



INDUSTRY...AT A GLANCE

January 2022

Drilling Activity in PA

Pennsylvania: A World-Class Player in Shale Gas Production

- 🔹 2nd largest natural gas producer in U.S.
- 🔹 Over 10,400 producing wells
- 🔹 7 Trillion Cubic Feet (2020)
- 🔹 19% of total U.S. natural gas production
- 🔹 34 of 67 counties with at least 1 producing well

Drilling Activity in PA

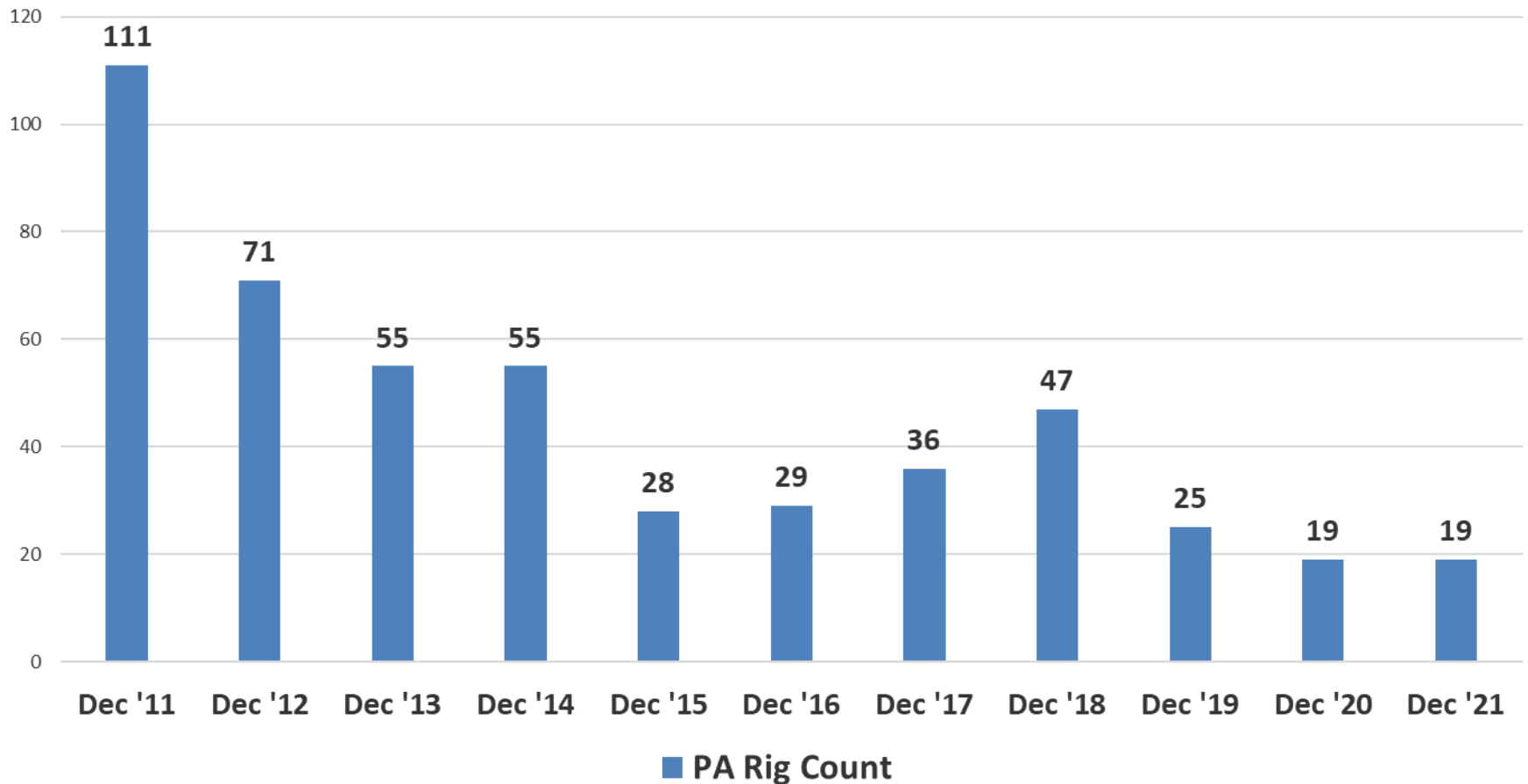
- 🔥 11,996 unconventional wells*
- 🔥 10,502 unconventional wells producing natural gas
- 🔥 3,827 unconventional well pads
- 🔥 20+ billion cubic feet/day
 - 7 trillion+ cubic feet/year
 - 32% of total U.S. shale gas production



Drilling rig in Potter County, PA

* August 2021 (most recent data available)

PA Rig Count 2011 - 2021



Keep in Mind...

- 🔹 Rig count not the same metric as 6-8 years ago:
 - Longer laterals
 - More efficient drilling
 - More frac stage completions

- 🔹 But still *an* indicator:
 - Oil v Gas
 - Wet v Dry
 - Basin v Basin

Moving Gas to Market

Moving Gas to Market

Pipelines Bring Major Investment, Jobs to the Appalachian Basin

MORE THAN



27
Pipelines



\$32.6
Billion



3,500
Miles



124k
Jobs

22.7
bcf/d

445k
b/d of NGLs



Moving Gas to Market

| Pipeline Project* | Investment (Millions) | Capacity (MMcf/day) |
|------------------------------|----------------------------------|--------------------------------|
| Adelphia Gateway | Undetermined | 250 |
| Atlantic Sunrise | \$2,100 | 650 |
| Birdsboro | \$47 | 79 |
| Constitution | \$683 | 650 |
| Eastern Panhandle Exp. | \$250 | 47.5 |
| Eastern Shore Exp. Project | \$98.6 | 400 |
| Empire North | \$141 | 205 |
| Leidy South | Undetermined | 580 |
| Monaca Line | \$20 | 133 |
| Northeast Supply Enhancement | \$927 | 400 |
| Northern Access | \$500 | 490 |
| Orion | \$109 | 135 |
| PennEast | \$1,000 | 1,107 |
| Risberg Line | \$86 | 55 |
| Supply Header | \$500 | 1,511 |

Upcoming Pipeline Projects for Appalachia

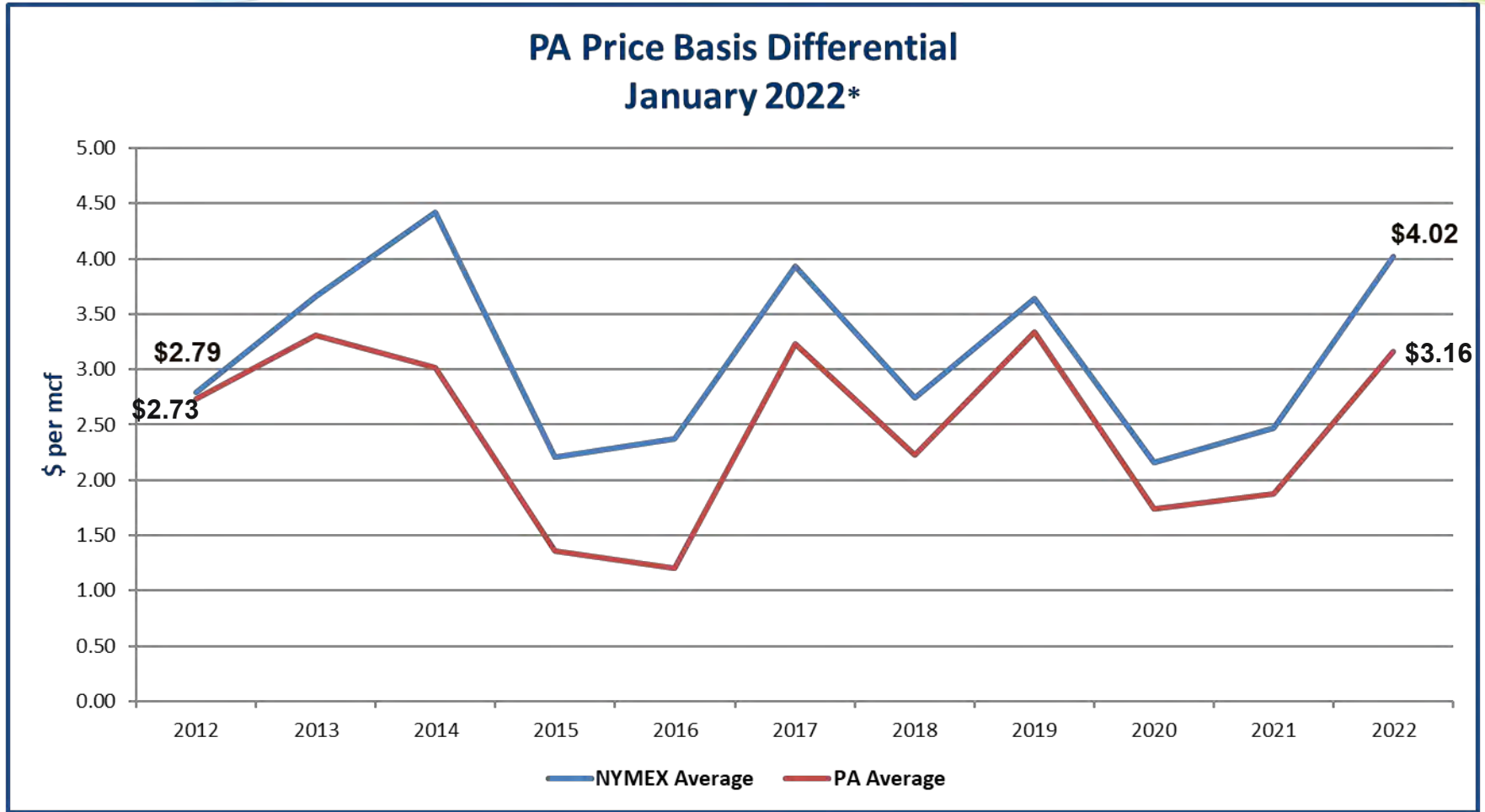
| Project Name | Pipeline | Pipeline Corridor | Status | Stated Capacity | Stated Start Date |
|--|-----------------------|-----------------------|---------------------------------|-----------------|-------------------|
| Greene Interconnect (MVP Partial Service) | EQT/MVP | Regional | EA/EIS Issued | 1,000 | 12/1/2019 |
| Southern Reliability Link | NJ Nat Gas | East/Northeast | Under Late Construction | 180 | 3/1/2020 |
| Gateway | TRANSCO | East/Northeast | Under Early Construction | 65 | 3/1/2020 |
| AquaTrans Power Plants Supply Laterals | EQT | South Ohio | Announced | 100 | 6/1/2020 |
| TP-4555 Bare Pipe Replacement | EQT | Regional | Filed | 96 | 6/1/2020 |
| Line N Expansion - 2020 | NFG | Regional | Open Season Completed | 215 | 7/1/2020 |
| PennEast Pipeline | PennEast | East/Northeast | Certificate Issued | 1,107 | 7/1/2020 |
| Empire North Expansion | NFG | Canada | Under Early Construction | 205 | 9/1/2020 |
| Yorktown M&R Replacement & Reliability Project | AGT | Regional | Under Early Construction | 22 | 9/1/2020 |
| Buckeye Xpress | TCO | South Ohio | EA/EIS Issued | 275 | 11/1/2020 |
| Mountain Valley Pipeline | EQT | South Atlantic | Under Late Construction | 2,000 | 12/1/2020 |
| Wright Interconnect Project | Constitution | East/Northeast | Certificate Issued | 650 | 12/1/2020 |
| Constitution Pipeline | Constitution | East/Northeast | Under Early Construction | 650 | 12/1/2020 |
| DTI Supply Header | Atlantic Coast | East/Northeast | Under Early Construction | 1,500 | 12/1/2020 |
| Northeast Supply Enhancement Project | TRANSCO | East/Northeast | Certificate Issued | 400 | 12/1/2020 |
| Greater Philadelphia Expansion | TETCO | East/Northeast | Open Season Completed | 475 | 4/1/2021 |
| 2020 Expansion Project | Eastern Shore | East/Northeast | EA/EIS Issued | 14 | 6/1/2021 |
| Brooke County Access | EQT | Regional | Filed | 140 | 8/1/2021 |
| Central Corridor Pipeline Extension | Duke LDC | West | Announced | 168 | 9/1/2021 |
| Atlantic Coast Pipeline (ACP) | Atlantic Coast | South Atlantic | Under Early Construction | 1,500 | 12/1/2021 |
| FM 100 Modernization | NFG | Regional | Filed | 330 | 12/1/2021 |
| Seneca Supply Project | TRANSCO | Regional | Filed | 582 | 12/1/2021 |
| Northern Access 2016- Replacement (Empire) | Empire | Canada | Certificate Issued | 350 | 2/1/2022 |
| Northern Access 2016- Mainline (NFG) | NFG | Canada | Certificate Issued | 497 | 2/1/2022 |

Moving Gas to Market

PIPES Program – Projects Funded to Date

| Applicant | Project | County | Amount |
|---|---|--------------|-------------|
| Domtar Paper Company LLC | Johnsonburg Papermill | Elk | \$1,000,000 |
| Glenn O. Hawbecker, Inc. | Barkley Gas Line Extension Project | Venango | \$1,000,000 |
| Leatherstocking Gas Company | SR 0029 South Montrose | Susquehanna | \$442,274 |
| Wyoming County Chamber of Commerce | Tunkhannock Natural Gas Extension Project | Wyoming | \$1,000,000 |
| Kings Real Estate Group A | Hamburg Commerce Park | Berks | \$1,000,000 |
| SEDA-COG Natural Gas Cooperative | Centre Hall Natural Gas Project | Centre | \$1,000,000 |
| Monroe County Industrial Development Corp. | Route 611 Gas Corridor - Scotrun Extension | Monroe | \$980,000 |
| Wayne Economic Development Corporation | Canaan Township and Waymart Borough | Wayne | \$1,000,000 |
| McKean County Commissioners | IWI Distribution Lateral | McKean | \$1,000,000 |
| Bedford County Development Association | Natural Gas Pipeline Extension - BCBP II | Bedford | \$100,000 |
| Borough of Chambersburg | Chambersburg Natural Gas Pipeline Project | Franklin | \$584,100 |
| Valley Energy, Inc. | East Athens Natural Gas Extension Project | Bradford | \$850,000 |
| Leatherstocking Gas Company | Wyalusing Gasification | Bradford | \$1,000,000 |
| Lehigh Valley Economic Investment Corp | Arcadia West Business Park | Lehigh | \$1,000,000 |
| Wyoming County Chamber of Commerce | Tunkhannock Natural Gas Extension - Phase 2 | Wyoming | \$1,000,000 |
| Wayne Economic Development Corporation | Canaan Township and Waymart Borough | Wayne | \$376,392 |
| Economic Progress Alliance of Crawford | NFG Natural Gas Pipeline Extension | Crawford | \$300,000 |
| Wayne Township | National Fuel Gas Line Extension | Crawford | \$16,331 |
| Lehigh Valley Economic Investment Corp | Keystone Cement Company Pipeline Extension | Northampton | \$320,950 |
| Albert Garage & Farm Equipment | Natural Gas Pipeline | Butler | \$23,666 |
| Eastern Lebanon County High School District | Eastern Lebanon County High School Pipeline | Lebanon | \$980,666 |
| Eureka Resources | Bradford County Natural Gas Pipeline Expansion | Bradford | \$280,000 |
| Oak Tree Development Group | State Road Natural Gas Pipeline | Lancaster | \$154,793 |
| North Station District | North Station Technology Campus | Philadelphia | \$62,147 |
| Chester County Economic Development Council | South Mill Champs Expansion | Chester | \$1,500,000 |
| Pocono Mountains Industries | Gas Line Extension - Airport Road & Airstrip Road | Monroe | \$231,110 |
| Lehigh Valley Economic Investment Corp. | UGI Stroud Township PIPE Grant | Monroe | \$324,061 |
| Lehigh Valley Economic Investment Corp. | UGI Bethlehem Township PIPE Grant | Northampton | \$249,229 |

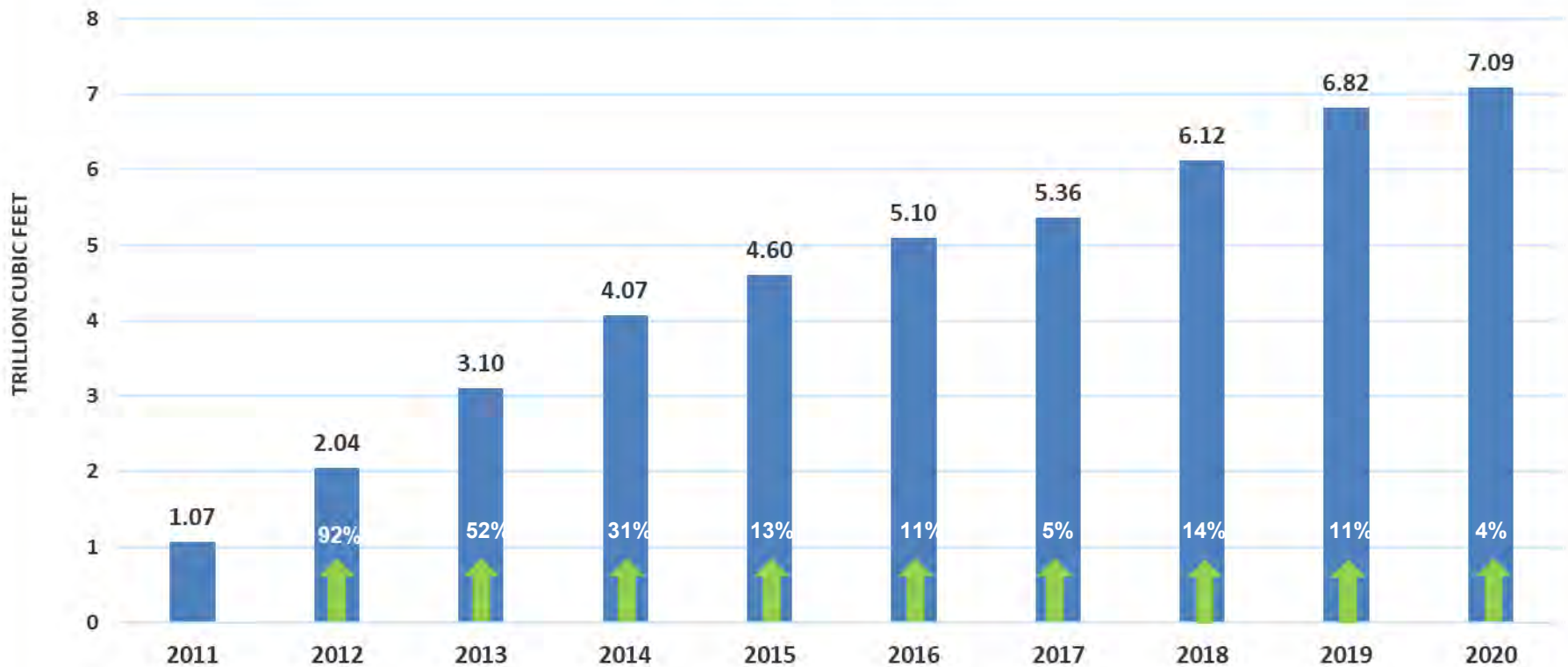
Pricing



* January 2022 Monthly Bidweek Price – Platts Inside FERC
Price reflects year-over-year for current month

Natural Gas Production

PA Unconventional Shale Gas Production 2011 - 2020



Source: Marcellus Shale Coalition & PA DEP

By The Numbers

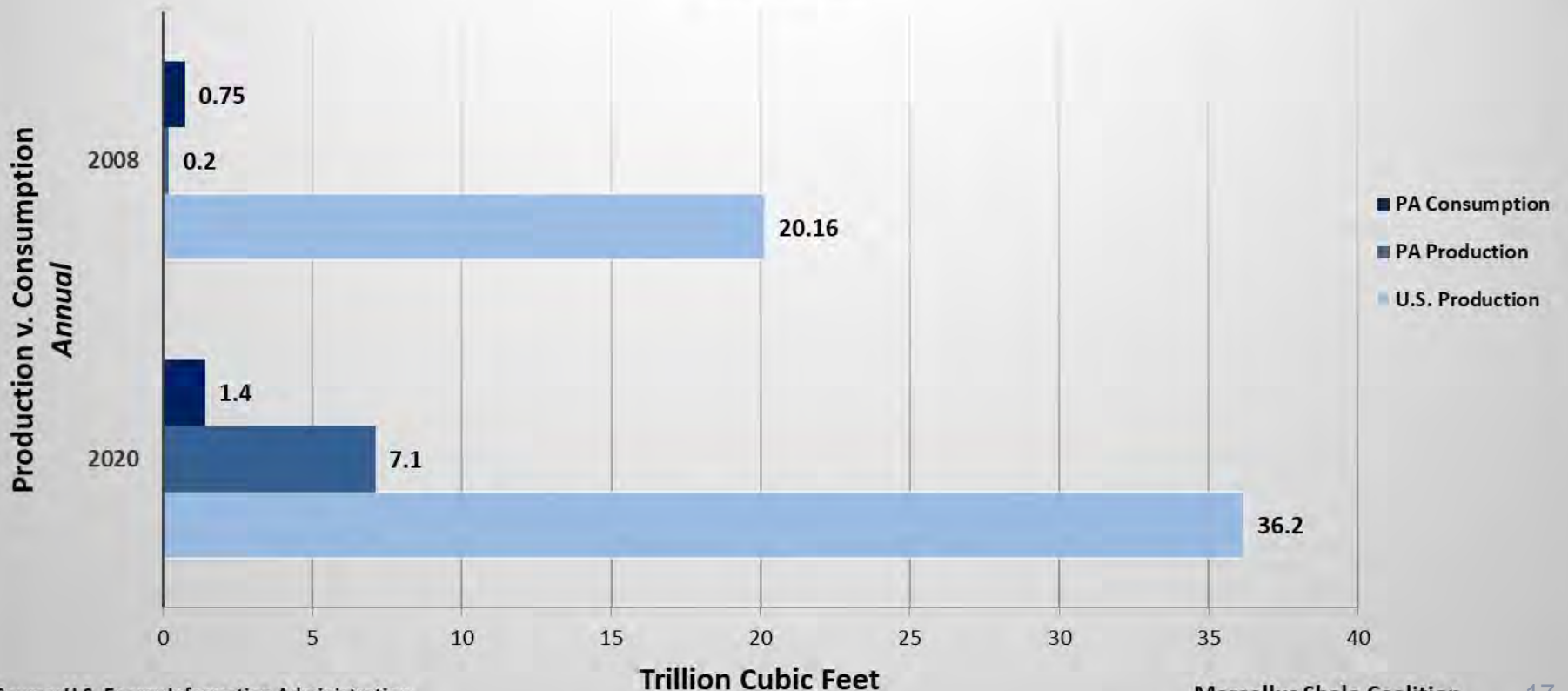
Top Ten Producing Counties by Volume (2020)

| County | Production (MCF) | % of PA Production | # of Producing Wells |
|-------------|------------------|--------------------|----------------------|
| Susquehanna | 1,636,322,197 | 23% | 1607 |
| Washington | 1,198,640,638 | 17% | 1674 |
| Greene | 1,051,012,575 | 14.8% | 1254 |
| Bradford | 947,676,253 | 13.4% | 1308 |
| Lycoming | 451,125,173 | 6.4% | 882 |
| Wyoming | 340,781,769 | 4.8% | 269 |
| Tioga | 339,235,799 | 4.8% | 728 |
| Butler | 250,428,258 | 3.5% | 525 |
| Allegheny | 188,797,488 | 2.7% | 151 |
| Sullivan | 140,836,213 | 2% | 127 |

Pennsylvania Natural Gas

Net Importer to Net Exporter

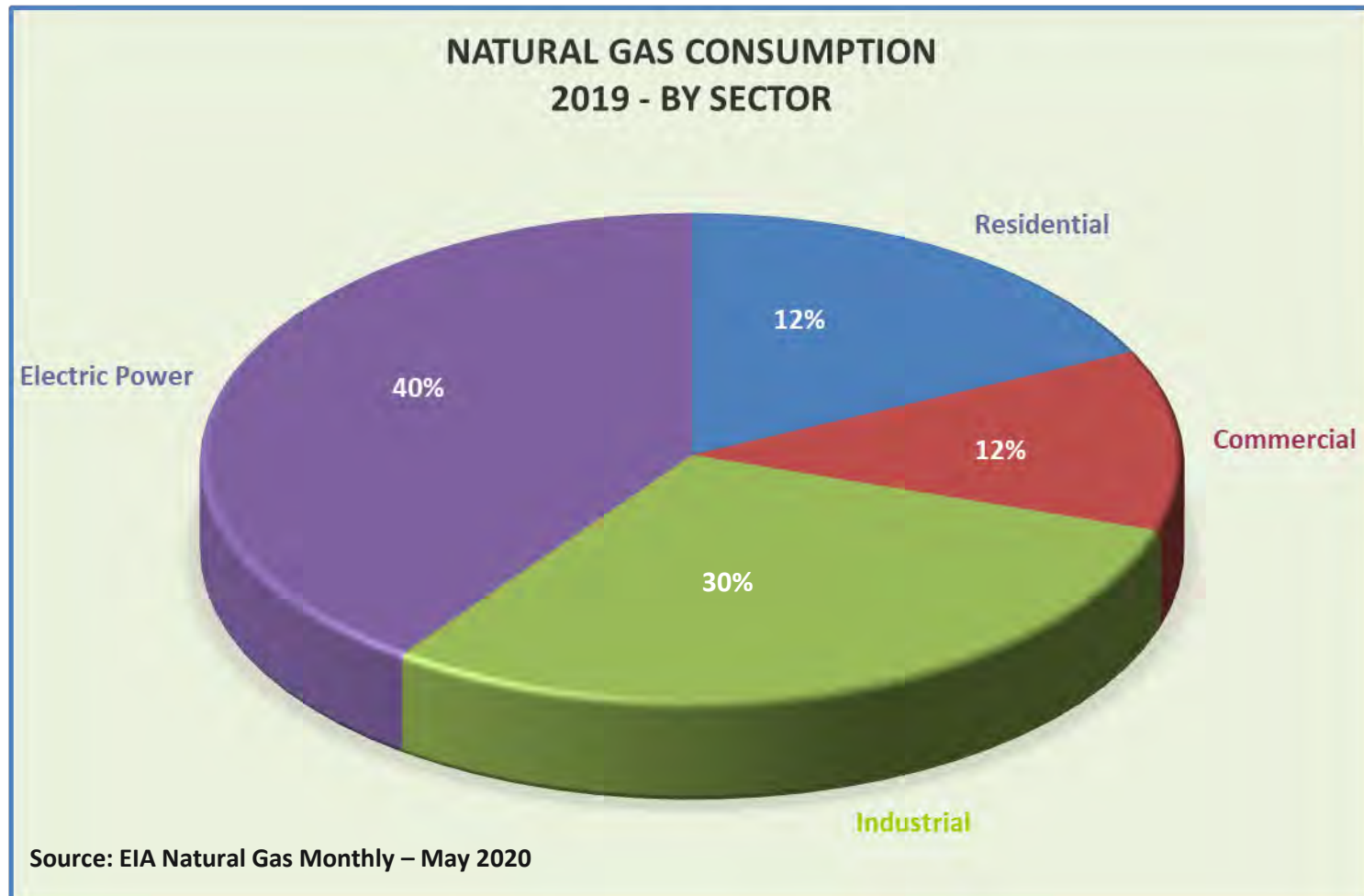
2008 vs. 2020



Source: U.S. Energy Information Administration

Marcellus Shale Coalition

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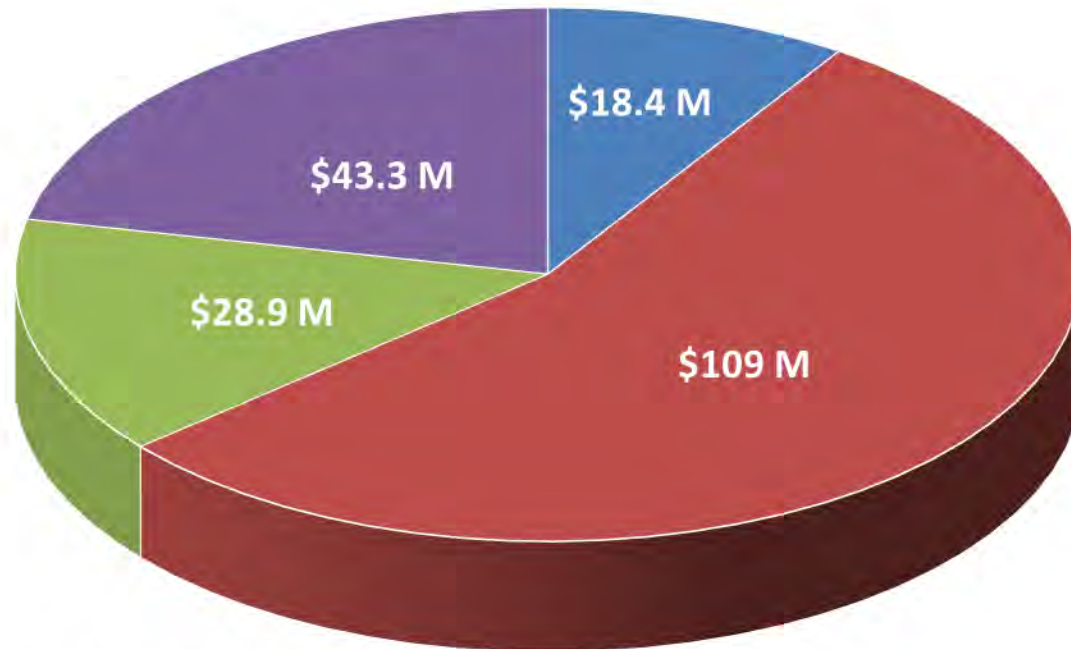
PA's Severance Tax: The Impact Fee

Benefiting PA Communities

Impact Fee Revenues to Date

| Year Distributed | Amount |
|------------------|-----------------------|
| 2012 | \$204.2 M |
| 2013 | \$202.5 M |
| 2014 | \$225.8 M |
| 2015 | \$223.5 M |
| 2016 | \$187.7 M |
| 2017 | \$173.3 M |
| 2018 | \$209.6 M |
| 2019 | \$251.8 M |
| 2020 | \$200.3 M |
| 2021 | \$146.3 M |
| TOTAL: | \$2.03 Billion |

Impact Fee Distributions 2020



- State Agency Oversight
- Local Government
- All Counties - Parks & Bridges
- Statewide - Environmental

Consumer & Economic Benefits

Lower Prices = Customer Savings

- 💧 Wholesale electric prices down 41% since 2008
- 💧 Natural gas prices for end-use customers down 56% - 76% since 2008
- 💧 Average annual savings > \$1,100 - \$2,200 per household

Benefiting Consumers

Lower Prices = Customer Savings 2008 - 2020

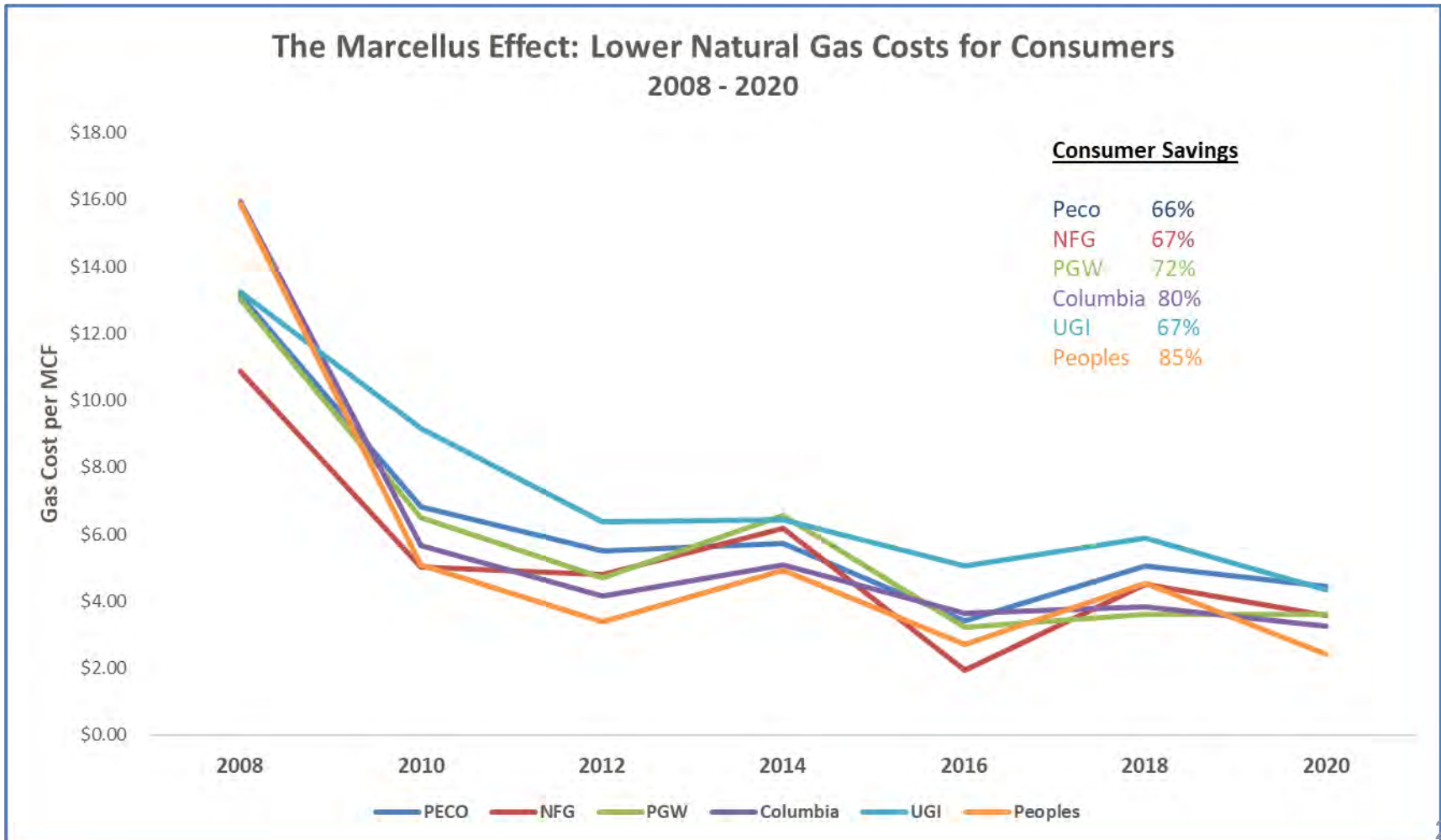
| Utility | PGC Rate / MCF | | % Change | Customer Savings** |
|-------------------|----------------|--------|-----------|--------------------|
| | 2008* | 2020* | 2008-2020 | Annual |
| PECO | \$13.16 | \$4.44 | -66% | \$1,570 |
| NFG | \$10.86 | \$3.57 | -67% | \$1,312 |
| PGW | \$13.02 | \$3.61 | -72% | \$1,694 |
| Columbia | \$15.94 | \$3.26 | -80% | \$2,282 |
| UGI | \$13.26 | \$4.36 | -67% | \$1,602 |
| Peoples/Equitable | \$15.89 | \$2.42 | -85% | \$2,425 |

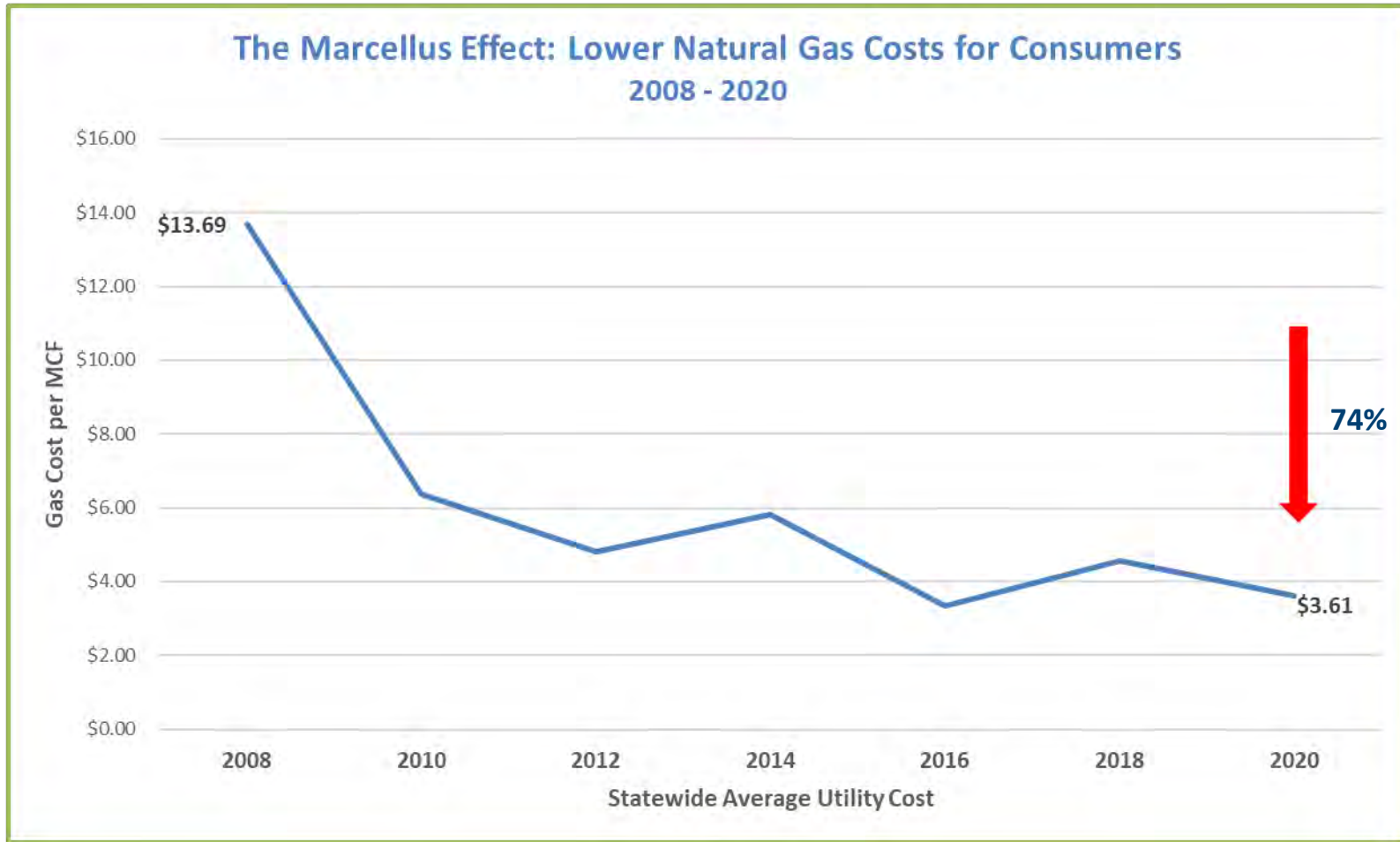
* PUC Purchased Gas Cost (PGC) Rate in Effect Prior to Annual Review

** Residential heating customer using 15 MCF/month

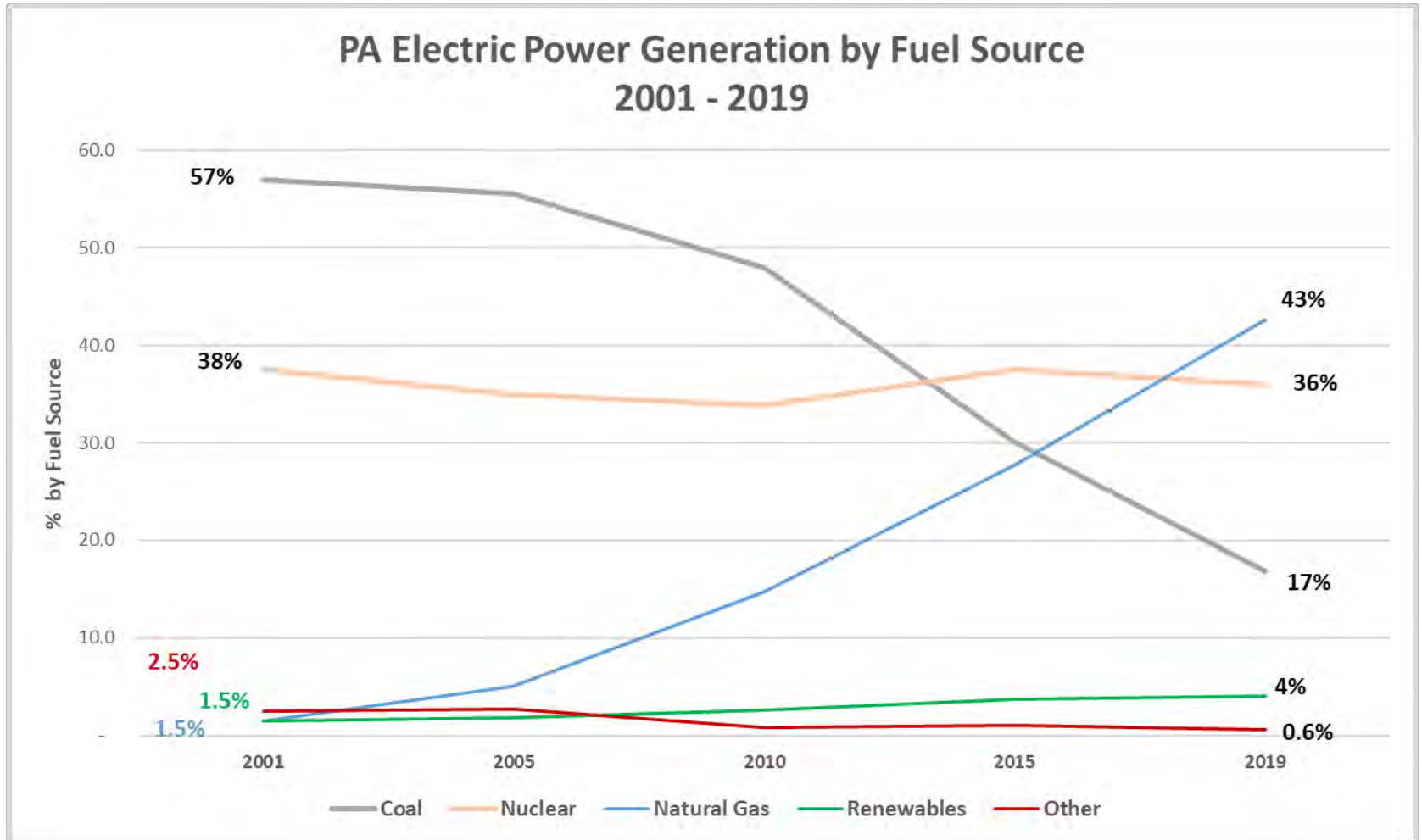
Benefiting Consumers

The Marcellus Effect: Lower Natural Gas Costs for Consumers
2008 - 2020





PA's Changing Energy Landscape

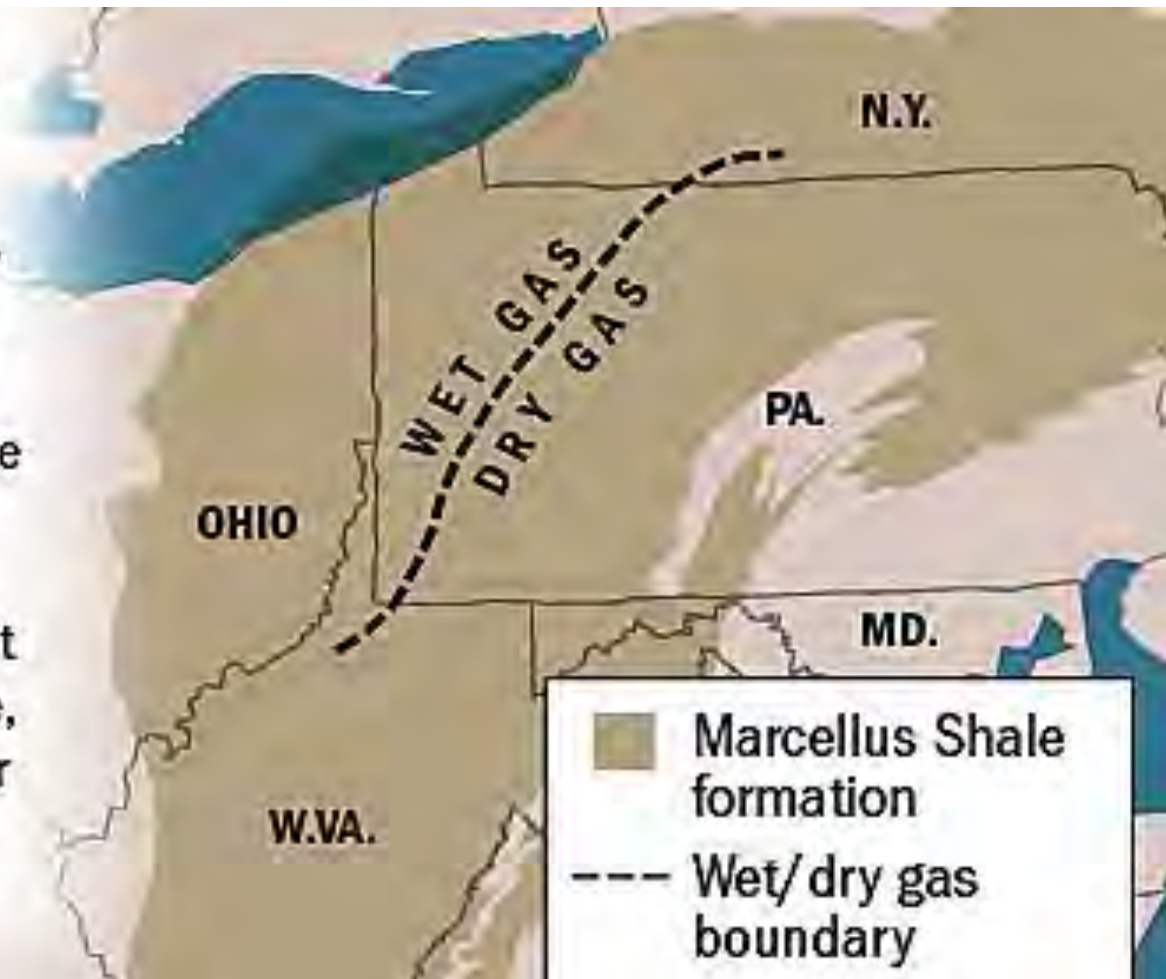


Natural Gas Liquids

Shale Gas in PA

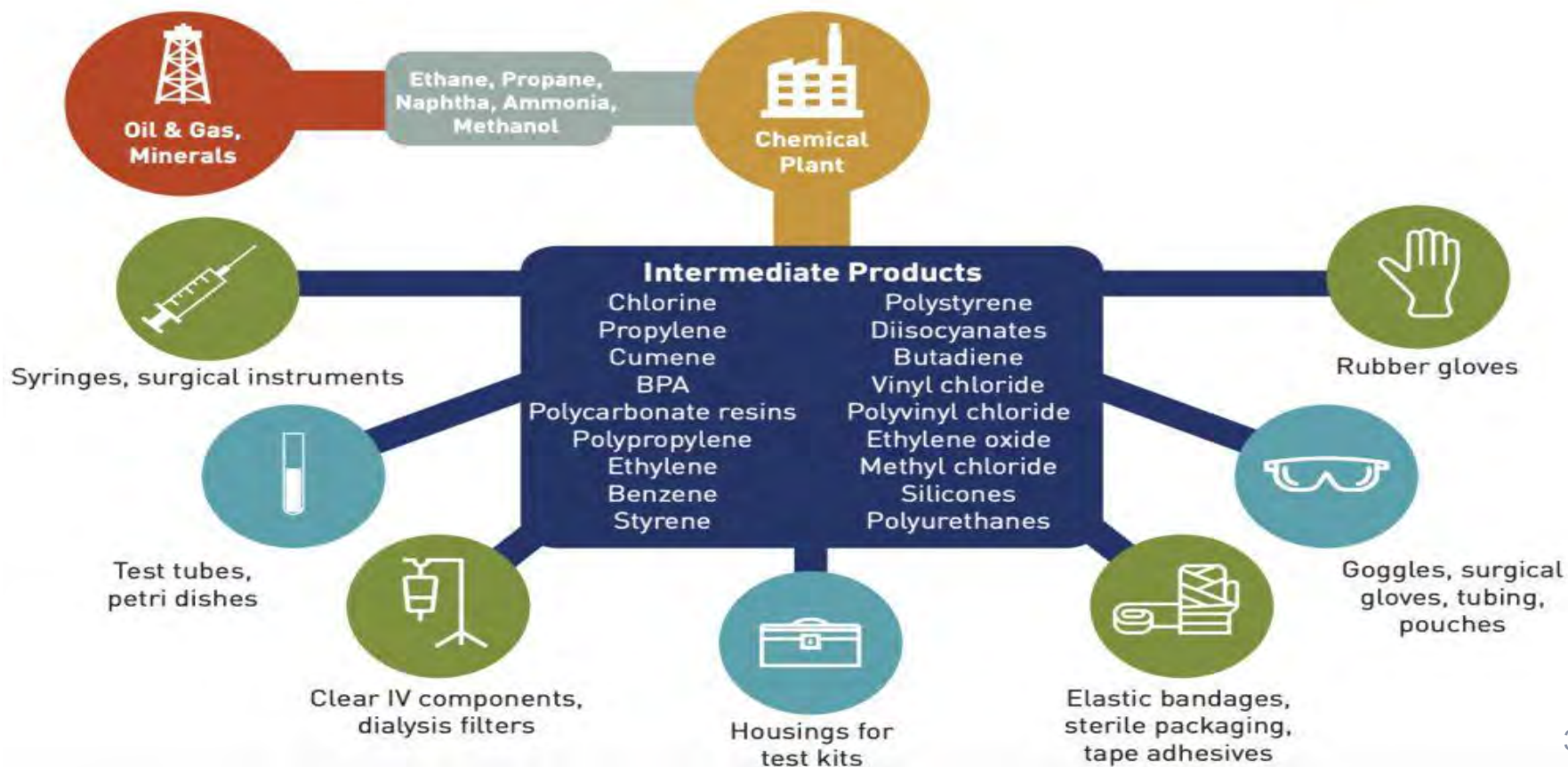
Wet/dry gas boundary

Natural gas is primarily composed of methane, and can also include ethane, propane, butane and pentane ("wet" gas). Natural gas is considered "dry" when it is almost pure methane, minus most of the other commonly associated hydrocarbons.



MEDICAL SUPPLIES

Chemistry contributes 25% of the value of material inputs used to make medical supplies.



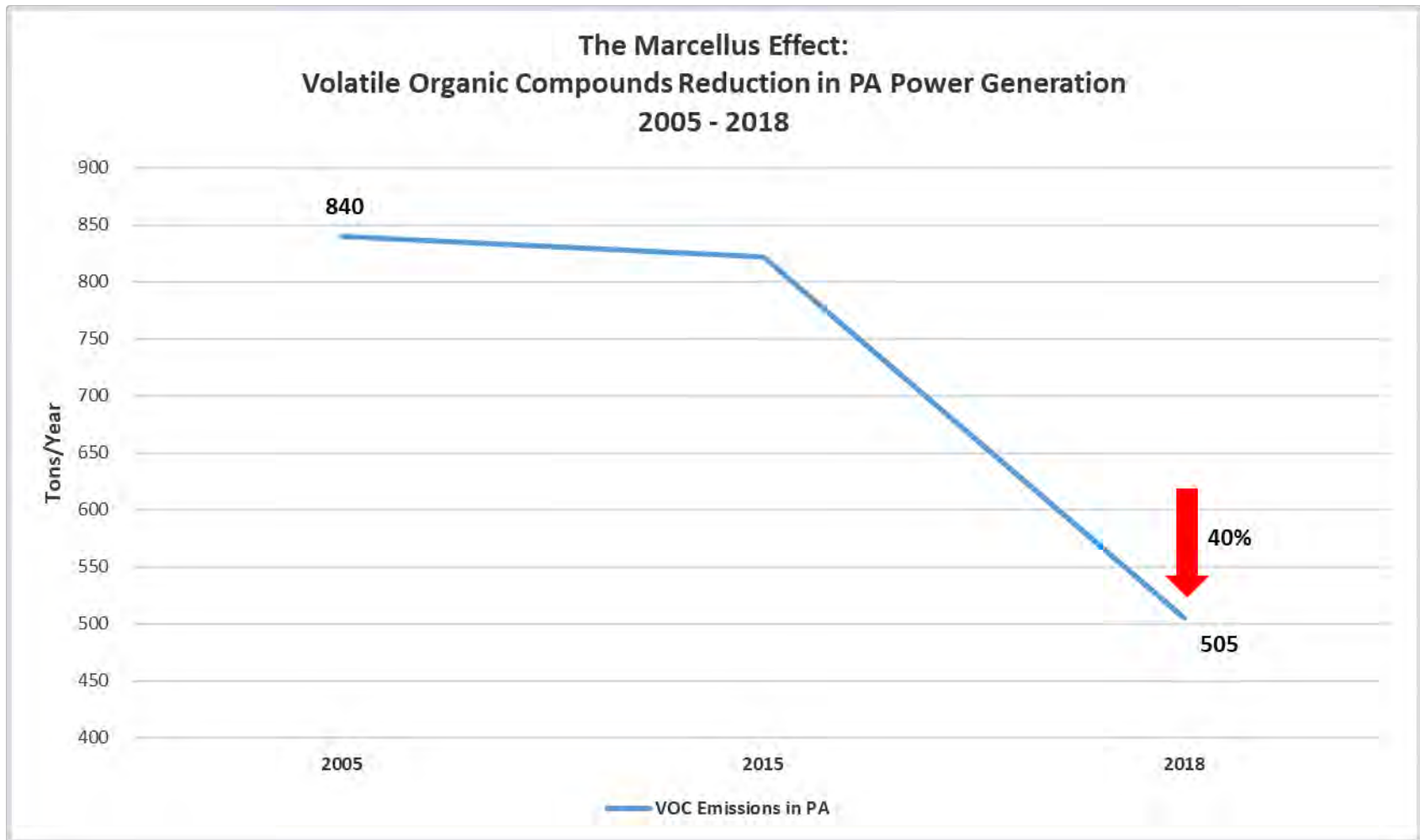
COVID Vaccines

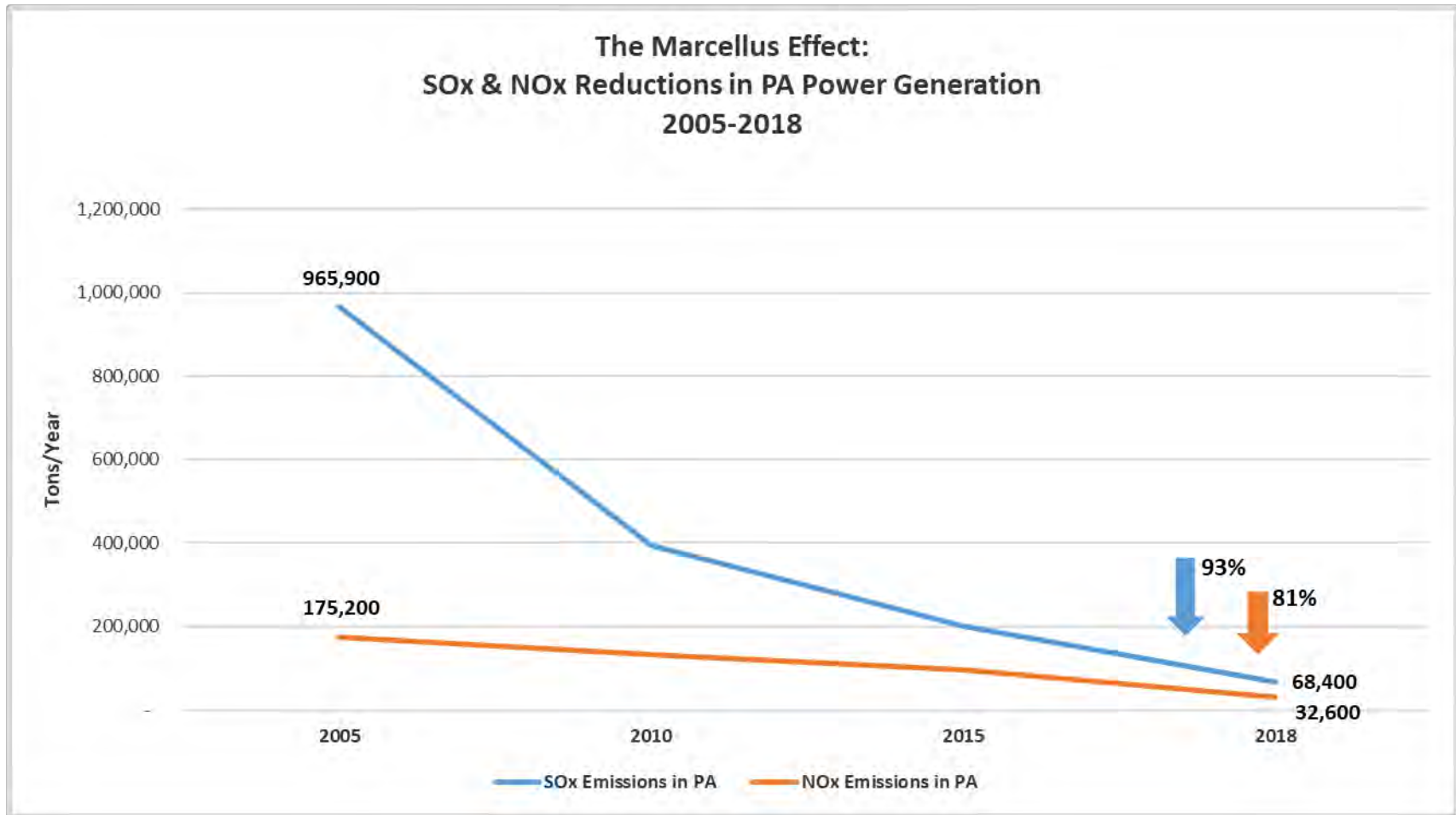
- 🔥 **Refrigeration** – Various chemicals captured as byproduct from butane production to meet extreme temperature storage standards
- 🔥 **Vaccine administration:** Syringes, vaccine vials, masks, gloves, face shields, anti-septic, band-aids
- 🔥 **Vaccines:** Both Moderna & Pfizer's vaccine contain polyethylene glycol derived from natural gas liquids



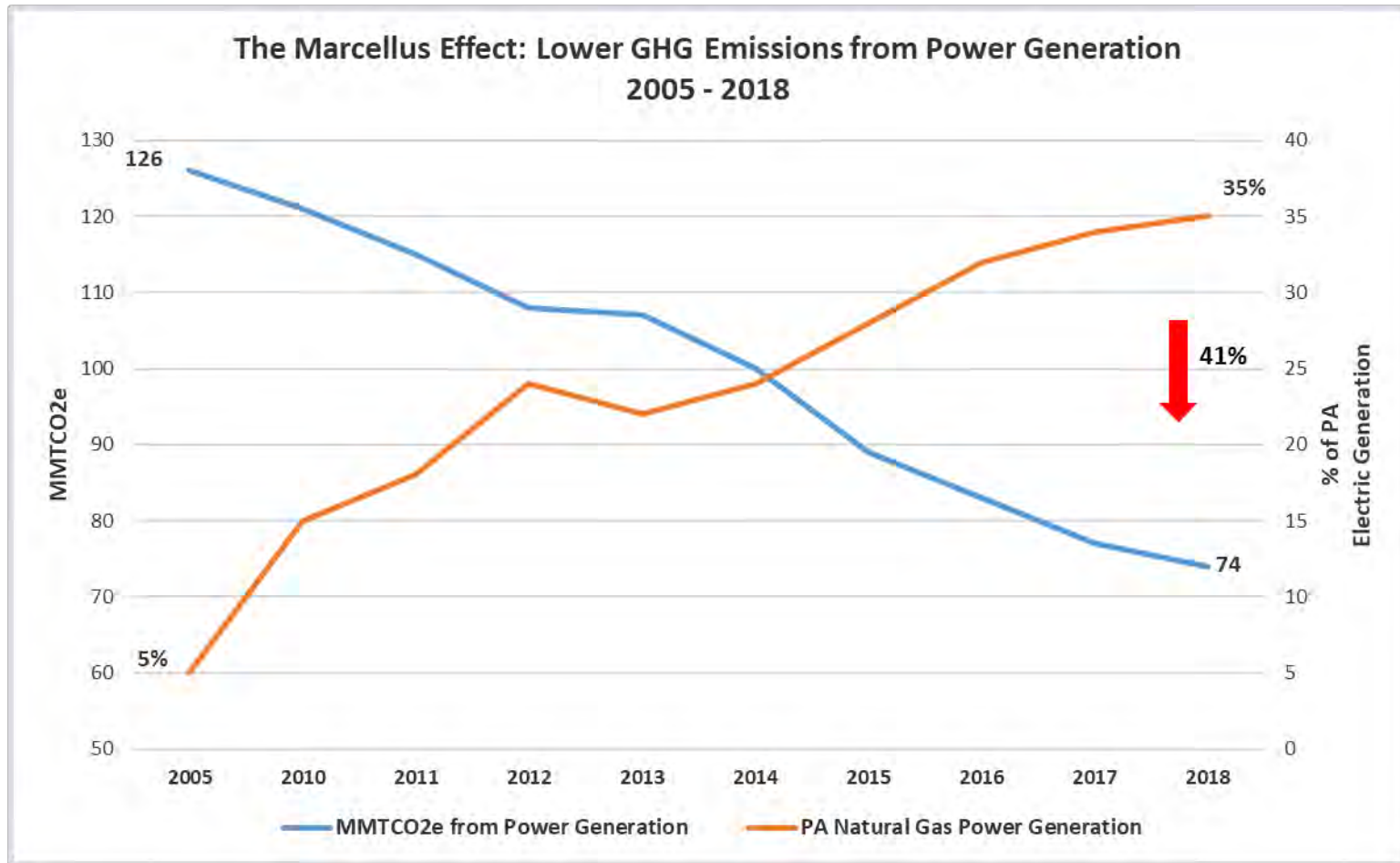
- 🔥 **Transportation:** Truck fuel to distribution sites
- 🔥 **Dry ice:** CO₂ captured during petroleum refinement used for long-haul transport
- 🔥 **Health facilities:** heating, cooling & electrical power

Enhancing Air Quality

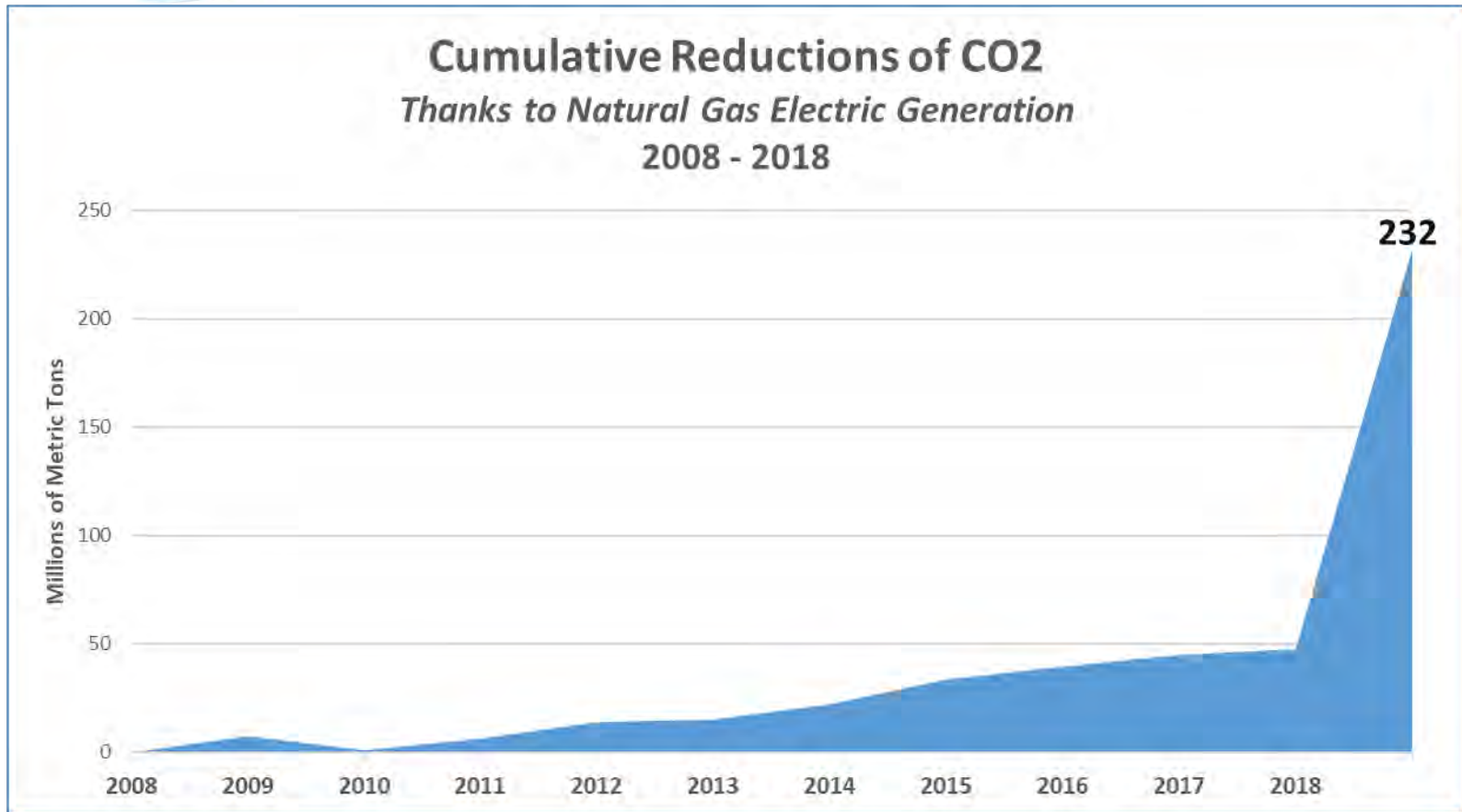




Leading on Climate Change







Leading on Climate Change



Note: 232 M metric tons converts to 252 M short tons

Environmental Benefits are Undeniable

Since 2005...

-  **VOCs down 40%**
-  **NOx down 81%**
-  **SOx down 93%**
-  **CO₂ down 39%**

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