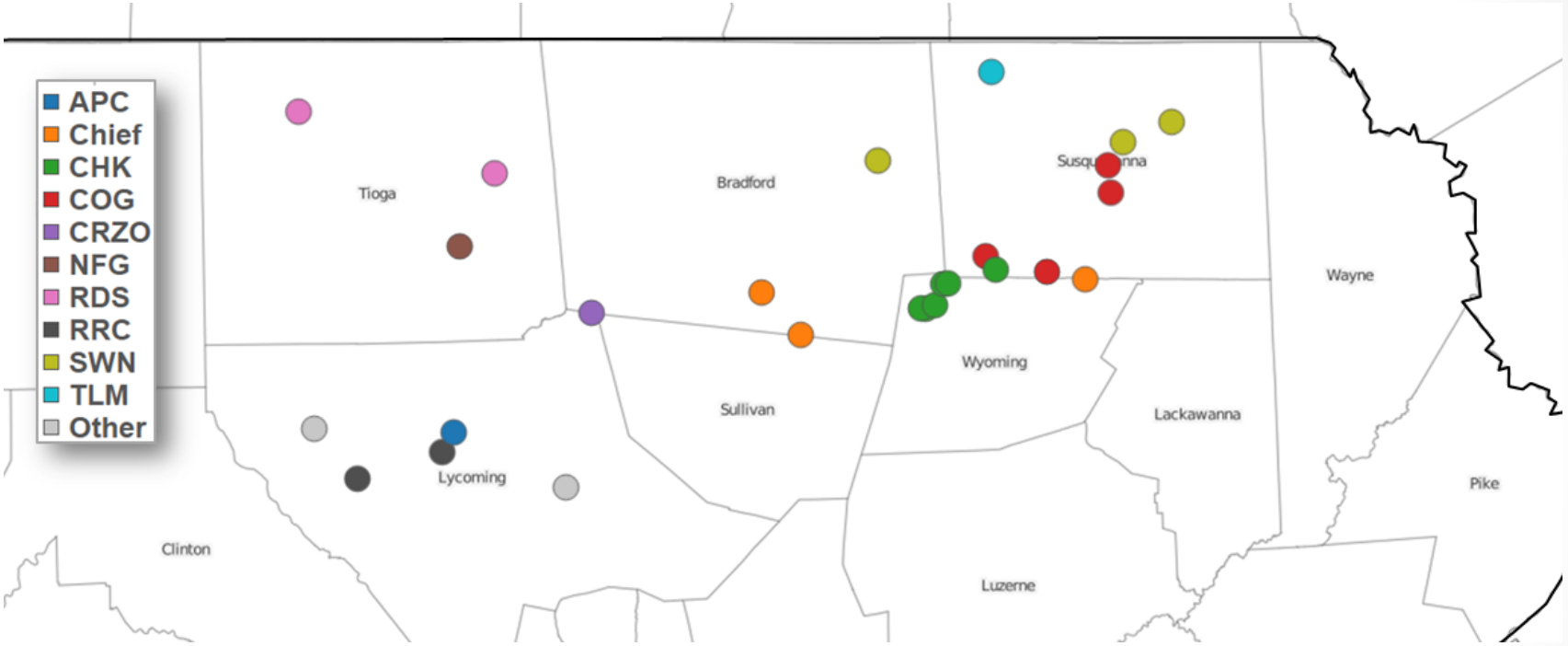
Snapshot of Current E&P Activity – NE Marcellus



Source: DI Desktop, USCA

Gas Pipelines & Basis

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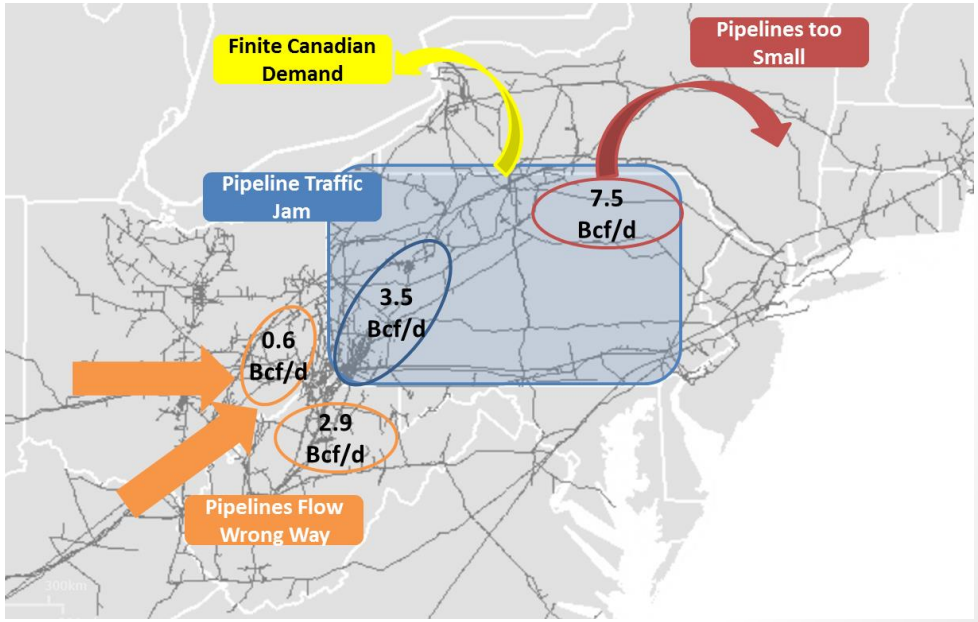
Background and Big Picture

- **Pre-Shale Boom Days:** Local northeast gas demand (current annual average of ~14 bcf/d) was met primarily by Gulf Coast gas supplied by long-haul pipelines, supplemented by imports from Canada and a little local production. The long-haul pipes were built similar to telescopes, with several large-diameter pipes in the supply area and capacity narrowing as gas was delivered up the system. On peak winter load days, incremental supply came from storage, more Canadian imports and LNG imports from Everett, MA and/or Cove Point, MD terminals. Oh, and local gas traded at a premium to Hhub.
- **World Turned Upside Down:** We have now reached the point where local production exceeds demand on an average day, and pipelines are being reversed to flow gas south and west, as well as north to export gas. And, local gas now trades at a massive discount to Hhub. ***Pipelines and investment are the key to narrowing that basis (not eliminating it).***
- **Current State of the NE:** Map below to the right shows a simplified view of what is driving the current wide Appalachia basis. Numbers in the ovals represent estimated gas production (Dec. '13).
  - ***Traffic Jam:*** Bulk of Appalachia production located in this window, particularly in NE PA. Lots of pipes there too, but few major arteries to get the gas directly to market.
  - ***Wrong Way Zone:*** Gas can get to this area, but we are basically out of backhaul capacity, and the next step is reversing flow on the pipes.
  - ***Northward Bound:*** Great in theory, but demand is limited with eastern Canada consuming ~5 bcf/d, albeit growing.
  - ***Too Small Zone:*** NE markets want to consume more gas, particularly on those peak winter days.



Source: DI Desktop, SNL, USCA

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A Brave New World

Old World	New World
Flow South to North	Flow North to South
One-Way Flow	Bi-directional Flow
Set Null Point	Floating Null Point
Zonal Rates	Postage Stamp Rates
Appalachia Gas Premium	Appalachia Gas Discount = Transportation Cost
Canadian Imports	Canadian Exports

- **Changing Flows:** Already under way, with every major pipeline to the NE having a project on the table to reverse flow. We see Gulf Coast gas flows completely backed out on an average day basis already, and moving toward only peaking flows north. ***For that reason, pipes are positioning to be bi-directional with a floating null point*** (point at which gas flows neither north or south).
- **Changing Rate Structure:** Will be an evolution, but we think that pipeline rate structures will eventually convert to single or dual postage-stamp rates as opposed to the current multi-zone rates, where the longer the haul, the higher the rate.
- **Permanent Appalachia Gas Discount:** Gas basis over time tends to converge to the cost of transportation, and that will be the case in Appalachia, with the added twist that the NE is a highly seasonal market. On top of that, the cost to move the gas from north to south is going to be higher than historic rates for two reasons: current pipeline rates reflect highly depreciated infrastructure, and companies will need to spend money to reverse flow. ***We think a flat rate to the Gulf Coast will run 60-70c/mcf, and many producers will need to secure regional gathering to get to the mainline artery, adding in another 20-50c/mcf.***
- **Canadian Exports:** We discuss this more on page 22**,** but we see all but peak day imports backed out by 2016 and the NE supplying a good chunk of eastern Canadian demand by the end of the decade, when western Canada LNG terminals pull Alberta and BC gas westward.

Source: USCA

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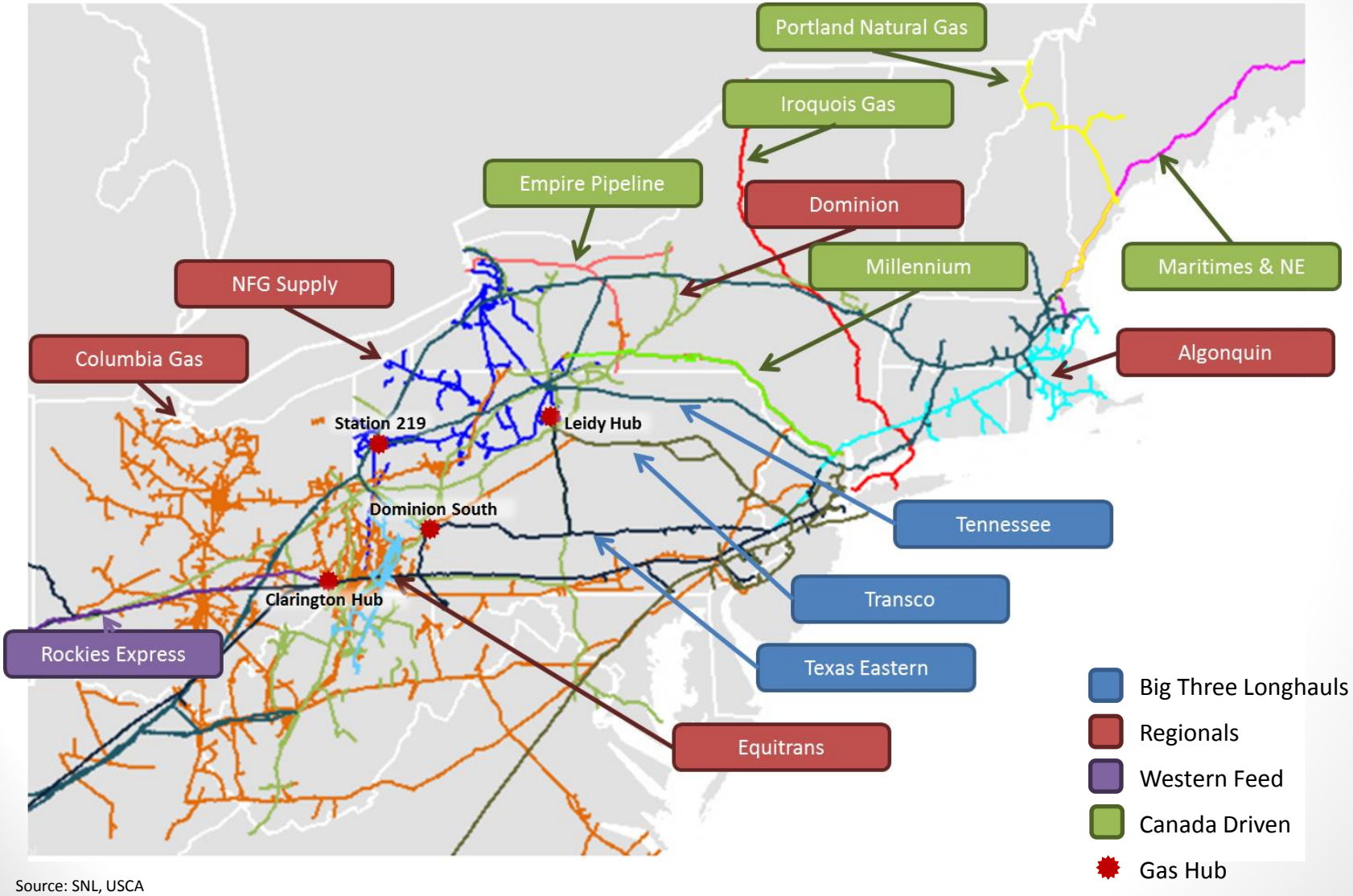
The Spaghetti Bowl of NE Gas Pipelines



Source: SNL, USCA

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NE Gas Pipeline Overview

- The map on the previous page looks like one confusing mess, but gas flows in the northeast can be simplified into four categories as shown below.
- No matter what category they fall into, ***these pipes are all in the midst of adapting to a world that has been turned upside down by the massive increase in NE production.***

Category	Pipelines	Old World	New World
Big Three Longhauls	Tennessee Gas Texas Eastern (TETCO) Transco	Moved gas from the Gulf Coast to the NE via telescoping pipe. Can add to that a pipe not shown on the map, Columbia Gulf, which feeds into the Columbia Transmission system in southern WV	Pipes are working to reverse flow to the Gulf, expand market-area capacity and increase connectivity to other pipes
Regionals	Dominion Equitrans Columbia Transmission NFG Supply Algonquin	Spider-web type system associated with affiliated local gas utility and/or market area	Capitalizing on local supply boom. Expanding system capacity to serve as headers to feed take-away pipes out of the region
Western Feed	Rockies Express	1.8 bcf/d pipe built during Rockies drilling boom, when Rockies prices frequently ran ~$3/mcf below Henry Hub	Open season under way to move up to 2.5 bcf/d west to a host of interconnects with other pipes and gas utilities
Canada-Driven	Maritimes & NE Iroquois Gas Portland Natural Gas Empire Millennium	Generally newer pipes (<30 years old) built to either directly or indirectly bring Canadian gas into the NE	Those pipes which have direct interconnects to Canada are working to ensure reverse flow capabilities and expanding capacity to export gas to Canada

Source: USCA

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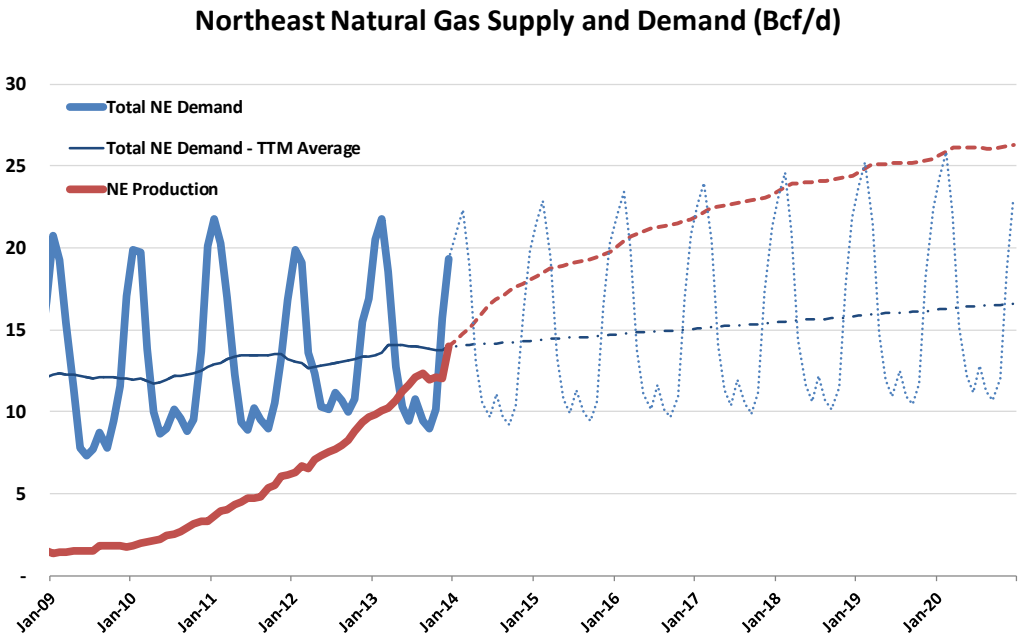
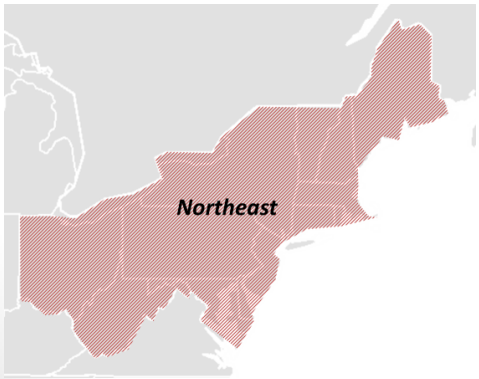
NE Natural Gas Supply/Demand – Past the Tipping Point…





Source: EIA, SNL, USCA

- To have a perspective on what is happening on the pipes, you need to start with NE gas supply/demand balances.
- Top chart to the left shows Appalachia production (red line), plotted against average monthly NE gas demand (heavy blue line) and smoothed, trailing 12-month average NE gas demand (light blue line). Peak daily NE gas demand is obviously much higher, with as much as ~30 bcf/d needed on the coldest winter days.
- Regional gas production exceeded seasonally low shoulder month demand in April '13.
- As of January this year, gas production equaled average annual consumption. ***With the NE a big peak user of gas, that means that for seven months of the year now, gas supply exceeds demand.***
- By Jan. 2015, we look for regional production to reach ~18 bcf/d, exceeding demand for all but the three peaking months of the year.
- ***And, by 2019, regional supply should equal peak monthly demand. Appalachia will be exporting gas year round,*** displacing all gas historically supplied by Gulf Coast pipelines and all but peaking Canadian imports.

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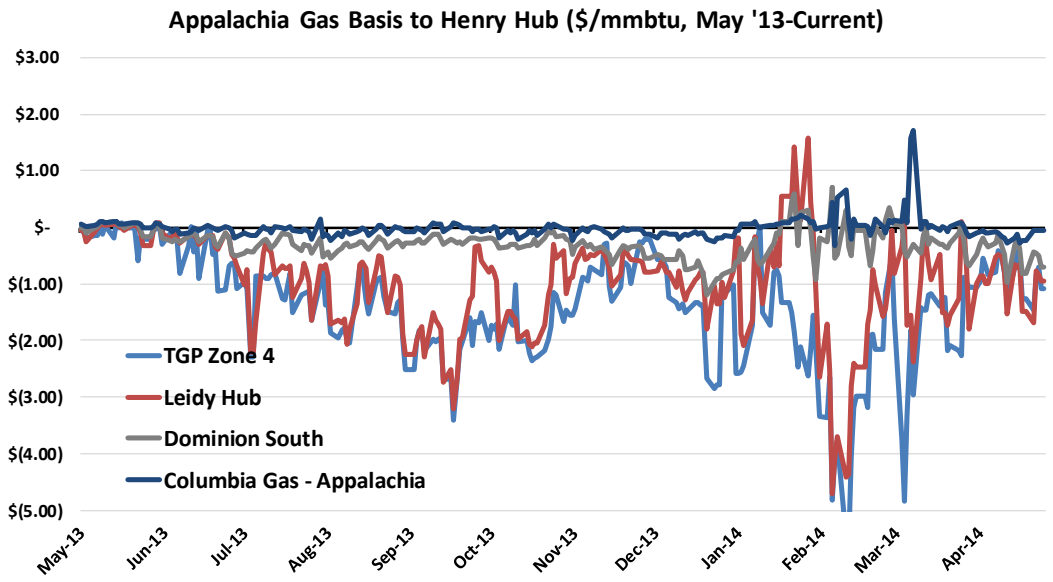
...And the Impact is Being Felt in Basis Differentials



- The pain of excess supply is being sorely felt by producers without either firm transportation contracts and/or firm sales agreements.
- At some chock-full pipelines, basis widened to over $3 this summer, and we heard stories about gas briefly trading for as low as a couple of pennies.
- Expectations were for basis to narrow as winter weather soaked up some of the excess supply. However, as we show on page 21, much of NE storage is located right in the heart of the most congested part of the region. So strong storage withdrawals competed against regional supply for pipeline capacity.

Source: Bloomberg, USCA

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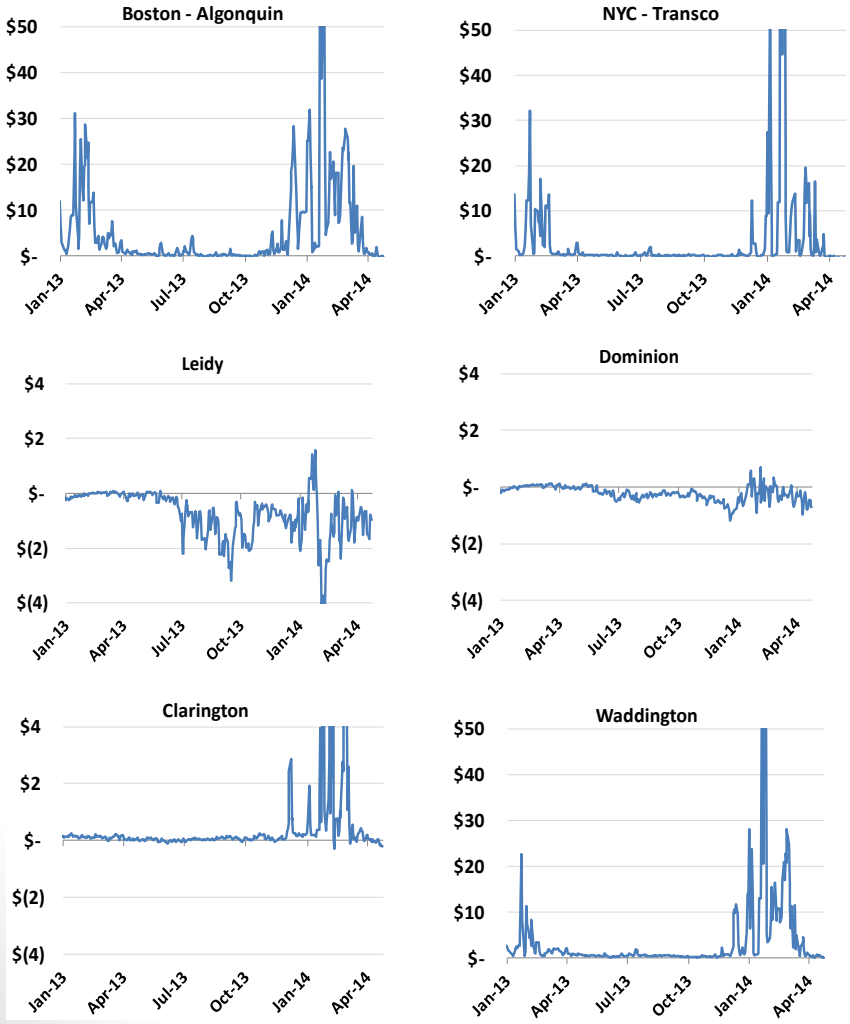
Hubs and Pricing – Location Matters

Premium/Discount to HHub ($/mmbtu)



- To get an idea of how congested things are in the NE, first look at city gate pricing at Boston and New York. Prices trade a premium to Hhub year round, but really surge in the winter. Gas prices at Boston and New York city gates averaged ~$22/mcf and $19/mcf, respectively, in Q1'14. Peak prices at the New York city gate reached $124/mcf in late January.
- Contrast that to prices at Leidy, PA , just 250 miles to the west, where gas regularly trades at a big discount to Hhub amid too much supply.
- Moving to the Dominion South hub, things get better, but not a lot. Heading into winter, basis was regularly trading at ~70c/mcf discount to Hhub and widened to as much at $1.20. A cold winter temporarily narrowed basis.
- If you can get gas to the west of Dominion South, to Clarington, gas routinely trades at a slight premium to Hhub (until just recently). But it will cost you to get it there. And there are only two major pipeline interconnects at Clarington – TETCO and Dominion – plus you'll need to bump up to REX's 1,400 MAOP. In their open season for a new line to Clarington, Equitrans is offering capacity at rates of 25-45c/mcf.
- And, if you can get gas up to the Canadian border at Waddington, gas trades at significant premiums to Hhub.

Source: Bloomberg, SNL, USCA

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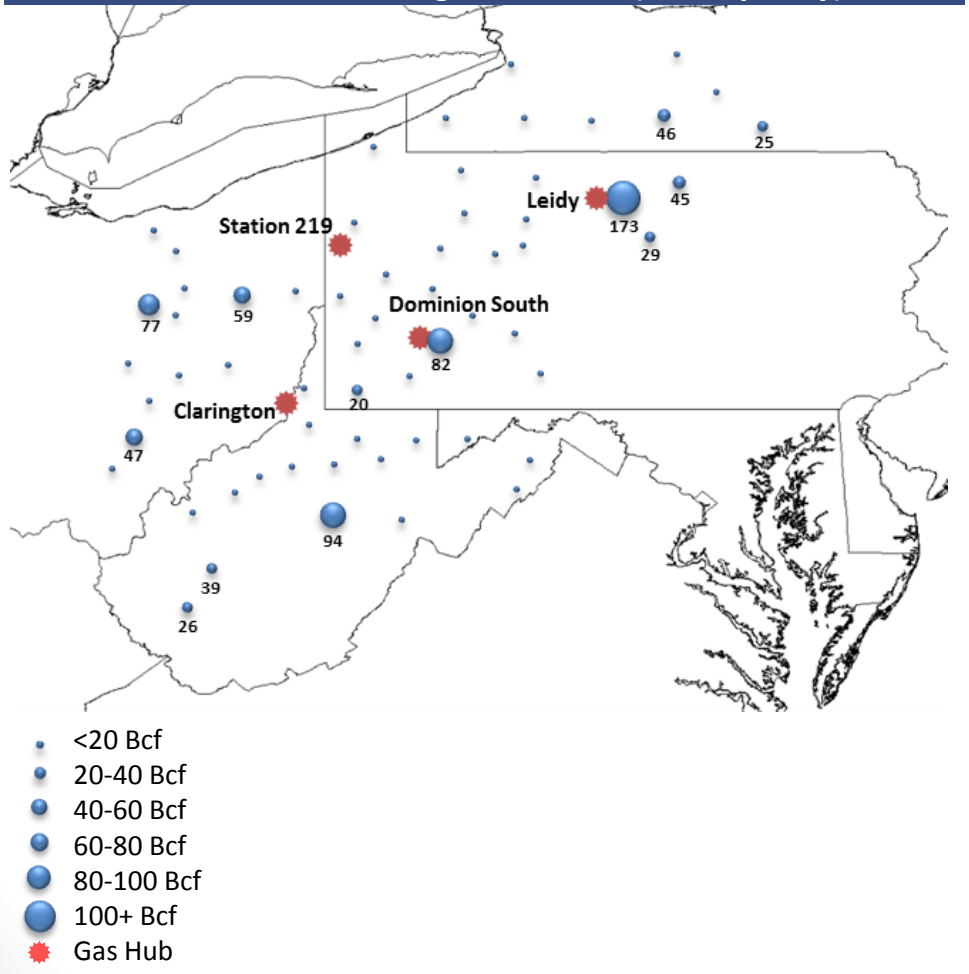
Gas Storage – Lots in the Traffic Jam Zone

Northeast Gas Storage Locations (Bcf Capacity)



- The location of storage relative to key producing areas is contributing to the problem.
- The EIA's defined "East" storage region contains 2.2 tcf of working gas storage. ~700 bcf of that storage is located in Michigan.
- The bulk of the rest of "East" region storage, or ~1.1 tcf is located in PA, NY, WV and OH, and those fields and respective sizes are shown to the left.
- Unfortunately, ~40% of that 1.1 tcf of storage is located right in the bottleneck zone, between the PA/OH border and central PA. ***So during cold weather, there is gas-on-gas competition between storage withdrawals and local production – thus the basis blowout we saw this winter.***
- The remaining regional storage in OH and WV is great for local load, but if utilities, etc. want to move gas north or east, it also competes with local production for space on the pipes.

Source: EIA, DI Desktop, USCA

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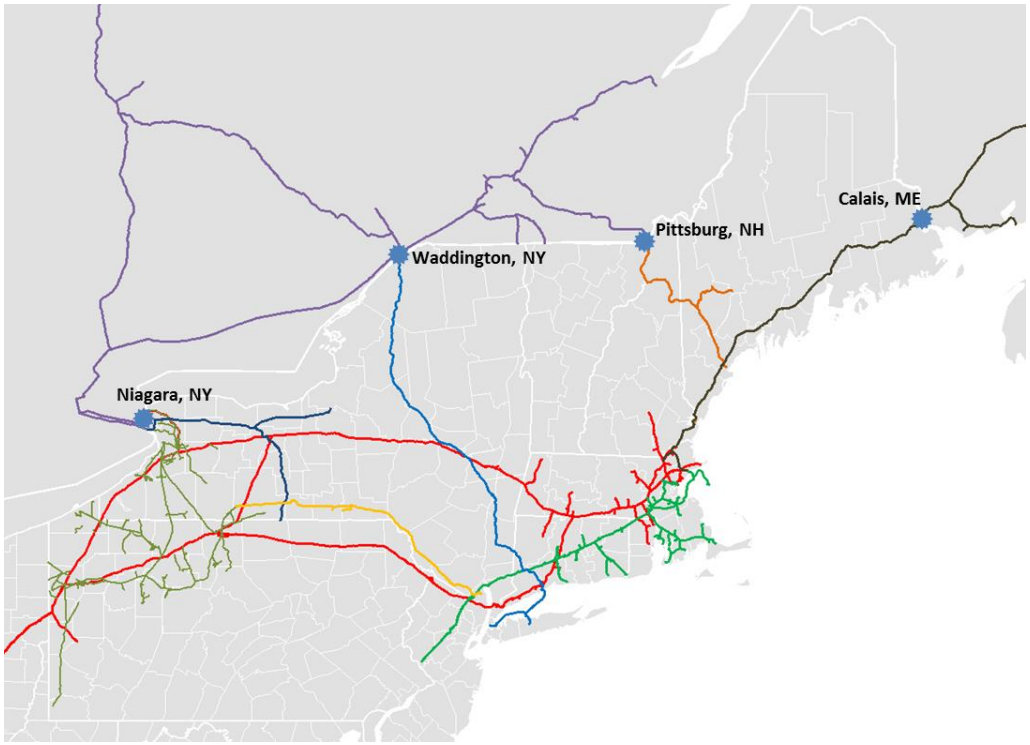
Canadian Import/Export Points



- TransCanada Pipeline
- Portland Natural Gas Transmission
- Maritimes & Northeast Pipeline
- Empire Pipeline
- NFG Supply
- Tennessee Gas Pipeline
- Millennium Pipeline
- Algonquin Gas Transmission
- Iroquois Gas Transmission
- Import/Export Point

- A less important, but still material factor in the gas balance equation is Canada.
- Most of the Canadian gas that has historically been imported into the NE has originated in western Canada and been delivered to the U.S. via TransCanada at three import points, Niagara, Waddington and Pittsburgh. A fourth import point, Calais, sources gas from offshore Sable Island fields as well as LNG:
  - ***Niagara, NY:*** Multiple interconnects between TransCanada and other pipelines such as Tennessee, Empire and National Fuel Gas Supply.
  - ***Waddington, NY:*** Interconnect between TransCanada and Iroquois. Average flows on Iroquois run ~1 bcf/d.
  - ***Pittsburgh, NH:*** Interconnect between TransCanada and Portland Natural Gas. Average flows on Portland Natural Gas run ~150 mmcf/d.
  - ***Calais, ME:*** Entry point for gas shipped on Maritimes & Northeast (MTNE). Average flows on MTNE run ~350 mmcf/d.

Source: SNL, USCA

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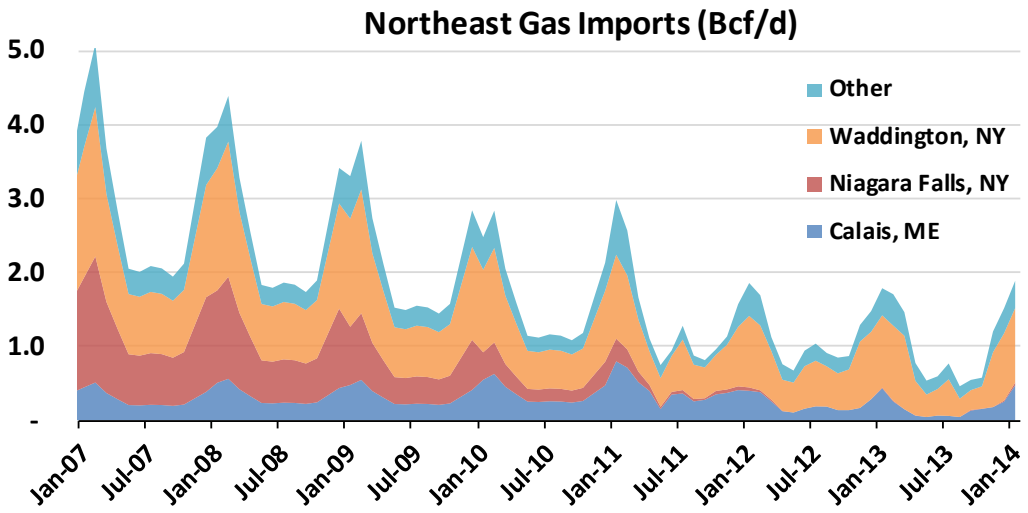
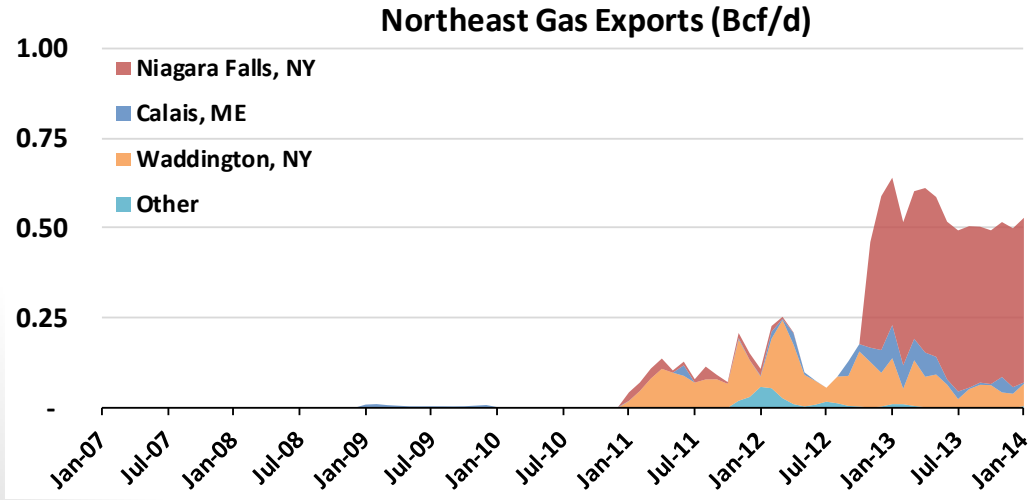
Northeast Imports Flipping to Exports

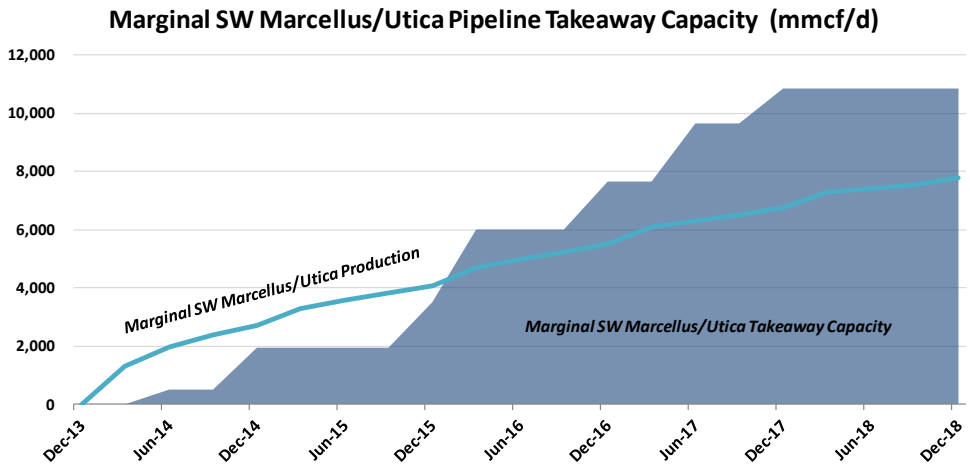


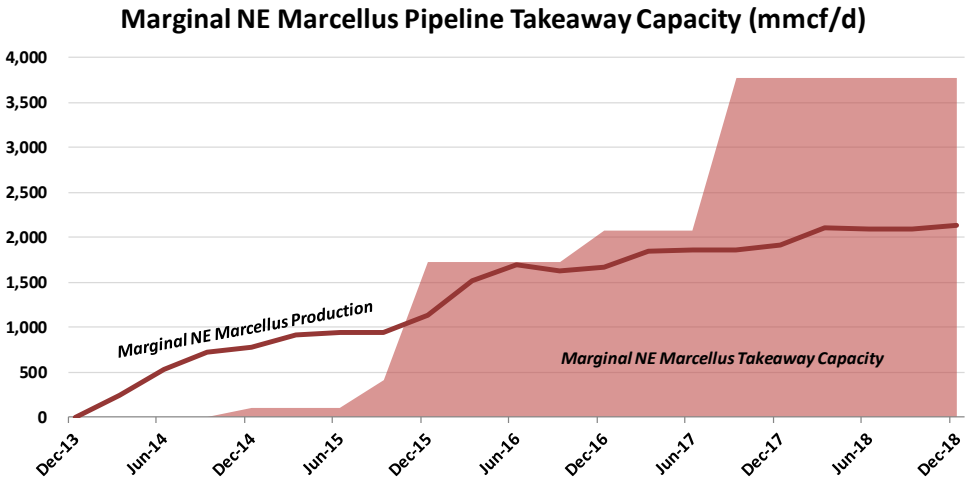


Source: EIA, USCA

- Imports of gas into the Northeast from Canada have been on a steady decline since 2007. The only major import point remains Waddington, NY, which feeds into the Iroquois pipeline.
- In the top chart, you can see that imports at Niagara slowed to a trickle in 2011.
- And as shown below, we are now exporting ~500 mmcf/d into Canada from the NE.
- There are at least four projects proposed or under way to increase NE export capacity to Canada by ~1 bcf between late '15 and late '16. That excludes the 1 bcf/d proposed Nexus Gas Transmission project which would move Utica and western PA gas north to the Dawn Hub (~20 miles from Sarnia).
- However, the total market for gas in Canada is much smaller than the U.S., at ~8.5 bcf/d vs. the U.S. at ~71 bcf/d. We estimate that eastern Canadian gas demand is ~5 bcf/d, so we do not see exports to Canada as a panacea for the gas basis problem.
- A caveat is that four companies are proposing to build LNG export terminals in eastern Canada. The earliest one might come online would be 2019.

Help is on the Way with New/Reversed Pipelines…





- While we don't put it past pipeline operators to squeeze another mcf of gas through existing infrastructure, the days of unconstrained production are clearly gone.
- Charts to left show our calculations of incremental takeaway capacity being added in both the SW Marcellus/Utica and NE Marcellus regions plotted against our estimate of incremental production.
- Although we can't quantify it, regional basis differentials tell us that gas supply is already capacity constrained.
- ***So while marginal takeaway capacity begins to exceed marginal production in 2016, we think basis will remain under pressure until 2017, when marginal capacity is well in excess of marginal production.***
- ***Based on current announcements, eventually the NE region will be much better off than the SW, but we think additional pipeline reversals will be announced.***
- What does it mean for producers?:
  - ***Any significant marginal production will likely need to be tied to a planned expansion, or the producer is taking on major basis risk***
  - ***The low-hanging fruit has been picked, so successive projects will get more expensive***
  - ***Long-term (post 2017) there will be plenty of projects in place to facilitate production***
- The bigger question, in our minds, is how the region adapts to the limited capacity takeaways coming online before Q4'15.

Source: Company Reports, DI Desktop, USCA

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...But it's Gonna Cost You

- Information is anecdotal right now as most companies don't want to advertise rates for competitive reasons.
  - ***A year ago, backhaul rates to the Gulf Coast were ~40c/mcf with 8-year terms. New rates to the Gulf Coast are going for ~60-70c with 15+ year terms. ANR recently announced the results of their open season, and capacity was fully subscribed at max rates for an average term of 23 years (wow).***
  - ***Producers, worried that what has happened in NE PA will happen next in SW PA, are quickly gobbling up new capacity.***
  - ***Pipelines are rushing to capitalize on the opportunity, with some open seasons going straight to binding.***
  - ***Some of the rates we are hearing:***
    - ***REX reversal:*** ~50c from Clarington, west as far as Mexico, MO. Producers still need to get to Clarington and then pay for capacity on another pipe off REX to reach end markets
    - ***OPEN:*** 56c from E. OH to Gulf Coast and Midwest markets
    - ***Atlantic Sunrise:*** 65-70c from Leidy, PA to the Gulf Coast on Transco
    - ***Rayne/Leach Express:*** 45-55c rate on Columbia Gas and another 12-30c on Columbia Gulf to the Gulf Coast (so costing you more to move intra-region than to the Gulf Coast)
    - ***Nexus Gas Transmission:*** Proposed 60-80c rate from NE Ohio to Dawn, ON. Producers still need to get to Kensington, OH and then bump the pressure up to 1400 psi MAOP
    - ***Sabinsville to Cornwell:*** Dominion project with proposed rate of 18c from TGP interconnect at Tioga to TGP interconnect in WV (example of intra-basin differentials)
    - ***Constitution:*** Filed rate of 65c from Susquehanna Supply Hub flowing north to connect with Iroquois Gas and Tennessee
    - ***Ohio Valley Connector/Ohio Express:*** Proposed rate of 25-45c on Equitrans to Clarington and 45-60c from Clarington to Lebanon.
- ***Who's in the driver's seat?:*** Absolutely the pipelines. E&P companies are not known for their patience, and in some ways, they are stuck between a rock and a hard place: Sign up now for firm capacity at record rates and keep drilling, bet that basis will improve and keep drilling, or wait for things to get better until you drill.

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Fixing the Big Problem

SW Marcellus/Utica Added Takeaway

Company	Project Name	Pipeline	Cost ($mm)	Capacity (mmcf/d)	In-Service
KMP	Utica Backhaul	Tennessee Gas	$160	500	Apr '14
NI	West Side Expansion	Columbia Gas & Columbia Gulf	$200	540	Nov '14
SEP	TEAM-South	Texas Eastern	$50	300	Nov '14
SEP	TEAM 2014	Texas Eastern	$500	600	2H'14
SEP	Uniontown to Gas City	Texas Eastern	$60	425	Nov '15
KMP	Broad Run Flexibility	Tennessee Gas	$590	590	Nov '15
SEP	OPEN	Texas Eastern	$500	550	Q4'15
TEP GP	REX Reversal	Rockies Express		2,500	Mar '16
SEP	Gulf Markets Expansion	Texas Eastern	$150	650	Nov '16
NI	Leach Xpress	Columbia Gas		1,000	Nov '16
EQT/EQM	Ohio Express	Equitrans	$1,500	2,000	Q2'17
DTE/ENB/ SEP	NEXUS Gas Transmission	NEXUS Gas Transmission		1,000	2017
KMP	Broad Run Expansion	Tennessee Gas	$200	200	Nov '17
		Total	**$3,910**	**10,855**	

NE Marcellus Added Takeaway

Company	Project Name	Pipeline	Cost ($mm)	Capacity (mmcf/d)	In-Service
WPZ	NE Connector	Transco	$50	100	Nov. '14
NI	East Side Expansion	Columbia Gas	$275	310	Q3'15
NFG	Northern Access 2015	NFG Supply	$67	140	Nov '15
WPZ	Leidy Southeast	Transco	$600	525	Late '15
WPZ/COG/PNY/WGL	Constitution Pipeline	Constitution Pipeline	$740	650	2016
NFG	Northern Access 2016	NFG Supply	$360	350	Late '16
WPZ	Atlantic Sunrise	Transco	$2,100	1,700	2H'17
		Total	**$4,192**	**3,775**	

- The tables to the left detail the takeaway projects shown in the charts described on p. 24 to take gas out of SW and NE Marcellus.
- ***Note that the charts on p. 24 and these two tables include only the pipelines and expansions that originate within and terminate outside of production areas.*** So they do not include the ANR, NGPL, or Texas Gas' reversal projects, as they do not facilitate direct takeaway capacity.
- We would also note that this is not black and white. It is one big spaghetti bowl of pipelines with multiple interconnects. There's some ability for NE producers to access SW takeaway capacity via intra-Marcellus pipes and visa versa.

Source: Company Reports, USCA

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Other Pipeline Projects

Nearby Pipeline Reversals

Company	Project Name	Pipeline	Cost ($mm)	Capacity (mmcf/d)	In-Service
TRP	ANR Reversal	ANR Pipeline	$100	2,000	2015
BWP	Ohio - Louisiana Access	Texas Gas Transmission	$115	500	Q2'16
NI	Rayne Xpress	Columbia Gulf		800	Nov '16
KMI/Other	Gulf Coast Expansion	Natural Gas Pipeline Company		750	TBD
		Total	**$215**	**4,050**	

Other Intra-Marcellus Expansions

Company	Project Name	Pipeline	Cost ($mm)	Capacity (mmcf/d)	In-Service
EQM	Sunrise Expansion	Equitrans	$30	550	Q3'14
KMP	Rose Lake Expansion	Tennessee Gas Pipeline	$83	230	Nov '14
NFG	Mercer Expansion	NFG Supply	$34	105	Nov '14
EQM	West Side Expansion	Equitrans	$26	100	Q4'14
EQM	RRC Expansion	Equitrans	$25	100	Q4'14
EQM	East Side Expansion	Equitrans	$29	100	Mid '15
NFG	Westside Expansion	NFG Supply	$75	175	Nov '15
NFG	Tuscarora Lateral	NFG Supply/Empire	$45	70	Nov '15
EQM	Ohio Valley Connector	Equitrans	$300	1,200	Q2'16
D	Sabinsville to Cornwell	Dominion Transmission		200	Nov '16
		Total	**$647**	**2,830**	

Market-Area Expansions

Company	Project Name	Pipeline	Cost ($mm)	Capacity (mmcf/d)	In-Service
WPZ	Rockway Lateral	Transco	$230	647	Nov '14
SEP	AIM Expansion	Algonquin	$1,000	340	Nov '16
SEP	Atlantic Bridge Project	Algonquin/MTNE		100+	Nov '17
KMP	Northeast Expansion	Tennessee Gas Pipeline	$1,750+	600+	Nov '18
		Total	**$2,980**	**1,687**	

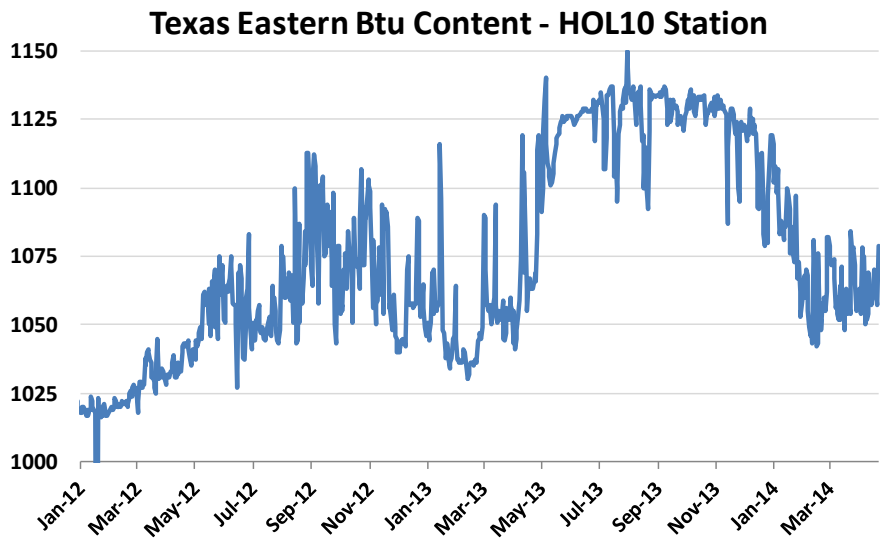
Canada Expansions

Company	Project Name	Pipeline	Cost ($mm)	Capacity (mmcf/d)	In-Service
KMP	Niagara Expansion	Tennessee Gas Pipeline	$30	158	Nov '15
TCP/D/Other	South-to-North (SoNo)	Iroquois Transmission		300	Nov '16
		Total	**$30**	**458**	

Source: Company Reports, USCA

- The pipeline projects shown on this page are not included in our production vs. capacity balance charts as they don't both originate in the supply area and terminate outside of it. However, for completeness, we wanted to list all these projects.
- ***It is impressive that pipelines which don't through the Marcellus/Utica are reversing flow to the tune of 4 bcf/d.***
- ***This also shows how much intra-region connectivity is being added – 3 bcf/d.***
- And, it is also interesting to see the market-area expansions, designed to serve future increases in NE gas demand.

Btu Content – An Issue that Will Linger



- No discussion of gas pipelines in the NE would be complete without talking about Btu content.
- It came to a head in the summer of '13 as a rising amount of ethane in the stream caused Texas Eastern to ask customers to deliver lean gas from REX at Clarington, OH into their system. Texas Eastern's system is being hit harder than others due to its location, running through the rich gas areas.
- ***The situation improved this winter, but we think it was a seasonal fix,*** driven more by dry gas in storage being blended with wet gas than by the start-up of ATEX.
- Conventional view has been that once de-ethanizers and the ATEX and Mariner projects came online, the problem would go away.
- Our take is that it's not that simple.
  - ***We think economics favor producers selling ethane as methane – as long as they can. TETCO's Btu waiver expires Nov. '14. It's extendable, but that's not guaranteed.***
  - Rockies gas traded at a premium to Henry Hub during Q1, resulting in less deliveries into Clarington this winter. That gas is needed to blend as we start back injecting gas into storage. A caveat is that dry Utica gas might be a blending source, depending on where it flows.
  - The Btu problem could get pushed out if the wet gas is injected into storage this year.

Source: Company Reports, USCA

Processing

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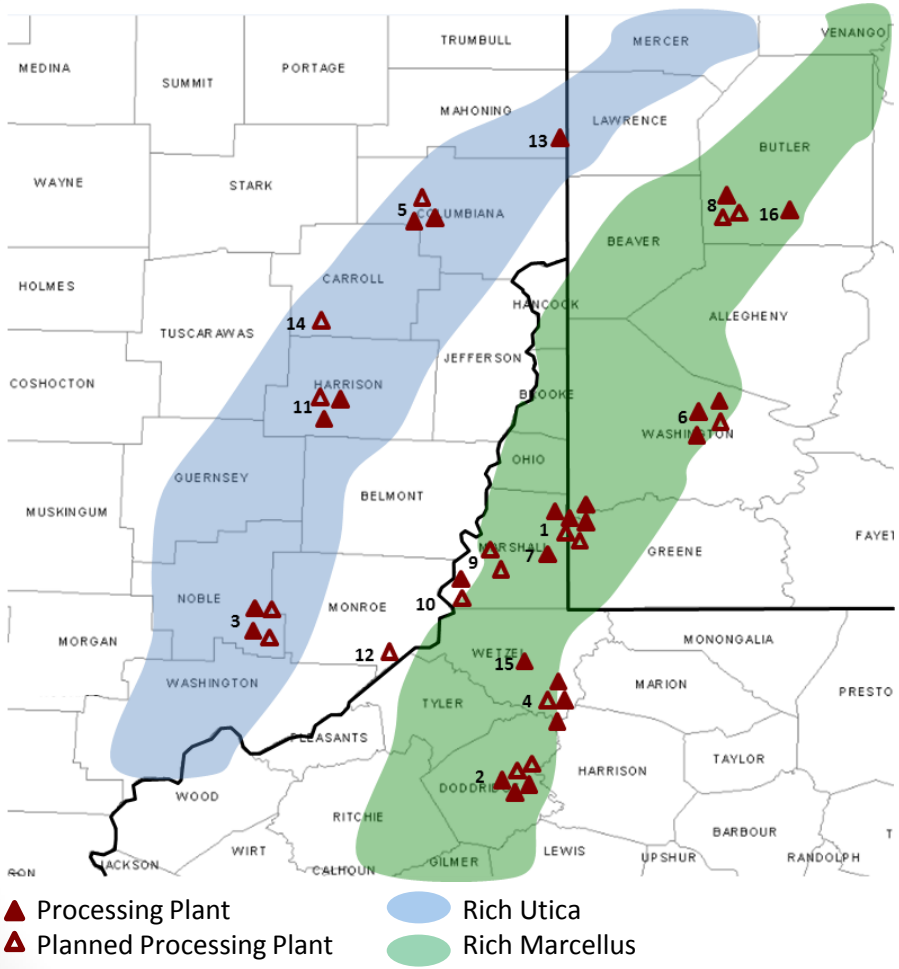
Gas Processing Plants – Highly Concentrated Locationally



- Map to the left shows location of current and planned gas processing plants.
- Plants located in Ohio are the newest while the largest complexes are located in WV where they're positioned to service production from both the Marcellus and Utica
- Processing facilities with 200+ mmcf/d capacity were first completed by MarkWest in 2010. Given the young age of most of the plants in the region, there shouldn't be significant gaps in technology between processors in the region that would merit any significant competitive advantages.

	Complex	Owner(s)	Current Capacity (mmcf/d)	2016 Estimated Capacity (mmcf/d)
1.	Majorsville	MWE	670	1,070
2.	Sherwood	MWE	600	1,000
3.	Seneca	MWE/EMG	400	800
4.	Mobley	MWE	520	720
5.	Kensington	ACMP/M3/EVEP	400	600
6.	Houston	MWE	355	555
7.	Fort Beeler	WPZ	520	520
8.	Keystone	MWE	90	410
9.	Oak Grove	WPZ	0	400
10.	Natrium	D/WPZ/Caiman	200	400
11.	Cadiz	MWE/EMG	185	385
12.	Berne	D/WPZ/Caiman	0	200
13.	Hickory Bend	NI/Hilcorp	200	200
14.	Leesville	ACMP/M3/EVEP	0	200
15.	Hastings	D	180	180
16.	Butler	XOM	125	125
	Other Plants		138	138
Total Capacity			**4,583**	**7,903**

Source: Company Reports, DI Desktop, USCA

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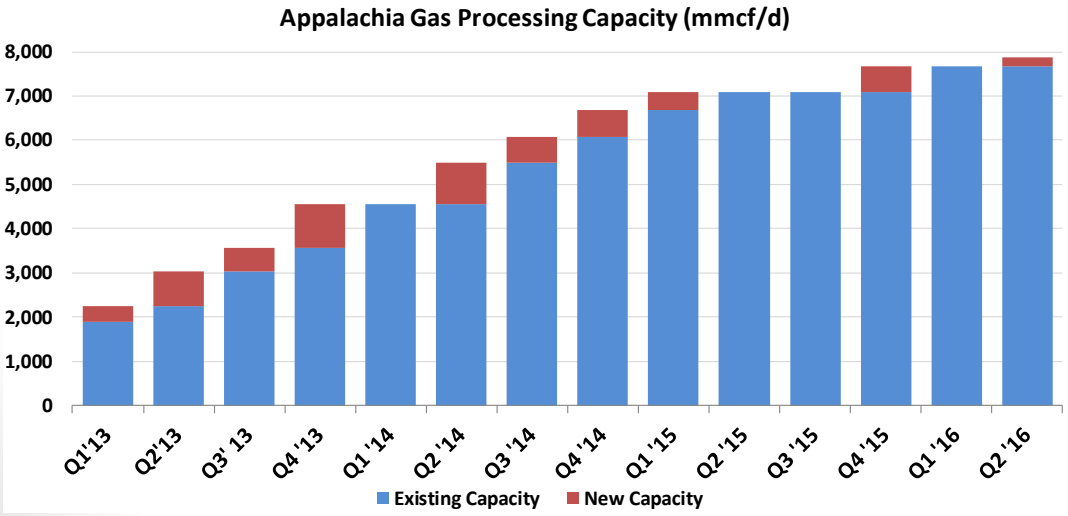
Processing Capacity by Operator – MWE Dominates

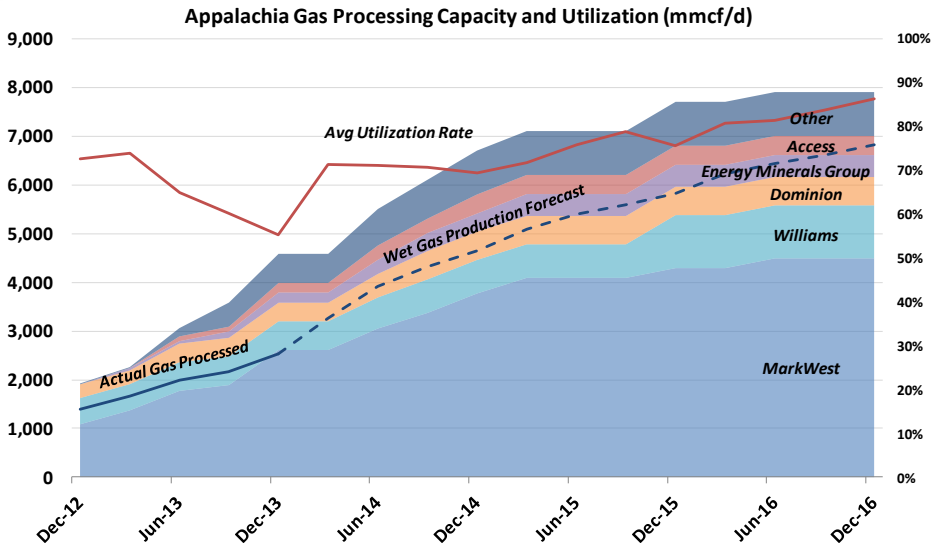
Company	Ticker	Estimated Current Capacity (mmcf/d)	Estimated Current Market Share	2016E Capacity (mmcf/d)	2016E Market Share
MarkWest Energy Partners	MWE	2,610	57%	4,490	57%
Williams Partners LP	WPZ	588	13%	1,088	14%
Dominion Resources	D	382	8%	582	7%
Energy Minerals Group	Private	210	5%	450	6%
Access Midstream Partners LP	ACMP	196	4%	392	5%
M3 Midstream LLC	Private	120	3%	240	3%
EV Energy Partners	EVEP	84	2%	168	2%
Caiman Energy	Private	50	1%	150	2%
ExxonMobil	XOM	125	3%	125	2%
Hilcorp	Private	100	2%	100	1%
NiSource	NI	100	2%	100	1%
Shell	RDS	18	0%	18	0%
Total Capacity		**4,583**		**7,903**	

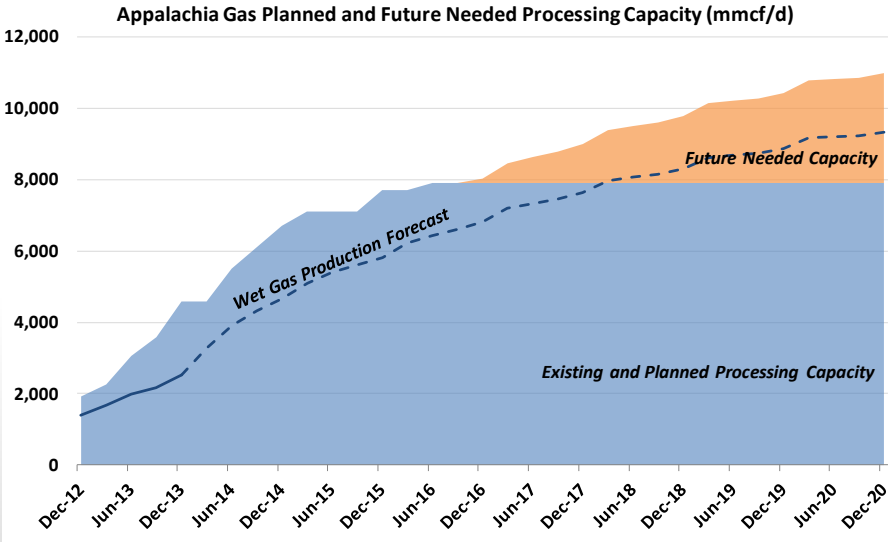


Source: Company Reports, USCA

- Table to the left shows current and planned Appalachia processing capacity. Total of ~4.6 bcf/d of current capacity. Announced additions add ~3.3 bcf/d by '16, increasing capacity by 72%.
- ***JV Accounting:*** Market share of processing capacity apportions plant capacities within JVs (UEO, Blue Racer, etc) to individual companies based on JV ownership.
- ***MarkWest Dominates:*** Early mover advantage and aggressive build out means that MWE currently dominates, with a 57% market share. And they will maintain that share, as they add almost 2 bcf/d of capacity by '16.
- ***New plants everywhere.*** Most of these are the newer, higher efficiency plants, with the first plants of significant size completed by MWE in 2010.

Gas Processing – Putting it Together





- Bottom line is with the rapid ramp-up in wet gas production in WV, SW PA and the Utica, ***the region is going to need additional processing capacity post '15.***
- And, with utilization rates expected to run near 90% by '16, ***there is little margin for planned or unplanned downtime.***
- Chart above to the left shows announced processing plants layered on by operator and adds in our forecast of wet gas production and the average plant utilization (red line, right axis).
- Chart below to the left takes our projection out to 2020 and layers on the additional capacity we think is needed, assuming an average 85% plant utilization rate.
- ***Following completion of the 7.9 bcf/d of planned plants, we see the need for another ~3.2 bcf/d of processing capacity by 2020.*** Assuming a standard 200 mmcf/d plant, that's 16 more plants, or ~4 new plants per year post '16.
- Key assumptions in our forecast of wet gas production are: Rig count flat in WV (27) and SW PA-Wet (14) areas and Utica rig count moving from 28 to 46 between '14 and '17.

Source: DI Desktop, Company Reports, EIA, USCA

Fractionation

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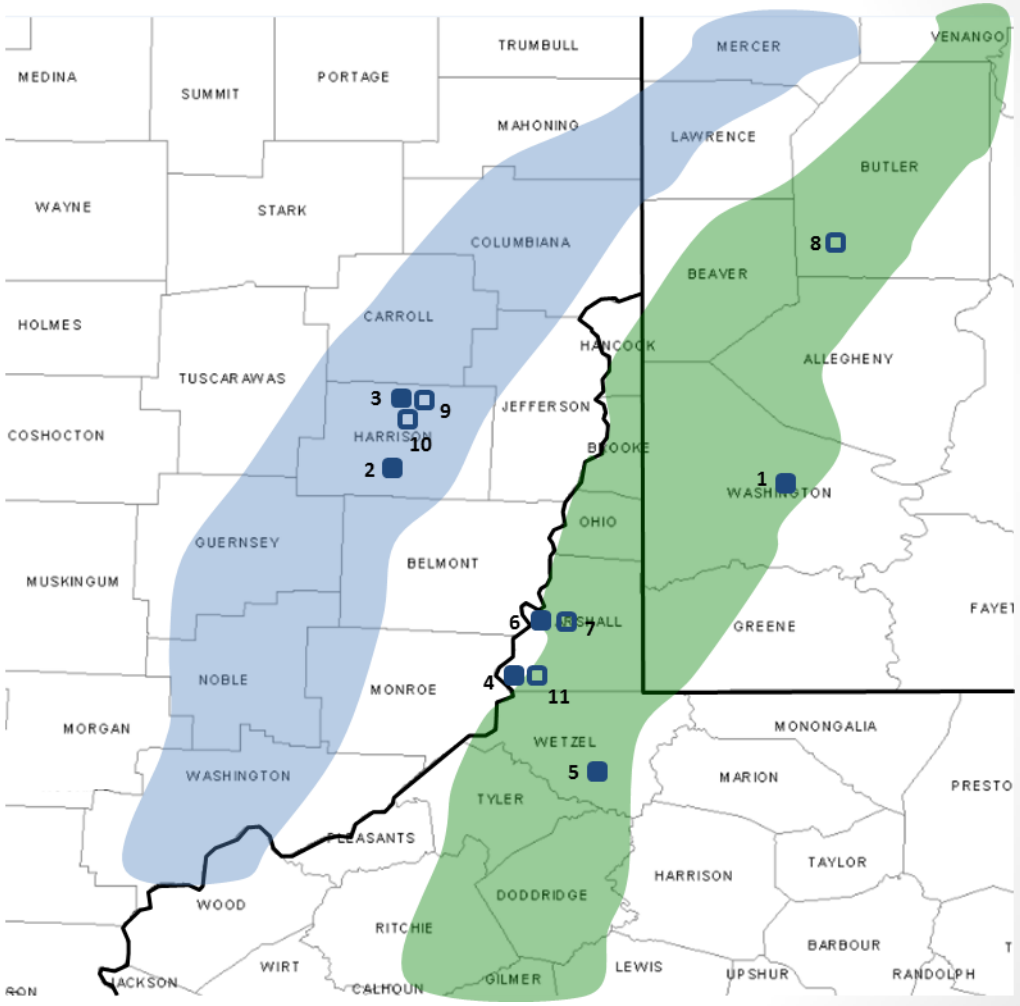
Fractionation Overview

- Table below shows current and planned fractionation facilities in Appalachia, while map to the right shows the corresponding locations.
- Note that unlike traditional fractionators in Mont Belvieu and Conway, Appalachia fracs generally only process propane and above (C3+) as there has never been any local demand for ethane (C2).

	Plant	Owner	Capacity (mbpd)	Type	Service Status
1.	Houston Complex	MWE	60	C3+	Current
2.	Hopedale Complex	MWE/EMG	60	C3+	Current
3.	*Harrison Hub	UEO	23	C2+	Current
4.	Natrium Complex	Blue Racer	36	C3+	Current
5.	Hastings	D	14	C3+	Current
6.	Moundsville	WPZ	13	C3+	Current
Total Current Capacity			**206**		
7.	Moundsville Expansion	WPZ	30	C3+	Q1'14
8.	Keystone Complex	MWE	10	C3+	Q2'14
9.	*Harrison Hub Expansion	UEO	23	C2+	Q2'14
10.	*Harrison Hub Expansion	UEO	23	C2+	Q4'14
11.	Natrium Phase II	Blue Racer	23	C3+	Q1'15
Total Planned Expansions			**108**		

**Utica East Ohio (UEO) capacity reflects only C3+ capacity*



Fractionator
Planned Fractionator
Rich Utica
Rich Marcellus

Source: Company Reports, DI Desktop, USCA

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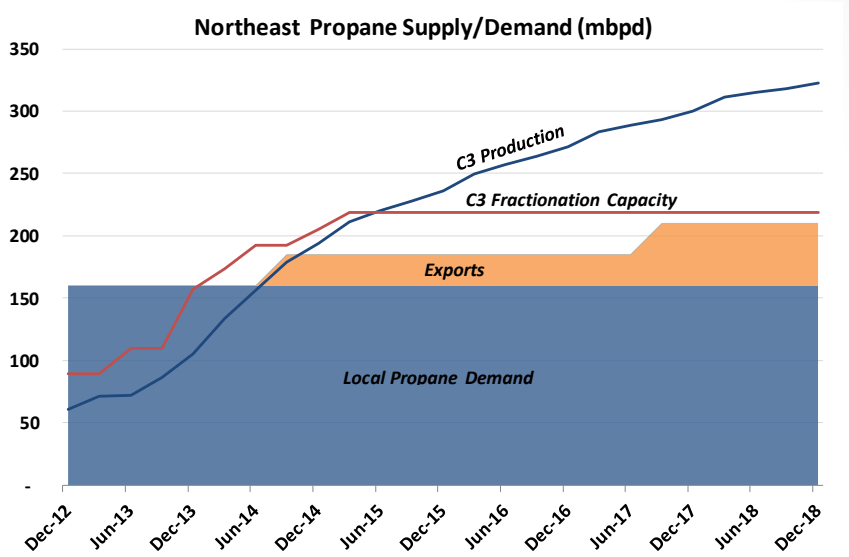
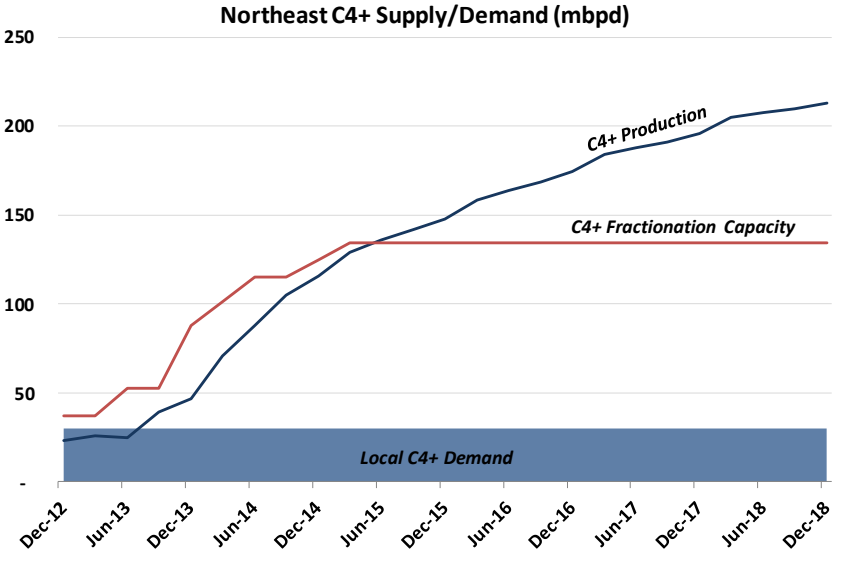
It's All About Propane

- It is easiest to think of NE frac capacity in three buckets: ethane, propane, and everything else. We start with propane (C3) first, because we think this commodity is the driver of new takeaway capacity.
- It is no coincidence that ***the amount of C3 frac capacity that has been announced almost exactly equals the amount of local demand plus expected exports (top chart)***. Included in our calculation of C3 frac capacity and C3 production is ~40 mbpd of local refinery production of purity propane.
- For now, there is still enough local demand to soak up all the local production. However by Q2'15, local propane production will exceed both average local demand and C3 frac capacity.
- ***And we don't see the need for additional C3 frac capacity unless additional export facilities are built, and not at all when a y-grade pipeline is built to the Gulf.***
- In contrast, local C4+ production already exceeds local demand. So C4+ will continue to need access to other markets via other means until a more comprehensive NGL solution is built (i.e. either Bluegrass or UMTP).
- After considering that ethane is ~55% of the barrel in Appalachia and propane ~26%, C4+ only accounts for ~19% of the barrel. But by the end of 2015, that means there is still ~150 mbpd of supply; much higher than the ~30 mbpd of local demand. We are unsure whether there is sufficient rail/truck/barge capacity to move that volume out of the region.





Source: EIA, DI Desktop, Company Reports, USCA

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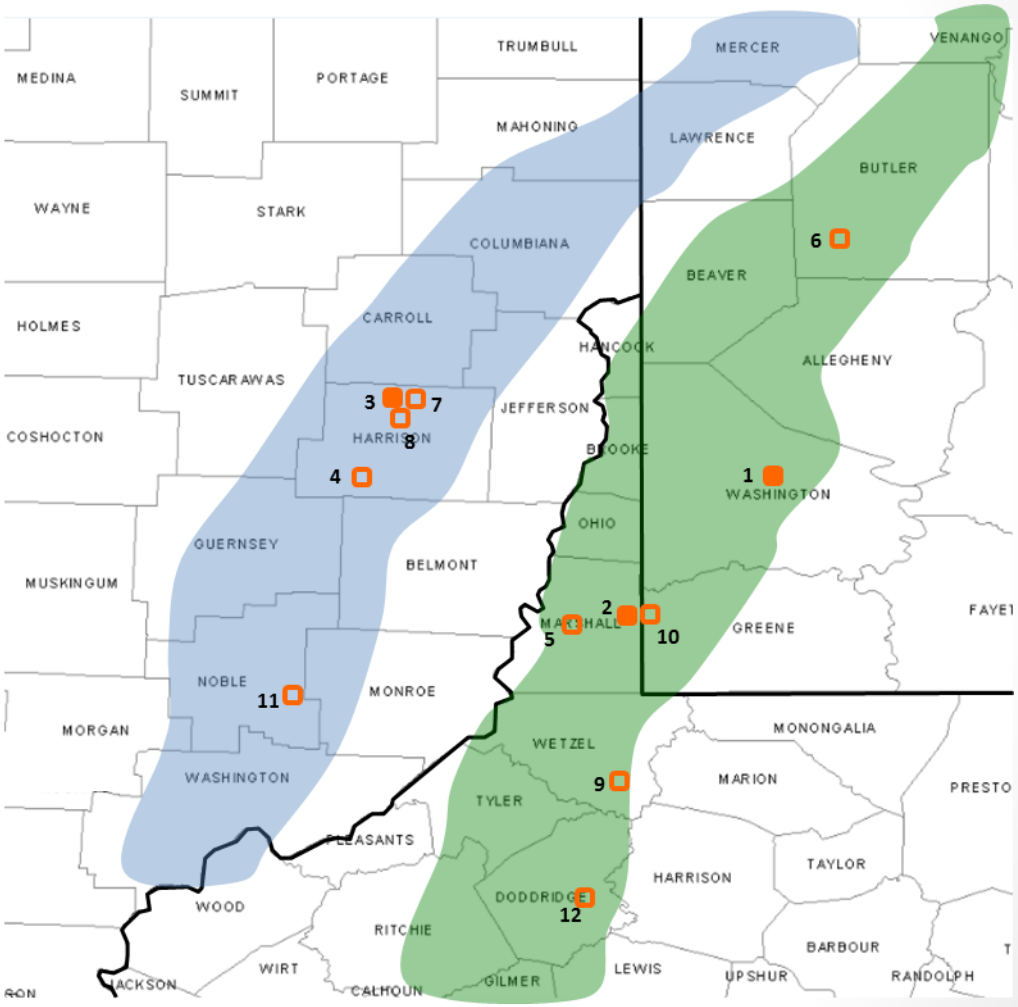
De-Ethanization Overview

- Table below shows current and planned de-ethanization facilities in Appalachia, while map to the right shows the corresponding locations.
- De-ethanizers are new to Appalachia, with the first projects coming online only as recently as Q4'13.
- While extracting ethane does not have same direct economic appeal that applies to the rest of the NGL barrel, ***as pipelines bump up against Btu limits, ethane extraction is becoming non-discretionary…pay to extract the ethane or face getting shut in by pipelines.***
- The cost to de-ethanize only is much cheaper that C3+ frac – about 3c/gal vs. ~9-10c/gal for C3+.

	Plant	Owner	Capacity (mbpd)	Service Status
1.	Houston De-Ethanizer	MWE	38	Current
2.	Majorsville De-Ethanizer I	MWE	38	Current
3.	*Harrison C2 Frac	UEO	23	Current
Total Current Capacity			**99**	
4.	Cadiz De-Ethanizer	MWE	40	Q2'14
5.	Oak Grove De-Ethanizer	WPZ	40	Q2'14
6.	Keystone De-Ethanizer	MWE	10	Q2'14
7.	*Harrison Hub Expansion	UEO	23	Q2'14
8.	*Harrison Hub Expansion	UEO	23	Q4'14
9.	Mobley De-Ethanizer	MWE	40	Q3'15
10.	Majorsville De-Ethanizer II	MWE	38	TBD
11.	Seneca De-Ethanizer	MWE	38	TBD
12.	Sherwood De-Ethanizer	MWE	38	TBD
Total Planned Expansions			**290**	

**Utica East Ohio (UEO) capacity reflects only C2 capacity*

Source: Company Reports, DI Desktop, USCA



De-Ethanizer
Planned De-Ethanizer
Rich Utica
Rich Marcellus

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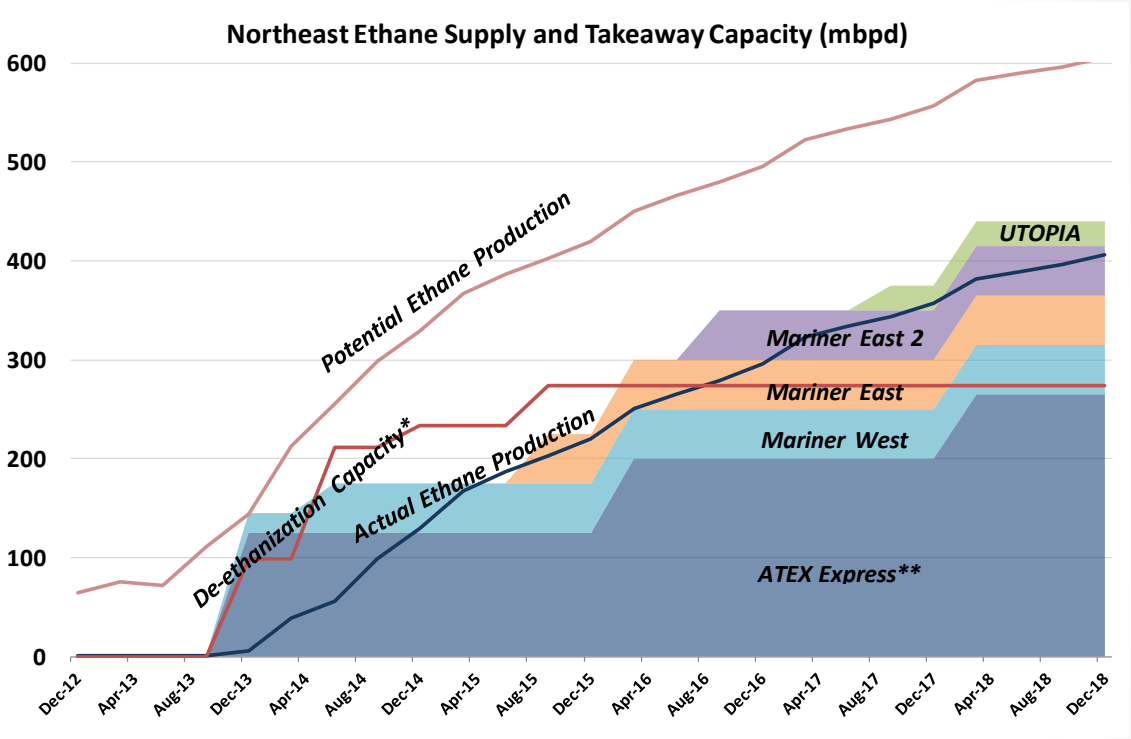
De-Ethanizers – Plenty to Go Around For Now

- Busy chart to the right, but it's chock full of info so bear with us as we walk through it.
- Given no local demand and the distance to the Gulf Coast, there is no economic incentive to extract ethane until at least the end of the decade. ***Ethane production will be driven by gas pipeline spec limitations. So actual ethane production (blue line) will be far below potential ethane production (pink line at the top).***
- We need enough de-ethanization capacity (red line) to satisfy actual ethane production. We assume current ethane rejection of 150 mbpd grows over time to 200 mbpd (as there is more blending capacity due to growing gas production), but any potential ethane production above that will need to be extracted.
- We layer on top of that in the background the capacity of major ethane pipelines.
- Key takeaways:
  - ***We think there will be excess de-ethanization capacity until mid '16. After that, additional de-ethanization capacity would be needed to supply Mariner East 2 and UTOPIA.***
  - MWE has 114 mbpd of de-ethanization capacity currently listed as *TBD* (not included in our chart) which could help fill some of that void.



**De-ethanization capacity does not include 114 mbpd of capacity listed as TBD by MWE*
***Assumes ATEX Express undergoes two expansions to reach its maximum capacity of 265 mbpd*

Source: Company Reports, DI Desktop, EIA, USCA

NGL Pipelines

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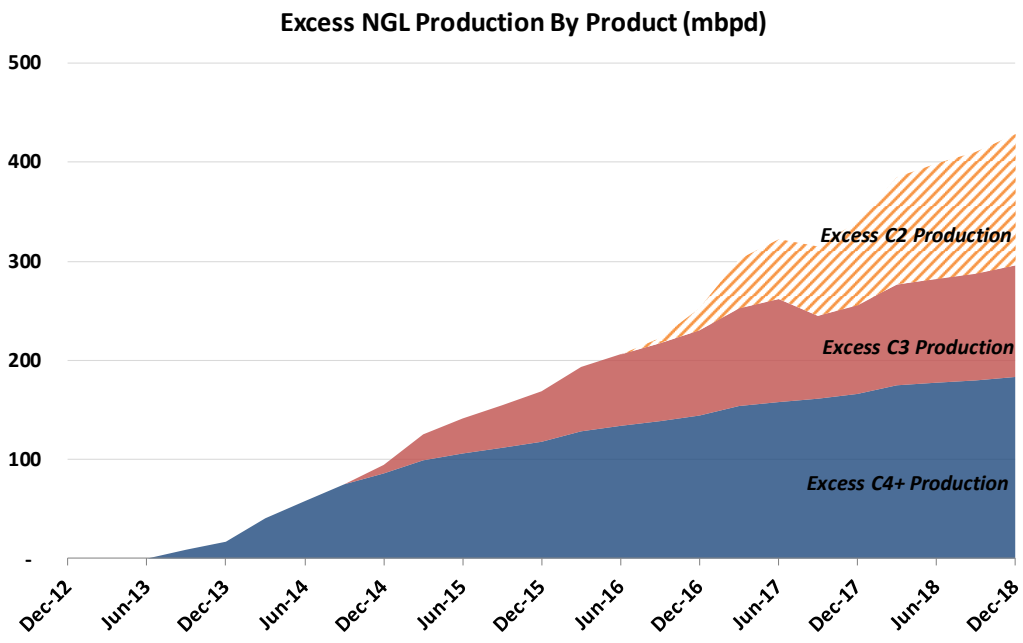
Y-Grade NGL Pipeline – Only 1 Needed this Decade

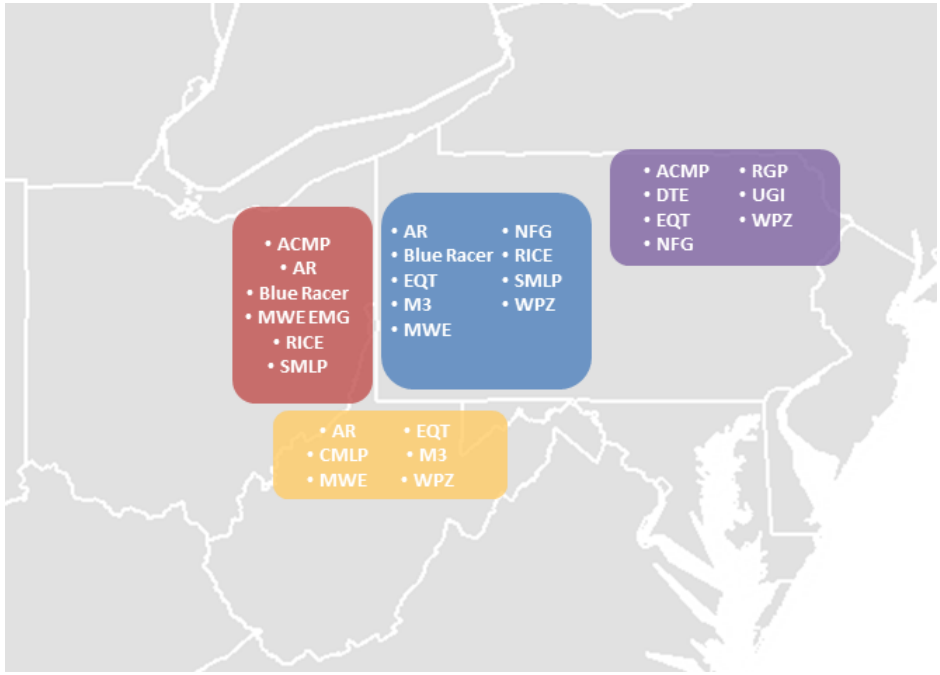


- While we don't have a strong opinion on the relative merits of the two major proposed pipelines (WPZ/BWP Bluegrass and KMP/MWE EMG UMTP), we do think that ***only one y-grade NGL pipeline will be built this decade.***
- Timing harder to call as rail/truck/barge provides interim takeaway capacity, and producers so heavily focused on getting gas out of the region currently that future NGL production is not on their plate. ***By YE '16, excess NGL production will be over 200 mbpd.***
- Chart to the left shows excess Appalachia NGL production above local demand.
  - As we discussed in Fractionation (p. 35), there is already additional C4+ production above the local ~ 30 mbpd demand.
  - True excess propane production will vary on a seasonal basis – here we remove that seasonality and show excess propane production vs. average annual demand (including pending export projects).
  - We show excess ethane as ethane production in excess of current and planned de-ethanization capacity. We show it slashed as there is still excess capacity on purity ethane lines out of region should additional de-ethanization capacity get built, so these volumes should not be counted on as needing to flow on a new y-grade line.

Source: Company Reports, DI Desktop, USCA

Gathering

Gathering Assets



Company	Q4'13 Volumes Gathered (mmcf/d)
WPZ	1,957
EQT	1,347
ACMP	1,308
RGP	776
MWE	689
CMLP	461
NFG	337
AR*	226
Total	**7,100**

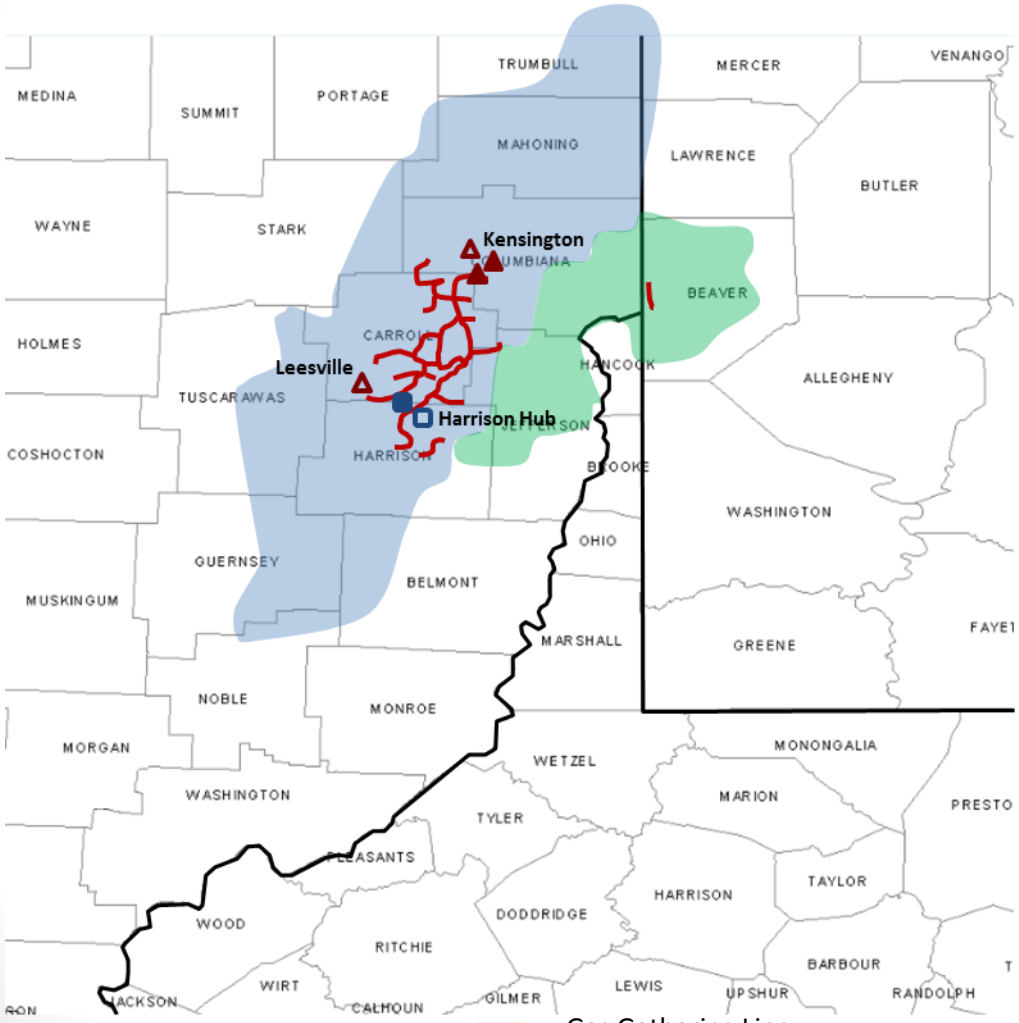
*Q3'13 volumes

- We saved gathering for last as not too much to say on the subject. Gathering build out has not been a meaningful constraint to production for a while, and there are enough players in the region that returns generally reflect reasonable, risk-adjusted returns.
- Listed above are who we view as the major gatherers in each region of Appalachia.
- Above and to the right above is a table of publicly available gathering volumes for some of the larger gatherers. Part of the reason for the delta between the 15 bcf/d of current Appalachia gas production and the ~7 bcf/d shown is that some dry gas production is located adjacent to major gas pipelines, and part is also due to producers who self gather and don't report separate gathering volumes.

Source: Company Reports, SNL, USCA

Appalachia Infrastructure by Company

Access Midstream Partners (ACMP)



- UEO JV Fractionator
- Planned UEO JV Fractionator
- UEO JV Processing Plant
- Planned UEO JV Processing Plant
- Gas Gathering Line
- Cardinal Gas Services Acreage Dedication
- Utica Gas Services Acreage Dedication

Utica East Ohio JV (49%) – see p. 82

Cardinal Gas Services (66% ACMP, 25% Total, 9% EVEP)

- Wet gas Utica window; 1.5mm acres under dedication
- **Current Assets:**
  - 199 miles of pipe; 158 mmcf/d gas gathered
  - 63,505 hp
- **Planned Expansions:**
  - ~425 miles of pipe; 5 compressor stations
  - 1.2 bcf/d capacity

Utica Gas Services (100%)

- Dry gas Utica window; 140,000 acres under dedication
- **Current Assets:**
  - 37 miles of pipe
- **Planned Expansions:**
  - 350 miles of pipe; 1.1 bcf/d capacity

Source: Company Reports, DI Desktop, USCA

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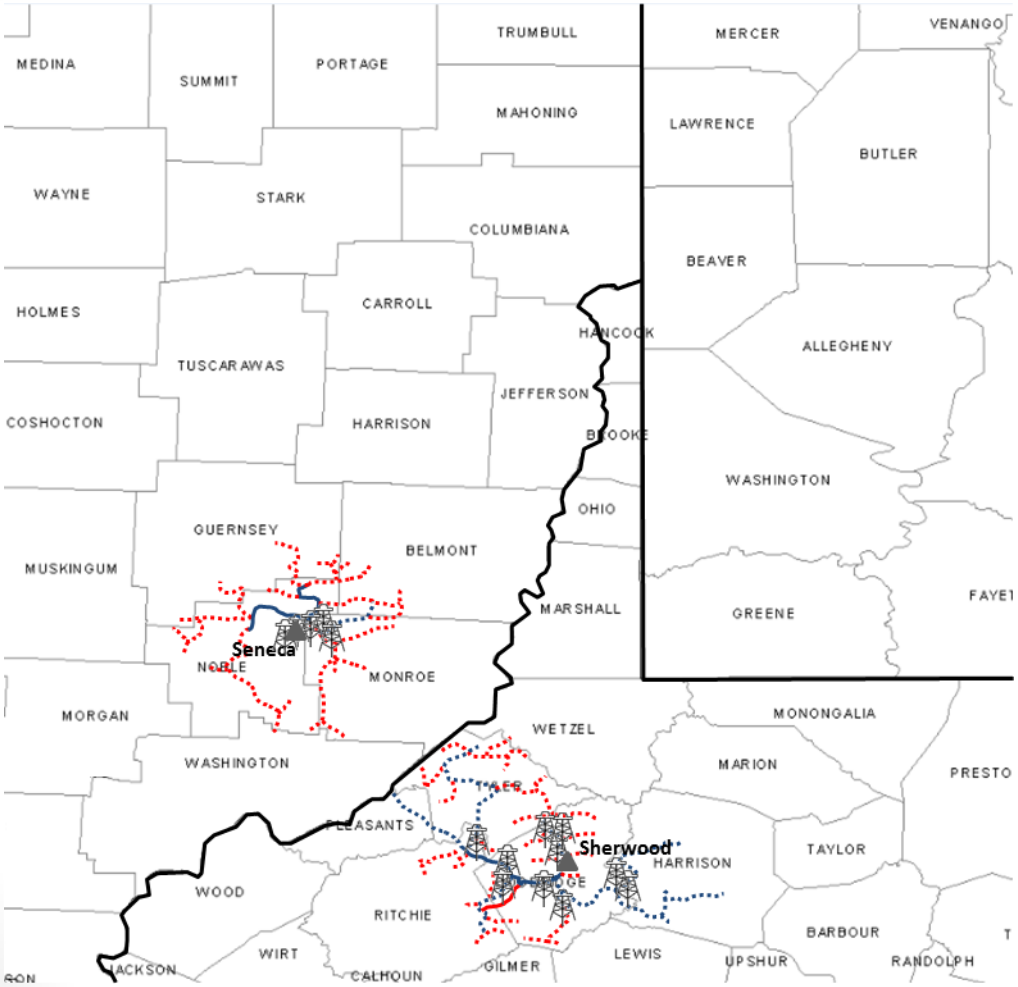
Antero Resources (AR)

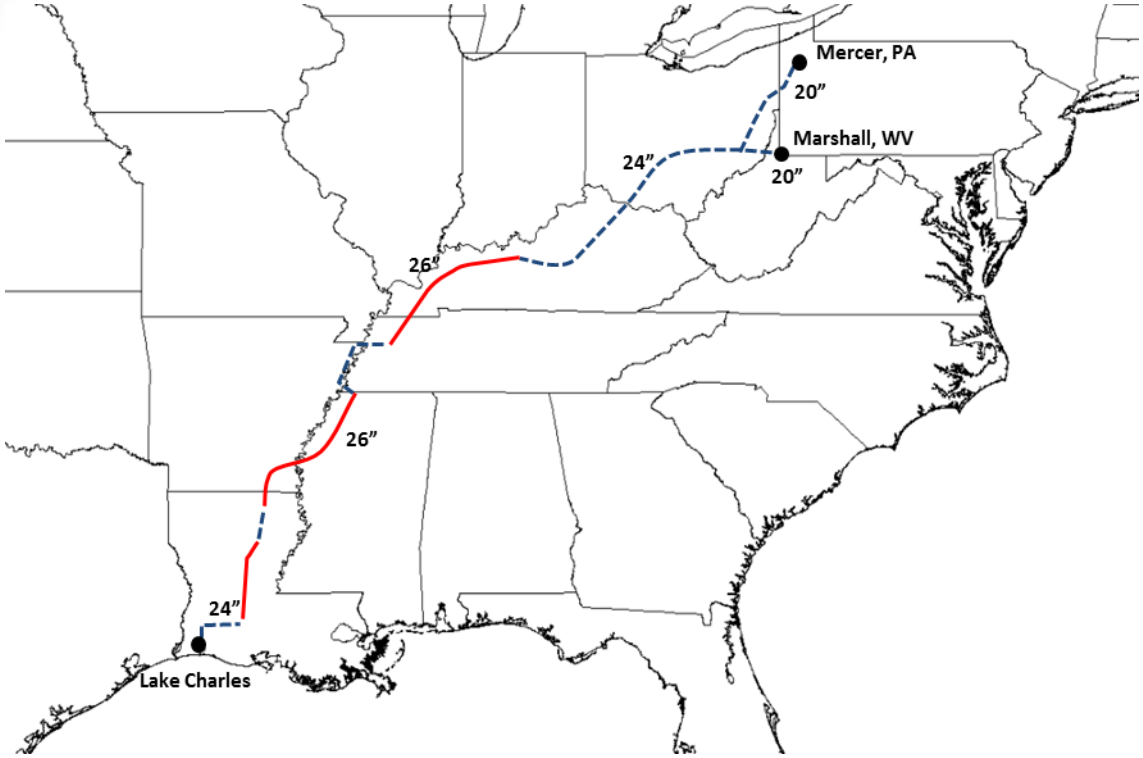


Water Lines
Proposed Water Lines
Gas Gathering Line
Proposed Gas Gathering Line
Third Party Processing Plant
Drilling Rig (AR)

- **Gathering & Compression**
  - Compression and 100 miles of gas gathering in the Marcellus and Utica
  - $680mm spent in ‘13 on the system
- **Water System**
  - ~130 miles of water pipeline and ~60 water storage facilities
  - $250mm spent in ‘13 on the system and plan to spend $525mm through ’15
- 15 drilling rigs operating as of April 2014
- S-1 filed to spin midstream assets into MLP (Antero Midstream)

Source: Company Reports, DI Desktop, USCA

Bluegrass NGL Pipeline JV – (BWP 50%, WMB 50%)



Texas Gas Transmission Pipeline (to be converted)
New pipeline for Bluegrass

- Proposed 1,125-mile, 200 mbpd y-grade NGL pipeline from the Marcellus and Utica to the Gulf Coast
- 500 miles of new construction and 623 miles of repurposed, Texas Gas Transmission Pipeline (BWP)
- 2016 in-service. No cost estimate yet
- Expandable to 400 mbpd

Source: Company Reports, DI Desktop, USCA

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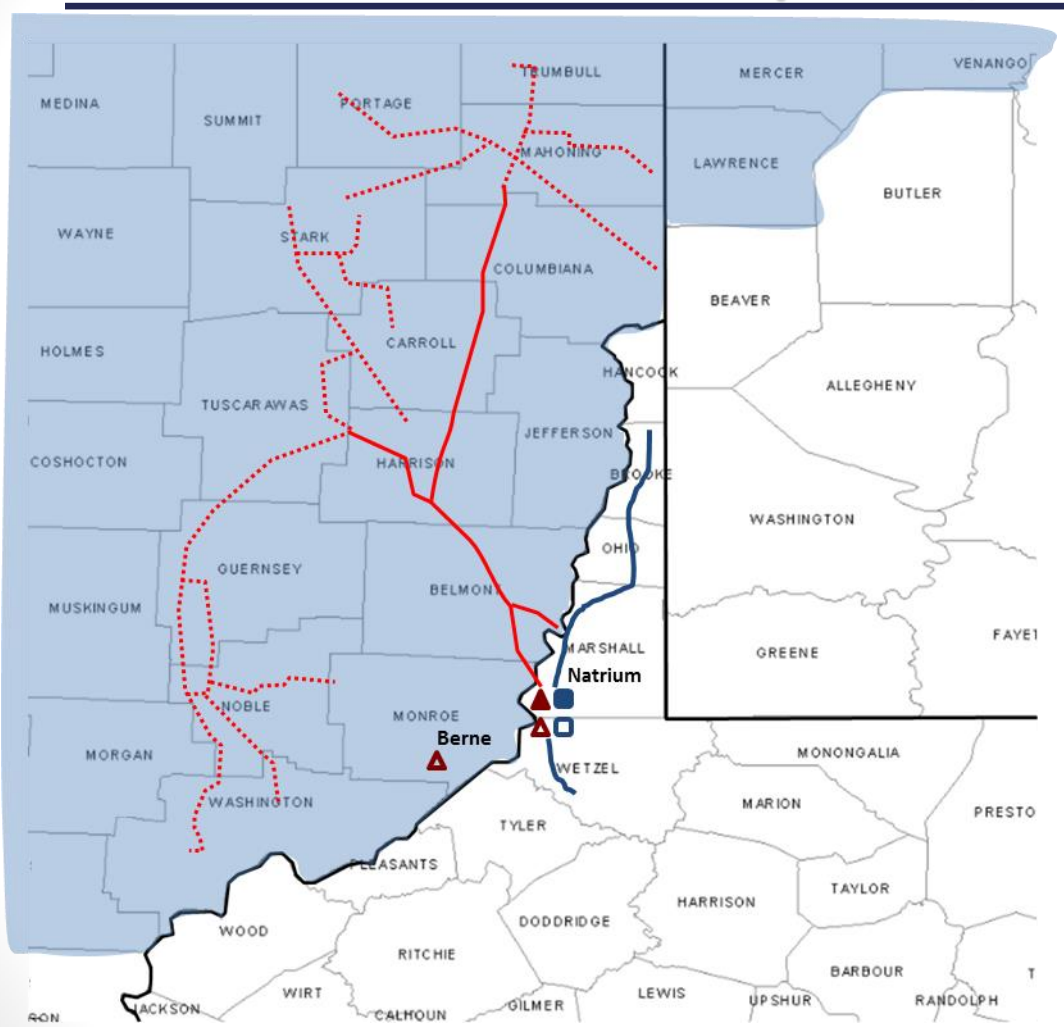
Blue Racer Midstream – (D 50%, Caiman Energy II 50%)



- Fractionator
- Planned Fractionator
- Processing Plant
- Planned Processing Plant
- Gas Gathering Line
- Proposed Gas Gathering Line
- G-150 NGL Pipeline
- Blue Racer Area of Operations

Caiman Energy II Ownership; WPZ (47.5%), EnCap (35.6%), Highstar (11.5%), Others (5.4%)

- **Current Assets:**
  - 200 mmcf/d processing (Natrium)
  - 36 mbpd C3+ fractionator (Natrium)
  - ***G-150 NGL Pipeline:*** 60-mile, 8" NGL pipeline from Natrium to TEPPCO and ATEX; 27 mbpd capacity
  - 500+ miles of wet gas gathering
- **Planned Expansions:**
  - 200 mmcf/d processing (Natrium, Q1'14)
  - 200 mmcf/d processing (Berne, Summer '14)
  - 23 mbpd C3+ fractionator (Natrium)

Source: Company Reports, DI Desktop, USCA

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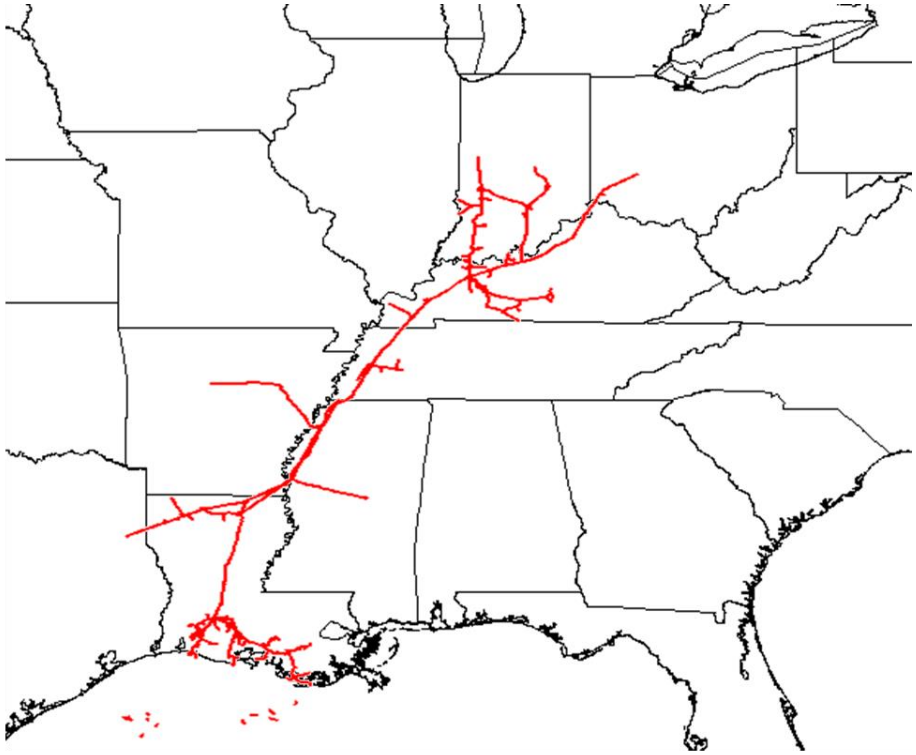
Boardwalk Pipeline Partners (BWP)



Texas Gas Transmission

- **Texas Gas Transmission**
  - 5,880 miles of pipe from Gulf Coast to SW Ohio
  - Portions to be converted to NGL service for potential Bluegrass Pipeline
- **Planned Expansions:**
  - Ohio-to-Louisiana Access: $114mm project to reverse flow on a portion of Texas Gas Transmission to move 625 mmcf/d of gas from Lebanon, OH to markets in Louisiana, In-service 1H'16
- **Bluegrass NGL Pipeline JV (50%) (see p. 45)**

Source: Company Reports, DI Desktop, USCA

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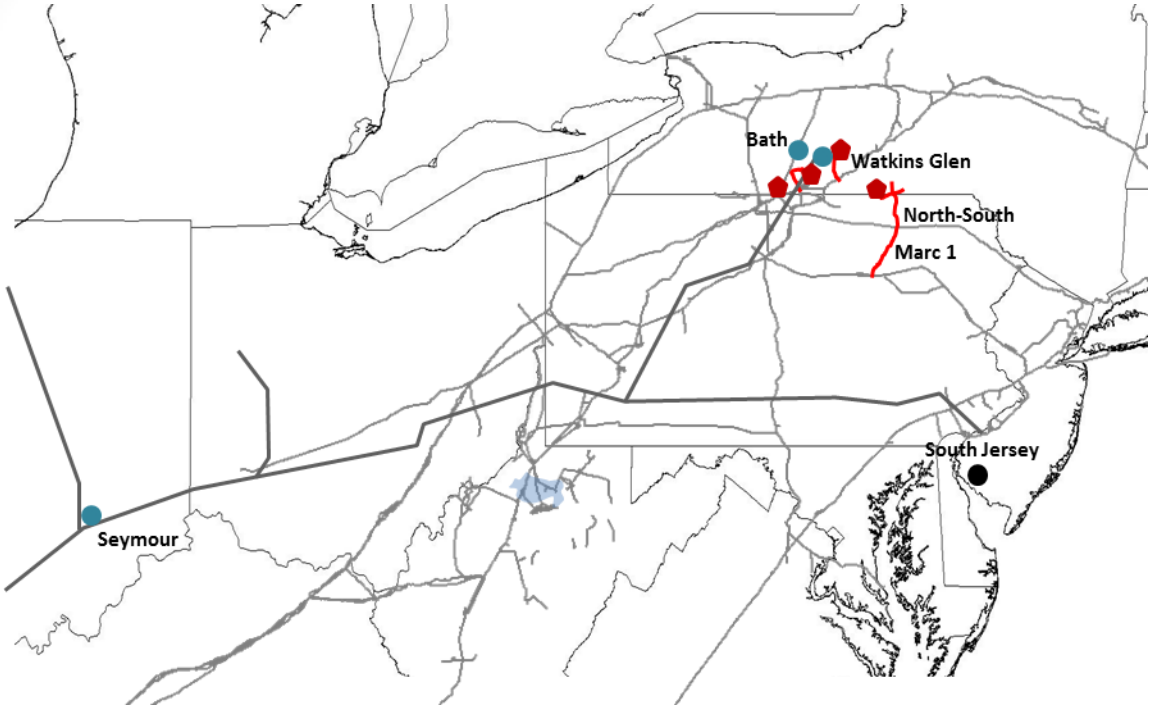
Crestwood Midstream Partners (CMLP) – NE Storage & Transportation



Third Party Gas Pipeline
TEPPCO NGL Pipeline (EPD)
CMLP Gas Pipeline
Gas Storage
NGL Storage
Antero Acreage Dedication

- **Gas Storage:** 41 bcf capacity
- **Gas Pipelines:**
  - ***Marc 1*** – 550 mmcf/d capacity
  - ***North-South*** – 550 mmcf/d capacity
- **NGL & Crude Services**
  - 500 trailers and 1,100 rail cars largely servicing the Marcellus and Utica
  - ***Bath Storage*** – 1.7 mmbbl propane and butane storage cavern
  - ***Watkins Glen*** – Developing 2.1 mmbbl of NGL storage with truck, rail and pipeline access
  - ***Seymour Terminal*** – LPG storage and terminal
  - ***South Jersey Terminal*** – Serves refiners and blenders in region

Source: Company Reports, DI Desktop, USCA

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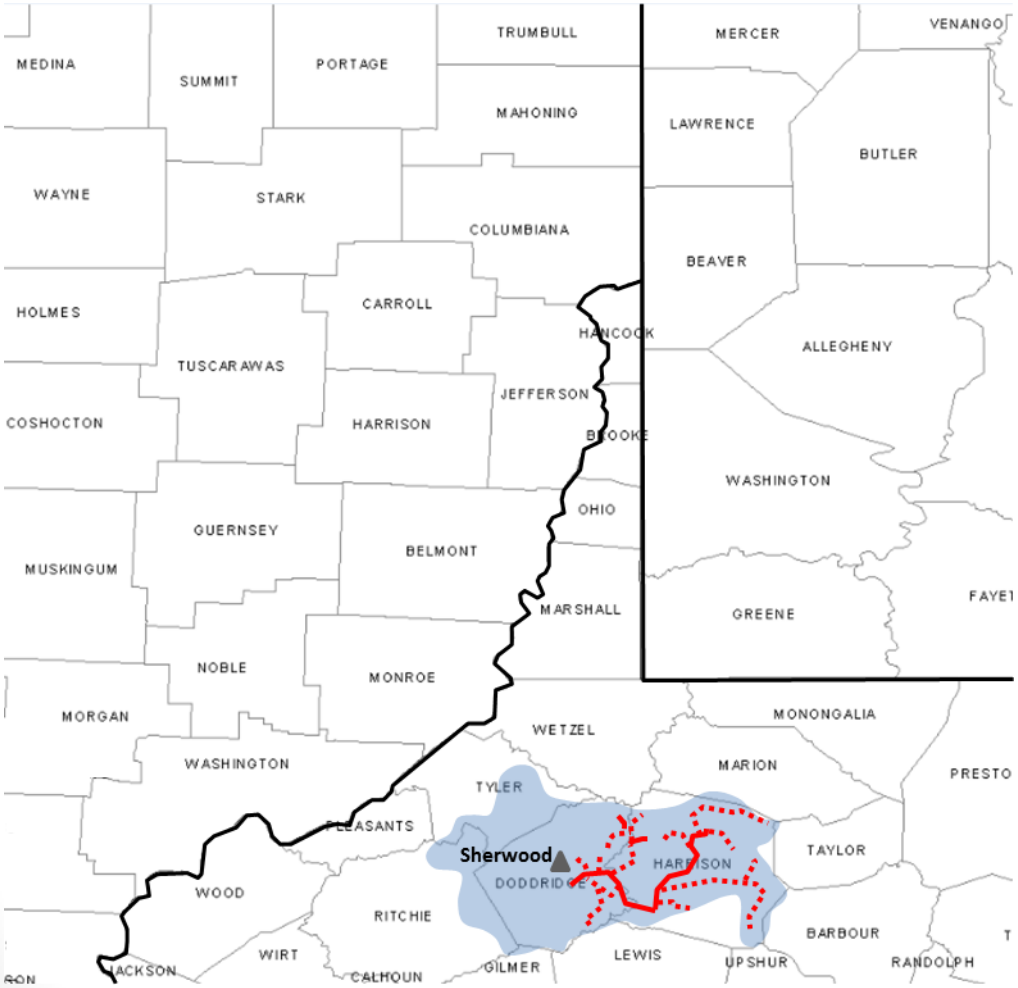
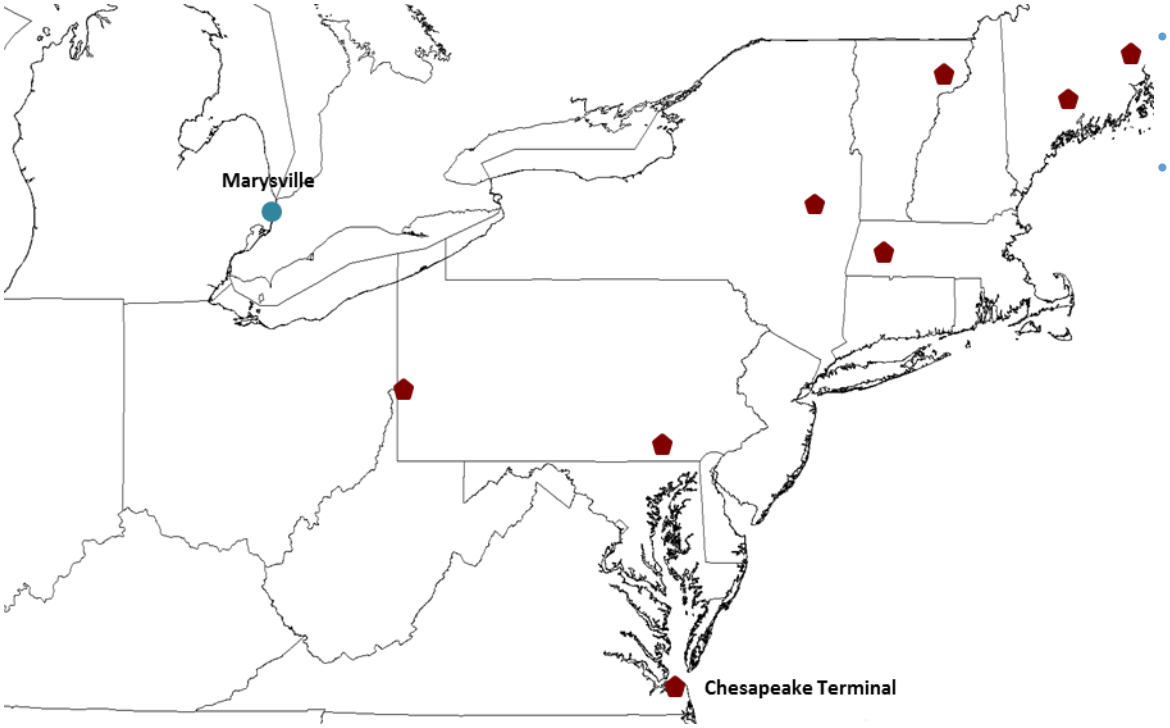
Crestwood Midstream Partners (CMLP) – WV Antero Agreement



- **Antero/CMLP agreement**
  - 136,000 net acres area of dedication
  - 7-year minimum volume commitment
  - Currently 33 miles of gathering
  - $375mm of midstream capex planned ‘14-’18

Source: Company Reports, DI Desktop, USCA

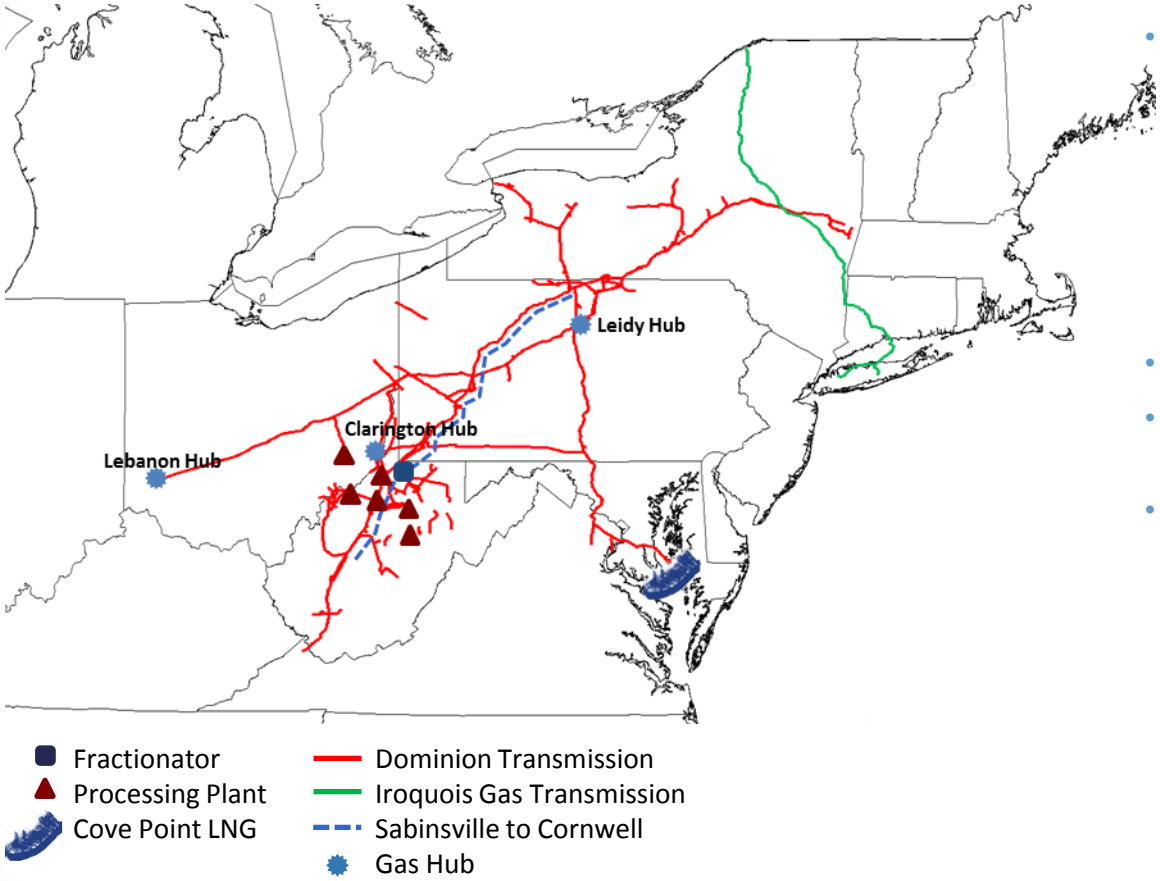
DCP Midstream Partners (DPM)



- **Marysville Storage:** 7 mmbbl of propane and butane storage and 1 mmbbl of ethane storage at Marysville, MI
- **Wholesale Propane Logistics:**
  - 8 wholesale propane terminals in the NE and Mid-Atlantic with ~1 mmbbl of storage capacity
  - Developing project at Chesapeake, MD terminal to be able to export butane in '14 (capacity not yet disclosed)

Source: Company Reports, DI Desktop, USCA

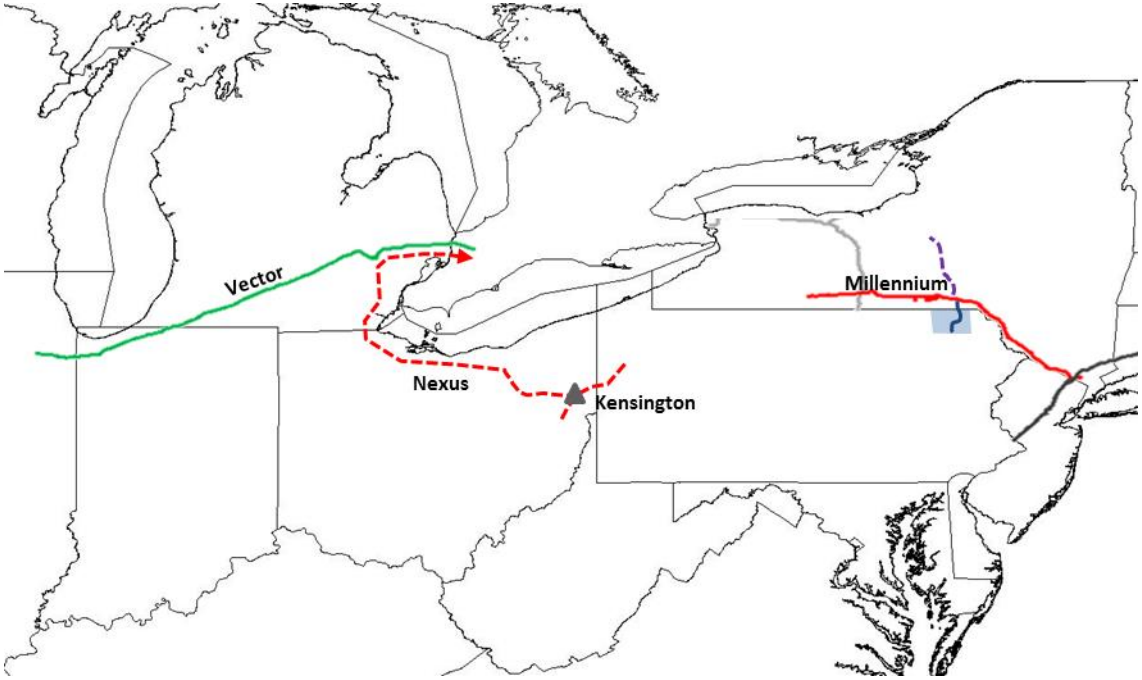
Dominion Resources (D)



- **Current Assets:**
  - ~7,800 miles of gas transmission
  - 534 bcf of gas storage
  - 288 mmcf/d gas processing
  - 14 mbpd fractionation
  - Cove Point LNG import terminal
- **Blue Racer Midstream JV (50%):** (see p. 46)
- **Iroquois Pipeline (25%):** 416-mile interstate natural gas pipeline
- **Planned Expansions:**
  - ***Cove Point LNG Export Terminal:*** 770 mmcf/d send out capacity; in service 2017; cost $3.4-$3.8B
  - ***Sabinsville-to-Cornwell:*** Proposed expansion of Dominion Transmission from Sabinsville Interconnect with TGP in Tioga County, PA to Cornwell Interconnect with TGP in Kanawha County, WV. Projected in-service Nov. '16.
  - ***South-to-North (SoNo):*** 300 mmcf/d of capacity on Iroquois to deliver gas as far north as TransCanada at Waddington. Expected in-service Nov. '16

Source: Company Reports, DI Desktop, USCA

DTE Energy (DTE)

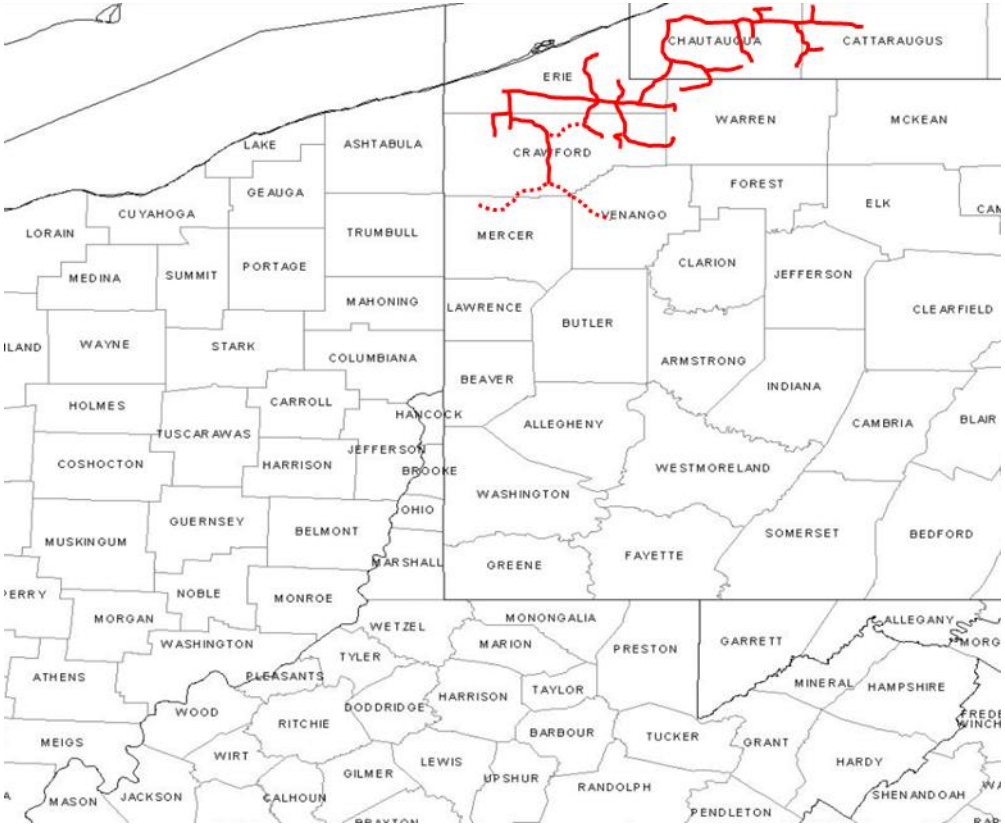


- Third Party Processing Plant
- Susquehanna Gas Gathering
- Bluestone Pipeline Gas Gathering
- Empire Pipeline (NFG)
- Algonquin Pipeline (SEP)
- Millennium Pipeline
- Vector Pipeline
- Nexus Gas Transmission
- Upstate Pipeline Project

- **Vector Pipeline**
  - 350-mile interstate gas pipeline from Joliet, IL to Dawn, ON, with capacity of 1.3 bcf/d
- **Millennium Pipeline (26% DTE, 48% NI, 26% National Grid)**
  - 182-mile interstate gas pipeline from S. Central NY to Ramapo, NY with capacity of 800 mmcf/d
  - Interconnects with Empire and Algonquin pipelines
  - ***Upstate Pipeline Project:*** Would add 300 mmcf/d of capacity north off of Millennium by early '16
- **Bluestone Pipeline**
  - 45 miles of 20"/16" pipe with bi-directional capacity of 600 mmcf/d
  - Interconnects with Millennium and TGP
  - Foundation shippers: SWN, COG
  - Expanding to 900 mmcf/d by Q2'15
- **Susquehanna Gathering**
  - 70 miles of 16"/12" pipe
- **Nexus Gas Transmission (DTE, ENB, SEP)**
  - Proposed ~250-mile gas pipeline from NE Ohio to Dawn, ON
  - Planned capacity of 1 bcf/d; in-service 2017
  - 60c-80c/mcf proposed rate

Source: Company Reports, DI Desktop, USCA

EmKey Gathering (Private)



Gas Gathering Pipeline
Planned Gathering Expansion

- **EmKey Gathering:** 350-mile gas gathering system with 3,290 hp of compression
- **EmKey Transportation:** ~18 miles of 12” and ~10 miles of 8” pipe. Long-term contract with Board of Public Utilities in Jamestown, NY.

Source: Company Reports, DI Desktop, USCA

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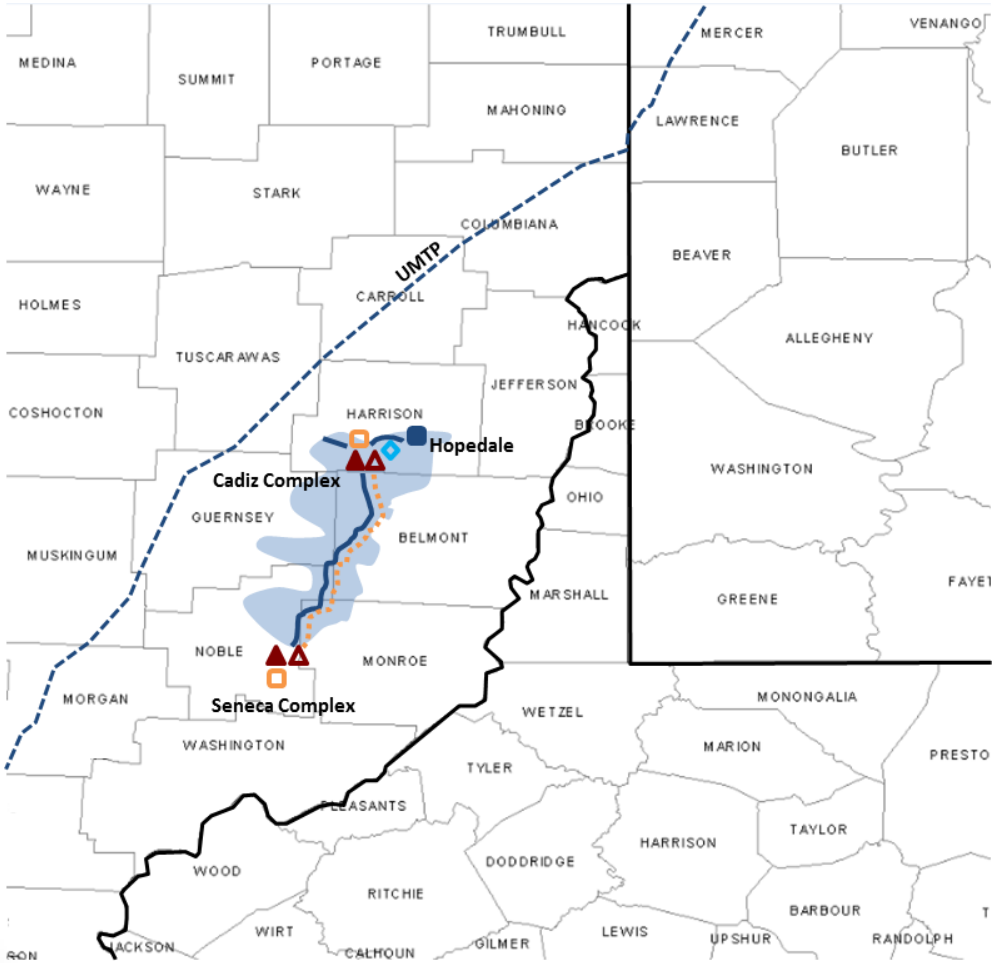
Energy Minerals Group (Private)



MWE Utica EMG JV (60% MWE/40% EMG)

- **Current Assets:**
  - ***Gas gathering:*** 185 mmcf/d capacity
  - ***Processing:*** 585 mmcf/d capacity
  - ***Fractionation:*** 60 mpbd C3+ capacity
  - ***Marketing:*** Large-scale rail and truck loading in Harrison County, OH
- **Planned Projects:**
  - ***Processing:*** 600 mmcf/d capacity
  - ***Fractionation:*** 78 mbpd de-ethanization
  - ***Condensate:*** 23 mbpd stabilizer by Q3'14
  - ***NGLs:*** Extensive gathering system with interconnects to TEPPCO and ATEX

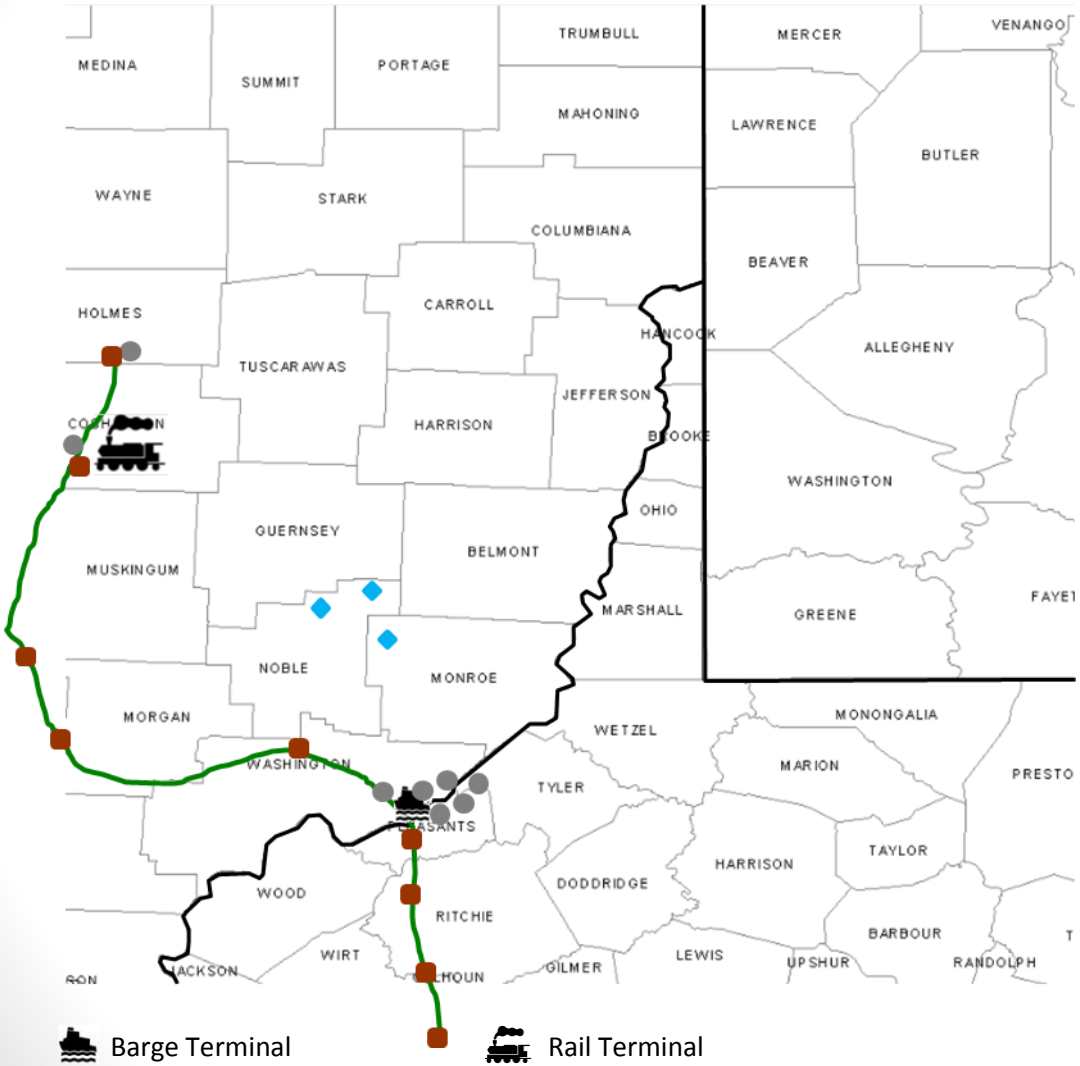
UMTP NGL Pipeline (Proposed)

- ***KMP/MWE Utica EMG JV:*** 150 mbpd initial capacity expandable to 400 mbpd. At least 75% KMP and up to 25% MWE Utica EMG

Fractionator
Processing Plant(s)
Planned Processing Plant(s)
Planned Deethanizer
NGL Line
Planned Pure Ethane Line
UMTP NGL Pipeline
Gathering Area
Planned Condensate Stabilizer

Source: Company Reports, DI Desktop, USCA

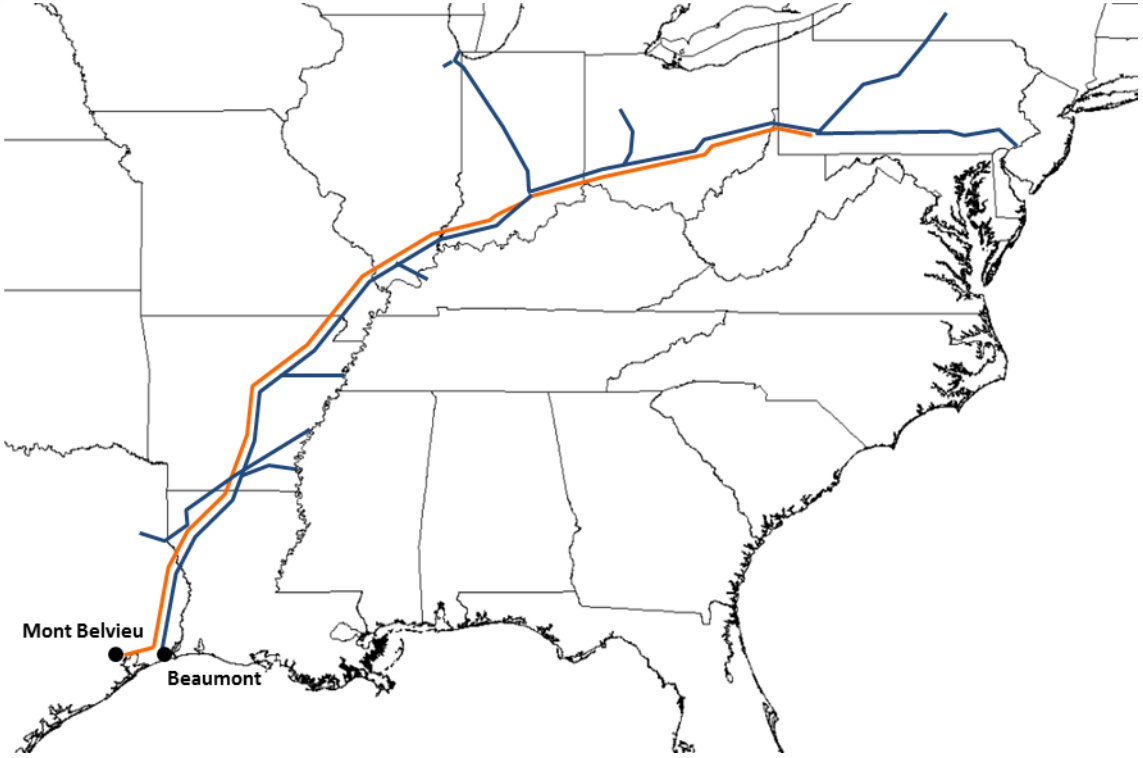
EnLink Midstream LP (ENLK)



- **Current Assets:**
  - 200-mile, 17 mbpd crude oil pipeline
  - Barge terminal on Ohio River
  - Rail terminal on Ohio Central Railroad
  - Brine disposal: 8 total wells, 2 jointly owned
  - E2 Condensate Stabilization
    - JV with EnLink Inc (ENLC)
    - 12 mbpd of condensate stabilization and 300 mmcf/d of compression at three facilities
  - 500 mbbl of above-ground storage
  - Truck fleet capacity of 25 mbpd
  - 2,500 miles of unused right of way

Source: Company Reports, DI Desktop, USCA

Enterprise Products Partners (EPD)



- **ATEX Express**
  - 1,230-mile NGL pipeline with initial capacity of 125 mbpd of ethane
  - Includes 369 miles of new, 20” pipe from PA to IN, reversing existing pipe from IN to Beaumont and 55 miles of new, 16” pipe from Beaumont to Mont Belvieu
- **TE Products Pipeline (TEPPCO)**
  - 4,700-mile common carrier pipeline that historically has transported LPGs and refined products from the Gulf Coast to Midwest and NE markets
  - Following completion of the ATEX line, TE Products went from having two lines line moving from south to north to one line moving from south to north

Source: Company Reports, DI Desktop, USCA

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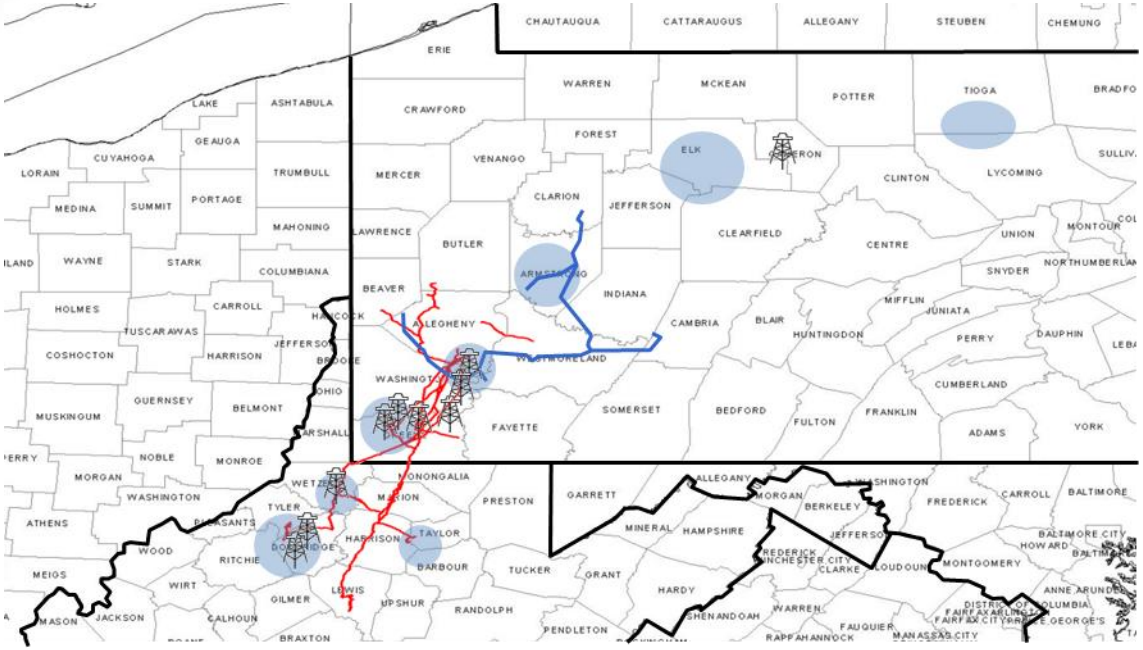
EQT Corporation (EQT)

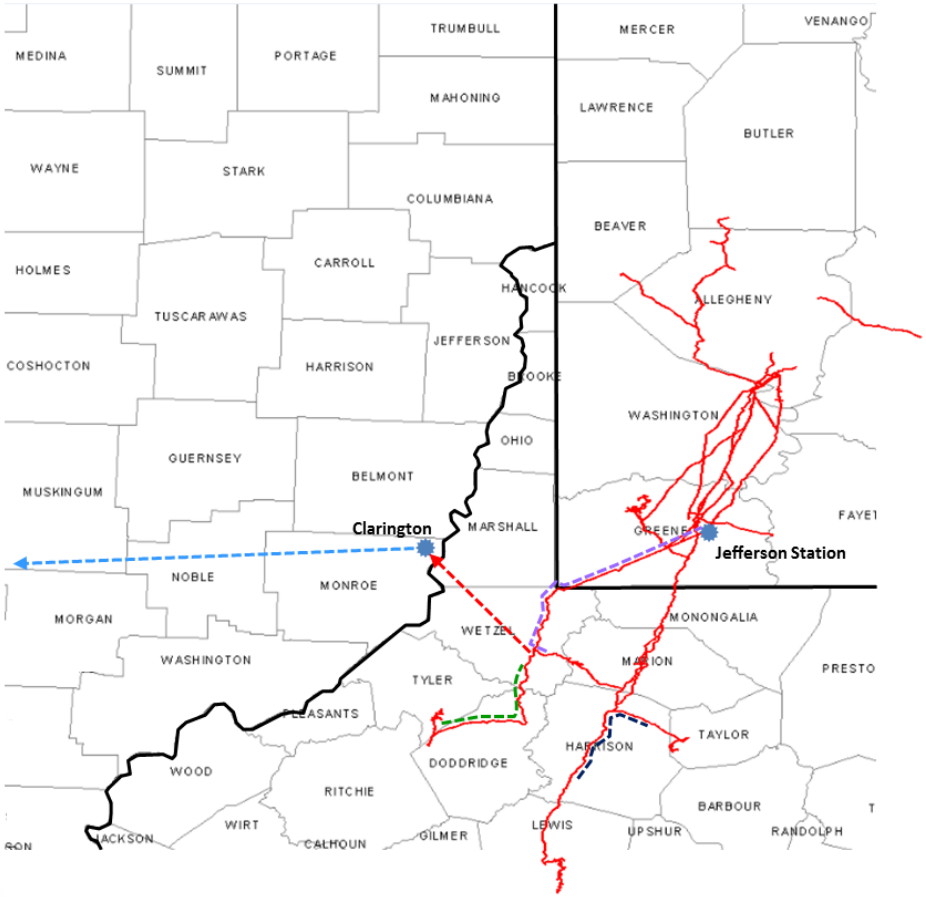


Drilling Rig (EQT)
Equitrans Gas Pipeline (EQM)
Allegheny Valley Connector
Gas Gathering System

- **In addition to owning standalone midstream assets in Appalachia, EQT owns the GP of EQM and 42.6% of their LP units**
- **Current Assets:**
  - 1.5 bcf/d of Marcellus gathering
  - Through EQM ownership:
    - 700 miles of FERC-regulated gas pipelines
    - 32 bcf of gas storage
  - Through sale of Equitable Gas to Peoples Natural Gas:
    - **Allegheny Valley Connector:** 200 miles of FERC-regulated gas pipelines
    - 15 bcf of gas storage
- 11 drilling rigs operating as of April 2014

Source: Company Reports, DI Desktop, USCA

EQT Midstream (EQM)



- **Current Assets:**
  - 700 miles of FERC-regulated gas pipelines
  - 32 bcf of gas storage
- **Planned Expansions:**
  - ***Ohio Valley Connector:*** Up to 1.2 Bcf/d of capacity to connect Equitrans with Rockies Express and Texas Eastern Transmission. Has foundation shipper committed for 400 mmcf/d of capacity. Expected in-service Q2'16.
  - ***Ohio Express:*** Additional pipeline and compression to transport up to 2 Bcf/d from Clarington to Lebanon, OH. Expected in-service Q2'17 with cost of $1.5B
  - ***Sunrise Expansion:*** 550 mmcf/d expansion of Sunrise by Q3'14 at cost of $30mm
  - ***Antero Resources Expansions:***
    - ***West Side Expansion:*** Capacity of 100 mmcf/d; cost of $26mm with in-service Q4'14
    - ***East Side Expansion:*** Capacity of 100 mmcf/d; cost of $29mm with in-service mid-'15
  - ***Range Resources Expansion:*** Will add 100 mmcf/d of transmission capacity by Q4'14 and build additional gathering infrastructure; cost of $30mm for gathering and $25mm for transmission expansions
- EQM's GP is owned by EQT, who also owns 42.6% of the LP units of EQM

Source: Company Reports, DI Desktop, USCA

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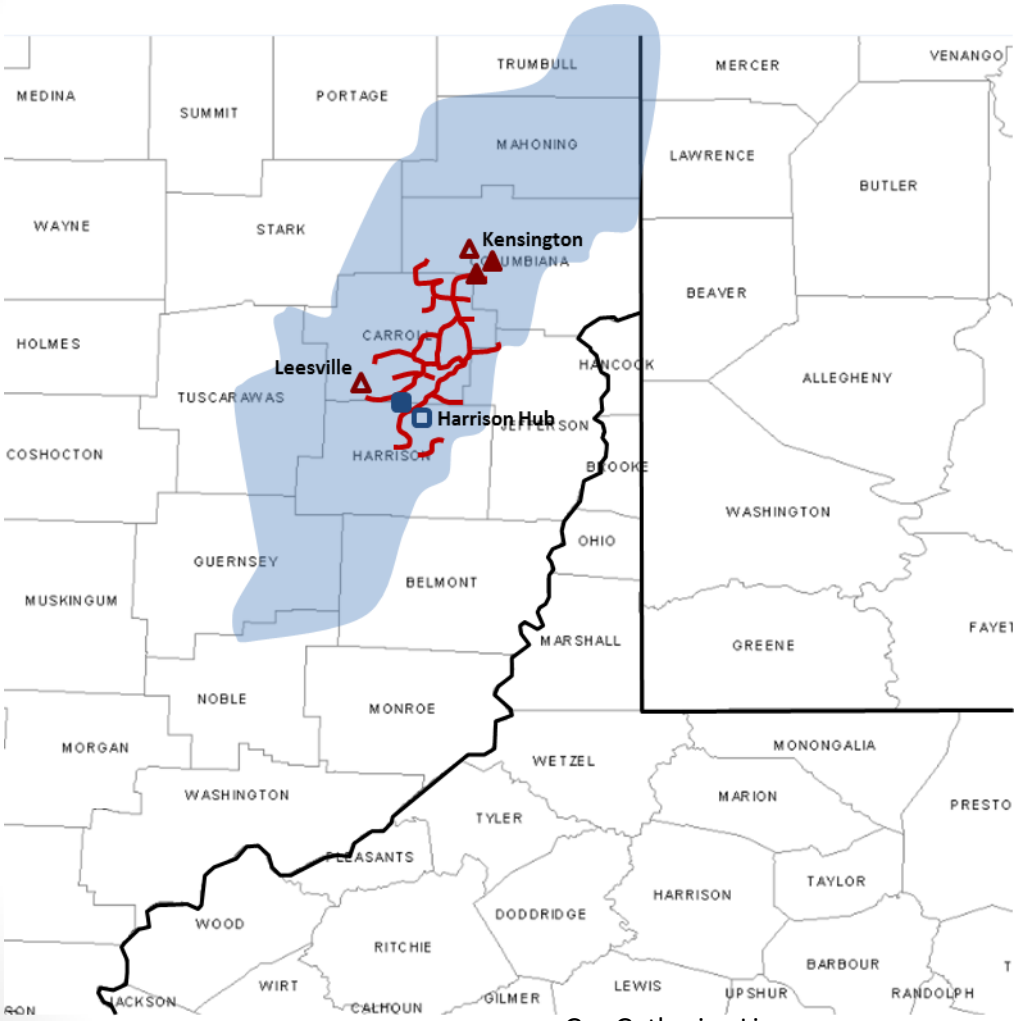
EV Energy Partners (EVEP)

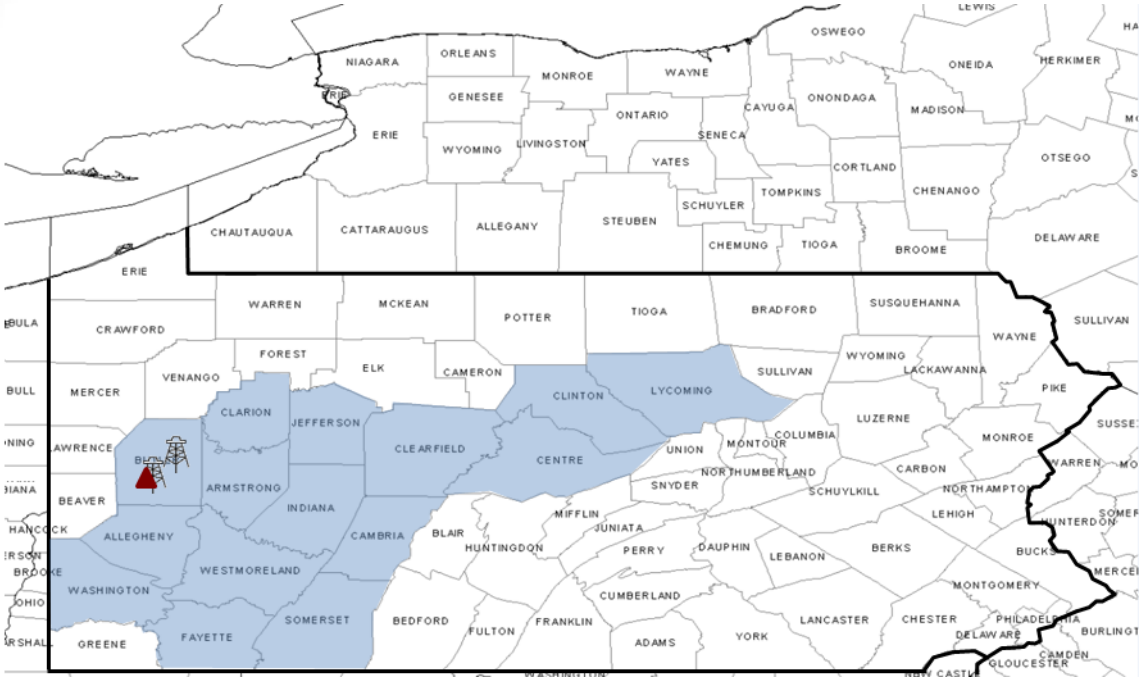


- UEO JV Fractionator
- Planned UEO JV Fractionator
- UEO JV Processing Plant
- Planned UEO JV Processing Plant
- Gas Gathering Line
- Cardinal Gas Services Acreage Dedication

- 21% interest in Utica East Ohio JV (see p. 82)
- 9% interest in Cardinal Gas (see p. 43)

Source: Company Reports, DI Desktop, USCA

ExxonMobil (XOM)



Gas Processing Plant
Drilling Rig (XTO)
XTO Operating Areas

Operates in Marcellus and Utica through its subsidiary XTO Energy

- 125 mmcf/d of processing capacity
- Currently has 80 miles of pipe and two compressor stations in PA
- 2 drilling rigs operating as of April 2014

Source: Company Reports, DI Desktop, USCA

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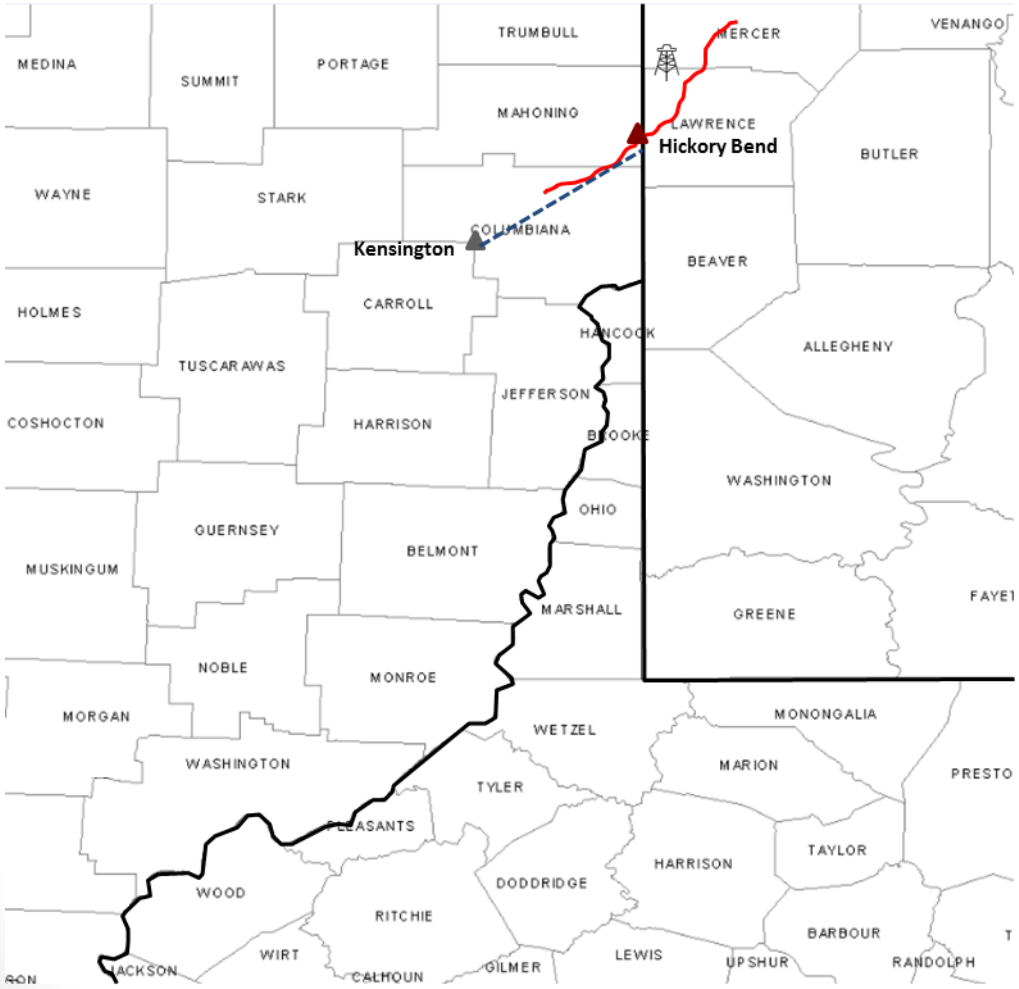
Hilcorp (Private)



- Pennant JV Gas Gathering
- Pennant JV Proposed NGL Pipeline
- Pennant JV Processing Plant
- UEO Processing Plant
- Drilling Rig (Hilcorp)

- Pennant Midstream JV (50%) (see p. 71)
- 2 drilling rigs operating as of April 2014

Source: Company Reports, DI Desktop, USCA

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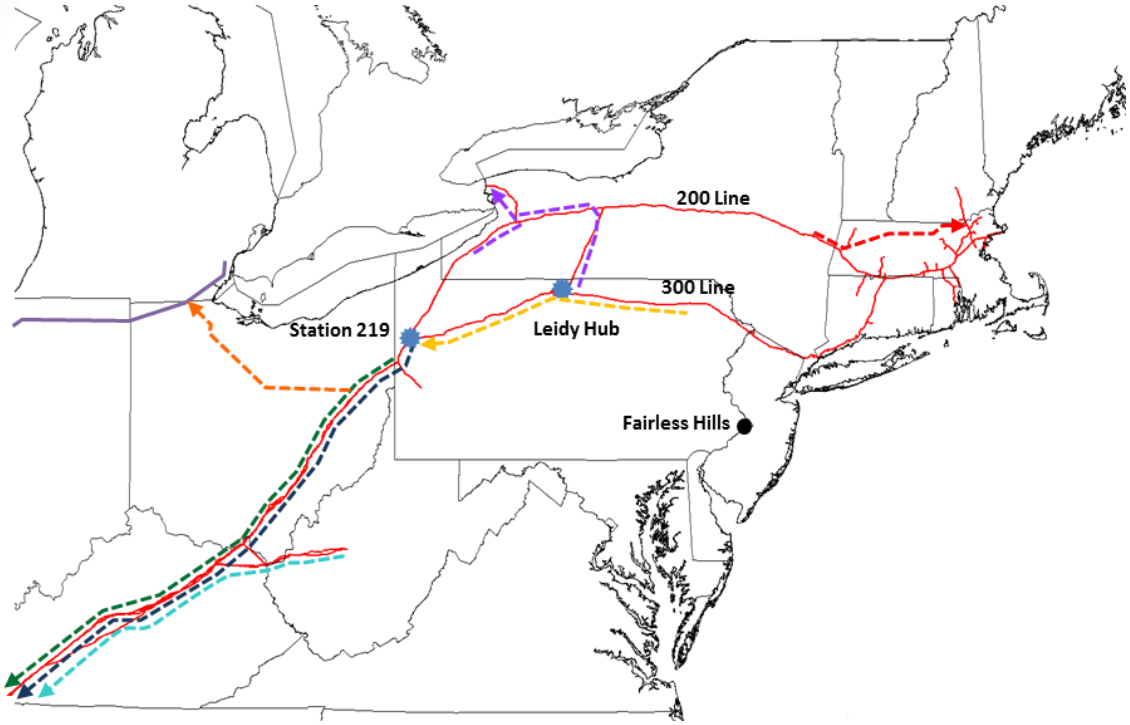
Kinder Morgan Energy Partners (KMP)



- Gas Hub
- Tennessee Gas Pipeline
- Cochin Pipeline
- Utica Backhaul
- Rose Lake Expansion
- Niagara Expansion
- Broad Run Expansion
- Proposed Northeast Expansion
- Proposed UTOPIA Line
- Proposed UMTP NGL Pipeline

- **Current Assets:**
  - ***Tennessee Gas Pipeline:*** Long-haul pipeline with overall capacity of 8 bcf/d, 13,900 miles of pipe, and 79 bcf of storage
  - ***Cochin Pipeline*** (see p. 63)
- **Current Projects (Tennessee Gas):**
  - ***Utica Backhaul:*** 500 mmcf/d of backhaul capacity beginning as far north as Mercer, PA (Station 219) for delivery to multiple points on the Gulf Coast. Cost of $160mm with Apr. '14 in-service
  - ***Rose Lake Expansion:*** 230 mmcf/d expansion of TGP Line 300 to move gas west. In-service Nov. '14 at cost of $83mm. Shippers: SJI and Statoil
  - ***Niagara Expansion:*** Adds 158 mmcf/d from Stations 219 and 309 north to Niagara TCPL interconnect. Fully contracted with Seneca (NFG). In-service Nov. '15 at cost of $30mm
  - ***Broad Run Flexibility & Broad Run Expansion:*** 790mmcf/d expansion on the Broad Run Lateral in WV on TGP's 100 and 500 mainlines. Expected cost of $782mm. Will consist of 590 mmcf/d capacity with Nov. '15 in-service and 200 mmcf/d capacity with Nov. '17 completion date
- **Proposed Projects:**
  - ***Northeast Expansion:*** Proposed new 600-2,200 mmcf/d pipeline from Wright, NY to Dracut, MA. Estimated in-service Q4'18 with cost of $1.75-$2.75B
  - ***Utica-to-Ontario Pipeline Access (UTOPIA):*** 210-mile, 10" fractionated NGLs pipeline from fractionation facilities in Harrison County, OH to the Cochin Pipeline near Riga, MI with 50 mbpd of capacity and ability to expand to 75 mbpd. Cost of ~$300mm and in-service mid-'17
  - ***Fairless Hills Export Terminal:*** Existing terminal in PA to export propane, butane and/or gasoline
  - ***UMTP NGL Pipeline JV:*** (see p. 83)

Source: Company Reports, DI Desktop, USCA

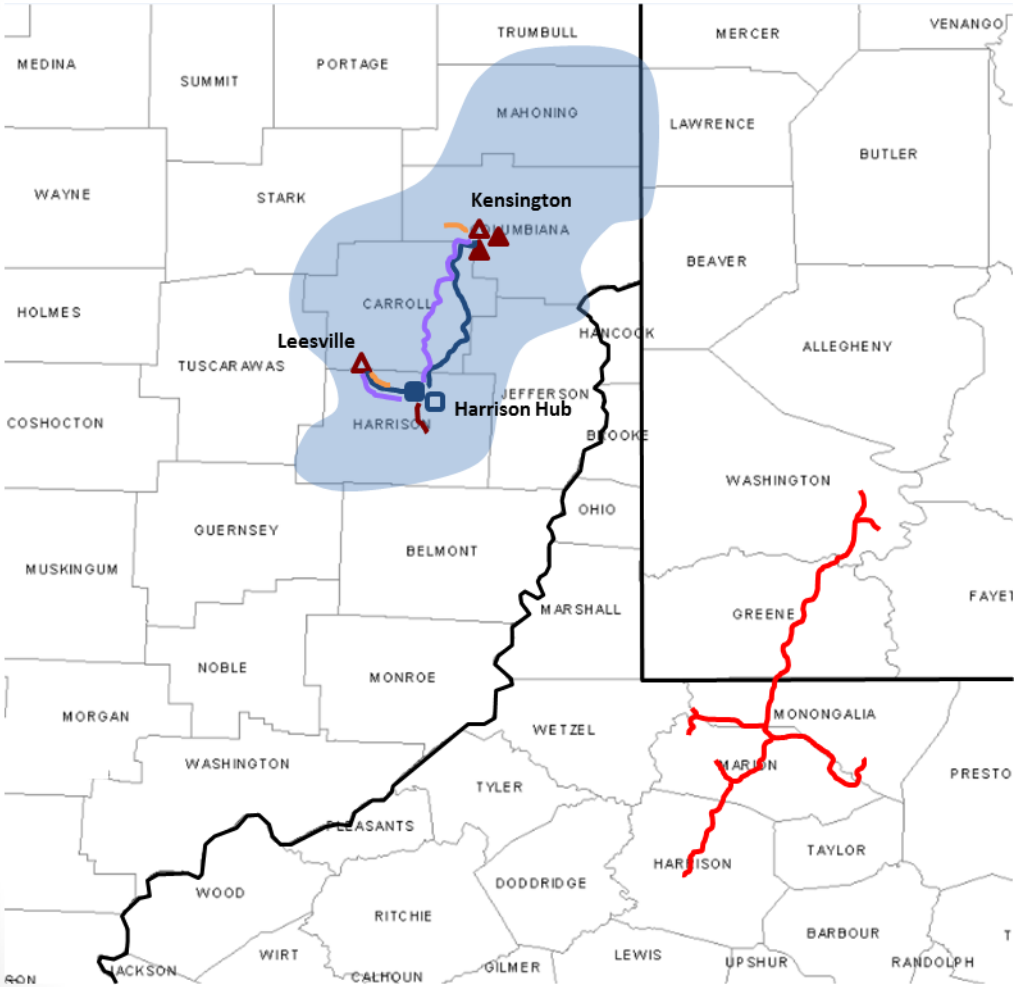
Kinder Morgan Energy Partners (KMP) – Cochin Pipeline

Cochin Pipeline
Cochin Reversal
Third Party Fractionation Facility
Explorer Pipeline (Third Party)
Cochin East Leg

- **Existing Cochin Pipeline**
  - 1,900 mile, 12" product pipeline currently flowing propane SE from Fort Saskatchewan, Alberta to Windsor, Ontario. Capacity of 70 mbpd and includes five U.S. propane terminals
- **Cochin Line Reversal Project**
  - Project to reverse product flows on western leg of system (Chicago) to provide 95 mbpd of light condensate to oil sands in Western Canada. Also fed by Explorer pipeline
  - Supported by 85 mbpd shipper commitments
  - Cost of $310mm and in-service July '14.
- **Cochin East Leg Opportunity**
  - Proposal to build condensate line from UEO facilities in Harrison County, OH to East Leg of Cochin and reverse flow on the East Leg. Capacity of 95 mbpd
  - Would interconnect with ENB Southern Lights just north of Kankakee
  - 1H'15 in-service

Source: Company Reports, DI Desktop, USCA

M3 Midstream (Private)



- **Utica East Ohio JV (30%) (see p. 82)**
- **Appalachia Gathering (100%)**
  - ~150-mile dry gas gathering with capacity of ~750 mmcf/d

- UEO Fractionator
- UEO Planned Fractionator
- UEO Processing Plant
- UEO Planned Processing Plant
- UEO NGL Pipeline
- UEO Pure Propane Pipeline
- UEO Pure Ethane Pipeline
- UEO Residue Pipeline
- UEO Area of Operations
- Gas Gathering Pipeline

Source: Company Reports, DI Desktop, USCA

MarkWest Energy Partners (MWE)

Current Assets:

- **Marcellus Segment (100%):**
  - ***Gas gathering:*** 615 mmcf/d capacity
  - ***Processing:*** 2.2 bcf/d capacity
  - ***Fractionation:*** 76 mbpd de-ethanizaion and 60 mbpd C3+ capacity
  - ***NGLs:*** NGL marketing by truck and rail facility; 90 mbbl NGL storage capacity
- **Utica Segment (60/40 MWE/Energy Minerals Group):** See p. 54
  - 185 mmcf/d of gathering, 585 mmcf/d of processing, 60 mbpd C3+ fractionation, and large scale rail and truck loading in Harrison County, OH

Planned Projects:

- **Marcellus Segment (100%):**
  - ***Processing:*** 1.5 bcf/d capacity
  - ***Fractionation:*** 126 mbpd de-ethanization and 10 mbpd C3+
  - ***NGLs:*** Extensive gathering system with access to purity ethane projects
- **Utica Segment (60/40 MWE/Energy Minerals Group):**
  - ***Processing:*** 600 mmcf/d capacity
  - ***Fractionation:*** 78 mbpd de-ethanization
  - ***Condensate:*** 23 mbpd stabilizer by Q3'14
  - ***NGLs:*** Extensive gathering system with interconnects to TEPPCO and ATEX
- **Kinder Morgan/MarkWest Utica EMG:** See p. 83
  - ***UMTP NGL pipeline:*** 150 mbpd initial capacity expandable to 400 mbpd. At least 75% KMP and up to 25% MWE

Fractionator
Planned Fractionator
Processing Plant(s)
Planned Processing Plant(s)
Planned Condensate Stabilizer
NGL Line
Deethanizer
Planned Deethanizer
UMTP NGL Line
Ethane Line
Planned Ethane Line
MWE Gathering Area
Mariner West Pipeline (SXL)
Mariner East Pipeline (SXL)
TEPPCO Pipeline (EPD)
ATEX Express (EPD)
Rockies Express (Tallgrass)
REX Interconnect (Tallgrass)

Source: Company Reports, DI Desktop, USCA

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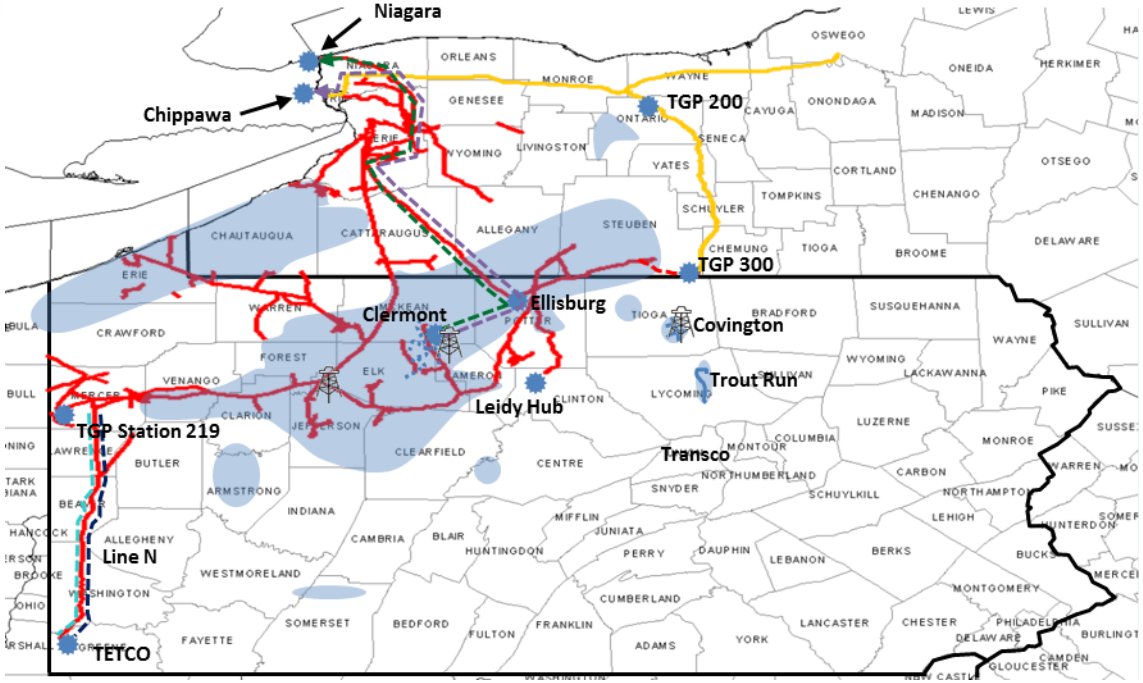
MPLX LP (MPLX)

- **MPC owns the 2% GP stake and a 72% LP stake in MPLX**
- **Current Assets:**
  - ***Ohio River Pipe Line:*** 500-mile, 240 mbpd products pipeline (69% MPLX/31% MPC)
  - 1 mmbbl butane storage cavern adjacent to MPC's Catlettsburg refinery (100%)
- **Planned Expansions:**
  - ***Cornerstone Pipeline:*** 50-mile, $140mm pipeline to move 25 mbpd of condensate from the Utica to MPC's Canton refinery; late 2016 in-service
  - Parent MPC also announced plans to spend $250mm to build two condensate splitters, one with 25 mbpd at capacity at Canton (Q4'14) and one with 35 mbpd of capacity at Catlettsburg (Q2'15)

MPC Refinery
Butane Cavern
Planned MPC Condensate Splitter
Planned Third Party Processing Plant
Third Party Processing Plant
Ohio River Pipeline
Planned Condensate & Refined Products Pipeline
MPC Crude Oil Pipeline

Source: Company Reports, DI Desktop, USCA

National Fuel Gas (NFG)

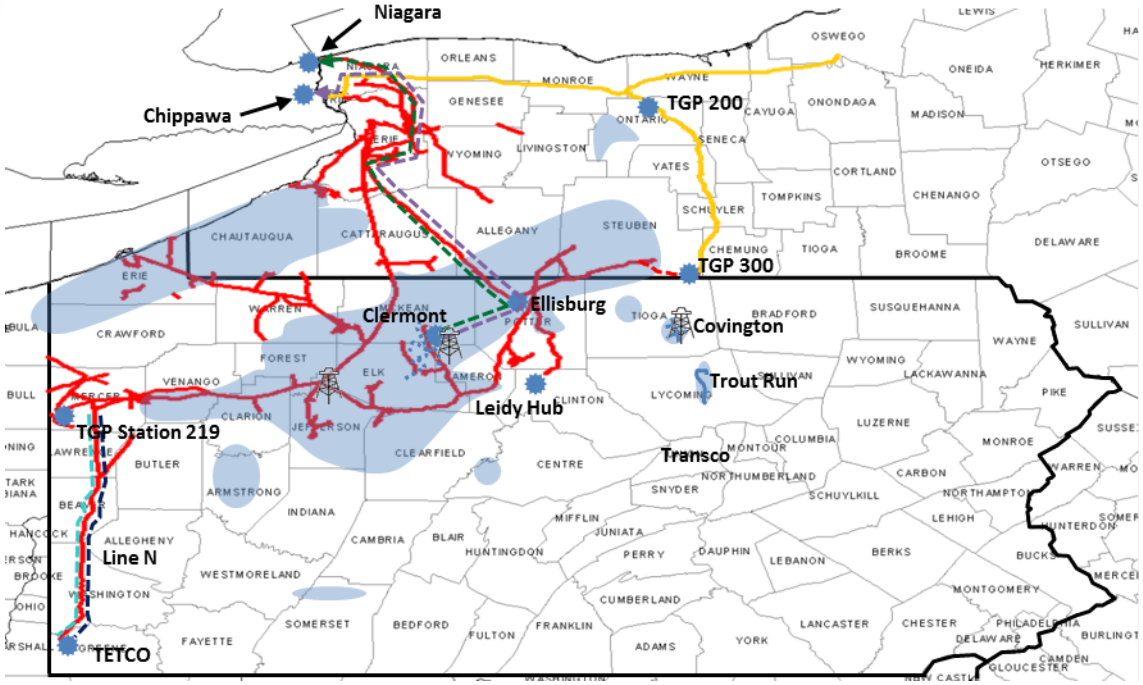


- Major Pipeline Interconnect
- Seneca Resources Acreage
- National Fuel Gas Supply Pipeline
- Empire Pipeline
- Gas Gathering Line
- Proposed Gas Gathering Line
- Seneca Drilling Rig (NFG)
- Northern Access 2015
- Northern Access 2016
- Tuscarora Lateral
- Mercer Expansion
- Westside Expansion

- **Current Assets:**
  - ***National Fuel Gas Supply:*** ~2,600-mile regional interstate gas pipeline and 73 bcf of gas storage
  - ***Empire Pipeline:*** ~250-mile interstate gas pipeline
  - ***NFG Midstream:*** 59 miles of gas gathering with capacity of ~750 mmcf/d
  - 3 drilling rigs operating as of April 2014
- **Proposed Projects:**
  - ***Northern Access 2015:*** Compression on National Fuel Gas Supply to add 140 mmcf/d of capacity from Clermont north for deliveries into TCPL at Niagara. Cost of $67mm and in-service Nov. '15. Fully contracted to TGP in conjunction with their Niagara Expansion project
  - ***Northern Access 2016:*** Interconnects to provide 350 mmcf/d of interstate capacity from Clermont north through Empire for delivery into TCPL at Chippawa. Cost of $360mm and in-service late '16

Source: Company Reports, DI Desktop, USCA

National Fuel Gas (NFG) (Continued)

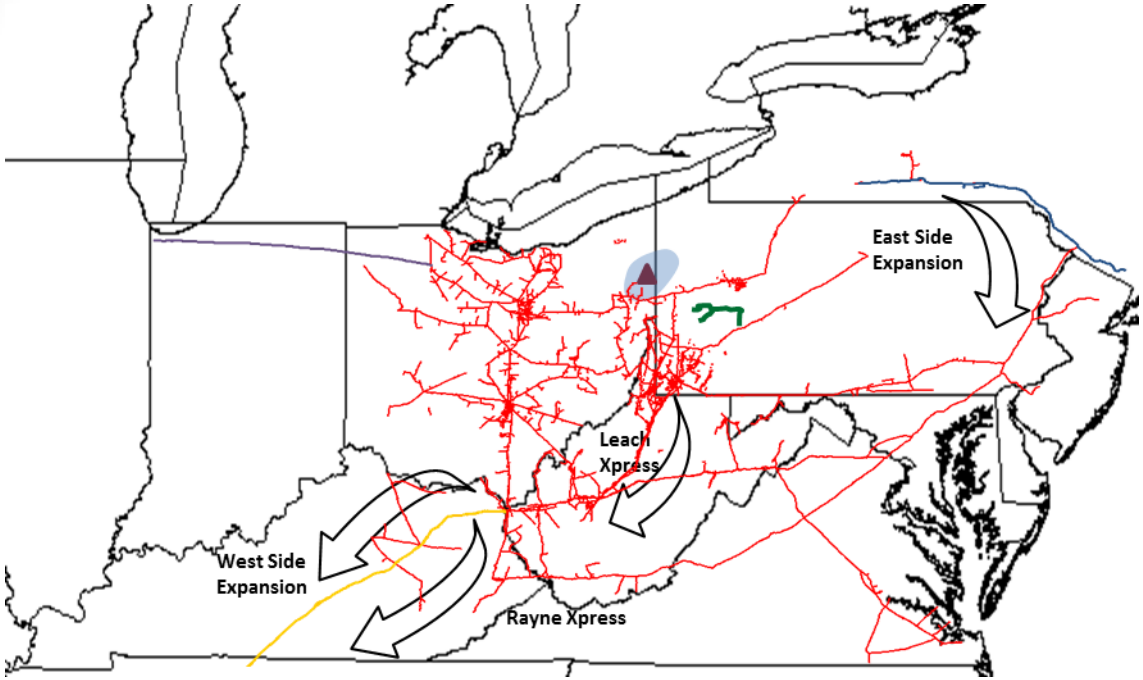


- Major Pipeline Interconnect
- Seneca Resources Acreage
- National Fuel Gas Supply Pipeline
- Empire Pipeline
- Gas Gathering Line
- Proposed Gas Gathering Line
- Seneca Drilling Rig (NFG)
- Northern Access 2015
- Northern Access 2016
- Tuscarora Lateral
- Mercer Expansion
- Westside Expansion

- **Proposed Projects (cont.)**
  - ***Tuscarora Lateral:*** 17 miles of 12" pipe and compression to connect NFG supply with Empire Pipeline. 70 mmcf/d at cost of $45mm
  - ***Mercer Expansion:*** Add compression at Mercer (Station 219) to move up to 105 mmcf/d on the NFG pipeline. In-service Nov. '14 at cost of $34mm. Contract with RRC for all capacity
  - ***Westside Expansion:*** Expanding Line N by 175 mmcf/d at cost of $39mm and an additional $37mm to be spent on modernization. In-service Nov. '15. Contracted 145 mmcf/d with RRC and 30 mmcf/d with affiliate Seneca
  - ***Clermont Gathering:*** ~30 miles of 8"-24" gathering with capacity of up to 1 bcf/d at cost of $140-$215mm for initial two years of build out. In-service 2014-2015

Source: Company Reports, DI Desktop, USCA

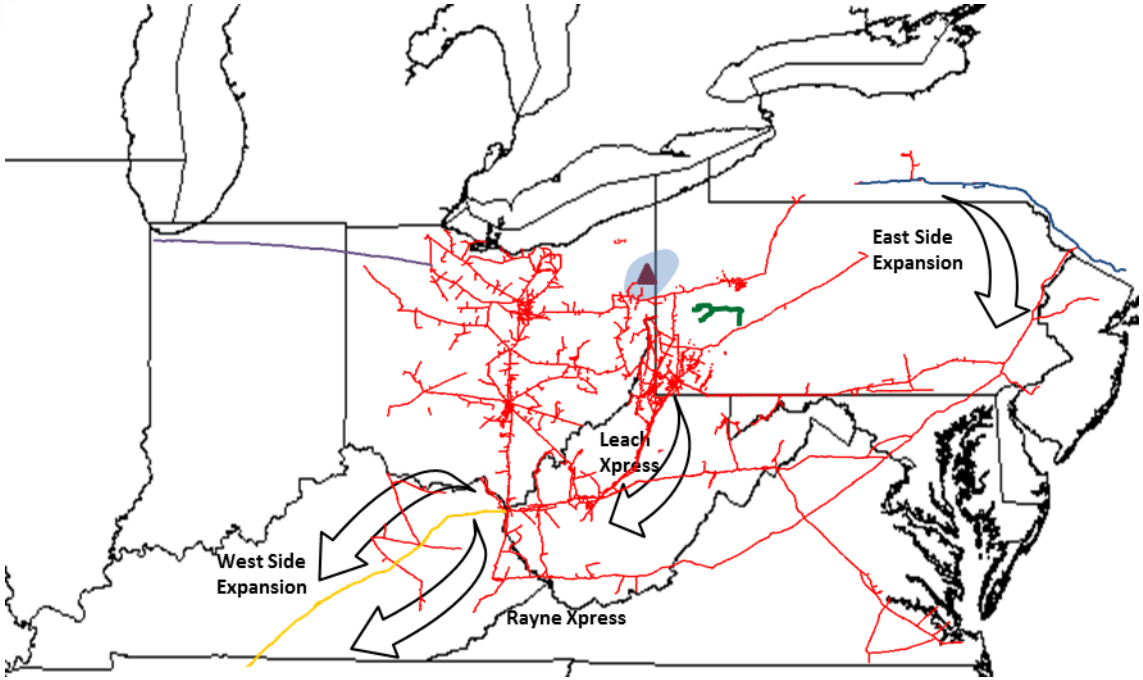
NiSource (NI)



- **Current Assets:**
  - ***Columbia Gas Transmission:*** Regional gas pipeline with ~11,000 miles of pipe and 650 bcf of gas storage
  - ***Columbia Gulf:*** Long-haul gas pipeline with ~3,400 miles of pipe
  - ***Crossroads Pipeline:*** 200-mile gas pipeline with multiple interstate pipeline interconnects
  - ***Millennium Pipeline (47.5%):*** 180-mile pipeline with capacity of ~850 mmcf/d. DTE and National Grid equally own the remainder of Millennium
  - ***Big Pine Gathering:*** 60-mile, 425 mmcf/d gathering system in PA
  - **Pennant Midstream JV (50%):** see p. 71

Source: Company Reports, DI Desktop, USCA

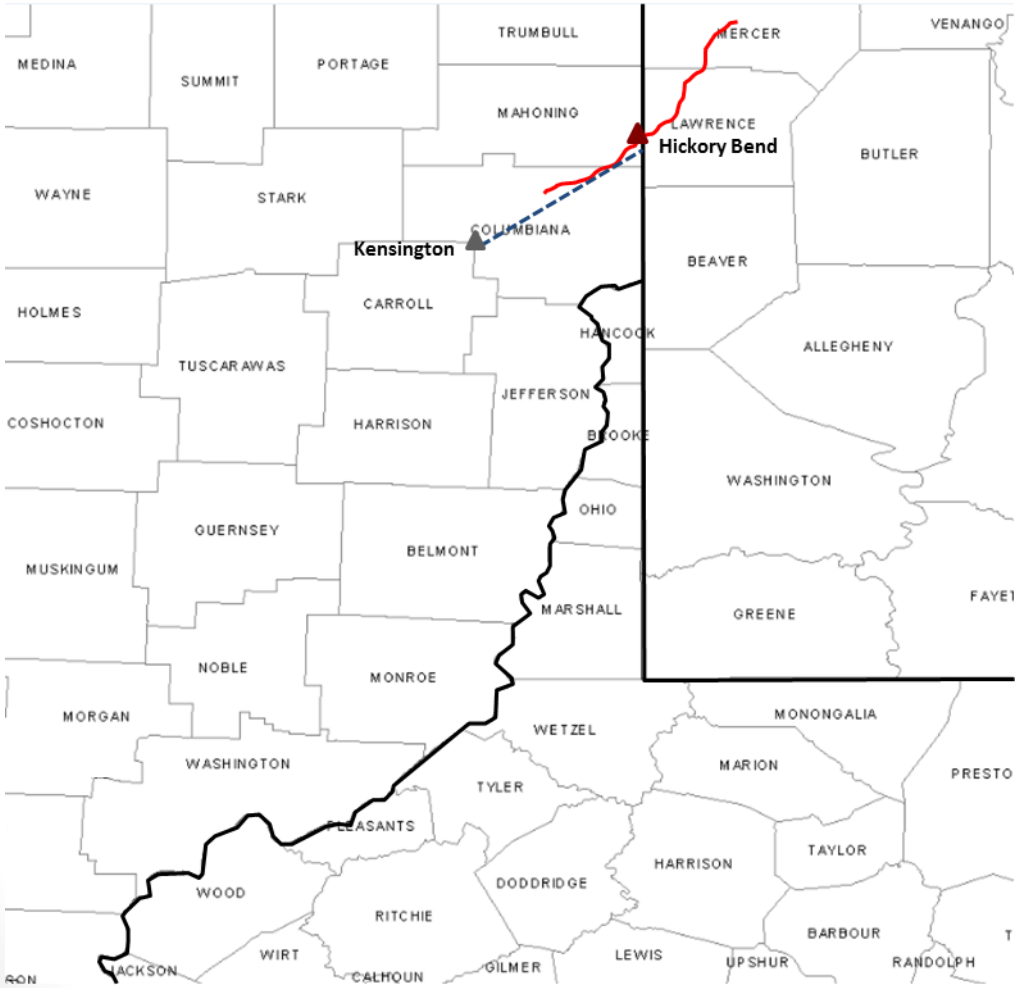
NiSource (NI) (continued)



- **Planned Projects:**
  - ***West Side Expansion:*** $200mm expansion to add 440 mmcf/d of west bound capacity on Columbia Transmission via looping and 540 mmcf/d of bi-directional flow capacity on Columbia Gulf by Nov. '14
  - ***East Side Expansion:*** $275mm expansion to add 310 mmcf/d of looping and interconnects to move N. Marcellus gas to NE and Mid-Atlantic markets by Q3'15
  - ***Leach Xpress:*** Proposed 1 Bcf/d of capacity on Columbia Gas to transport gas south to the Leach, KY connection with Columbia Gulf
  - ***Rayne Xpress:*** Proposed 800 mmcf/d of capacity on Columbia Gulf to transport gas to Rayne, LA. Proposed rates of 35c-55c/mcf. Nov. '16 in-service.

Source: Company Reports, DI Desktop, USCA

Pennant Midstream JV (Hilcorp 50%, NI 50%)

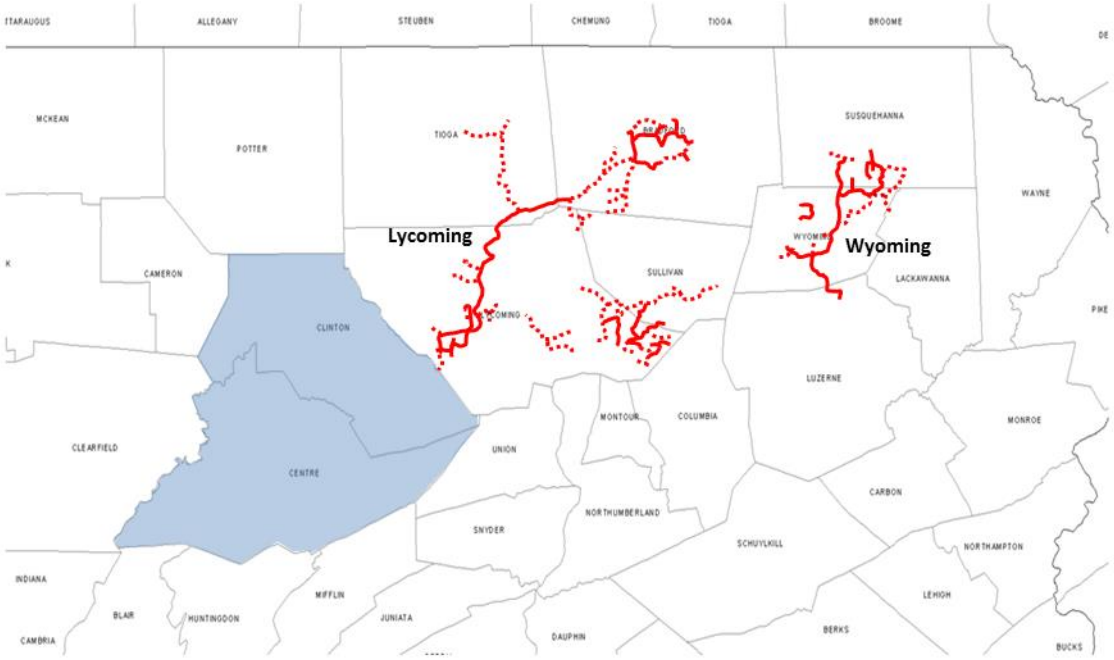


Hickory Bend Gas Gathering
Proposed NGL Pipeline
Processing Plant
UEO Processing Plant

- **Current Assets:**
  - ***Hickory Bend gathering:*** 600 mmcf/d, 50-mile Utica system
  - ***Hickory Bend processing:*** 200 mmcf/d plant
- **Planned Projects:**
  - ***NGL Pipeline:*** 12", 38-mile NGL pipeline with capacity of 90 mbpd to UEO's Kensington facility from Hickory Bend area. Cost of $50mm and July '14 in-service

Source: Company Reports, DI Desktop, USCA

Regency Energy Partners (RGP)



Gas Gathering Line
Planned Gas Gathering Line
Acreage Dedication for Systems Under Development

- **Current Assets:**
  - ***Wyoming System:*** 89-mile system with 24" gas trunkline and additional gathering lines; capacity of 750 mmcf/d
  - ***Lycoming System:*** 80-mile system with 30" gas trunkline and additional gathering lines; capacity of 850 mmcf/d
  - ~250 miles of gathering with 377k acres under dedication
  - Key customers include RDS, SWN, RRC and Inflection Energy (private)
- **Planned Projects:**
  - ***Wellsboro Lateral:*** 24-mile, 16" gas trunkline in Tioga County: 2014 in-service
  - ***Lycoming Phase III:*** Five-year buildout of system to serve Range Resources

Source: Company Reports, DI Desktop, USCA

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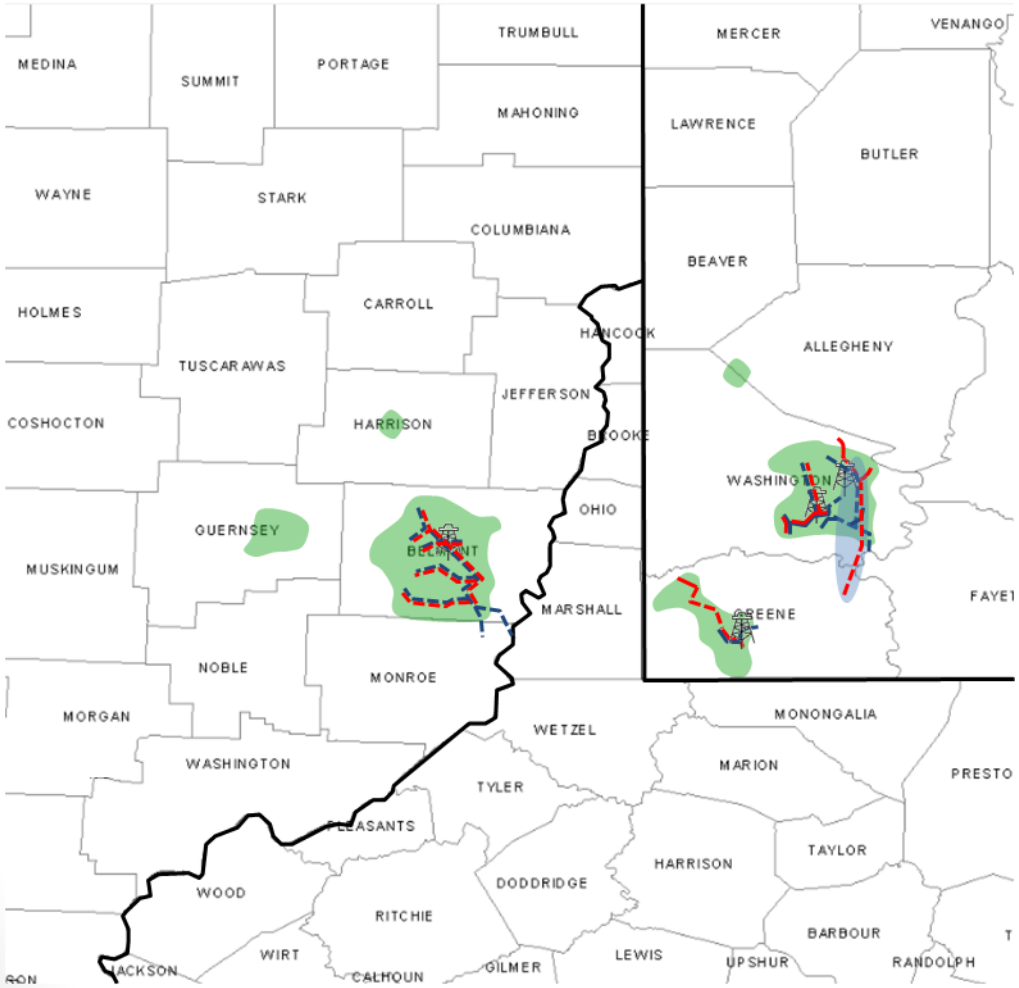
Rice Energy (RICE)



Drilling Rig (RICE)
Rice Acreage
Area of Midstream Operations
Gas Gathering Line
Planned Gas Gathering Line
Waterline
Planned Waterline

Source: Company Reports, DI Desktop, USCA

- 28 miles of 6”-16” gathering pipeline in eastern Washington County, PA
- 25 miles of high-pressure gathering in Washington County, PA
- 25 miles of high-density polyethylene pipelines to transport fresh water. Plan to continue expanding system as they drill
- Plan to spend $263mm in ‘14 on midstream infrastructure
- Have firm transportation and sales agreements on other pipes for ‘14, ‘15, and ‘16 of 330 mmcf/d, 654 mmcf/d and 761 mmcf/d, respectively
- 4 drilling rigs operating as of April 2014

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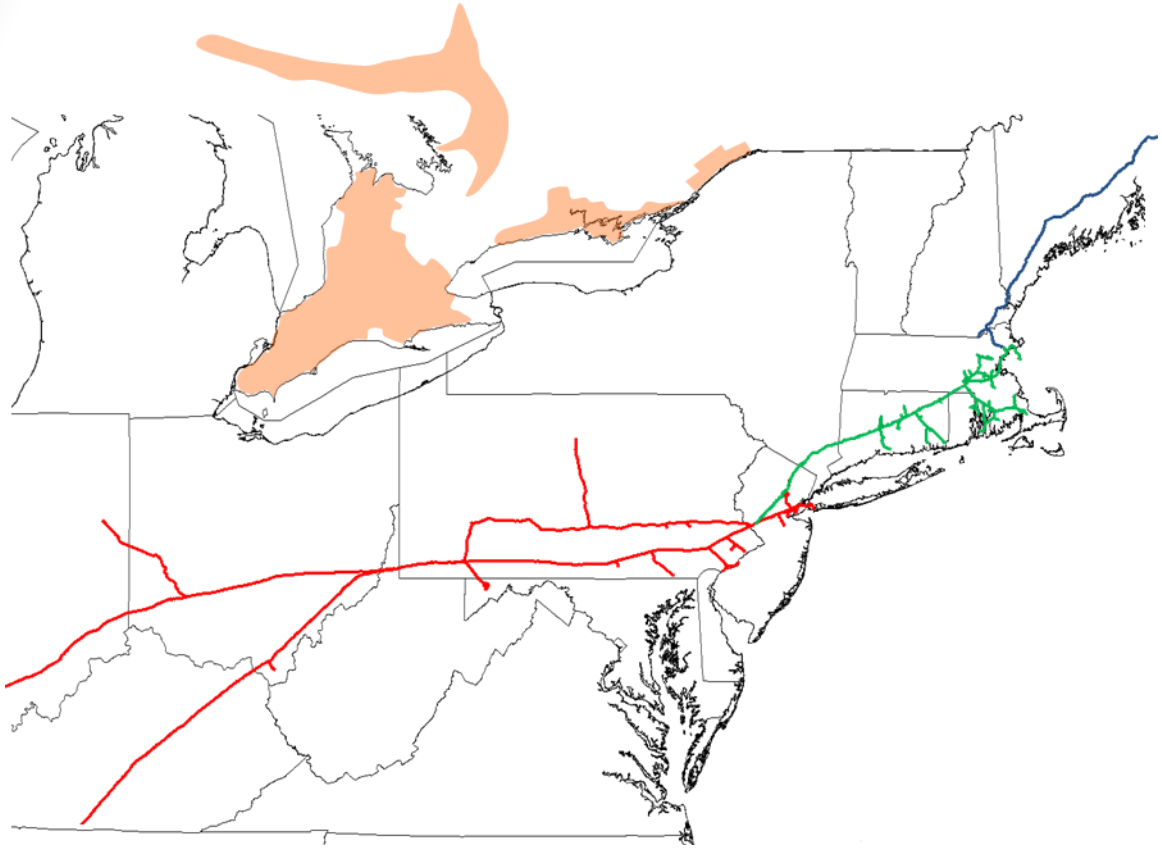
Spectra Energy Partners (SEP)



TETCO Gas Pipeline
Algonquin Gas Pipeline
MTNE Gas Pipeline
Union Gas LDC (SE)

- **Current Assets:**
  - ***Texas Eastern Pipeline (TETCO):*** Long-haul, interstate gas pipeline extending 1,700 miles from the Gulf Coast to OH, PA, NJ and NY
  - ***Algonquin Pipeline:*** 1,100-mile gas pipeline from TETCO in NJ to MA where it interconnects with Maritimes & Northeast
  - ***Maritimes & Northeast Pipeline (MTNE)(78%):*** ~700-mile gas pipeline from Nova Scotia through Maine and New Hampshire where it interconnects with Algonquin in Boston
  - ***Union Gas:*** Major Canadian LDC with 1.4mm customers in Ontario (owned at SE parent level)

Source: Company Reports, DI Desktop, USCA

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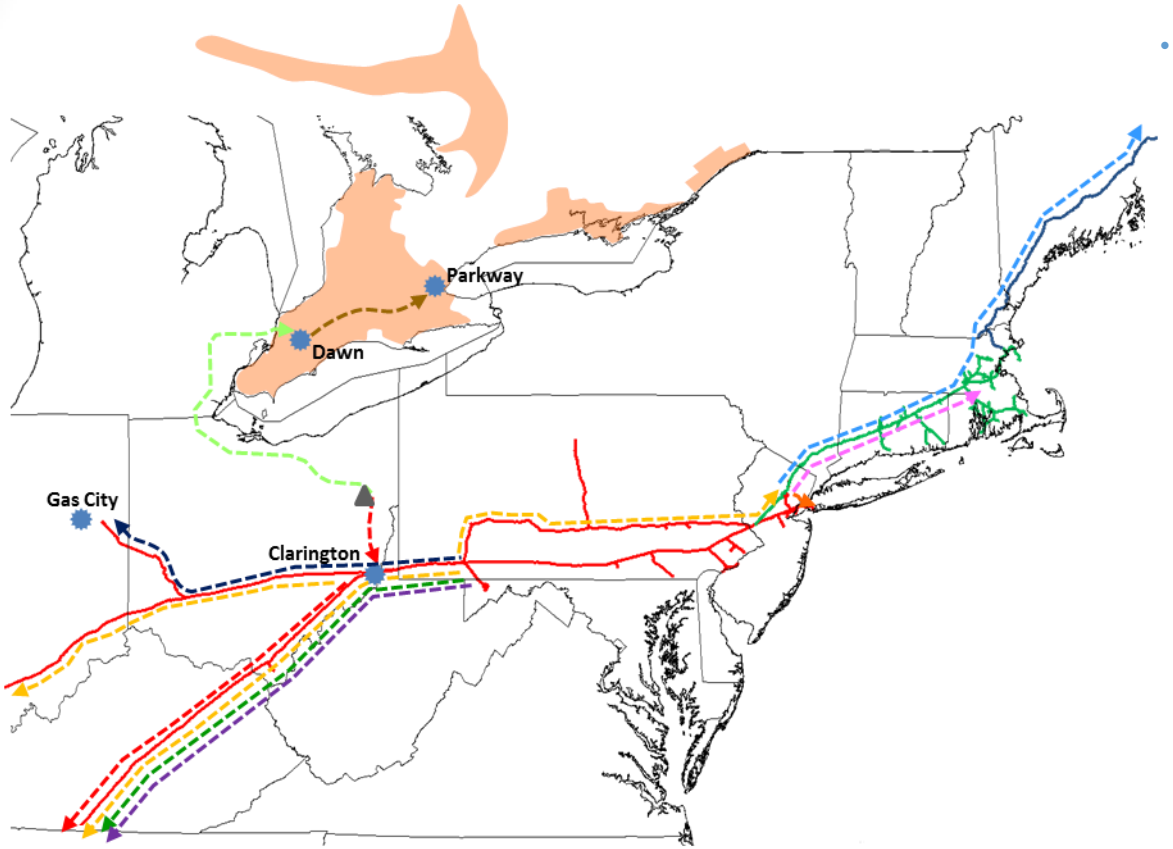
Spectra Energy Partners (SEP) (Continued)



- TETCO Gas Pipeline
- Algonquin Gas Pipeline
- MTNE Gas Pipeline
- NY-NJ Expansion
- UEO Kensington Complex
- Gas Hub
- Union Gas LDC (SE)
- OPEN Pipeline
- Uniontown to Gas City
- Team 2014 Expansion
- Team South Expansion
- Gulf Markets Expansion
- AIM Expansion
- Dawn-to-Parkway Expansion (SE)
- Atlantic Bridge Project
- NEXUS Project

Source: Company Reports, DI Desktop, USCA

- **Proposed Projects:**
  - ***Ohio Pipeline Energy Network (OPEN):*** 73 miles of new gas pipeline from UEO's Kensington plant in Ohio to interconnect with TETCO at Clarington, and compressor modifications to allow 550 mmcf/d of flow reversal south on TETCO. Cost of $500mm and 2H'15 in-service. Anchor shippers CHK and Total
  - ***Uniontown to Gas City:*** Compressor station modifications to allow for 425 mmcf/d of bi-directional flow between Uniontown, PA (TETCO) and Gas City, IN (Panhandle Interconnect). In-service 2H'15 and cost of $60mm
  - ***TEAM 2014*:** New pipe, horsepower and line modifications for 600 mmcf/d of capacity on TETCO from SW PA both to the south and to the NE. Cost of $500mm and in-service 2H'14. Anchor shippers CVX and EQT
  - ***Team South:*** Compressor station modifications to allow bi-directional flow for 300 mmcf/d of capacity. Cost of <$50mm and in-service 2H'14. Anchor shippers RICE and CNX
  - ***NY-NJ Expansion:*** Recently completed expansion to deliver 800 mmcf/d into NYC from TETCO at cost of $1.2B. Anchor shippers CHK, ED and Statoil

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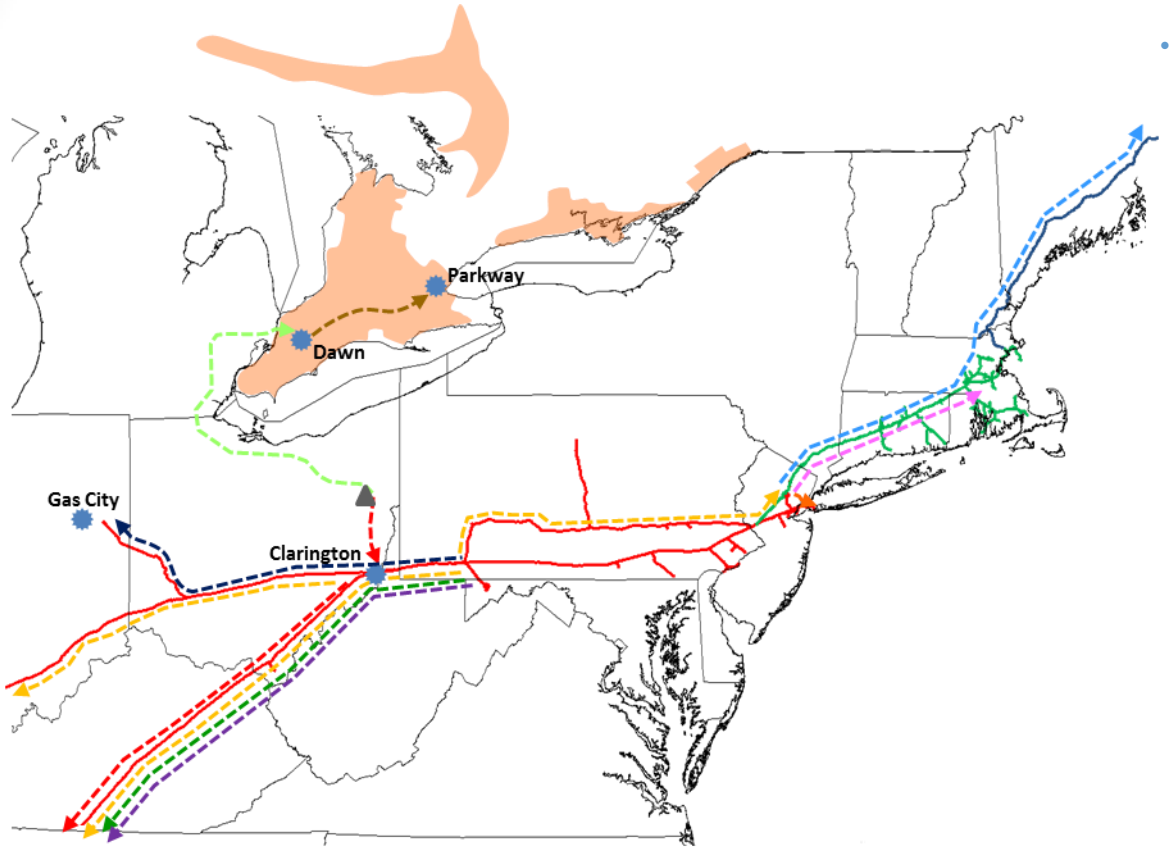
Spectra Energy Partners (SEP) (Continued)



- TETCO Gas Pipeline
- Algonquin Gas Pipeline
- MTNE Gas Pipeline
- NY-NJ Expansion
- UEO Kensington Complex
- Gas Hub
- Union Gas LDC (SE)
- OPEN Pipeline
- Uniontown to Gas City
- Team 2014 Expansion
- Team South Expansion
- Gulf Markets Expansion
- AIM Expansion
- Dawn-to-Parkway Expansion (SE)
- Atlantic Bridge Project
- NEXUS Project

Source: Company Reports, DI Desktop, USCA

- **Proposed Projects:**
  - ***Gulf Markets Expansion:*** Adding bi-directional flow modifications to allow flow of 650 mmcf/d from SW PA south to LA. In-service Nov. '16 at cost of $150mm
  - ***AIM Expansion:*** New pipe and horsepower to move 340 mmcf/d on Algonquin from SE NY to the NE. LDCs are anchor shippers. In-service 2H'16 at cost of $1B
  - ***Dawn-to-Parkway Expansion (SE):*** 500 mmcf/d of new capacity from Dawn, ON to Parkway, ON to interconnect with TCPL
  - ***Atlantic Bridge Project:*** At least 100 mmcf/d of new capacity on Algonquin and MTNE to move gas into New England. Expected in-service of 2017 with UTL as anchor shipper.
  - ***NEXUS Project (DTE, ENB, SEP):*** Proposed 250-mile gas pipeline from NE Ohio to Dawn, ON. Planned capacity of 1 Bcf/d; 2017 in-service.

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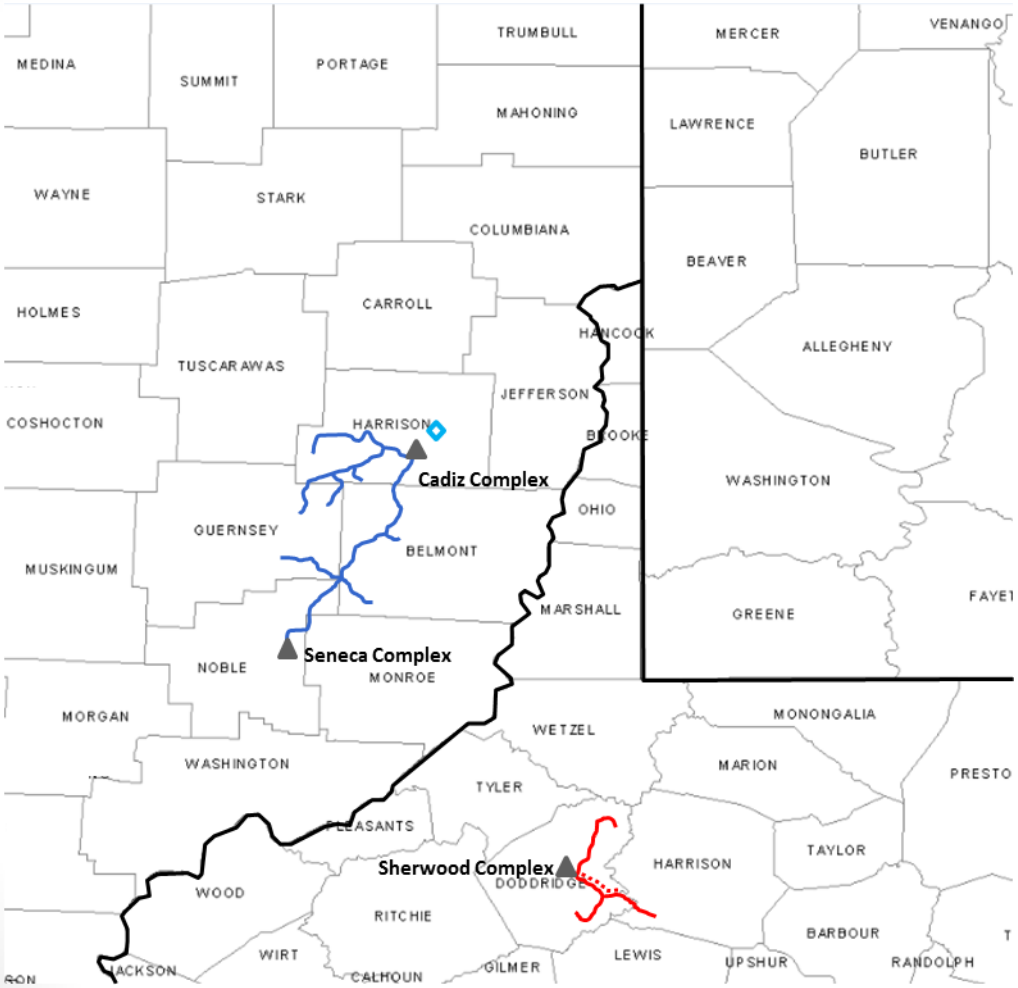
Summit Midstream Partners (SMLP)



- **Current Assets:**
  - ***Mountaineer Midstream:*** 41-mile gas gathering pipeline with 550 mmcf/d capacity.
  - Primary customer is Antero Resources (AR)
- **Planned Projects:**
  - ***Zinnia Loop:*** $24mm project that will increase gathering capacity to 1,050 mmcf/d. Expected in-service Q3'14
  - 23 mbpd condensate stabilizer with TBD in-service
- **Summit Investments (Privately Held GP of SMLP)**
  - ***Ohio Gathering Company (OGC):*** Acquired $190mm interest from Blackhawk Midstream (GPOR & Wexford Capital) with option to increase ownership interest to 40% anytime prior to June '14. Remaining 60% held by MWE Utica EMG. Summit also has an option to acquire a 40% interest in the MWE/EMG Ohio Condensate Stabilization JV

Source: Company Reports, DI Desktop, USCA

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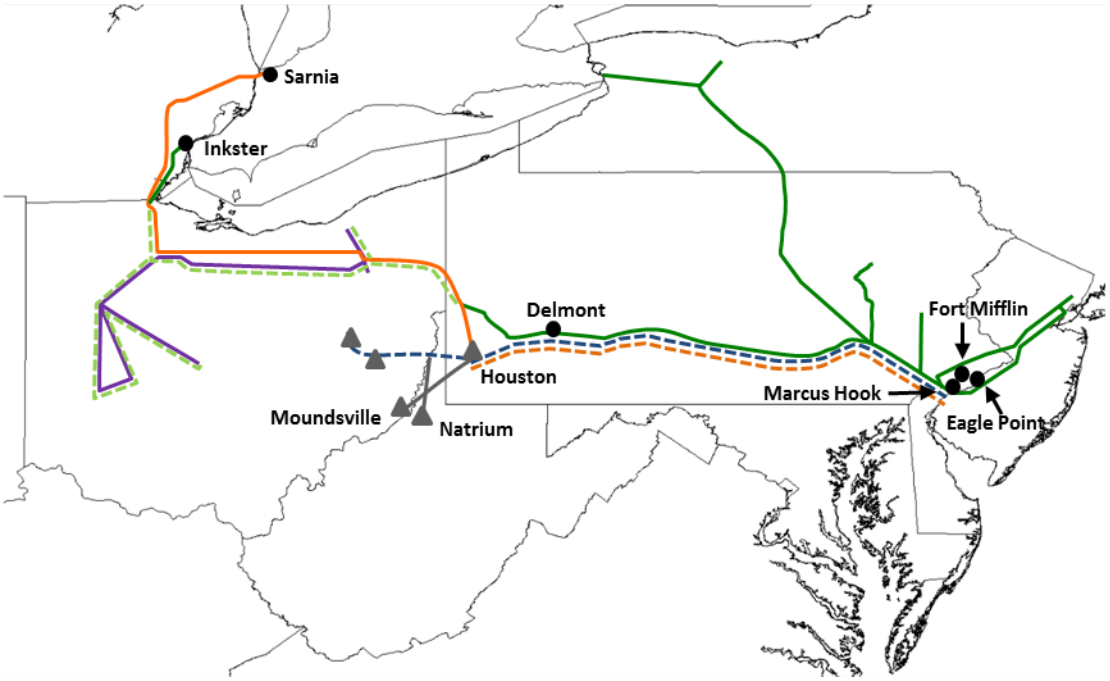
Sunoco Logistics Partners (SXL)

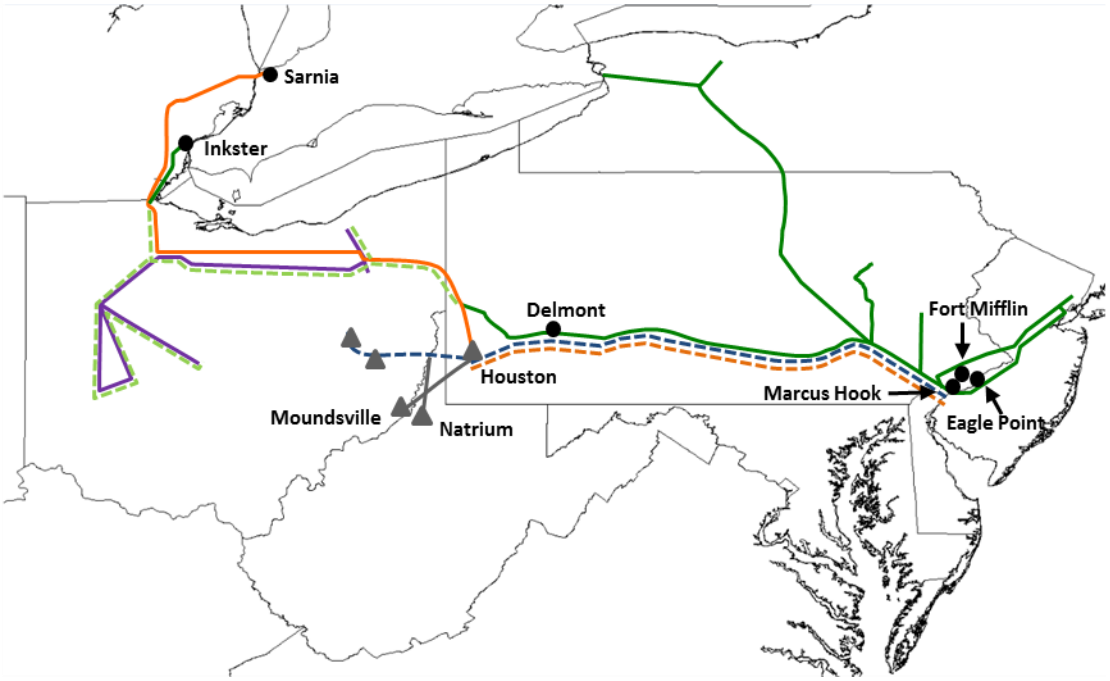


Current Assets:

- **Pipelines**
  - ***Mariner West:*** SXL converted an existing 250-mile, 8" refined products pipeline to liquid ethane service from Western PA to Sarnia, ON, and MWE built a 25-mile liquid ethane line from their Houston complex to interconnect with the SXL system line. Initial capacity of 20 mbpd came online Q4'13, and full capacity of 50 mbpd will be available in Q2'14
  - ***Refined Products Pipelines:*** Extensive refined product system in OH, PA, NY and NJ
  - ***Inland Corporation (83.8%):*** 350 miles of refined products pipeline in OH. Connects 3 refineries in OH to terminals and markets in OH
- **Terminals**
  - ***Marcus Hook NGL Facility:*** Site has 5 underground NGL storage caverns with capacity of 5 mmbbl, deep water berths, rail access, truck capability and a planned interconnect to the Marcellus via Mariner East. Located on the Delaware River south of Philadelphia, PA
  - ***Eagle Point Terminal:*** Located in Westville, NJ on the Delaware River and connected to Sunoco Eagle Point Refinery, which was shut down in Q4'09. Has 5 mmbbl of crude oil and refined products storage, docks and pipeline and rail connections with import/export capabilities
  - ***Inkster Terminal:*** Located near Detroit, MI and has 8 salt caverns with 975 mbbl of LPG storage and truck loading facility
  - ***Fort Mifflin Terminal Complex:*** Located on Delaware River in Philadelphia. Majority of revenues derived from the nearby refinery. Includes ship docks and 3.6 mmbbl of storage

Source: Company Reports, DI Desktop, USCA

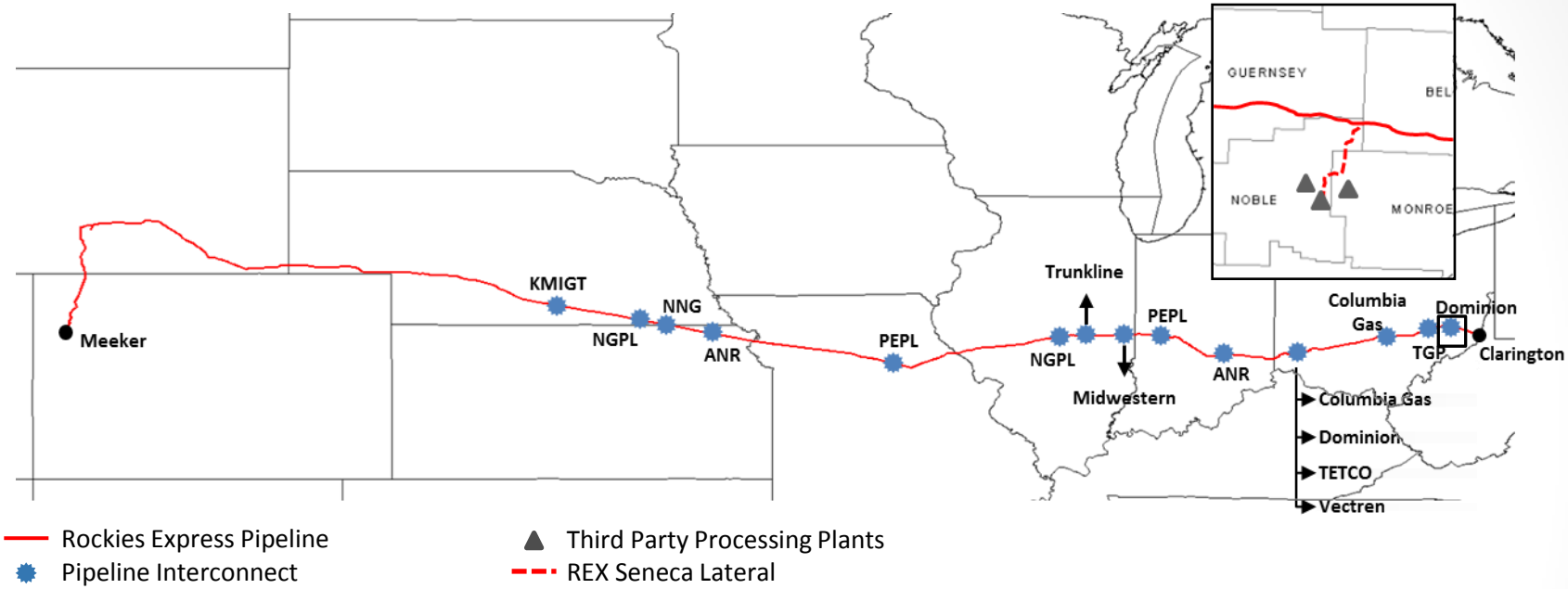
Sunoco Logistics Partners (SXL) (Continued)



- **Planned Projects**
  - ***Mariner East 1:*** Will convert an existing ~350-mile pipeline from Delmont, PA to Marcus Hook, and MWE will build a 45-mile NGL line from their Houston complex to Delmont. Will also build new facilities to process, store, chill and distribute propane and ethane to domestic and international markets. Initial capacity of ~70 mbpd of propane and ethane, with propane availability by 2H'14 and ethane availability by mid '15
  - ***Mariner East 2:*** Announced open season in Dec.'13 for a pipeline to transport a to-be-determined volume of ethane and propane from east OH to Marcus Hook. Expansion would include additional storage at Marcus Hook. In-service expected 1H'16.
  - ***Allegheny Access Pipeline:*** Project to move 85 mbpd with the ability to scale up to 110 mbpd of refined products from the Midwest to E. Ohio and W. Pennsylvania markets. Will use combination of existing and new assets with in-service mid-'14

Source: Company Reports, DI Desktop, USCA

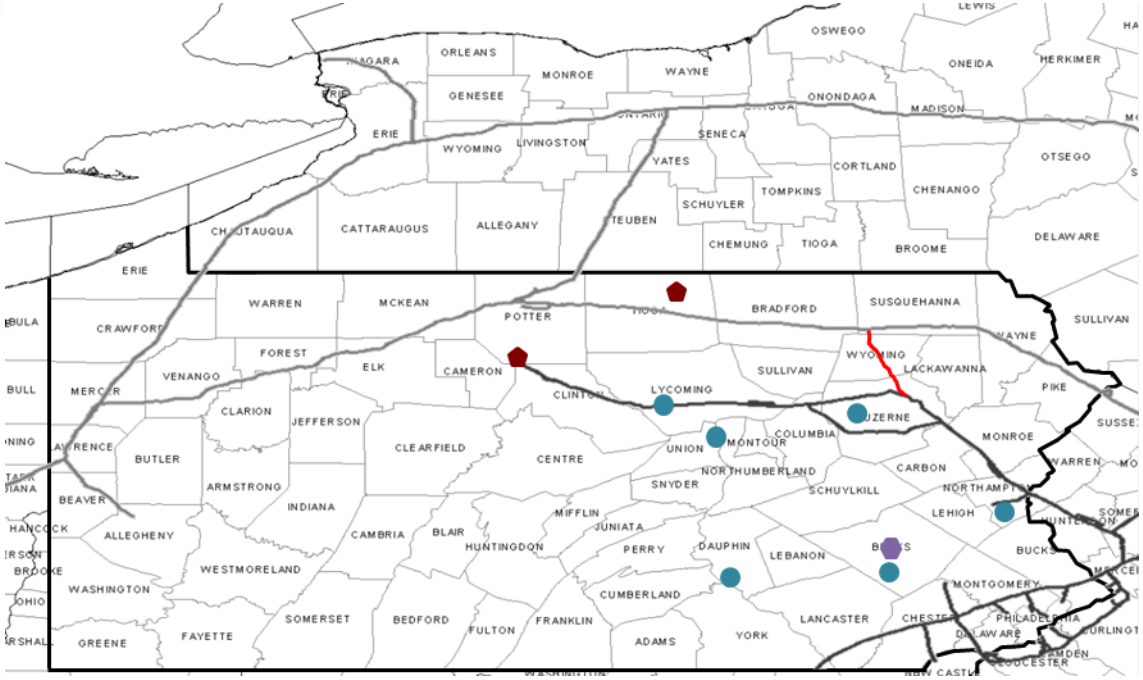
Tallgrass Development (Private)



- **Rockies Express (REX) (50% Tallgrass Development, 25% SRE, 25% PSX)**
  - 1,700-mile gas pipeline flowing gas west from the Rockies to Clarington, OH
  - Announced open season to move gas from east to west with capacity up to 2.5 Bcf/d with target in-service of Mar. ‘16
- **REX Seneca Lateral**
  - Planned 14 miles of new 24” pipe from MWE EMG JV’s Seneca complex to interconnect with REX in NE Noble County, OH
  - Have signed agreement with Antero to move up to 200 mmcf/d west to Midcontinent markets (per Antero presentation)

Source: Company Reports, DI Desktop, USCA

UGI Corp (UGI)



- Gas Gathering Pipeline
- TGP Pipeline (KMP)
- Transco Pipeline (WPZ)
- Gas Storage
- Propane Storage
- LNG Facility

- **Gas Storage:** 15 bcf capacity
- **Propane Storage:** 178 mbbls total capacity
  - ***Steelton Yard Rail*** – Storage and rail facilities in Steelton, PA
  - ***Newberry Yard Rail*** – Storage and rail facilities in Williamsport, PA
- **Auburn Gas Pipeline:** 200 mmcf/d capacity to transport gas south to UGI Penn Natural Gas and Transco
- **LNG Facility:** Peaking facility with 1.25 Bcf capacity

Source: Company Reports, DI Desktop, USCA

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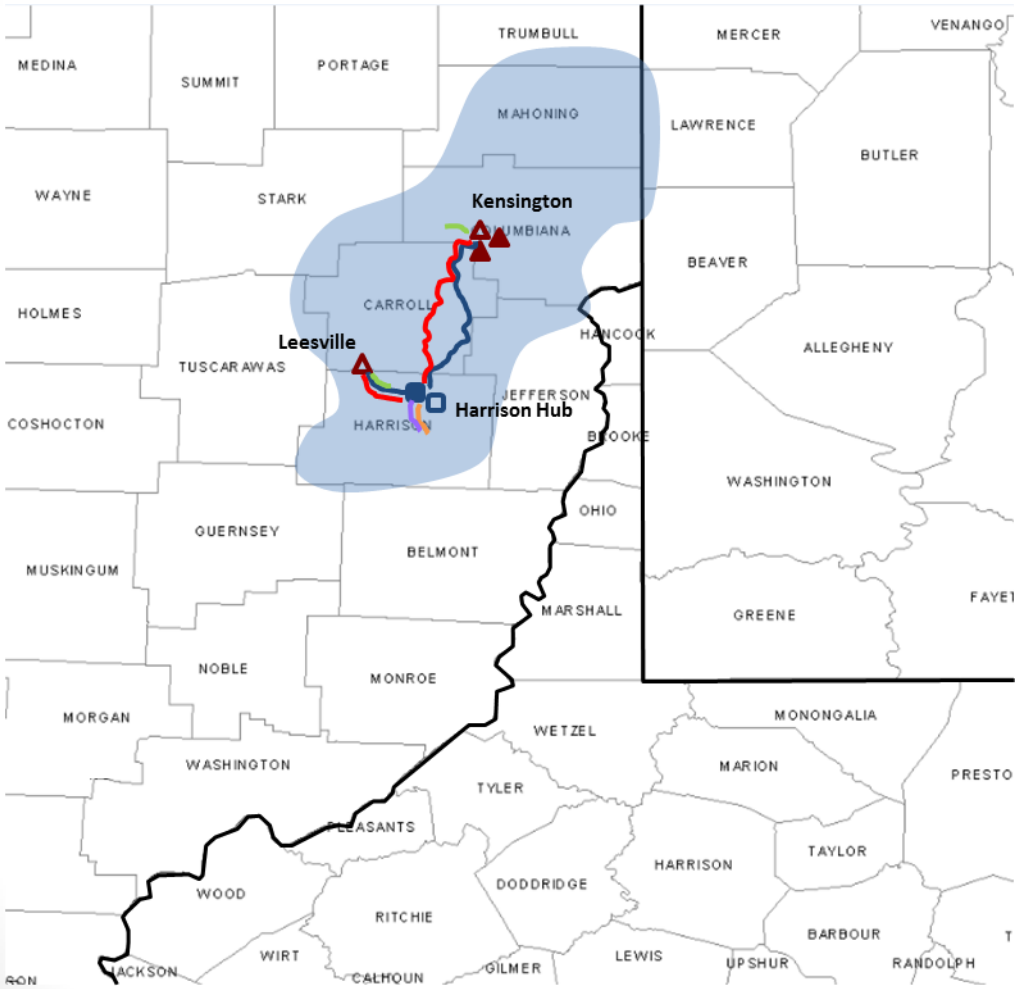
Utica East Ohio JV – (ACMP 49%, M3 30%, EVEP 21%)



- **Current Assets:**
  - 400 mmcf/d processing (Kensington)
  - 12” NGL pipeline
  - 45 mbpd C2+ fractionator
  - Rail loading terminal (Harrison Hub)
- **Planned Expansions:**
  - 200 mmcf/d processing (Kensington, Q2’14) with additional expansion capabilities
  - 200 mmcf/d processing (Leesville, Q4’14) with additional expansion capabilities
  - 45 mbpd C2+ fractionator (Q2’14)
  - 45 mbpd C2+ fractionator (Q4’14)

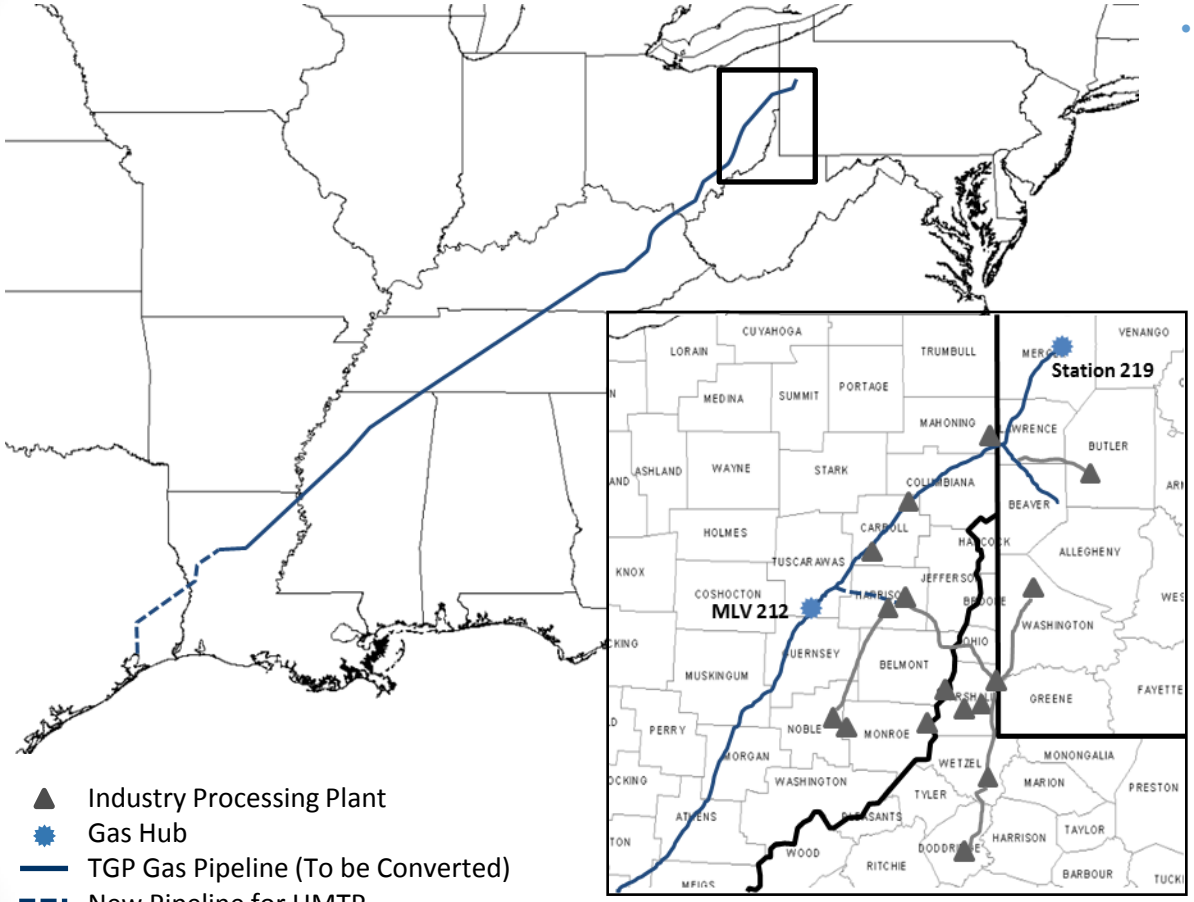
Fractionator
Planned Fractionator
Processing Plant
Planned Processing Plant

NGL Pipeline
Pure Propane Pipeline
Pure Ethane Pipeline
Residue Pipeline

Gas Gathering Pipeline
UEO Area of Operations

Source: Company Reports, DI Desktop, USCA

Utica Marcellus Texas Pipeline (UMTP) – (KMP / MWE Utica EMG)

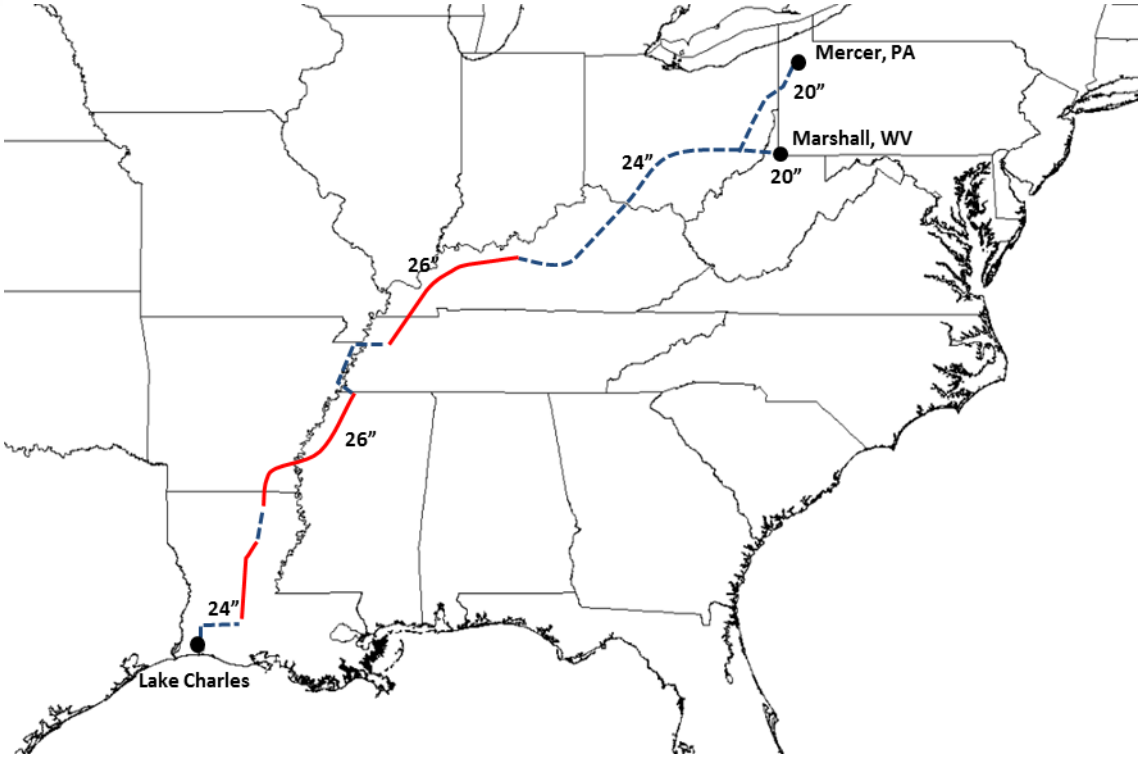


- Industry Processing Plant
- Gas Hub
- TGP Gas Pipeline (To be Converted)
- New Pipeline for UMTP
- NGL Pipeline (MWE)

- **Y-Grade NGL Pipeline:**
  - Initial design capacity of 150 mbpd, expandable to 400 mbpd
  - At least 75% KMP and up to 25% MWE Utica EMG
  - Plan to convert ~ 1,000 miles of 24” and 26” TGP pipeline currently in service and build ~200 miles of new pipeline
  - Estimate in-service of Q1’17

Source: Company Reports, DI Desktop, USCA

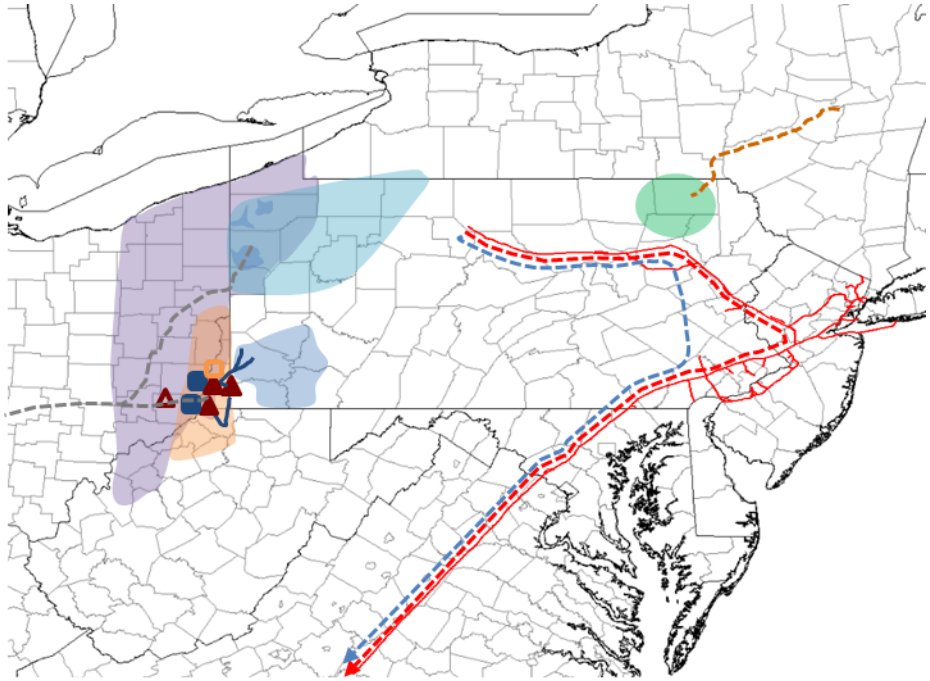
Williams (WMB)



- **See WPZ (p. 85) for ownership via 2% GP stake and 64% LP stake in WPZ**
- **See ACMP (p. 43) for ownership via 1% GP stake and 23% LP stake in ACMP**
- **Bluegrass Pipeline (50/50 JV with BWP) (p. 45)**
  - Proposed 1,125-mile, 200 mbpd Y-grade NGL pipeline from the Marcellus and Utica to the Gulf Coast
  - 500 miles of new construction and 623 miles of repurposed, Texas Gas Transmission Pipeline (BWP)
  - 2016 in-service. No cost estimate yet.
  - Expandable to 400 mbpd

Source: Company Reports, DI Desktop, USCA

Williams Partners (WPZ) Six Areas of Focus



- Fractionator
- Processing Plant
- Planned Processing Plant
- Planned Deethanizer
- Transco Gas Pipeline
- Constitution Pipeline
- Leidy Southeast Project
- Atlantic Sunrise Project
- NGL Pipeline
- Proposed Bluegrass NGL Pipeline (WMB/BWP)
- Susquehanna Supply Hub
- Ohio Valley Midstream
- Blue Racer JV
- Three Rivers Midstream JV
- Laurel Mountain Midstream JV

- **Transco/Constitution Pipelines (100% WPZ)**
  - ***Transco:*** Long-haul gas pipeline from Texas to New York City
  - ***Constitution Pipeline*** (41% WPZ): Planned 124-mile, 650 mmcf/d pipeline from Susquehanna Supply Hub to NE markets by late 2015 to 2016
- **Susquehanna Supply Hub (100% WPZ)**
  - Large-scale gathering in NE PA
  - Planned 3 bcf/d capacity by 2015 (1.1 bcf/d by 2013 YE)
  - Key customers: COG, WPX, CRZO-Reliance JV
- **Ohio Valley Midstream (100% WPZ)**
  - Large-scale infrastructure in liquids-rich areas; 236k acres dedicated
  - Gathering system, 900 mmcf/d processing by year-end '15, 42.5 mbpd frac by year-end '15, 40 mbpd de-ethanizer in Q2'14, 50-mile ethane line
- **Blue Racer JV (24% WPZ)** **see p. 46**
  - Large-scale infrastructure in E. OH; wet gas gathering, 200 mmcf/d processing, 36 mbpd frac, NGL pipeline
- **Three Rivers Midstream (JV with RDS)** **see p. 89**
  - Gathering and processing in NW PA; 275k acres dedicated
  - Spending under review pending analysis of drilling plans
- **Laurel Mountain Midstream (51/49 JV with CVX)** **see p. 90**
  - Infrastructure solutions for 500k dedicated rich gas acres in NW PA and E OH; planned system capacity of 700 mmcf/d by '15

Source: Company Reports, DI Desktop, USCA

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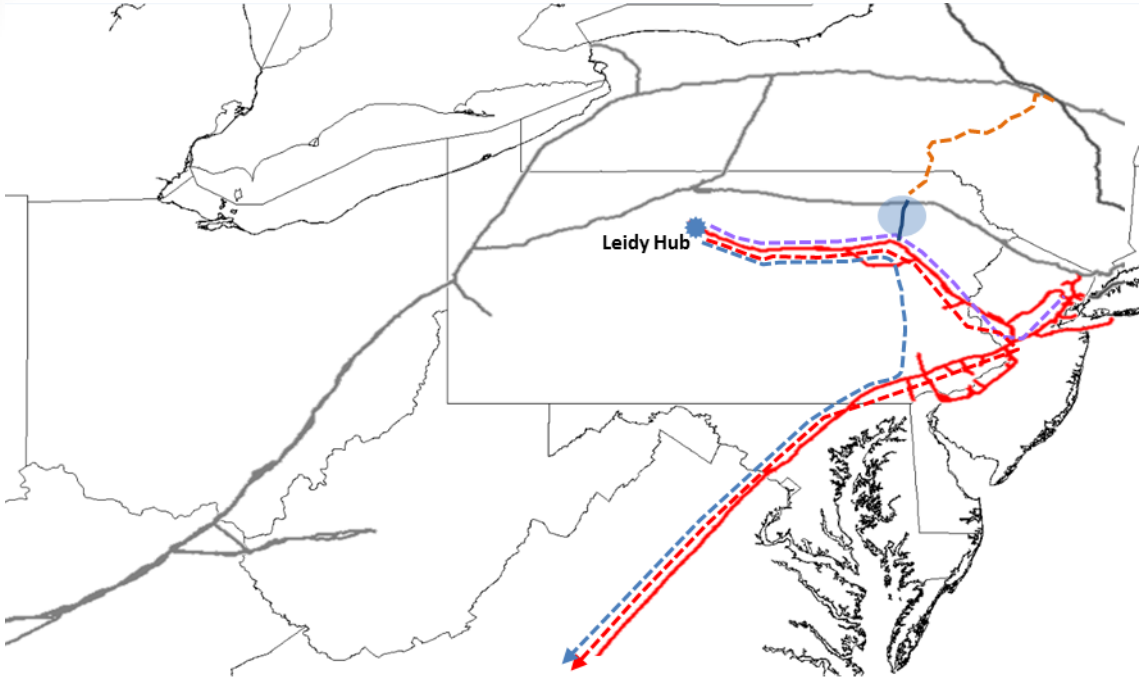
Williams Partners (WPZ) Transco & Constitution Gas Pipelines



- **Transco:** Long-haul, ~10,000-mile gas pipeline from Texas to New York City
- **Transco Planned Expansions:**
  - ***Leidy Southeast:*** Looping to add 525 mmcf/d of capacity from Leidy PA, flowing south on Transco. Cost of $600mm and in-service late '15
  - ***Atlantic Sunrise:*** 1.7 Bcf/d of capacity to transport gas south on Transco. Net WPZ investment of $2.1B with expected in-service 2H'17
  - ***NE Supply Link:*** Recently completed 250 mmcf/d of new capacity between Leidy and New York City. Cost of $390mm and went into service Nov. '13
  - ***NE Connector:*** Compression to add 100 mmcf/d of capacity into NYC in 2H'14 at cost of $50mm
  - ***Rockaway Lateral:*** New, 26" delivery point into National Grid in NYC at a cost of $230mm in 2H'14
- **Constitution Pipeline (41% WPZ, 25% COG, PNY 24% and Capital Energy Ventures 10%)**
  - Planned 124-mile, 30" gas pipeline with capacity of 650 mmcf/d connecting the Susquehanna Supply Hub to Iroquois Gas and TGP
  - WPZ cost of $304mm and target in-service late '15-'16

Source: Company Reports, DI Desktop, USCA

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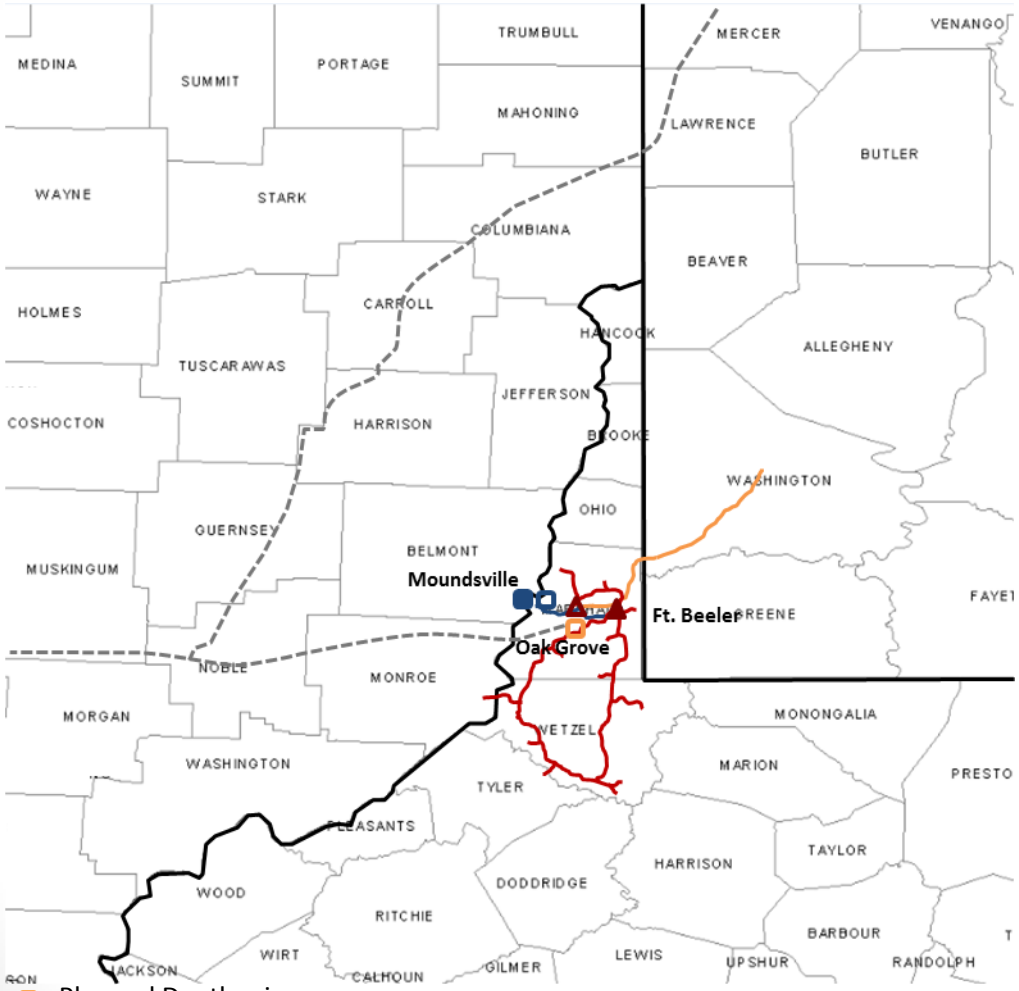
Williams Partners (WPZ) Ohio Valley Midstream



- Large-scale infrastructure in liquids-rich areas
- 236k acres dedicated
- Wet gas gathering system
- **Processing:**
  - Ft. Beeler, 520 mmcf/d (2 trains)
  - Oak Grove, 400 mmcf/d (2 trains) by YE ‘15
- **Fractionation/Deethanization:**
  - 40 mbpd de-ethanizer at Oak Grove in Q2’14
  - 13 mbpd C3+ frac at Moundsville and another 30 mbpd by YE ‘15
- 50-mile ethane line

Source: Company Reports, DI Desktop, USCA

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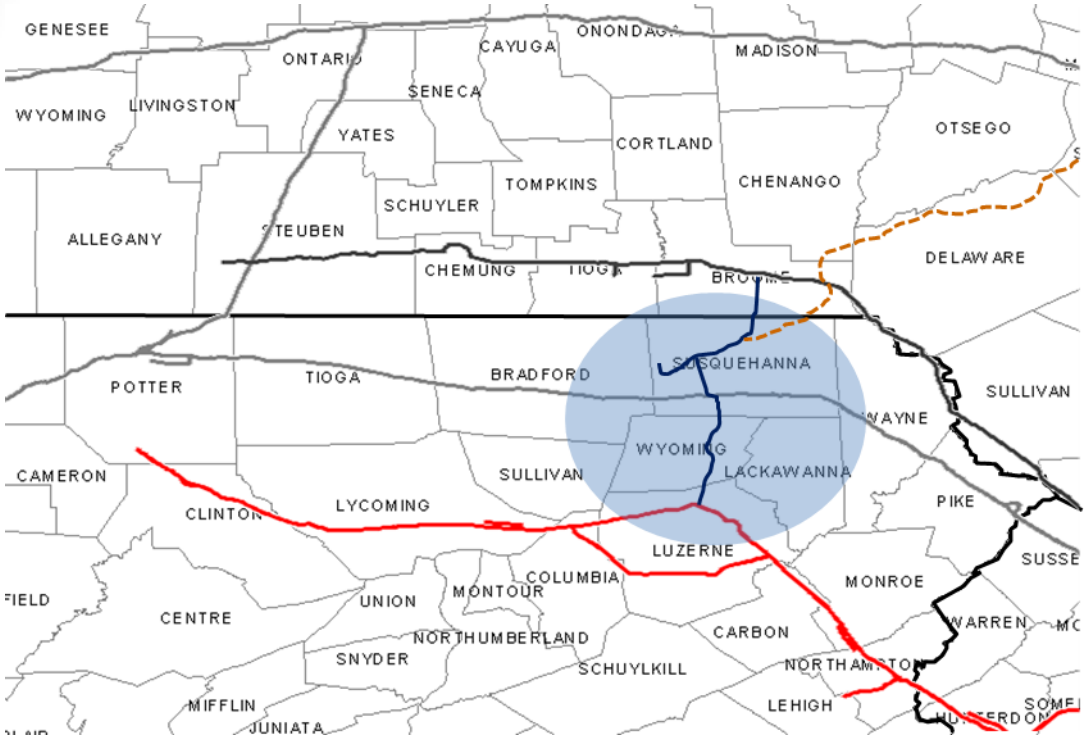
Williams Partners (WPZ) Susquehanna Supply Hub

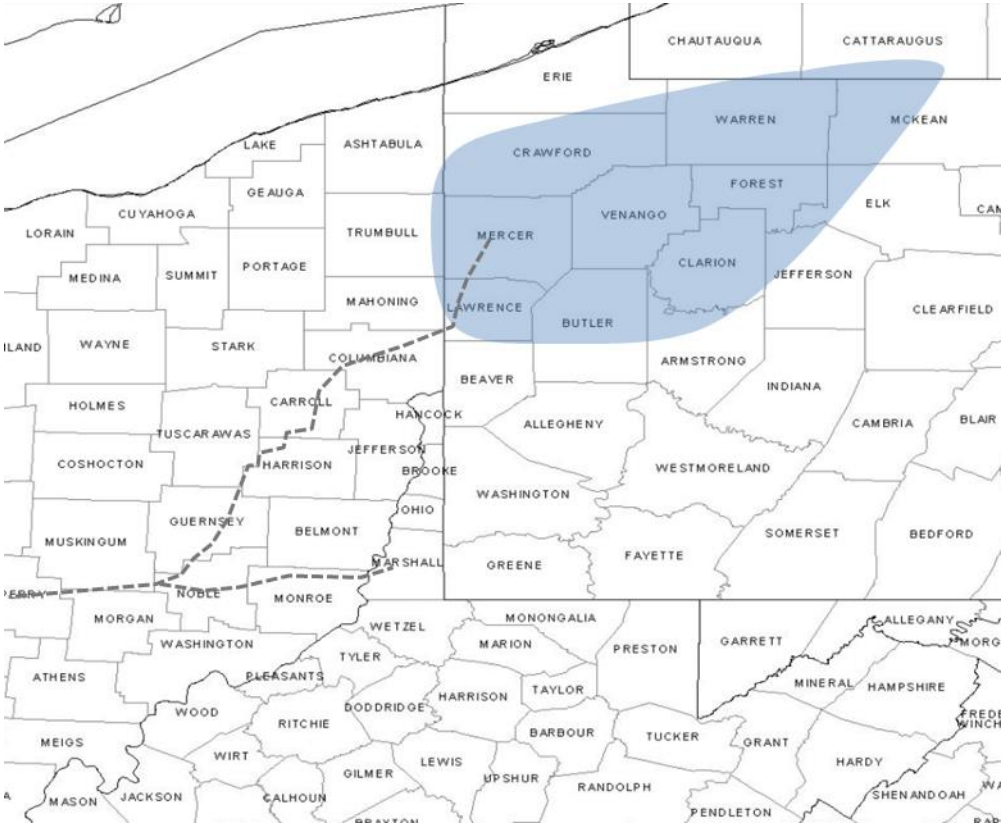


- Large-scale gas gathering in NE PA
- Planned 3 bcf/d capacity by YE ‘15
- Key Customers: COG, WPX, CRZO-Reliance JV
- Delivery into 4 major interstate gas pipelines: Transco, TGP, Millennium and Constitution

Susquehanna Gathering System
Gas Gathering Trunkline
Transco Pipeline
TGP Pipeline
Millennium Pipeline
Constitution Pipeline

Source: Company Reports, DI Desktop, USCA

Three Rivers Midstream – JV (WPZ/RDS)



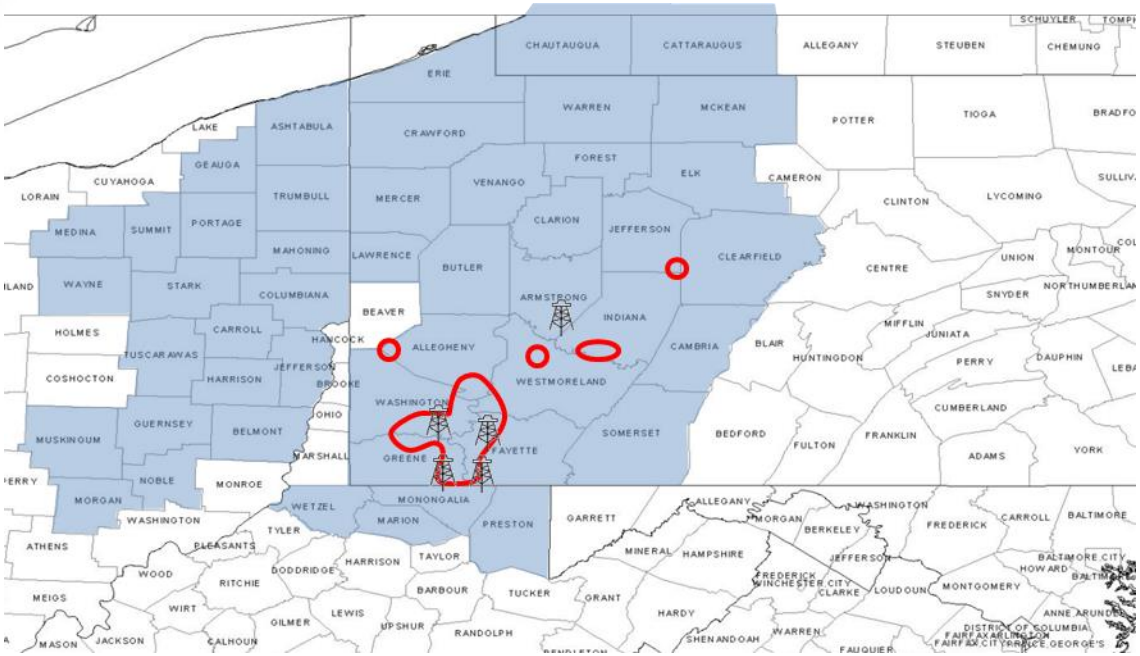
Acreage Dedication

Proposed Bluegrass Pipeline (WMB/BWP)

- JV terms not disclosed, but WPZ initially owns substantially all of the JV
- Gathering and processing in NW PA to handle wet and dry gas in the Marcellus and Utica
- 275k acres dedicated
- Proposed connection to Bluegrass Pipeline
- Spending under review pending analysis of RDS drilling plans

Source: Company Reports, DI Desktop, USCA

Laurel Mountain Midstream JV – (CVX 49%, WPZ 51%)



- Infrastructure solutions for dedicated rich-gas acreage in NW PA and E. OH
- 500k acres dedicated
- Planned capacity of 700 mmcf/d by YE ‘15
- Current throughput of ~390 mmcf/d
- 5 drilling rigs operating as of April 2014

Gas Gathering System
Drilling Rig (CVX)
Laurel Mountain Midstream Area of Interest

Source: Company Reports, DI Desktop, USCA

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Opinion Key:
USCA uses a Buy, Overweight, Hold, Underweight and Sell rating system.

BUY - The stock has among the best combination of risk/reward and positive company specific catalysts within the sector. Stock is expected to trade higher on an absolute basis and be a top performer relative to peer stocks over the next 12 months.

OVERWEIGHT - The stock has above average risk/reward and is expected to outperform peer stocks over the next 12 months.

HOLD - The stock has average risk/reward and is expected to perform in line with peer stocks over the next 12 months.

UNDERWEIGHT - The stock has below average risk/reward and is expected to underperform peer stocks over the next 12 months.

SELL - The stock's risk/reward is skewed to the downside with possible negative company specific catalysts or excessive valuation. The stock is expected to trade lower on an absolute basis and be among the worst performers relative to peer stocks over the next 12 months.

Risks that may impede achievement of price target(s):
Industry wide risks include but are not limited to environmental and regulatory for both pipeline and E&P, aging infrastructure and availability of midstream infrastructure to accommodate new production. Competition for and availability of service crews and drilling rigs. Commodity prices, the economic outlook, access to capital markets. Interest rates. Asset recontracting. Cost overruns.

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Price Target Methodology:

C-Corps

For C-Corps, our price targets are, generally, based on a traditional sum of the parts analysis. For traditional pipes and midstream assets, we value at 8-12x EBITDA multiples (usually forward year unless it doesn't represent a good run rate). LP units are marked to current market. GP values are determined using a discounted cash flow of projected distributions and then tax effected.

MLPs

For MLPs, we average three different valuations as we have yet to find one pure way to value MLPs that captures the many nuances – current yield, growth, GP IDRs, equity to fund growth, etc. For all three methods, we start with six-year projections of LP distributions and assume a terminal growth rate. The three valuation methods – Traditional CAPM, Growth Adjusted Cash Yield, and GP Adjusted Distribution Discount Model – each yield a different cost of equity, which is then used as the discount rate against the projected distributions and terminal growth rates. Traditional CAPM is a straight forward traditional use of the Capital Asset Pricing Model. Growth Adjusted Cash Yield uses projected yield plus an adjustment for expected long-term distribution growth. GP Adjusted Distribution Discount Model uses average annual forecasted distributions for both the GP and LP for the next three years divided by the average number of forecasted LP units over the next three years divided by the current LP unit price. In our view, this method helps account for the higher cost of capital associated with GP IDRs.

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Distribution of Ratings (as of April 29, 2014):

Recommendation	Count	Percent	Investment Banking Relationship	Count	Percent
Overweight/Buy	27	44%	Overweight/Buy	6	22%
Hold	34	56%	Hold	1	3%
Underweight/Sell	0	0%	Underweight/Sell	0	0%

Historical Ratings and Price Targets may be found by clicking the link below:
USCA Rating and Price Target History

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