

Another Petrochemical Sacrifice Zone

Appalachian Fracked Gas Industry Cluster Threatens Communities and Environment



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The fracking and petrochemical industries are pushing to convert the area of Ohio, Pennsylvania and West Virginia into a natural gas and plastics manufacturing center to rival the hyper-polluted Gulf Coast, threatening communities and the environment. The destructive practice of natural gas drilling and fracking has proliferated across the Tri-State shale basins, but the rapid expansion created a gas glut that has driven down gas prices.¹ Now, the fracking industry needs to sell its gas to new buyers or markets (new demands) to absorb excess gas to justify more drilling.² The industries' environmentally destructive solution is a buildout of plastics factories.

The expanding petrochemical and plastics manufacturing sectors can sop up excess gas, propping up the faltering fracking industry and creating a mutually profitable and polluting partnership. The surge in fracking created a surplus of ethane, a natural gas liquid (NGL) and fracking byproduct, that has been a boon for the plastics industry. The petrochemical industry converts ethane into chemicals essential to manufacturing plastic.³

One of the nation's biggest gas infrastructure, petrochemical and plastics manufacturing building booms is unfolding in the Tri-State area. The buildout includes a cluster of new petrochemical and plastics plants, proposed ethane pipelines and the Appalachian Storage Hub, a large underground storage facility to supply regional factories.⁴

The Ohio Valley petrochemical buildout

An alliance of industry players, government officials and universities is promoting this substantial petrochemical

investment.⁵ Elected officials in all three states are cheer-leading new links between the region's shale gas fields and an expanded petrochemical industry that could tap surplus NGLs.⁶ China Energy, the world's largest power company, announced that it would invest \$84 billion to develop West Virginia's shale gas, petrochemical manufacturing, power generation and NGL storage infrastructure over the next two decades.⁷

Three facilities alone — two petrochemical facilities known as ethane "crackers" and the Storage Hub — are estimated to tally at least \$26 billion.⁸ The fracked gas is processed to separate out ethane and other NGLs that supply cracker plants. Crackers apply steam or heat to "crack" ethane into ethylene, which is then converted into the most common type of plastic, polyethylene.⁹

Shell began construction on a \$6 billion petrochemical complex, including an ethane cracker and a polyethylene unit to

make plastics in western Pennsylvania.¹⁰ Shell also proposed the 97-mile Falcon Ethane Pipeline to deliver ethane to the cracker.¹¹ Other investments include a partnership between a South Korean petrochemical construction company and a Thai government-owned oil company to build a \$10 billion Ohio ethane cracker.¹² But the cornerstone project is the \$10 billion Appalachian Storage Hub, which could be sited in Ohio, Pennsylvania or West Virginia; it includes an NGL underground storage facility and pipeline infrastructure to connect across the region.¹³

The Appalachian Storage Hub locks in petrochemical pollution

The proposed hub would establish a natural gas storage complex with a pipeline network to capitalize on the region's shale gas to supply chemical and plastics manufacturing plants.¹⁴ It could hold NGLs hundreds of thousands of feet underground in a geological salt formation.¹⁵ The storage facility would provide a steady stream of ethane to nearby crackers and act as a trading post for companies looking to sell their NGLs to nearby facilities.¹⁶ According to one study about the storage hub, it would be a keystone asset; without it, "the entire [petrochemical investment] program cannot go forward."¹⁷

This storage hub would ultimately supply a region full of petrochemical facilities and plastics plants that would rival the Gulf Coast,¹⁸ the current epicenter of U.S. petrochemical and plastics manufacturing. But the Gulf Coast has some of the highest pollution levels and pollution-related illnesses and diseases. The Tri-State region already faces stark environmental and associated public health challenges from a century of industrial pollution. Petrochemical plants emit massive amounts of hazardous air and climate pollutants.¹⁹ And these plants pump out plastics that create mountains of litter that can pose health problems.²⁰



Conclusion

The proposed storage hub and petrochemical buildout creates a symbiotic profiteering opportunity for the gas, petrochemical and plastics industries that would lock in more demand for fracking and decades more climate pollution. This provides a profit incentive to justify the expansion of fracking, with more spills, accidents, water pollution, climate-destroying methane emissions and ecosystem damage. It is time to invest in a just transition to a clean energy future and to limit purchases of non-biodegradable, plastic products, which effectively supports and finances the oil and gas industry.

Endnotes

- 1 Food & Water Watch analysis of U.S. Energy Information Administration workbooks. Natural Gas Prices; U.S. Natural Gas Marketed Production; U.S. Natural Gas Gross Withdrawals; U.S. Natural Gas Gross Withdrawals From Shale Gas. Available at www.eia.gov. Accessed March 2018.
- 2 Loris, Nicolas D. Heritage Foundation. "U.S. Natural Gas Exports: Lift Restrictions and Empower the States." *Backgrounder*. No. 2767. February 11, 2013 at 1 and 3; Bowling, Brian. "Shale gas output ahead of facilities." *Pittsburgh Tribune-Review*. February 24, 2018.
- 3 "Energy upside: The surge of ethane." *Oil & Gas 360*. April 1, 2016.
- 4 American Chemistry Council (ACC). Economics & Statistics Department. "The Potential Economic Benefits of an Appalachian Petrochemical Industry." May 2017 at 6 to 10; Carter, Kristin M. et al. Appalachian Oil & Natural Gas Research Consortium at West Virginia University. "A geologic study to determine the potential to create an Appalachian storage hub for natural gas liquids." August 1, 2016 – July 31, 2017 at xiii.
- 5 Cocklin, Jamison. "Unexpected regulatory delays hinder Ohio NGL storage project." *Natural Gas Intelligence*. January 12, 2018; See Carter et al. (August 1, 2016 – July 31, 2017).
- 6 Carter et al. (August 1, 2016 – July 31, 2017) at 1.
- 7 West Virginia Department of Commerce. [Press release]. "China Energy and West Virginia announce framework to invest \$83 billion in shale gas and chemical manufacturing projects." November 9, 2017.
- 8 Pennsylvania State University. [Press release]. "Penn State Behrend will connect Erie companies to \$6 billion energy project." April 24, 2018; Junkins, Casey. "Updated: Kasich says Belmont County cracker partnership pushes price tag to \$10 billion." *The Intelligencer* (WV). March 12, 2018; ACC (2017) at 9.
- 9 Food & Water Watch. "How Fracking Supports the Plastic Industry." February 2017 at 1 and 2.
- 10 Shell. [Press release]. "Shell to build new petrochemicals complex in Pennsylvania." June 7, 2016; Pennsylvania State University (2018).
- 11 Frazier, Reid. "Activist groups want more time to review Shell Falcon pipeline permits." *StateImpact Pennsylvania*. January 31, 2018.
- 12 Gillispie, Mark and Julie Carr Smyth. "S Korean firm joins Ohio effort to build petrochemical plant." *Associated Press*. March 12, 2018; DiChristopher, Tom. "Appalachia joins the race for the multibillion-dollar petrochemicals boom." *CNBC*. July 11, 2017; Junkins (2018).
- 13 ACC (2017) at 9 and 10.
- 14 Cocklin (2018); Stephan, Dominik. "10 billion dollar gas storage hub shall make Appalachia the new shale-hotspot in the US." *Process Worldwide*. September 9, 2016.
- 15 Cocklin (2018); Litvak, Anya. "Hunting for caverns: Appalachia's bid to rival the Gulf Coast." *Pittsburgh Post-Gazette*. June 11, 2017.
- 16 Cart, Samantha. "Appalachian storage hub: realizing our potential." *West Virginia Executive*. June 2, 2016.
- 17 Carter et al. (August 1, 2016 – July 31, 2017) at 1.
- 18 ACC (2017) at 7; Litvak (2017).
- 19 Food & Water Watch (2017) at 2 to 4.
- 20 See Food & Water Watch. [Fact sheet]. "Oceans awash in toxic plastic — brought to you by fracking." July 2018.