[PS]US Energy Trends and Projection*

Tabassum Parveen[1]

Search and Discovery Article #70284 (2017)**
Posted August 21, 2017

*Adapted from poster presentation given at AAPG 2017 Annual Convention and Exhibition, Houston, Texas, April 2-5, 2017

[1]Politcal Science, Jamia Millia Islamia, New Delhi, India (tabbuparveen@gmail.com)

Abstract

Energy-associated carbon dioxide (CO_2) emanations from regular gas are relied upon to surpass those from coal surprisingly since 1972. Despite the fact that normal gas is less carbon-serious than coal, increments in characteristic gas utilization and declines in coal utilization in the previous decade have brought about common gas-related CO_2 discharges surpassing those from coal. EIA's most recent tasks vitality related CO_2 emanations from characteristic gas to be 10% more prominent than those from coal in 2016. From 1990 to around 2005, utilization of coal and regular gas in the Unified States was moderately comparable, yet their outflows were distinctive. Coal is more carbon-concentrated than common gas. The utilization of characteristic gas brings about around 52 million metric huge amounts of CO_2 for each quadrillion English warm units ($MMmtCO_2$/quad Btu), while coal's carbon power is around 95 $MMmtCO_2$/quad Btu, or around 82% higher than common gas' carbon force. Since coal has a higher carbon force, even in a year when utilization of coal and regular gas were almost equivalent, for example, 2005, vitality related CO_2 outflows from coal were around 84% higher than those from common gas. In 2015, normal gas utilization was 81% higher than coal utilization, and their emanations were about equivalent. Both powers were connected with around 1.5 billion metric huge amounts of vitality related CO_2 emanations in the Unified States in 2015. The yearly carbon force rate in the Assembled States has for the most part been diminishing since 2005. The U.S. absolute carbon force rate mirrors the relative utilization of fills and those powers' relative carbon powers. Petroleum, at around 65 $MMmtCO_2$/quad Btu, is less carbon-serious than coal, yet more carbon-escalated than common gas. Petroleum represents a bigger offer of U.S. vitality related CO_2 outflows in light of its elevated amounts of utilization.

References Cited

Annual Energy Outlook | https://www.eia.gov/outlooks/aeo/. Website accessed August 2017.

International Energy Outlook | https://www.eia.gov/outlooks/ieo/. Website accessed August 2017.

Monthly Energy Review | https://www.eia.gov/totalenergy/data/monthly/. Website accessed August 2017.

Short-Term Energy Outlook | https://www.eia.gov/outlooks/steo/?src=home-b1. Website accessed August 2017.

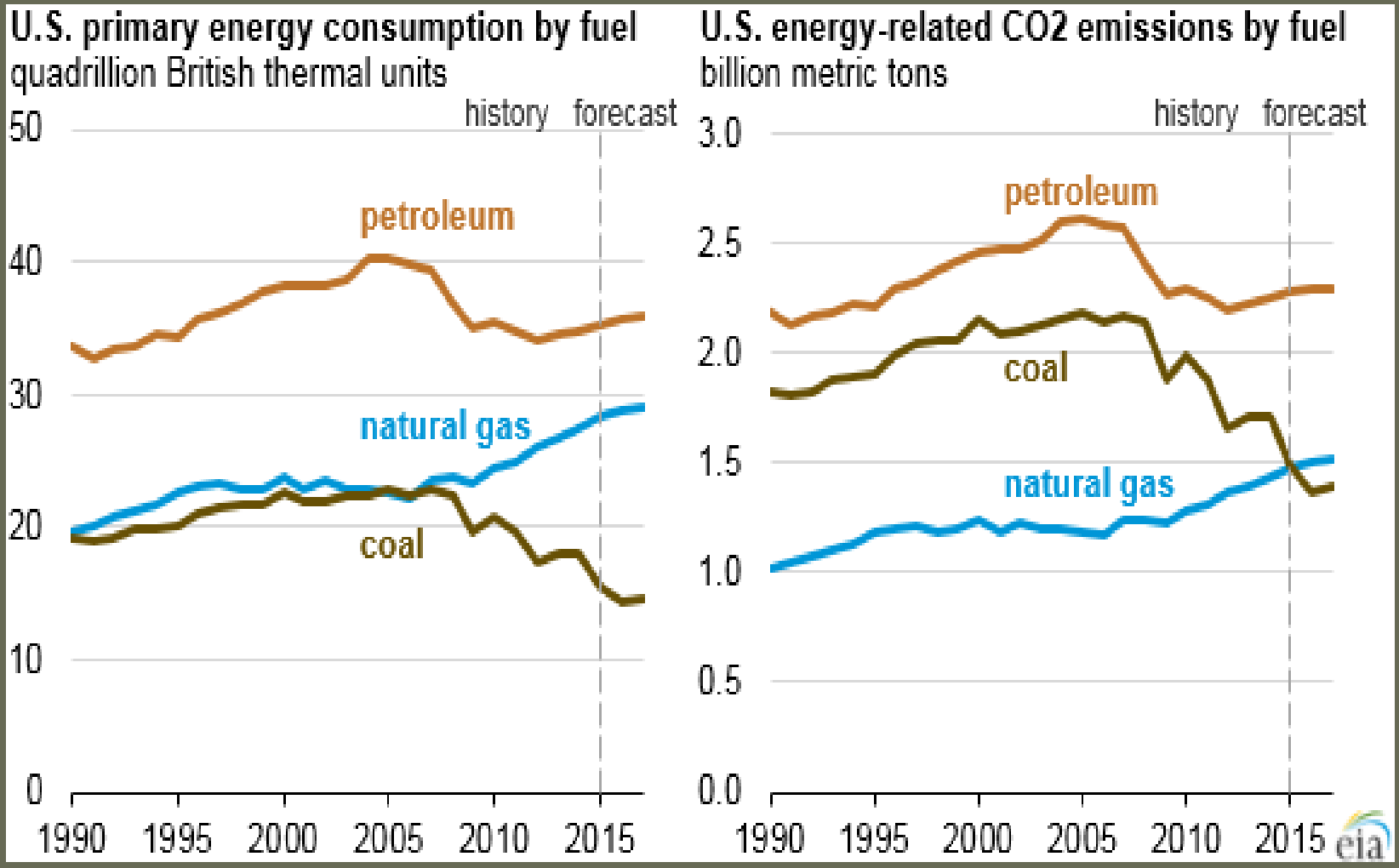
Today in Energy | https://www.eia.gov/todayinenergy/. Website accessed August 2017.

U.S. Energy Information Administration home page | https://www.eia.gov/. Website accessed August 2017.

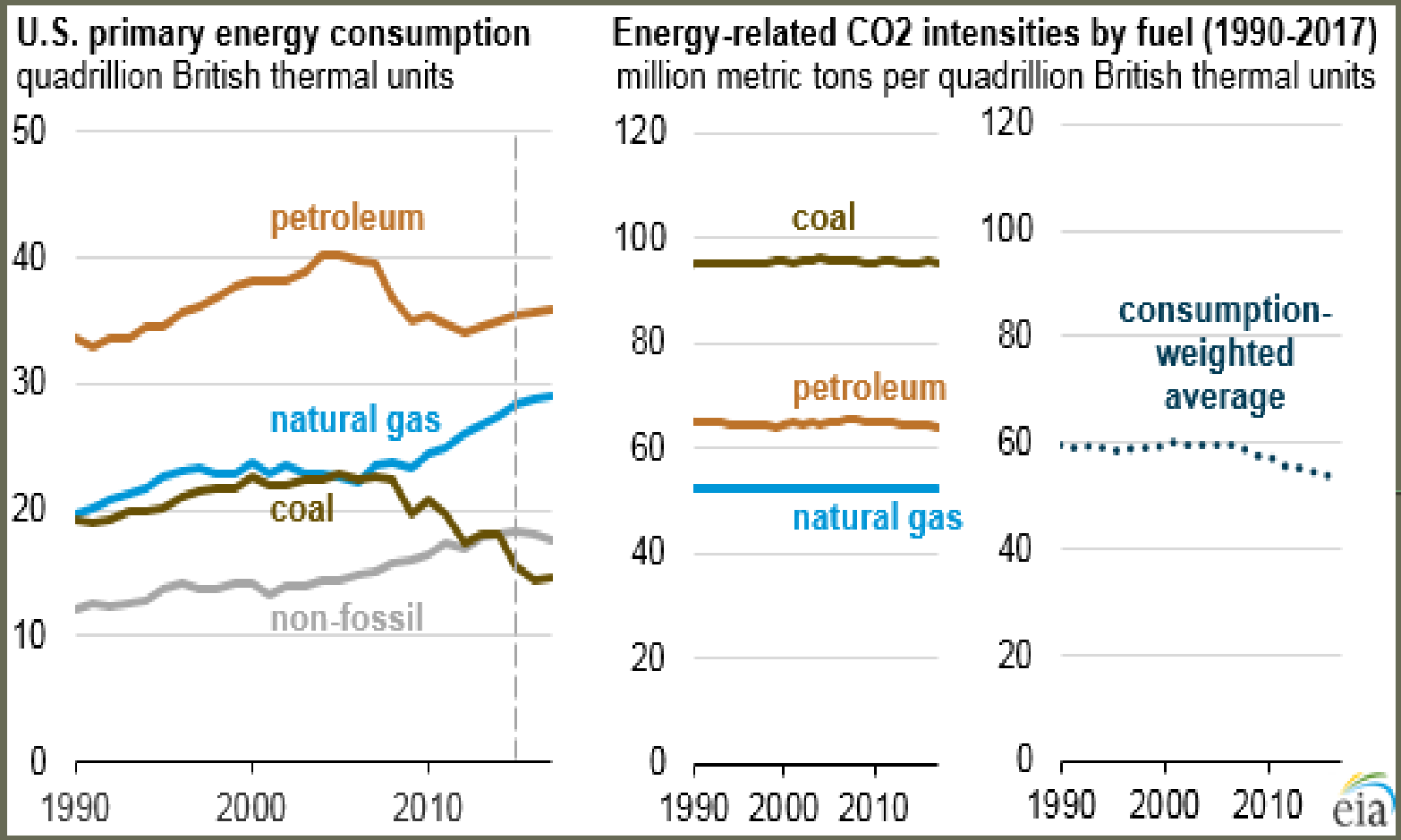
US Energy Trends and Projection

Energy-associated carbon dioxide (CO2) emanations from regular gas are relied upon to surpass those from coal surprisingly since 1972. Despite the fact that normal gas is less carbon-serious than coal, increments in characteristic gas utilization and declines in coal utilization in the previous decade have brought about common gas-related CO2 discharges surpassing those from coal. EIA's most recent tasks vitality related CO2 emanations from characteristic gas to be 10% more prominent than those from coal in 2016. From 1990 to around 2005, utilization of coal and regular gas in the Unified States was moderately comparable, yet their outflows were distinctive. Coal is more carbon-concentrated than common gas.

Energy-related CO2 emissions from natural gas surpass coal as fuel use patterns change



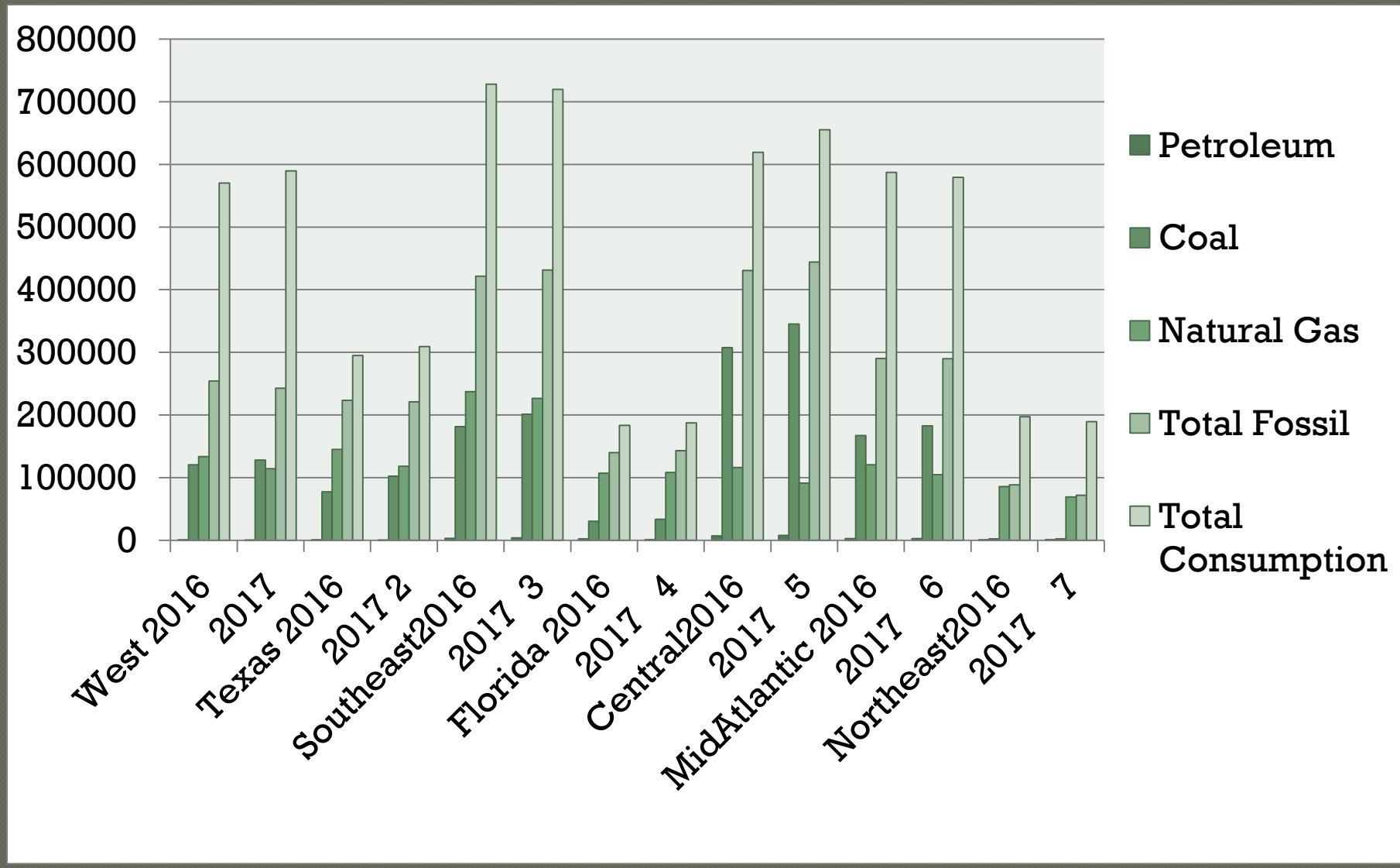
The utilization of characteristic gas brings about around 52 million metric huge amounts of CO2 for each quadrillion English warm units (MMmtCO2/quad Btu), while coal's carbon power is around 95 MMmtCO2/quad Btu, or around 82% higher than common gas' carbon force. Since coal has a higher carbon force, even in a year when utilization of coal and regular gas were almost equivalent, for example, 2005, vitality related CO2 outflows from coal were around 84% higher than those from common gas.



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook* (August 2016) and *Monthly Energy Review*

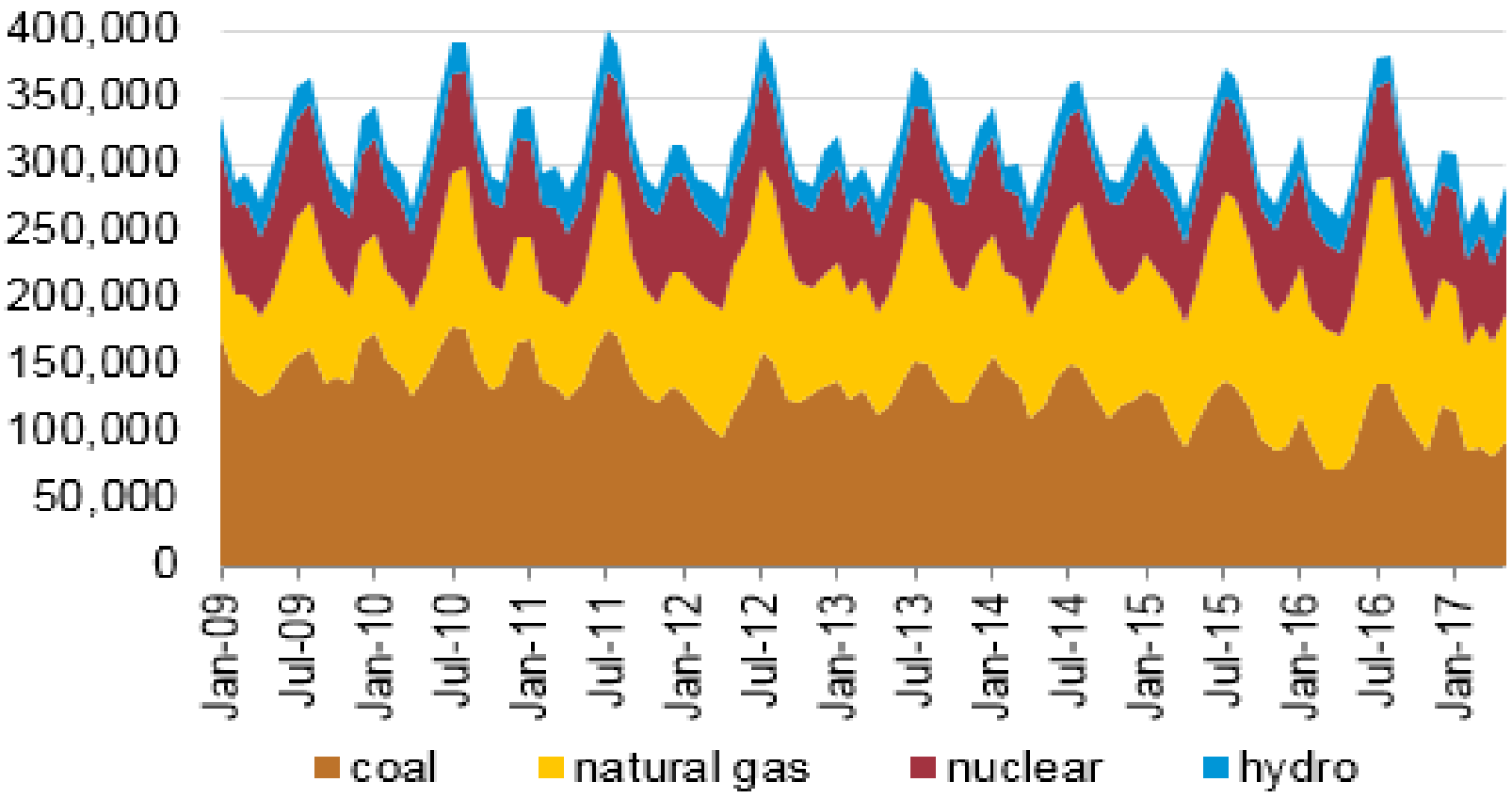
In 2015, normal gas utilization was 81% higher than coal utilization, and their emanations were about equivalent. Both powers were connected with around 1.5 billion metric huge amounts of vitality related CO2 emanations in the Unified States in 2015.

The yearly carbon force rate in the Assembled States has for the most part diminished since 2005. The U.S. absolute carbon force rate mirrors the relative utilization of filling and those powers' relative carbon powers. Petroleum, at around 65 MMmtCO2/quad Btu, is less carbon-serious than coal, yet more carbon-escalated than common gas. Petroleum represents a bigger offer of U.S. vitality related CO2 outflows in light of its elevated amounts of utilization.


800000
700000
600000
500000
400000
300000
200000
100000
0
West 2016
2017
Texas 2016
2017 2
Southeast2016
2017 3
Florida 2016
2017 4
Central2016
2017 5
MidAtlantic 2016
2017 6
Northeast2016
2017 7
Petroleum
Coal
Natural Gas
Total Fossil
Total Consumption

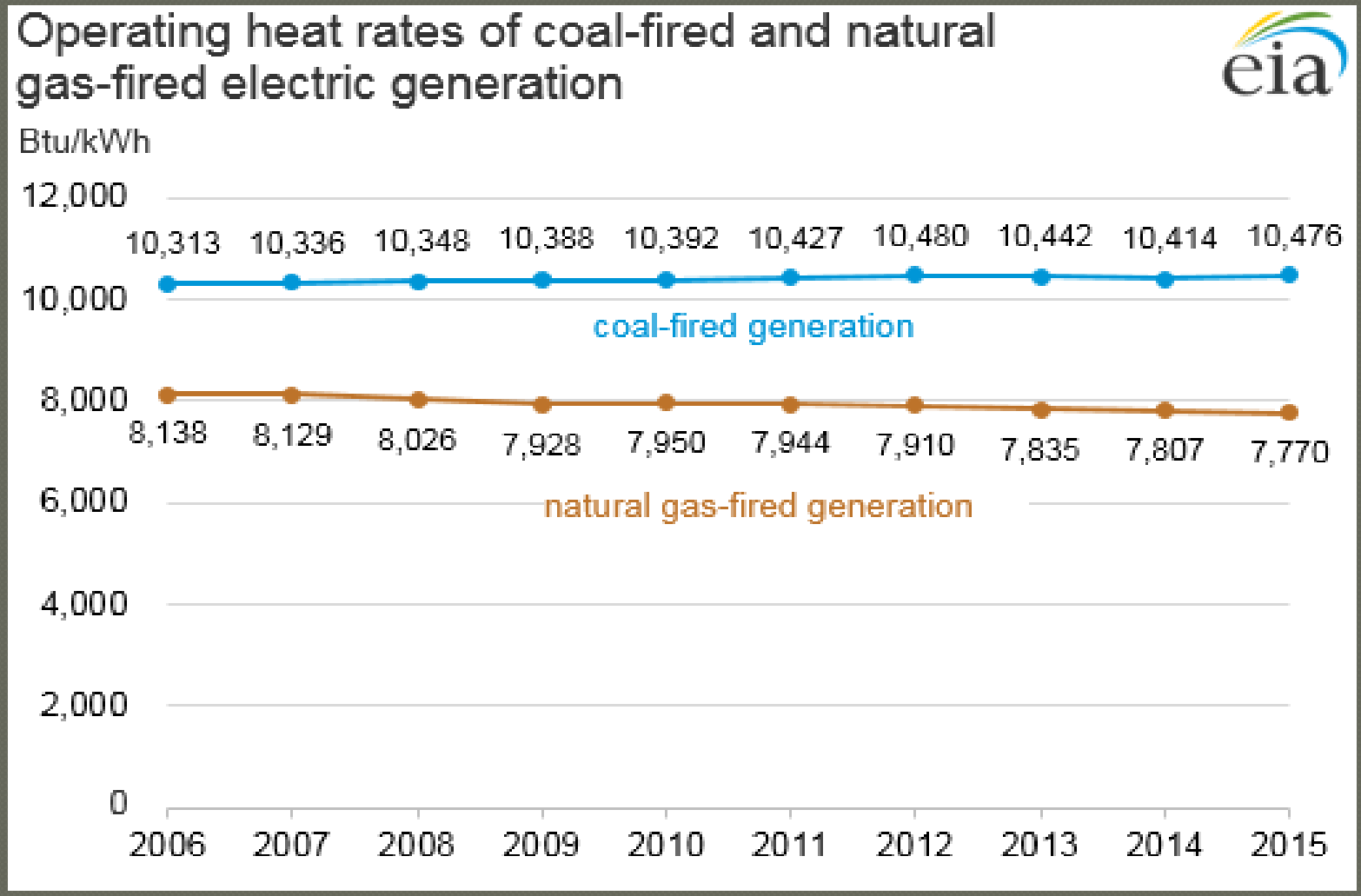
Net generation by select fuel sources

thousand megawatthours



Source: U.S. Energy Information Administration

eia


Operating heat rates of coal-fired and natural gas-fired electric generation
eia
Btu/kWh
12,000
10,000
8,000
6,000
4,000
2,000
0
10,313 10,336 10,348 10,388 10,392 10,427 10,480 10,442 10,414 10,476
coal-fired generation
8,138 8,129 8,026 7,928 7,950 7,944 7,910 7,835 7,807 7,770
natural gas-fired generation
2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

Summing Up

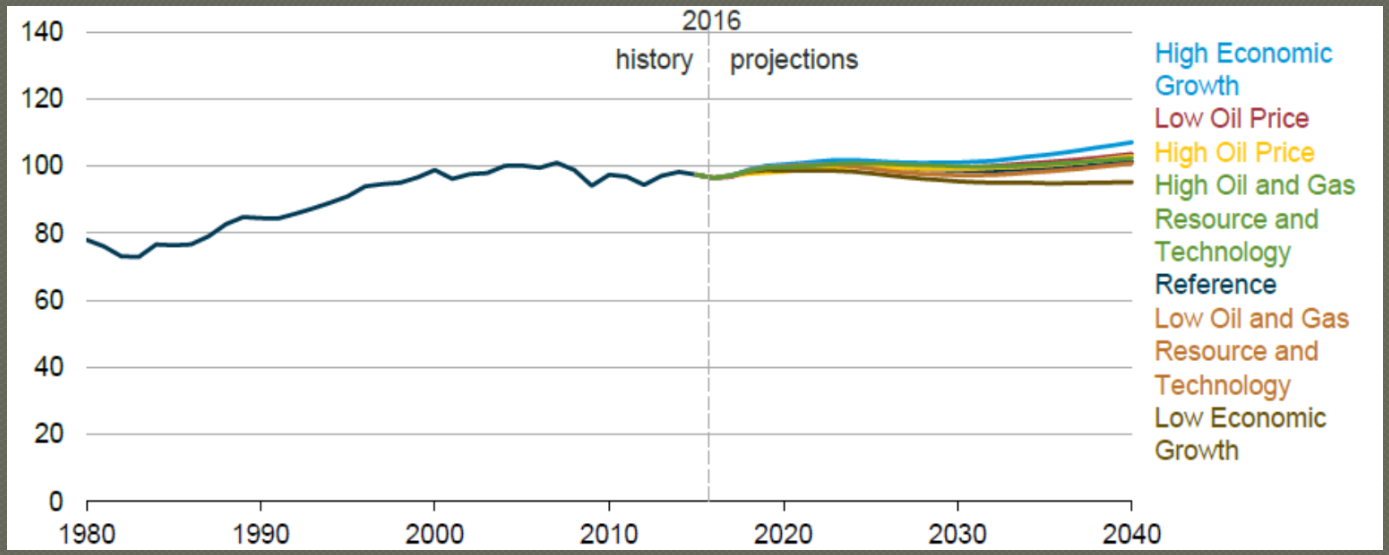
U.S economic growth depends on energy consumption and production , which is increasing day by day.Oil price are mainly driven from global market balance. n the High Oil Price case, the price of Brent crude in 2016 dollars reaches $226 per barrel (b) by 2040, compared to $109/b in the Reference case and $43/b in the Low Oil Price case.

In the High Oil and Gas Resource and Technology case, lower costs and higher resource availability than in the Reference case allow for higher production at lower prices; in the Low Oil and Gas Resource and Technology case, more pessimistic assumptions about resources and costs are applied .The effects of economic assumptions on energy consumption are addressed in the High and Low Economic Growth cases, which assume compound annual growth rates for U.S. gross domestic product of 2.6% and 1.6%, respectively, from 2016–40, compared with 2.2% annual growth in the Reference case.(According to EIA).

The graphics in this presentation focus on projections through 2040, this AEO is the first projection to include model results through 2050.

Energy consumption varies minimally across all AEO cases, bounded by the High and Low Economic Growth cases

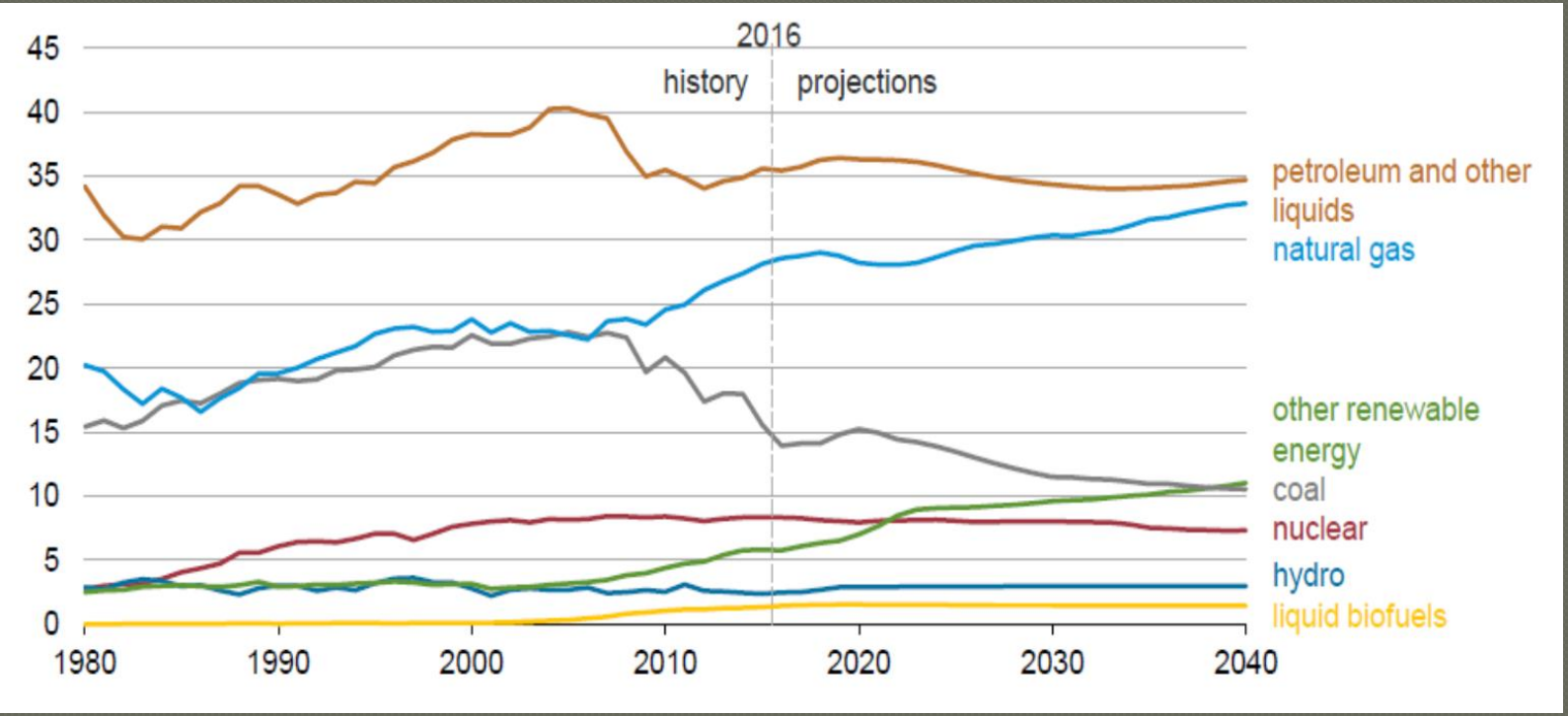
Total energy consumption
quadrillion British thermal units



Source: Snapshot of EIA Annual Report,Annual Energy Outlook 2017

Domestic energy consumption remains relatively flat in the Reference

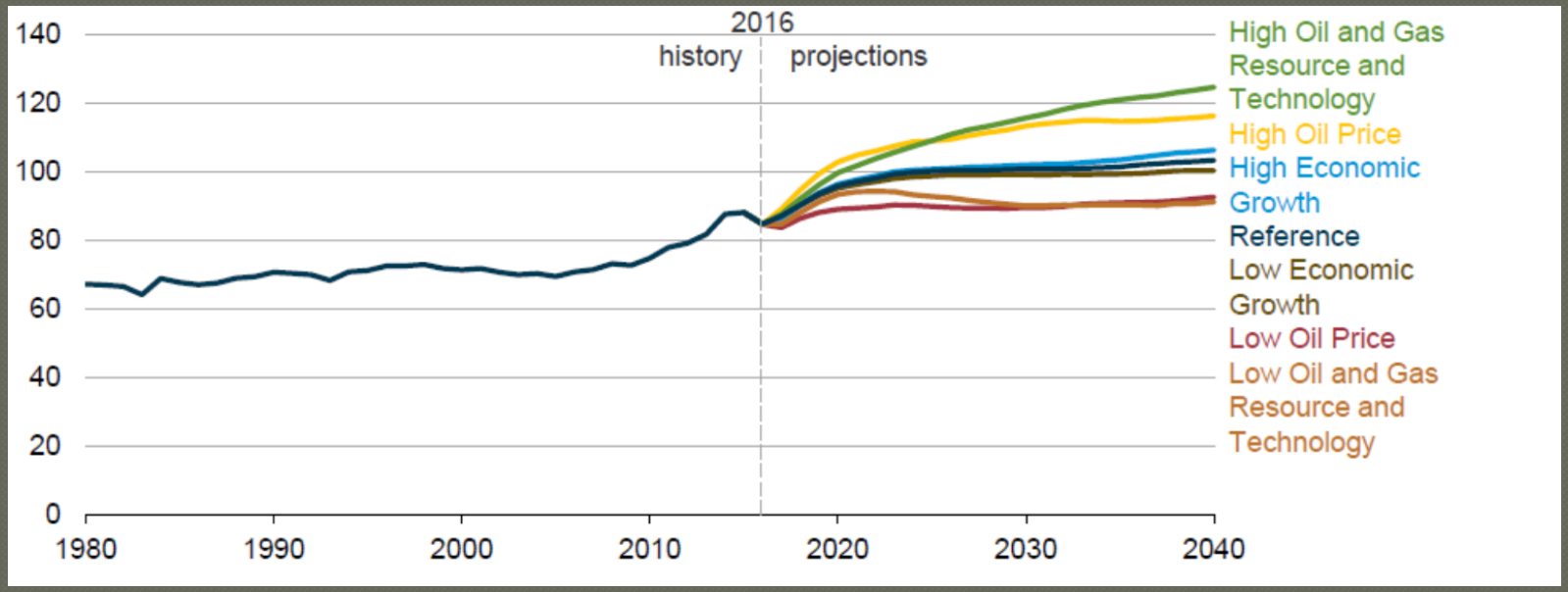
Energy consumption (Reference case)quadrillion British thermal units



Source: EIA Annual Report, a snapshot

Energy production ranges from nearly flat in the Low Oil and Gas Resource and Technology case, to continued growth in the High Resource and Technology case

Total energy production
quadrillion British thermal units:



Source: EIA annual Report 2017, a snapshot

References:

U.S. Energy Information Administration home page | *www.eia.gov*
Short-Term Energy Outlook | *www.eia.gov/steo*
Annual Energy Outlook | *www.eia.gov/aeo*
International Energy Outlook | *www.eia.gov/ieo*
Monthly Energy Review | *www.eia.gov/mer*
Today in Energy | *www.eia.gov/todayinenergy*