

Energy Security Fact Pack

Q2 2017



Securing America's
Future Energy



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#SAFEenergyfacts

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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.

Q2 2017: Geopolitical Supply Risks Abound

- Geopolitical tensions continue to dominate news headlines. Targeted U.S. sanctions against Russia's energy sector, Venezuela's constitutional crisis, and political uncertainties over the Iran nuclear agreement create conditions for continued instability and a possible major supply disruption [Page 21]. Against this backdrop, OPEC's Saudi-led coordinated cuts with 11 non-OPEC producers heighten global oil market uncertainties. Unplanned outages remain high and unsteady at 2.3 million barrels per day (mbd) [Page 18].
- Resurgent non-OPEC supplies partially offset OPEC cuts [Pages 15 & 17]. U.S. independents, who last year throttled back output due to low prices, are once again ramping up production. Yet, recent 2017 capital expenditure reductions raise questions over forecast growth [Pages 9 & 10]. At the same time, OPEC regained U.S. market share in Q2, accounting for roughly 37 percent of imports, the highest proportion since OPEC's strategy of regaining market share began in late 2014 [Page 12]. In Q2, Saudi Arabia increased global spare capacity by a massive 0.9 mbd year-over-year (y-o-y), the largest increase since Q1 2010 [Page 19]. Despite pervasive geopolitical risks, high but decreasing inventories and rising non-OPEC supply is helping dampen oil price volatility [Page 24].
- 'Charts of the Quarter' highlight continued national security challenges relating to U.S. oil dependence. Oil export revenues often finance the sprawling military expenditures of petro-states, including Russia [Pages 4 & 5]. Extensive and unguarded oil and gas networks can also be targeted by malefactors who aim to stir social unrest [Page 6]. Worse yet, many virtual global supply networks are located in nations that are not ranked as cybersecure [Page 7]. These risks compound delicate regional security challenges and increase the potential for a major supply disruption for the United States and the world oil market.

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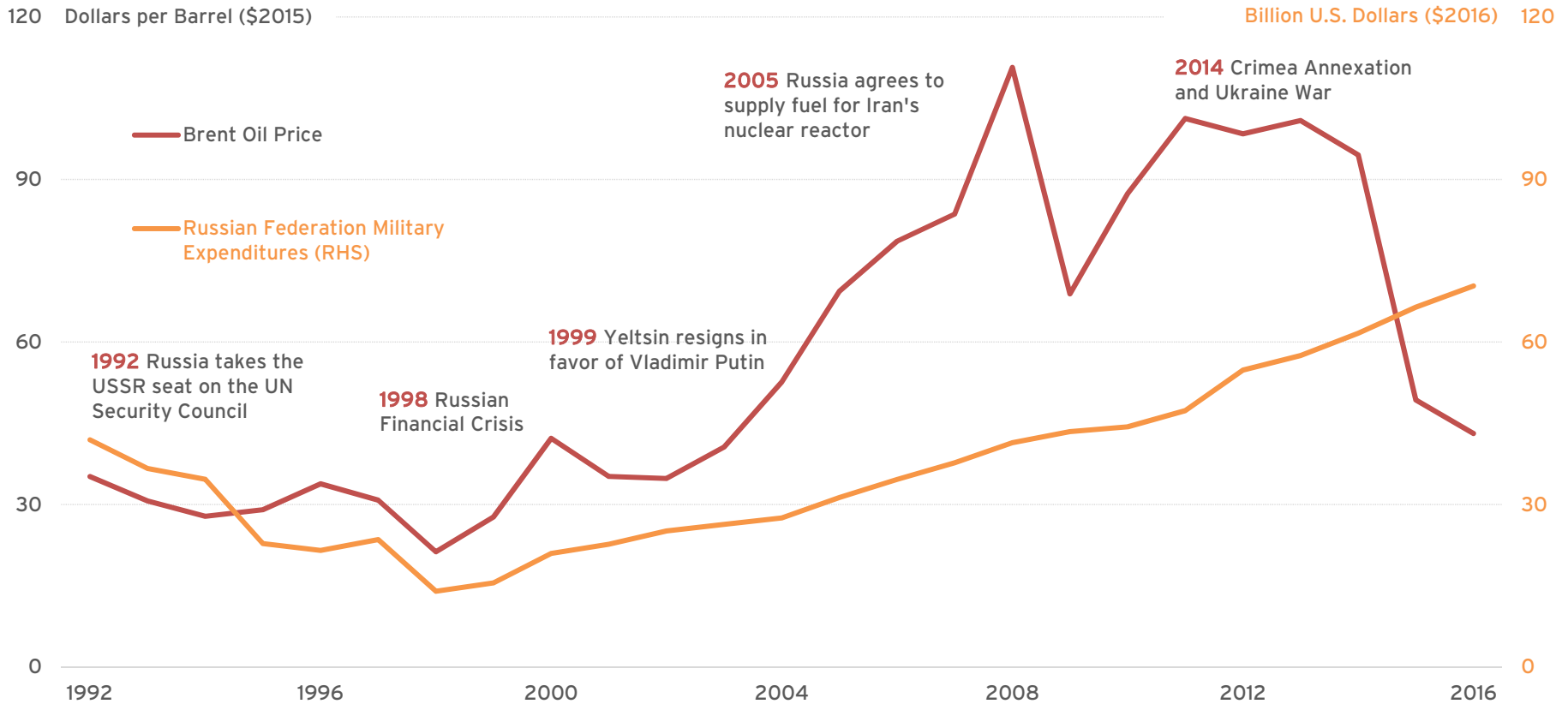
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Oil and Russian Aggression

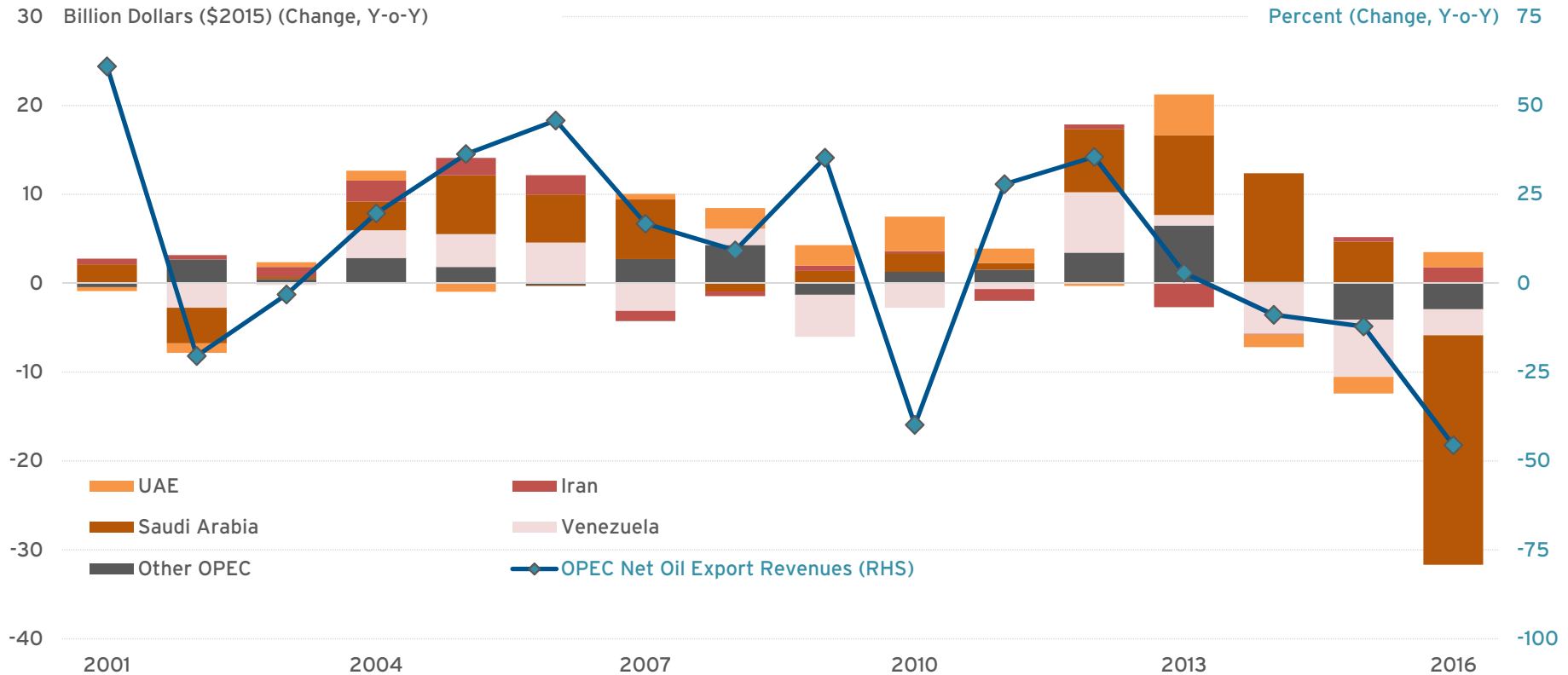
Oil prices are a major contributor to Russian military expansion and support the country's export-dependent economy. Between 1998 and 2013, the Kremlin's military expenditures increased 374 percent, thanks to an 863 percent increase in its oil export revenue.



Source: SAFE analysis based on data from the Stockholm International Peace Research Institute and EIA.

OPEC Export Revenues and Military Expenditures

Oil-producing countries may expand military spending programs as oil export revenues rise. A 35 percent y-o-y rise in 2011 export revenues helped OPEC increase military spending by a net \$21 billion in 2012, ramping up in 2013 due to rising security threats.

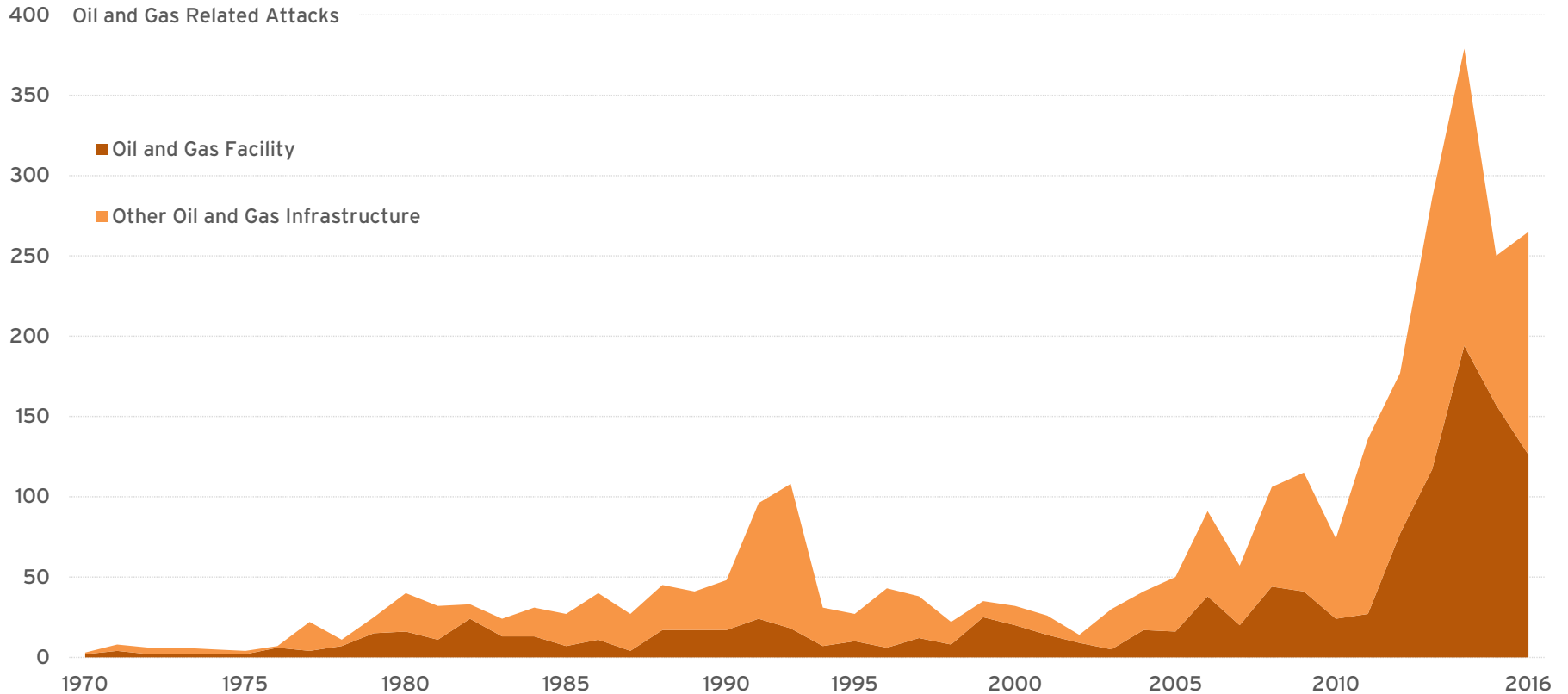


Note: Export revenues lagged one year.

Source: SAFE analysis of data from the Stockholm International Peace Research Institute and EIA.

Oil and Terrorism

Oil and gas facilities and pipeline infrastructure are high-impact targets for criminals and terrorist organizations looking to disrupt supplies. In 2014, worldwide attacks on oil and gas facilities and infrastructure peaked at 379, a number that fell to 216 last year.

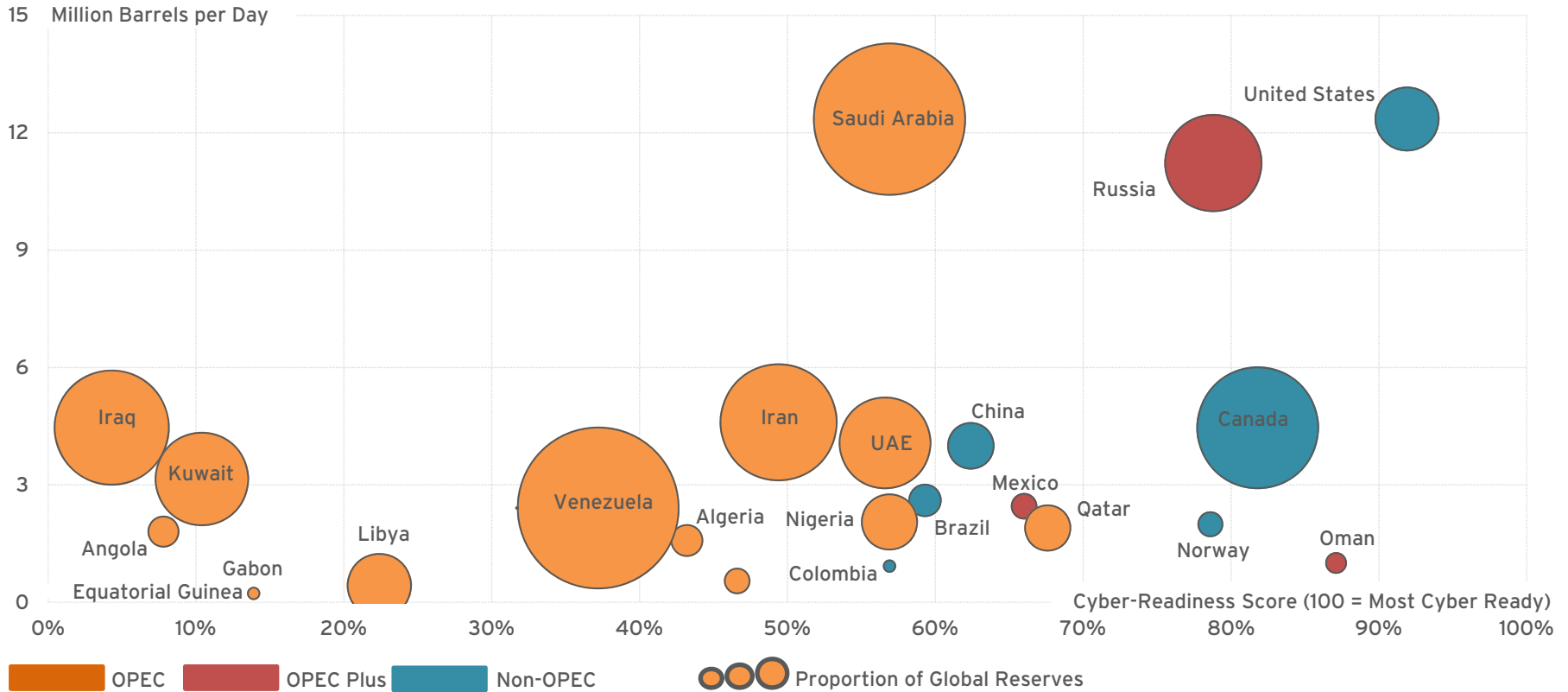


Note: Infrastructure includes oil tankers, pipelines, and anything involved in the transmission of oil and gas from one location to another.

Source: SAFE analysis based on data from the National Consortium for the Study and Responses to Terrorism

Cyber-Readiness of Oil-Producing Countries

Given the size and scale of state-controlled oil production and reserves, attacks on virtual networks and facilities can be devastating. In 2016, more than 44 mbd was produced in countries that scored below 75 percent on a United Nations cyber-readiness index.



Note: "OPEC Plus" includes the non-OPEC producers participating in OPEC's November 2016 decision to cut global production.

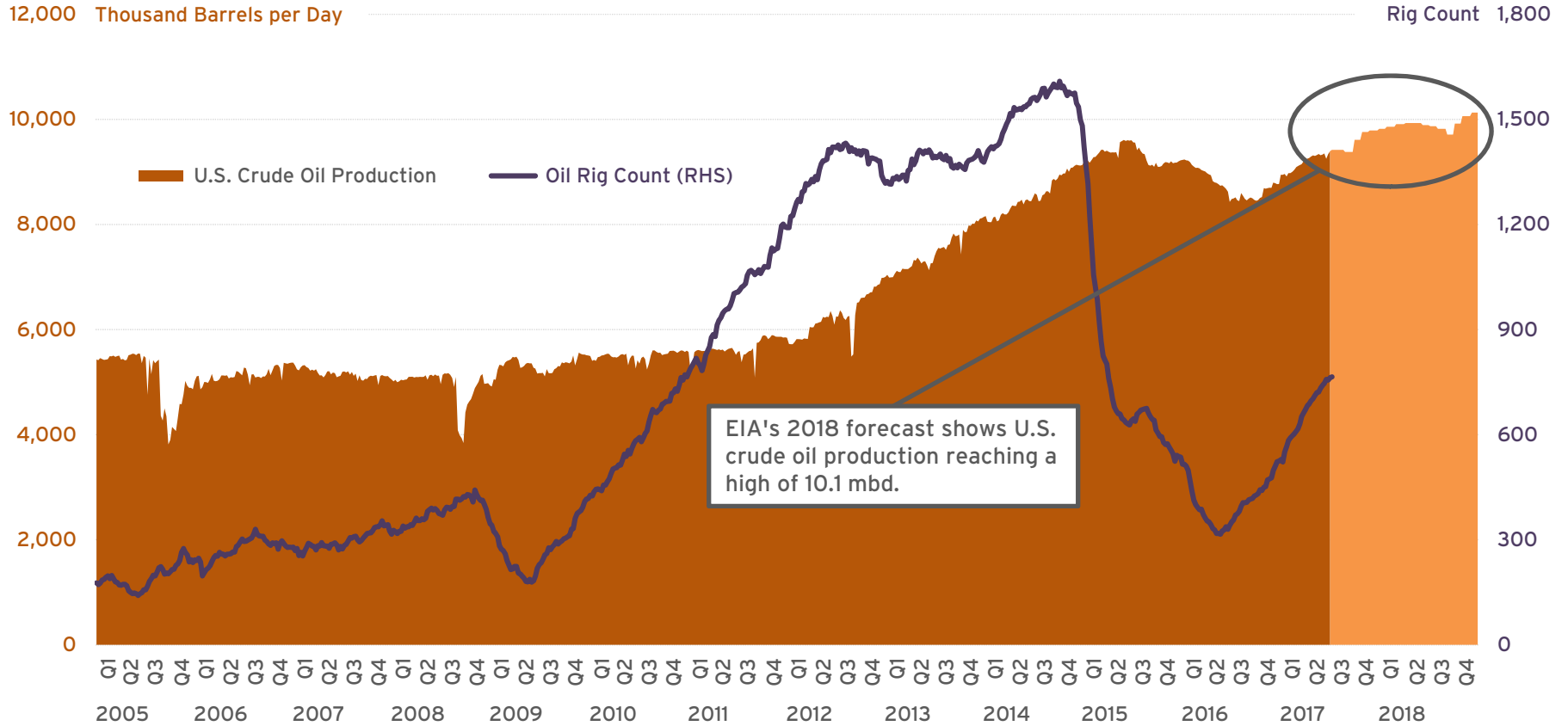
Source: SAFE analysis based on data from the International Telecommunication Union and BP, p.l.c.

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U.S. Rig Count Grows on Industry Recovery

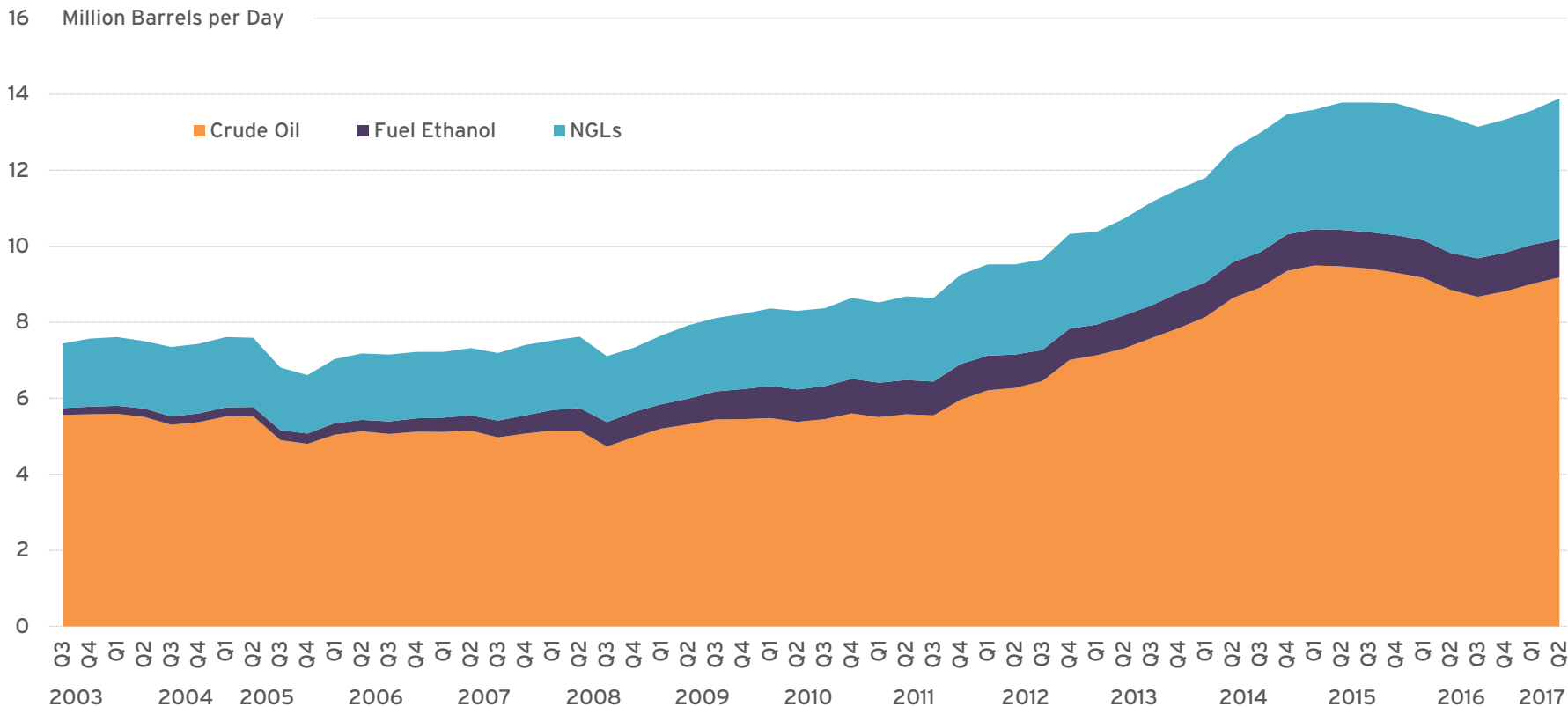
The U.S. oil rig count increased from 662 to 756 in Q2, a 14% increase quarter-over-quarter (q-o-q) after falling to its lowest point since 2009 in Q2 2016. U.S. crude oil production continued to grow, reaching 9.3 mbd (+0.1 mbd, q-o-q). EIA forecasts production to reach 10.1 mbd in Q4 2018.



Source: EIA and Baker Hughes

U.S. Oil Production Rebounds Sharply

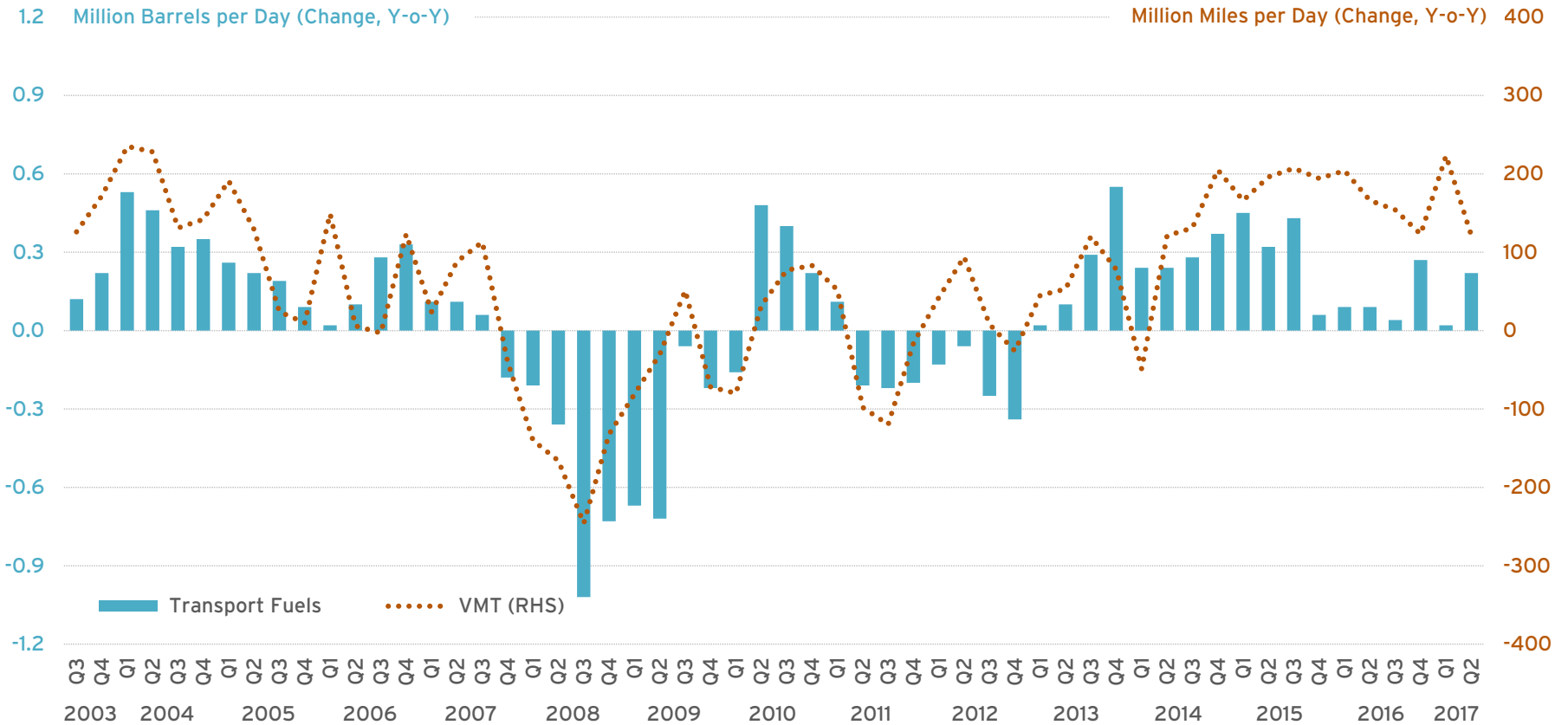
U.S. liquids production grew 0.3 mbd q-o-q in Q2 2017 (+ 0.5 mbd, y-o-y). Inclusive of fuel ethanol and natural gas liquids (NGLs), total U.S. liquids production is roughly 6.0 mbd higher than in 2008. The United States is among the world's top three largest liquid fuels producers.



Source: SAFE analysis based on data from EIA

Transportation Fuel Demand Growth Increases

U.S. demand for gasoline, diesel, and jet fuel averaged 14.9 mbd in Q2 2017, +0.2 mbd, y-o-y. Total vehicle miles traveled (VMT) increased 121 million miles y-o-y (+ 1.5%), continuing a growth trend for 13 consecutive quarters.

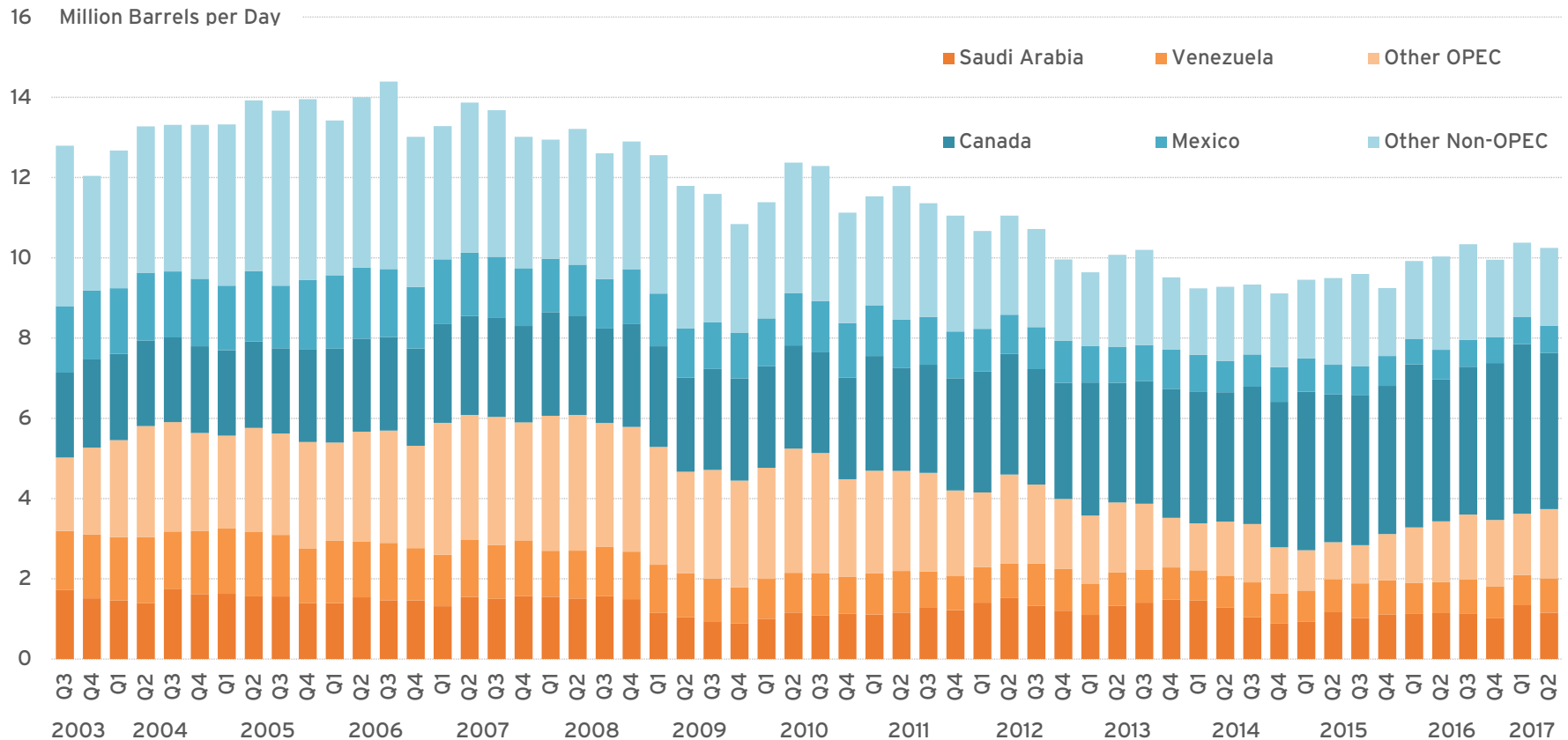


Source: SAFE analysis based on data from EIA



Imports From OPEC Grow

U.S. crude oil and petroleum product imports grew to 10.2 mbd in Q2 2017 (+0.2 mbd, y-o-y), marking 10 consecutive quarters of y-o-y increases. U.S. imports from OPEC rose to 37% of the total (approximately 3.7 mbd) with Saudi Arabia as the leading source (1.2 mbd).

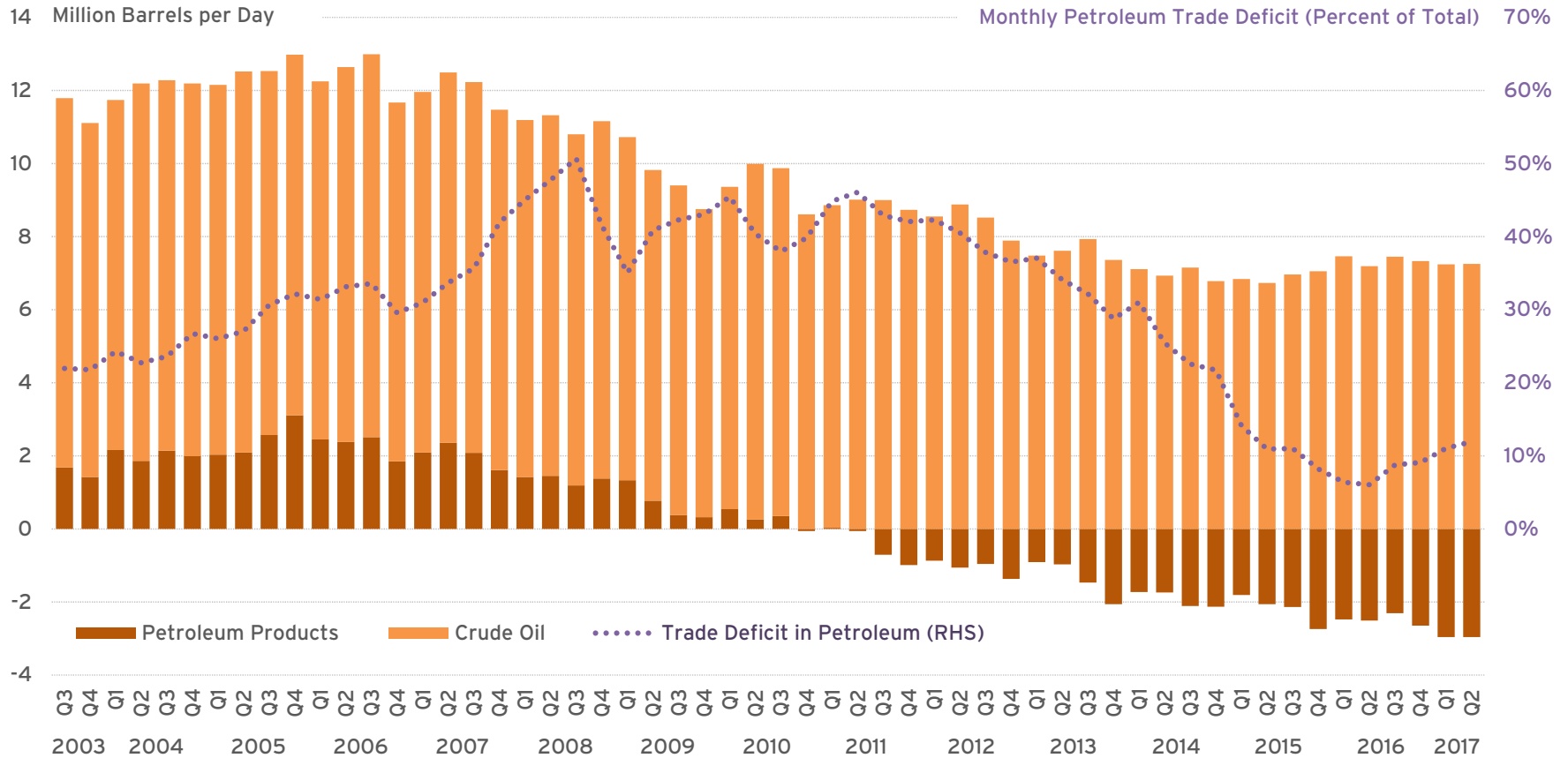


Source: SAFE analysis based on data from EIA



U.S. Petroleum Trade Deficit Doubles Y-o-Y

Although net imports have fallen by about two-thirds since Q2 2005, the U.S. continues to rely on imported crude oil. Total net petroleum imports fell to 4.3 mbd in Q2 (-0.4 mbd, y-o-y). Petroleum's share of the trade deficit doubled y-o-y to 12%.



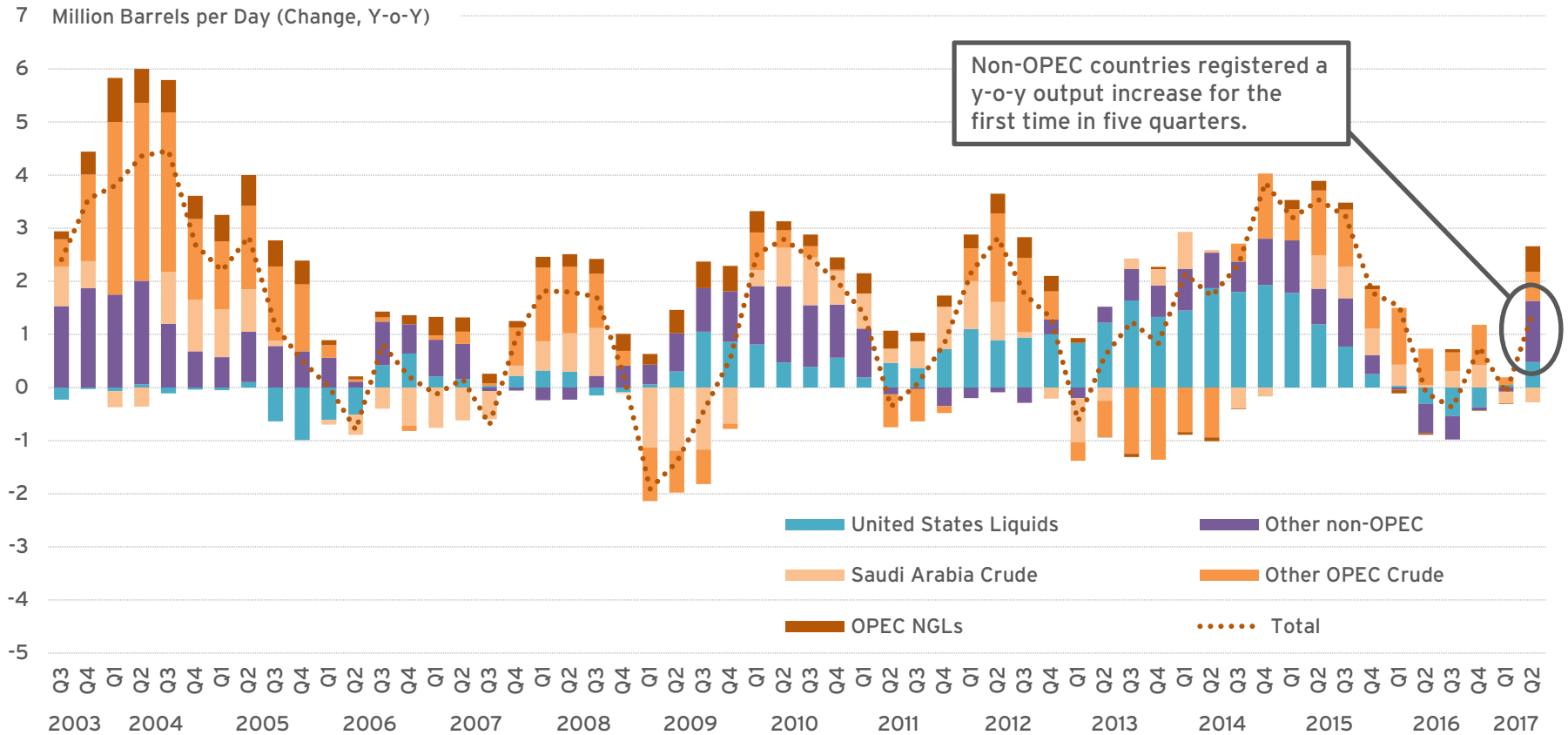
Source: SAFE analysis based on data from EIA

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Global Oil Supply Ticks Up

Global oil production increased in Q2 2017 y-o-y to 97.8 mbd as Saudi cuts were offset by resurgent production elsewhere. The United States contributed 55% of net global supply growth between 2012 and 2017.

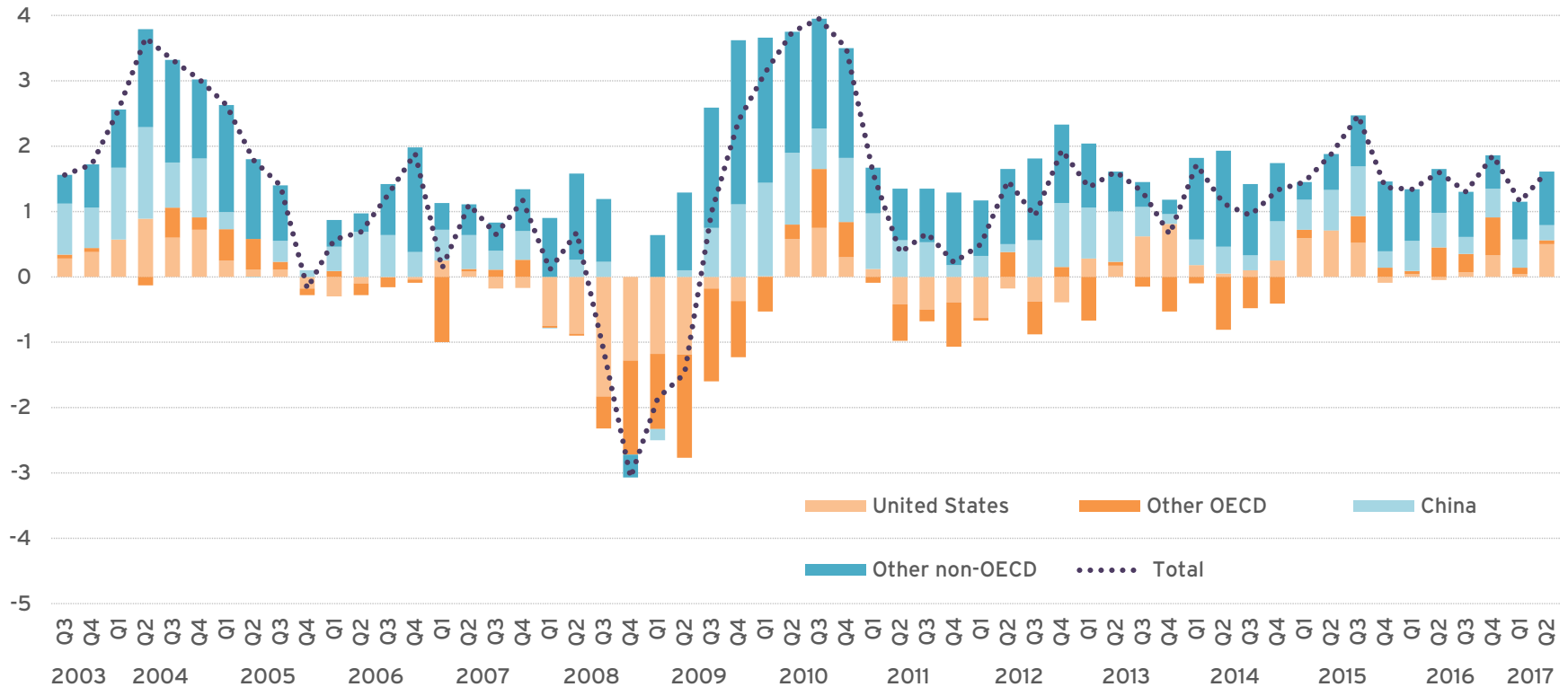


Source: SAFE analysis based on data from EIA

Global Oil Demand Growth Keeps Steady

Global oil demand grew 1.6 mbd y-o-y in Q2 2017 driven by growth in the U.S. and non-OECD countries (+1.3 mbd y-o-y). Demand in OECD countries grew in Q2 2017 to 46.6 mbd (+0.6 mbd y-o-y). Global oil demand has now reached approximately 98.0 mbd in Q2.

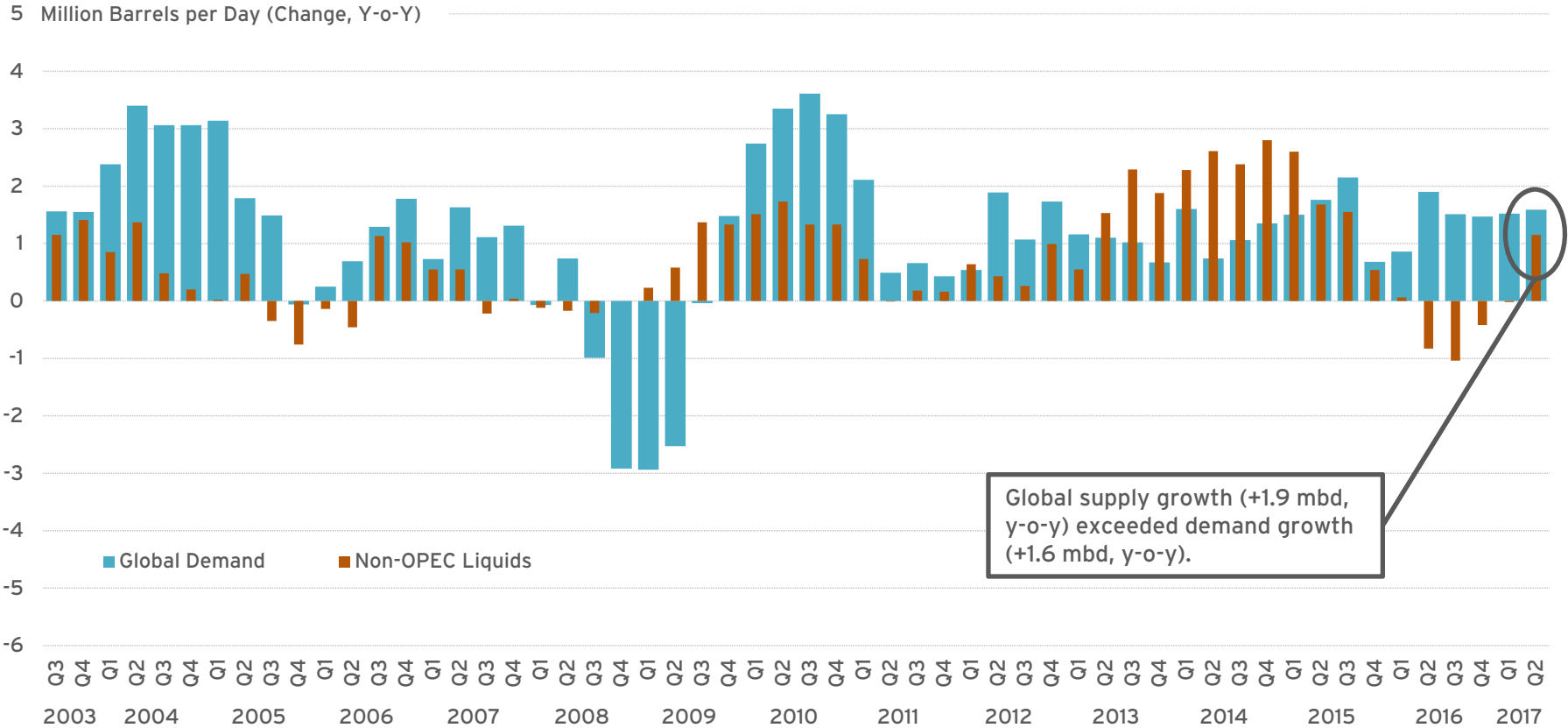
5 Million Barrels per Day (Change, Y-o-Y)



Source: SAFE analysis based on data from EIA

Non-OPEC Supply Remerges

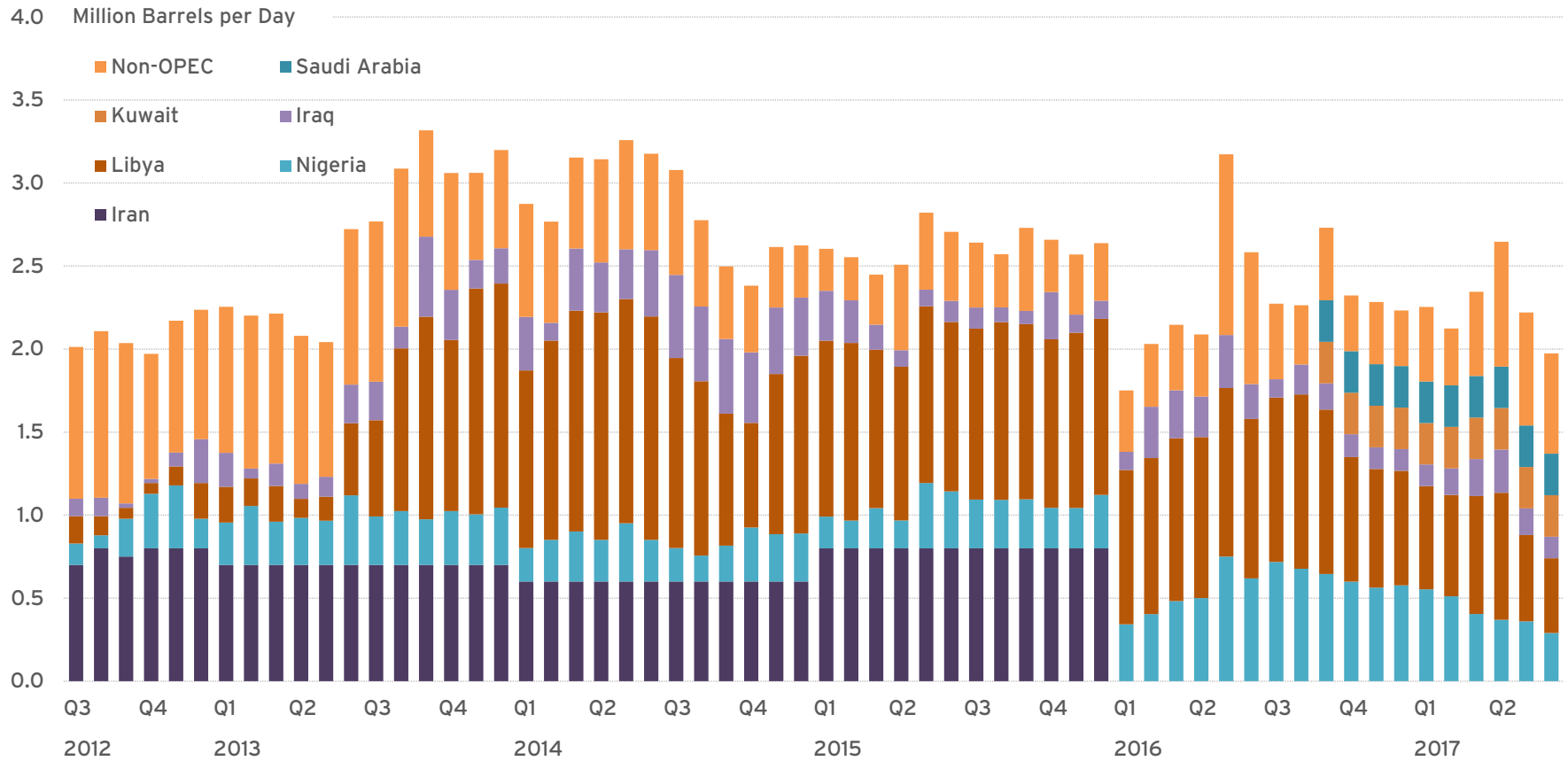
Non-OPEC supply increased for the first time after four consecutive quarters of declines (+1.3 mbd, y-o-y). Global oil demand growth outpaced non-OPEC liquids supply for eight quarters, a reversal versus Q2 2013 and Q1 2015, and a trend last seen between Q2 2012 and Q1 2013.



Source: SAFE analysis based on data from EIA

Unplanned Crude Oil Outages Steady

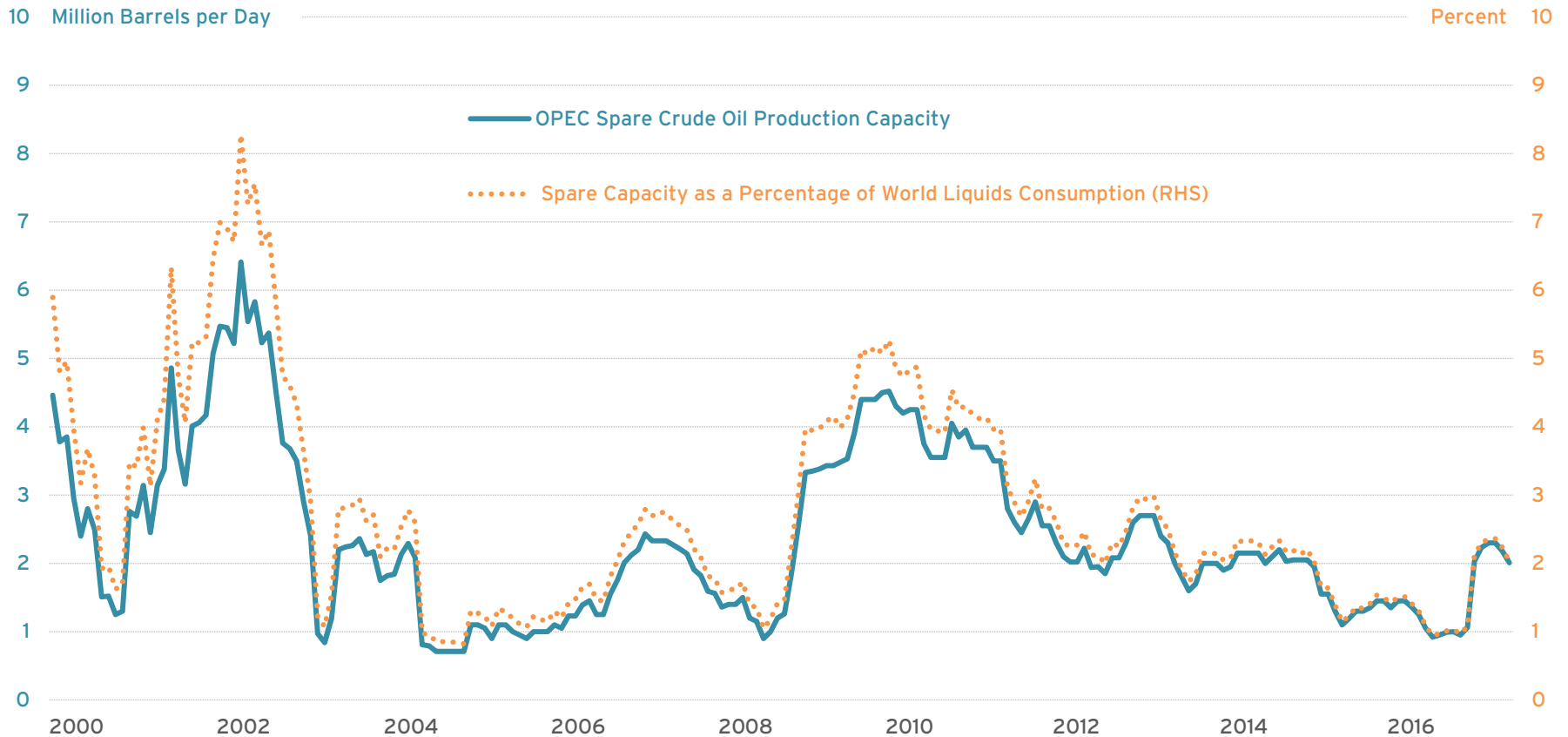
Global unplanned outages remained flat q-o-q at 2.3 mbd in Q2 2017. Ongoing political instability in Nigeria and Libya has contributed to extended disruptions. OPEC outages fell 0.2 mbd q-o-q to 1.6 mbd while non-OPEC outages increased 0.2 mbd to 0.7 mbd q-o-q.



Source: SAFE analysis based on data from EIA

OPEC Spare Crude Oil Production Capacity Rises

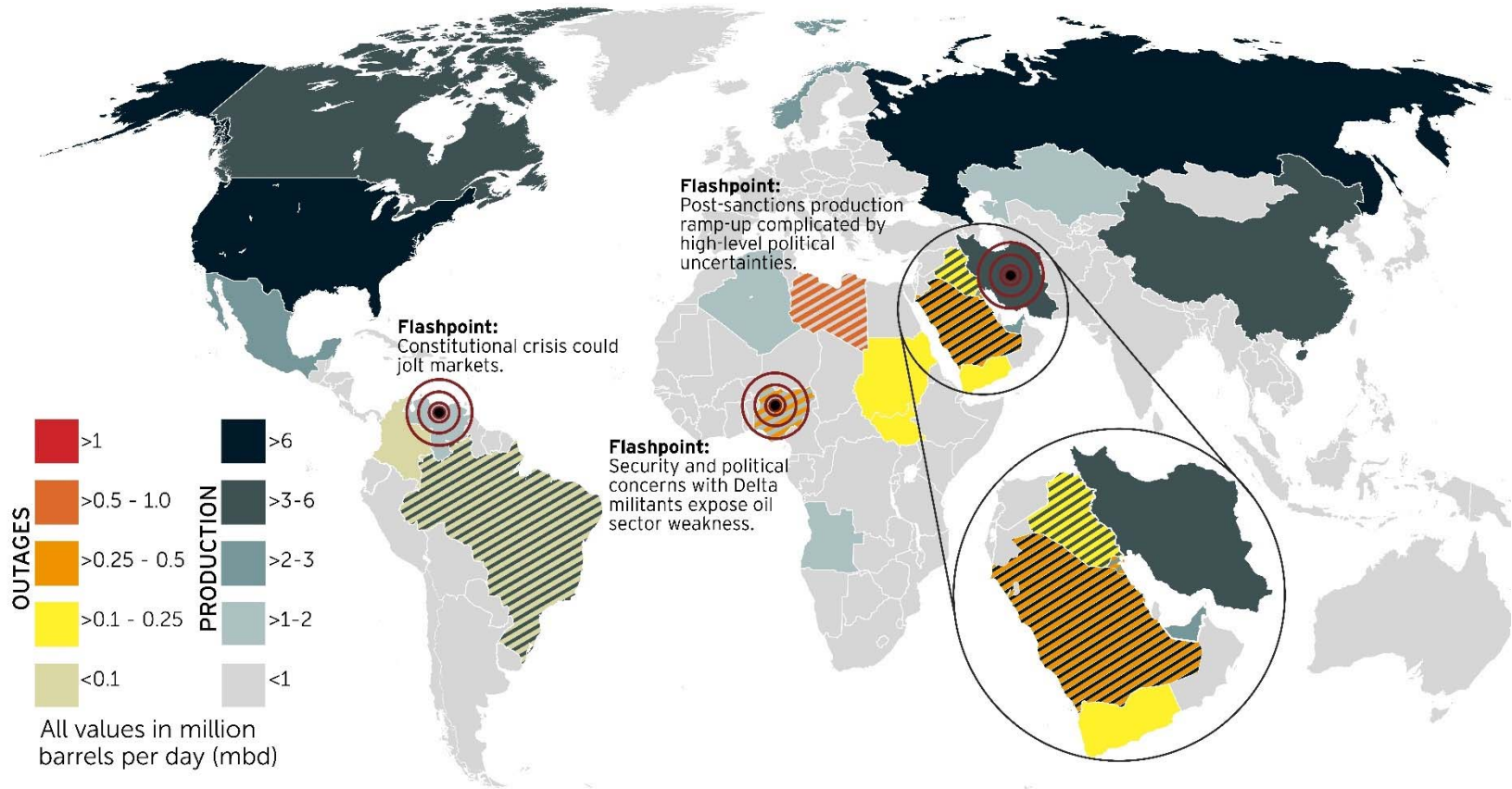
OPEC spare crude oil production capacity reached 2.2 mbd in Q2 2017 (+0.9 mbd y-o-y). This is equivalent to approximately 2% of global consumption. The majority of OPEC’s spare production capacity is held by Saudi Arabia.



Source: SAFE analysis based on data from EIA

Barrels at Risk Map

Total oil supply outages increased by 0.1 mbd to 2.3 mbd in Q2 2017. Nigeria's new policy to reconcile with militants has slightly reduced outages. Venezuela and Libya continue to face disruptions from political instability, while Iran continues to increase output.

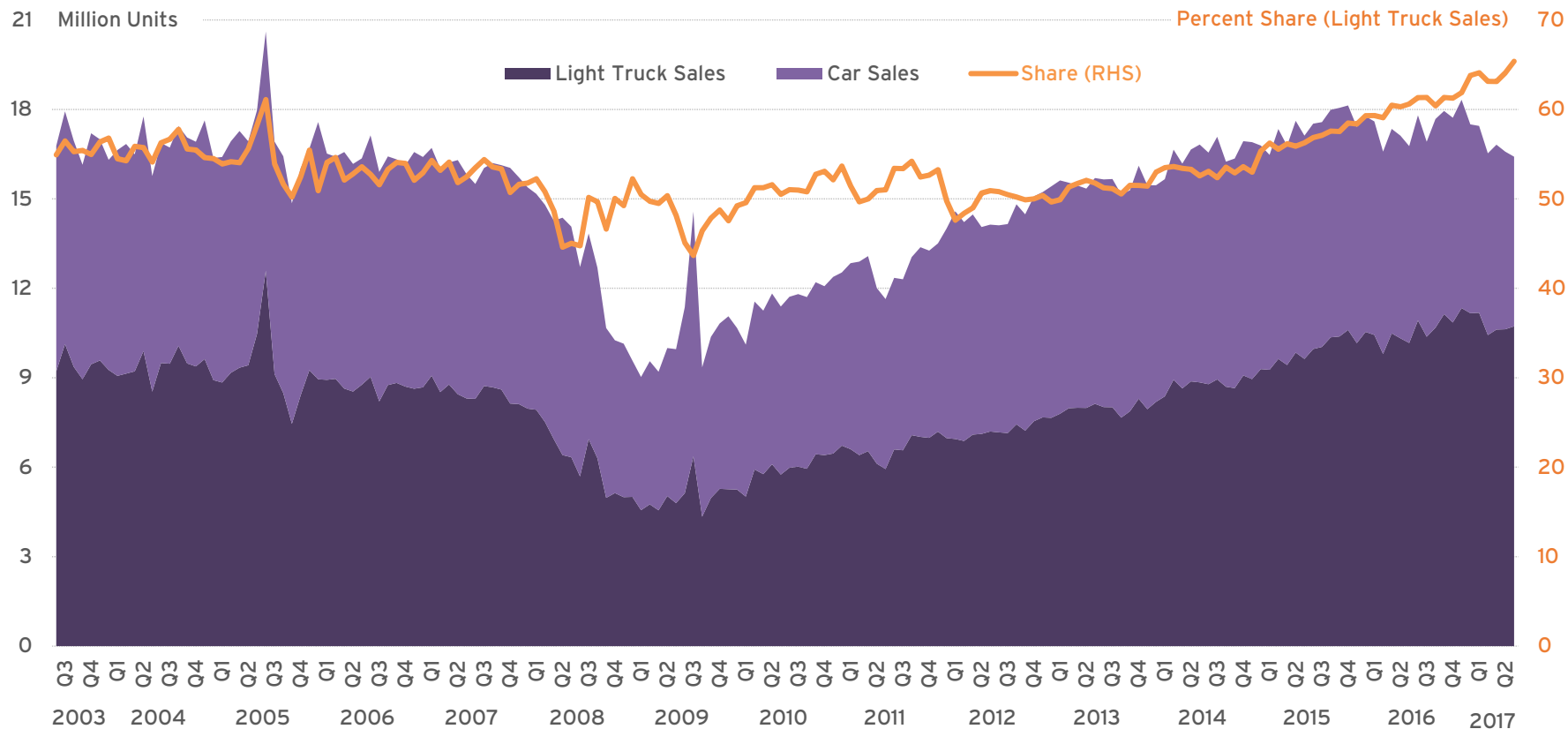


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Light Truck Sales Continue Surge

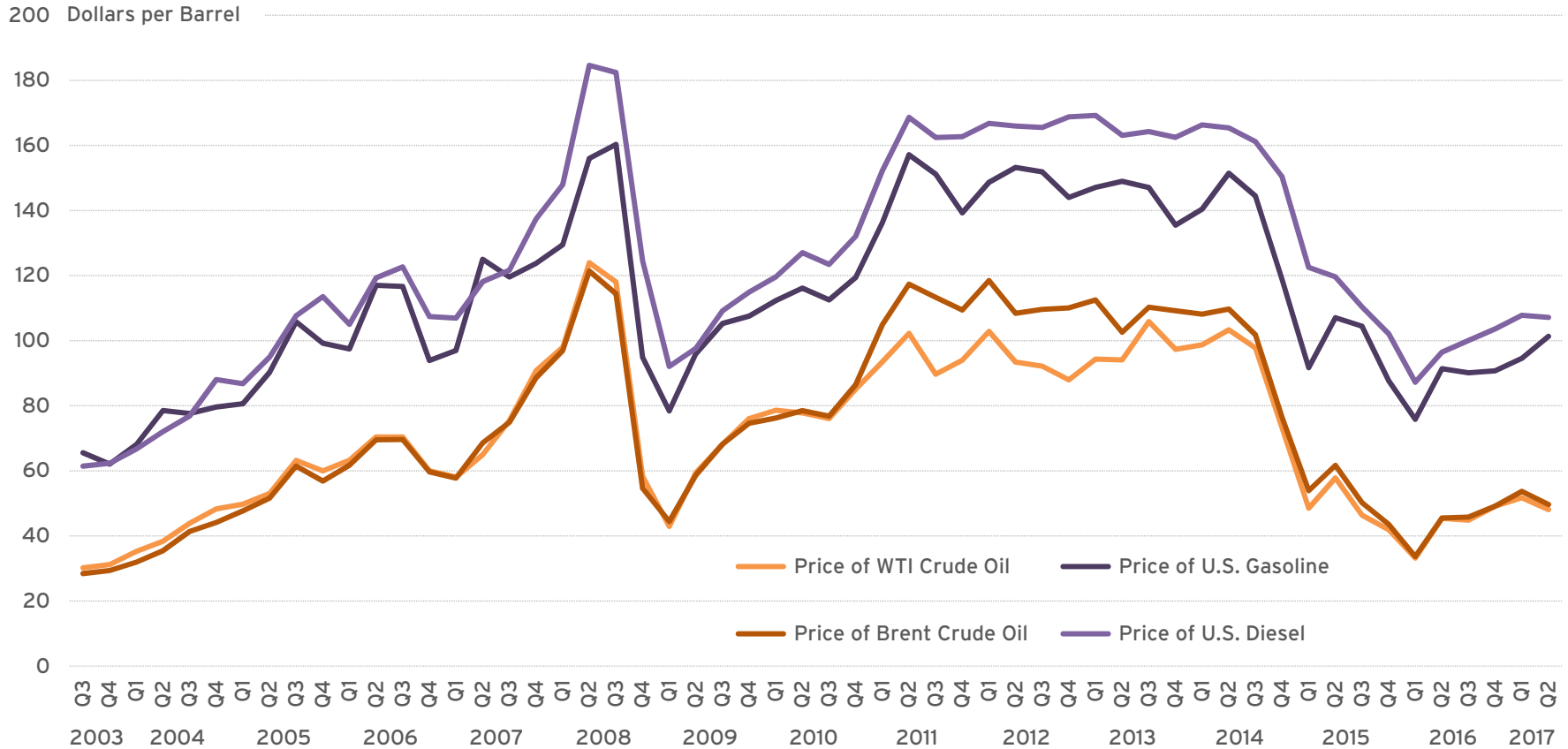
New light truck sales averaged 10.7 million units in Q2 2017, increasing by approximately 0.3 million units y-o-y. Light trucks now account for roughly 64% of light-duty vehicle sales, a 3.5 percentage point increase, y-o-y.



Source: SAFE analysis based on data from BEA

Brent and WTI Prices Remain Steady

Oil and product prices increased in April 2017 before dropping slightly in and May and June. June average Brent = \$46.37/bbl, WTI = \$45.18/bbl, U.S. gasoline = \$2.37/gal.

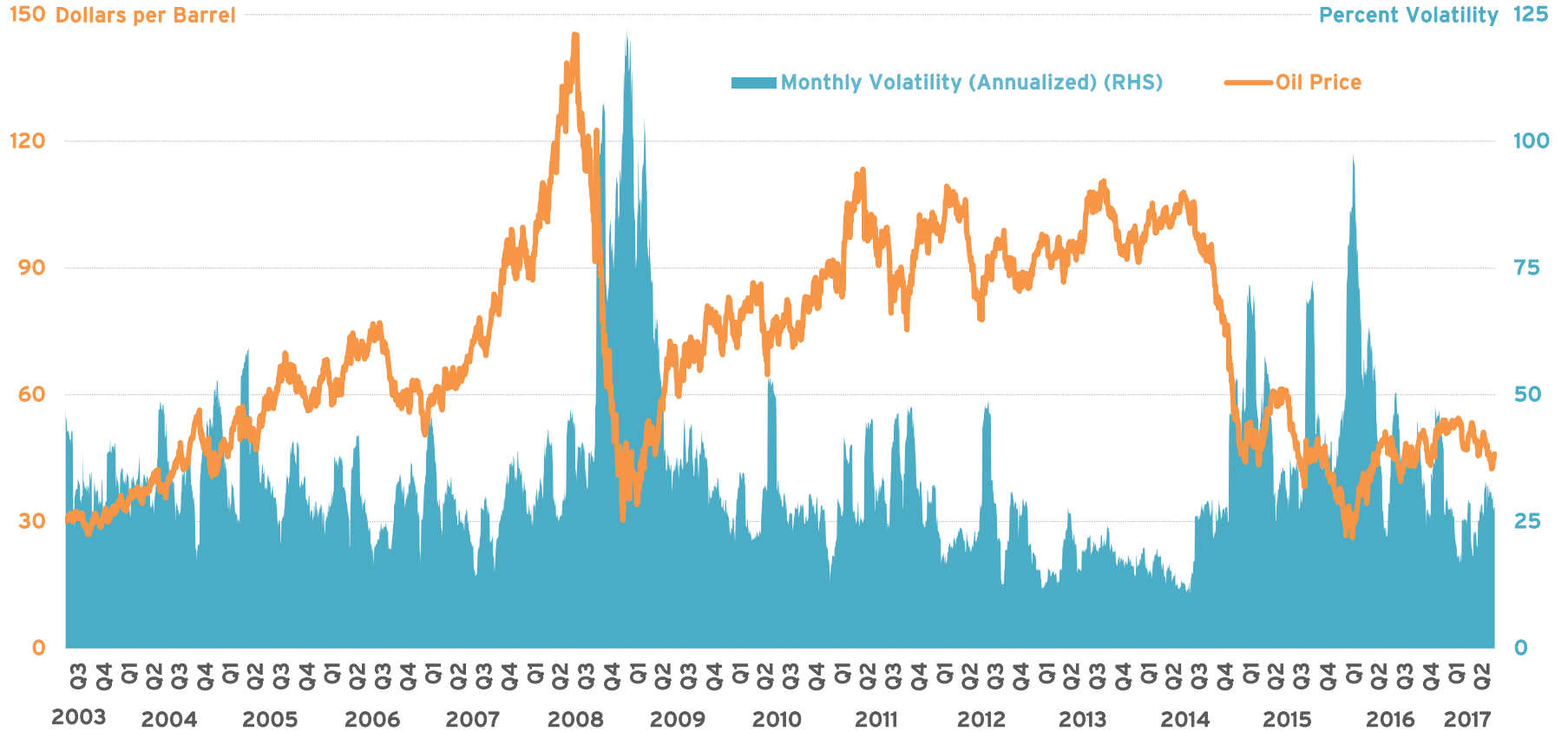


Source: SAFE analysis based on data from EIA



Oil Price Volatility Dips on Shale Recovery

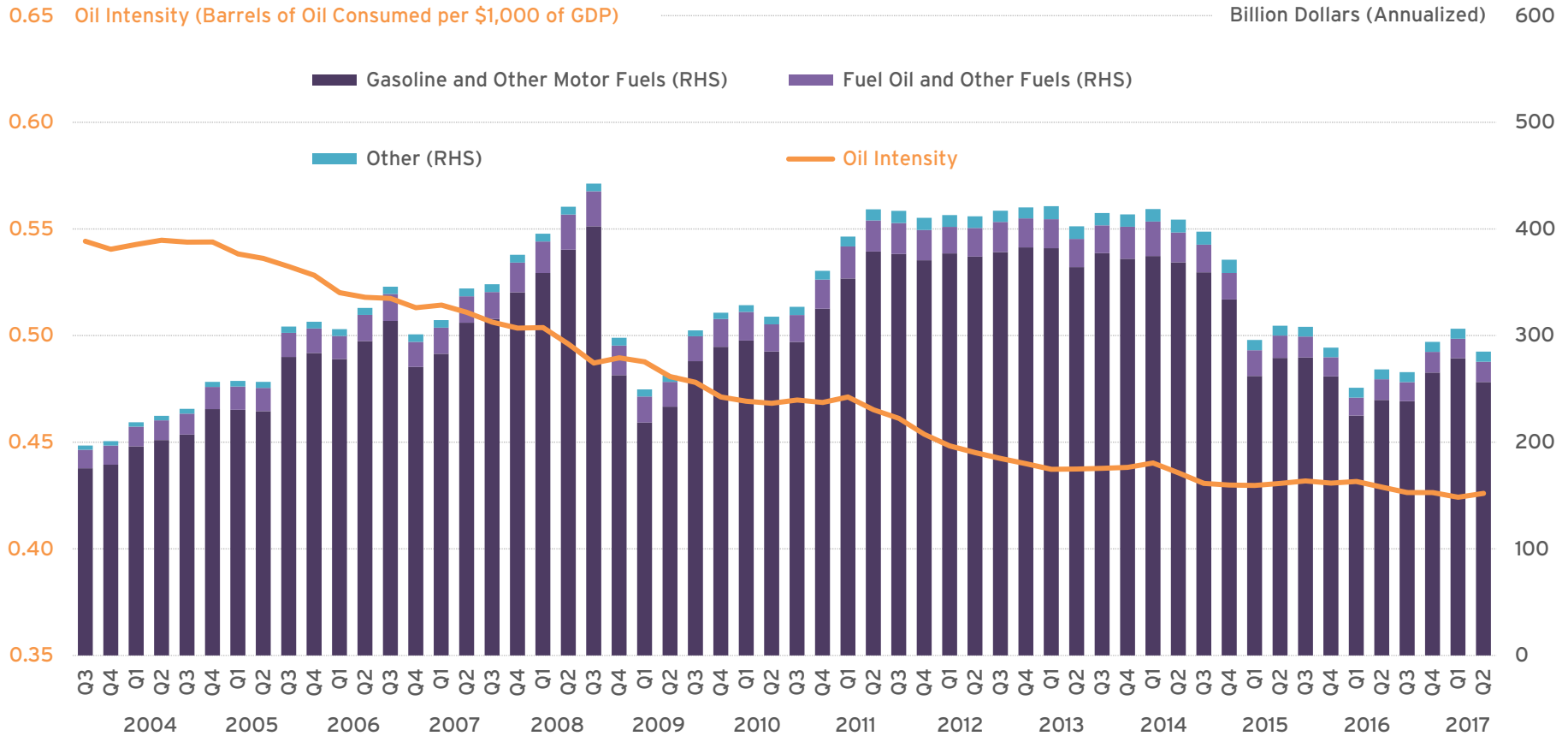
Oil price volatility averaged 42% in Q1 2017 and dropped 15 percentage points y-o-y to an average of 27% in Q2 2017. In June 2017, 30-day volatility averaged 30%, reflecting the recovery of U.S. crude oil production.



Source: SAFE analysis based on data from EIA

Oil Intensity Flat As Household Expenditures Increase

U.S. household spending on petroleum fuels increased approximately \$17 billion y-o-y to \$285 billion in Q2 2017, reflective of the increase in retail gasoline prices. The oil intensity of the economy has remained steady at 0.43 barrels per \$1,000 of GDP.



Source: SAFE analysis based on data from EIA and BEA

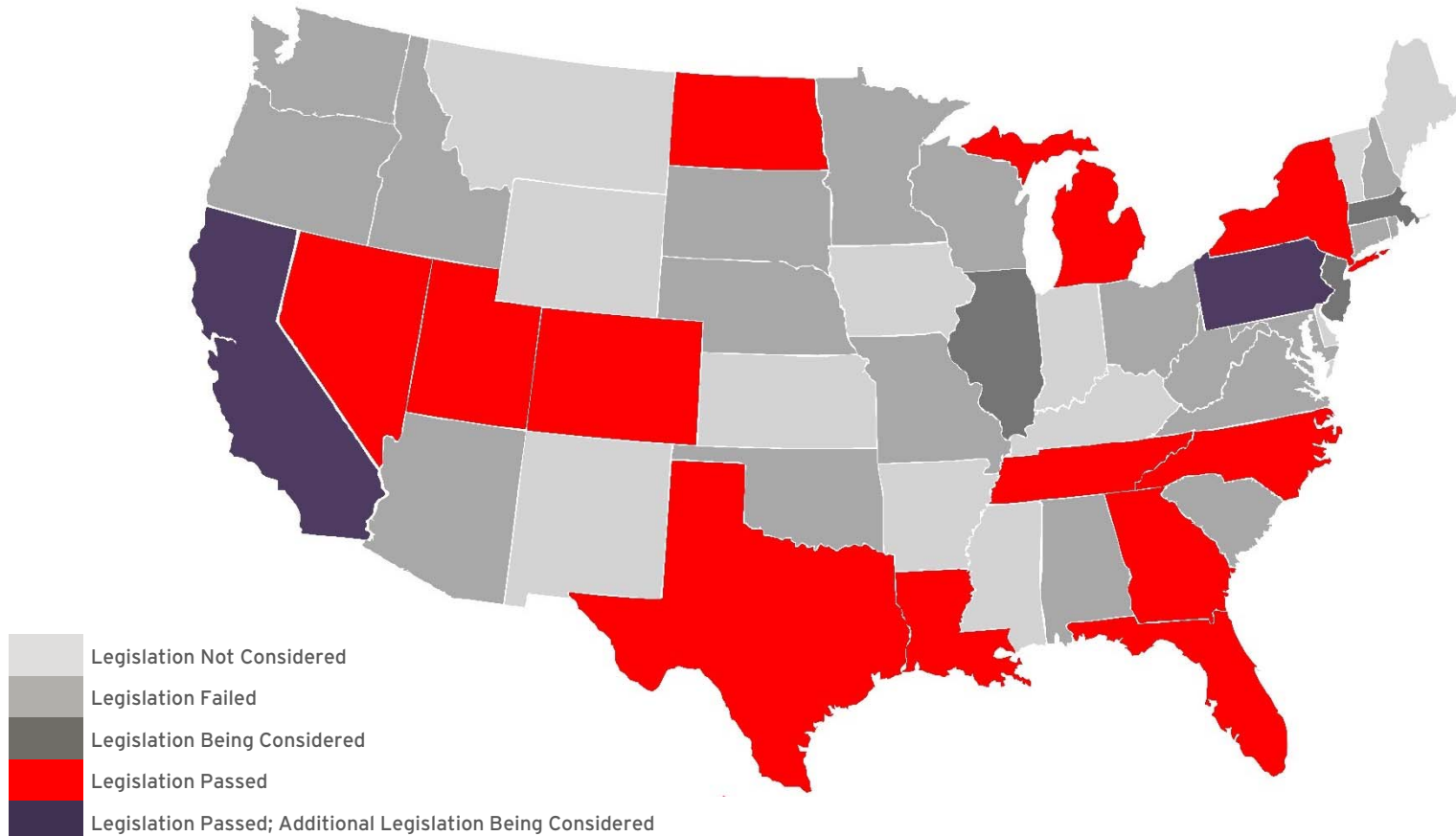


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Patchwork of AV Legislation

Thirty-seven states have considered legislation regulating autonomous vehicle (AV) technologies, of which 14 states have passed such measures. In the absence of a uniform federal framework, a jumble of state legislation impedes AV testing and deployment.

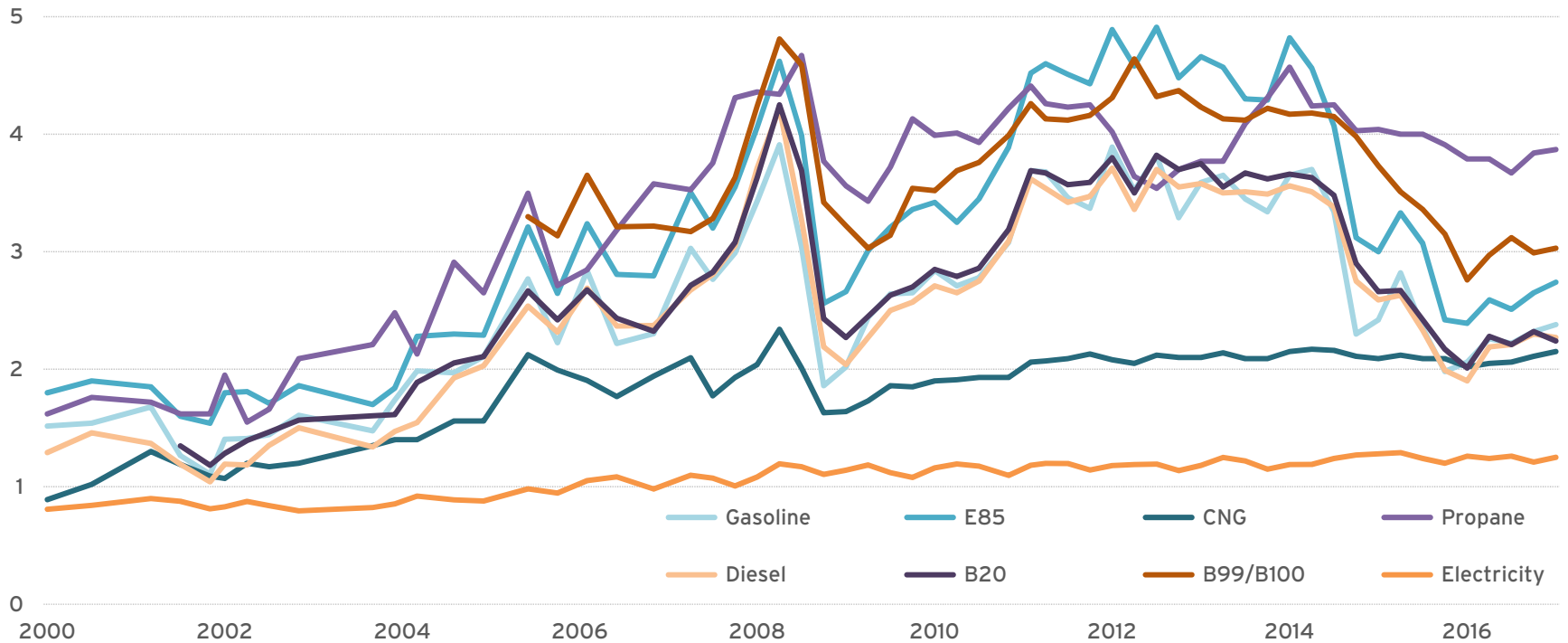


Source: SAFE analysis based on data from The Center for Internet and Society at Stanford Law School.

Electricity and Natural Gas Prices Remain Stable

Although currently at relatively low levels, liquid fuel prices have experienced substantial volatility since 2000. The prices of compressed natural gas (CNG) and electricity have remained relatively stable during the same time period.

6 Dollars per Gasoline Gallon Equivalent

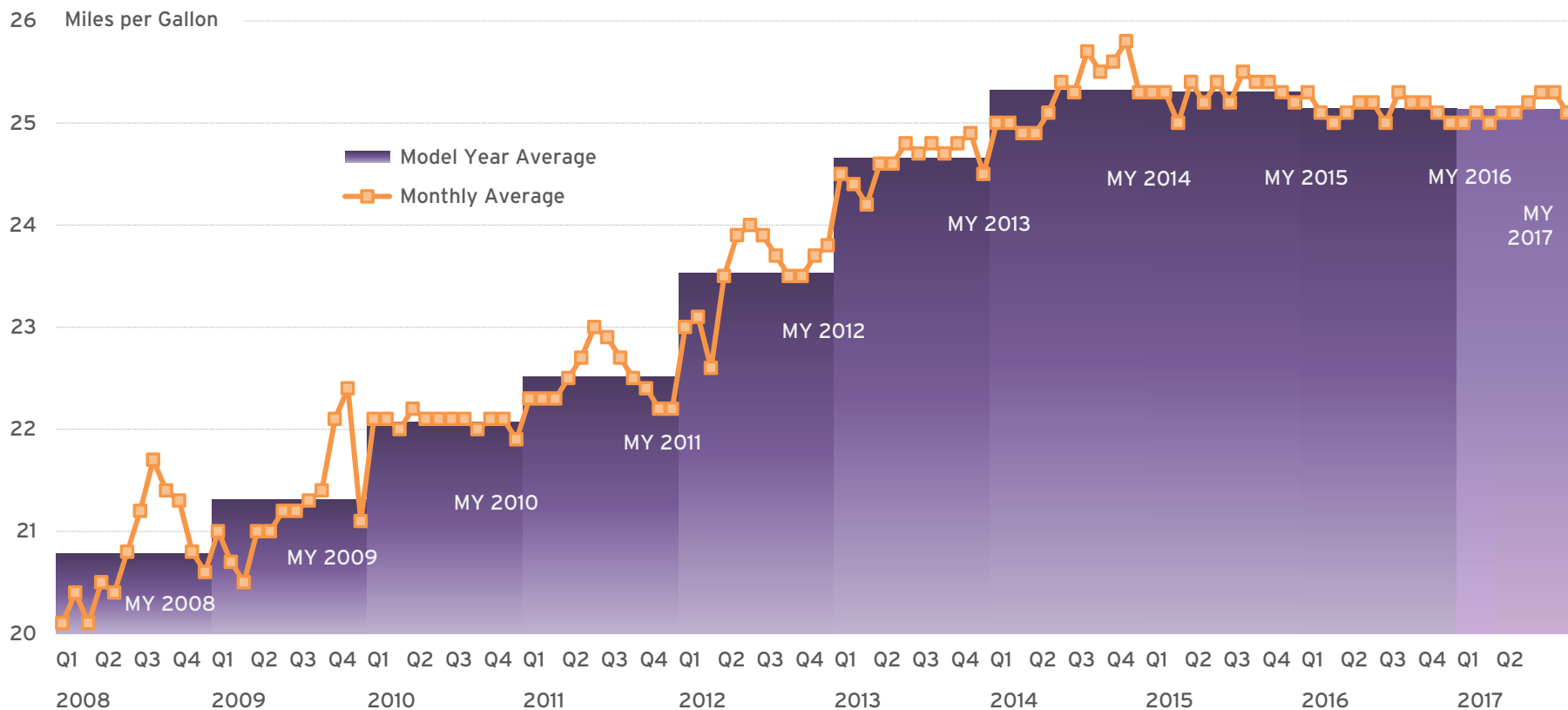


Source: SAFE analysis based on data from Clean Cities Alternative Fuel Price Reports



New Light-Duty Vehicle Fuel Economy Ratings Stable

The average fuel economy rating of new light duty vehicles registered no change y-o-y in Q2 2017, and stands at 25.2 mpg, continuing a two-year trend. MY 2017 fuel economy is 25.1 mpg, approximately 12% higher than 2010 levels.



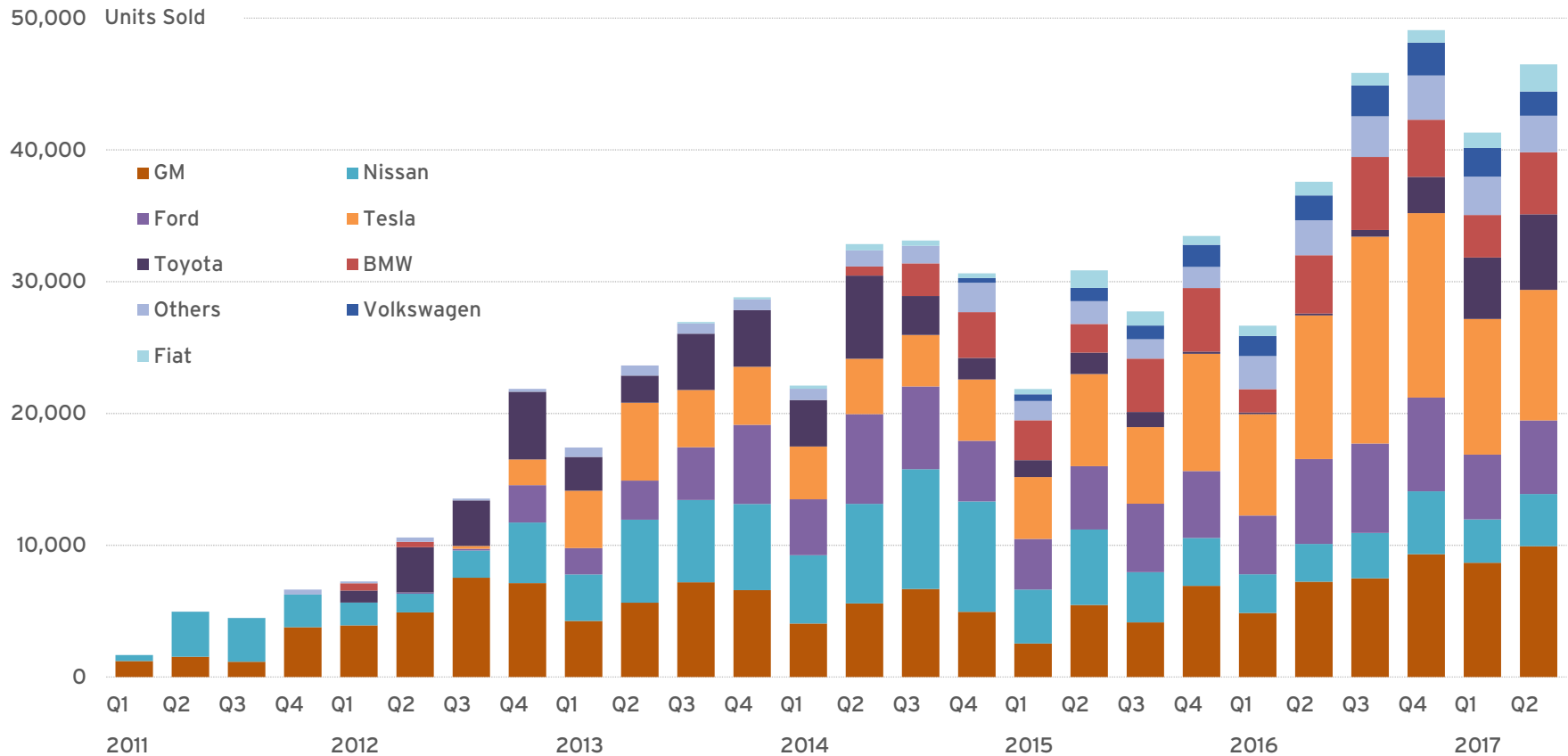
Note: Average sales-weighted fuel-economy rating of purchased new light-duty vehicles.

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



Plug-in Electric Vehicle Sales Remain on Upward Trend

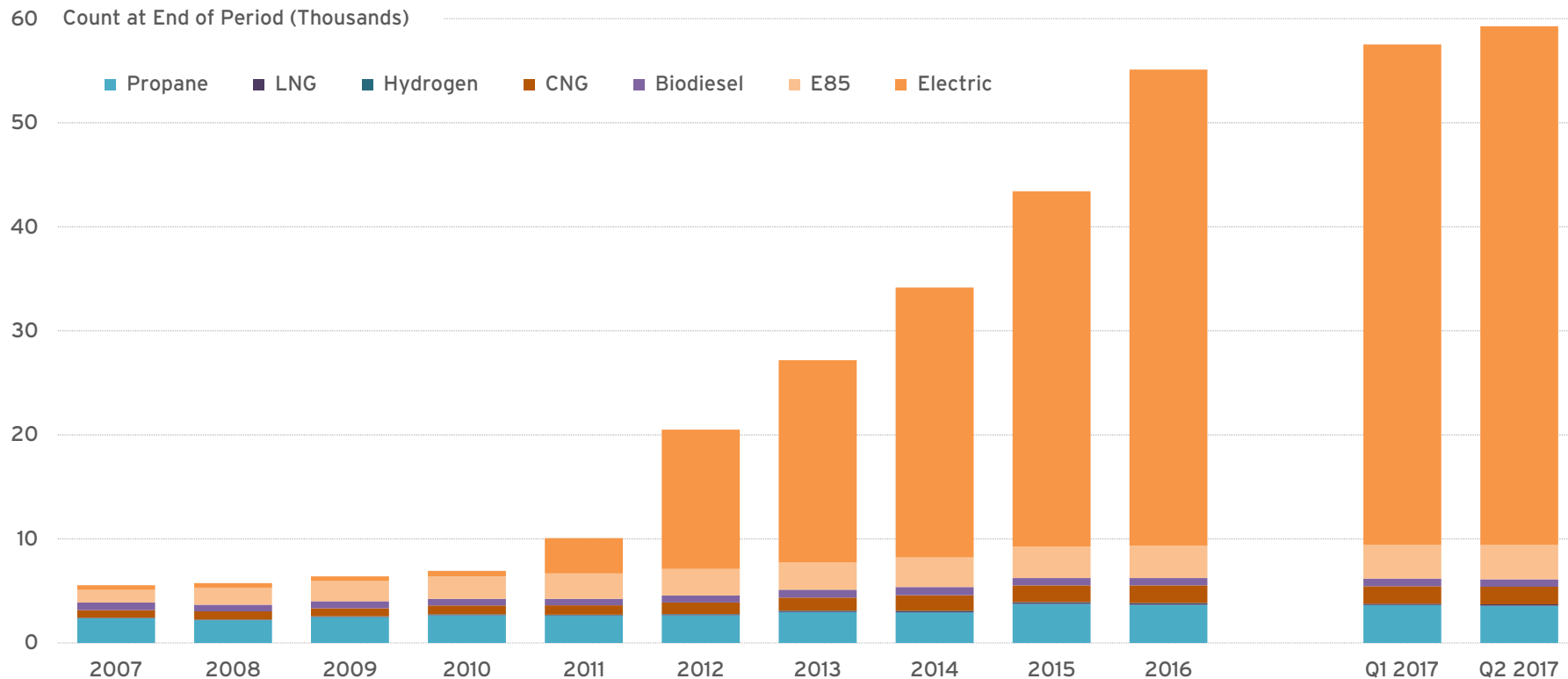
Over 46,000 plug-in electric vehicles were sold in Q2 (+24% y-o-y), the second-best quarter on record. Popular models included Tesla’s Model S and Model X, Toyota’s Prius, and Chevrolet’s Volt. The six best-selling vehicles accounted for approximately 63% of total sales.



Source: SAFE analysis based on data from HybridCars.com

Advanced Fueling Stations Continue to Climb

The number of advanced fueling stations nationwide increased 118% between 2013 and 2017, a net addition of approximately 31,200 stations. The vast majority of these new additions (95%) 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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