

Natural Gas Industry Perspective

March 8, 2017

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Marcellus Shale Coalition

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

More than 90% of the natural gas in Pennsylvania is produced by MSC member companies.

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

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

STATE OF THE INDUSTRY



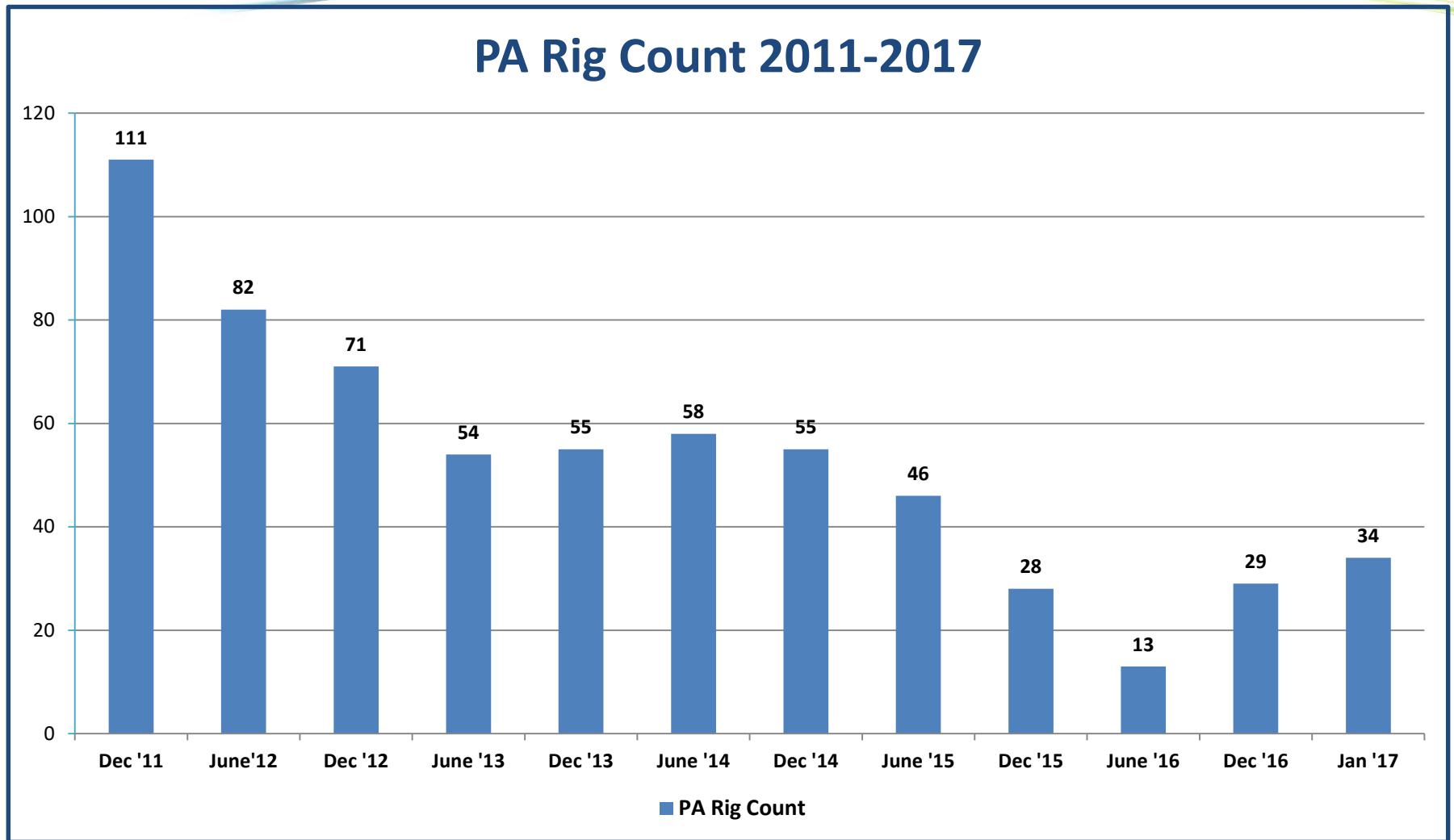
Drilling Activity in PA

- 🔥 9411 unconventional wells*
 - 617 shut in
 - 731 drilling not completed
 - 681 inactive
- 🔥 7349 unconventional wells producing natural gas
- 🔥 400+ billion cubic feet/month
 - 5 trillion+ cubic feet/year
 - 37% of total U.S. shale gas production



Drilling Activity in PA

PA Rig Count 2011-2017



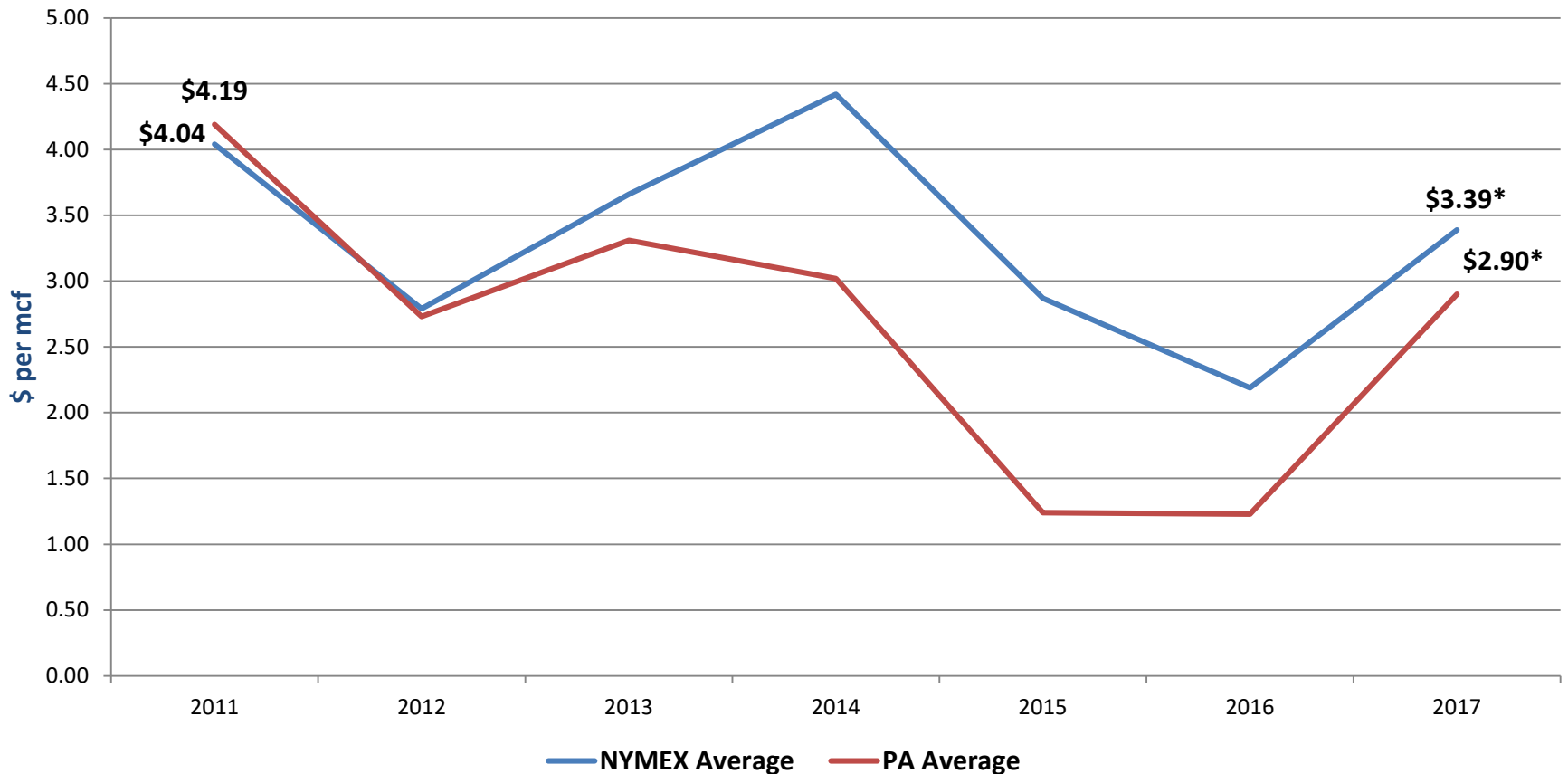
Primary PA Interconnect Points

March Bid Week Pricing (Inside FERC's Gas Market Report)

Tennessee Zone 4	\$1.90/MMBTU
Leidy Receipts	\$1.94/MMBTU
Dominion Appalachia	\$2.06/MMBTU
Average Gas Sales \$	\$1.98/MMBTU
Average Gathering of \$0.87/ MMBTU (Independent Fiscal Office)	

Appalachian Price Differential

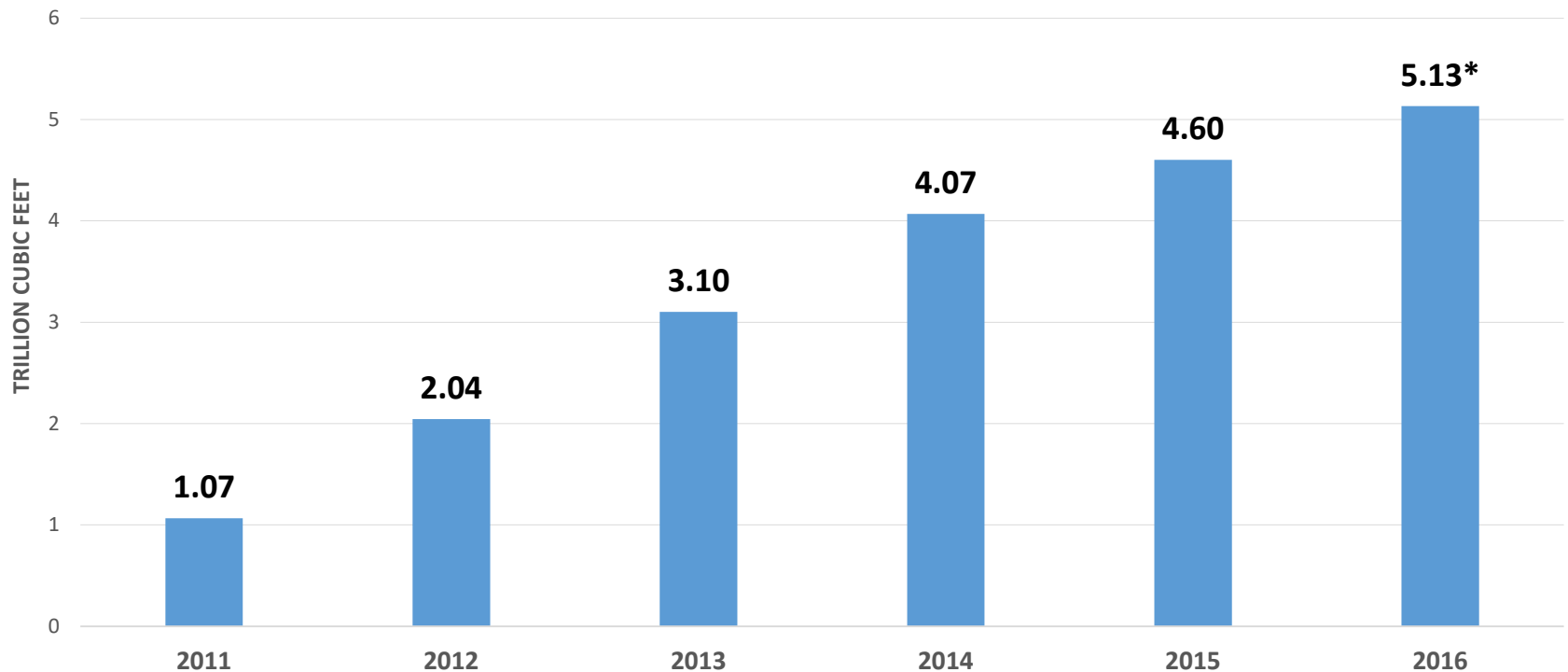
**PA Price Basis Differential
2011 – 2017**



* February 2017 Price

Fueling the Nation

PA Unconventional Shale Gas Production 2011 - 2016



Source: Marcellus Shale Coalition & PA DEP

* Projected

Benefiting Pennsylvania Consumers

- 💧 Electric prices down 40% since 2008
- 💧 Natural gas prices for end-use customers down 54% - 73% since 2008
- 💧 Average annual savings > \$1,200 per household

Lower Prices = Customer Savings

Utility	PGC Rate / mcf		% Change	Customer Savings
	2008*	2015*	2008-2015	Monthly
PECO	\$11.10	\$3.53	68%	\$113.55
NFG	\$10.34	\$3.10	70%	\$108.60
PGW	\$10.58	\$4.17	61%	\$96.15
Columbia	\$10.25	\$4.68	54%	\$83.55
Equitable	\$11.81	\$4.22	64%	\$113.85
UGI	\$11.79	\$4.85	59%	\$104.10
UGI Penn	\$10.66	\$4.22	60%	\$96.60
Peoples	\$9.53	\$2.59	73%	\$104.10

* 1st Quarter 2008 & PUC-approved rate for 2015

* Residential heating customer using 15 mcf/month

Electricity generation, heating

Combined heat and power applications

Light and heavy duty transportation applications

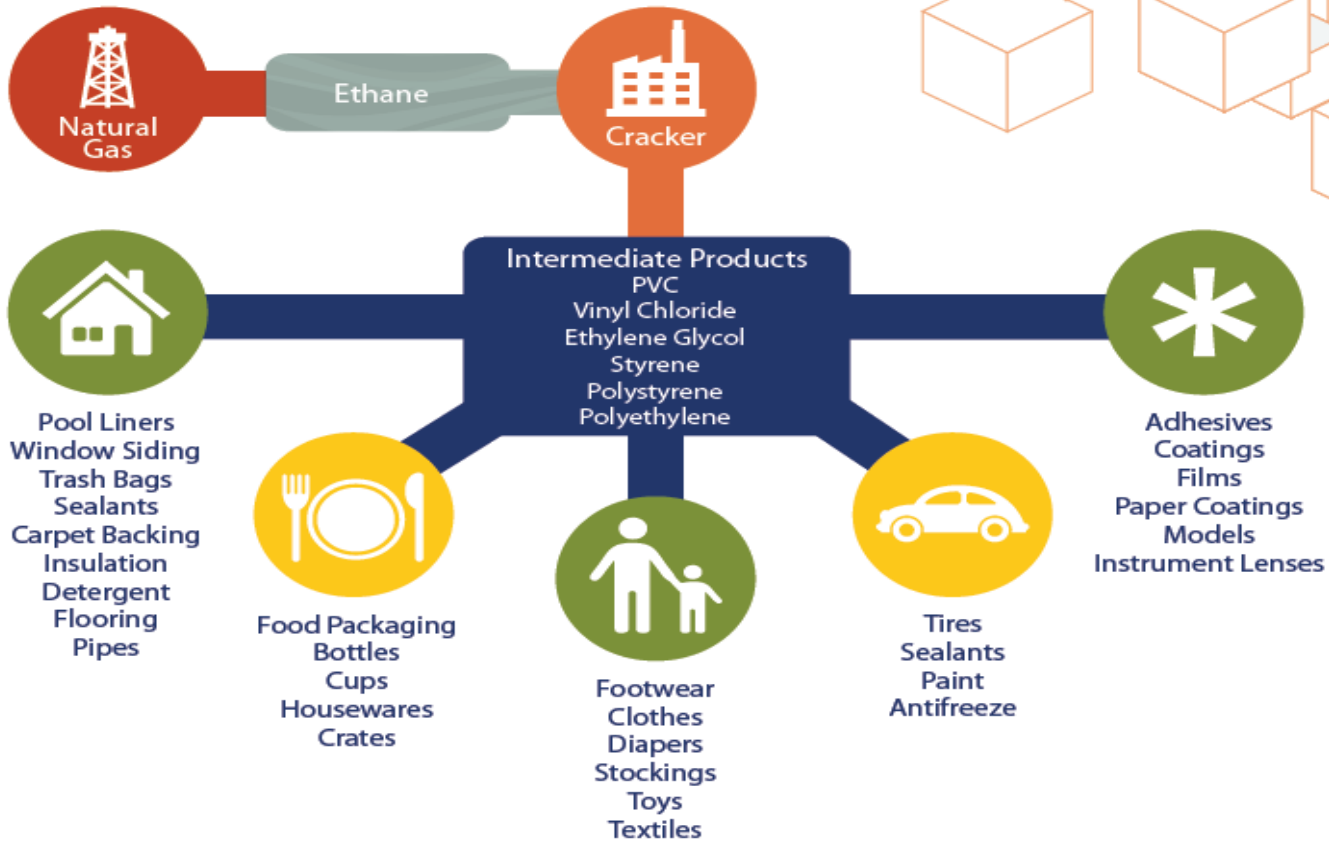
Feedstock for industries and other liquids use

- Rebirth of manufacturing

Exports

The Ethane Factor

ETHYLENE CHAIN



Natural Gas = Cleaner Air

Since 2008:*

- 💧 Sulfure dioxide (contributes to acid rain): **75% decrease**
- 💧 Nitrogen oxide (contributes to ground level ozone & respiratory issues):
25% decrease
- 💧 Particulate matter (asthma & respiratory issues): **45% decrease**
- 💧 \$14 - \$37 billion annual public health benefits realized
- 💧 27-year low in CO₂ emissions

* Reflects onset of Marcellus production; reductions from power generation sources (PA DEP)

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Revenue for Pennsylvania

Paid by Natural Gas Industry

Overall taxes since 2006¹	> \$2.1 billion
Road construction investments since 2008²	> \$1 billion
Bonus payments	\$177 million
Royalty payments to state in 2011³	> \$700 million
Permitting and enforcement fees to increase DEP personnel since 2009⁴	\$40.5 million
Impact Fee in first five years⁵	\$1 billion

¹ – Fox News, July 23, 2013

² – On-going Survey of Marcellus Shale Coalition Members

³ – Pennsylvania Department of Conservation and Natural Resources, 2013

⁴ – Pennsylvania Department of Environmental Protection, 2013

⁵ – Pennsylvania Public Utility Commission (2007-2011 grandfathered wells plus 2012 assessment)

Everyday uses of natural gas

- 💧 **Cooking**
- 💧 **Water heating**
- 💧 **Transportation**
- 💧 **Drying clothes**
- 💧 **Cosmetics**
- 💧 **Steel**
- 💧 **Plastics**
- 💧 **Glass**
- 💧 **Chemicals**
- 💧 **Powdered Metals**



Life sustaining uses of natural gas

- 💧 Life-sustaining medications
- 💧 Plastics
- 💧 Heating
- 💧 Steel/Glass Manufacturing
- 💧 Electricity 24/7
- 💧 Chemicals
- 💧 Fertilizing food supplies





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SEPTEMBER 27-28

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Thank you!

Marcelluscoalition.org