Energy Security Fact Pack

Q3 2016

Securing America's Future Energy

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#SAFEenergyfacts

Contents

SAFE's Energy Security Fact Pack provides a data-driven overview of the latest trends in U.S. energy security, including domestic and global oil production and consumption, oil market dynamics, energy prices, consumer spending on oil, fuel efficiency, and alternative fuel vehicles.

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Q3 2016: Energy in the Election

- Despite its relevance to U.S. economic productivity and national security, energy has been largely sidelined in the 2016 presidential election. However, expect energy to remain at the fore in the upcoming presidential term. Critical issues include the mid-term review of fuel economy standards, regulation of drilling on federal lands and the potential opening of new territories for offshore drilling, regulation of methane emissions from hydraulic fracturing, pipeline approvals, federal support for energy R&D, regulation of autonomous vehicles, and much more.
- 'Charts of the Quarter' highlight historical gasoline prices on election day, crude oil production during previous presidential administrations, and other topics:
    - Despite the recent surge in domestic oil production and lower net imports, the United States is not "energy independent." The country remains reliant on large volumes of crude oil and refined products whose prices are set in a global market [Pages 4, 5 & 6]. This market is subject to unpredictable—and sometimes anti-competitive—behavior from oil-producing countries that supply it, most notably OPEC members [Page 10].
    - Most oil and natural gas resources on federal lands remain off-limits for development by government restriction [Page 7].
    - The decline in oil prices has stressed the energy sector. More than 187,000 oil and natural gas jobs have been lost since employment peaked in late 2014 [Page 8].
    - Reducing the energy intensity of the U.S. economy through improvements in efficiency and use of alternative fuels in the transportation sector will strengthen resilience to oil price volatility and increase U.S. energy security [Page 9].

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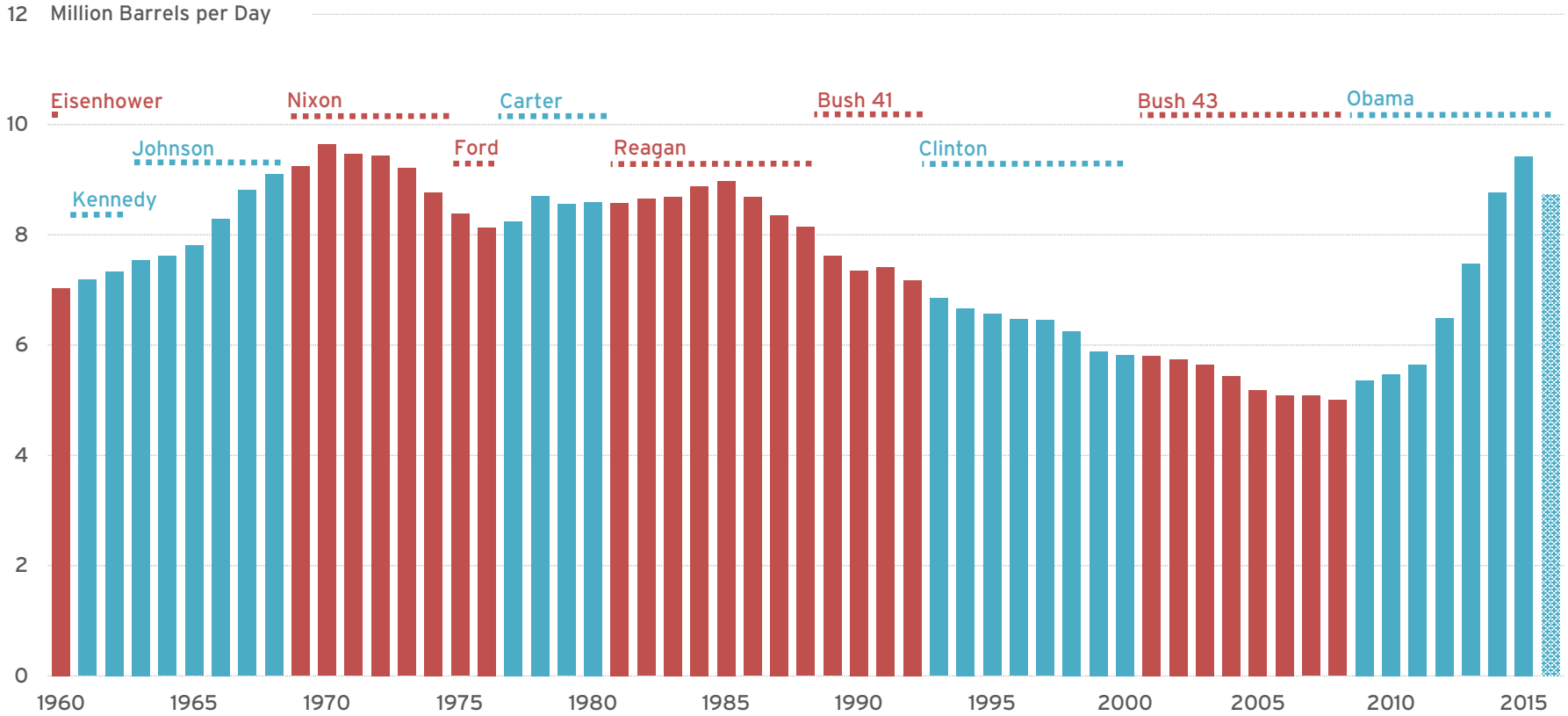
U.S. Crude Oil Production by Presidential Administration

Crude oil production in the United States began in Pennsylvania in 1859. It increased initially through 1970 before beginning more than three decades of gradual decline in the mid-1980s. It increased once again with the onset of the shale oil revolution in 2009.



Note: Preliminary 2016 estimate for U.S. crude oil production. Dotted line shows the length in time of each presidential term.

Source: EIA

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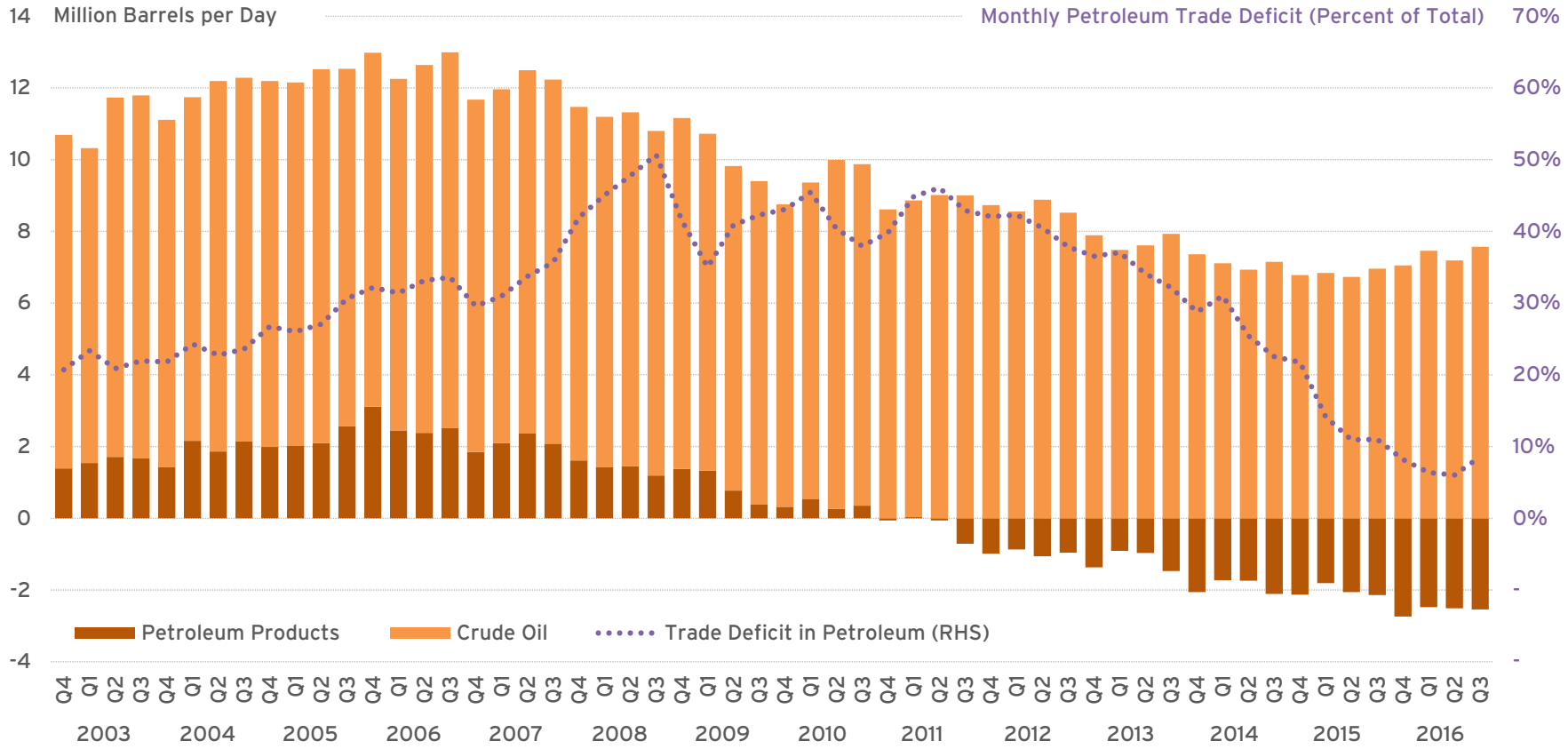
United States Is Not 'Energy Independent'

Although U.S. net oil imports have fallen 60% since 2005, the country remains reliant on imported oil. In Q3, net imports rose to 5.0 mbd (+0.2 mbd, or roughly 4%, year-over-year (y-o-y)). The United States became a net exporter of petroleum products in 2011.



Source: SAFE analysis based on data from EIA

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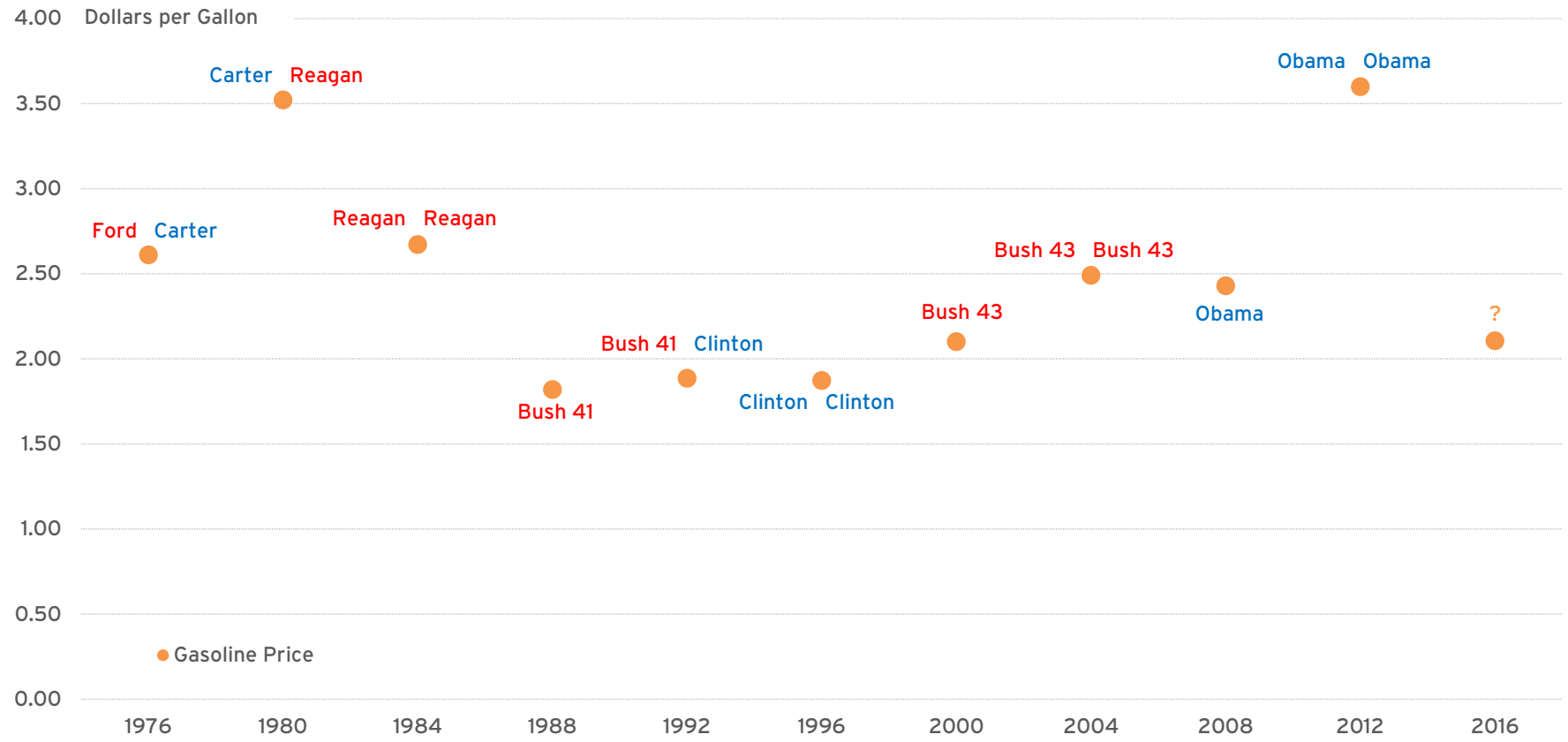
Real Gasoline Prices on Election Day

The price of gasoline is an important issue for voters on election day. This year, the price of gasoline—roughly $2.25 per gallon on average nationwide—is substantially lower than it was in 2012, but similar to 2008.



Source: SAFE analysis based on data from EIA

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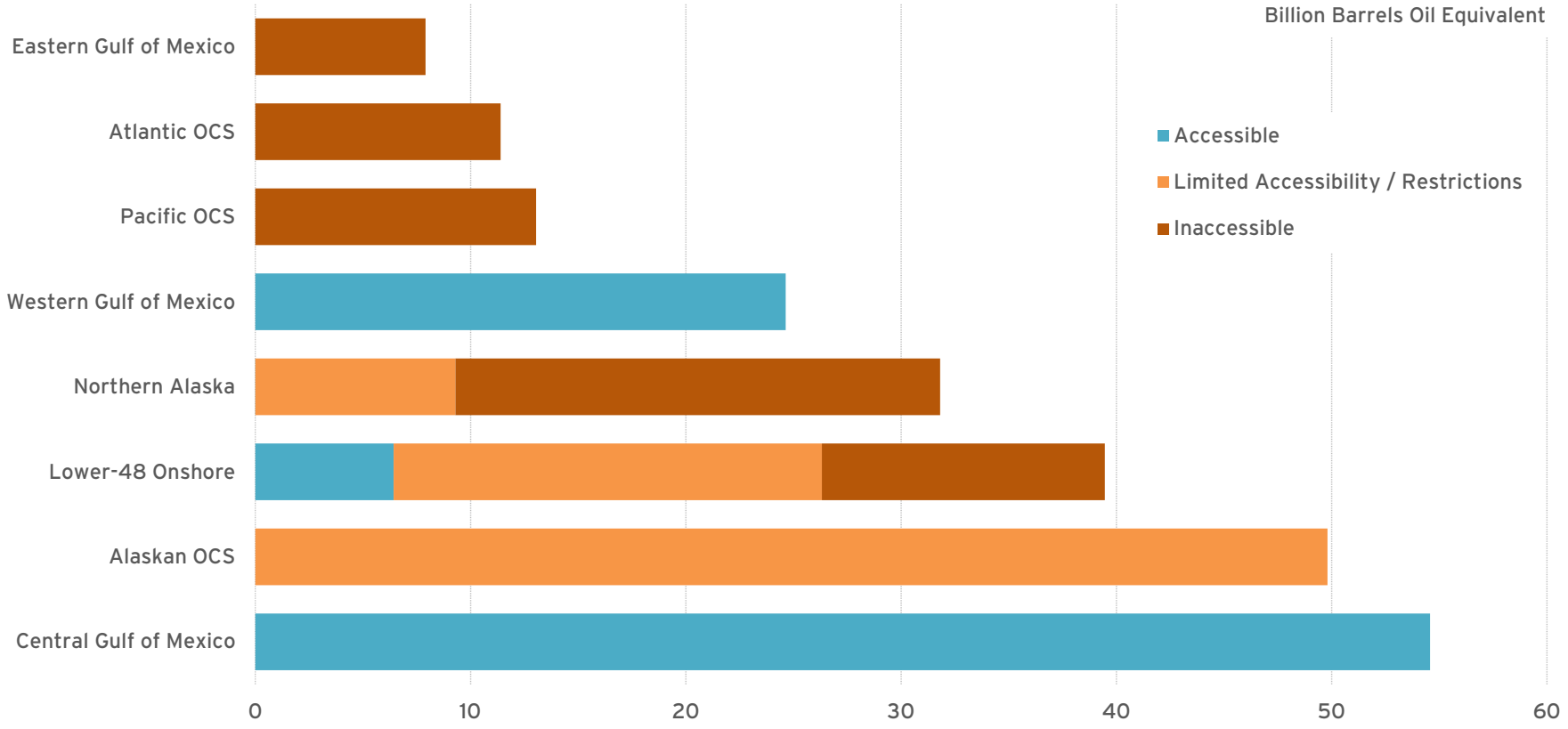
Most U.S. Oil and Gas Resources Restricted or Inaccessible

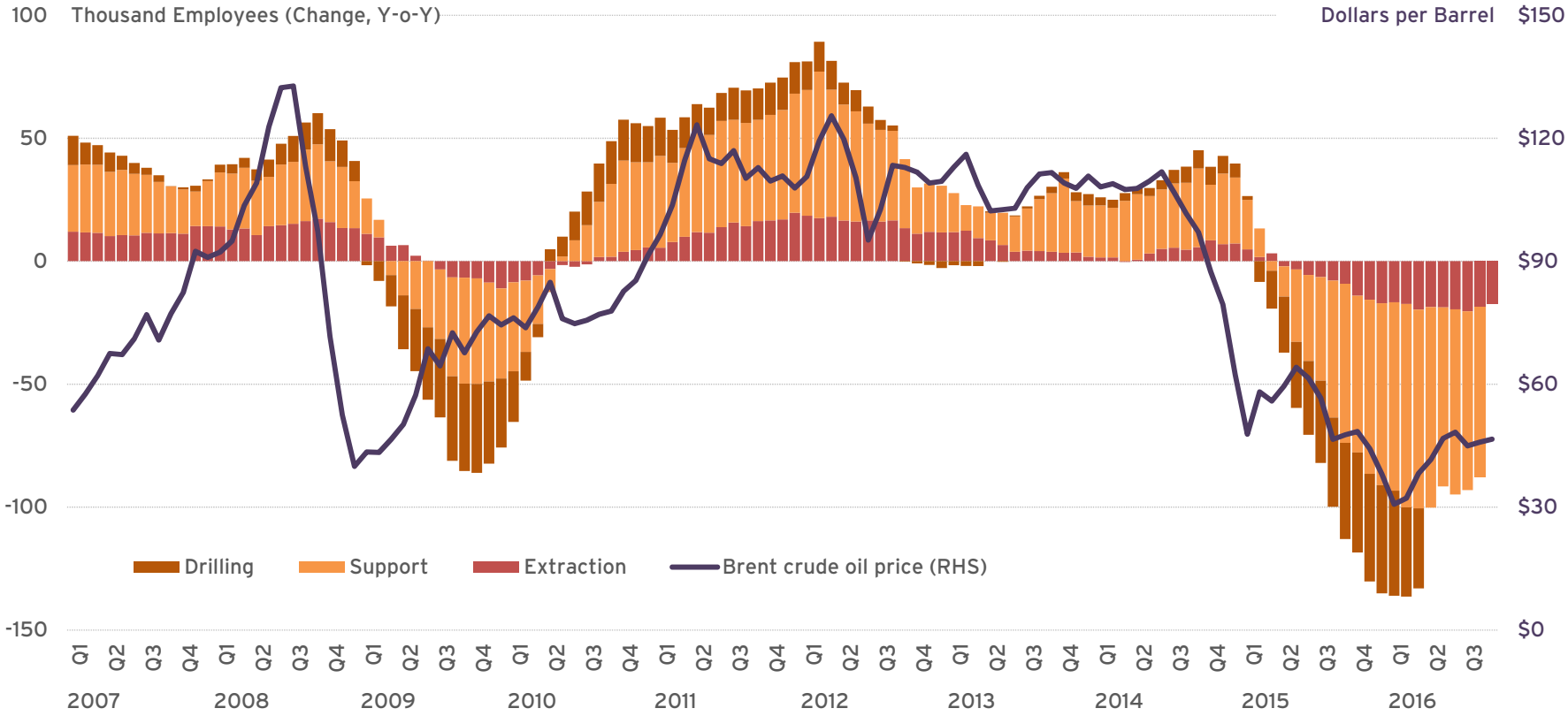
Approximately 232 billion barrels of undiscovered technically recoverable oil and gas resources are held within federal lands and waters, yet 63% (147 billion barrels) is restricted or inaccessible. The Alaska OCS contains most of these resources (49.8 billion barrels).



Source: DOI

Steep Job Cuts Shake Oil Sector

Oil sector employment has been significantly affected by the decline in global oil prices. As of March 2016, at least 187,000 jobs were lost since peak employment in September 2014. More than 60% of these were in the support subsector (-80,000 employees y-o-y in March 2016).

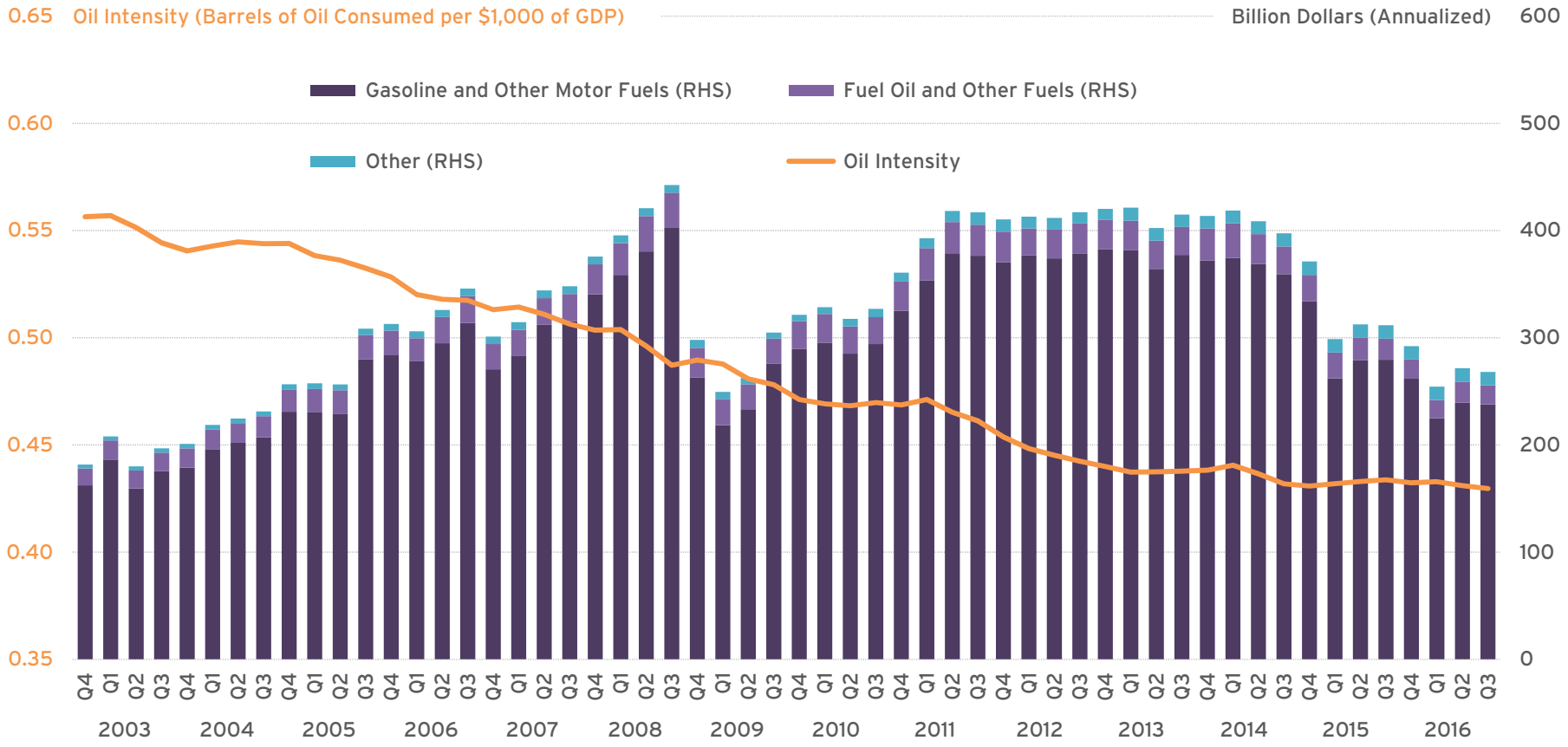


Note: Support and Extraction data points for August and September 2016 are preliminary. Drilling data is only available through March 2016.

Source: SAFE analysis based on data from Bureau of Labor Statistics and EIA

Oil Intensity Flat While Household Expenditures Fall

U.S. oil intensity remained unchanged in Q3 at 0.43 barrels per $1,000 of GDP. However, household spending on petroleum fuels is down 14% y-o-y, at an annualized level of $268 billion, due to lower oil and petroleum product prices.



Source: SAFE analysis based on data from EIA and BEA

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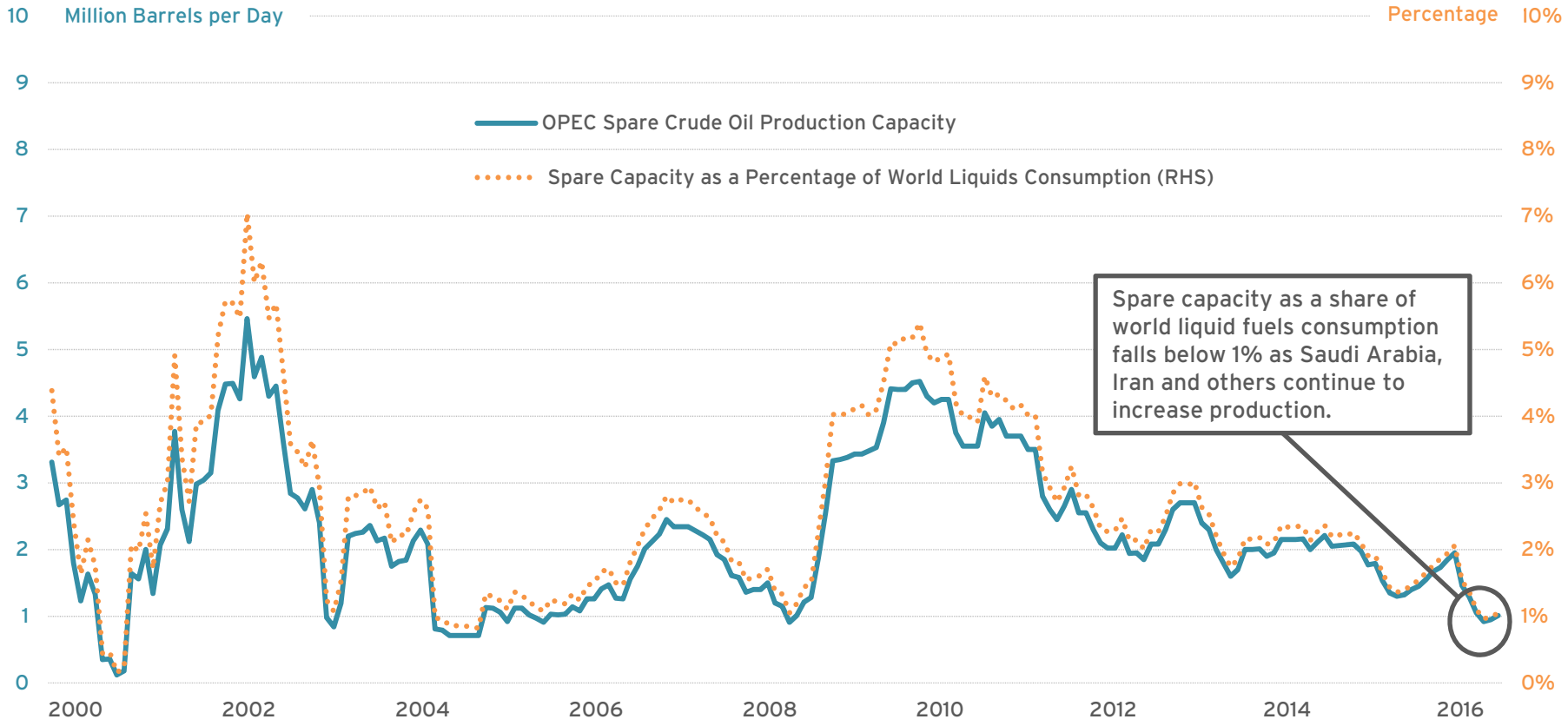
No Free Market for Oil

OPEC spare crude oil production capacity fell to just 1.0 million barrels per day (mbd) at the end of Q3. This is equivalent to approximately 1% of global consumption. The majority of OPEC's spare production capacity is held by Saudi Arabia.



Source: SAFE analyis based on data from EIA

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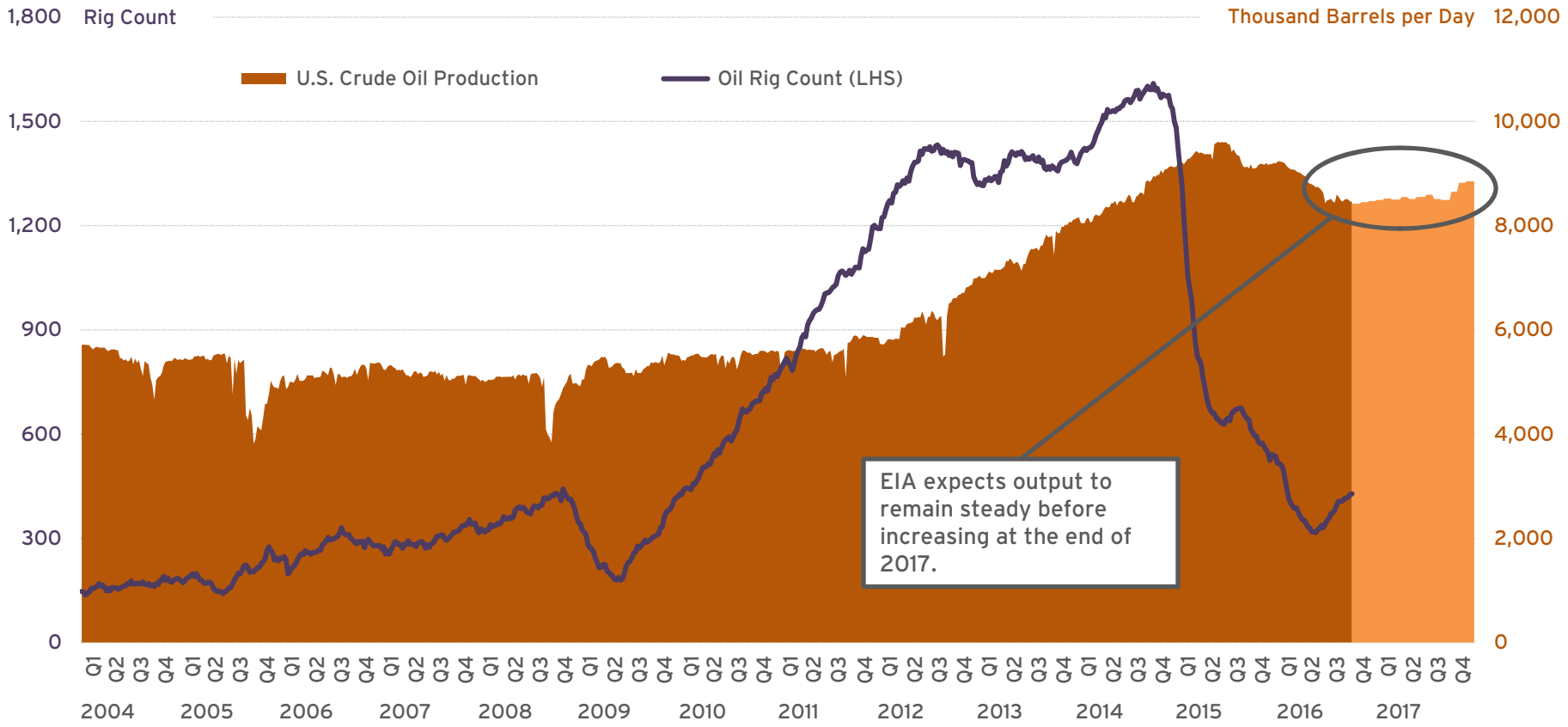
U.S. Oil Producers Remain Under Pressure

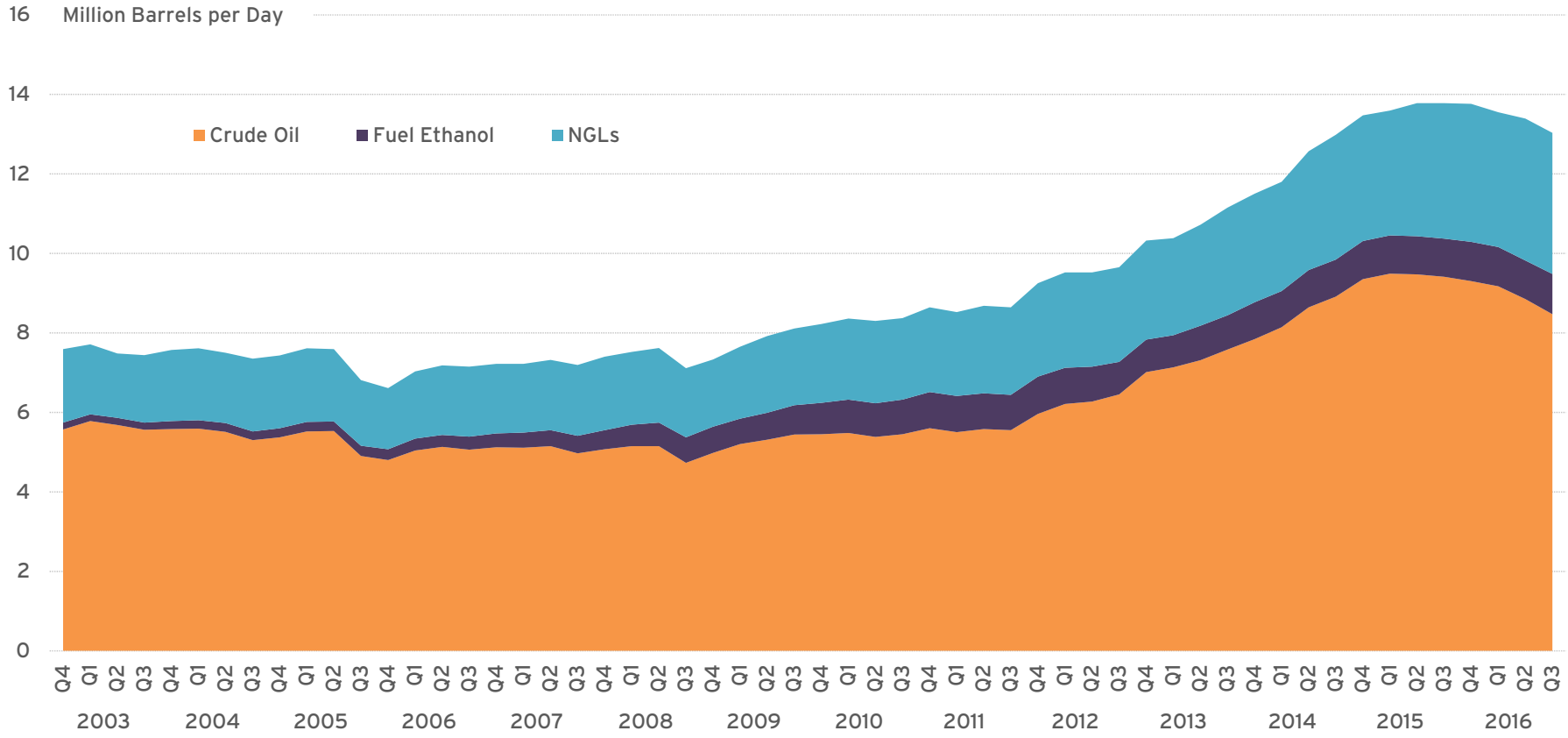
The U.S. oil rig count increased from 330 to 425 rigs in Q3, a 29% increase quarter-over-quarter (q-o-q) after falling to its lowest point since 2009 in Q2. U.S. crude oil production nevertheless continued to decline, falling 0.3 mbd q-o-q in Q3 2016.



Source: EIA and Baker Hughes

U.S. Oil Production Continues to Fall

U.S. liquids production fell 0.8 mbd y-o-y in Q3. Inclusive of fuel ethanol and natural gas liquids (NGLs), total U.S. liquids production remains approximately 6.0 mbd higher than in 2008, making the U.S. the world's largest liquids producer.



Source: SAFE analysis based on data from EIA

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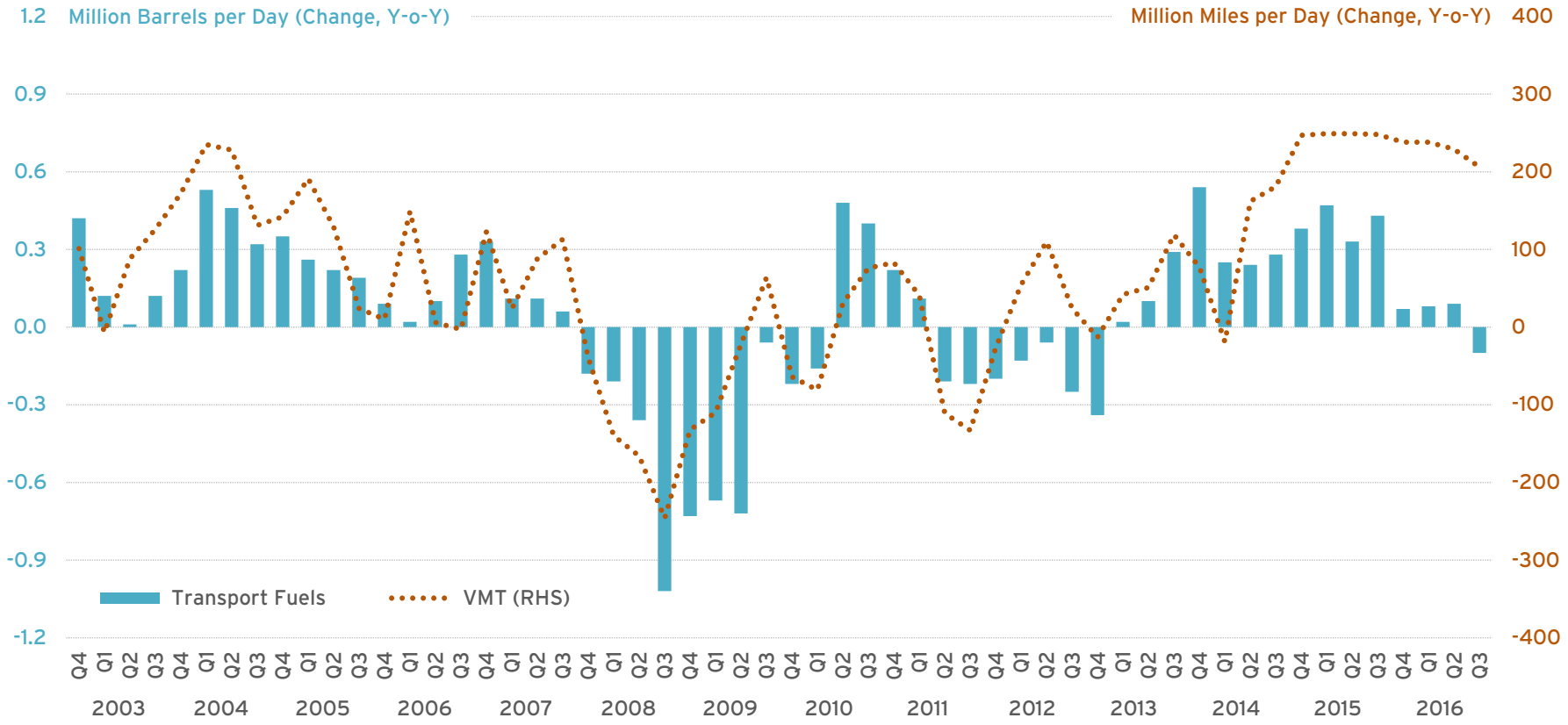
Y-o-Y Transportation Fuel Demand Growth Slows

U.S. demand for gasoline, diesel, and jet fuel averaged 14.7 mbd in Q3, declining 1% y-o-y. Total vehicle miles traveled (VMT) has increased y-o-y for ten consecutive quarters. In Q3, VMT rose by approximately 2.3% (+206 million miles y-o-y, slightly lower than in recent quarters).



Source: SAFE analysis based on data from EIA

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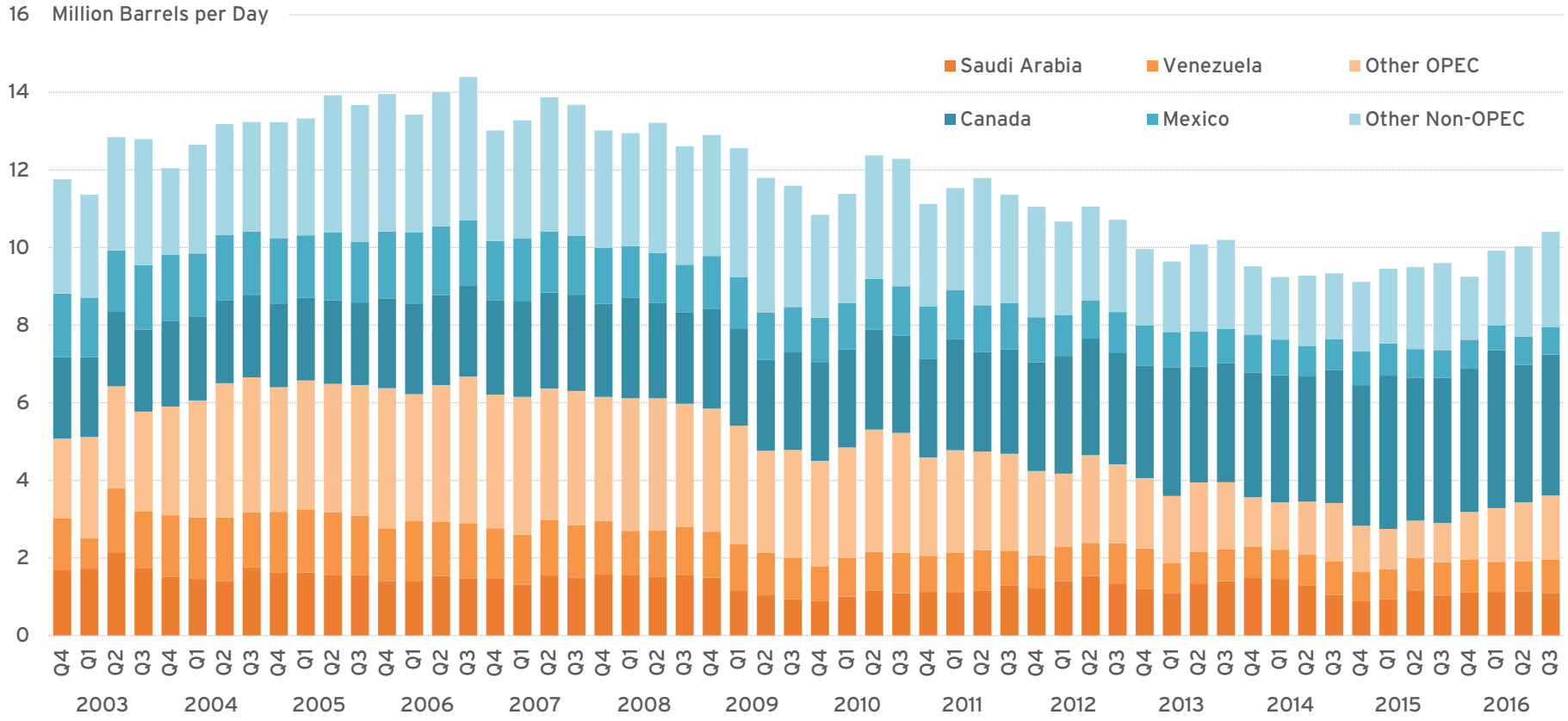
Imports From OPEC Climbing

U.S. crude oil and petroleum product imports reached 10.4 mbd in Q3 (+0.8 mbd y-o-y), the highest in four years. Since 2015, OPEC's share has steadily risen to 34% of imports (3.6 mbd), with Saudi Arabia the leading source (1.1 mbd).



Source: SAFE analyis based on data from EIA

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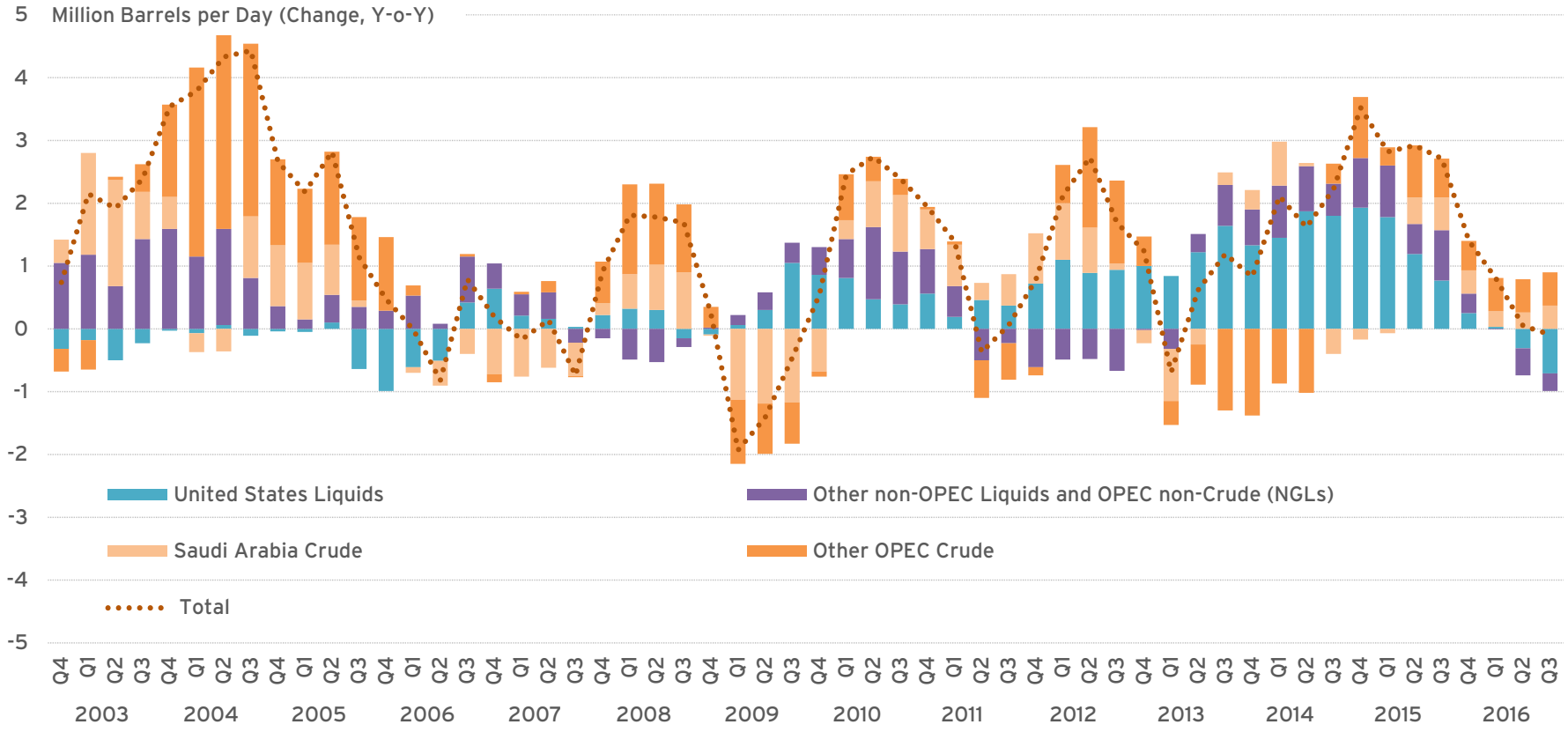
Global Oil Supply Growth Continues to Slow

Driven by an overall decline in total U.S. liquids supply (-0.7 mbd y-o-y), global oil production fell 0.1 mbd y-o-y in Q3, the first contraction since Q1 2013. The United States accounted for more than 82% of net global supply growth between Q1 2012 and Q1 2016.



Source: SAFE analysis based on data from EIA

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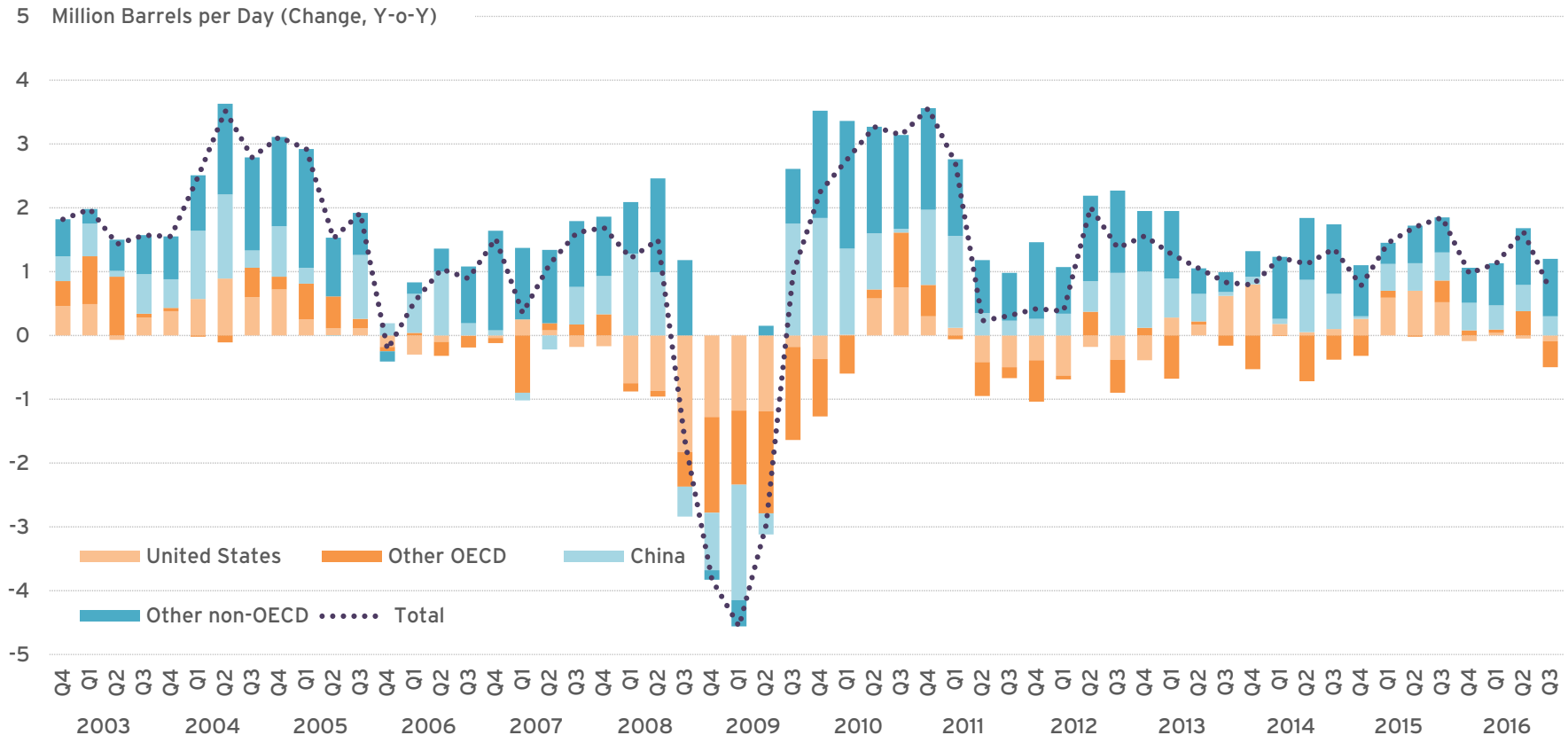
Global Oil Demand Edges Upward

Global oil demand grew by approximately 0.7 mbd y-o-y in Q3 driven by growth in non-OECD countries (+1.2 mbd y-o-y). Demand in OECD countries fell 0.5 mbd y-o-y in Q3 to 46.4 mbd. Global oil demand has been increasing since 2009, reaching approximately 95.9 mbd in Q3.



Source: SAFE analysis based on data from EIA

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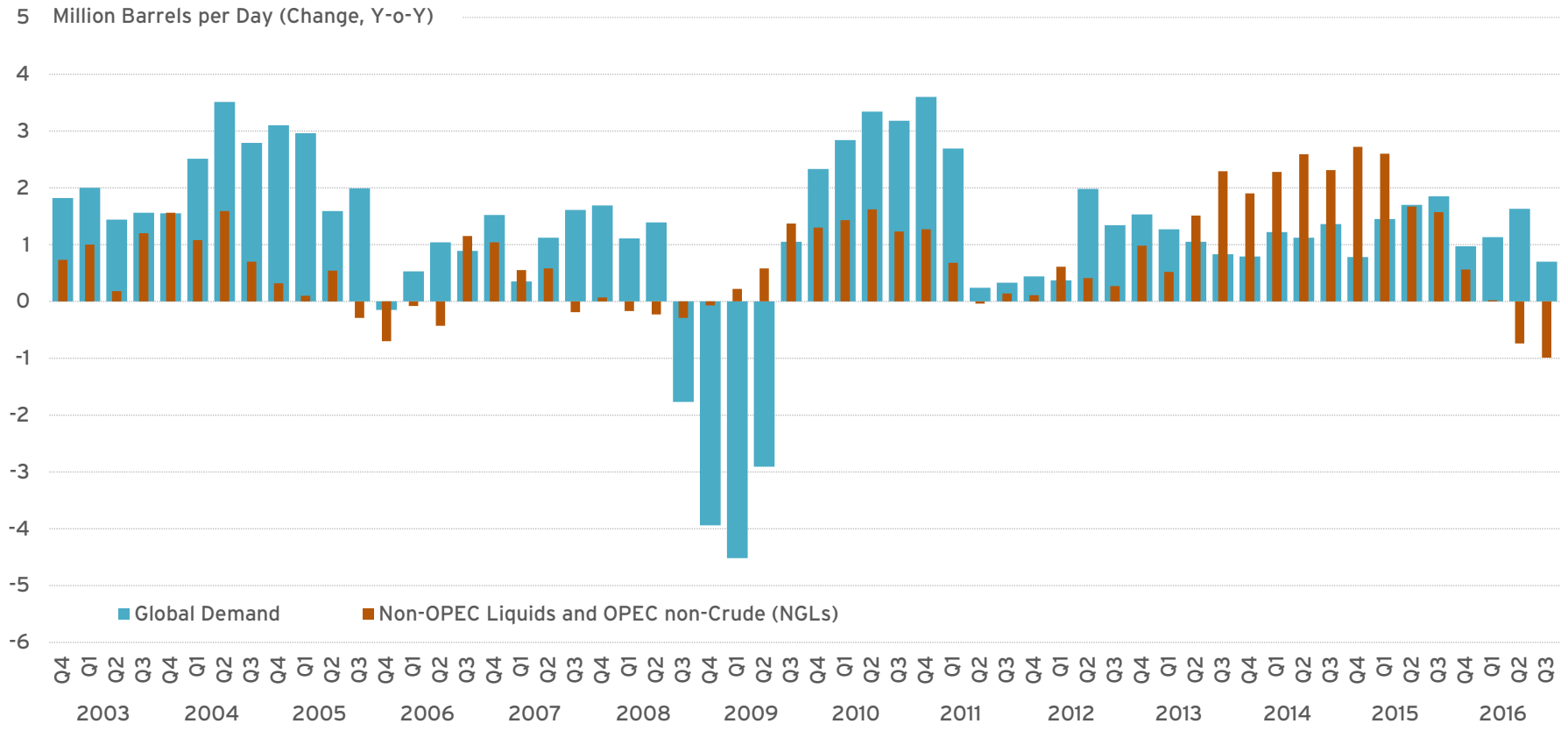
Non-OPEC Supply Growth Stays Negative

Non-OPEC supply encountered a second consecutive quarter of decline (-1.0 mbd y-o-y). Global oil demand growth has exceeded non-OPEC liquids supply growth for the past six quarters, a reversal versus Q2 2013 to Q1 2015, and a pattern last seen between Q2 2012 and Q1 2013.



Source: SAFE analysis based on data from EIA

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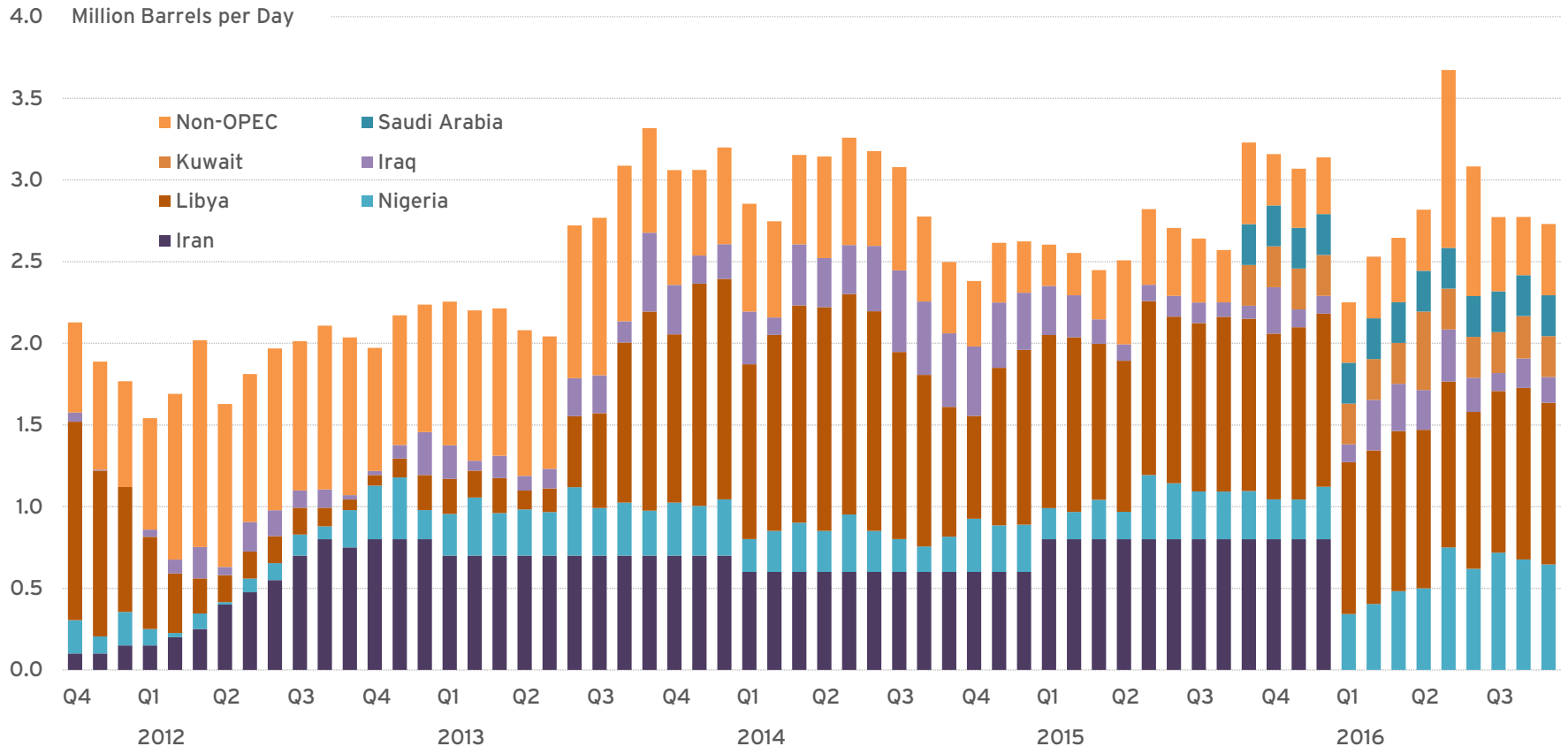
Unplanned Crude Oil Outages Remain High

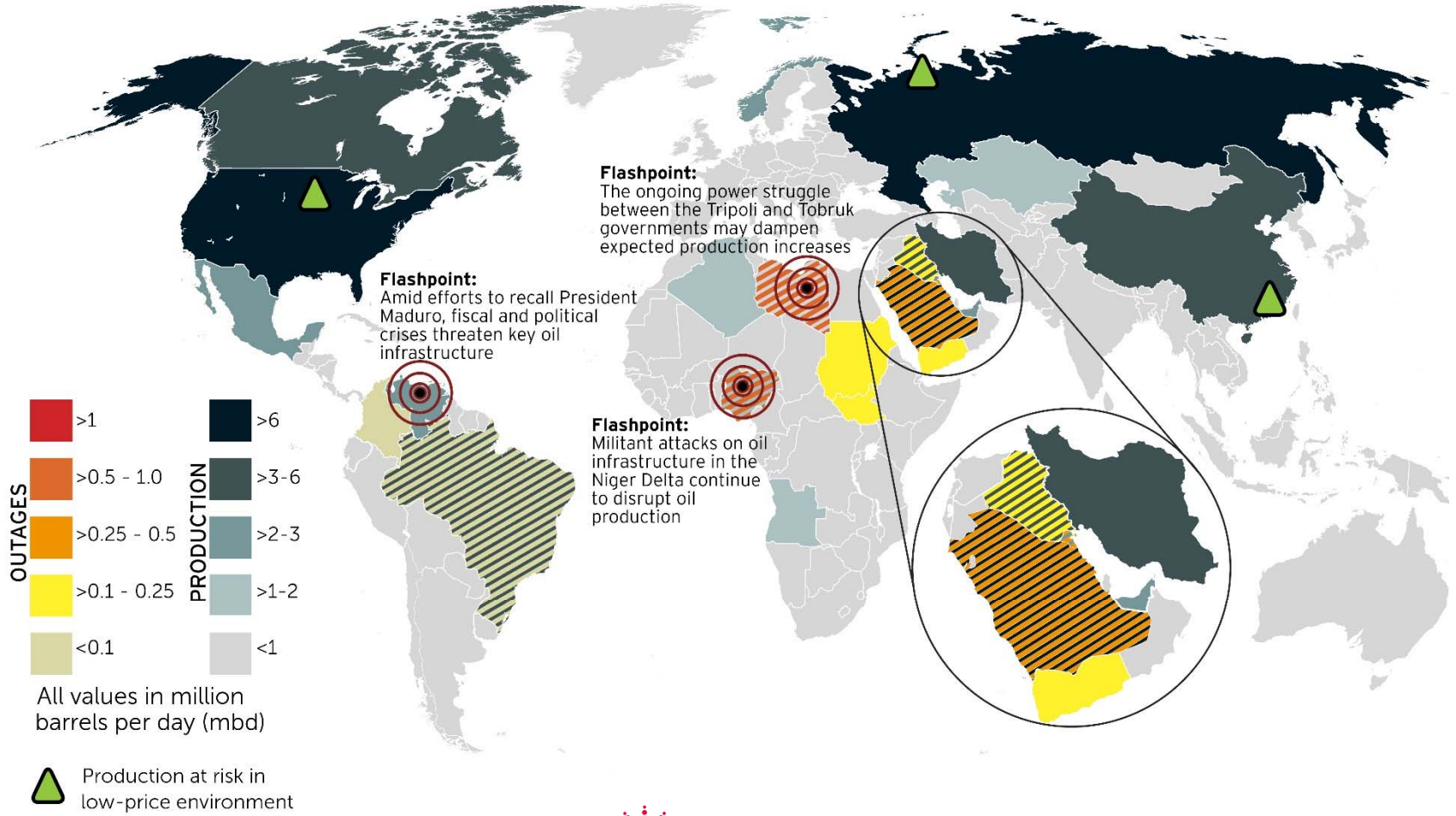
Global unplanned outages fell in Q3 (-0.4 mbd q-o-q) as Canadian production returned following wildfire disruptions in Q2. Among OPEC countries, Iran continues to bring additional oil supplies online. However, political instability in Nigeria and Libya extends disruptions.



Source: SAFE analysis based on data from EIA

Barrels at Risk Map

Total oil supply outages averaged 2.8 mbd in Q3. Attacks on oil infrastructure increased outages in Nigeria's main oil-producing region, the Niger Delta, while tensions in Venezuela, Libya, and other countries also threaten to further increase outages.



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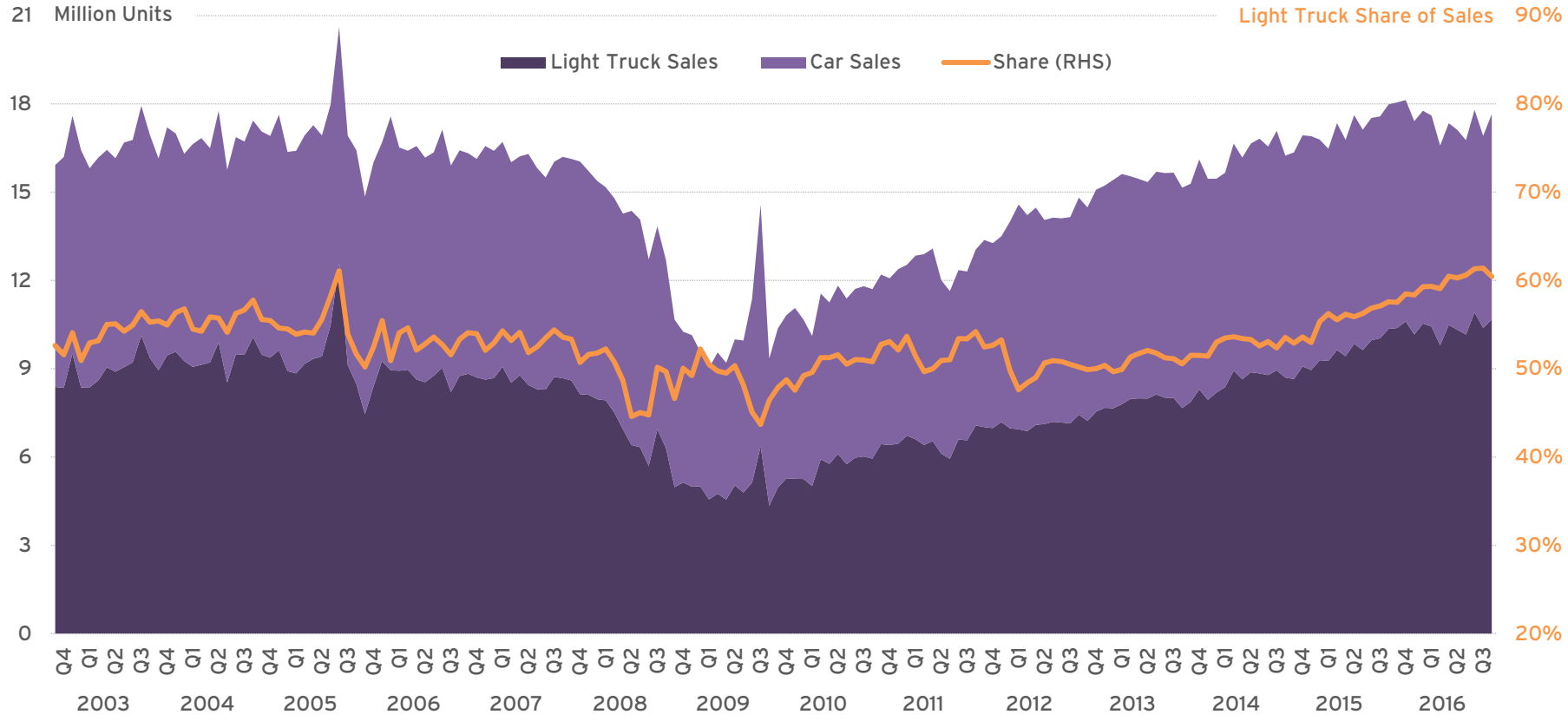
Light Truck Market Share Hits Record High

New light truck sales soared to 10.7 million units in Q3 2016. Light trucks now account for 61% of new light-duty vehicle (LDV) sales, the highest share since the summer of 2005. Total seasonally adjusted LDV sales in Q3 were roughly 50% higher than 2009 levels, at 17.8 million units.



Source: SAFE analysis based on data from BEA

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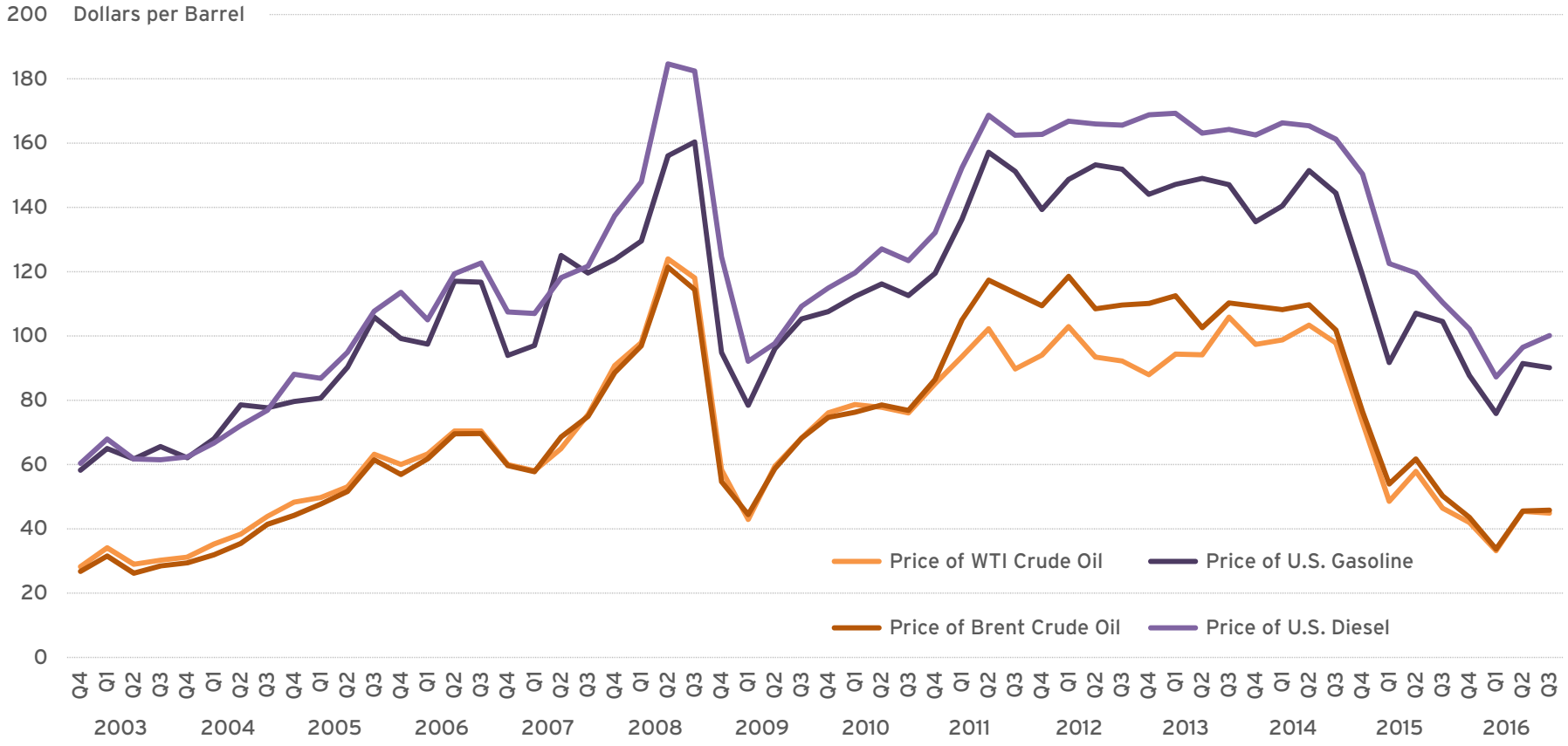
Brent and WTI Prices Hold Steady

Prices of domestic petroleum products like gasoline and diesel correlate closely with prevailing global crude oil benchmarks. Oil and product prices held steady after q-o-q increases in H1 2016. September average Brent = $46.57/bbl, WTI = $45.18/bbl, U.S. gasoline = $2.16/gal.



Source: SAFE analysis based on data from EIA

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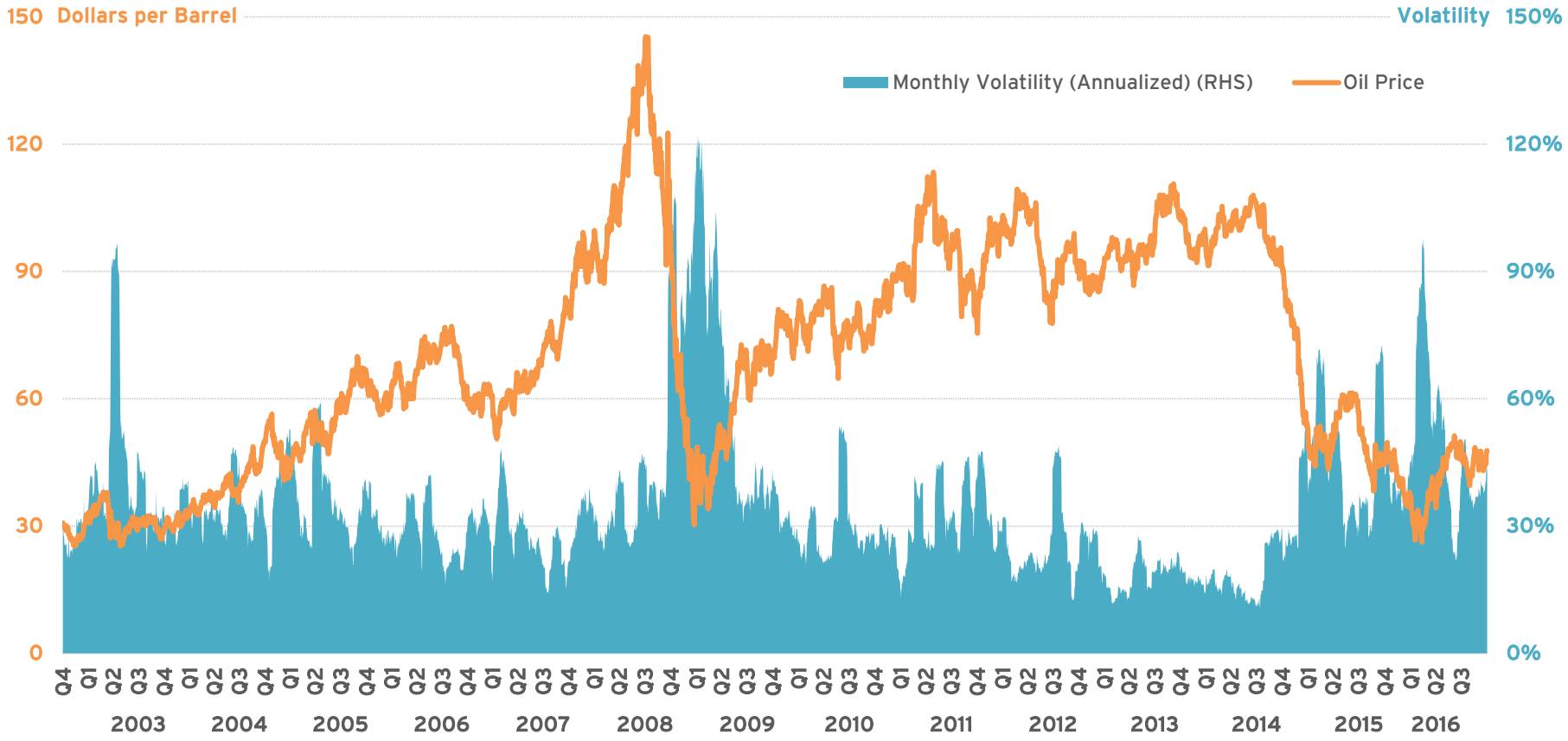
Oil Price Volatility Remains Elevated

Global oil prices have been volatile since they began their initial slide during the summer of 2014. Volatility averaged 55% in H1 2016 versus 15% in H1 2014. Although down from 69% in Q1, 30-day volatility averaged 42% in Q2 and 41% in Q3.



Source: SAFE analysis based on data from EIA

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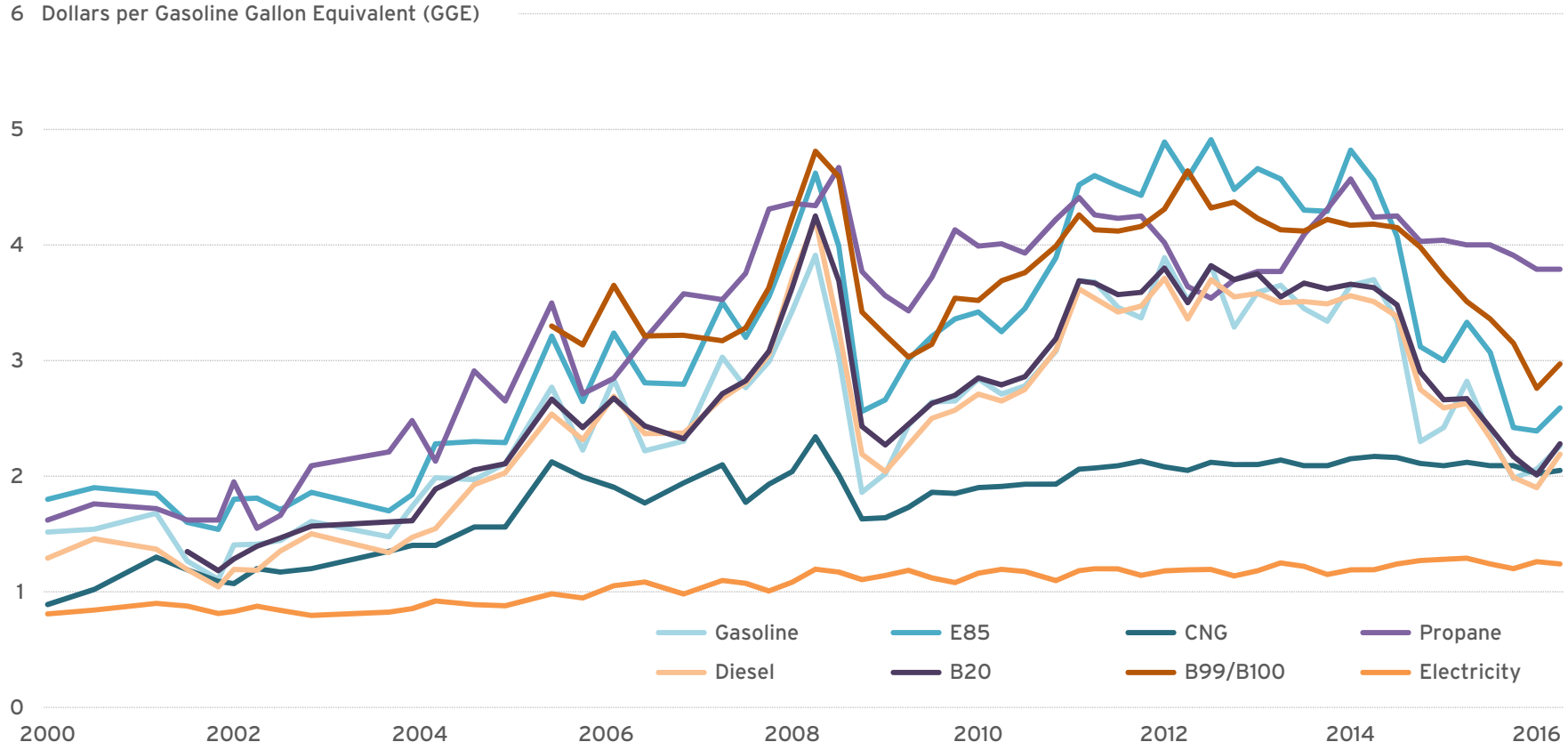
Retail Liquid Fuel Prices Uptick

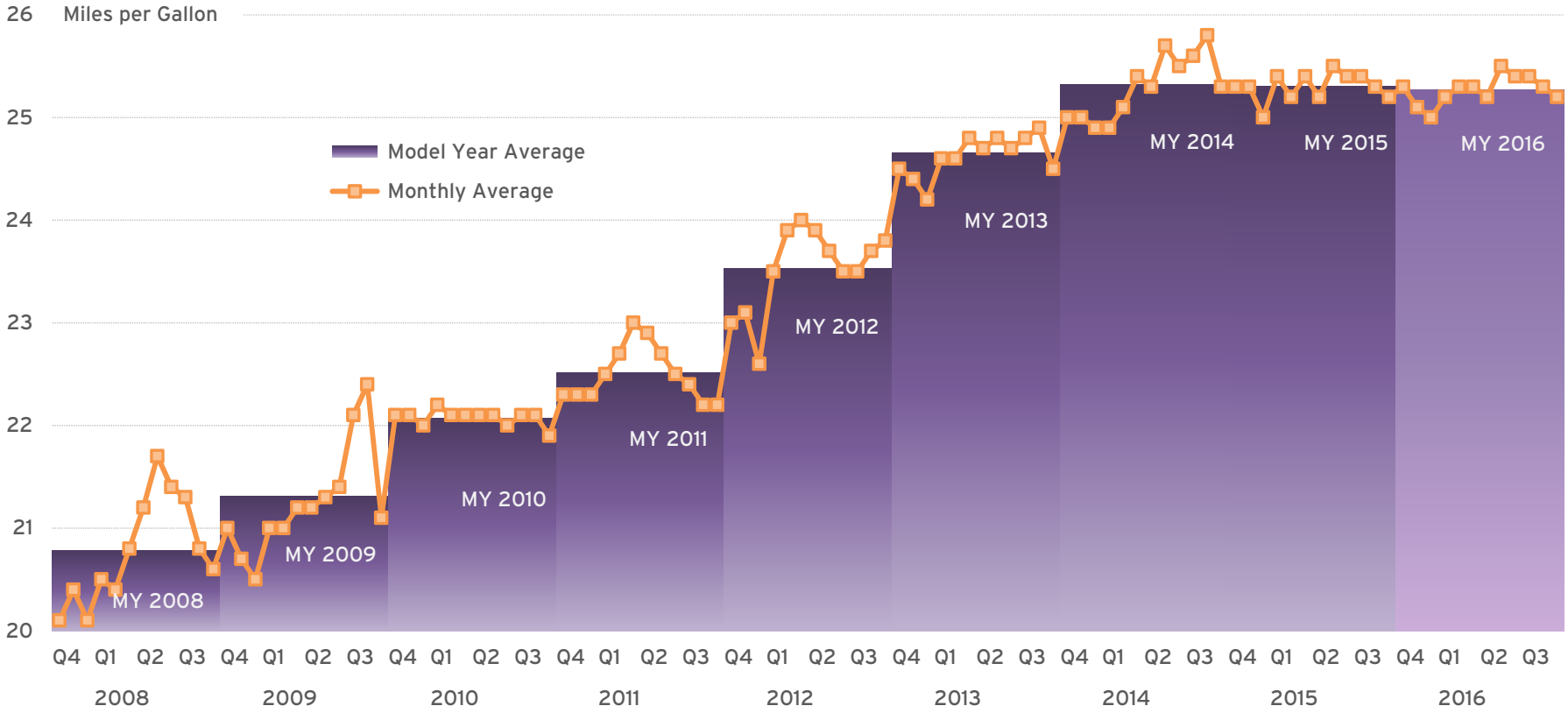
Liquid fuel prices have experienced substantial volatility since 2000. Despite a more recent uptick, in 2016 they have fallen to multi-year lows. Meanwhile, the prices of compressed natural gas (CNG) and electricity have remained relatively stable during the same time period.



Source: SAFE analysis based on data from Clean Cities Alternative Fuel Price Reports

New Light-Duty Vehicle Fuel Economy Ratings Steady

The average fuel economy rating of new light-duty vehicle sales remained steady y-o-y in Q3 at 25.3 miles per gallon, a marked change versus MY 2008 to 2014 when it consistently increased. MY 2016 fuel economy was 25.3 mpg, approximately 19% higher than 2009 levels.

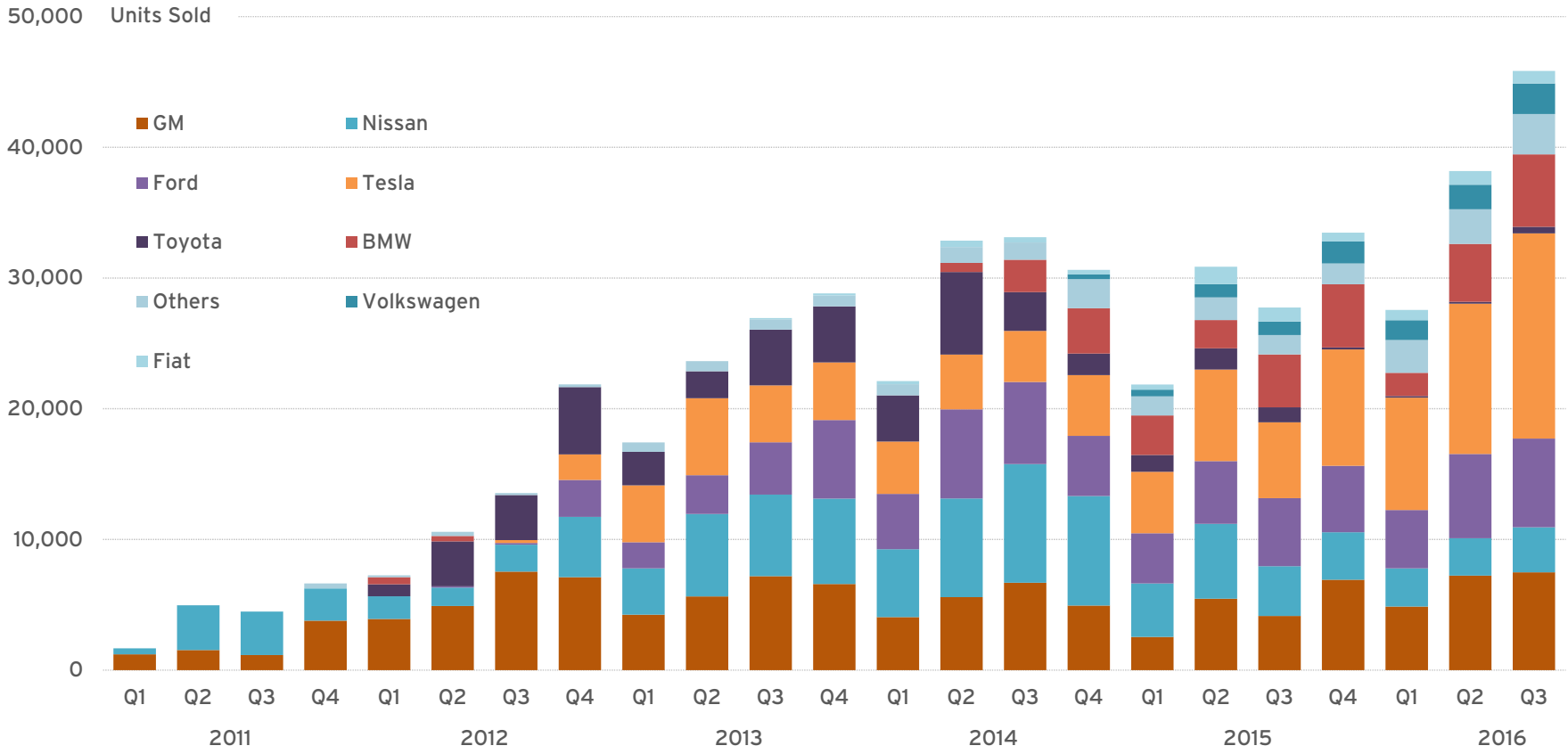


Note: Average sales-weighted fuel-economy rating of purchased new light-duty vehicles.

Source: SAFE analysis based on data from Michael Sivak and Brandon Schoettle, University of Michigan Transportation Research Institute

Plug-in Electric Vehicle Sales Reach New Historic High

Approximately 45,000 plug-in electric vehicles (PEVs) were sold in Q3 (+63% y-o-y), the best quarter on record. Popular models included Tesla's Model S and Model X, as well as the Chevrolet Volt. The six best-selling vehicles accounted for approximately 72% of total sales.



Source: SAFE analysis based on data from HybridCars.com

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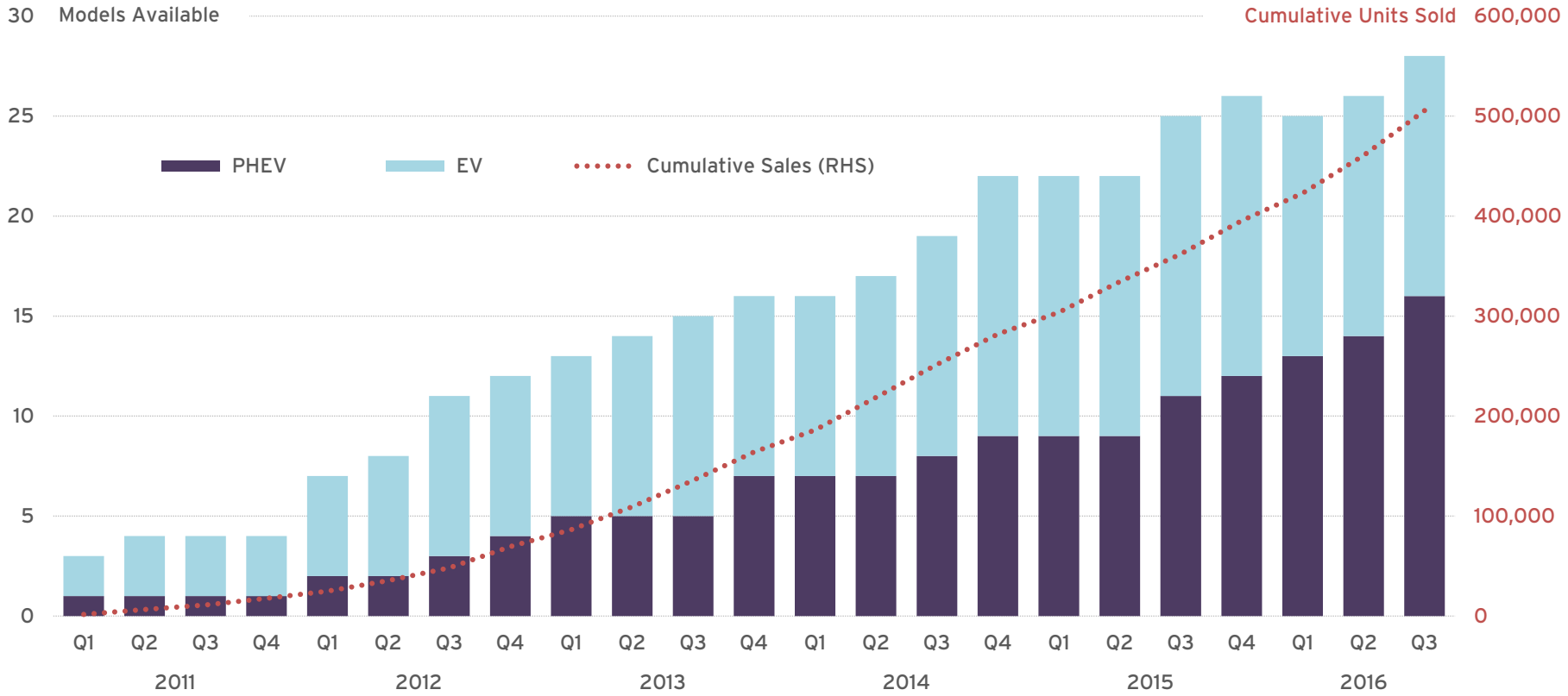
More PHEV Models Available, but EVs Majority of Sales

The number of PHEV models available increased from 11 to 16 y-o-y through the end of Q3. However, EVs still account for the majority of plug-in electric vehicle sales (roughly 59% in Q3). More than 500,000 PHEVs and EVs have been sold in the United States.



Note: Several available models are not included in "Cumulative Sales."

Source: SAFE analysis based on data from HybridCars.com

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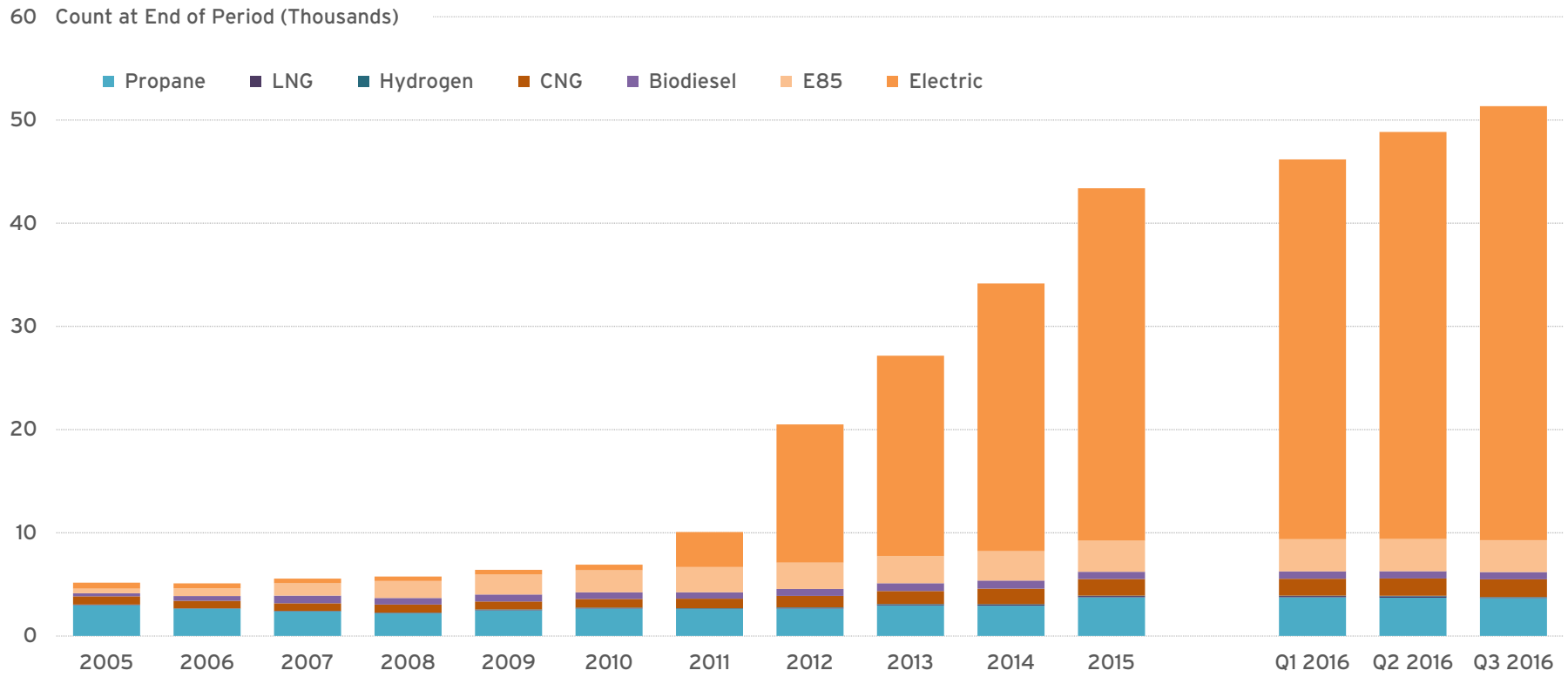
Alternative Fueling Stations Continue to Climb

The number of alternative fueling stations nationwide increased 89% between Q3 2013 and Q3 2016, a net addition of approximately 24,100 stations. The vast majority of these new additions (94%) were for electric charging.



Note: Starting in 2011, electric charge equipment was counted by the plug rather than by the geographic location. This is different than other fuels, which only count the geographic location regardless of how many dispensers or nozzles are on site.

Source: Alternative Fuels Data Center

About, Links, and Contact

ABOUT

Securing America's Future Energy (SAFE) is a nonpartisan, not-for-profit organization committed to reducing America's dependence on oil and improving U.S. energy security in order to bolster national security and strengthen the economy. SAFE has an action-oriented strategy addressing politics and advocacy, business and technology, and media and public education.

SAFE's Energy Security Fact Pack, launched in 2014, provides a data-driven overview of the latest trends in U.S. energy security, including domestic and global oil production and consumption, oil market dynamics, energy prices, consumer spending on oil, fuel efficiency, and alternative fuel vehicles.

WEB LINKS

SAFE: www.secureenergy.org
Electrification Coalition: www.electrificationcoalition.org
The Fuse: www.energyfuse.org

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