Marcellus Shale: Powering the Nation
White House Briefing

January 9, 2018

MARCELLUS SHALE COALITION™

About MSC

Our Membership

- 200+ diverse members
- Producers, midstream and suppliers

Our Focus

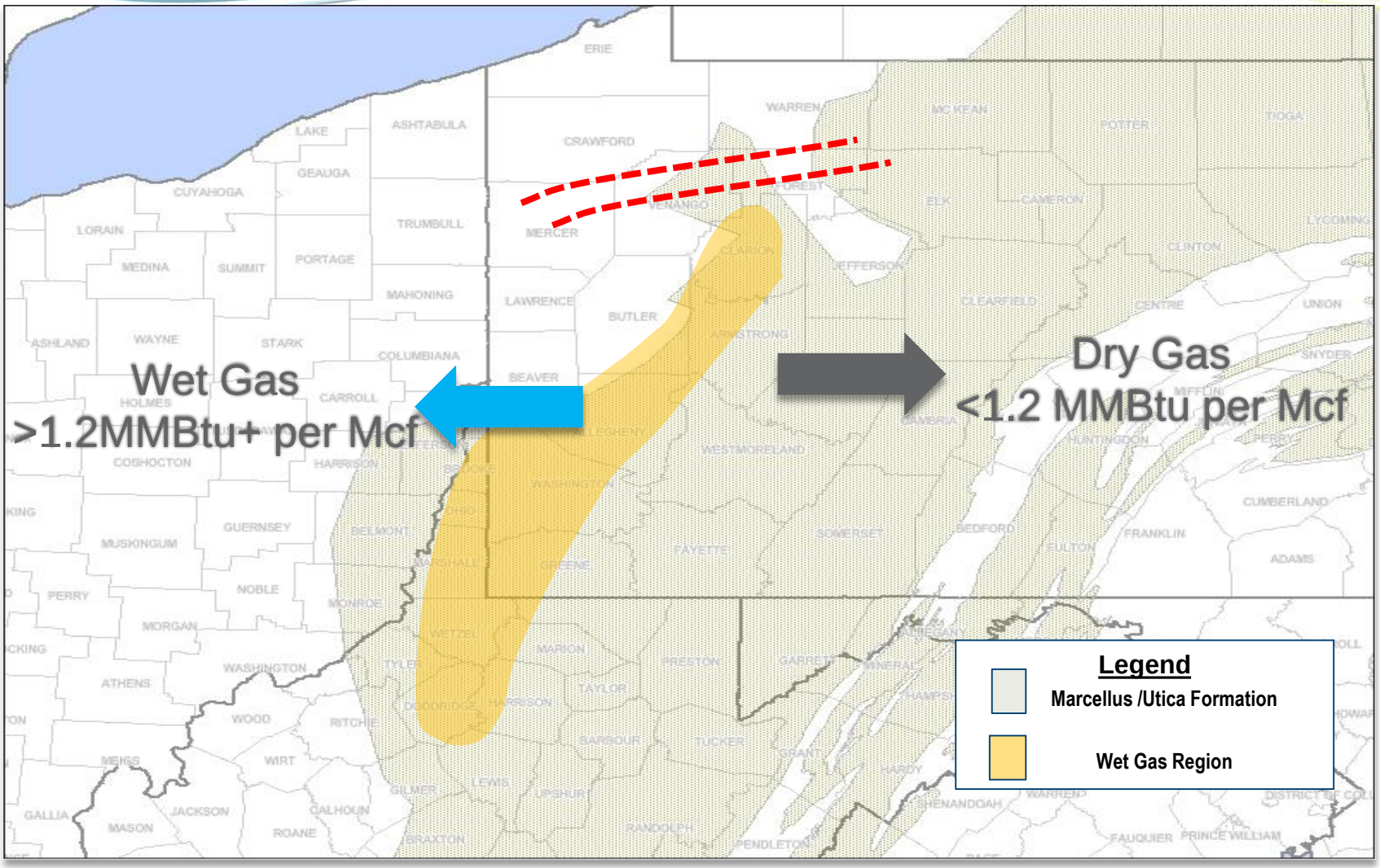
- Long-term development
- End use opportunities
- Addressing landowner and public issues
- Maximizing benefits to secure our region's energy future

Associate Members are an integral part of the MSC and the industry's robust supply chain.

More than 95% of the natural gas in Pennsylvania is produced by MSC member companies.

The MSC Board of Directors consists of 34 major producer and midstream companies in the Appalachian Basin.

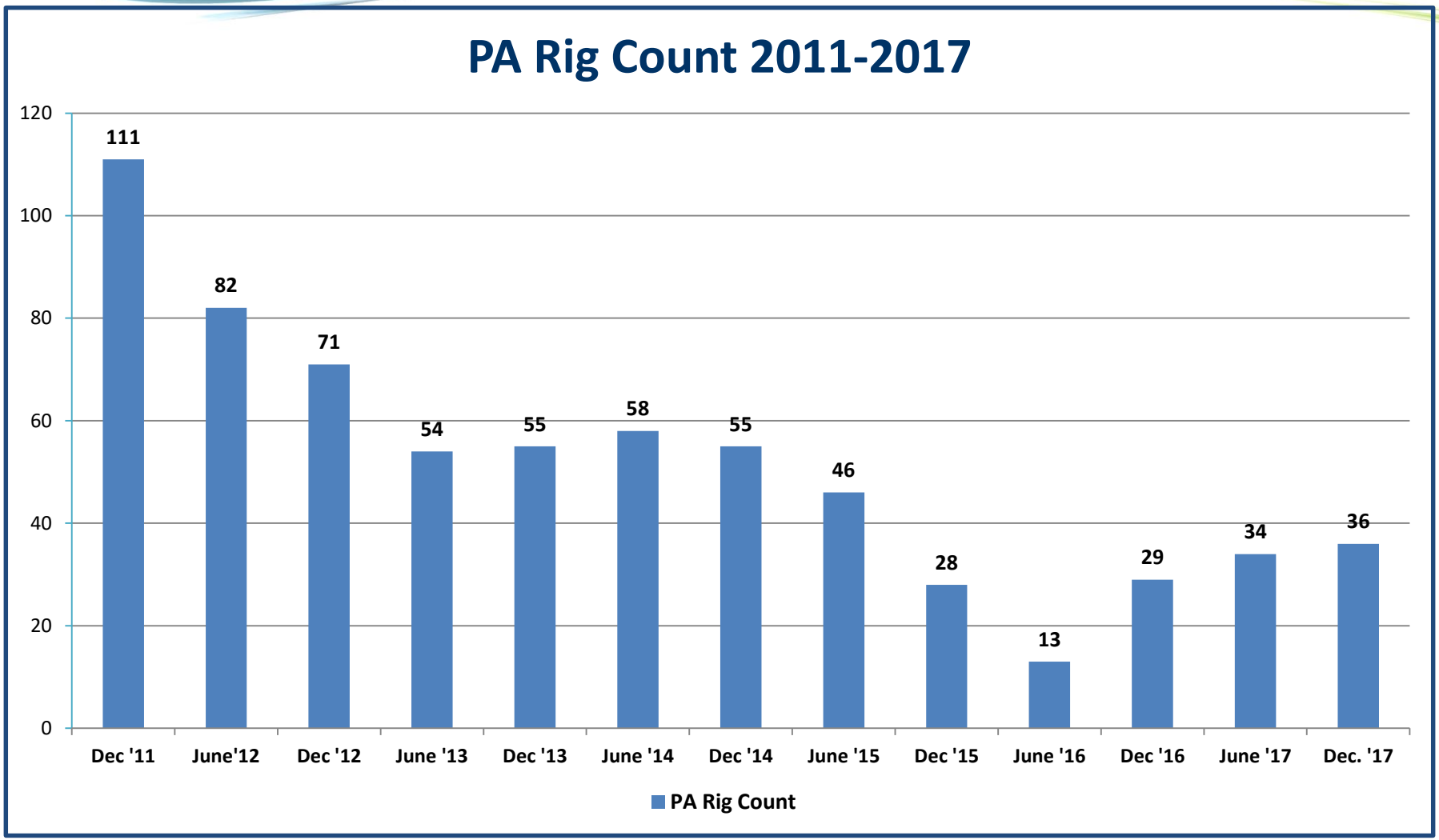
Feedstock: "Wet Gas" Region



Pennsylvania:
A World-Class Player in Shale Gas Production

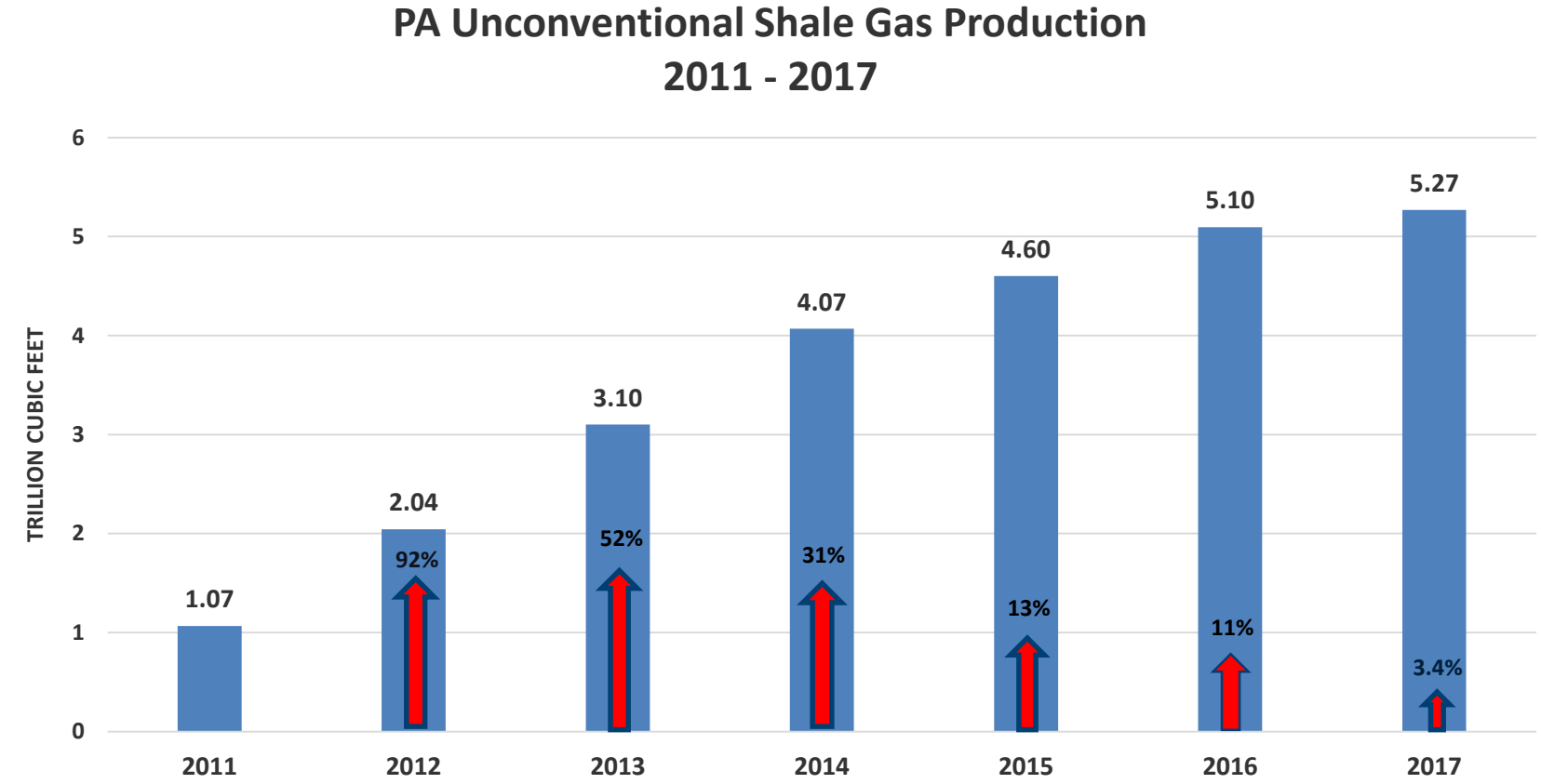
- 2nd largest natural gas producer in U.S.
- 10,027 unconventional wells*
  - 630 shut in
  - 763 drilling not completed
  - 666 inactive
- Nearly 7,917 producing wells
- 5.1 Trillion Cubic Feet (2016)
- 19.2% of total U.S. natural gas production
- 33 of 67 counties with at least 1 producing well

Drilling Activity in PA



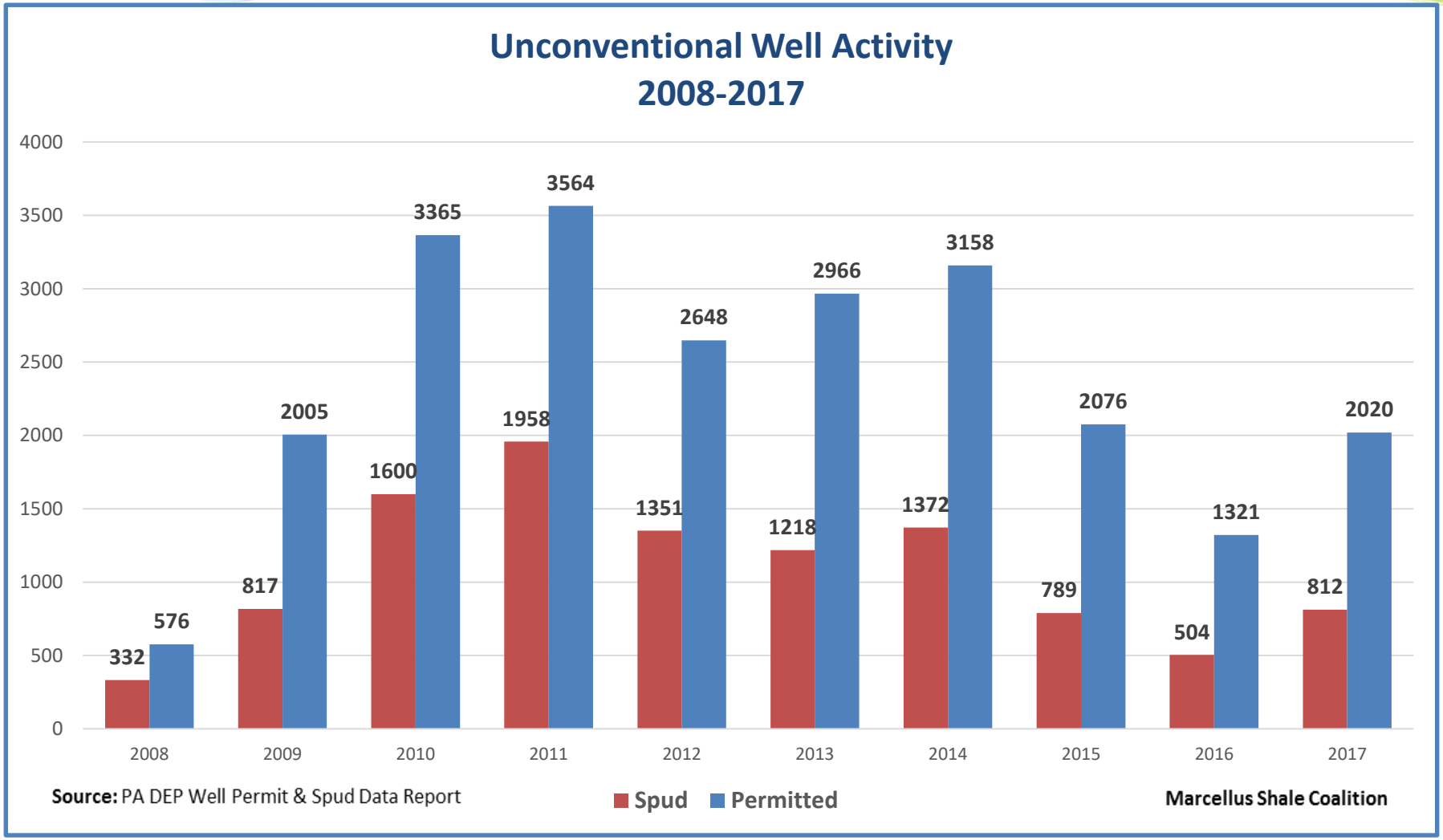
Source: Baker Hughes

Fueling the Nation



Source: Marcellus Shale Coalition & PA DEP

Drilling Activity in PA

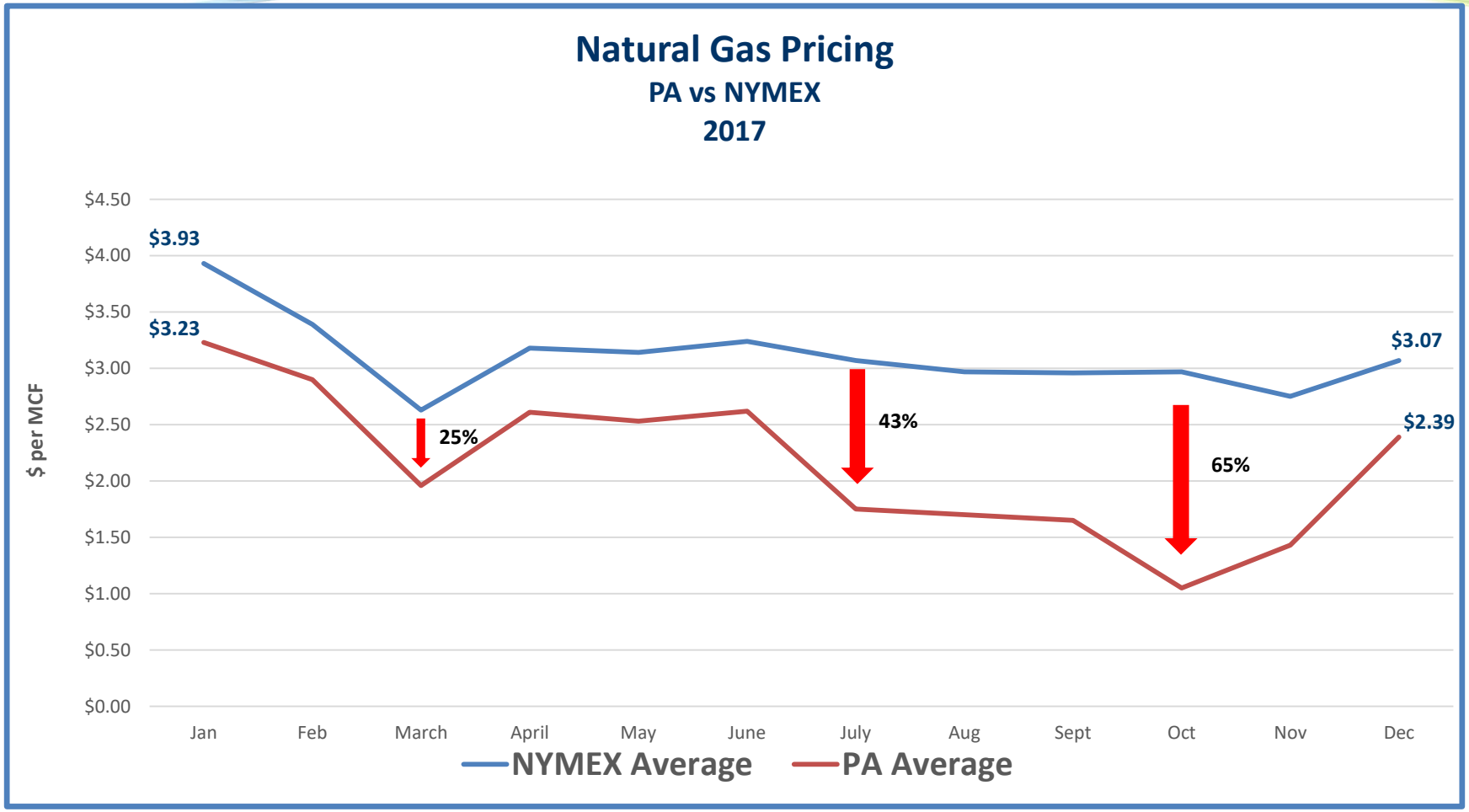


Challenges

- Vital need for Infrastructure
  - 24 FERC projects (Tri-State Area)
  - $12.9 Billion (PA)

- January 4, 2018 - highest ever-recorded North American Natural Gas Price was Observed at Transco Zone 6 – New York $175/MMBtu
  - Policies that have discouraged or blocked pipeline development into the Northeast are having direct and significant financial impact to all levels of consumers

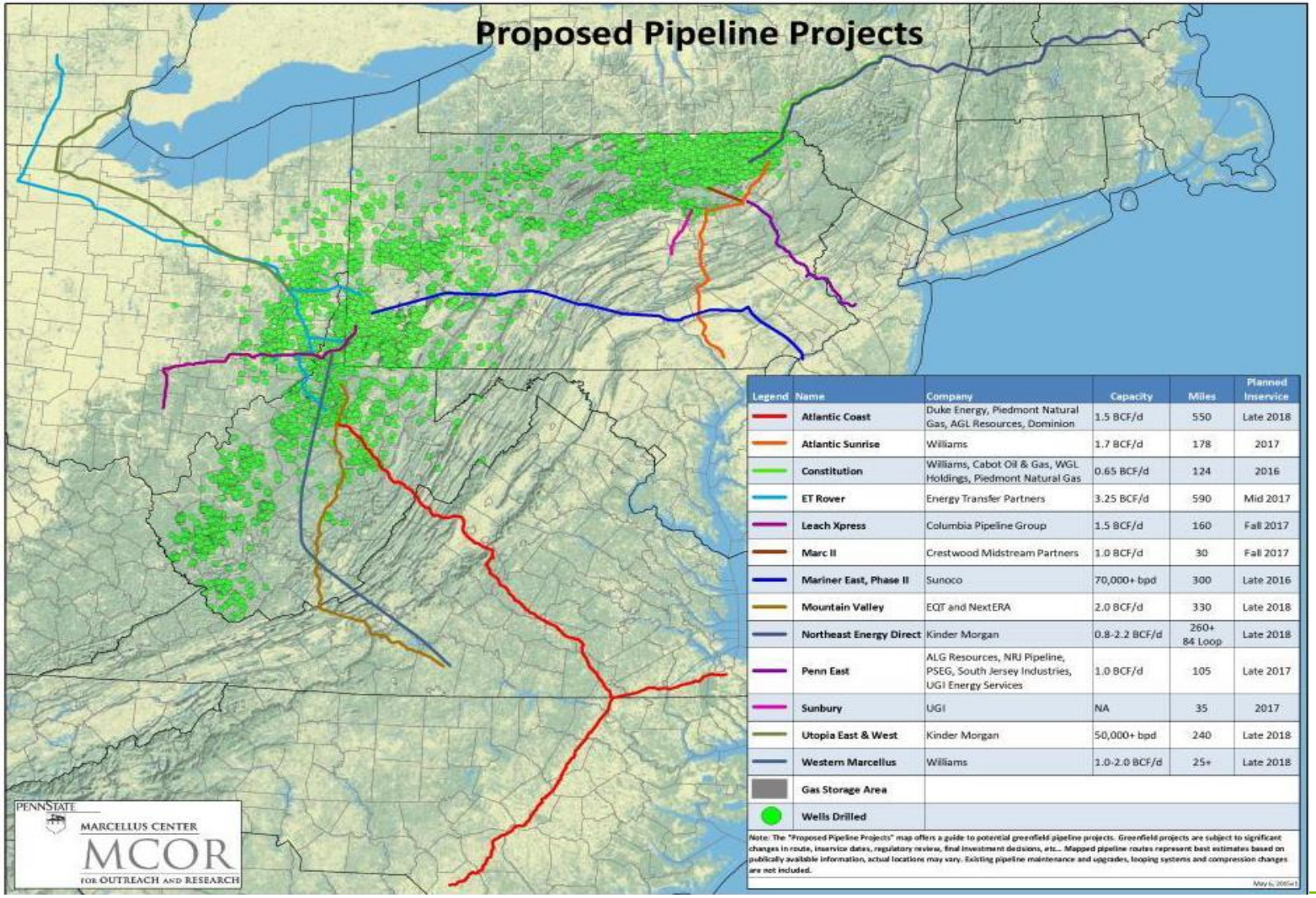
PA Price Differential



Reduced monthly bidweek price received by PA producers & leaseholders

Source: Platts Inside FERC

Proposed Pipeline Projects



Legend	Name	Company	Capacity	Miles	Planned Inservice
	Atlantic Coast	Duke Energy, Piedmont Natural Gas, AGL Resources, Dominion	1.5 BCF/d	550	Late 2018
	Atlantic Sunrise	Williams	1.7 BCF/d	178	2017
	Constitution	Williams, Cabot Oil & Gas, WGL Holdings, Piedmont Natural Gas	0.65 BCF/d	124	2016
	ET Rover	Energy Transfer Partners	3.25 BCF/d	590	Mid 2017
	Leach Xpress	Columbia Pipeline Group	1.5 BCF/d	160	Fall 2017
	Marc II	Crestwood Midstream Partners	1.0 BCF/d	30	Fall 2017
	Mariner East, Phase II	Sunoco	70,000+ bpd	300	Late 2016
	Mountain Valley	EQT and NextERA	2.0 BCF/d	330	Late 2018
	Northeast Energy Direct	Kinder Morgan	0.8-2.2 BCF/d	260+ 84 Loop	Late 2018
	Penn East	ALG Resources, NRU Pipeline, PSEG, South Jersey Industries, UGI Energy Services	1.0 BCF/d	105	Late 2017
	Sunbury	UGI	NA	35	2017
	Utopia East & West	Kinder Morgan	50,000+ bpd	240	Late 2018
	Western Marcellus	Williams	1.0-2.0 BCF/d	25+	Late 2018
	Gas Storage Area				
	Wells Drilled				

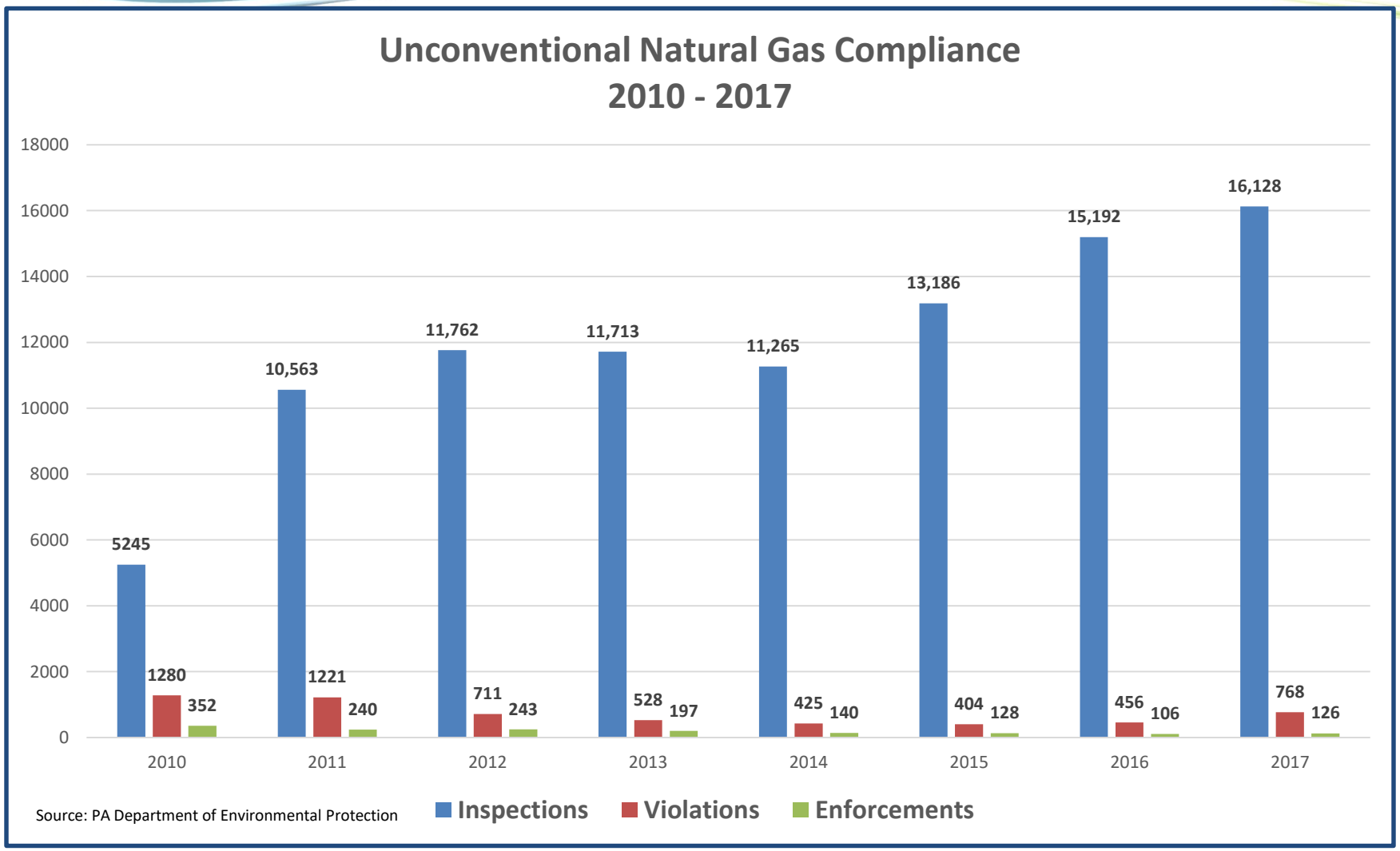
Note: The "Proposed Pipeline Projects" map offers a guide to potential greenfield pipeline projects. Greenfield projects are subject to significant changes in route, inservice dates, regulatory review, final investment decisions, etc... Mapped pipeline routes represent best estimates based on publically available information, actual locations may vary. Existing pipeline maintenance and upgrades, looping systems and compression changes are not included.

May 6, 2015v1

Top Ten Producing Operators by Volume (2016)

Operator	Production (MCF)
Chesapeake Energy	704,902,247
Cabot Oil & Gas	685,481,842
EQT	504,710,429
Range Resources	474,198,321
Southwestern Energy	425,883,323
Chief Oil & Gas	284,361,956
CNX/Consol	235,853,939
Rice Energy	207,165,444
Talisman/Repsol	192,225,939
Seneca Resources	182,971,613

Protecting Our Environment



Source: PA Department of Environmental Protection

Benefiting Consumers

Lower Prices = Customer Savings

- Wholesale electric prices down 41% since 2008
- Natural gas prices for end-use customers down 57% - 81% since 2008
- Average annual savings > $1,200 per household

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Benefiting Consumers

Lower Prices = Customer Savings
2008 - 2016

Utility	PGC Rate / mcf		% Change	Customer Savings
	2008*	2016*	2008-2016	Annual
PECO	$11.10	$3.41	- 69%	**$1,384**
NFG	$10.34	$1.92	- 81%	**$1,516**
PGW	$10.58	$3.22	- 70%	**$1,325**
Columbia	$10.25	$3.64	- 64%	**$1,190**
Equitable	$11.81	$2.72	- 77%	**$1,636**
UGI	$11.79	$5.06	- 57%	**$1,211**
UGI Penn	$10.66	$3.72	- 65%	**$1,249**
Peoples	$9.53	$2.72	- 71%	**$1,226**

*** 1st Quarter 2008 & PUC-approved rate for 2016**

*** Residential heating customer using 15 mcf/month**

Market Opportunities

Electricity generation, heating

Combined heat and power applications

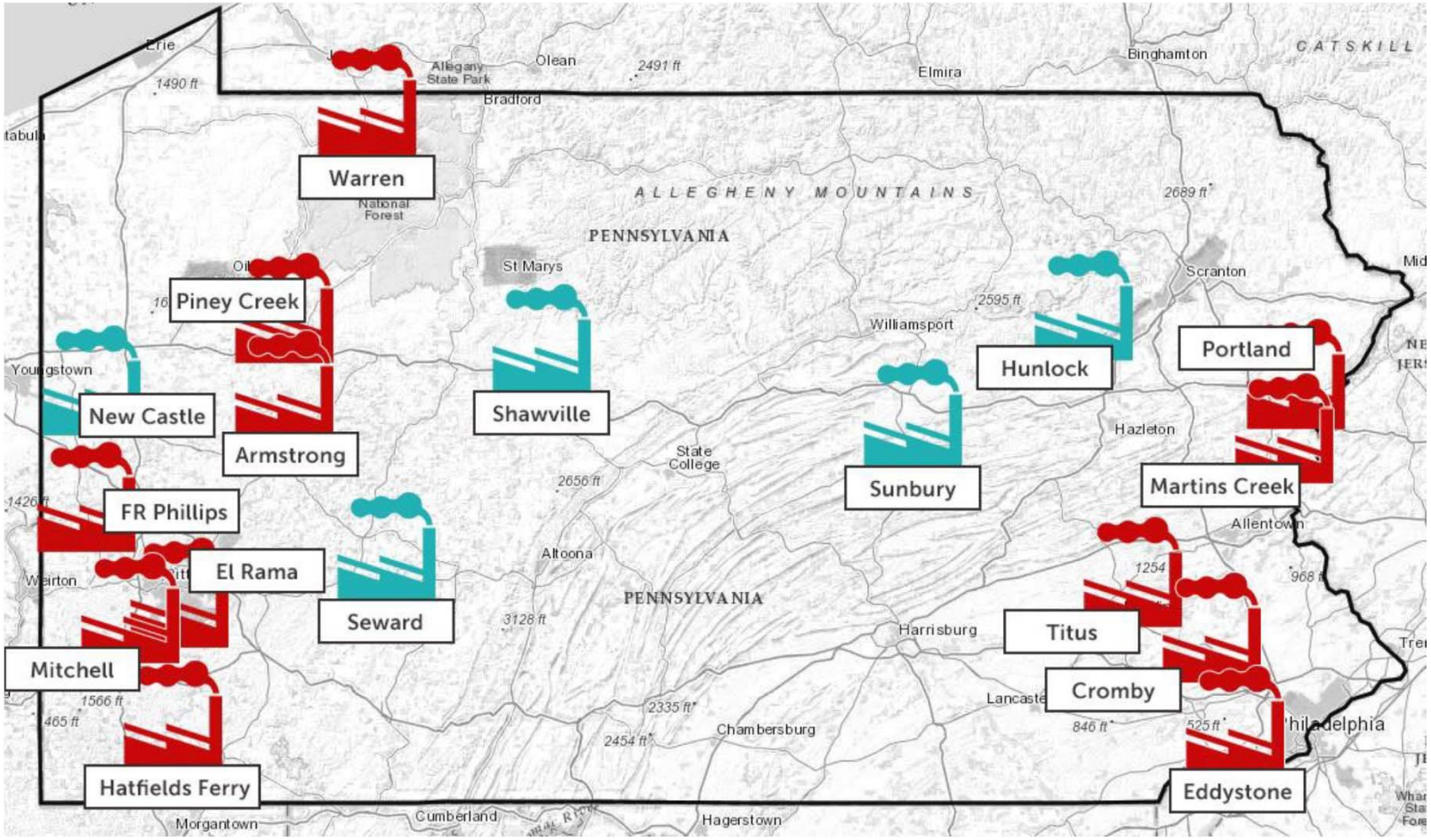
Light and heavy duty transportation applications

Feedstock for industries and other liquids use

- Rebirth of manufacturing

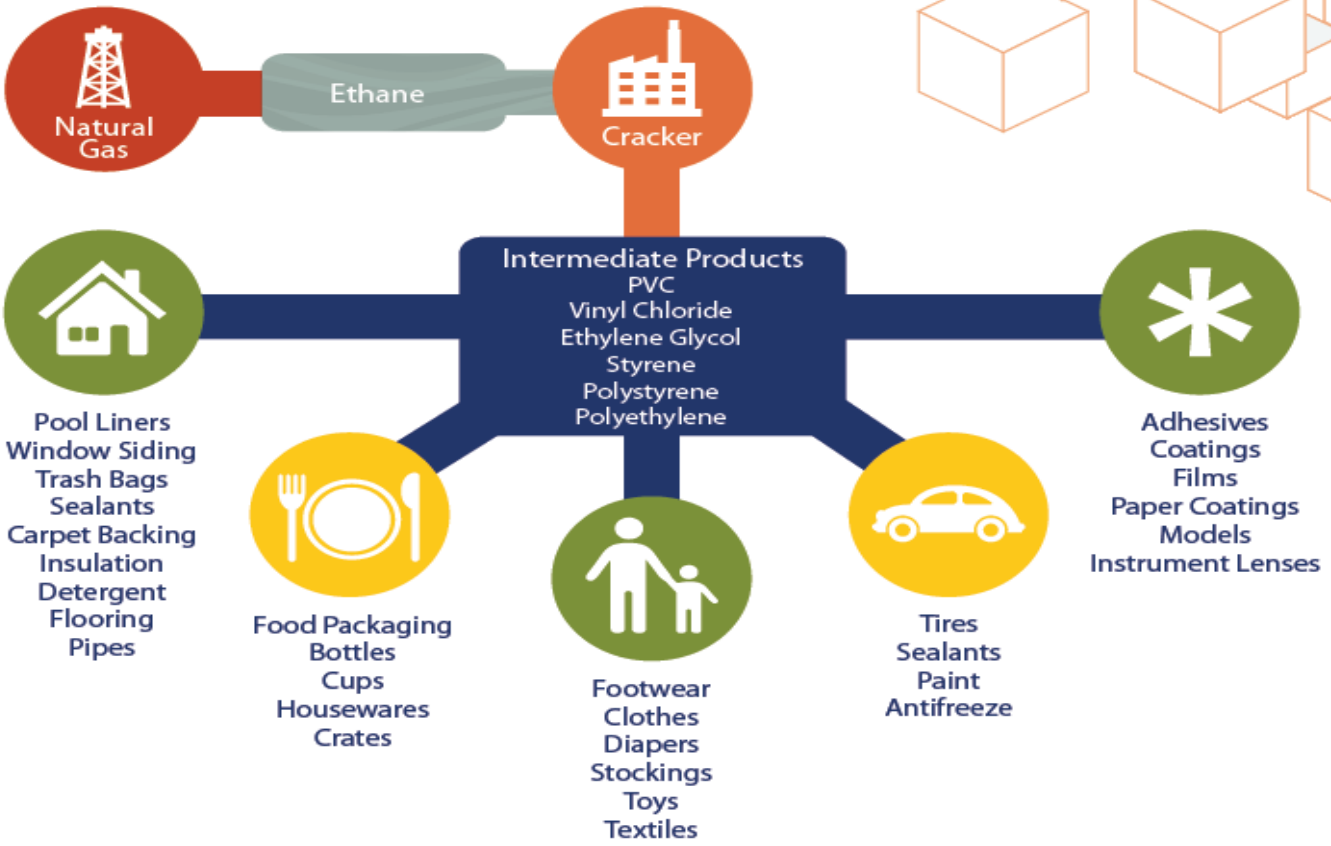
Exports

Opportunities in Power Generation



The Ethane Factor

ETHYLENE CHAIN



Polyethylene Grades

High Density

Low Density

Linear Low Density

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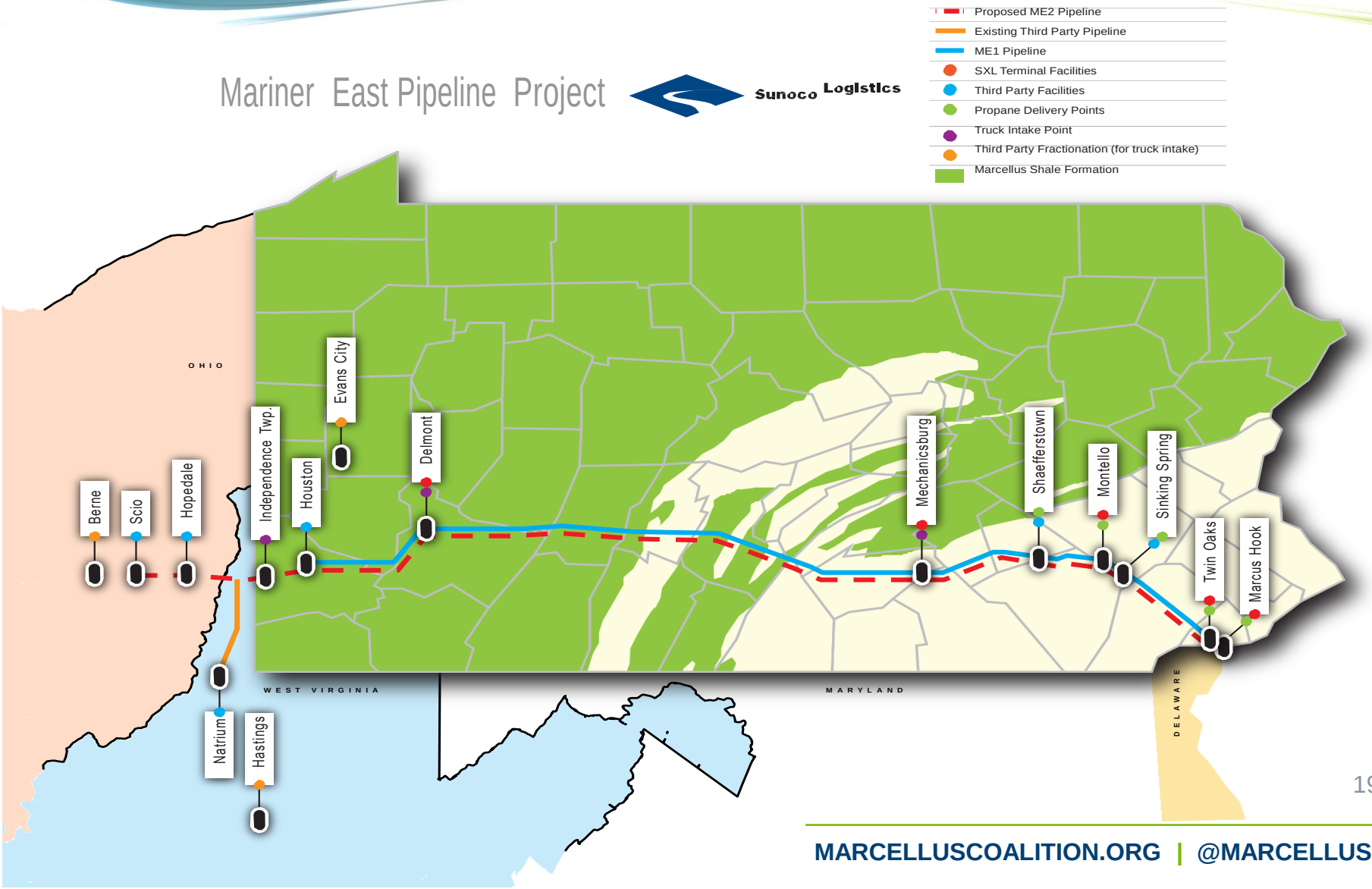
Use It Or Lose It

Mariner East Pipeline Project

Sunoco Logistics



Follow The Gas

Thank you!

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