

The Appalachian Coal Economy

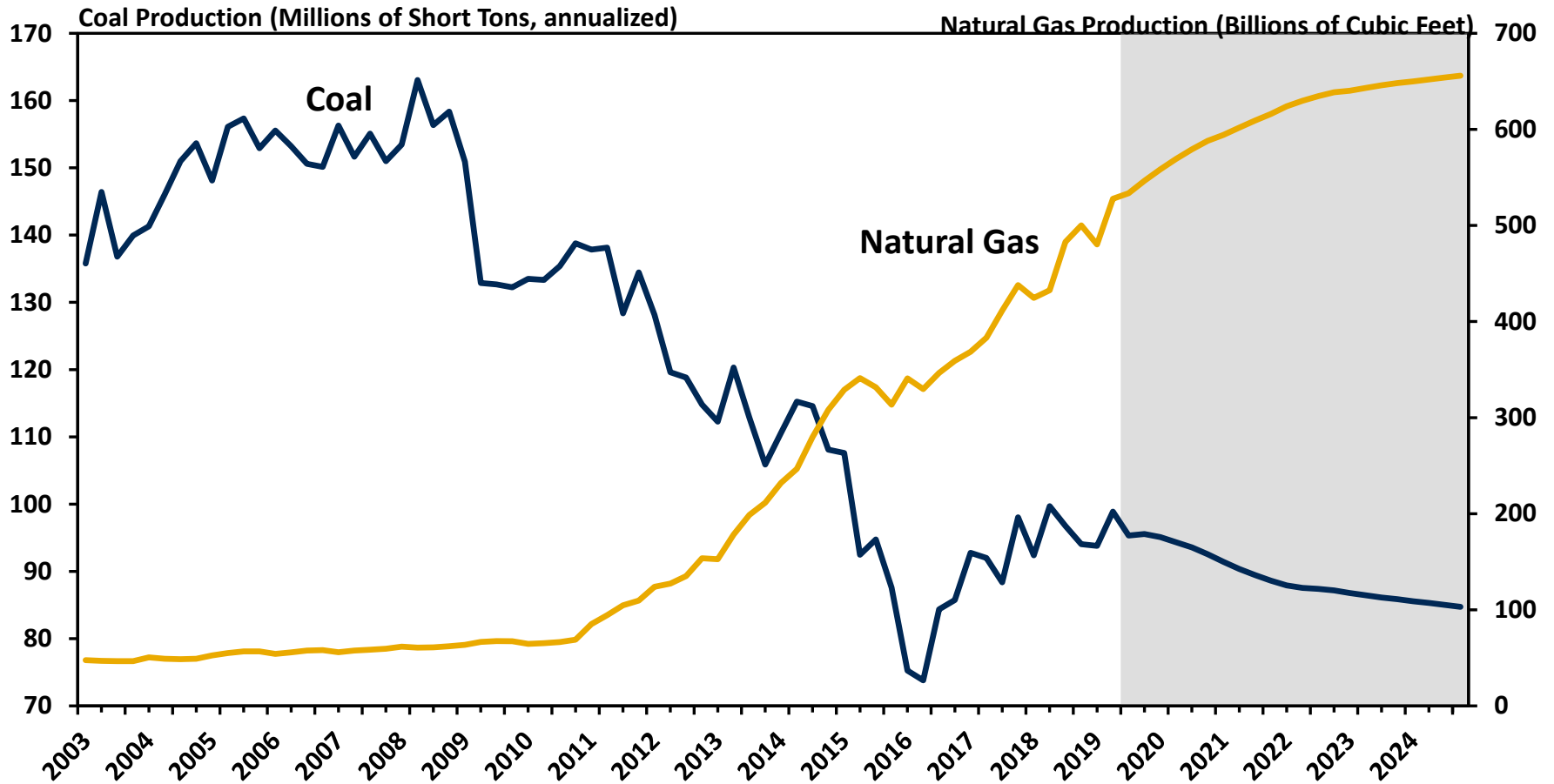
John Deskins, Ph.D.

Pittsburgh Coal Conference

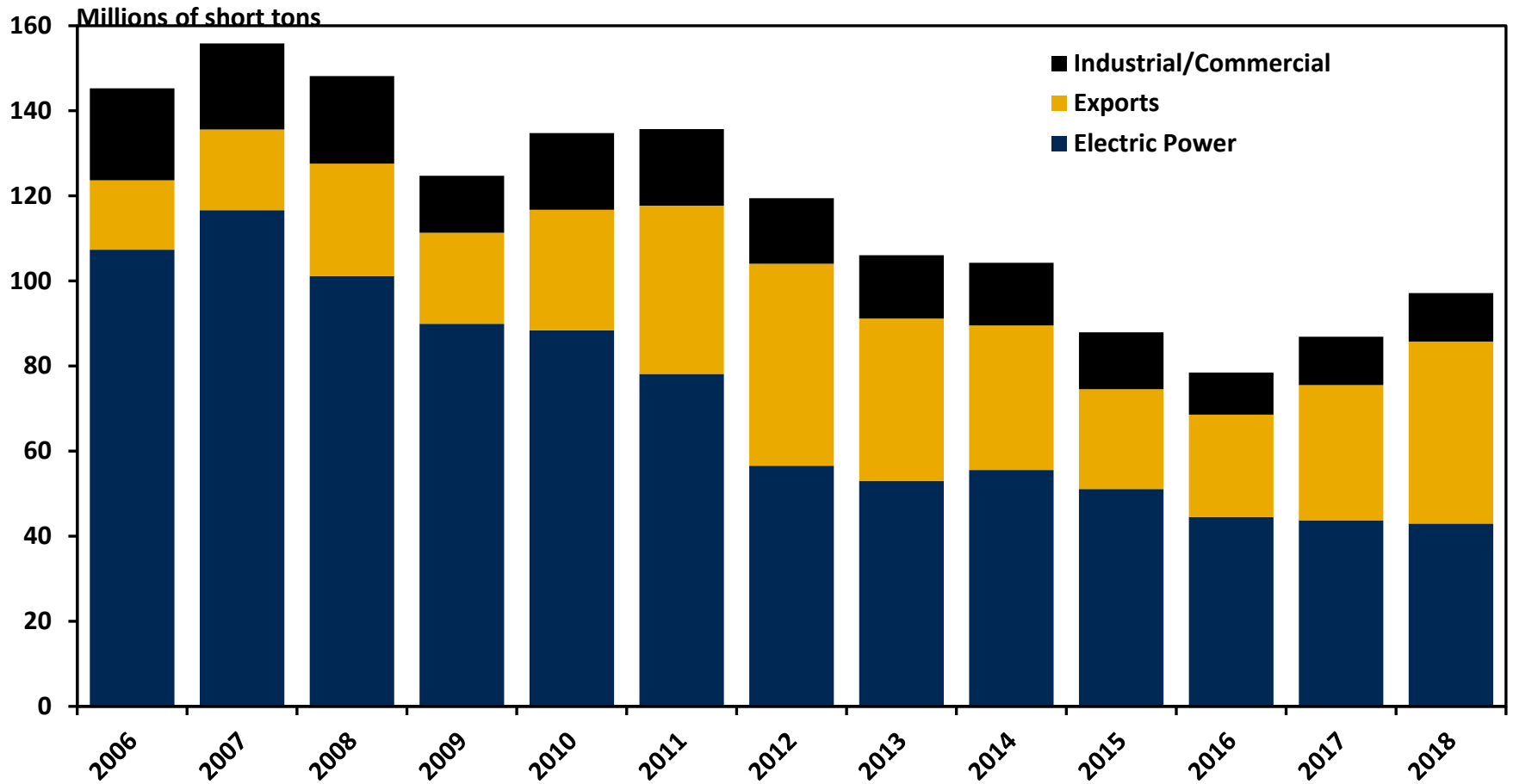
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West Virginia Coal and Natural Gas Output



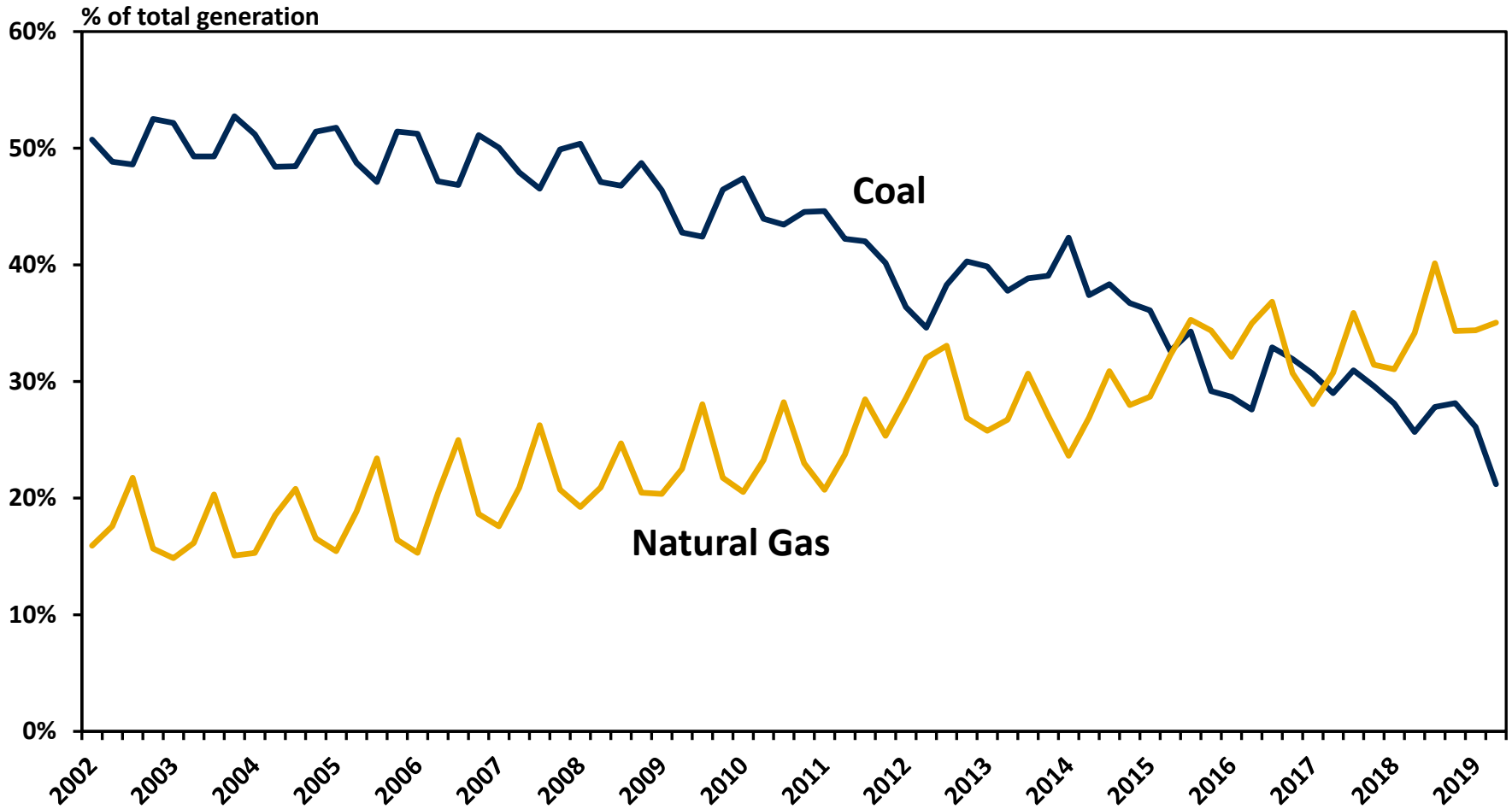
Distribution of West Virginia Coal Shipments by End User



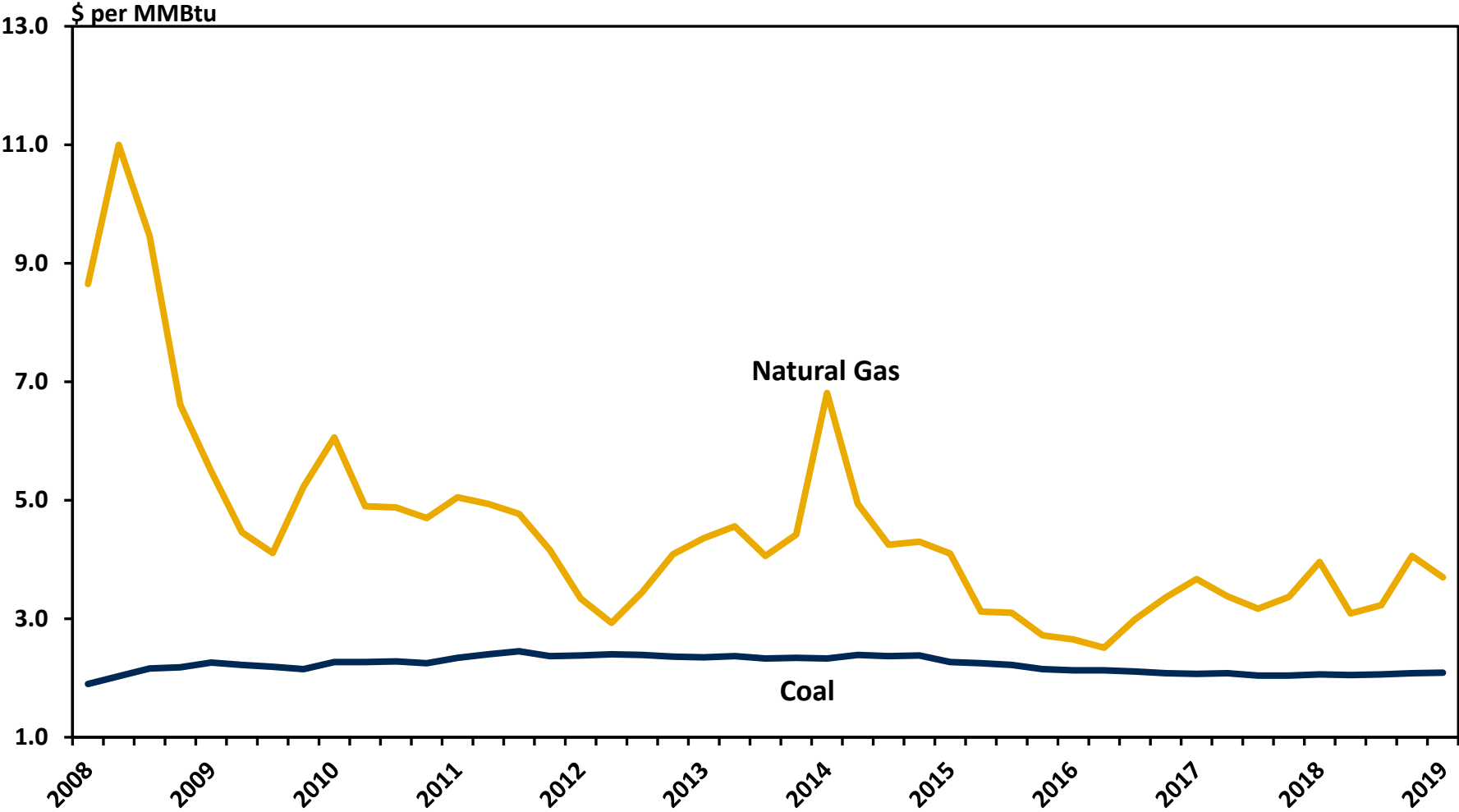
Key Drivers of Decline

- Environmental Regulatory Climate
- Natural Gas Boom
- International Demand

Share of US Electric Power Generation by Fuel Type

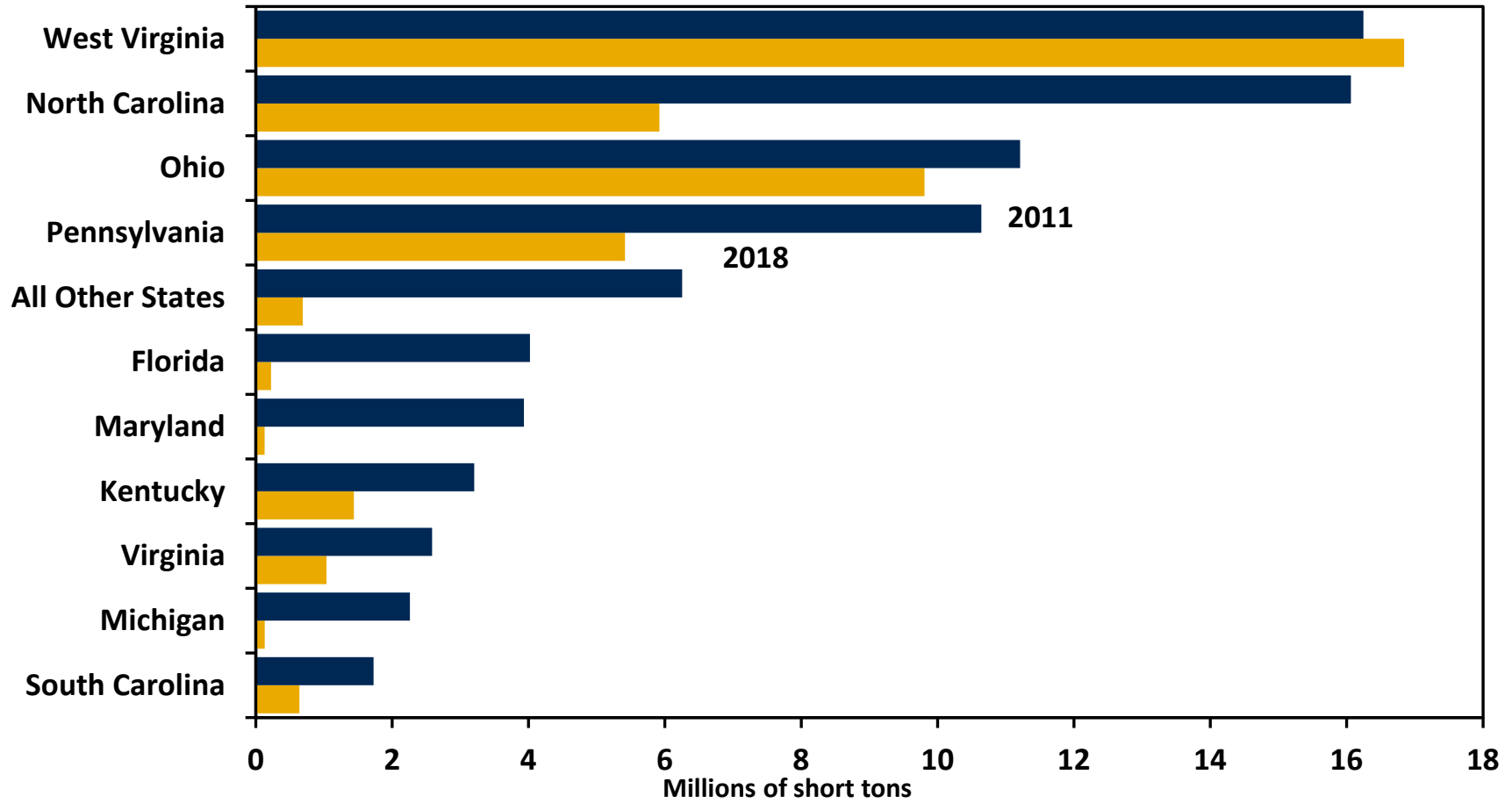


Price of Natural Gas and Coal Paid by Utilities

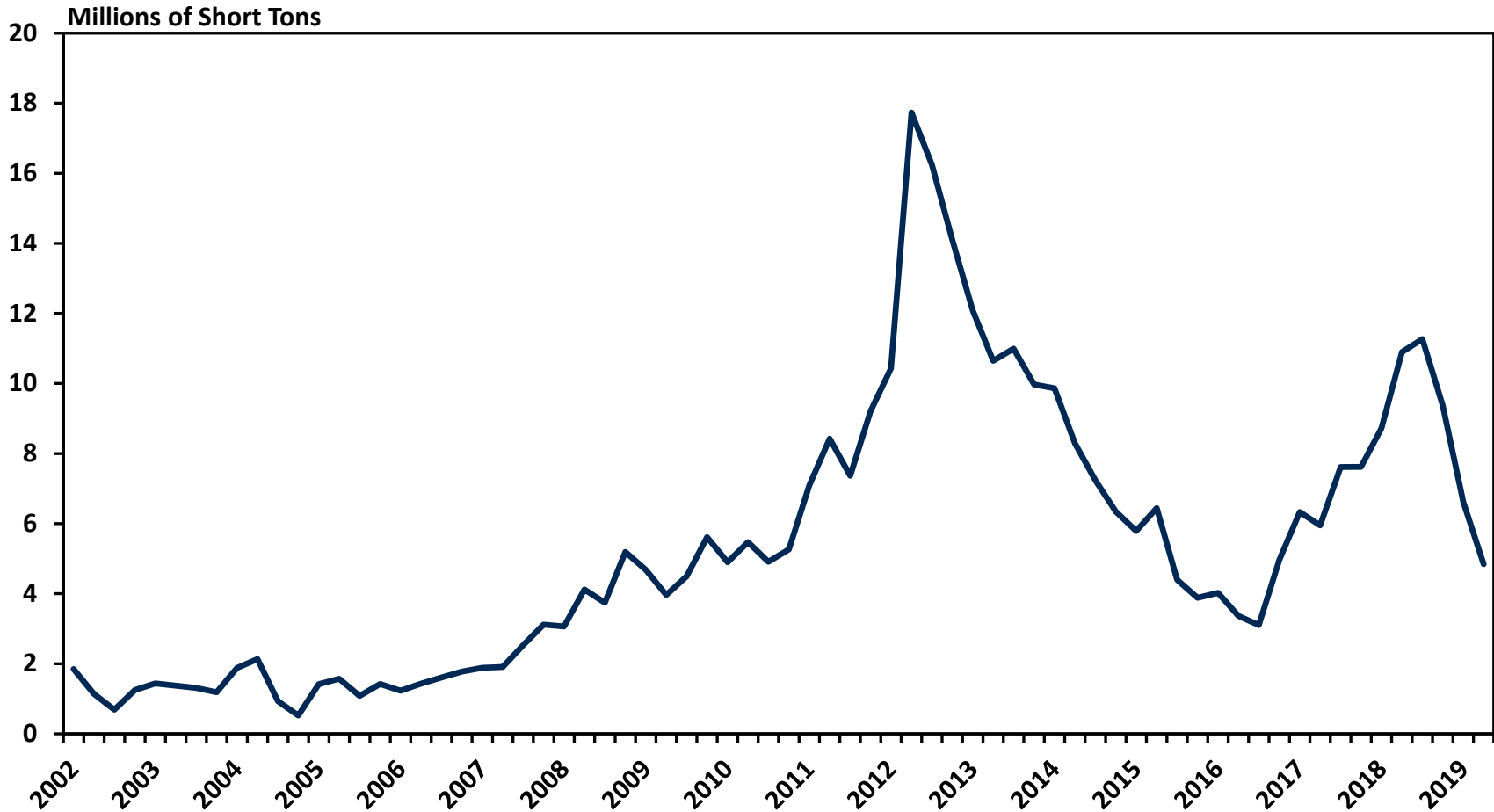


Source: US Energy Information Administration

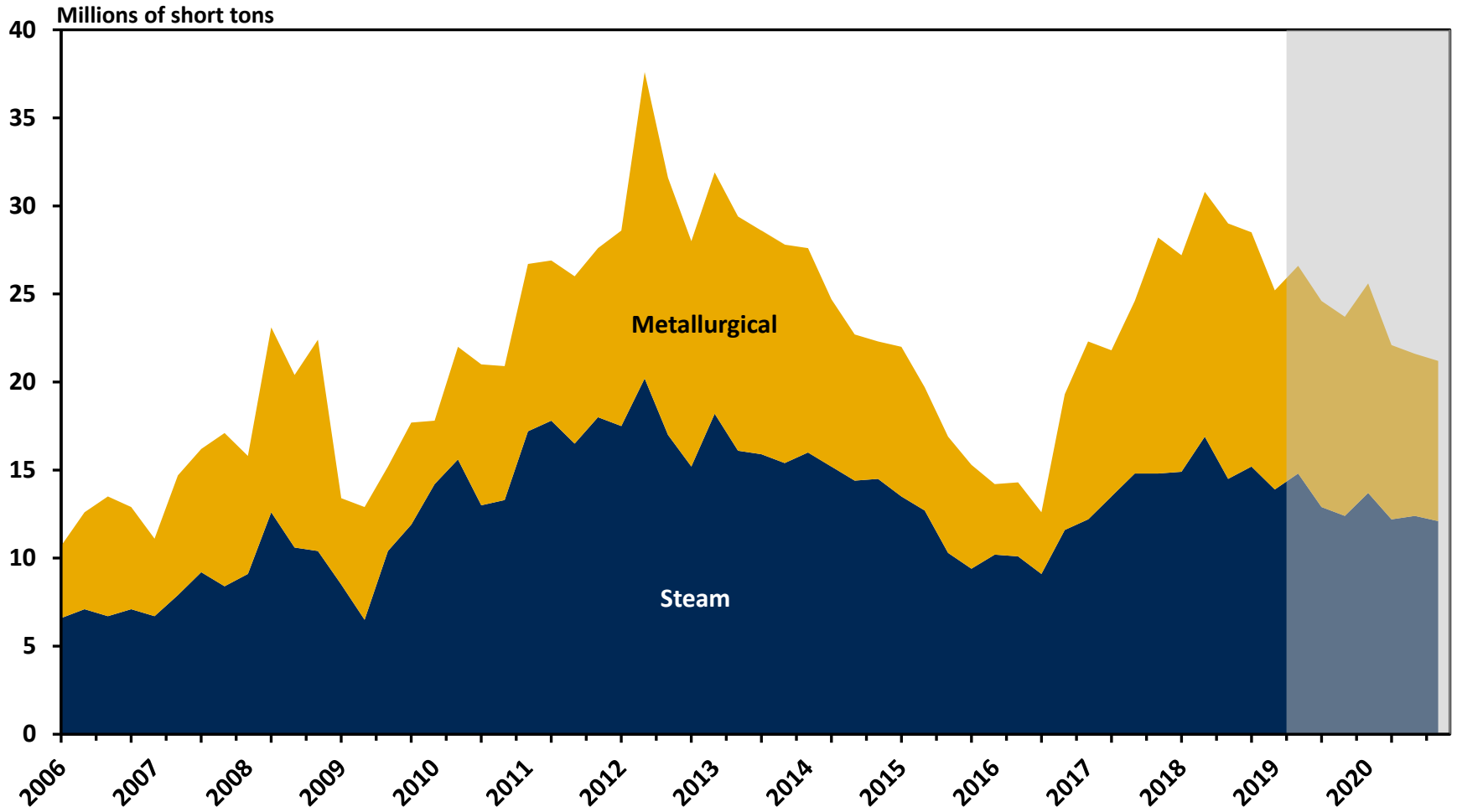
West Virginia Coal Shipments to Electric Power Plants by Destination State



Coal Exports from West Virginia



US Steam and Met Coal Exports

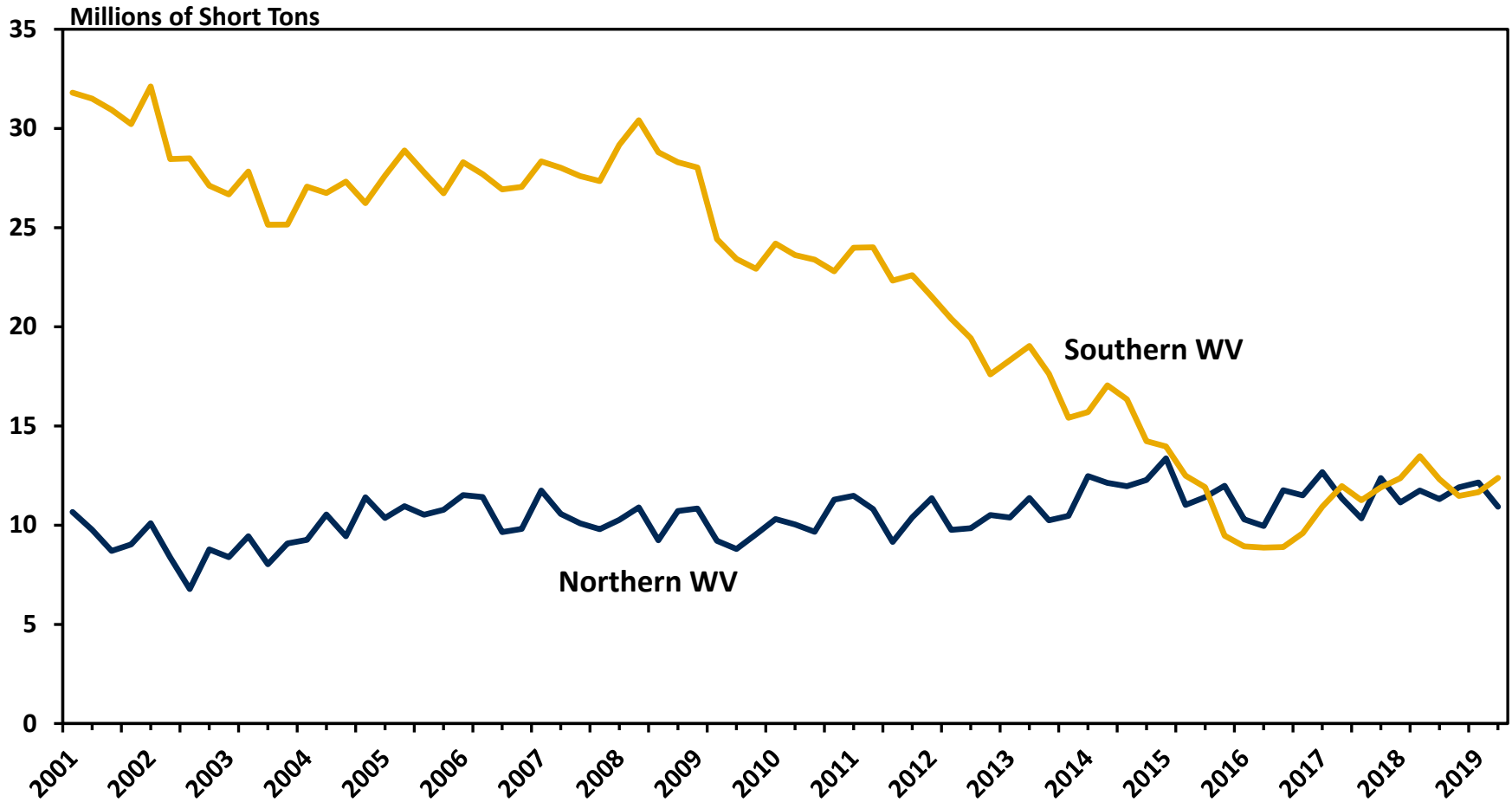


Leading Export Markets for WV Coal

Country	2012	2015	2018
India	4,025	2,976	9,944
Netherlands	6,022	3,690	6,939
Rest of World	12,644	3,641	5,984
Ukraine	1,539	2,459	4,372
Brazil	3,032	2,660	3,374
Morocco	1,710	163	3,187
Italy	4,435	2,039	2,291
Canada	1,674	1,829	1,937
UK	3,552	1,907	1,934
Egypt	336	187	1,768
Turkey	2,787	850	1,561
South Korea	3,227	460	1,180
France	2,503	599	1,139

Note: Figures in thousands of short tons

West Virginia Regional Coal Production



Source: US Energy Information Administration

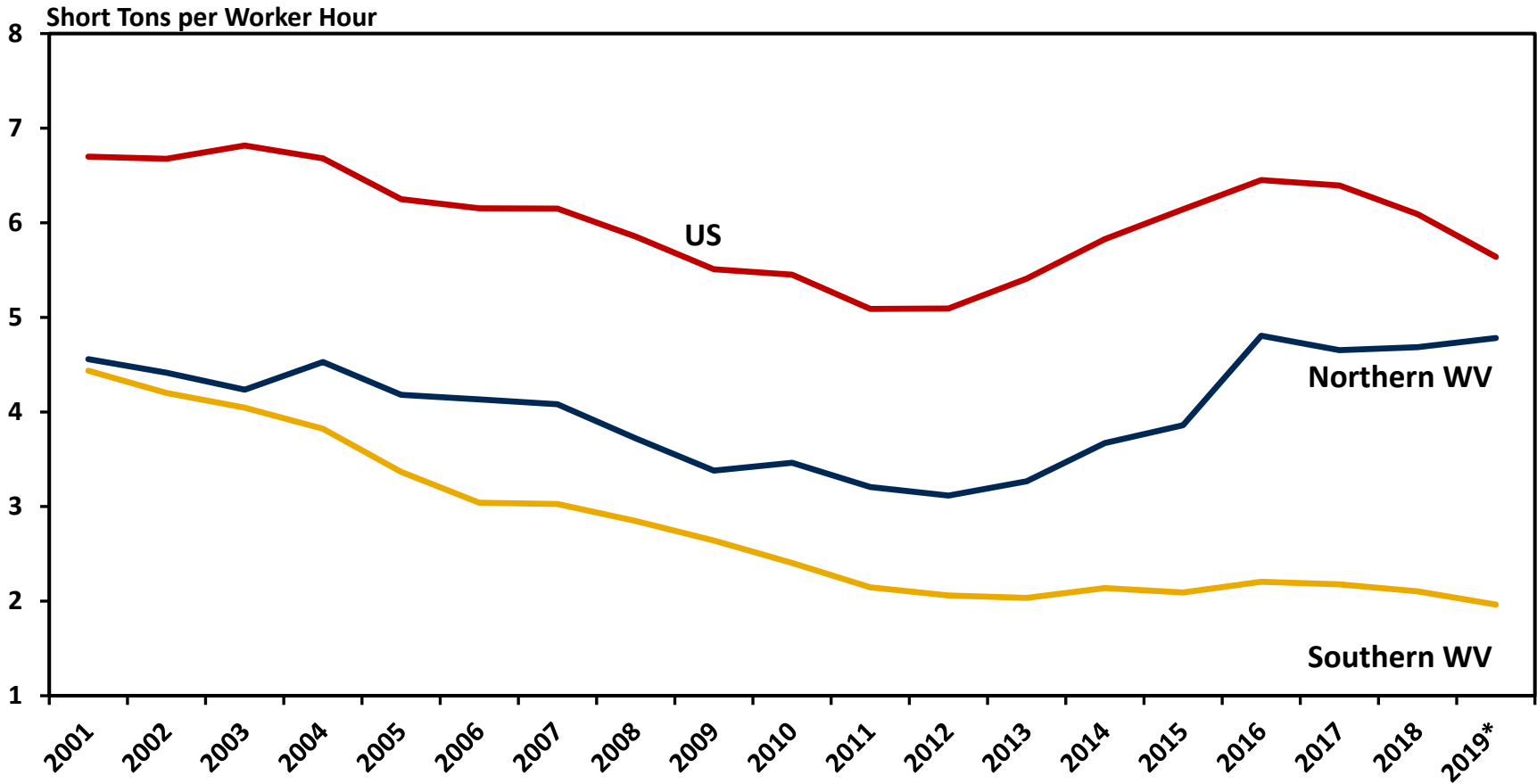


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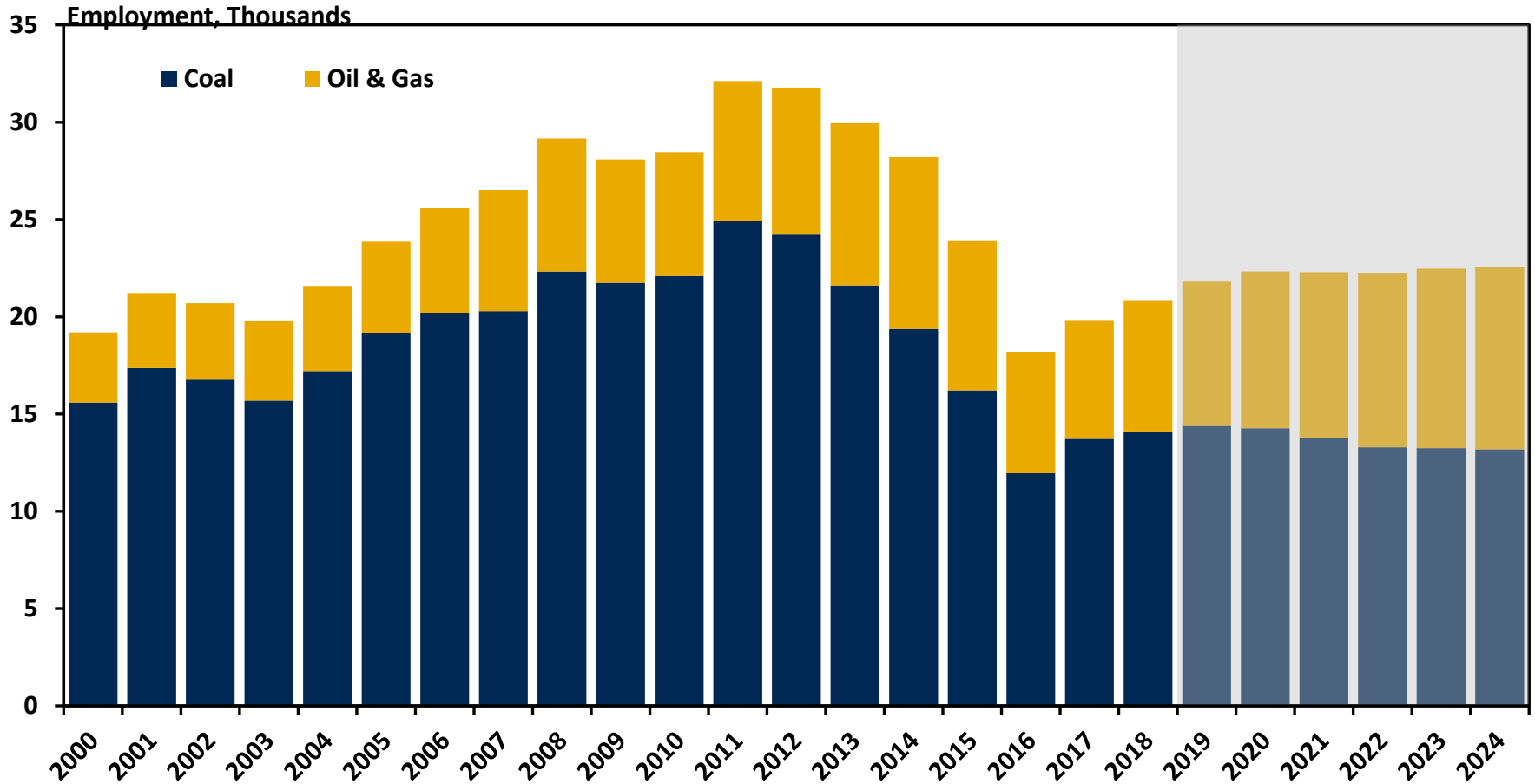
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Average Coal Mining Productivity

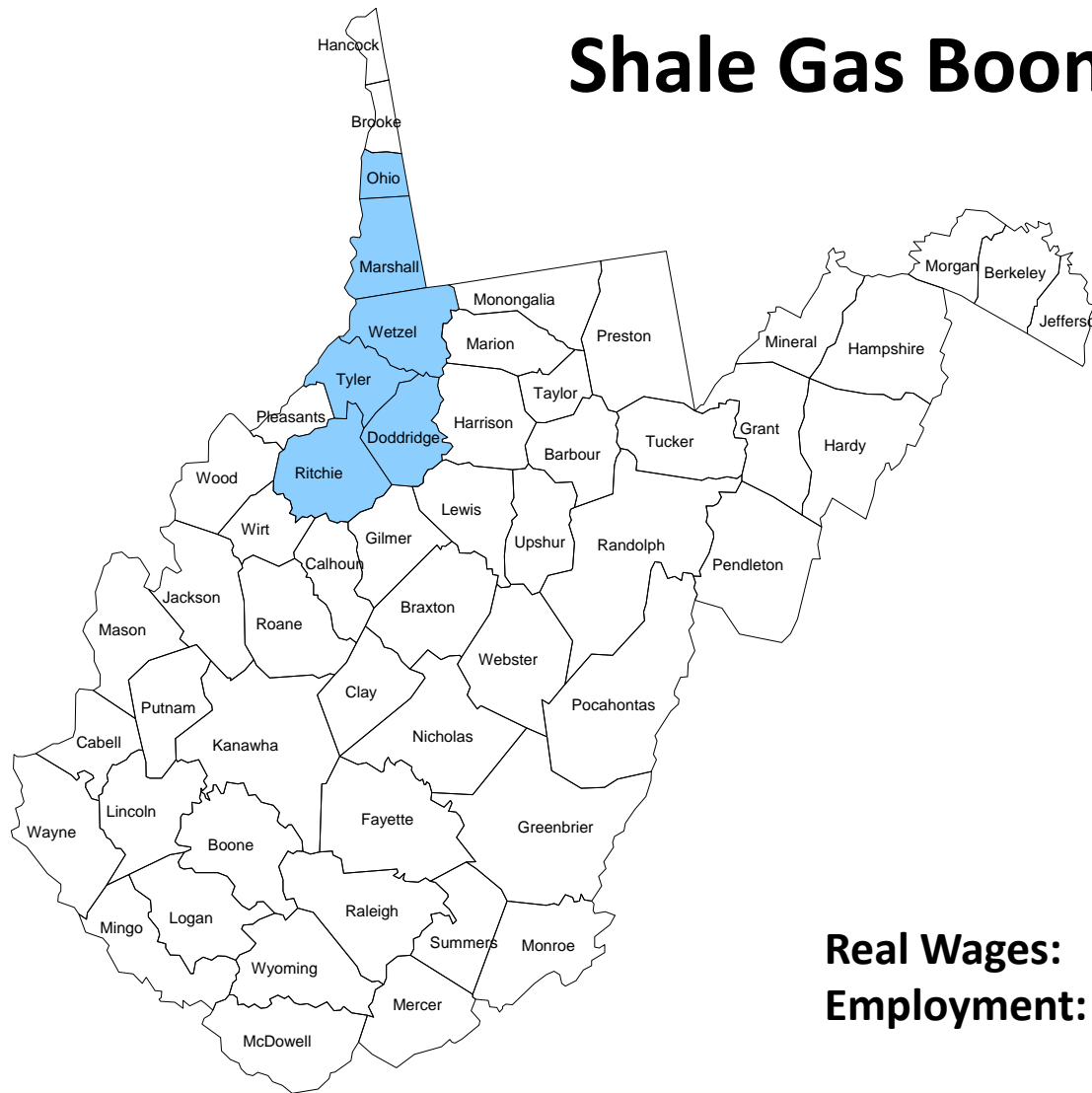


West Virginia Energy Sector Employment



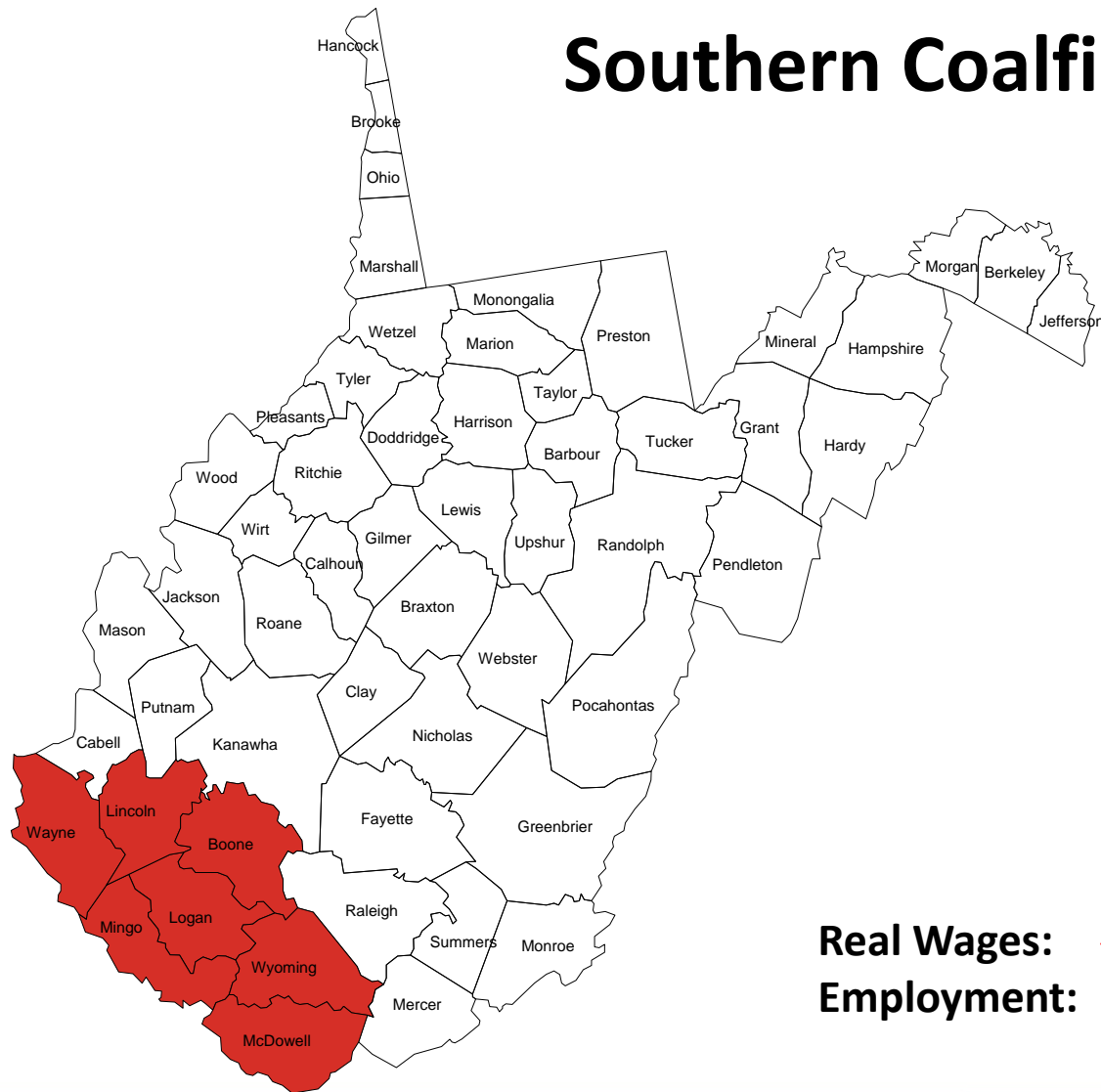
Source: US Bureau of Labor Statistics; WVU BBER Econometric Model

Shale Gas Boom Region



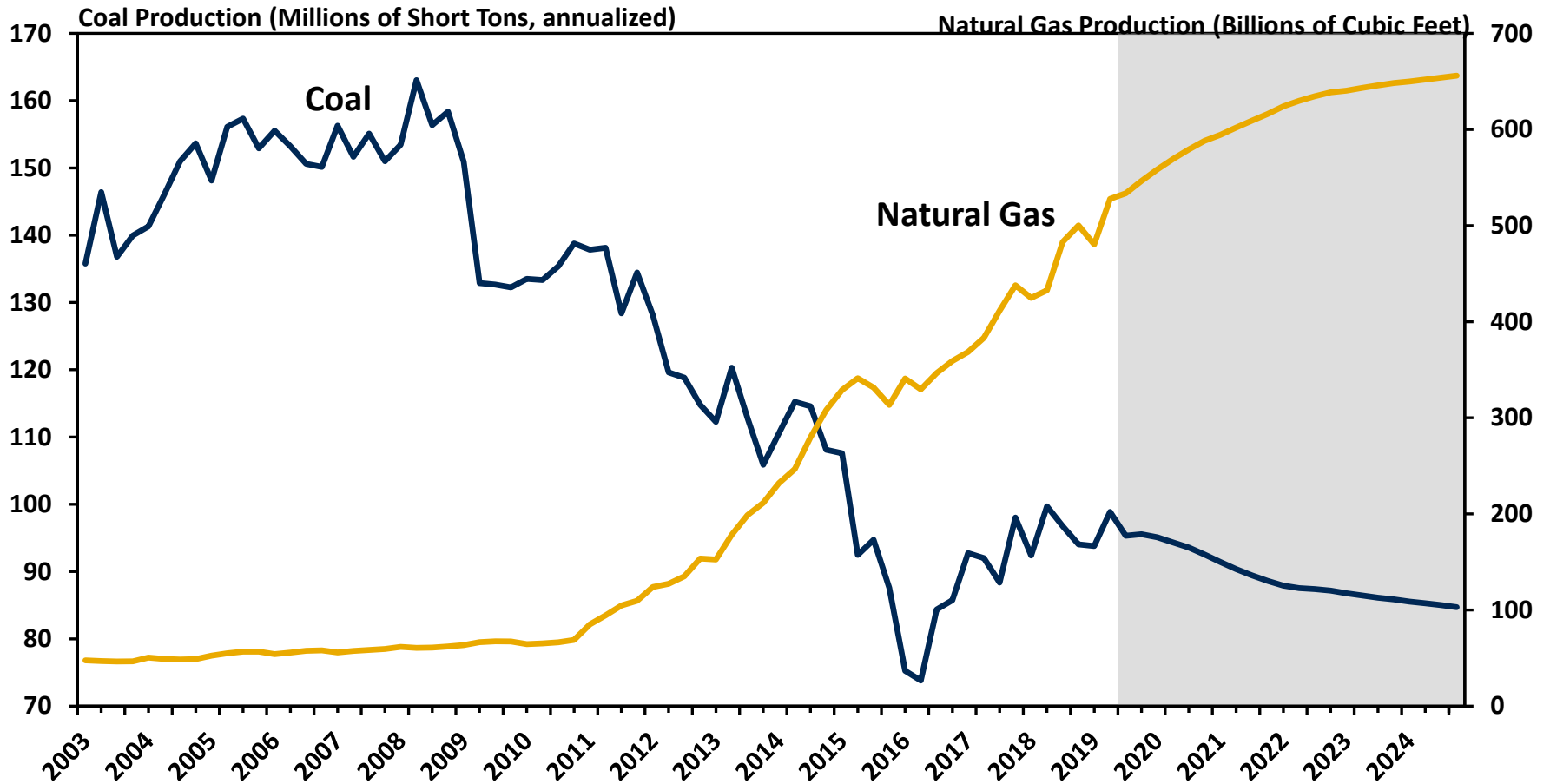
Real Wages: ↑ 17% since 2014Q1
Employment: ↑ 6%

Southern Coalfields

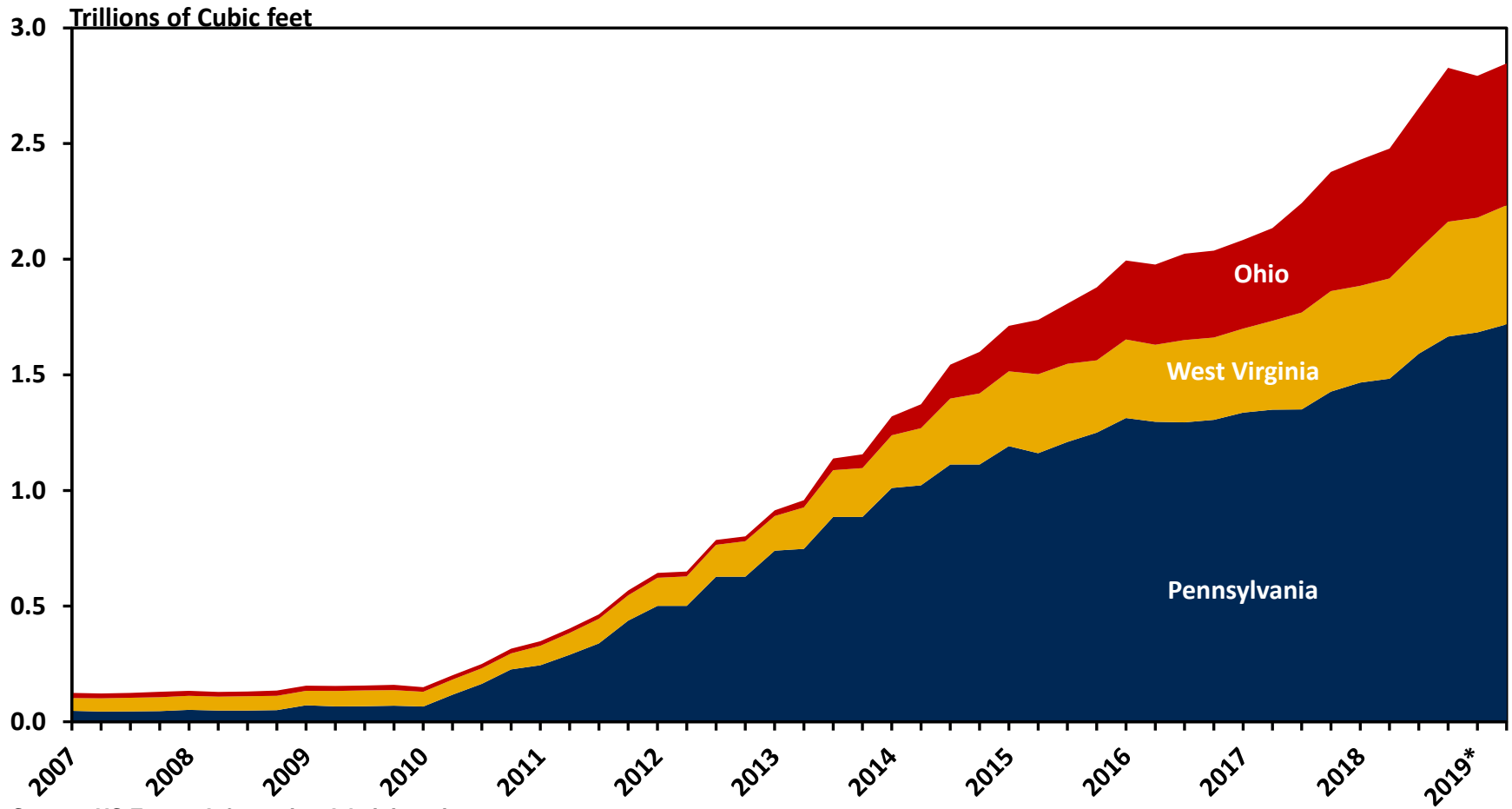


Real Wages: ↓21% since 2014Q1
Employment: ↓16%

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Natural Gas Production In Marcellus/Utica States



Source: US Energy Information Administration

*Note: 2019 Q2 Estimated from partial data.



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