

Precios del Petróleo, la OPEP y los Mercados

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Key Themes in the Global Energy Markets

- As **US shale production** and investment continues to grow, **OPEC cuts** are unlikely to meet objectives until year-end 2018. Short-term demand has rebounded, contributing to an increasingly less oversupplied crude and product market.
- Global bunker spec change to **0.5% S in 2020** is a game changer
- **Long-term demand** growth is expected to continue to increase, driven in by petrochemical demand. **Electric vehicle growth** poses some risk to demand, but penetration is expected to be gradual.
- The US is the **primary source of incremental supply**. Continued shale growth in the long-term is needed to continue to meet global demand, but any downside risk to US supply could buoy global prices.

Short-term outlook: OPEC, US Shale, and Gasoline

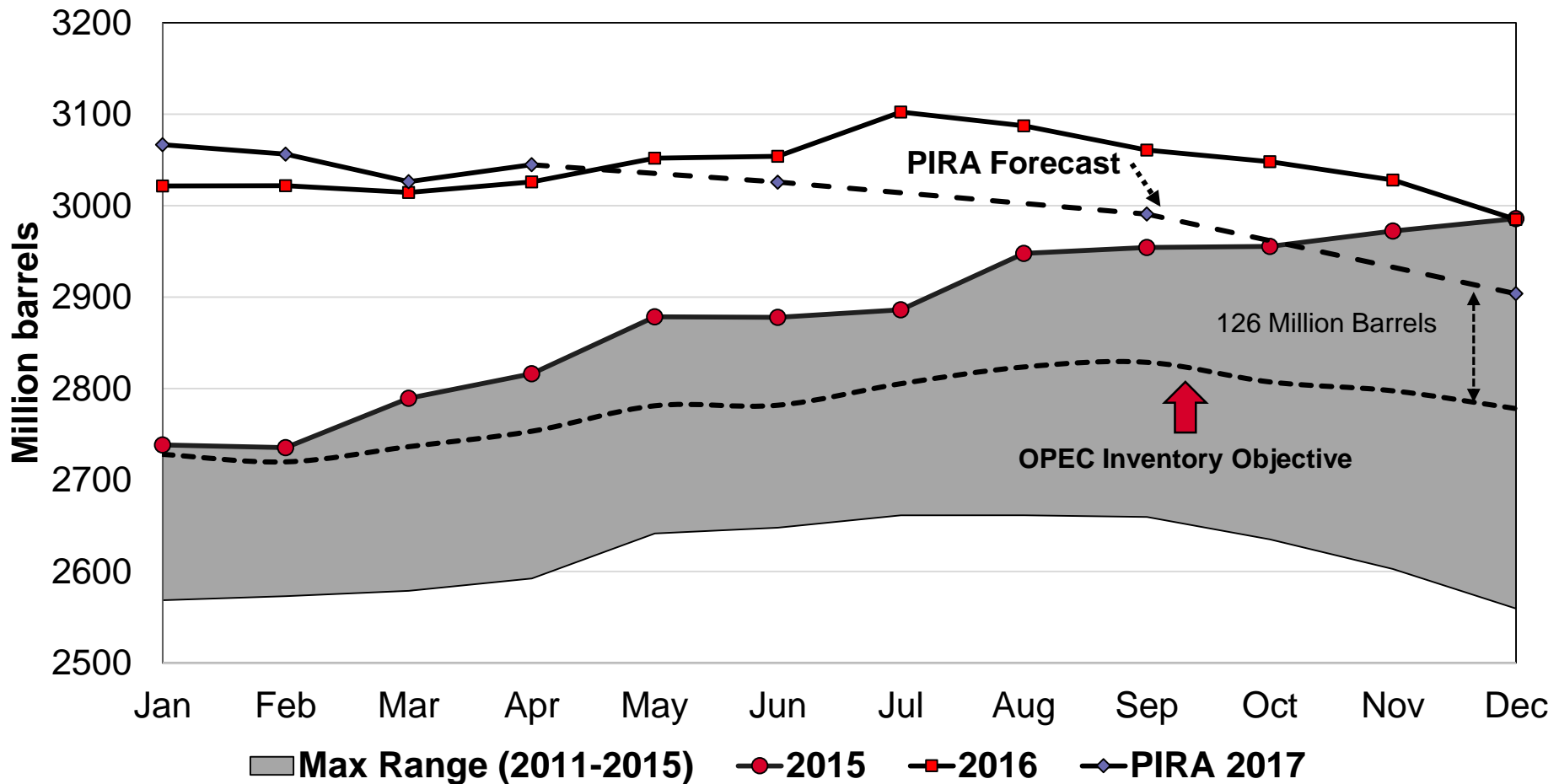
What are OPEC's Objectives?

- Reduce Inventory- stocks below five year average requires 300 million barrel stock decline in first half 2017
- Higher Prices- Objective \$60/Bbl Brent

Renew OPEC/Non-OPEC cuts after 6 months?

OPEC inventory objectives not expected to be met until 2018 due to persistent oversupply

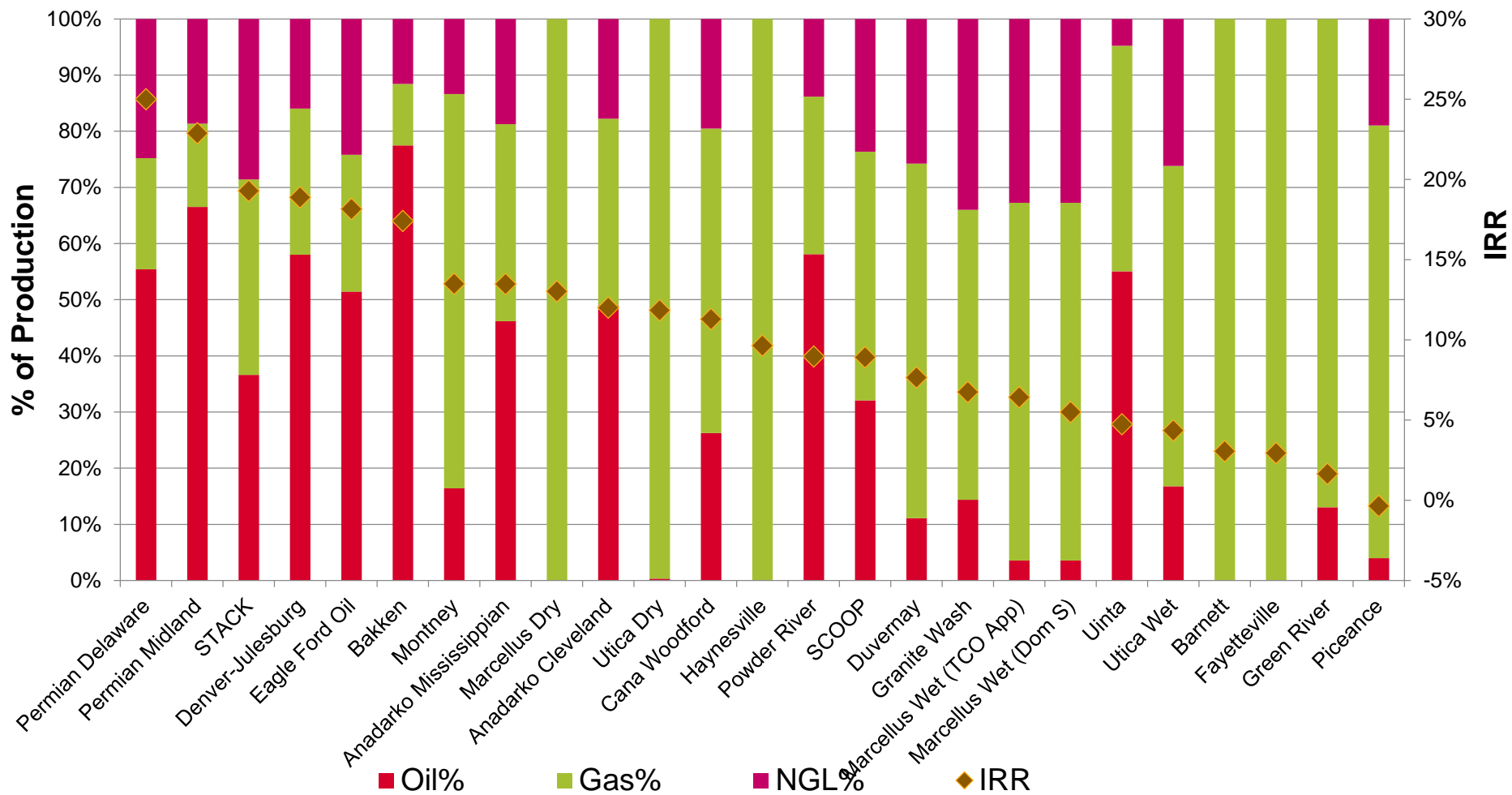
Total OECD Stocks and Forecast



OPEC Country Crude Production MMB/D

	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>17 v 16</u>	<u>18 v 17</u>
Algeria	1.10	1.06	1.05	-0.04	-0.01
Angola	1.74	1.67	1.76	-0.07	0.09
Ecuador	0.55	0.53	0.53	-0.02	0.00
Gabon	0.19	0.18	0.17	-0.01	-0.01
Indonesia	0.73	0.72	0.69	-0.01	-0.03
Iran	3.44	3.68	3.80	0.24	0.13
Iraq	4.44	4.54	4.67	0.10	0.14
Kuwait	2.95	2.89	2.90	-0.07	0.01
Libya	0.38	0.73	0.70	0.35	-0.03
Nigeria	1.74	1.91	2.05	0.17	0.14
Qatar	0.63	0.61	0.64	-0.02	0.03
Saudi Arabia	10.31	10.07	10.06	-0.24	-0.01
UAE	2.90	2.88	2.90	-0.02	0.02
<u>Venezuela</u>	<u>2.13</u>	<u>1.94</u>	<u>1.83</u>	<u>-0.19</u>	<u>-0.11</u>
Total OPEC	33.24	33.40	33.76	0.17	0.36

IRR and production mix



July 2017 Price Assumptions:

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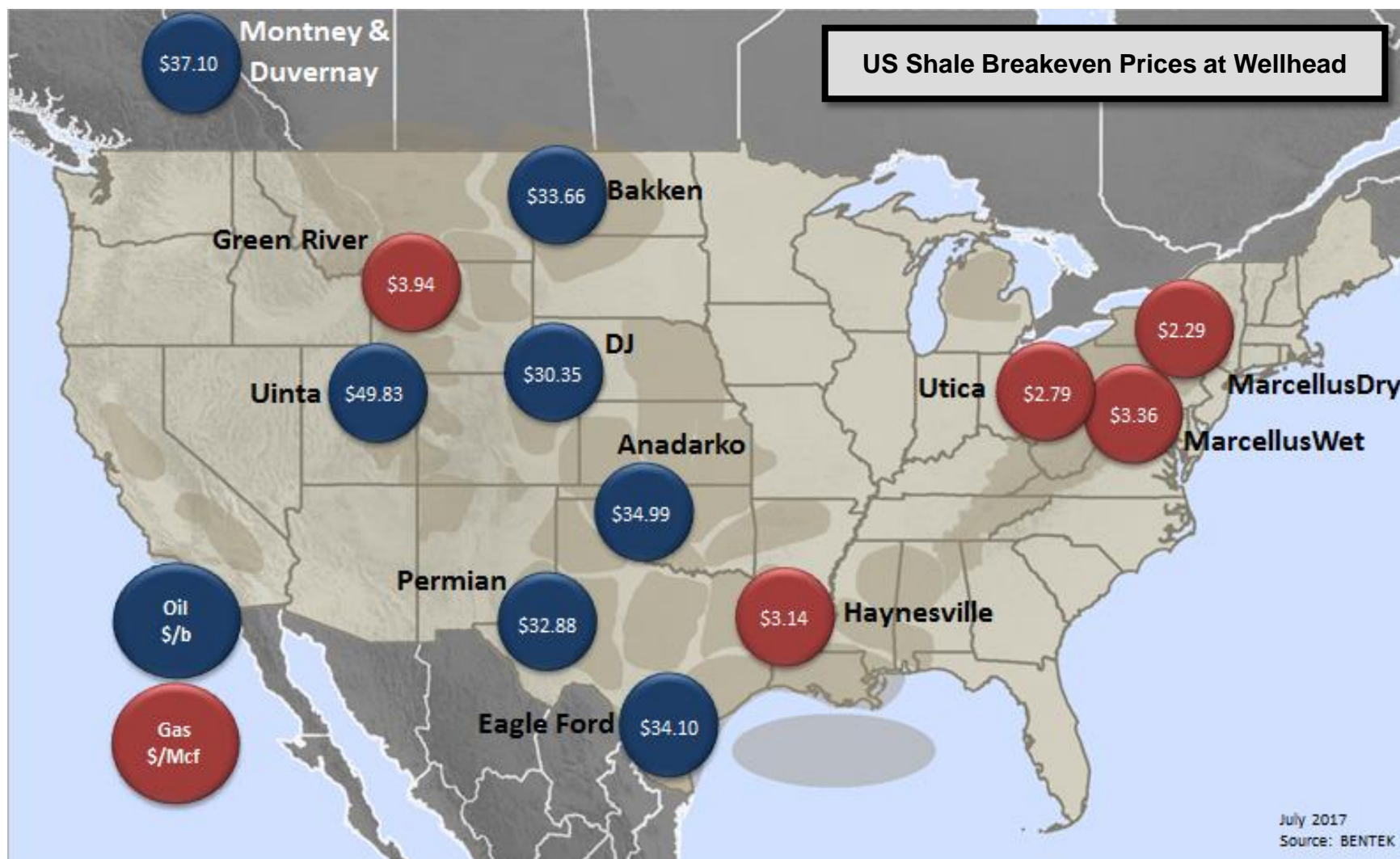
prices (range \$21.42 - \$25.51/barrel)

Gas=12 month forward average curve for each regional pricing point (range \$2.01 - \$3.11/Mcf)

Oil=12 month forward average WTI +/- differential (range \$37.55 -

NGLs=weighted average \$/barrel, 12-mo forward average Mt. Belvieu

US shale production continues to grow on low breakeven levels for new wells



US rig activity, spare capacity increasing, US producers invest billions despite low prices

Exxon Mobil doubles its oil and gas holdings in the Permian basin for \$5.6 billion

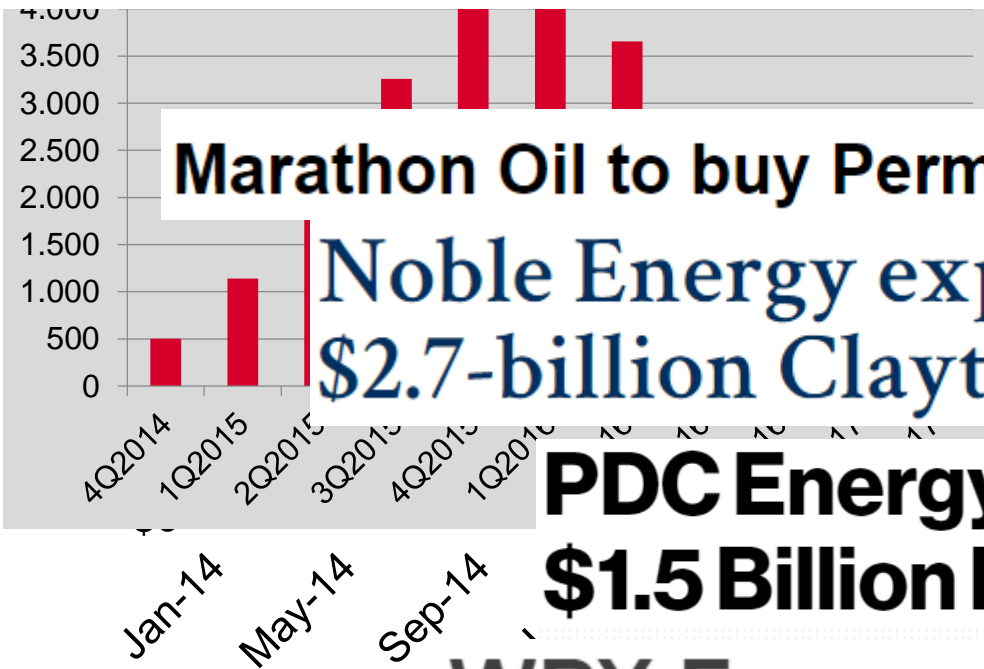
ve Rig Count
 SP Permian Announces
 \$2.4 Billion Acquisition of
 Silver Hill Energy Partners

Marathon Oil to buy Permian acreage for \$1.1 billion

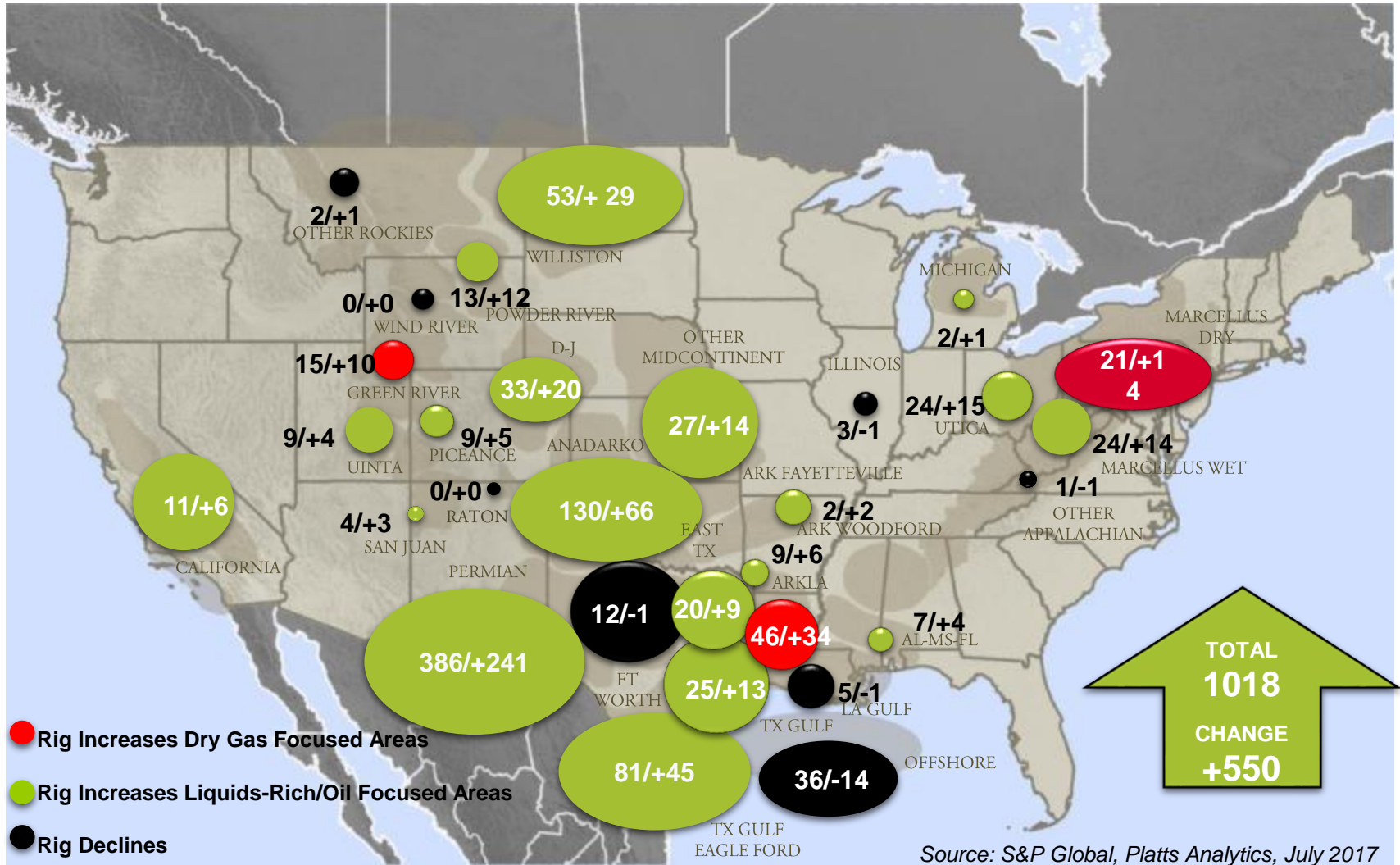
Noble Energy expands in Permian with \$2.7-billion Clayton Williams buy

PDC Energy Surges on the Heels of \$1.5 Billion Permian Buy

WPX Energy buys assets for \$775 million in Delaware basin

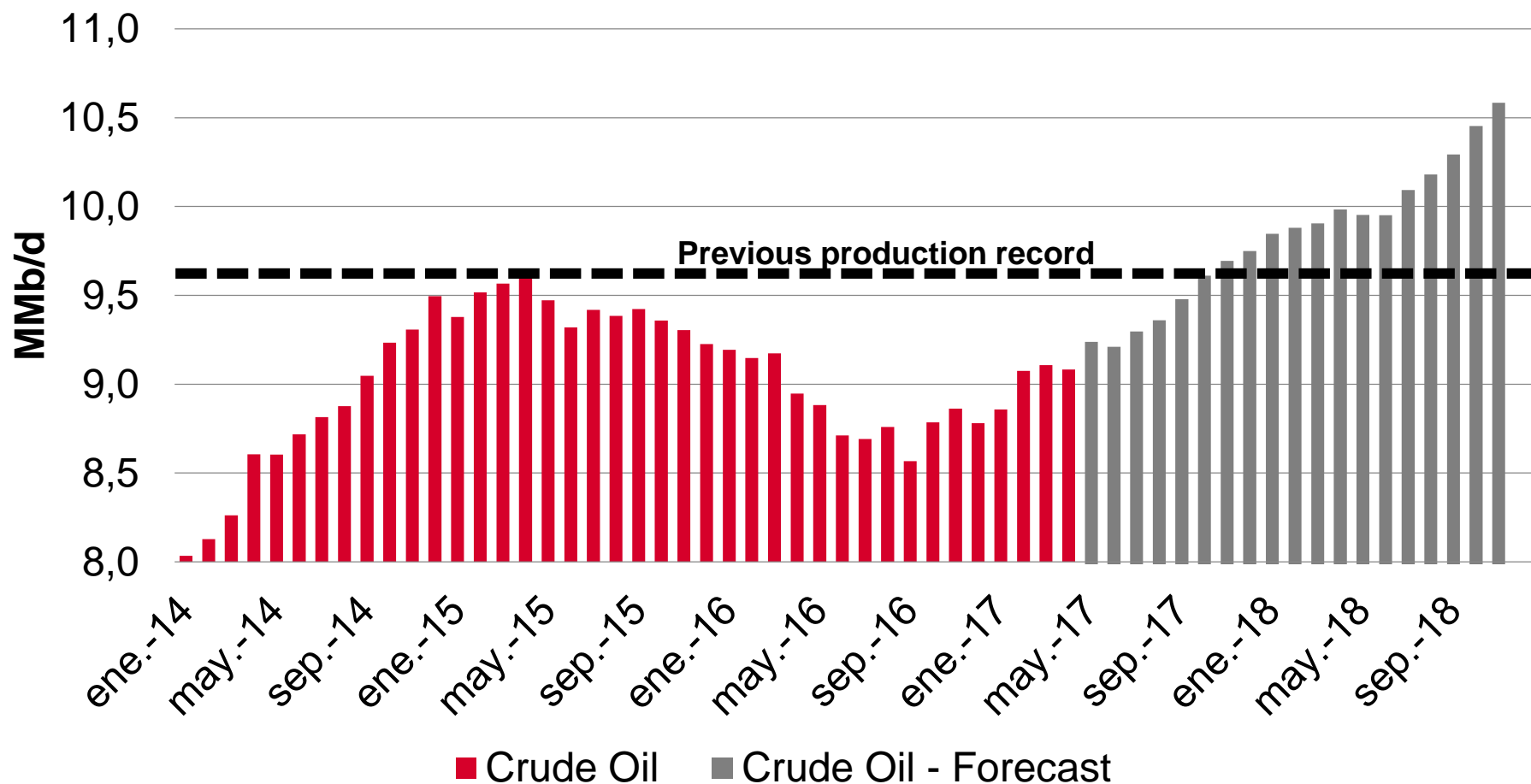


US RIG COUNTS: 12 Month Change

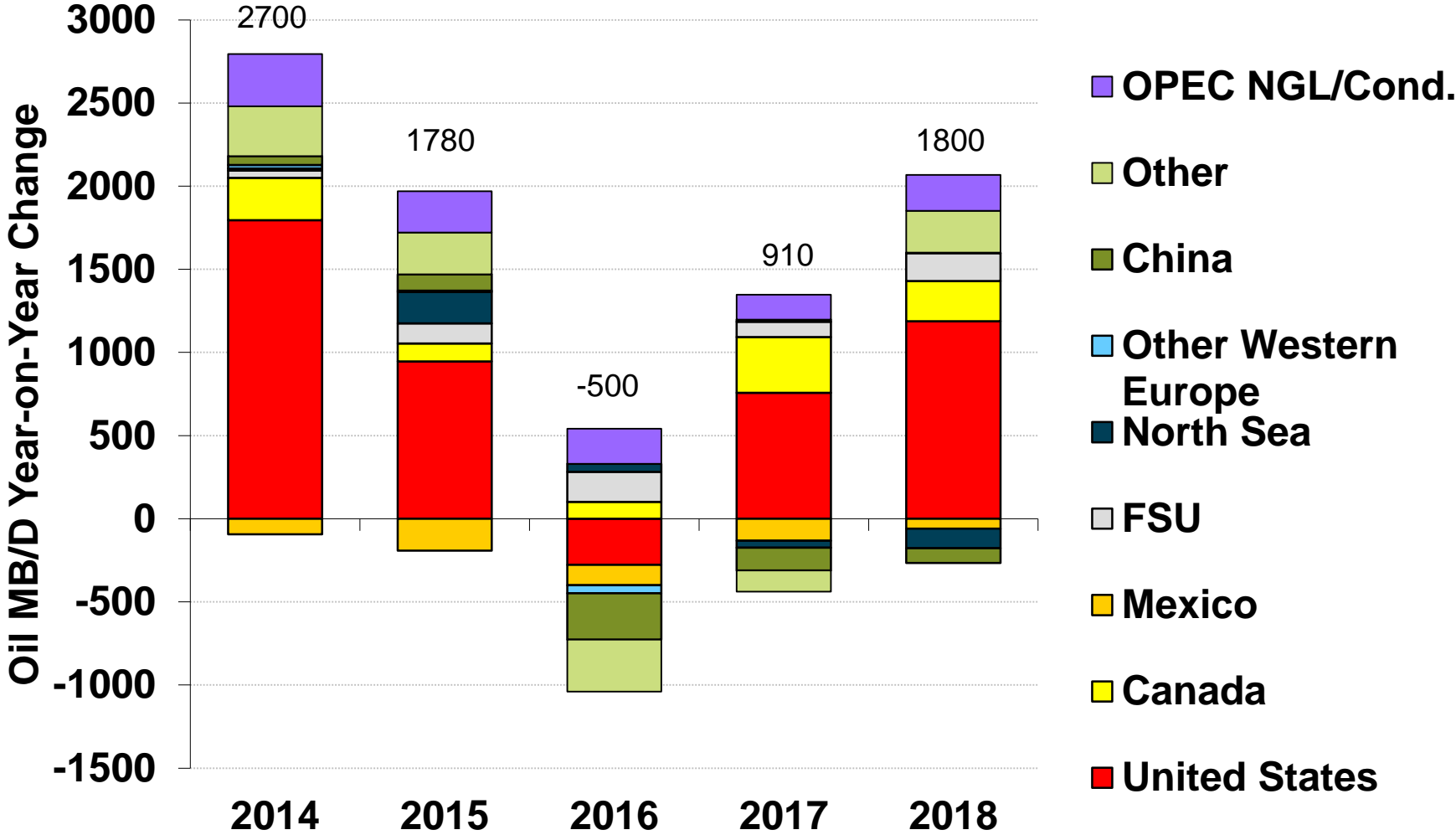


US production expected to rebound and reach record highs by year-end, ramp in 2018

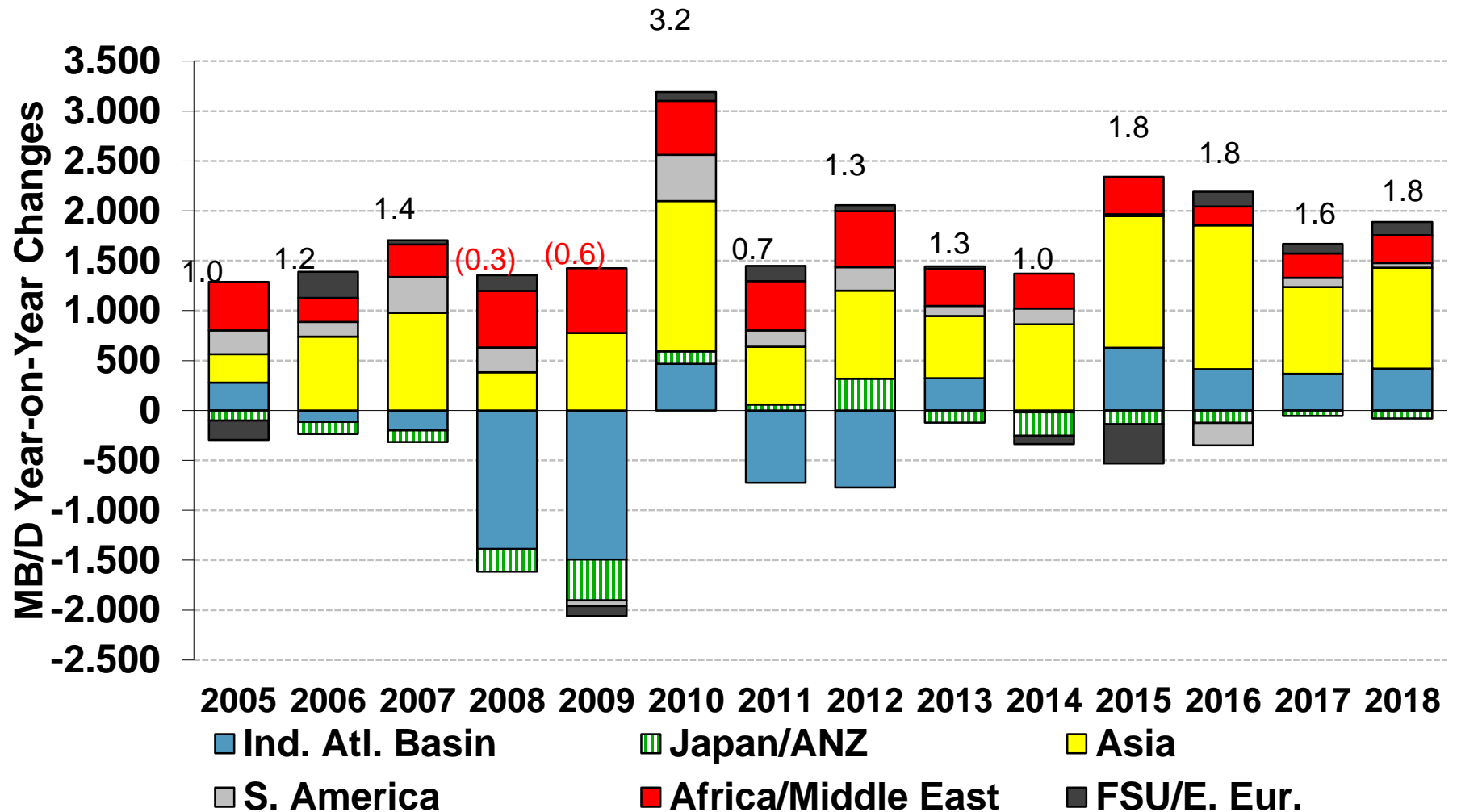
US Crude Production Forecast



Non-OPEC Supply Growth 2014-2018

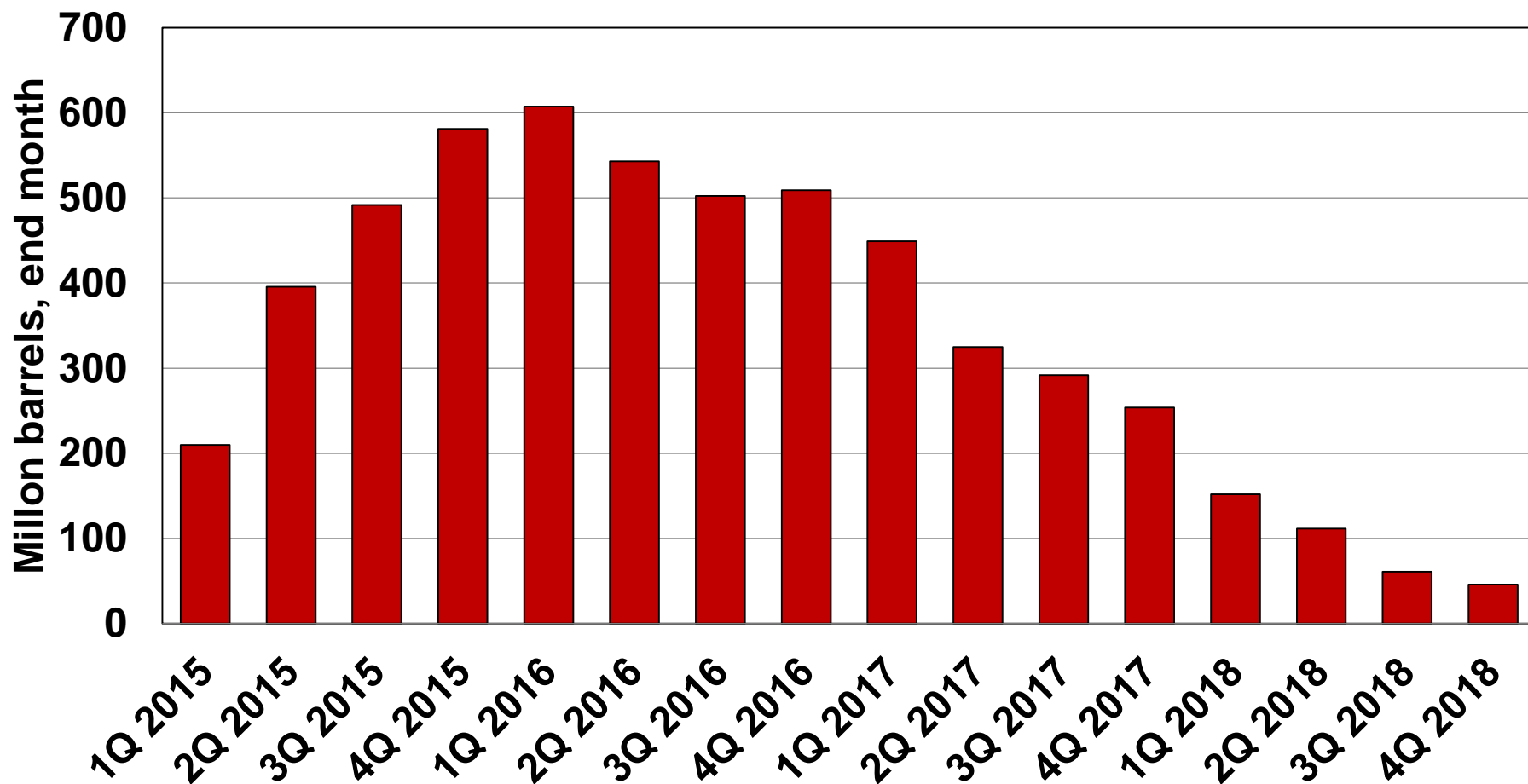


World Oil Demand Growth 2005-2018



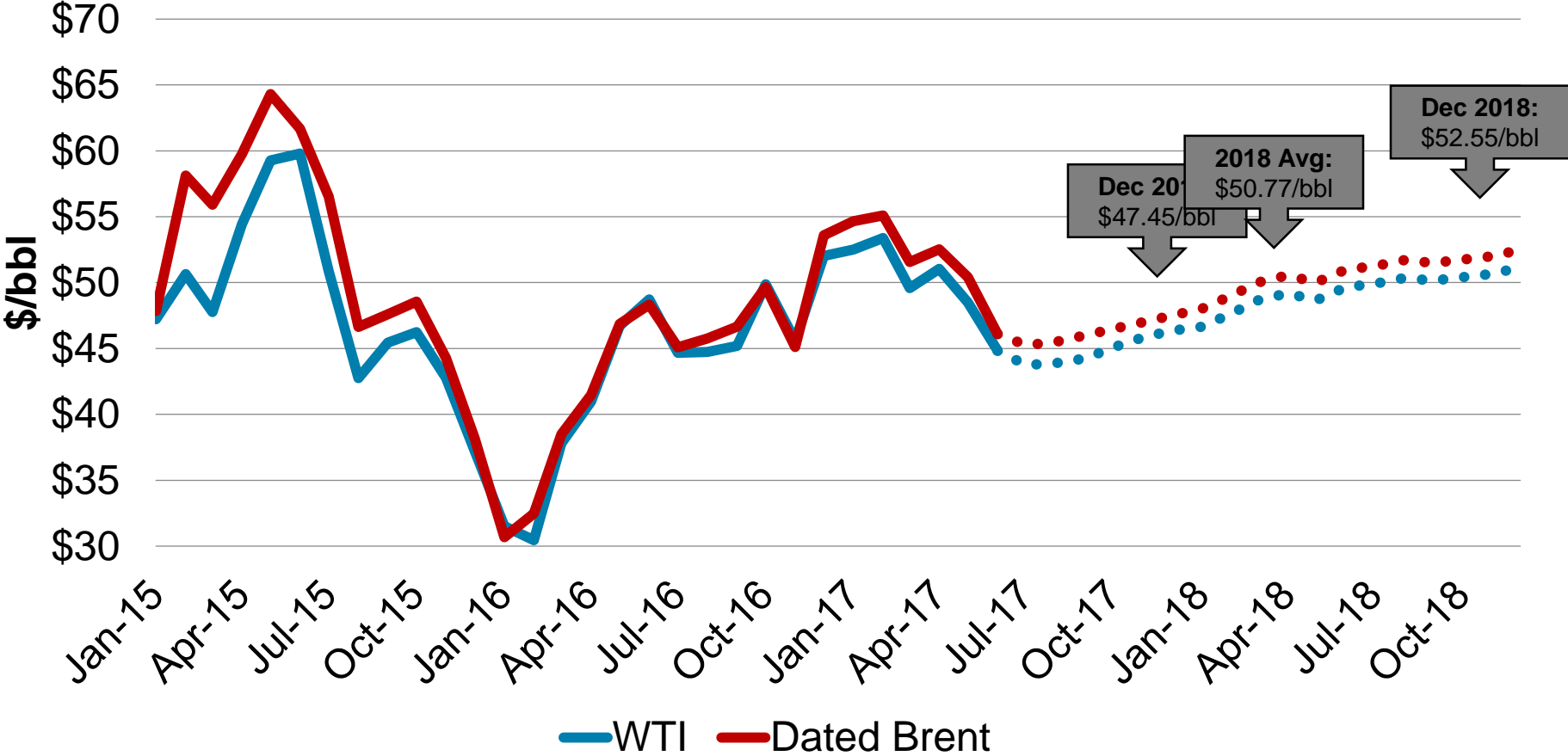
Surplus expected to dwindle, return to normal by year-end 2018, another year of oversupply

Global Commercial Stock Surplus, Forecast

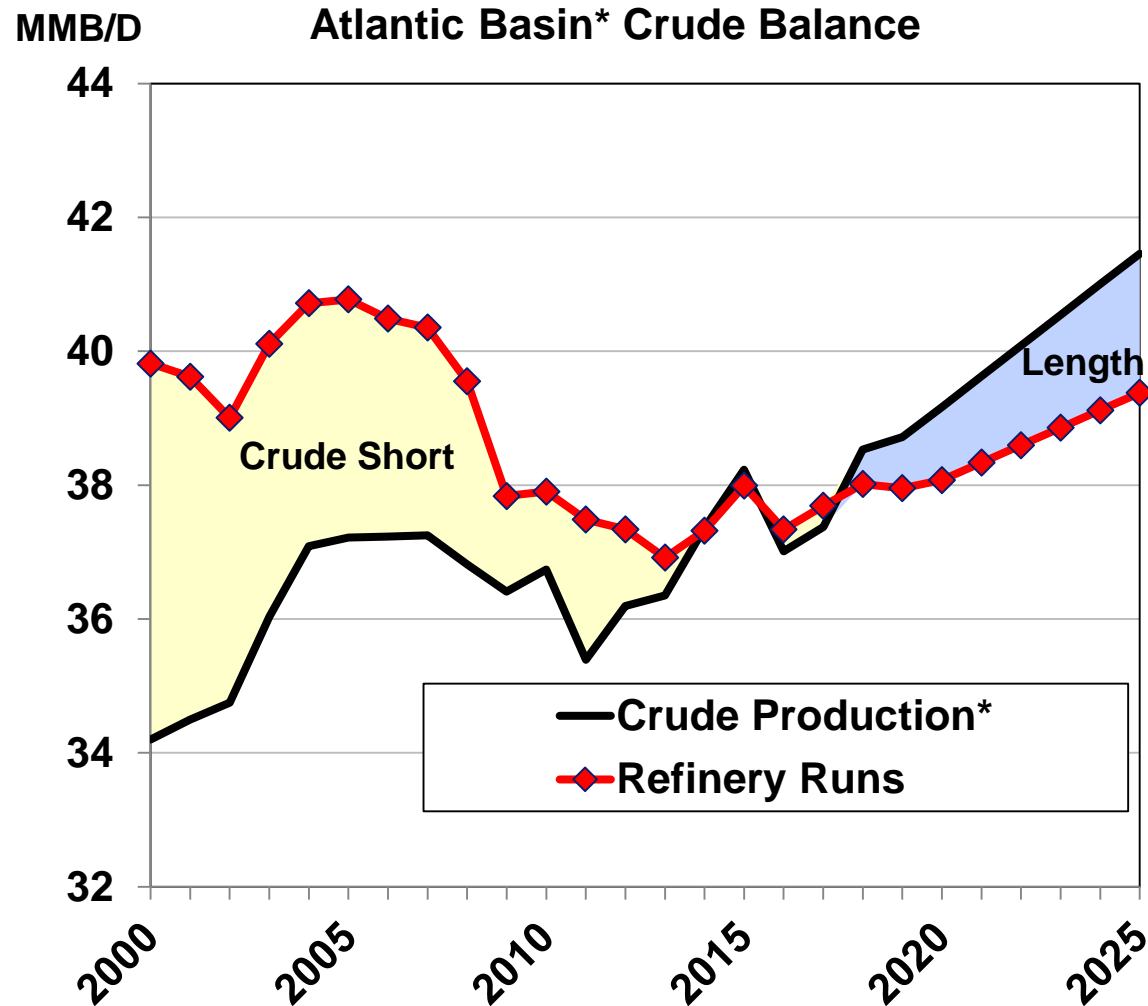


Low crude prices to persist as US supply grows, prices increase slightly on growing demand

Global Crude Price History and Forecast



Crude Balances Shifting from Atlantic Basin Pull to Push to Asia



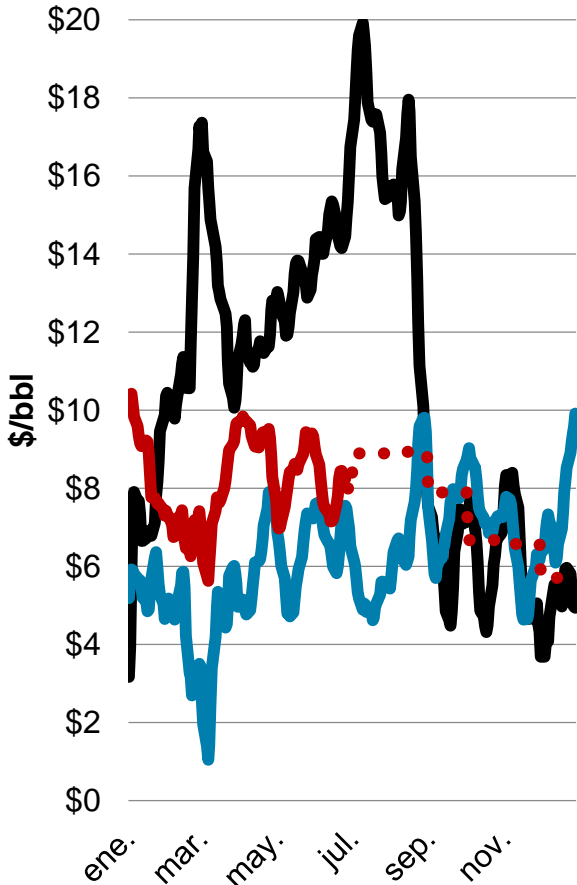
Implications of A/B length:

- A/B crude weaker vs. Asia
 - Narrower Brent-Dubai
 - Helps A/B refining margins

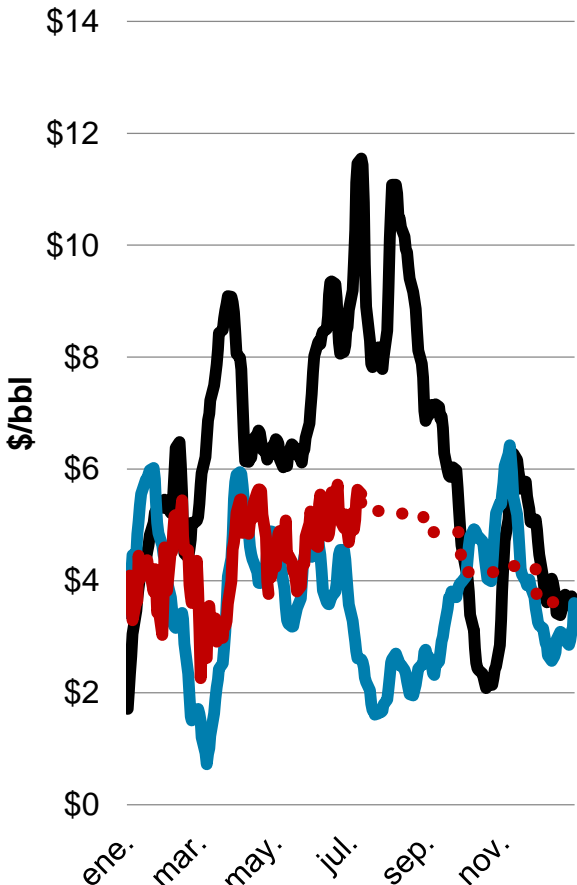
- Harder to arb product from Asia to West due refinery crude cost advantage in West

Refining Margins Incentivizing Crude Consumption and Product Production

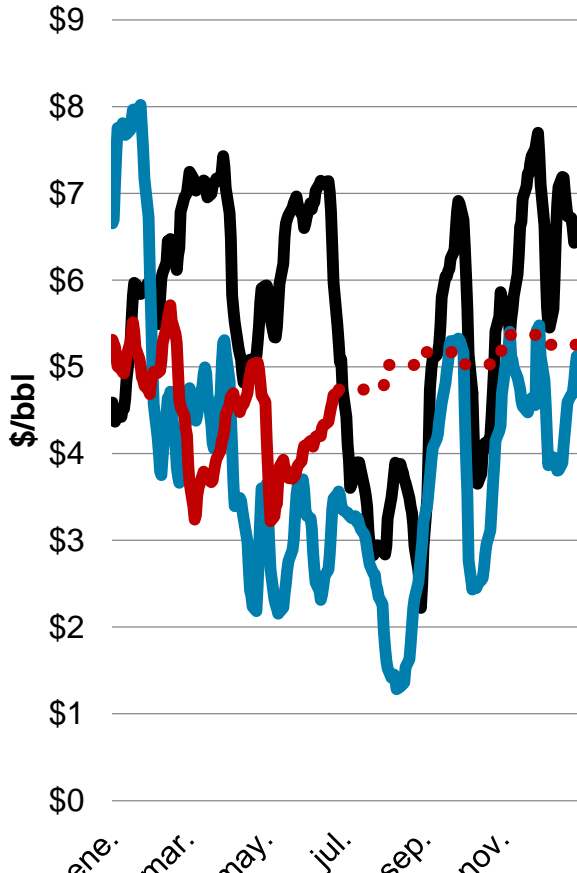
USGC Crack Margins - LLS



Rotterdam Crack Margins - Forties



Singapore Crack Margins - Dubai



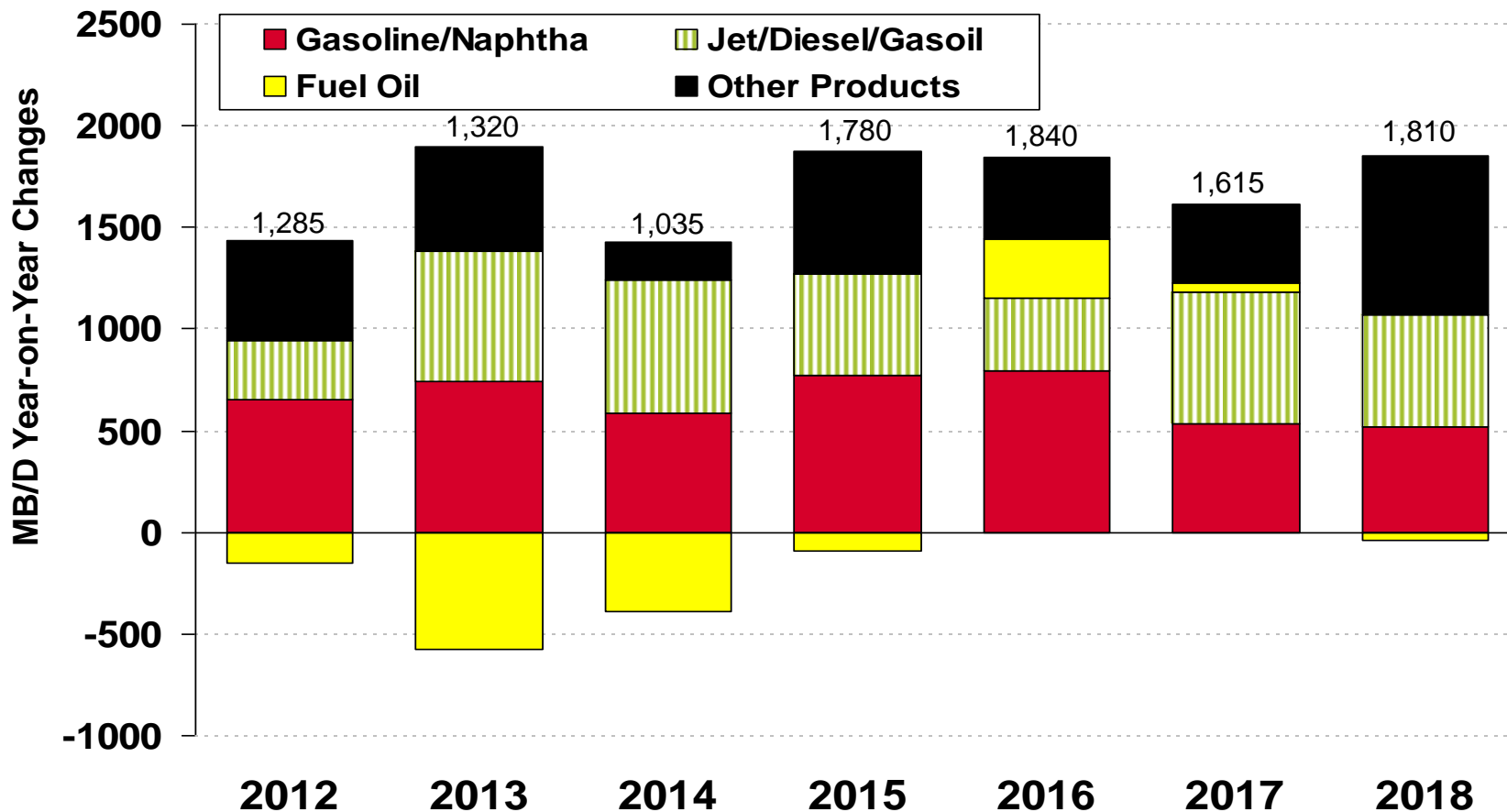
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— 2015 — 2016 — 2017 ... 2017 Forecast

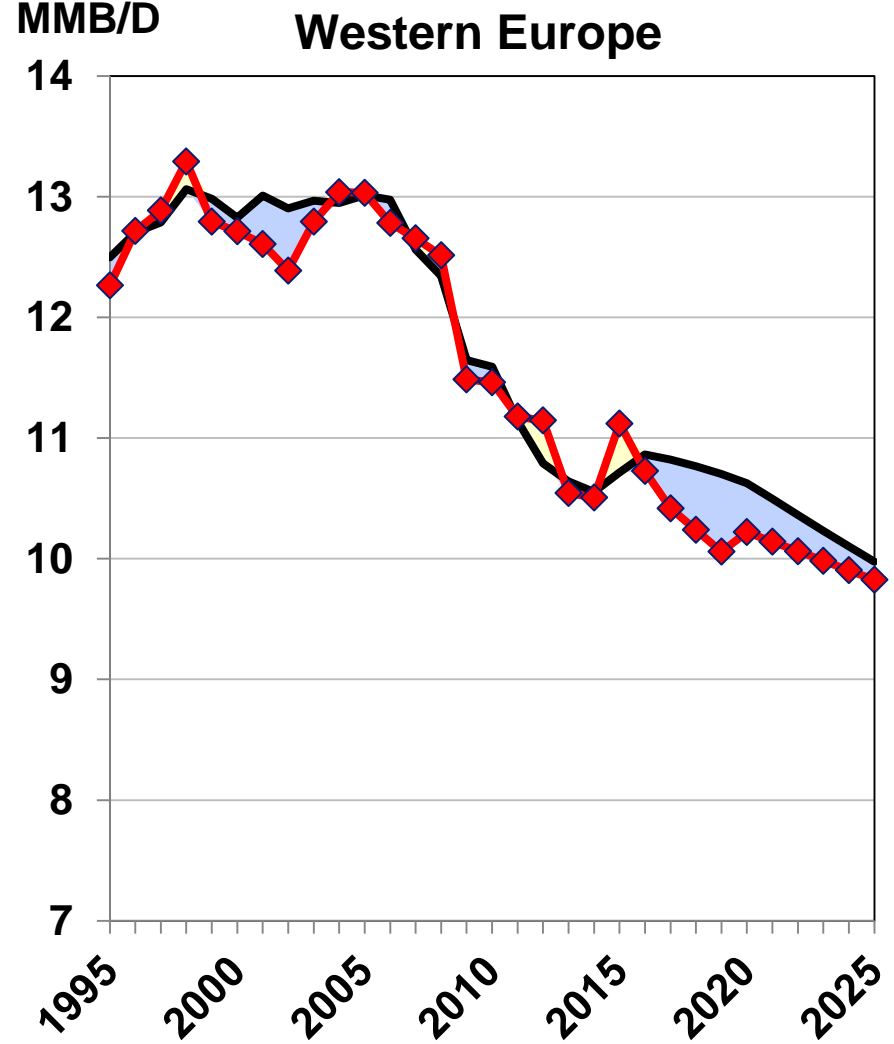
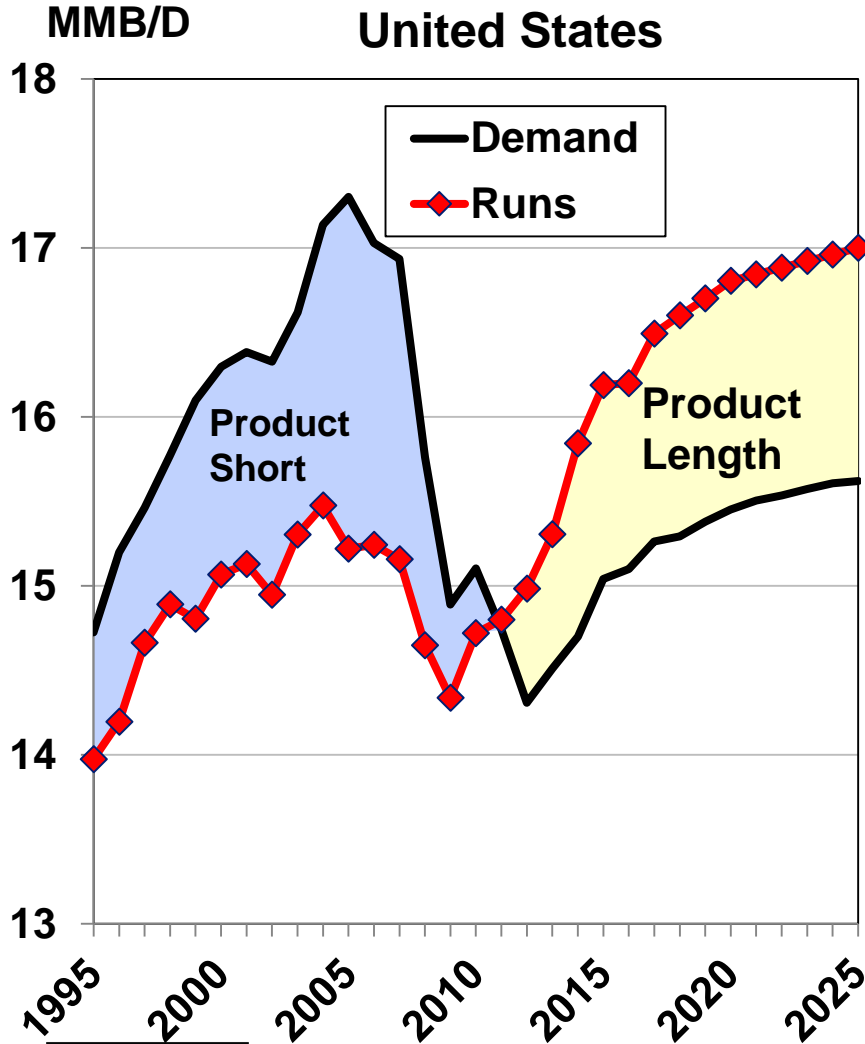
Source: S&P Global Platts PIRA

Global demand helping to balance the market, demand expected to rebound in 2018

Global Demand Growth (Y-o-Y) by Product Type



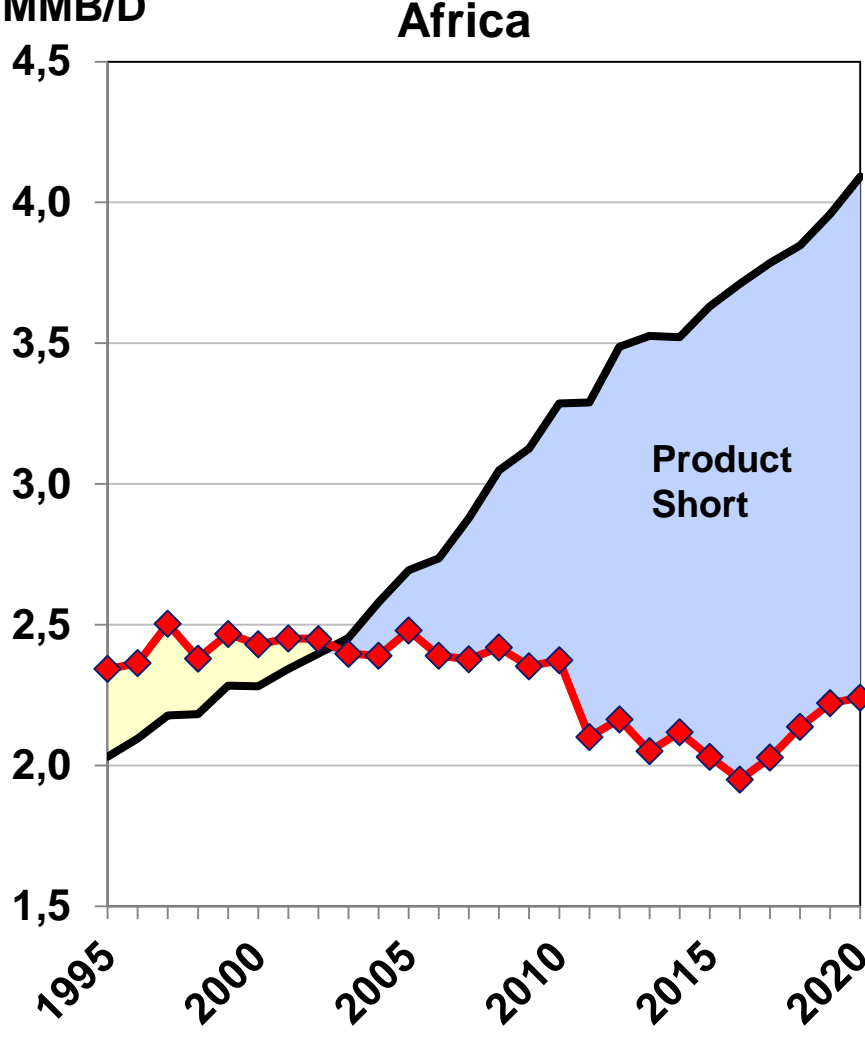
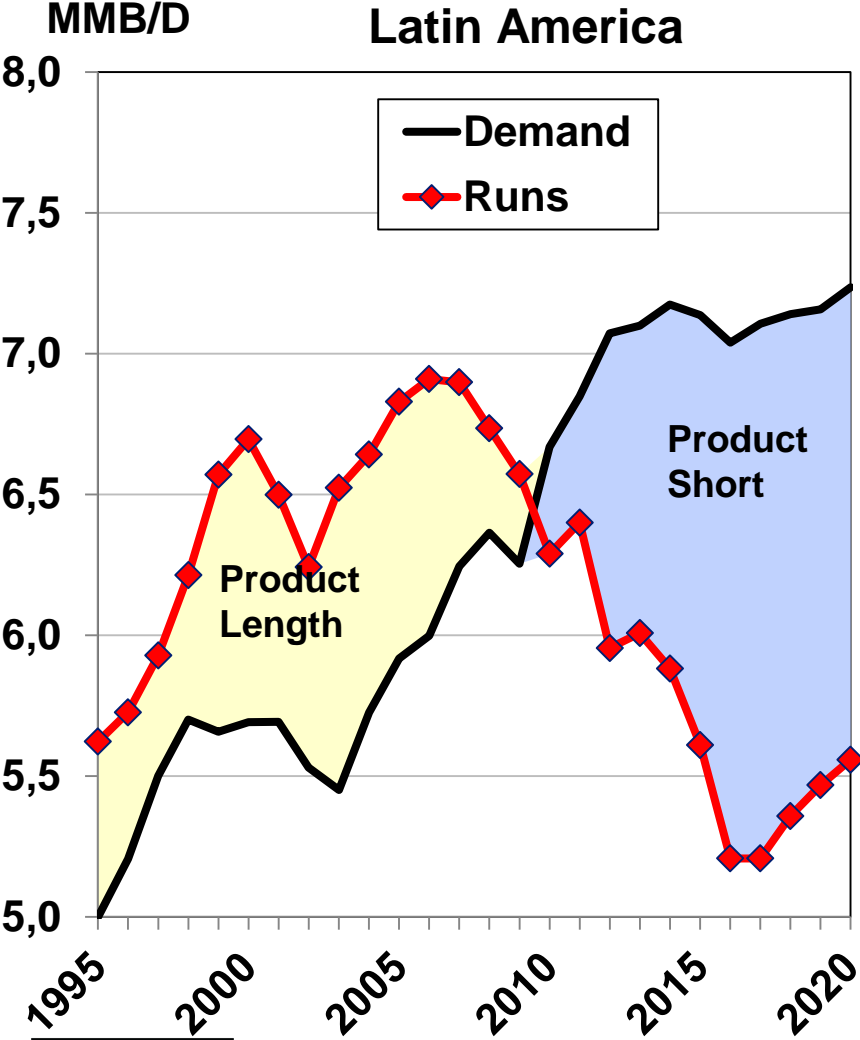
United States a Growing Product Exporter European Runs Decline



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*Demand excludes biofuels, ethane, LPG, by-products

Product Import Requirements Remain Substantial Into Latin America and Africa



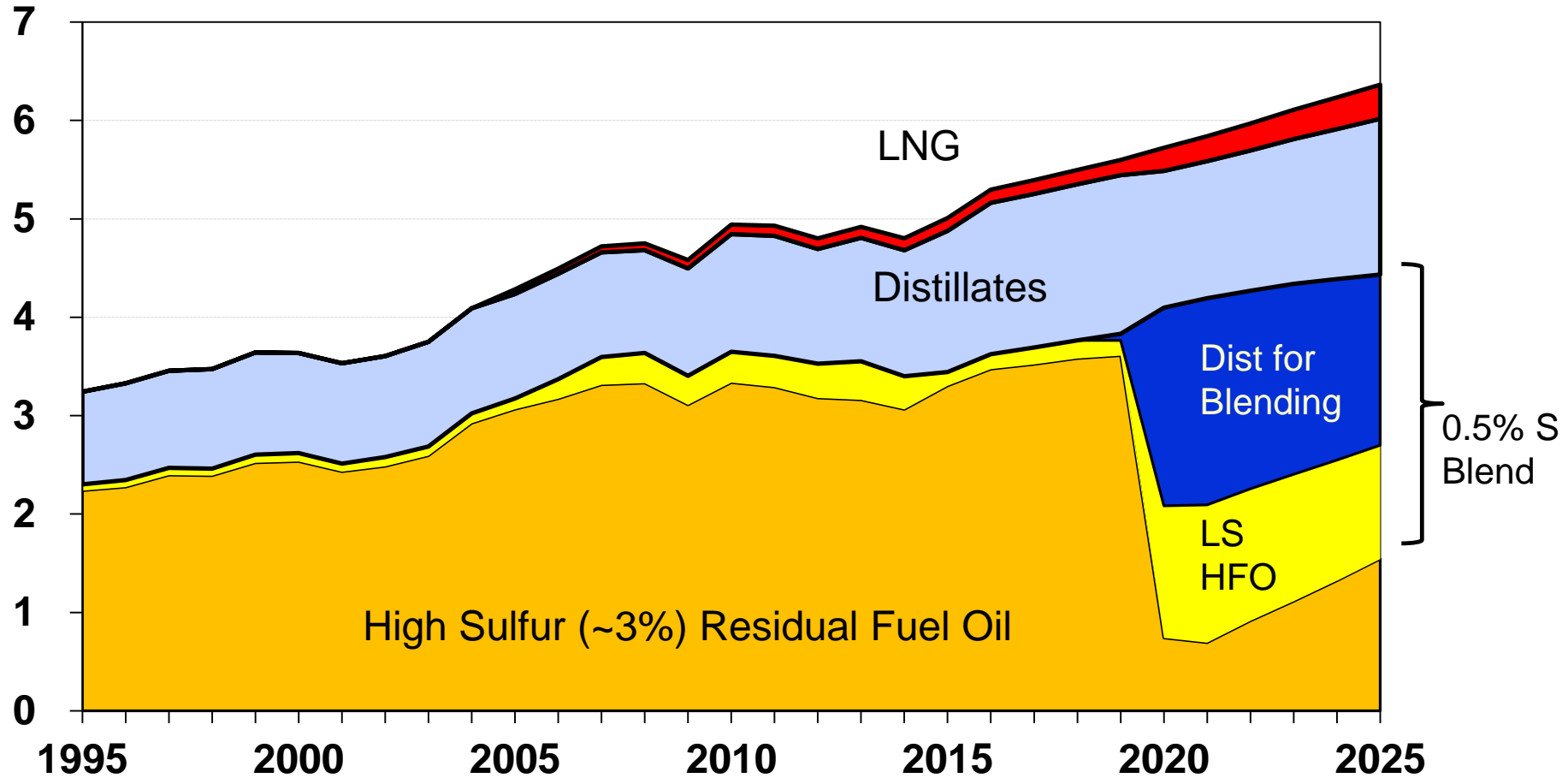
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Platts

*Demand excludes biofuels, ethane, LPG, by-products

Global Bunker Spec Change A Game Changer for Refining... and for **Bolivia**

Bunker Fuel Spec Changes Will Force Shift from Residual Fuels to Distillates/Blends

Global Bunker Demand, MMB/D

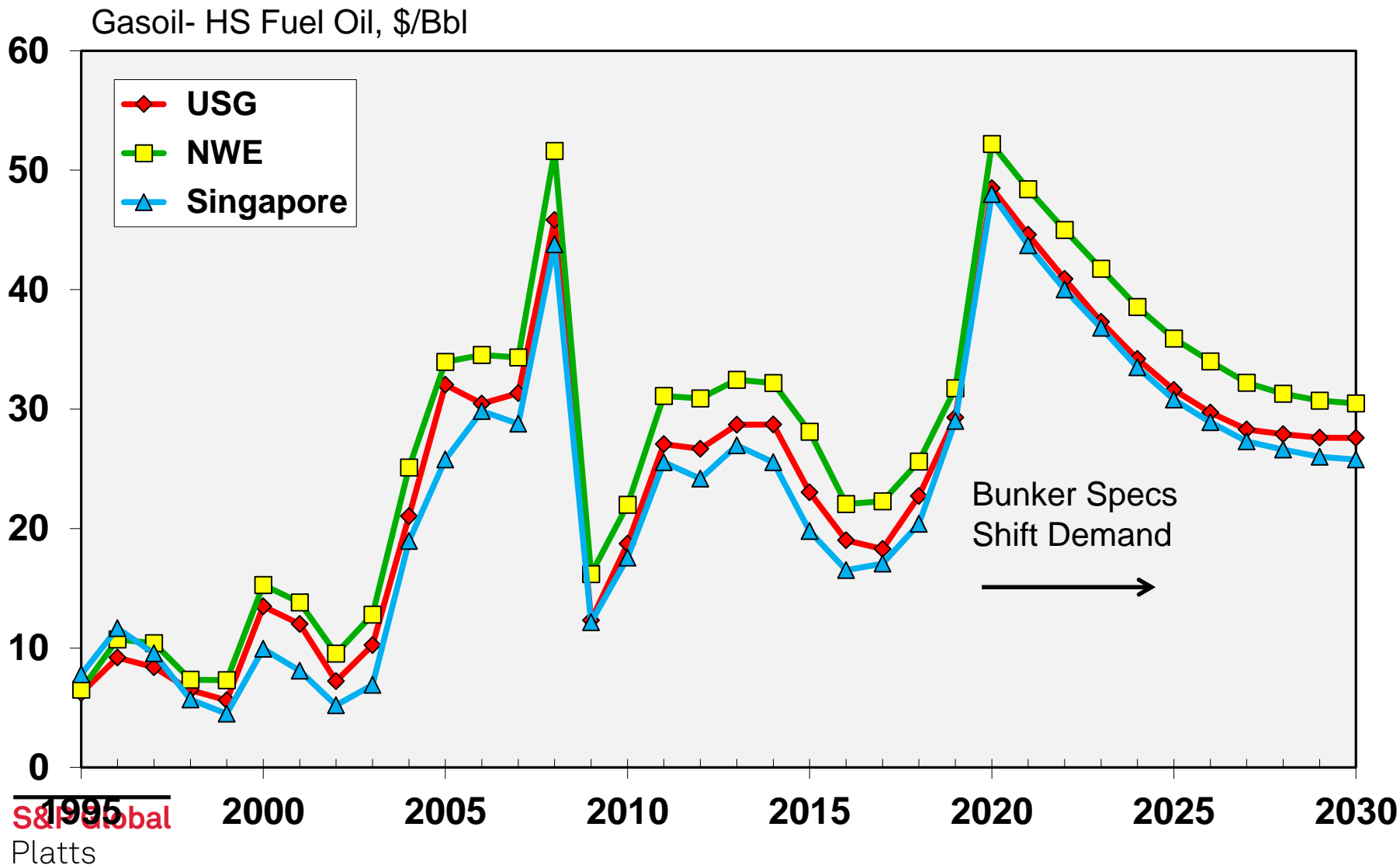


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Assumes global shift implemented in 2020 with minimal cheating/lags

Source: S&P Global Platts PIRA

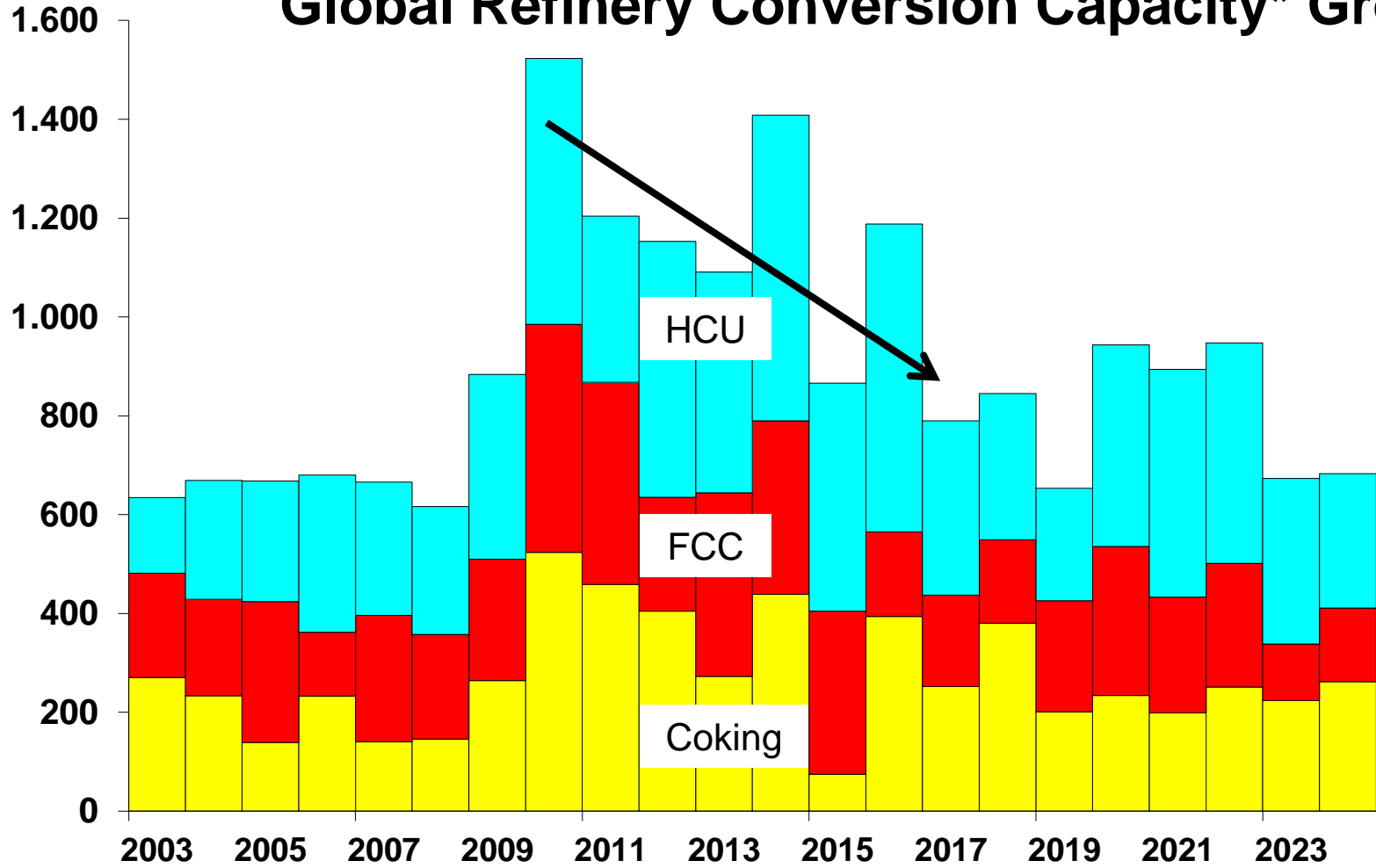
Middle Distillate – Fuel Oil Price Spreads Restrained Until Approach 2020, Then Much Wider



Refineries not investing in refinery complexity, reduces ability to create low-sulfur fuel oil

YOY Change, MB/D

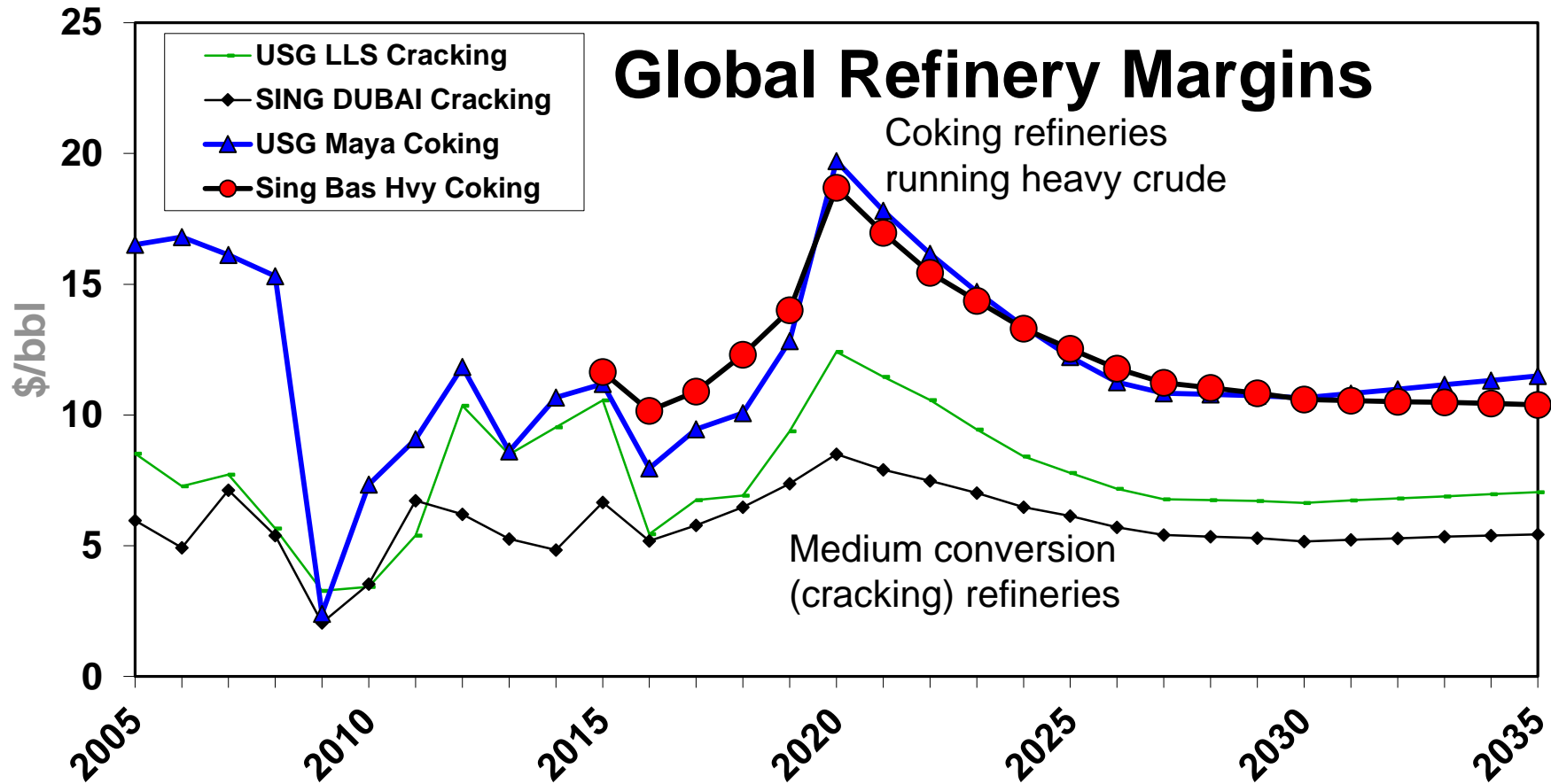
Global Refinery Conversion Capacity* Growth



*Net of refinery closures; reflects startup delays

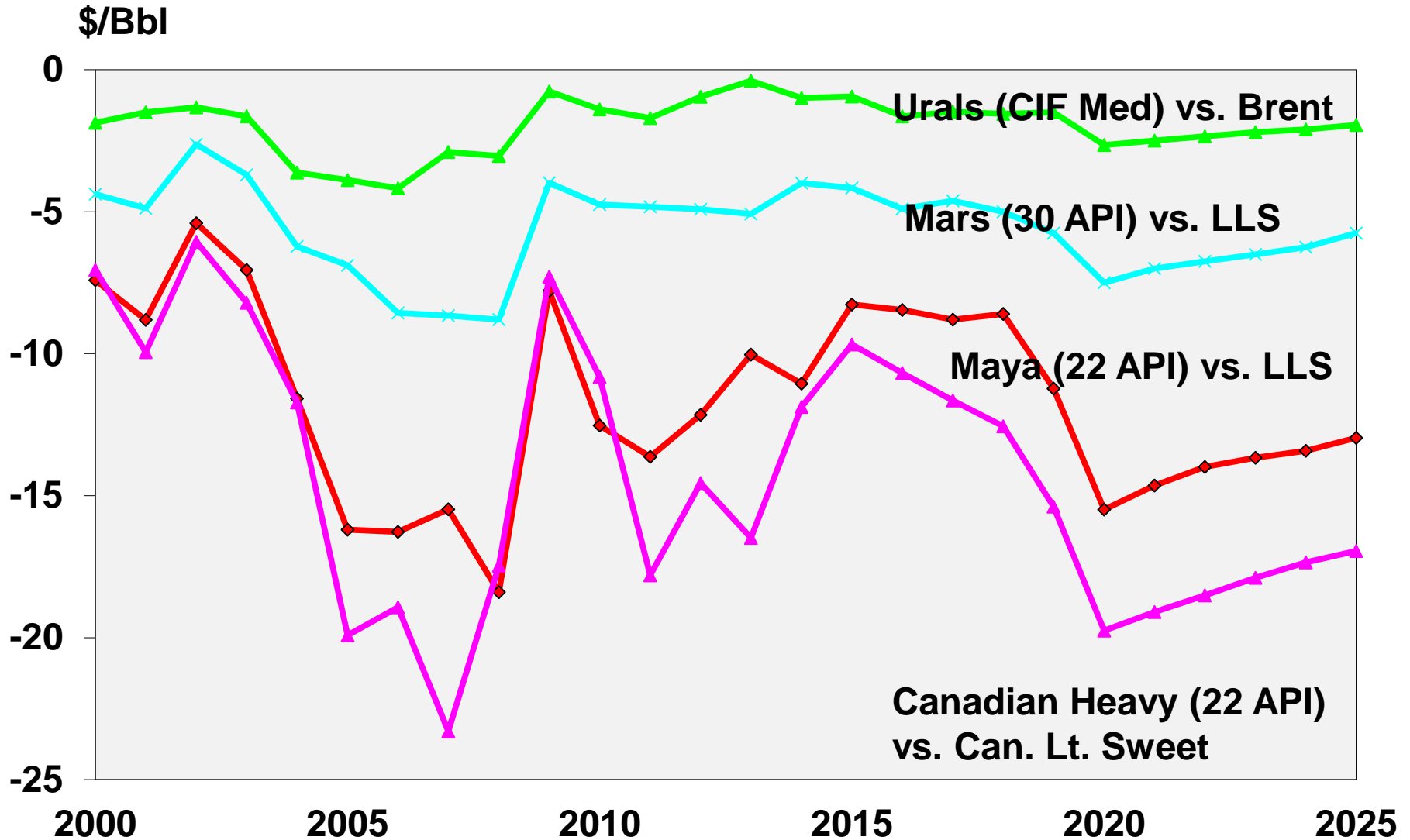
Source: PIRA, a part of S&P Global Platts

Most Complex Refineries can Yield Higher Returns with more Infrastructure from Heavy Crudes



Deep Conversion Margins Will Respond to Bunker Spec Change Effects

Light-heavy Crude Price Differentials Will Widen With Wider Clean-Dirty Product Spreads

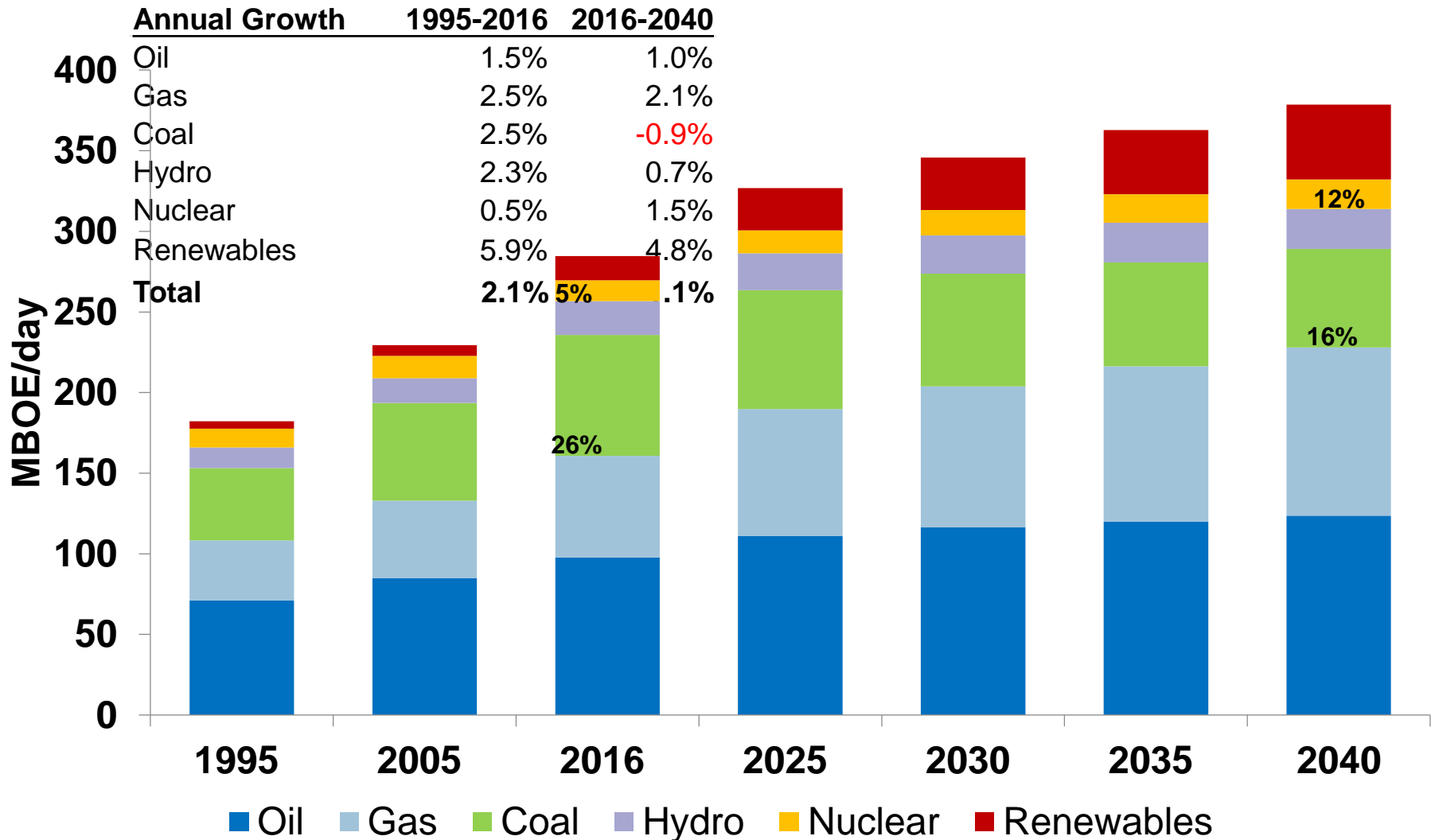


Global Bunker Spec Change Implications for Operations and Price

- **Global bunker spec change a major challenge**
 - » IMO selected 2020 implementation date
 - » Much harder to balance product S-D in 2020 than in 2025
- **Product pricing and refining margins will be greatly affected**
 - » Diesel stronger
 - » **HSFO weaker**
 - » LSFO stronger relative to HSFO
 - » LS VGO stronger
 - » LS – HS crude differentials wider (sour medium-heavy especially hurt)
 - » Coking refinery margins boosted, sour refinery visbreaking margins hurt
- **All Inter-regional spreads wider due higher freight costs**
- **Middle East and East Asia bunkering centers short LS molecules**

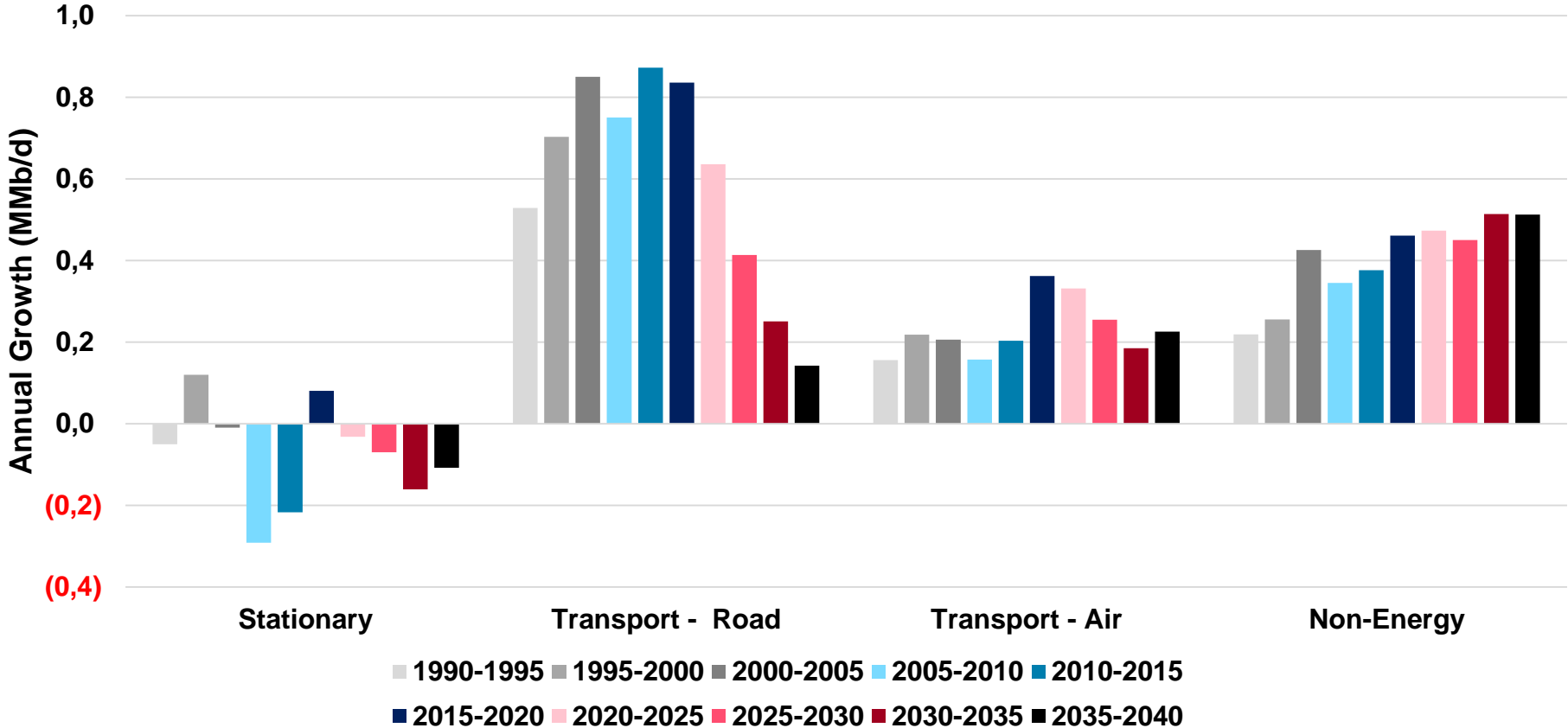
Changing Demand Dynamics

Primary Energy Demand – Growth Slowing, Renewables Leading



Long-term demand for oil to shift to petrochemicals

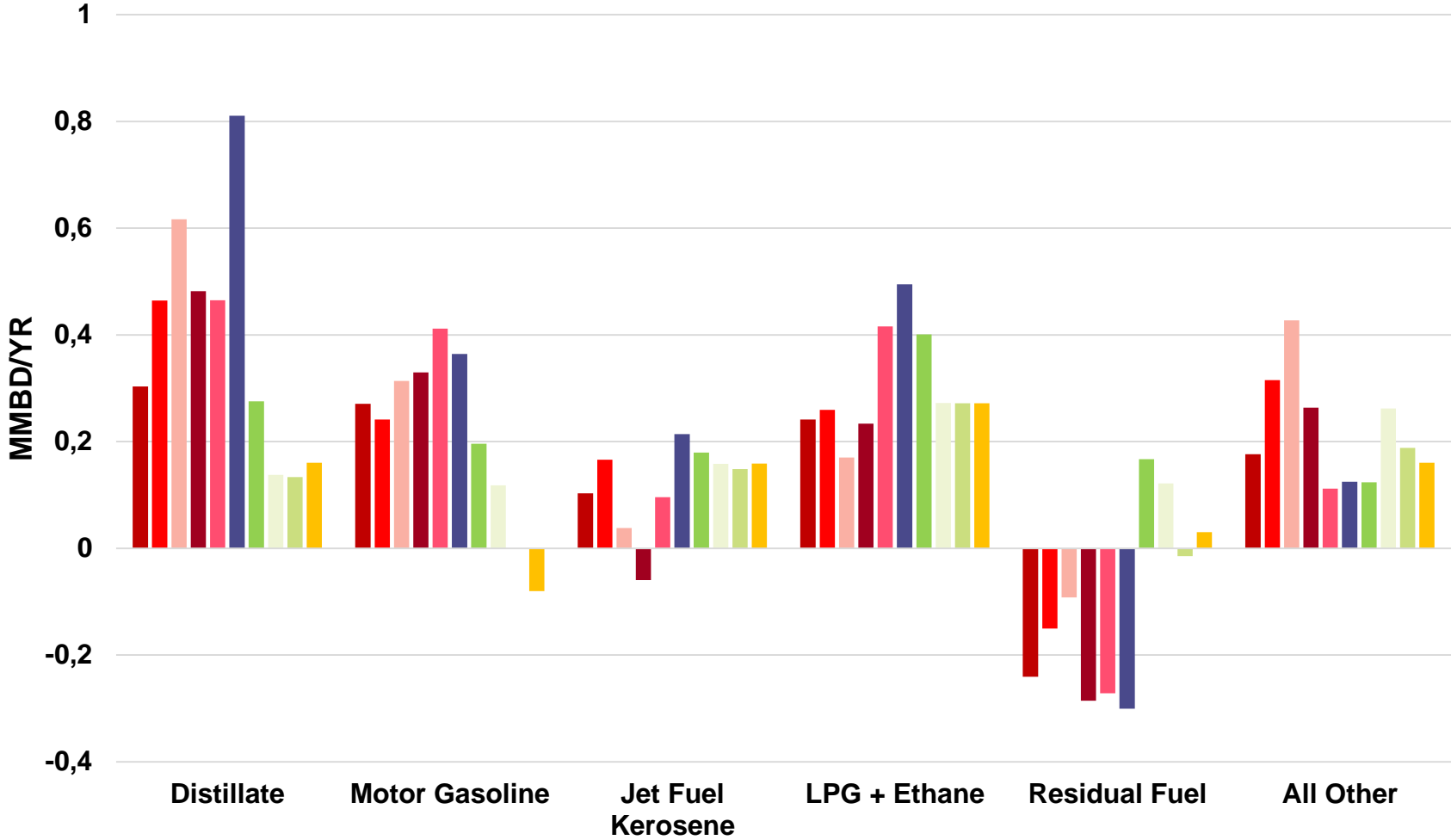
Oil Demand Growth by End-Use Sector



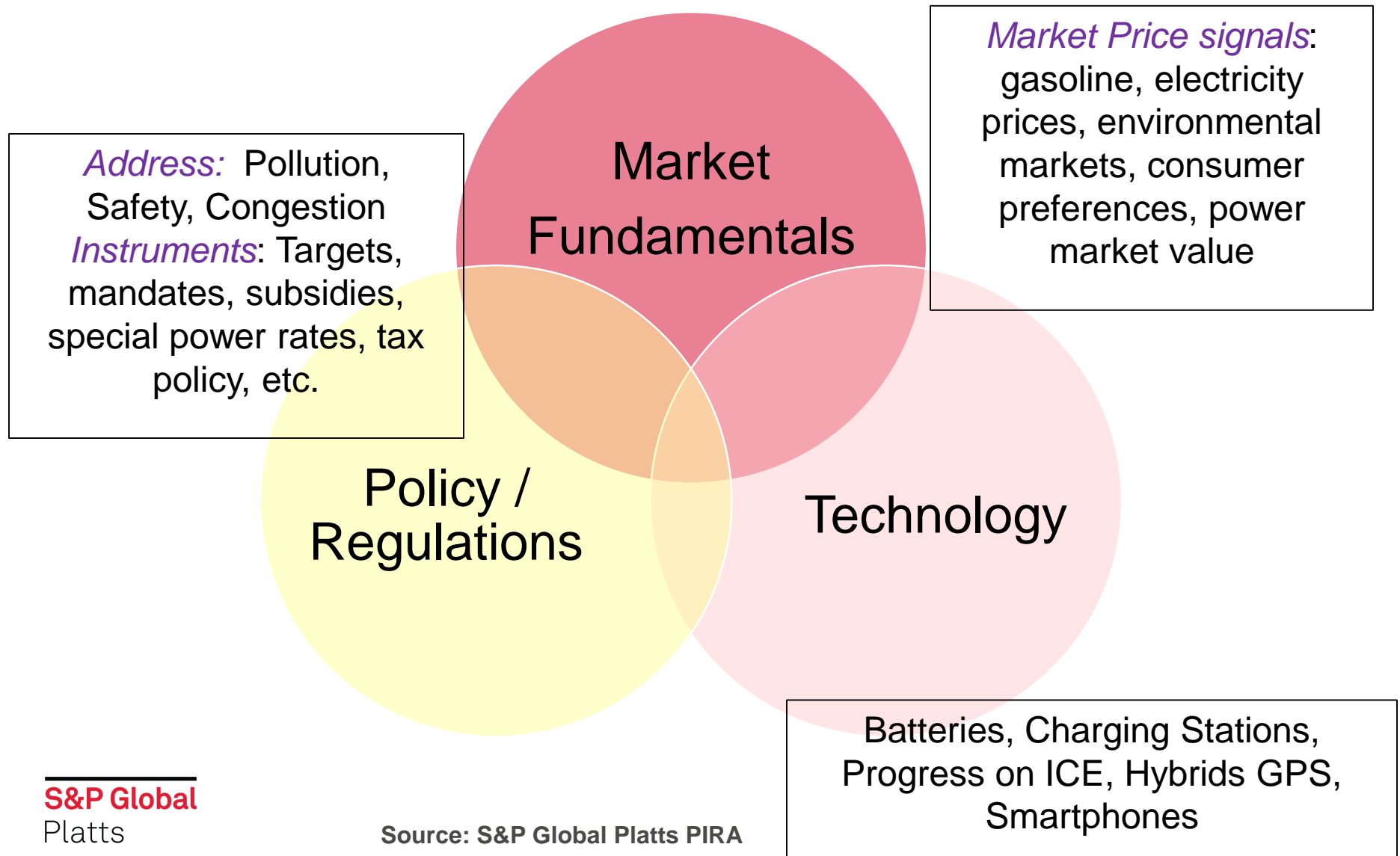
Oil Demand Growth Increasingly Dominated by Non-Energy Use

Road Transport Fuels Growth Slows Sharply

Growth by Oil Product

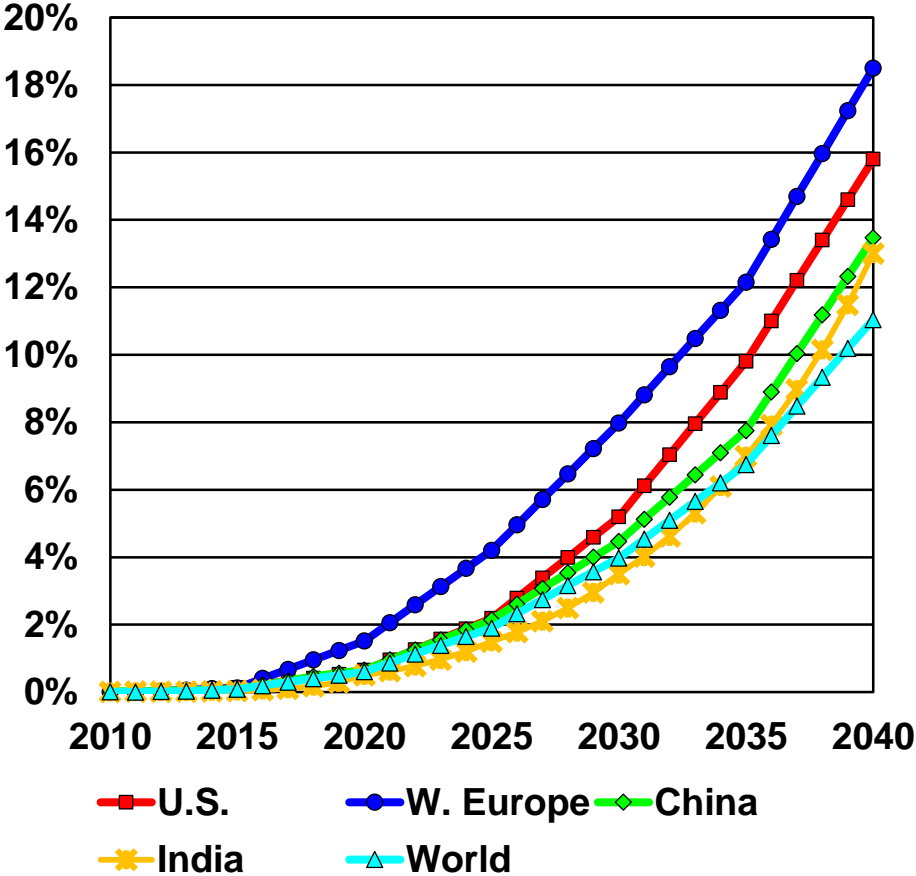


Policy and technology driving long-term electric vehicle trends

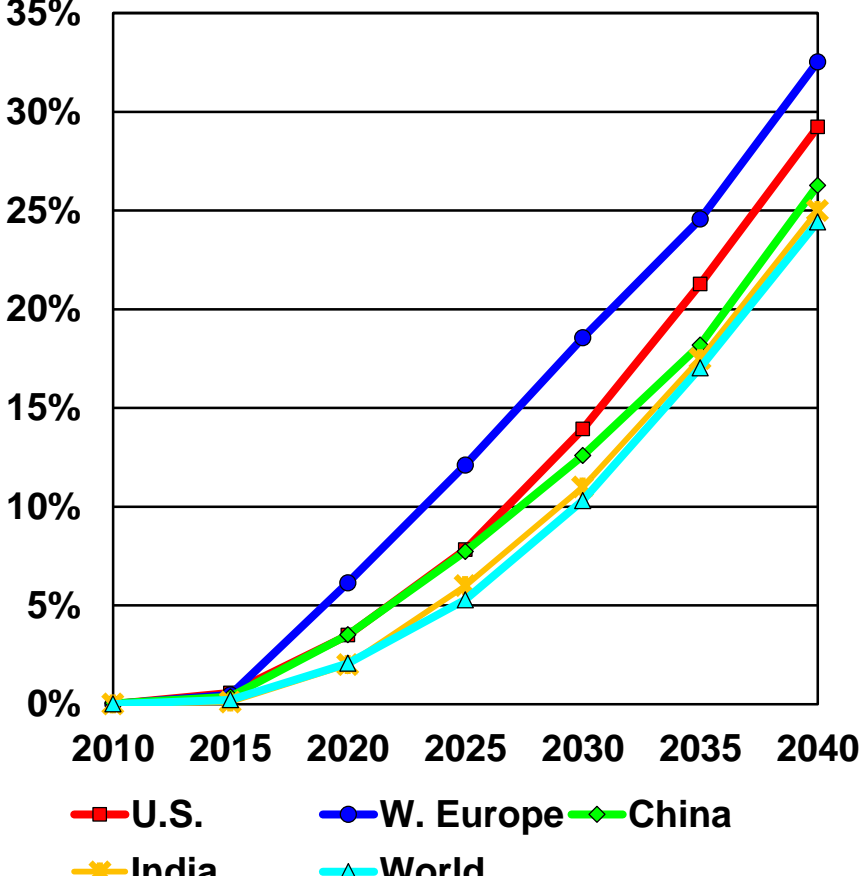


Conservative base-case EV penetration assumptions lead to persistent oil demand

Electric Vehicles
Percent of Miles Travelled

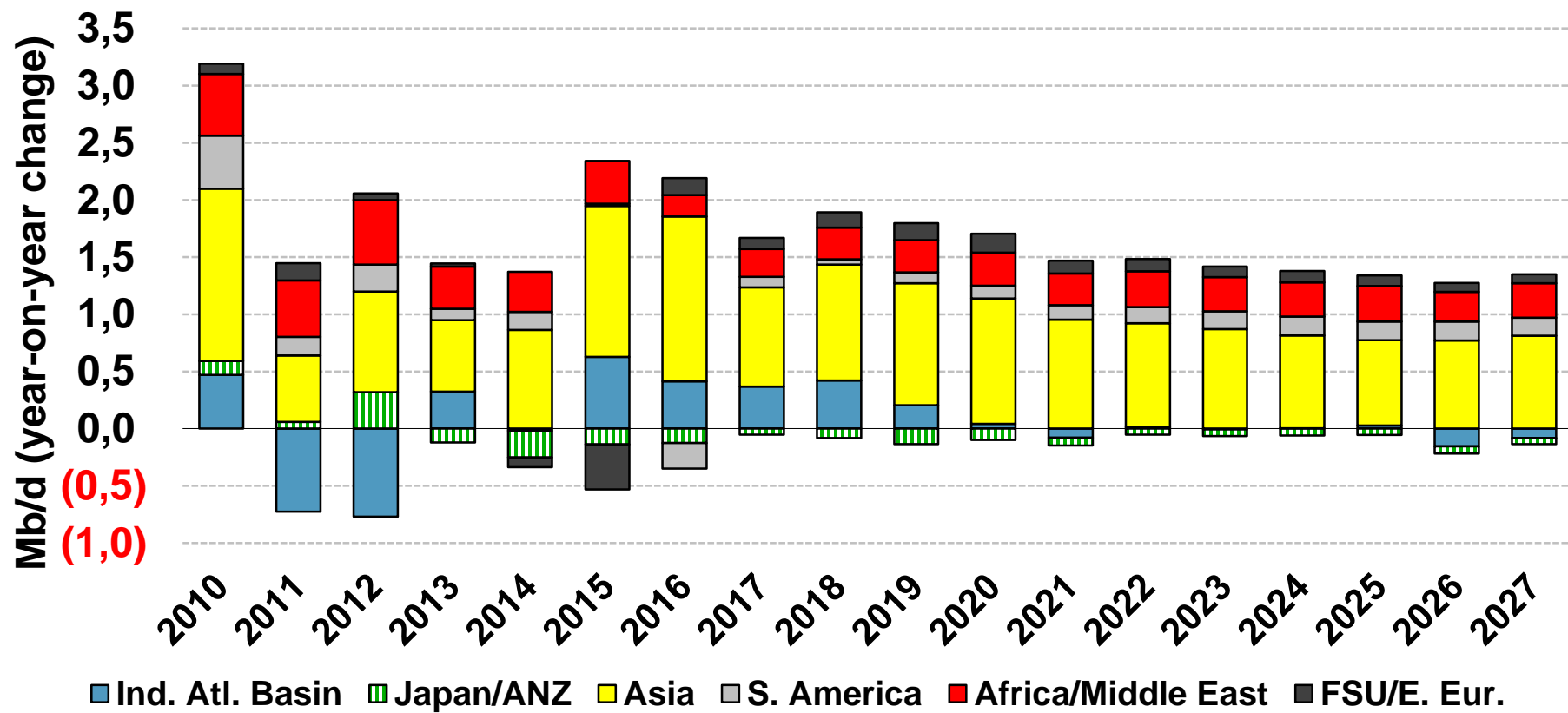


Electric Vehicles
Percent of New Car Sales



Asia expected to drive future demand growth, risk to demand lies in economic growth

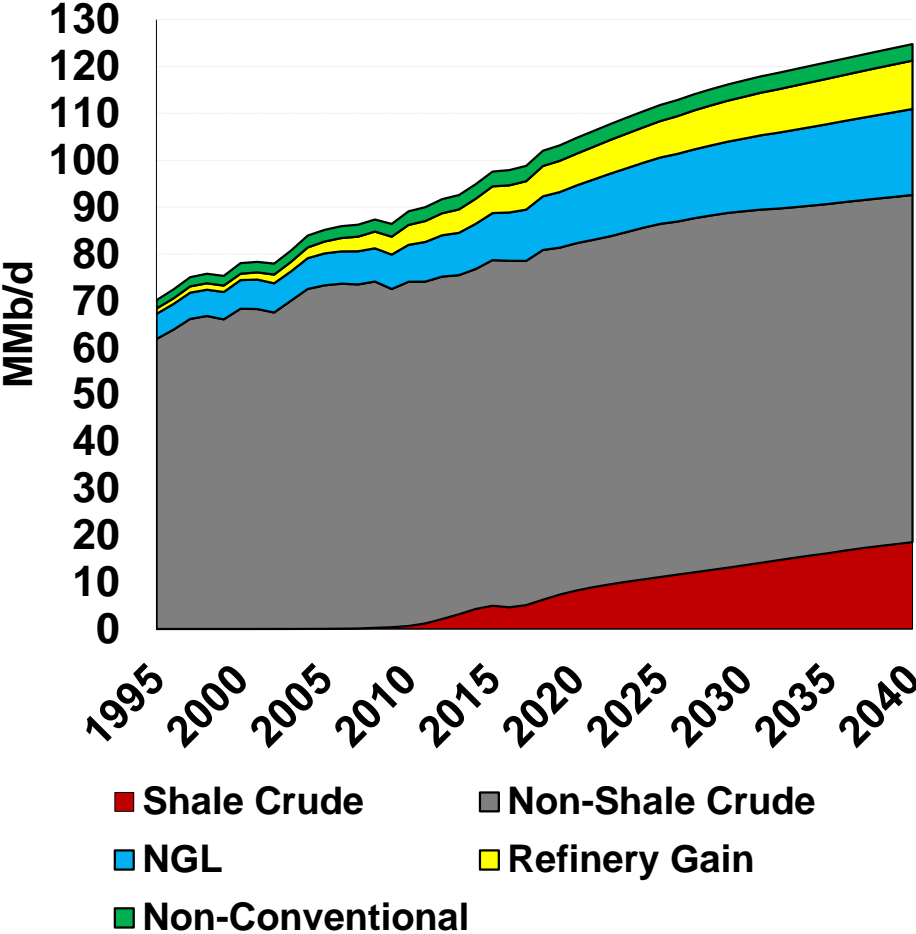
World Oil Demand Growth



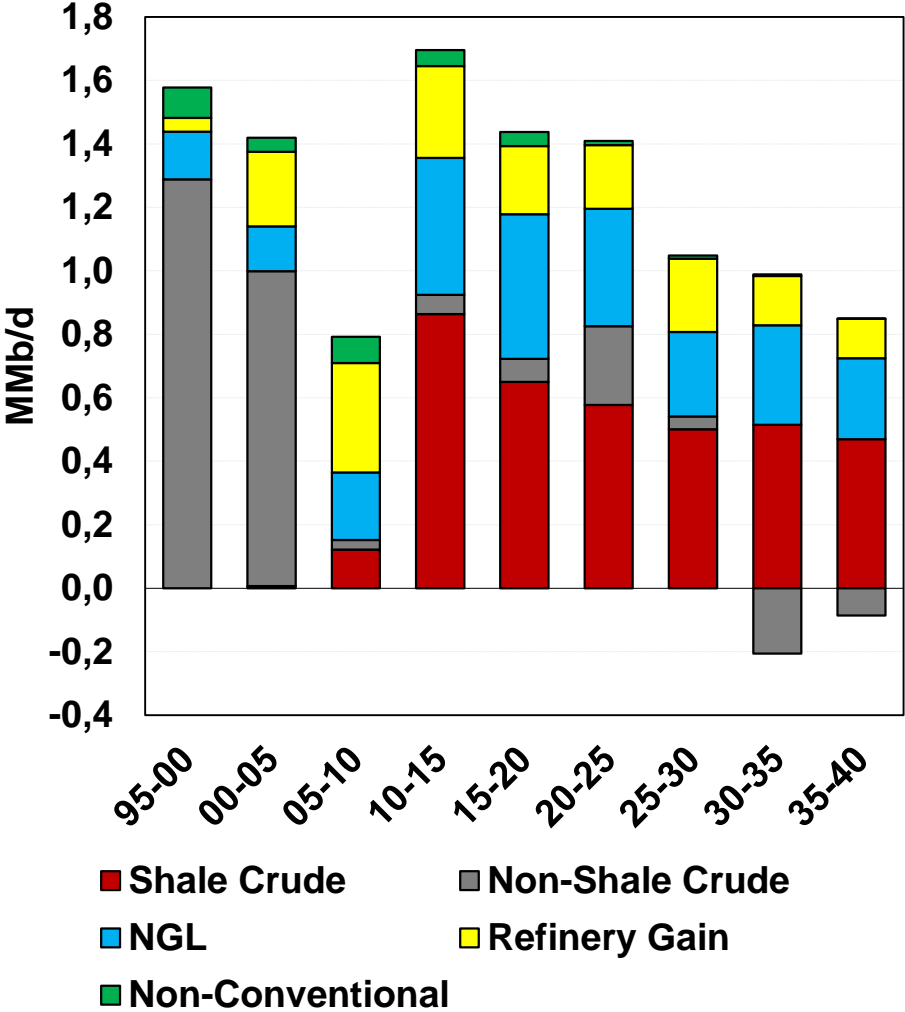
Supply Growth Driven by US Shale

Shale production, both in the US and globally, driving incremental crude supply

World Oil Supply

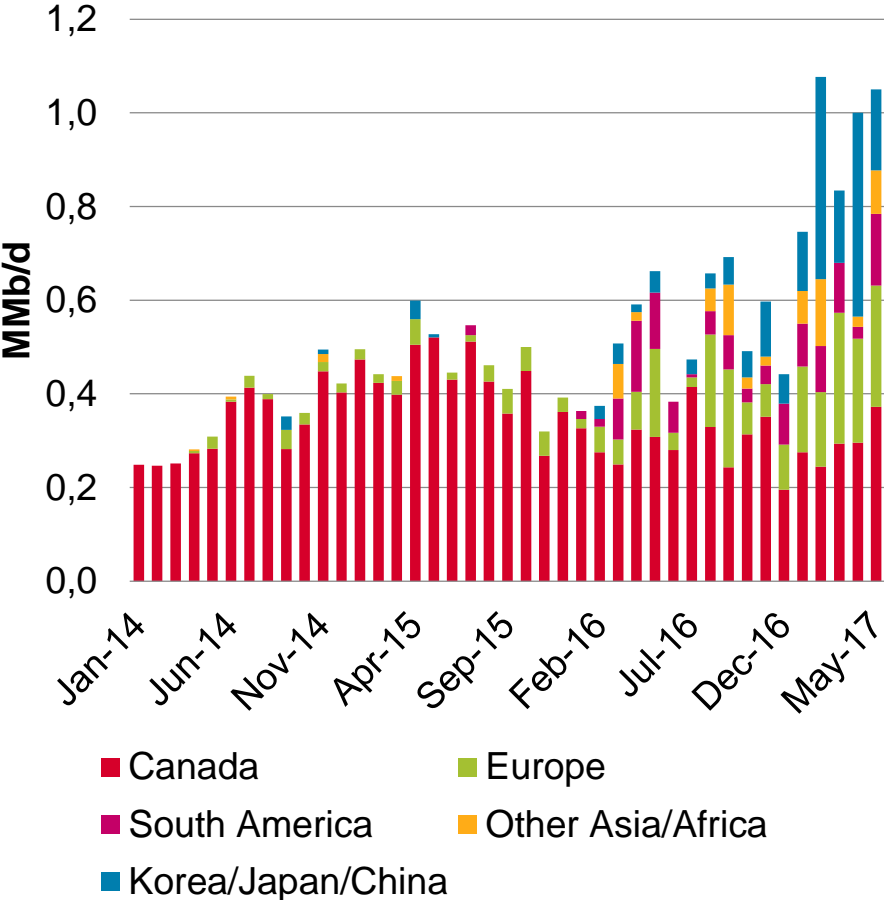


Annual Supply Growth by Type

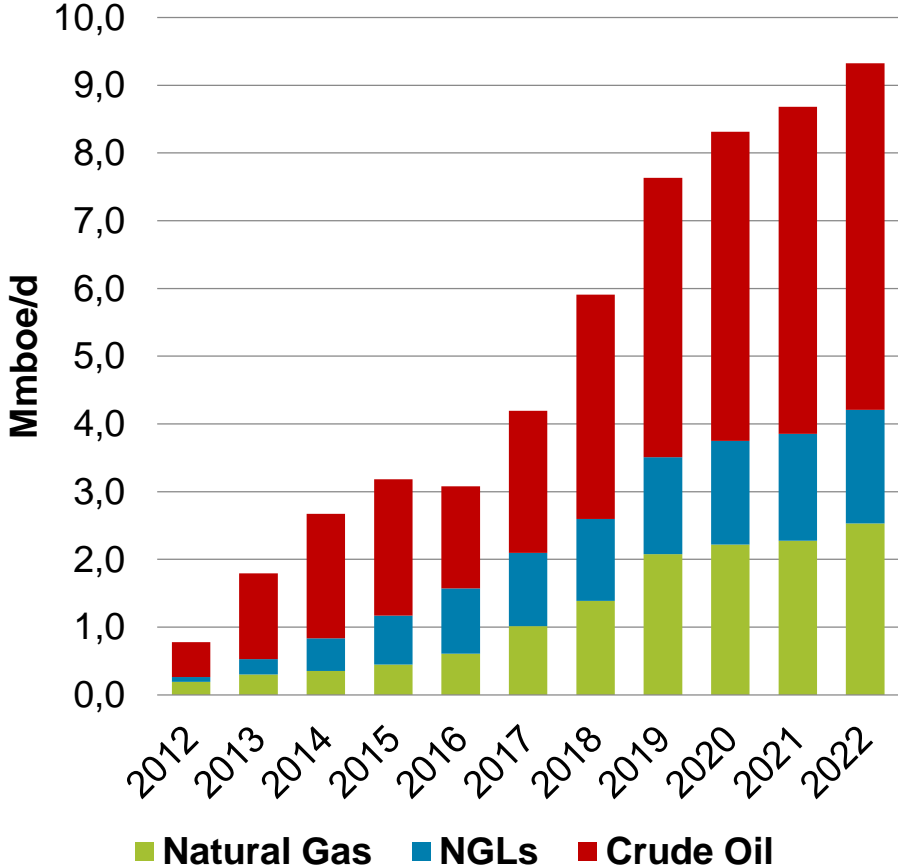


US expected to export most incremental hydrocarbon growth, impacting global markets

US Crude Exports by Destination

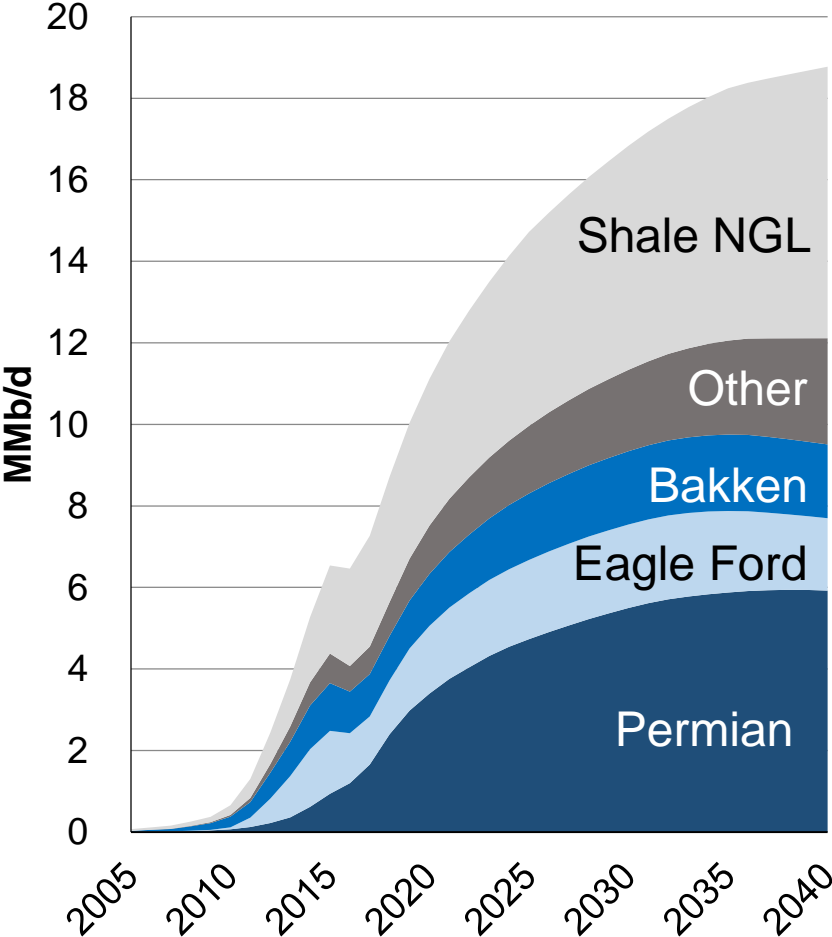


US Net Energy Exports Change from 2011

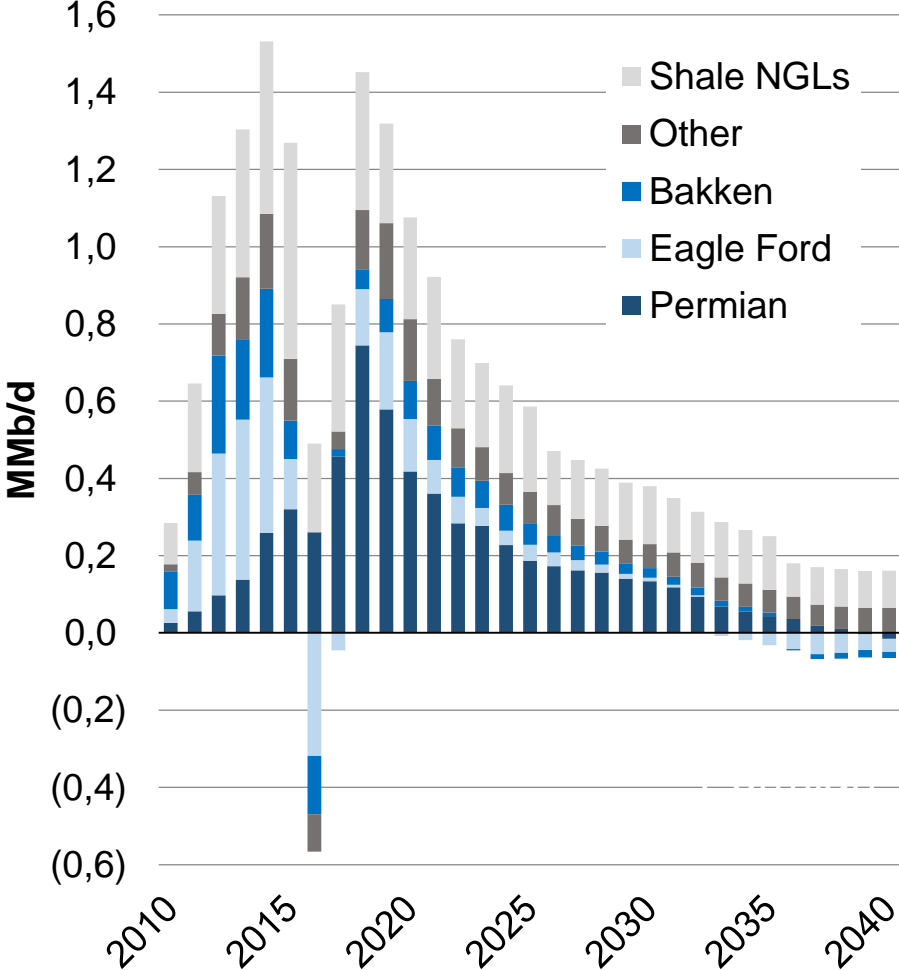


US production to grow quickly in short-term, growth to dwindle in the long term

US Shale Liquids Production

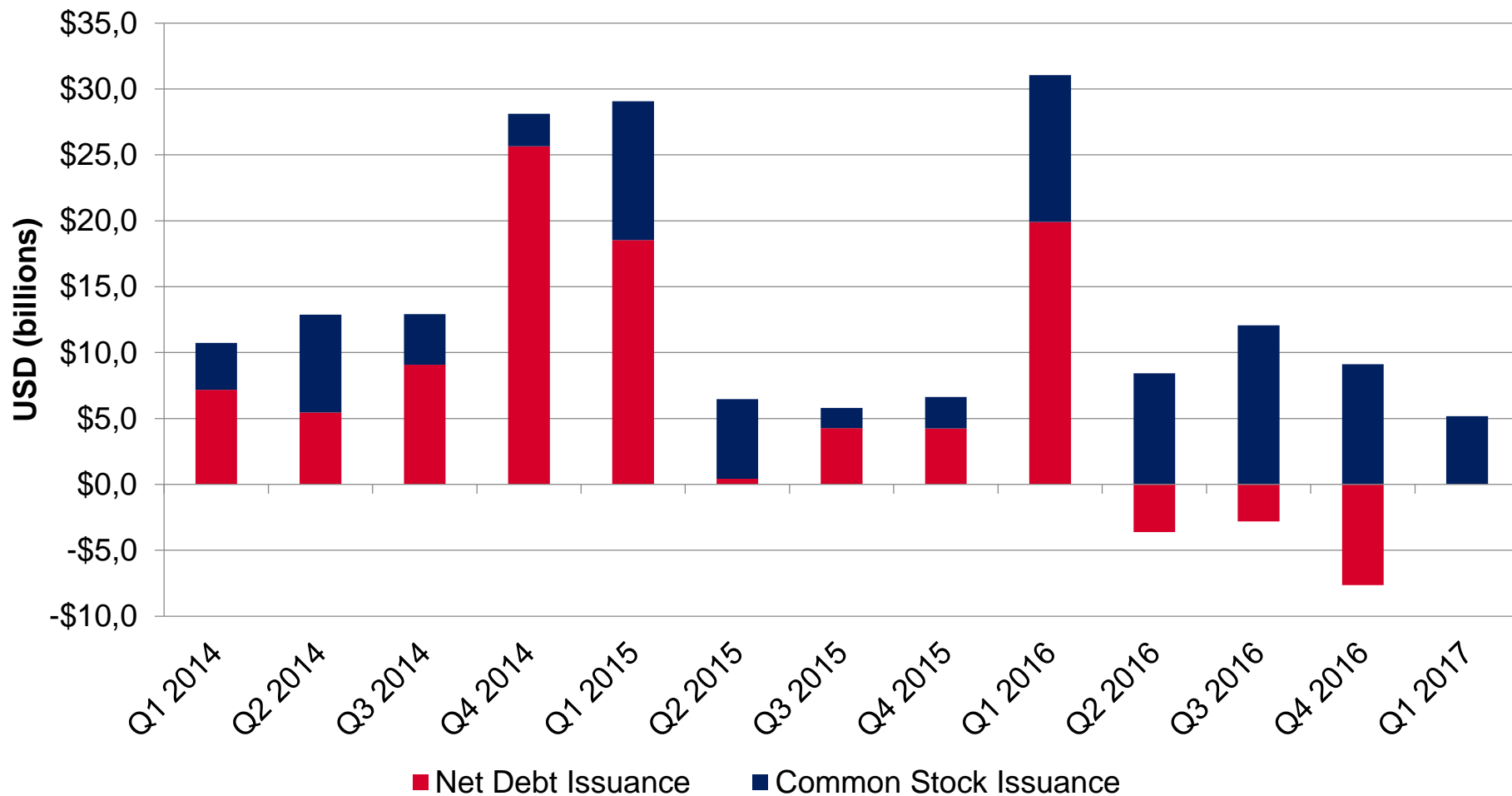


Annual Growth - US Shale Liquids



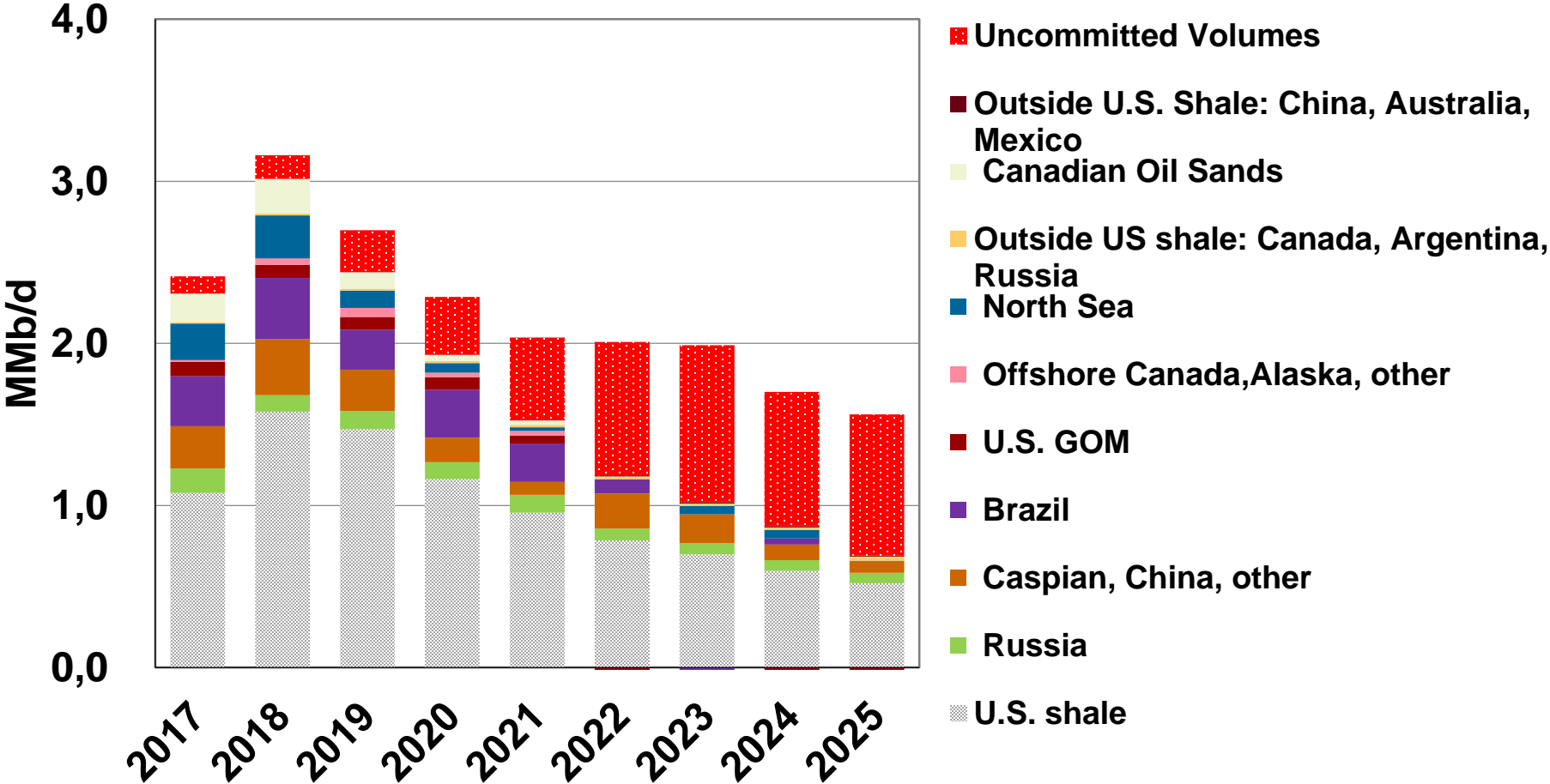
Financial markets, access to capital pose biggest risk to US production growth

Net Capital Inflows

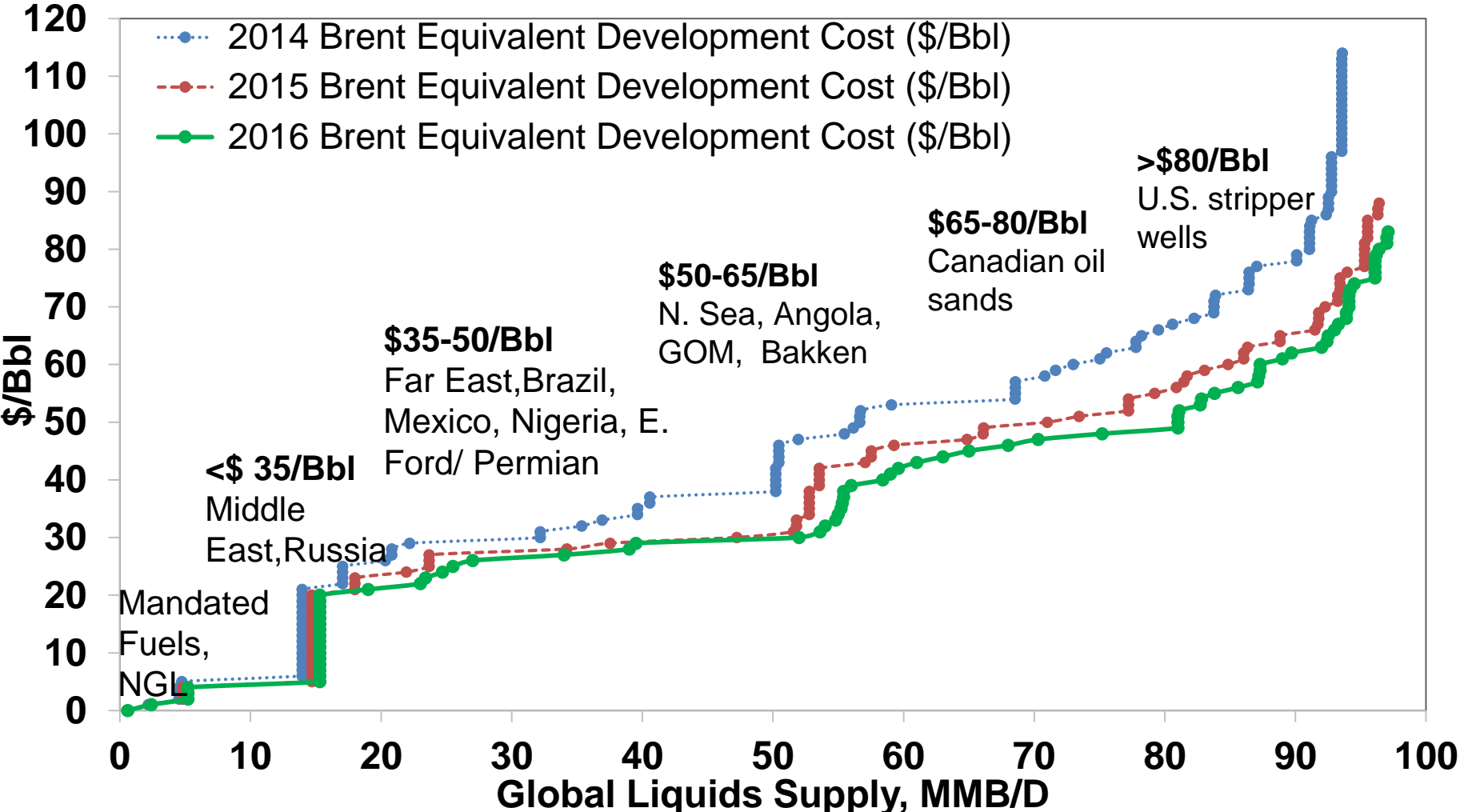


~ 1MMb/d per year of incremental crude supply needed to meet global demand

Supply Volumes Required to Meet Global Demand



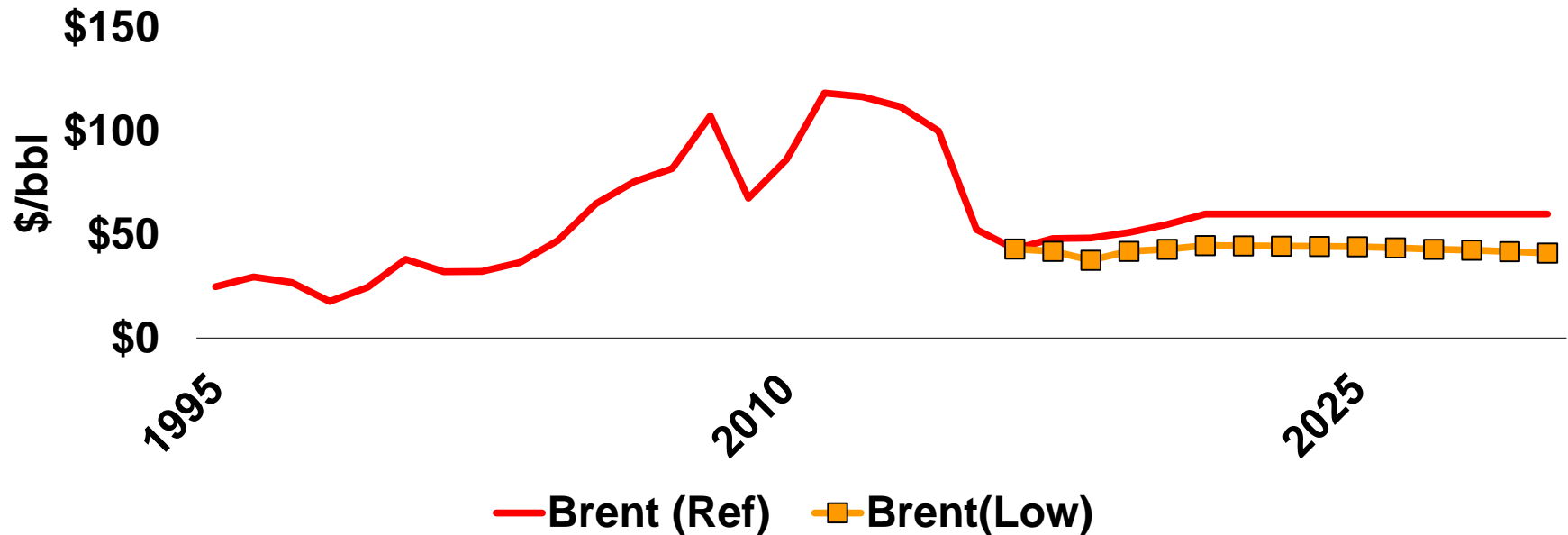
Global production more economic, higher crude prices are needed for supply outside the US



Prices

Weak economic growth, OPEC and shale grows beyond expectations lead to falling crude prices

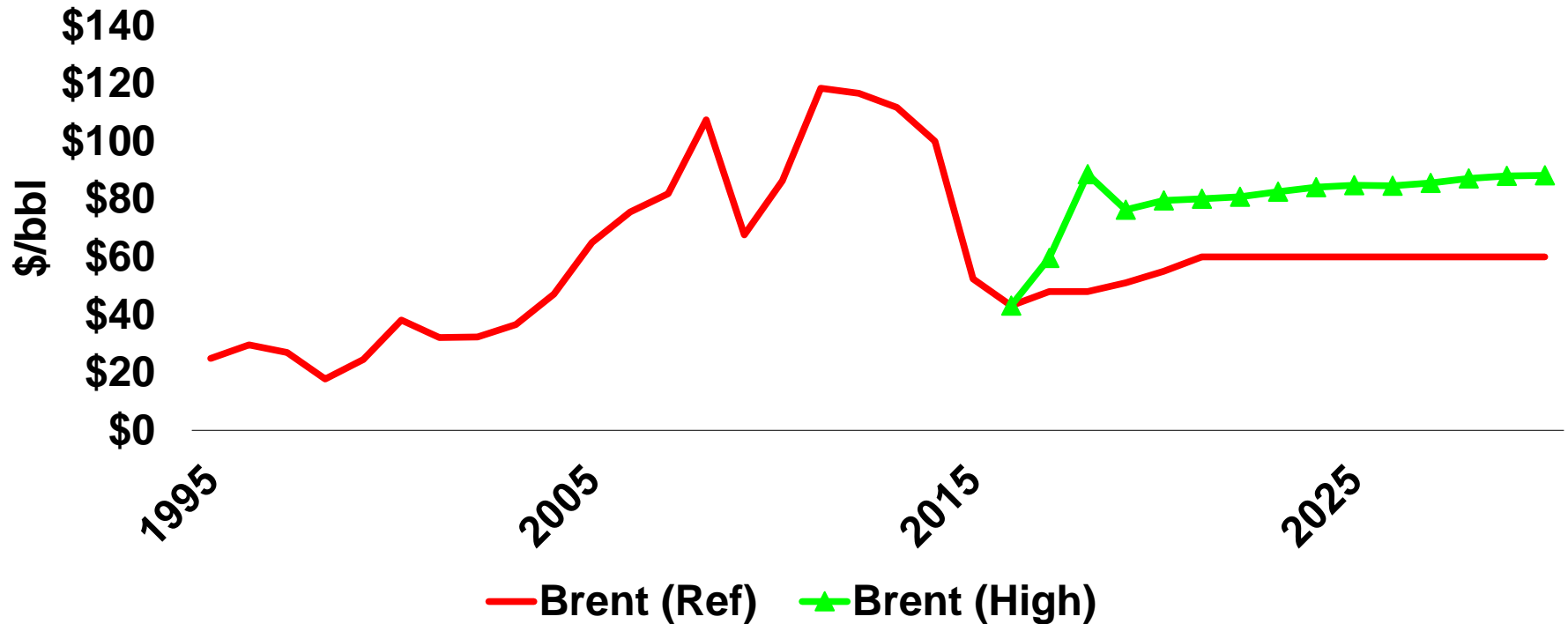
Crude Price Forecast with Low Price Scenario



- Weaker demand growth due to weak economy and/or price, policy, technology
- Greater-than-anticipated growth in non-OPEC supply, particularly shale
- OPEC capacity growth (including Iraq) approaching .5 to 1 MMB/D/year
- Technology improvement pushes breakeven costs down
- Ineffective OPEC

OPEC disruptions and under-investment, shale disappoints poses upside to crude prices

Crude Price Forecast with High Price Scenario



- OPEC capacity growth limited due to disruptions, under-investment
- Regulatory limits on shale, non-conventional rate of growth
- Price must move high enough to ration demand to available supply

Muchas Gracias!



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