

به نام خدا



Selected Topics in the Oil & Gas Industry: Strategy, Economics & Investment

Ramin Forouzandeh | July 8th, 2020 | Online Webinar

Introduction

About Ramin Forouzandeh

- Strategy, investment & M&A professional in the energy industry
- 10+ years experience as engineer, consultant, strategist and manager
- Educations in petroleum engineering, economics and management
- Currently:
 - Strategy & Corporate Development Manager at Dana Energy
 - Advisor to CEO at Jey Oil Refining Company
 - Non-executive Director at several energy companies
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Agenda

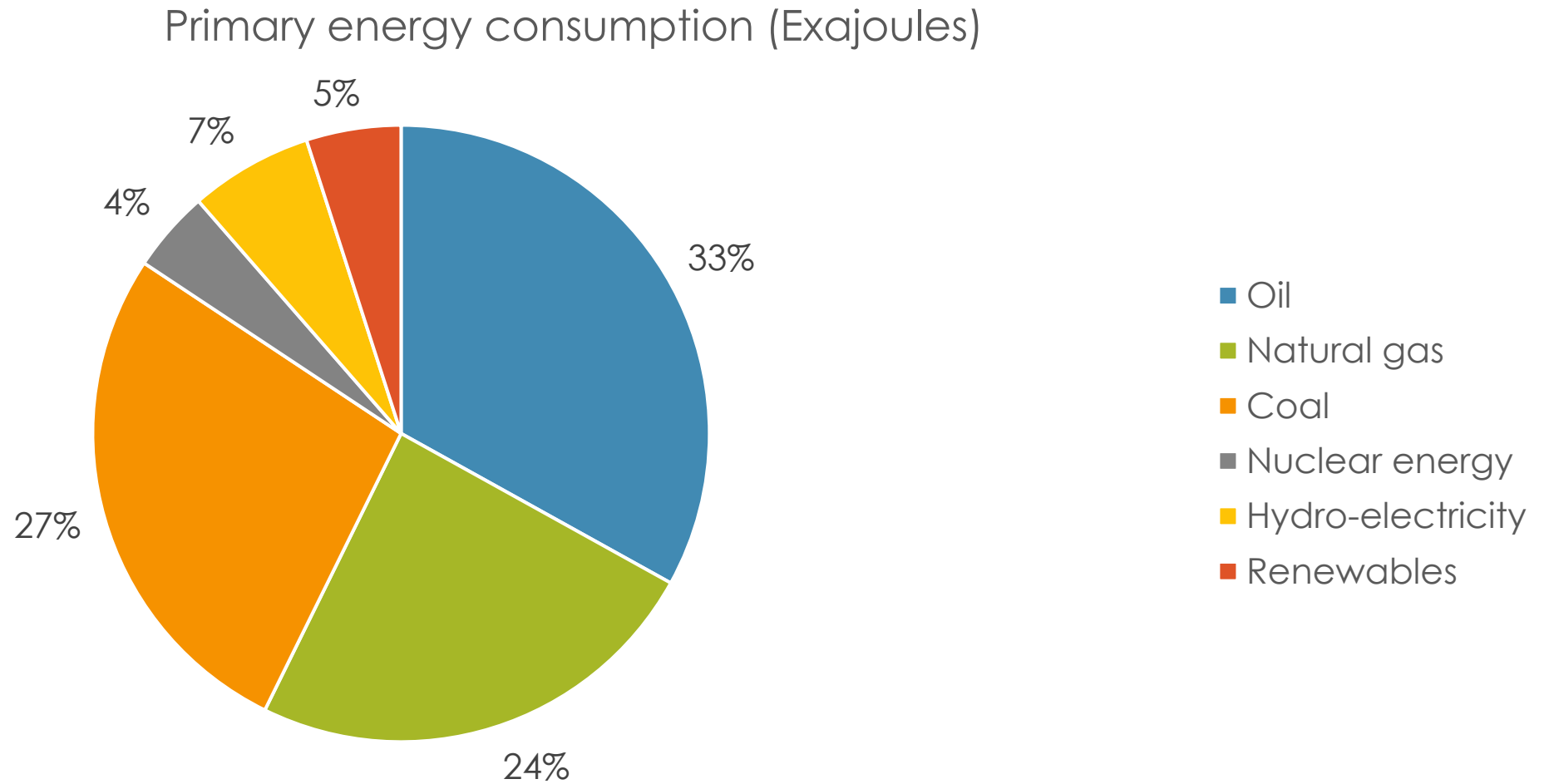
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|-----|---------------------|----------------------------------------------------------------------------------------------------|
| 15' | Introduction | |
| 30' | Strategy | <ul style="list-style-type: none">• The Energy Cake• The 8 MBPD Agenda |
| 30' | Economics | <ul style="list-style-type: none">• The New Peak Oil• US Shale Revolution |
| 30' | Investment | <ul style="list-style-type: none">• Energy Investment• Consolidation trends |
| 15' | Q&A | |



The Energy Cake

Key trends in the world energy consumption

The Energy Cake



Two Views of the Cake

How much

Size of the cake

Energy efficiency

GDP growth, population

From where

Ingredients of the cake

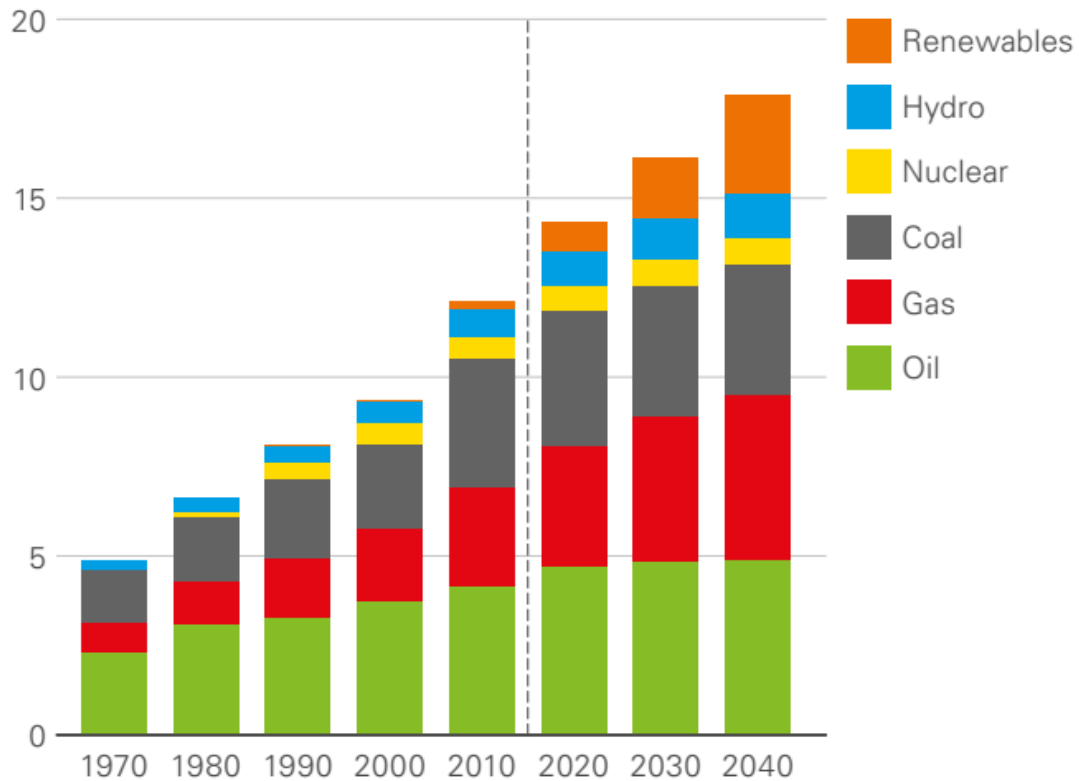
Renewable energies

Environmental policies

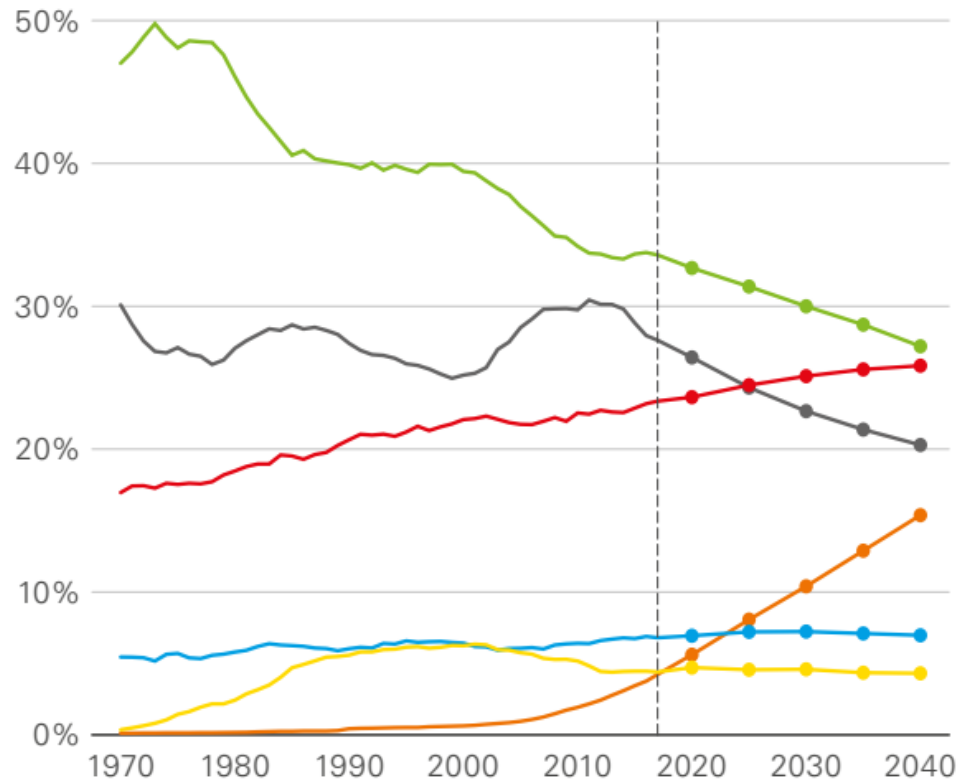
Two Views of the Cake - cont.

Primary energy consumption by fuel

Billion toe



Shares of primary energy



3 drivers of energy shift

Shape of GDP

increase in share of the services sector

Efficiency

less energy for the same GDP level

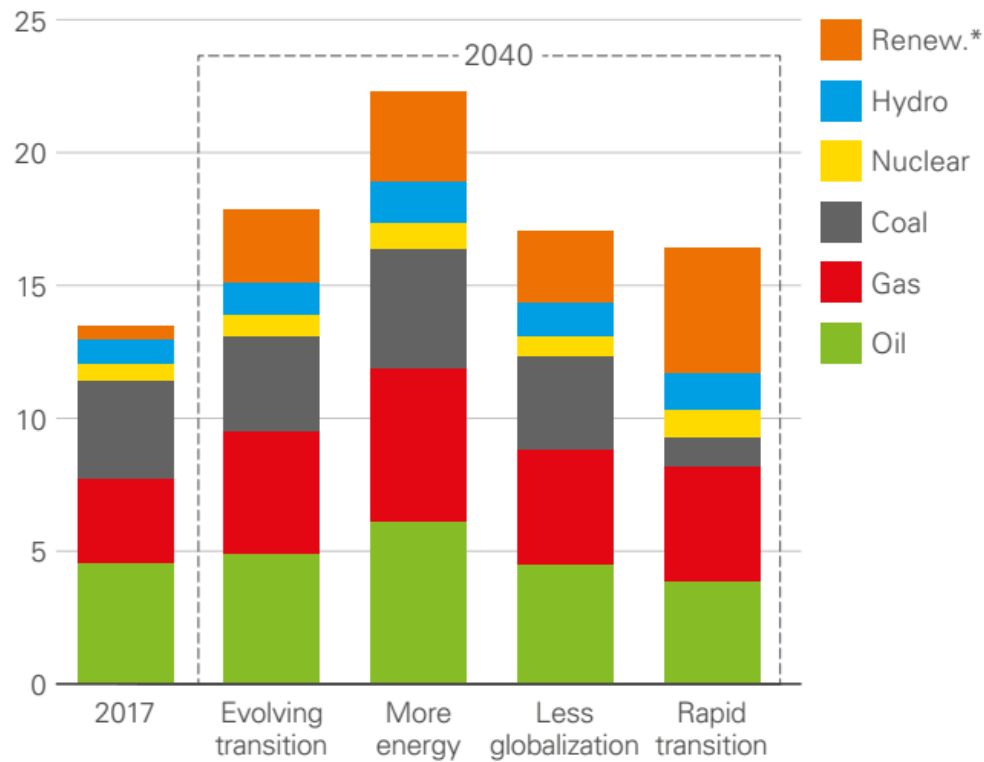
Electrification

High growth of electricity

Different Scenarios

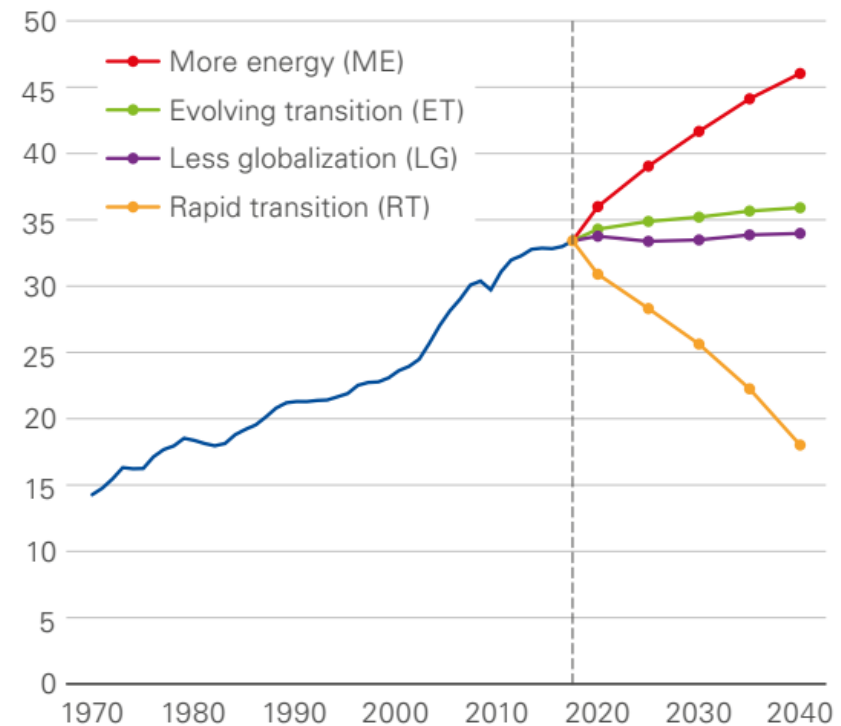
Primary energy consumption by fuel

Billion toe



CO₂ emissions

Gt of CO₂



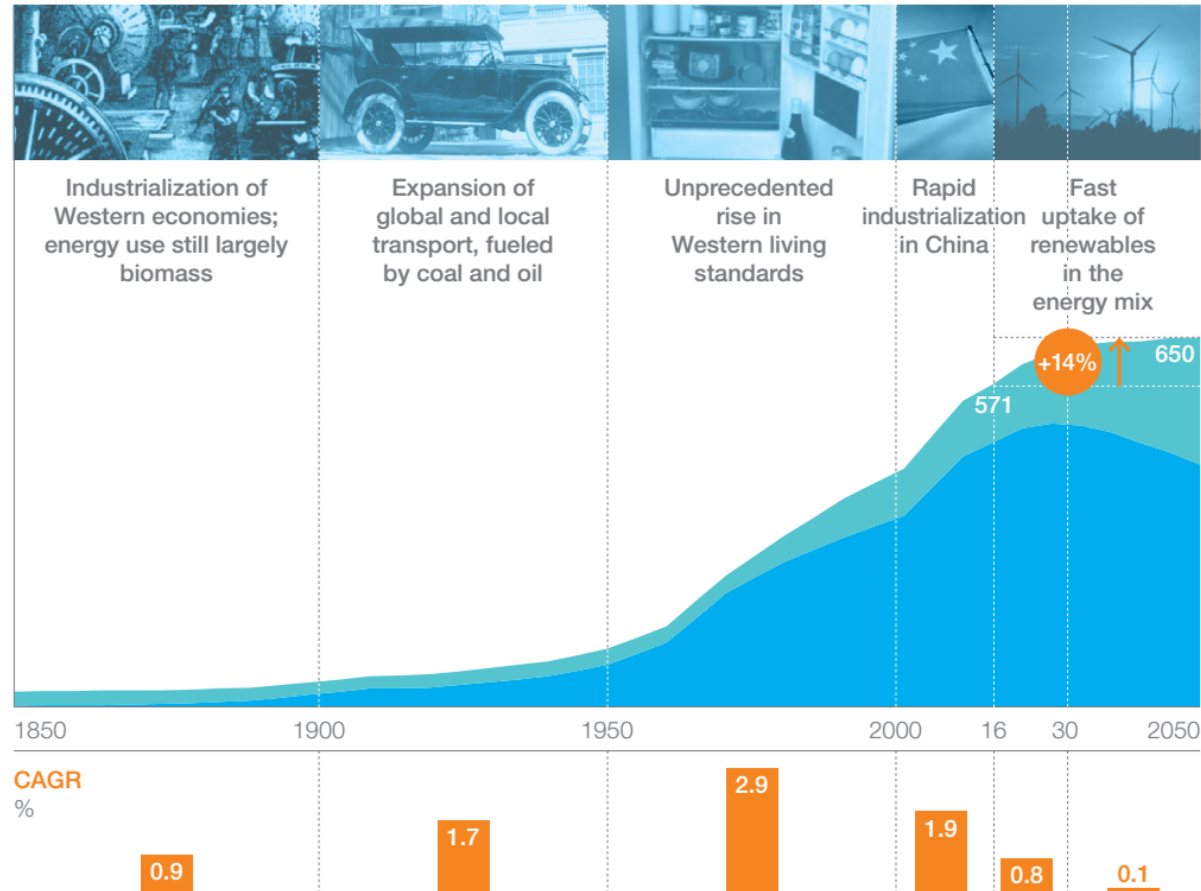
*Renewables includes wind, solar, geothermal, biomass, and biofuels. For full list of data definitions see p138



Long-term Energy Consumption Growth

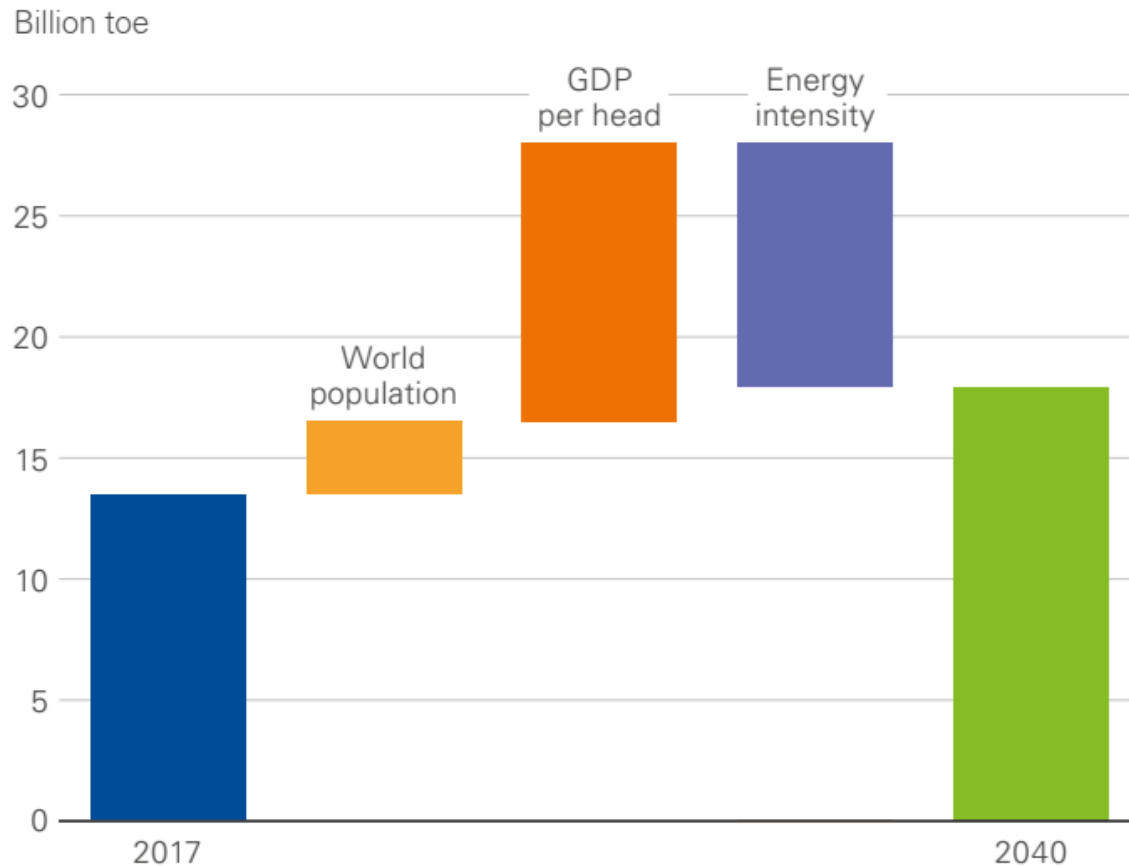
Global primary energy demand
Million terajoules (TJ)

Renewables Fossil fuels

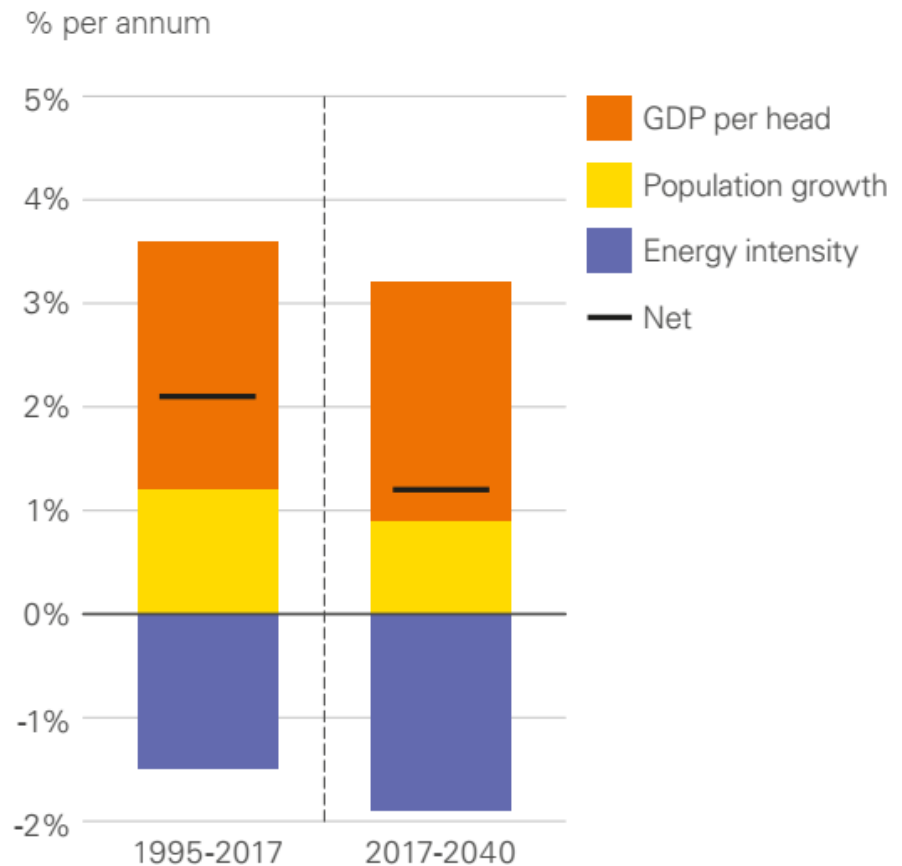


Efficiency & Energy Intensity

Increase in primary energy demand, 2017-2040

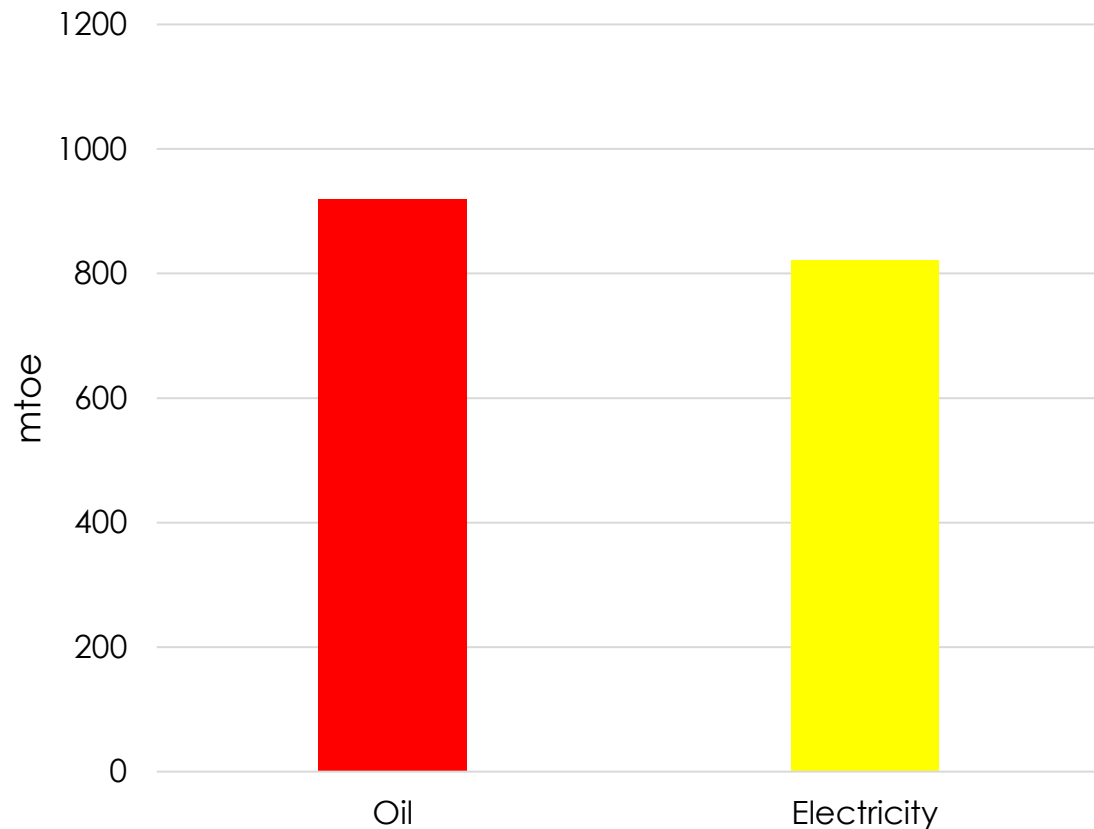


Contributions to primary energy demand growth

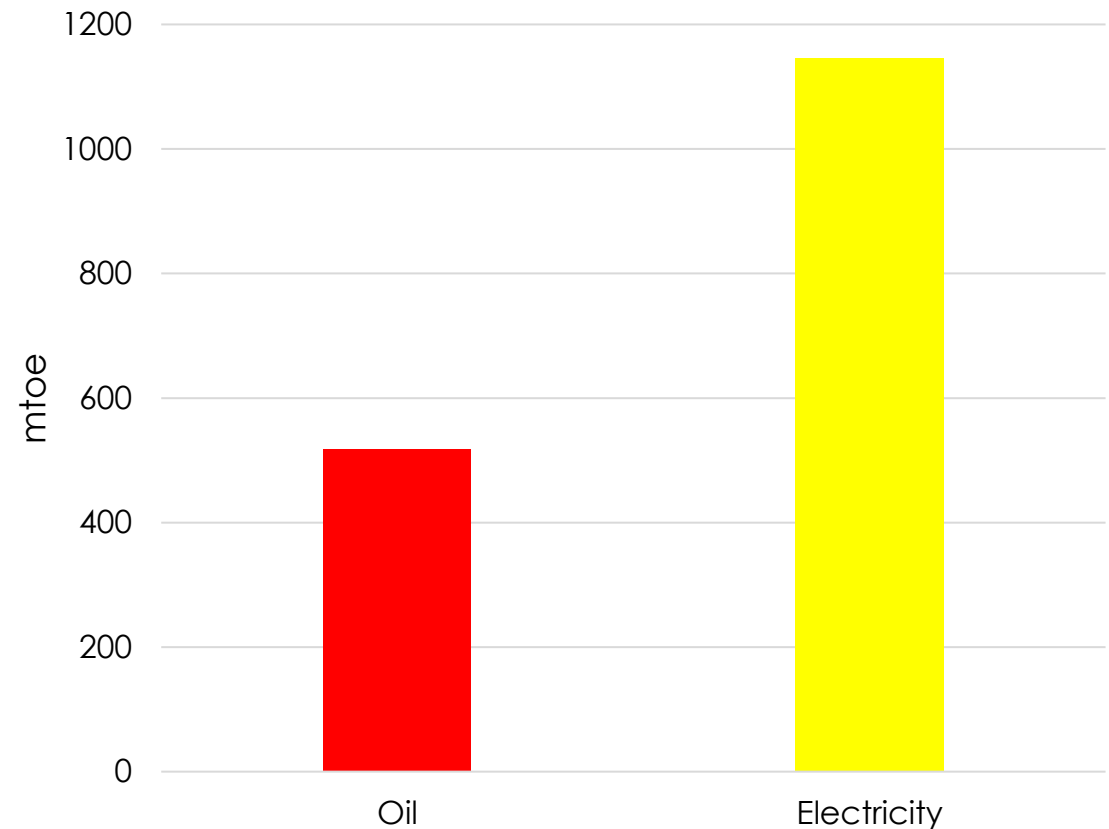


Electrification

Change in global oil and electricity consumption, 2000 - 2018

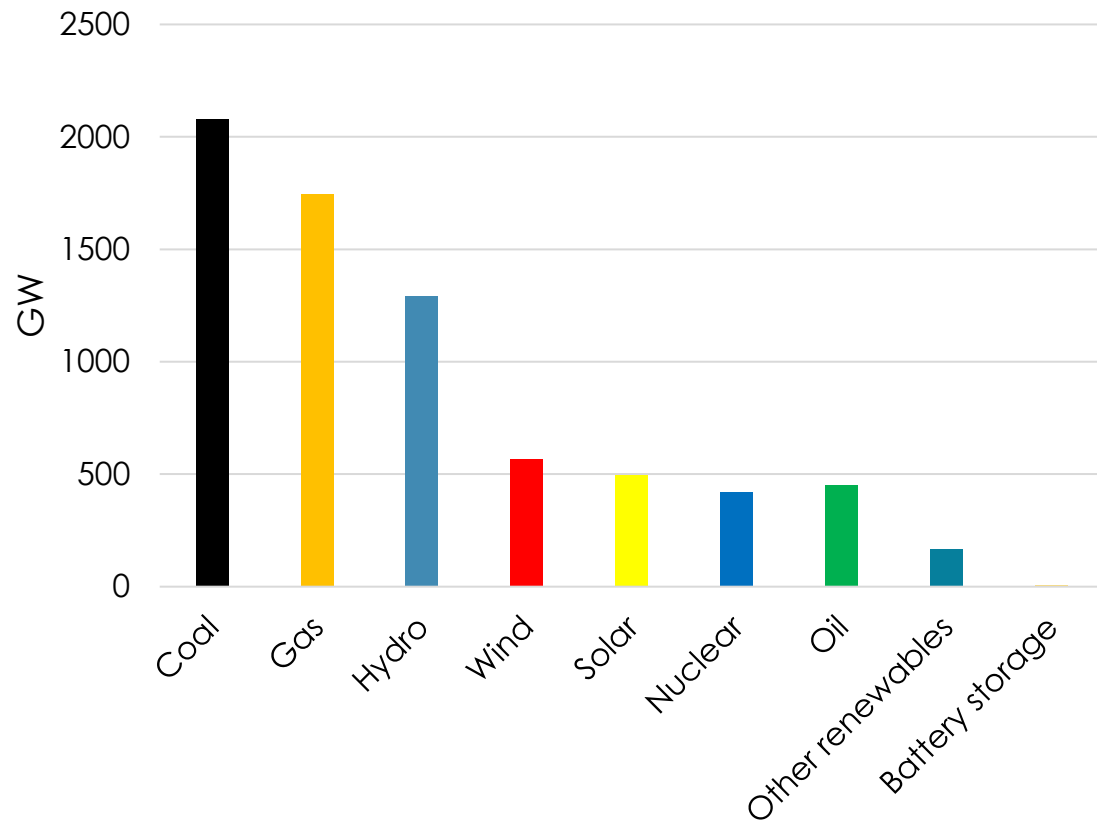


Change in global oil and electricity consumption in the SPS, 2018 - 2040

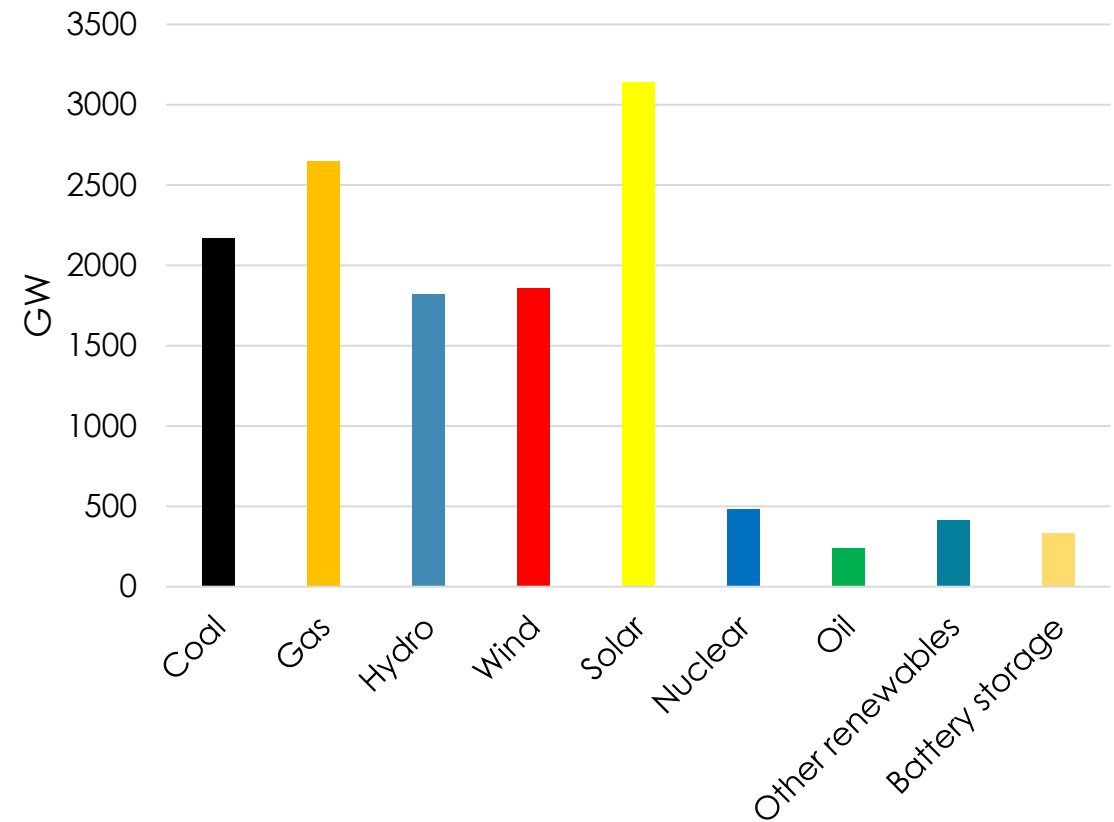


Electrification by the Renewables

Global power capacity by source in the Stated Policies Scenario (2018)



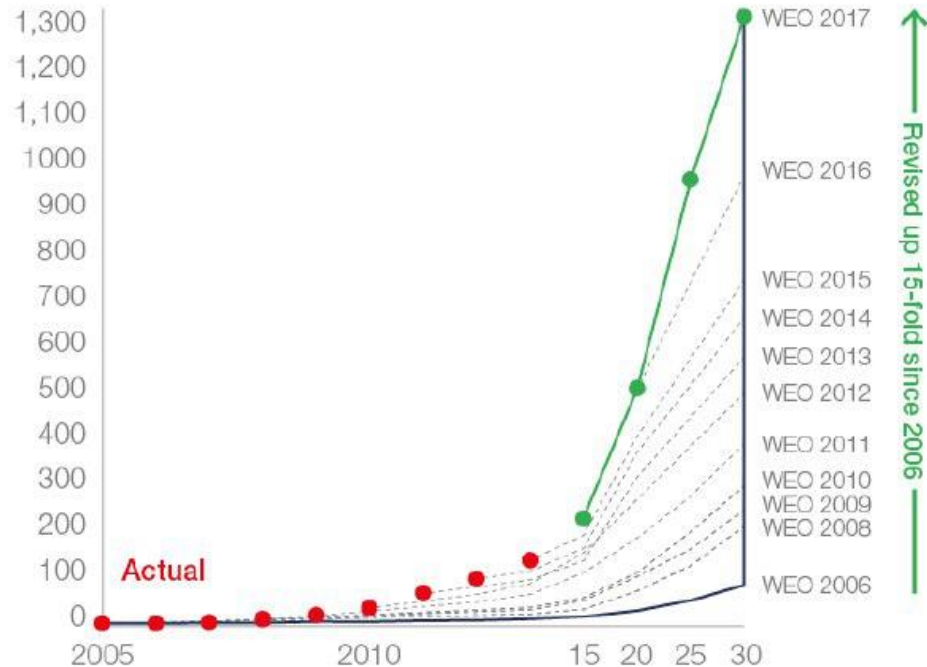
Global power capacity by source in the Stated Policies Scenario (2040)



Underestimating the Renewables

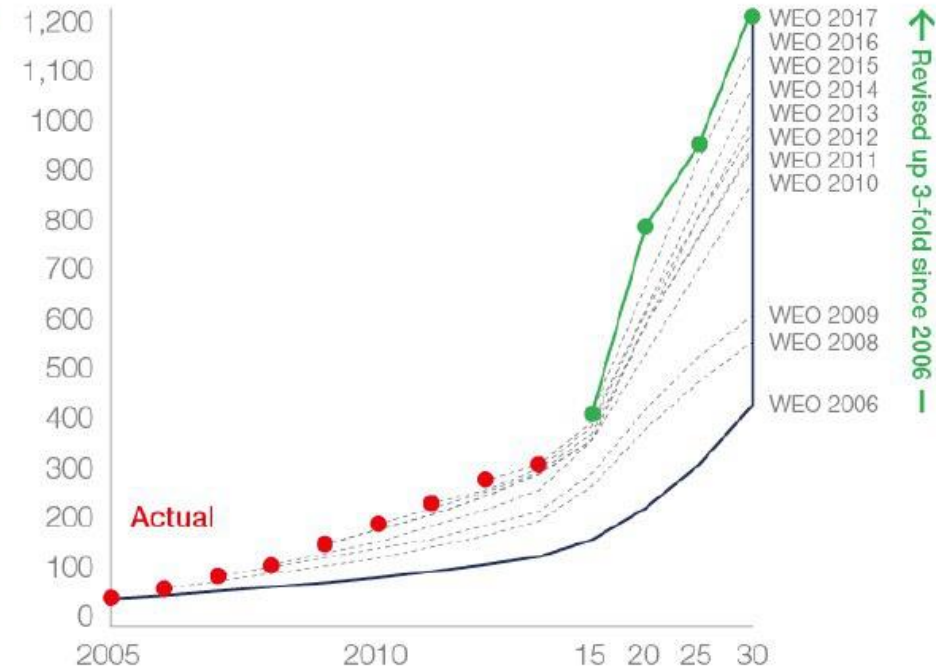
Solar: global forecast of cumulative installed capacity

GW



Wind: global forecast of cumulative installed capacity

GW



Source: IEA World Energy Outlook – New Policy Scenario

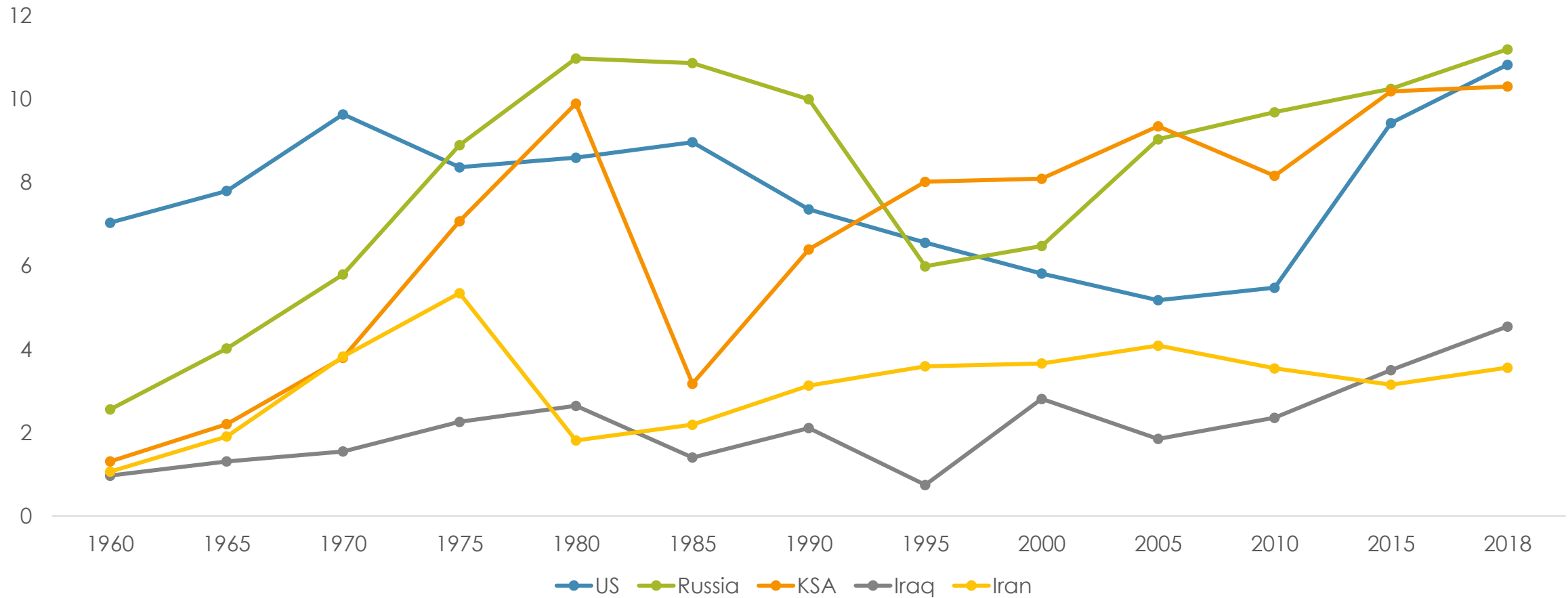


The 8 MBPD agenda

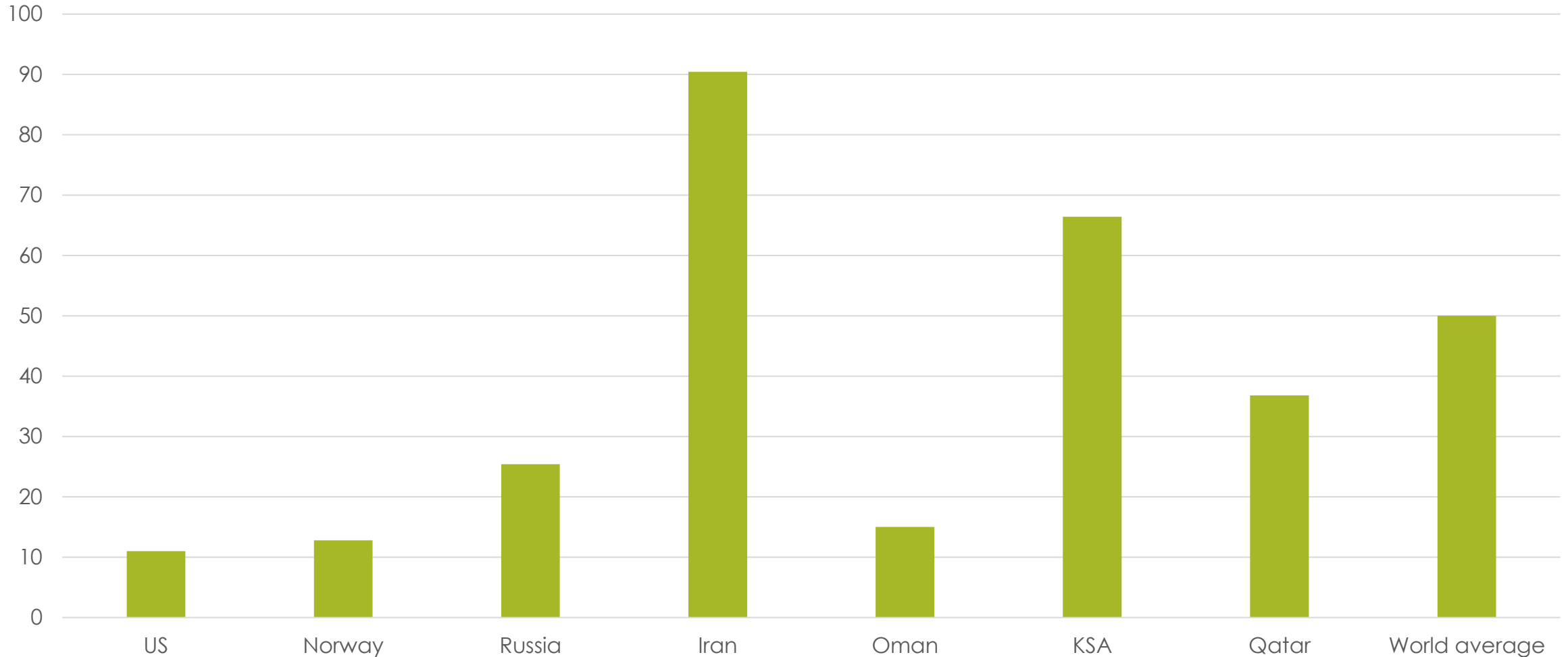
How to boost Iran's oil production?

Iran Oil Production

Oil production (MMBPD)



Reserve to Production Ratios



Iran Upstream Assets' Issues

Exploration and Appraisal

Exploration
Blocks

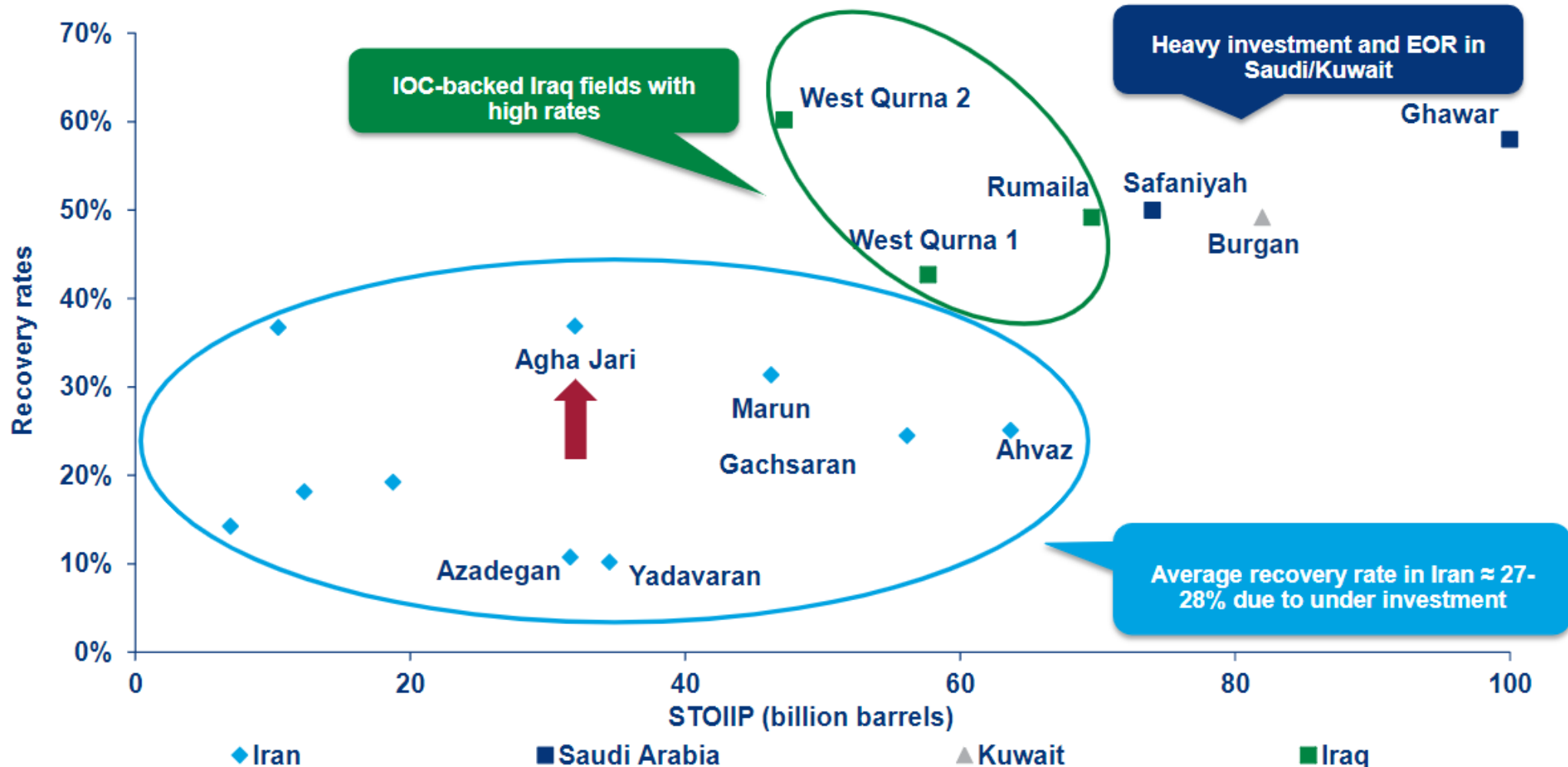
Development and Production

200+
Undeveloped
Assets

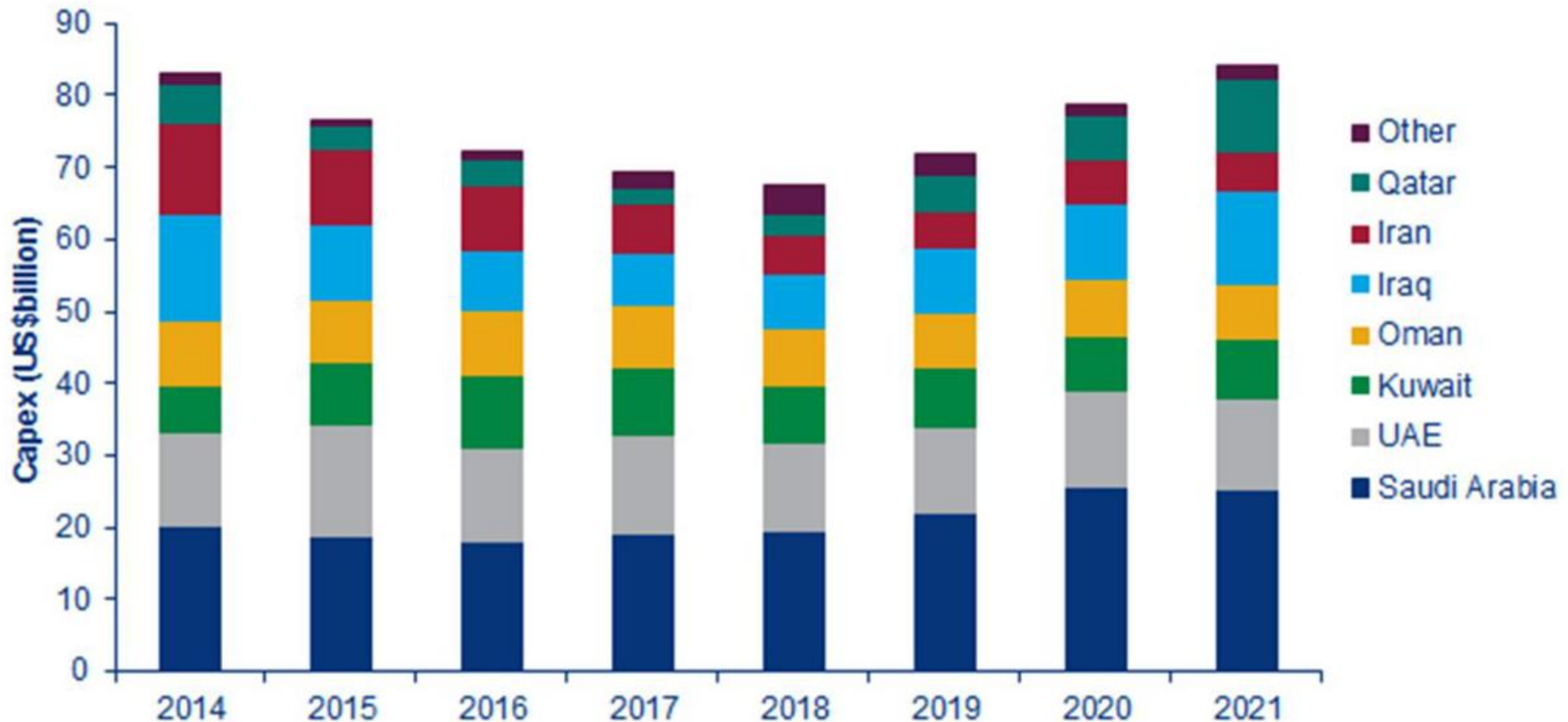
IOR / EOR

Recovery Factor
Around 25%

Low Recovery Factor



Middle East Upstream Investment



How to achieve 8 MBPD?

- **Fiscal Regime:** concessions with much better financial terms
- **Ministry of Petroleum:** focus on governance, not day-to-day management of assets
- **NIOC:** Play as an energy firm to create economic value
- **Private Sector:** Wider ground to maximize assets' economic value



The New Peak Oil

How the oil demand will evolve within the next few decades?

Hubbert peak

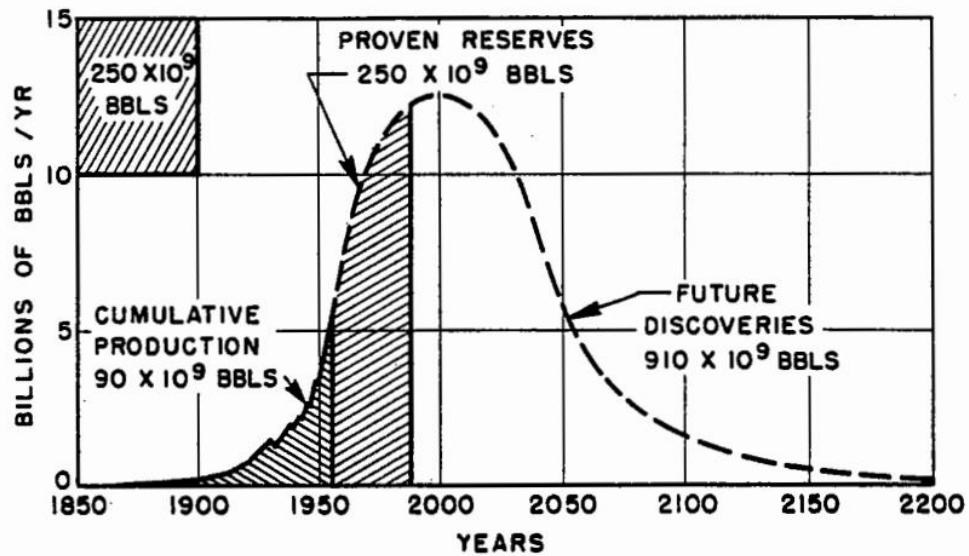


Figure 20 - Ultimate world crude-oil production based upon initial reserves of 1250 billion barrels.

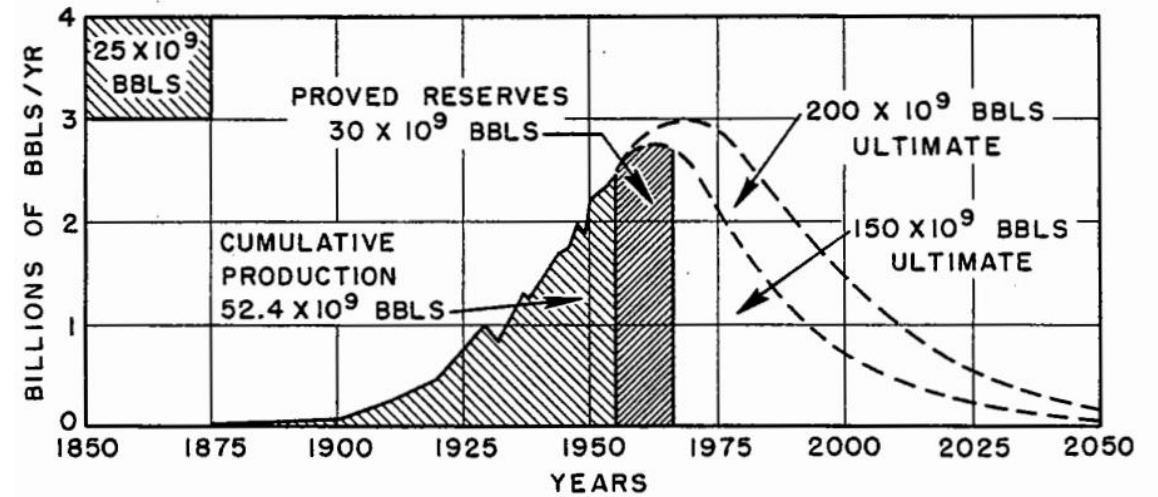


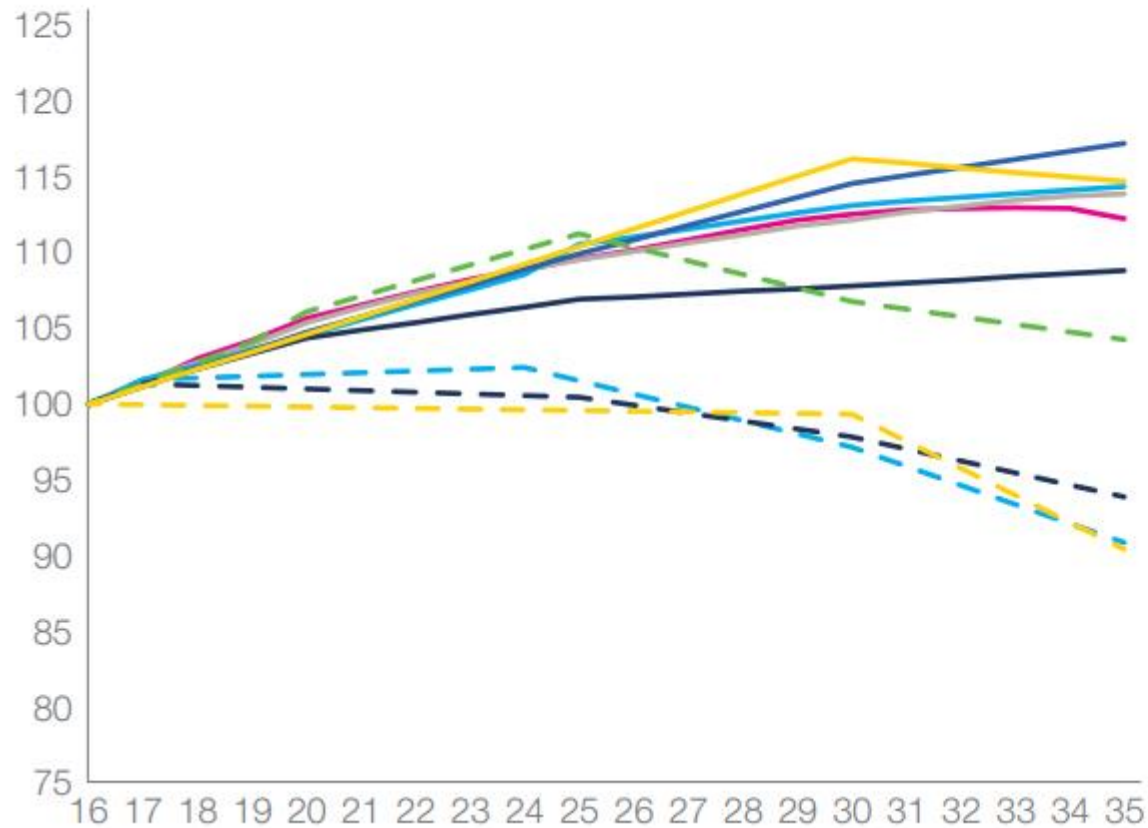
Figure 21 - Ultimate United States crude-oil production based on assumed initial reserves of 150 and 200 billion barrels.

Peak Oil Demand Scenarios

Global oil demand¹

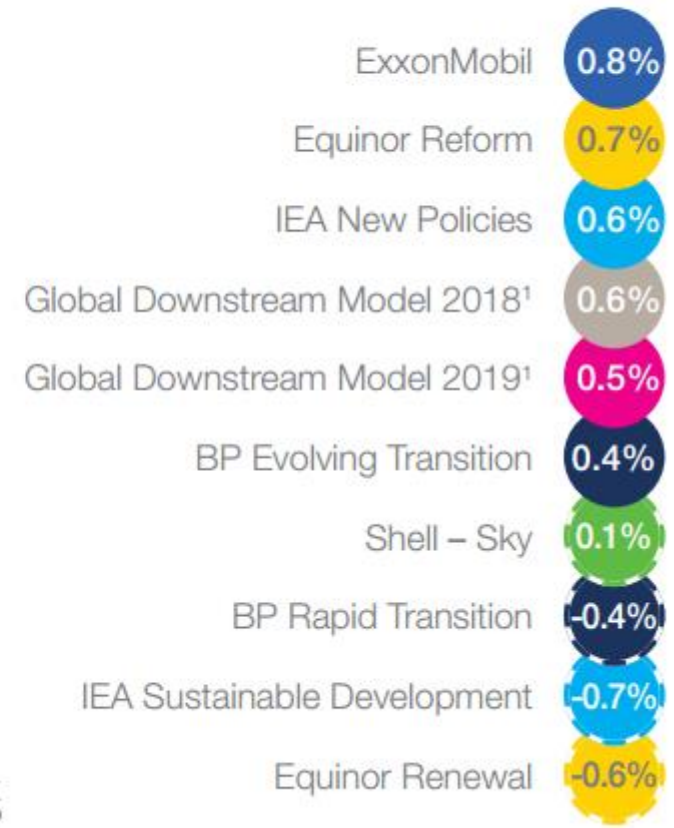
Indexed to 100

— Reference case forecasts -- Sustainability cases



CAGR

2018-35

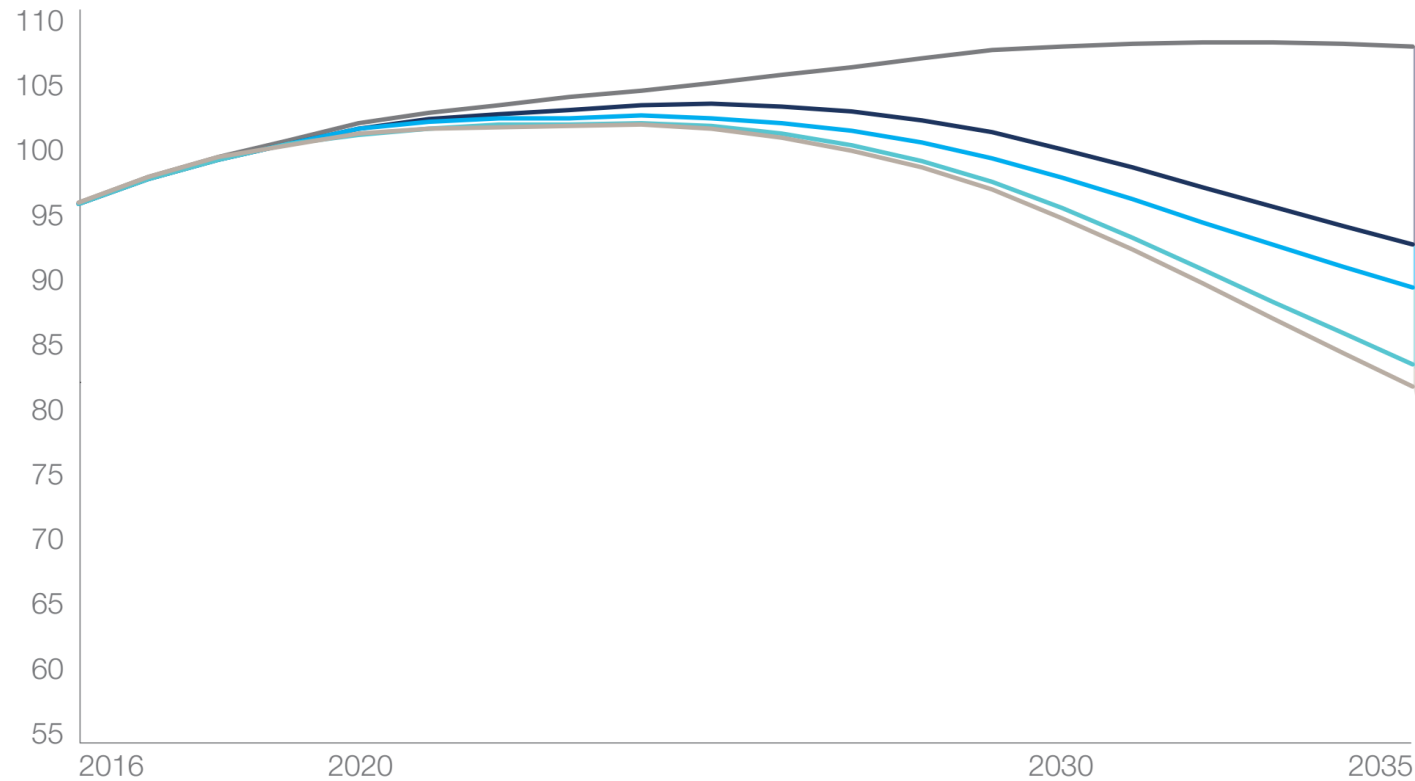


How Peak Oil Demand Would Happen?

Global liquids demand

MMb/d

— Reference — Road disruption — Chemicals disruption
— Aviation and marine disruption — Accelerated Energy Transition



Source: Energy Insights' Global Energy Perspective, January 2019

■ Reference Case ■ Additional in Accelerated Energy Transition case

EV passenger car penetration

EVs as % of global new passenger car sales



EV commercial vehicle penetration

EVs as % of global new truck car sales



Plastics recycling

% polyethylene from recycled feedstock



Alternative fuels uptake

% biofuels, natural gas, and electricity in the fuel mix

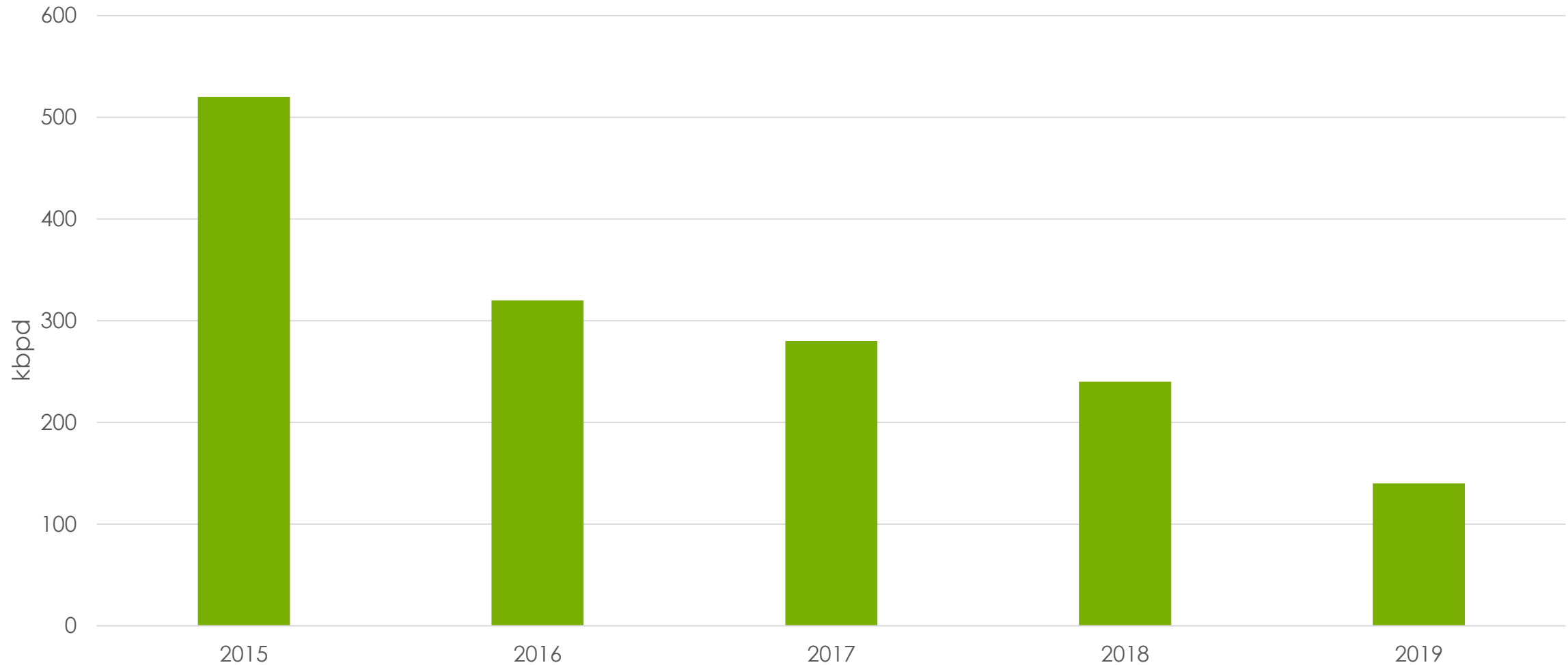


Other

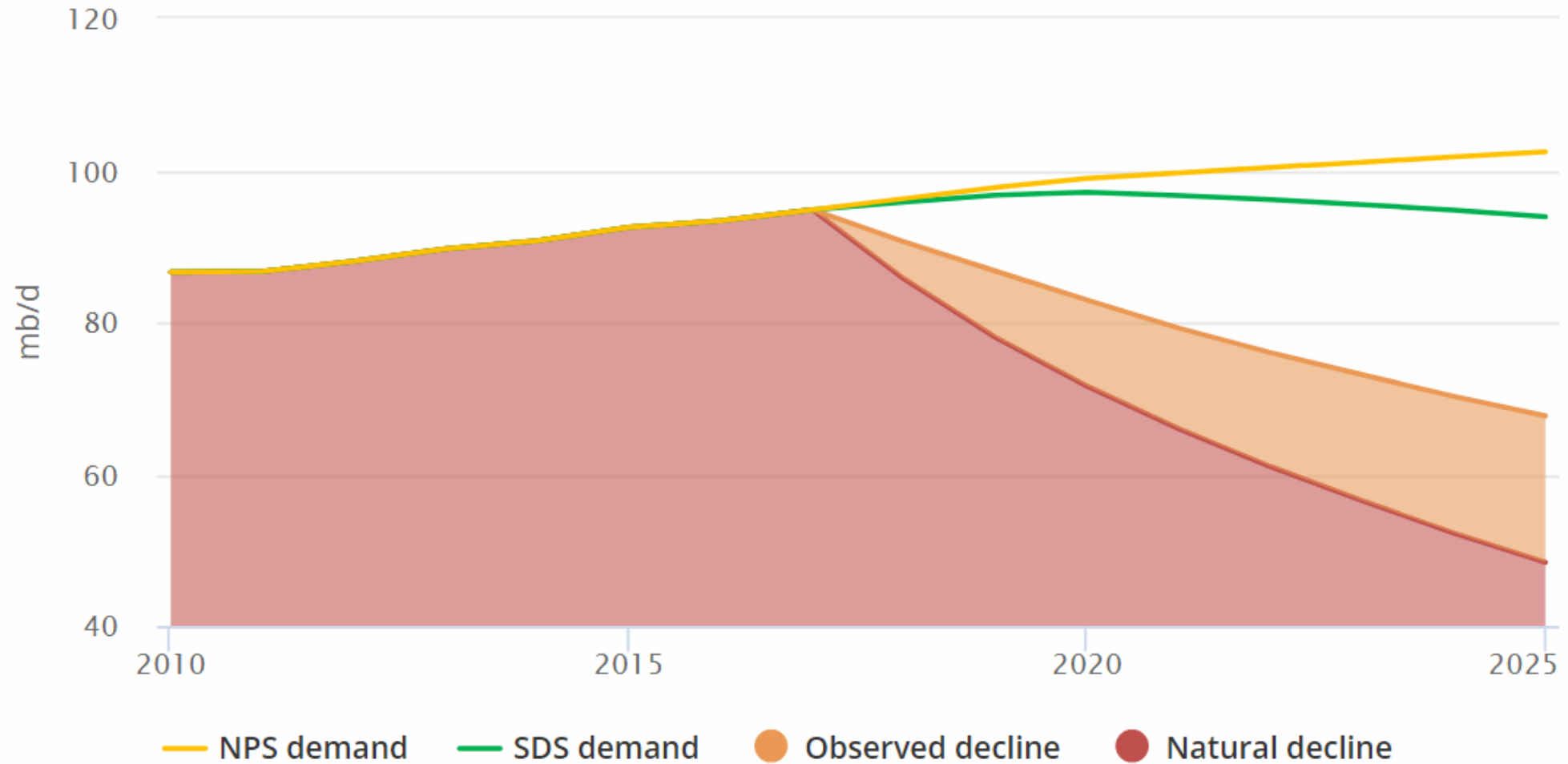
Heat and cooking electrification; industry electrification; and other transport and other energy sectors



Average annual oil demand growth, 2035–2040



Required Investments

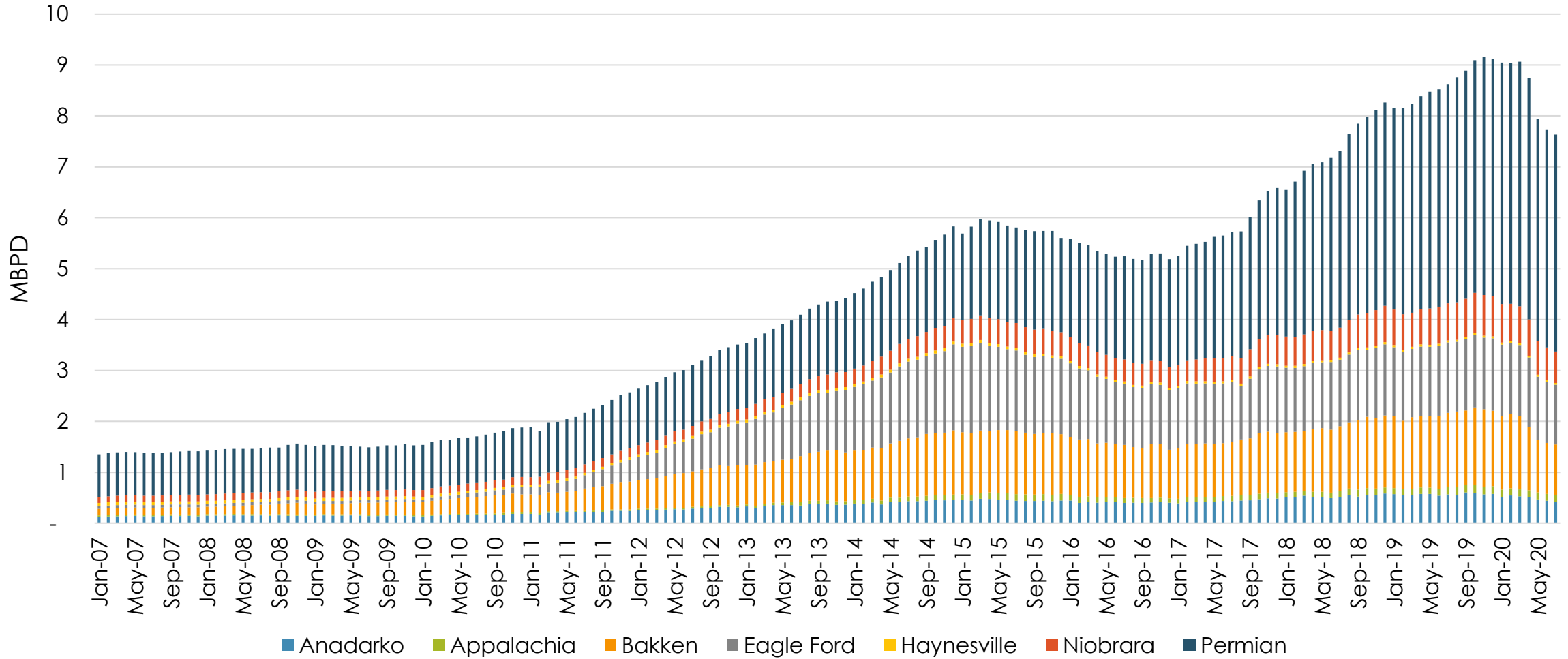




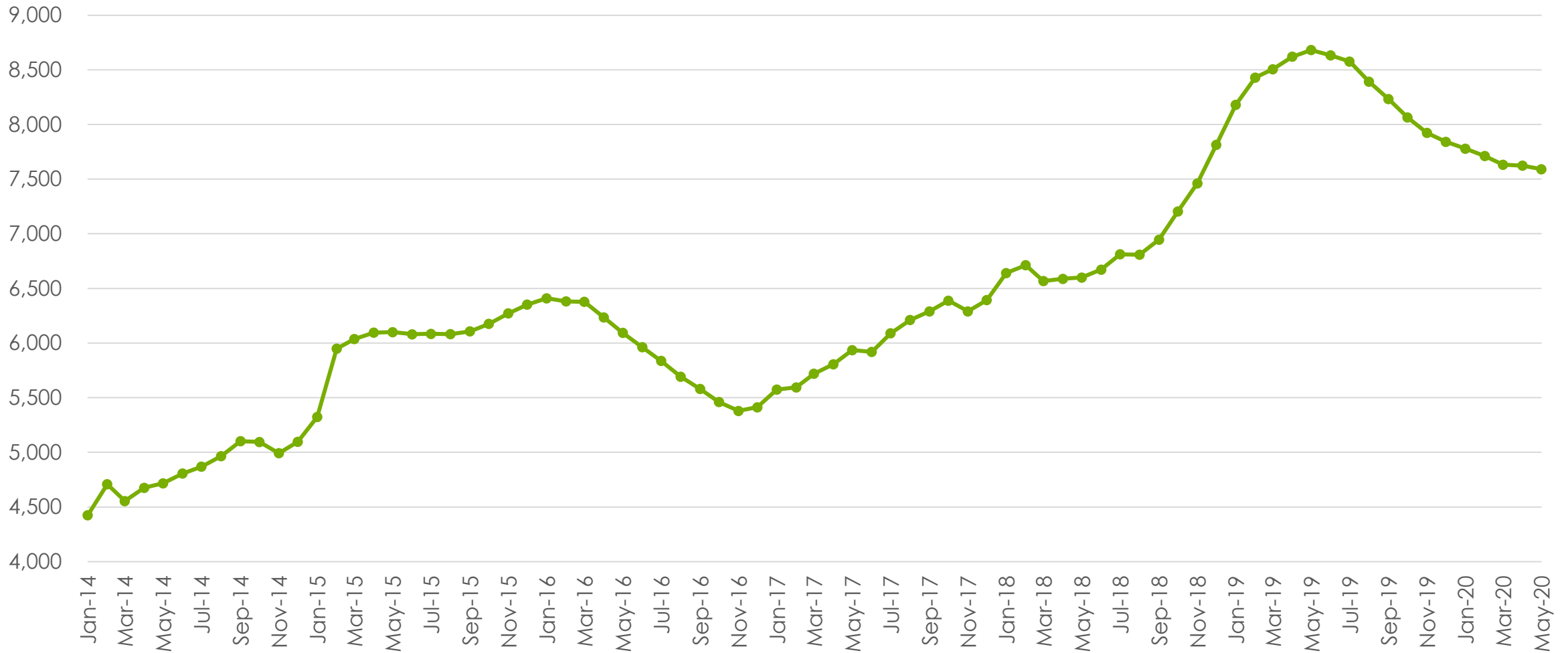
US Shale Revolution

The shale oil dynamics and its implications for the global oil market

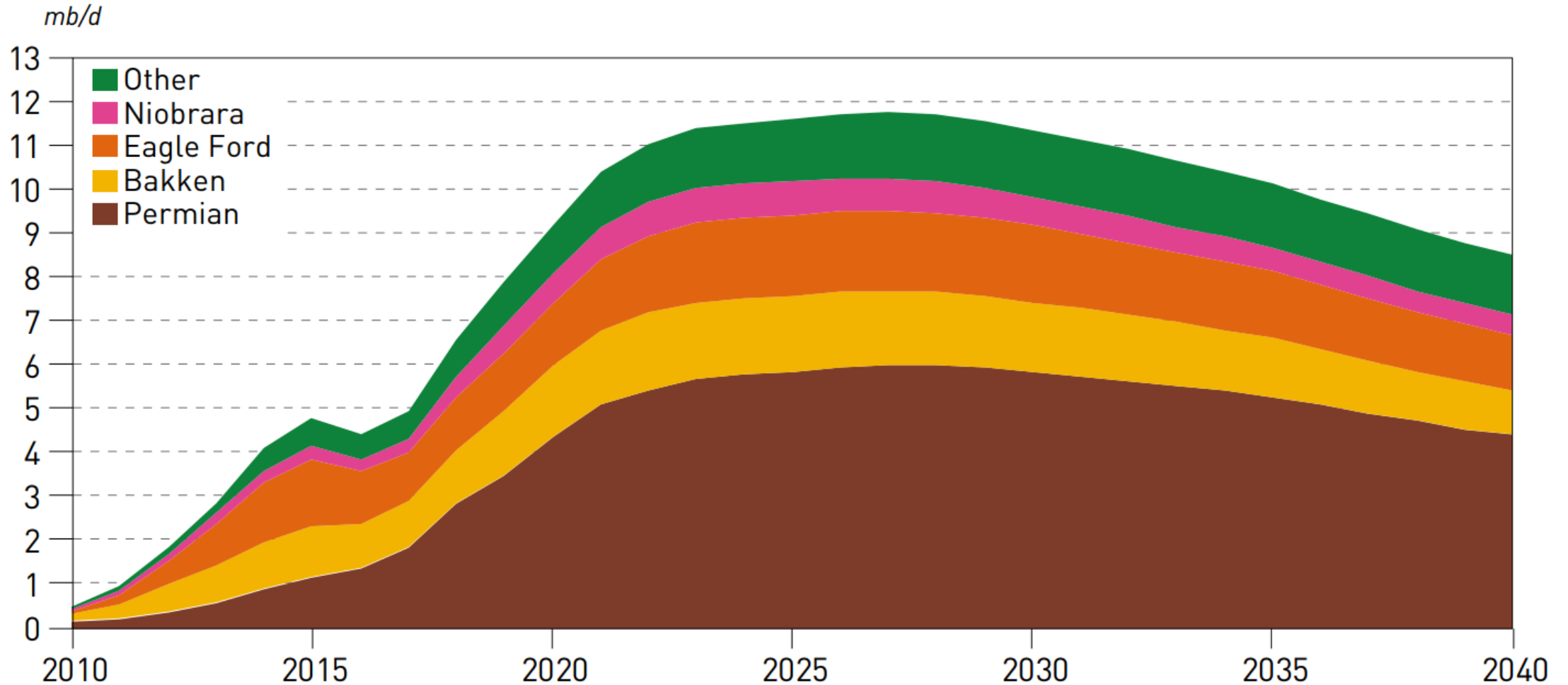
US Shale Oil Production



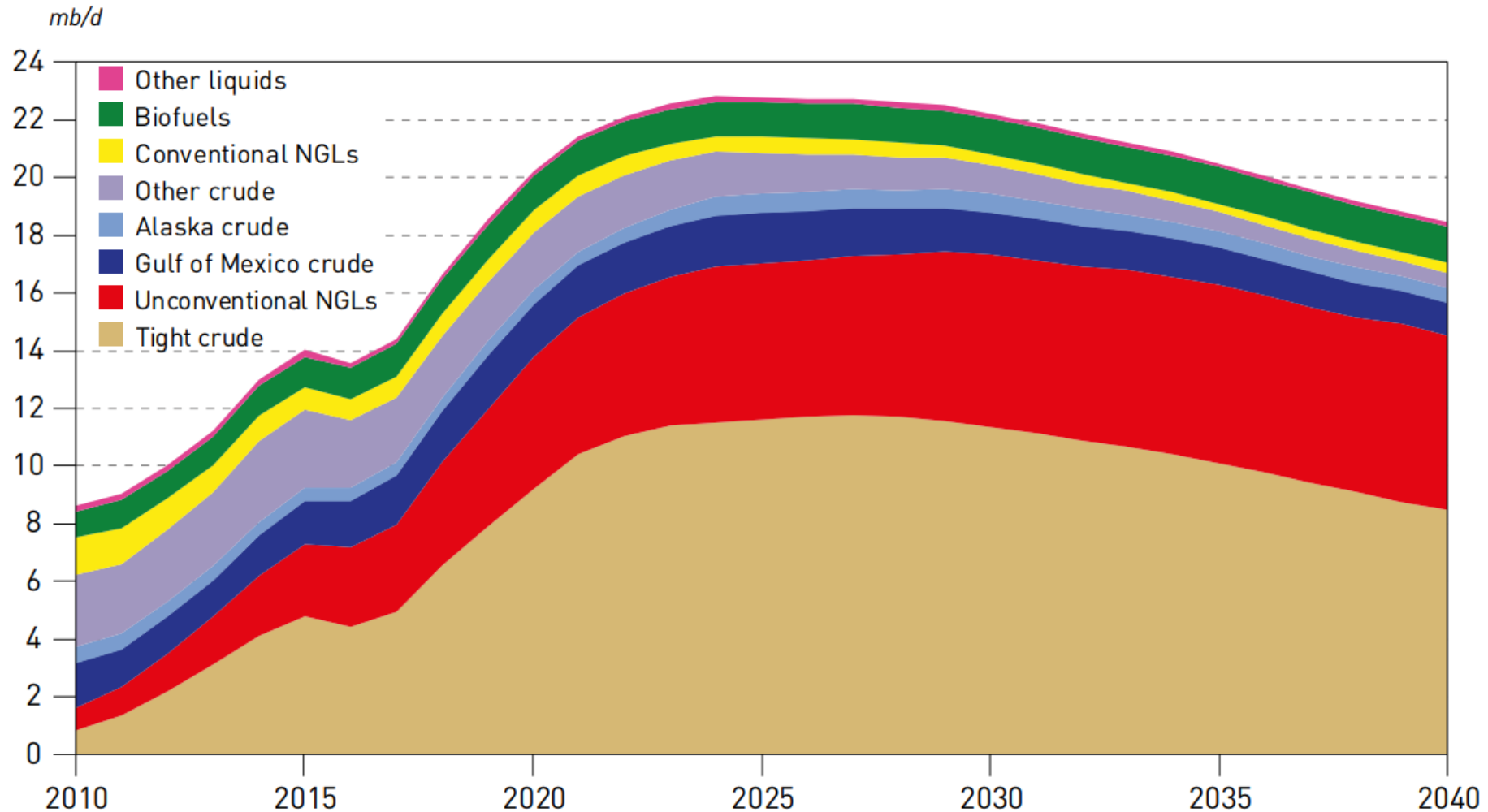
DUC wells



US Tight Oil Production Outlook

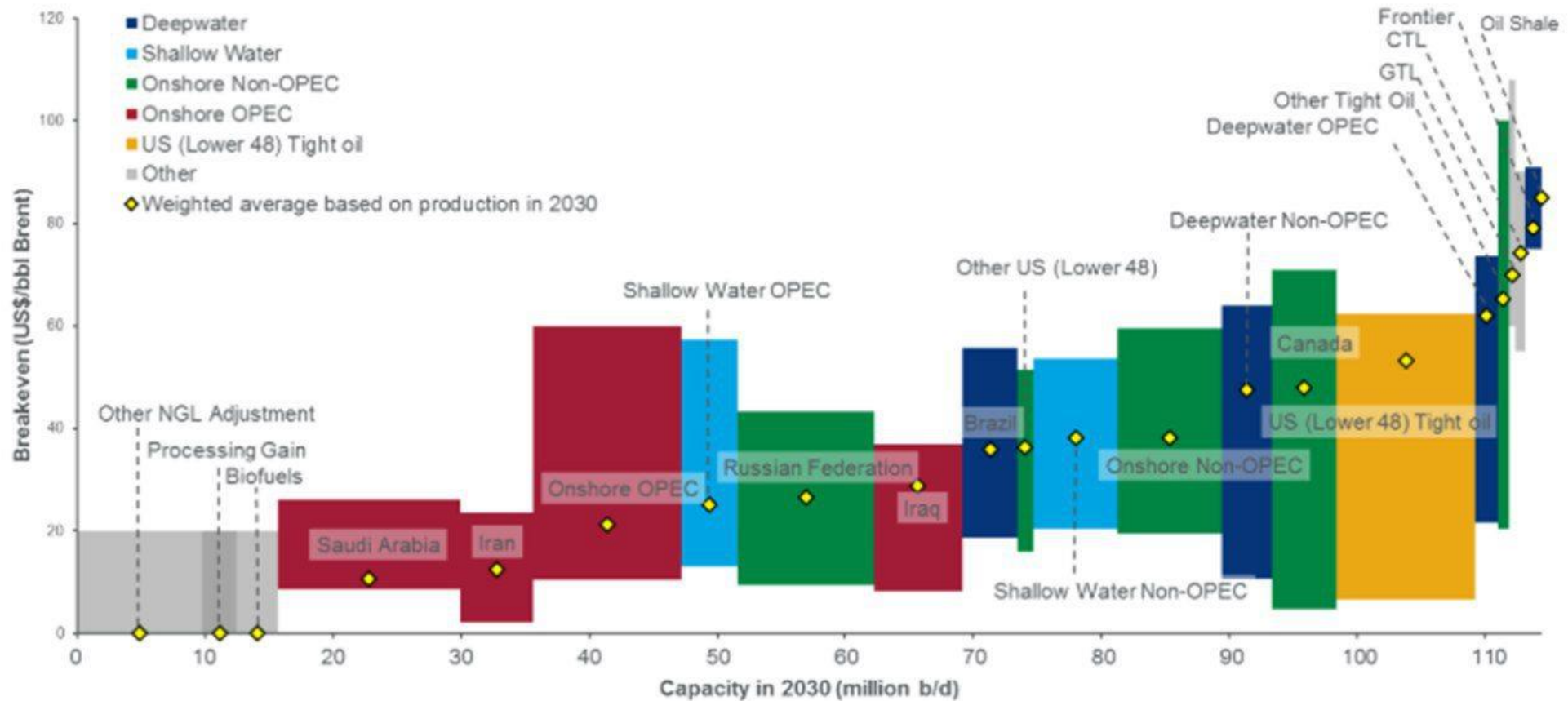


US Liquids Supply Outlook

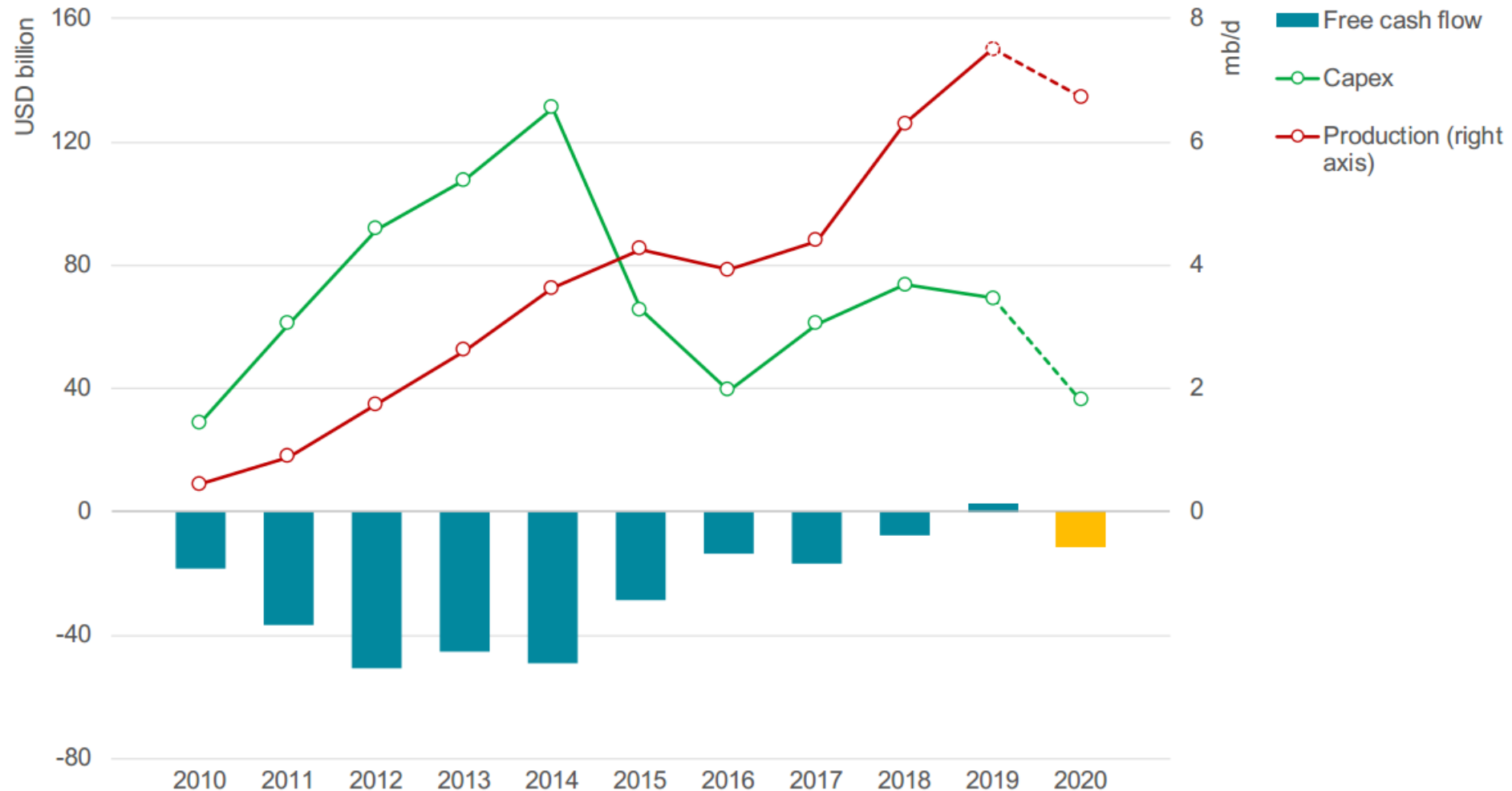


Cost Curve

Global liquids capacity in 2030 by breakeven

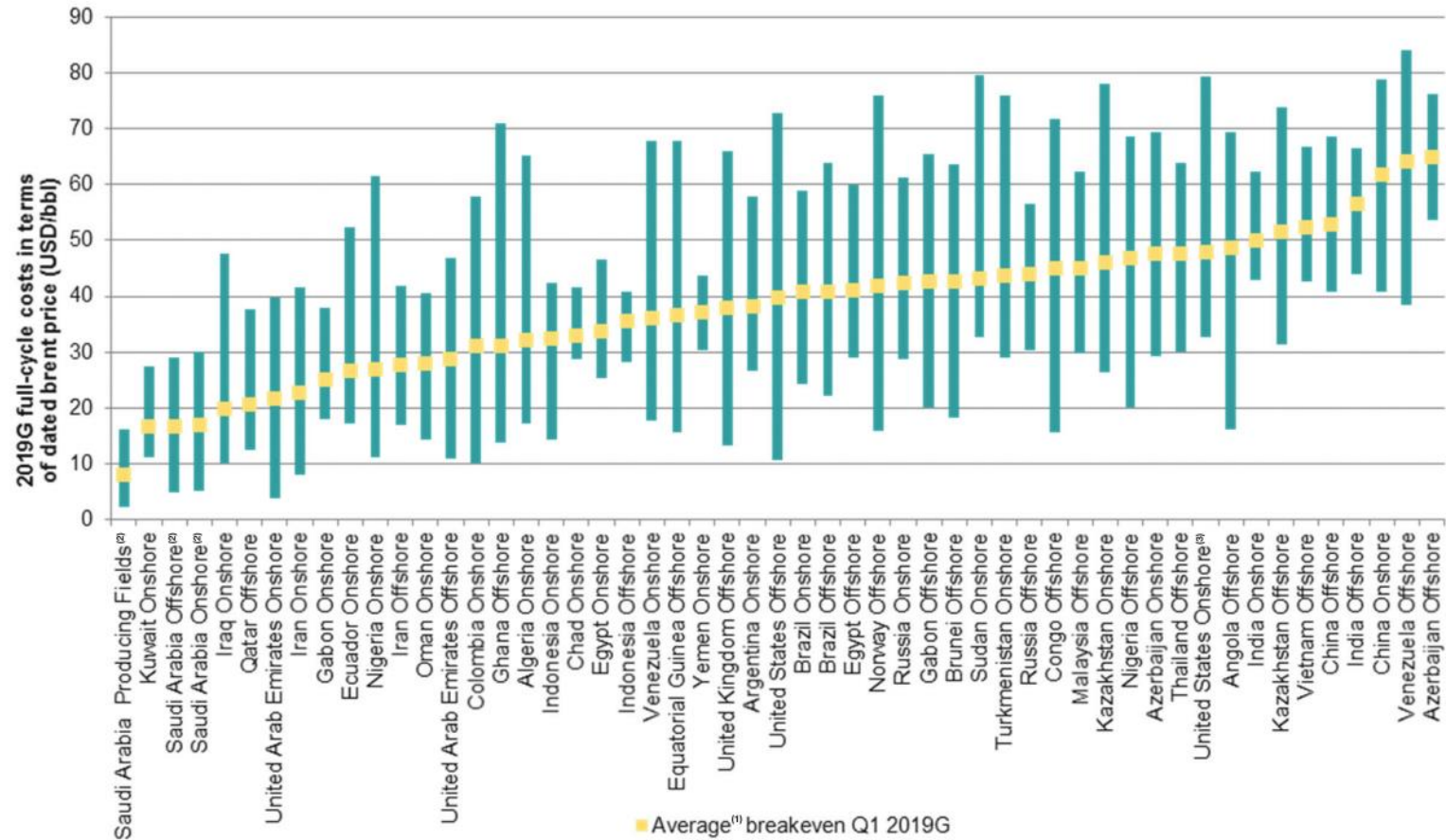


US Tight Oil Production, Investment and FCF

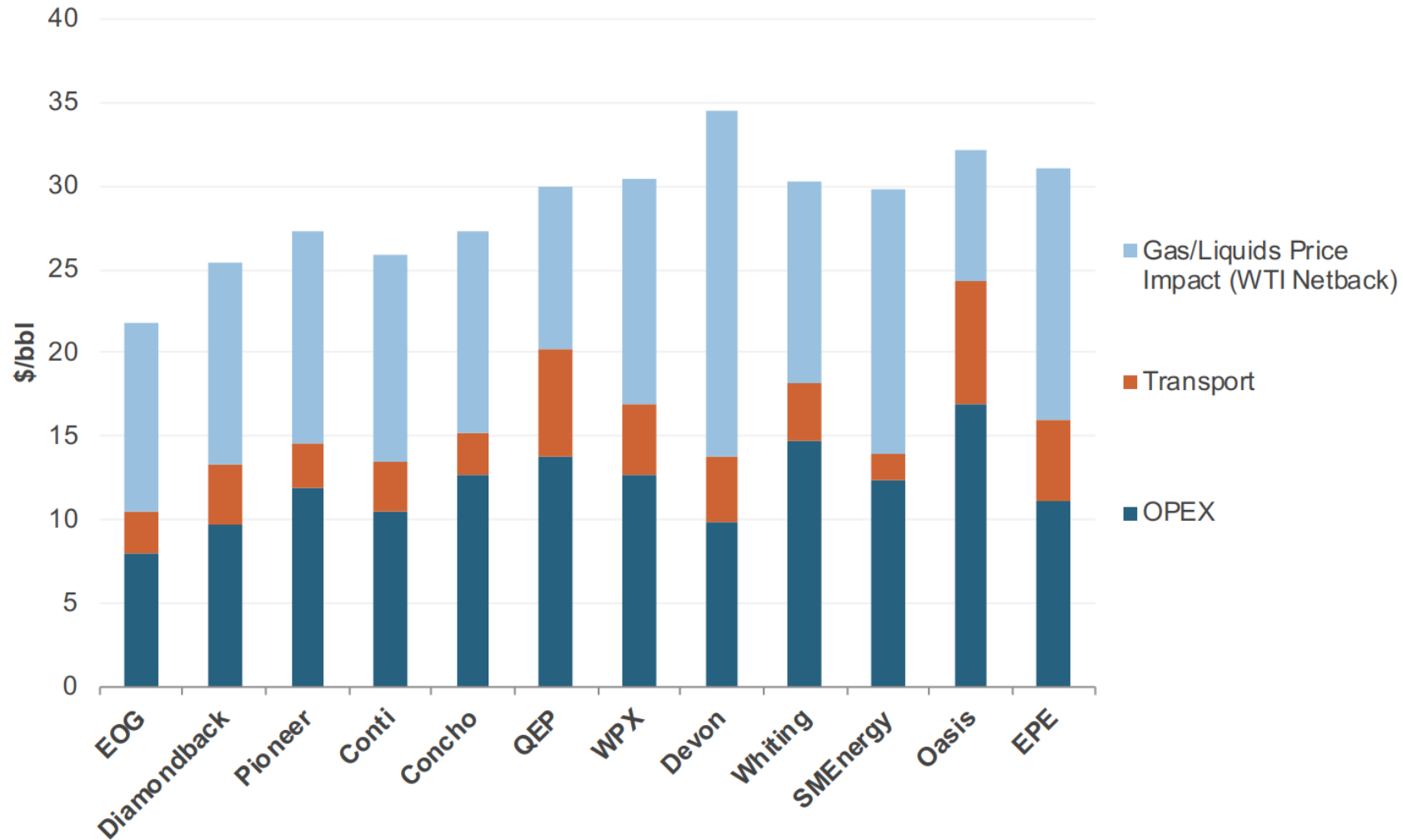


Breakeven Prices

Exhibit 6: Post-tax breakeven costs for new oil projects at a 10% rate of return by country through 2030G



Tight Oil Operating Netbacks

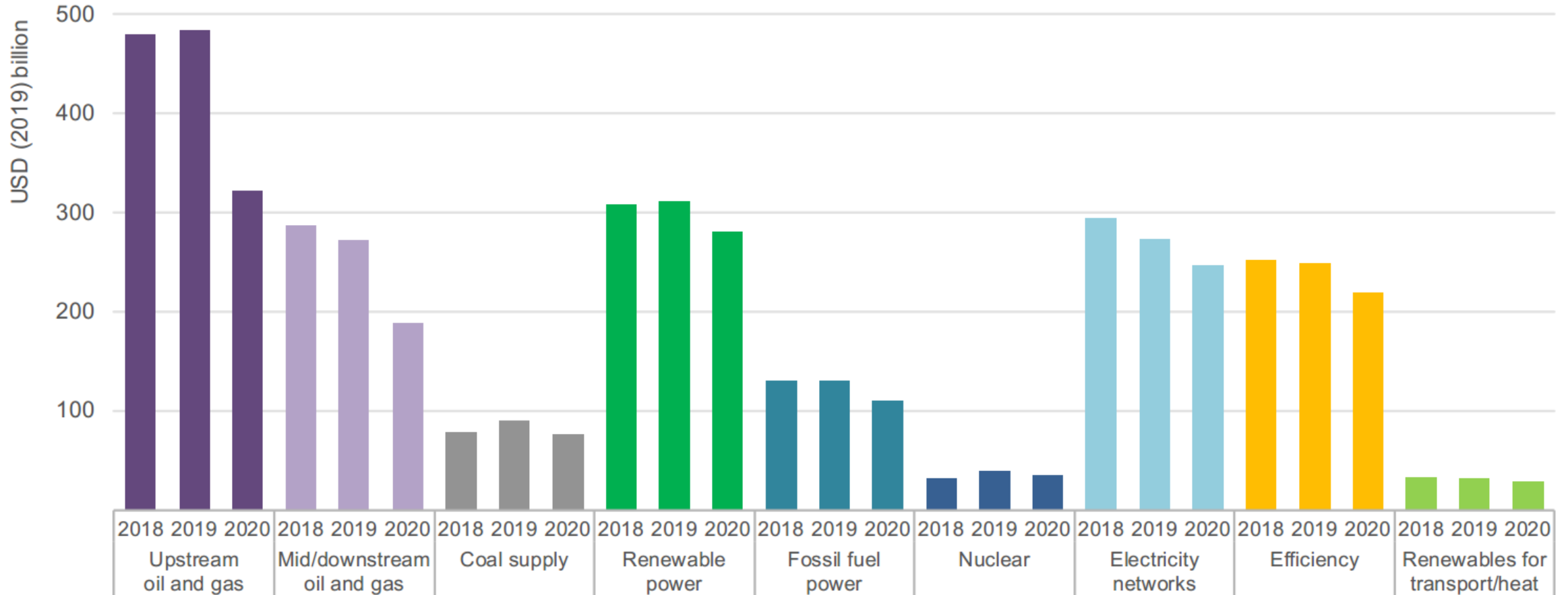




Energy Investment

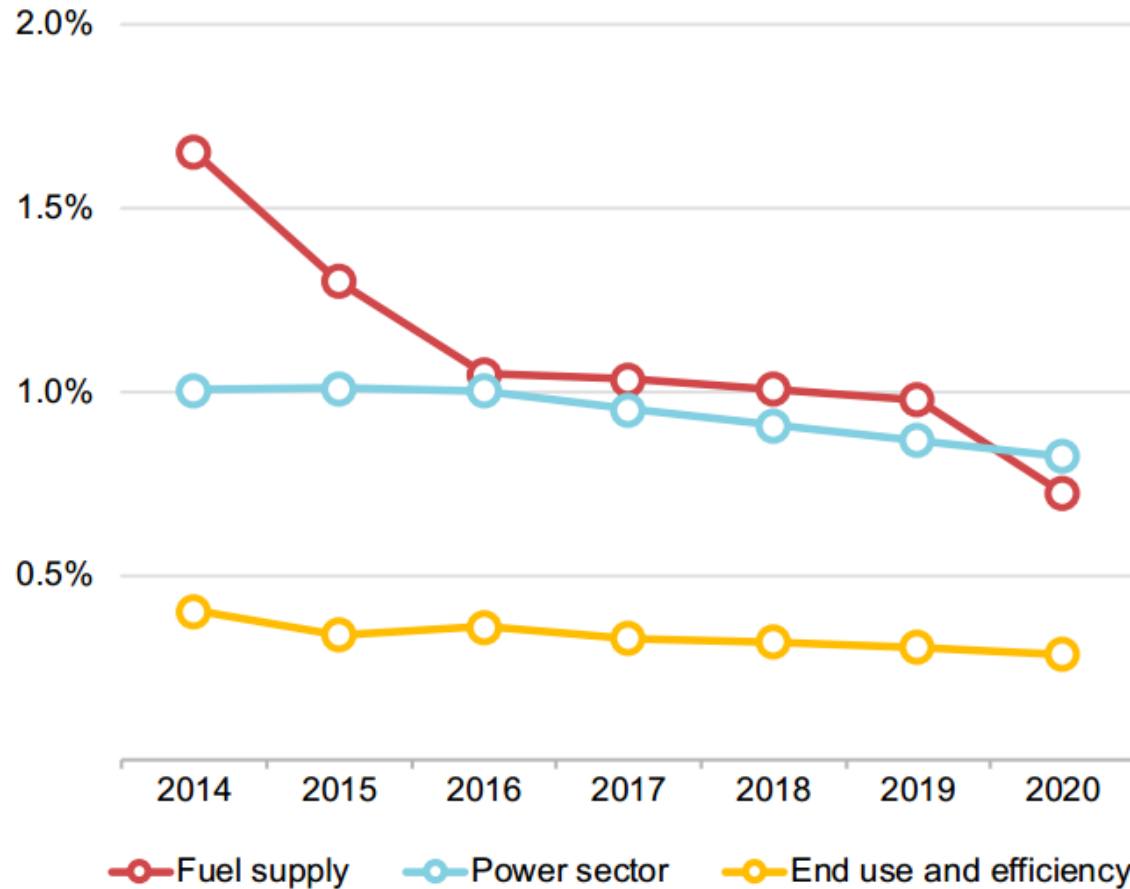
Investment and finance in the energy industry

World Energy Investment by Sector

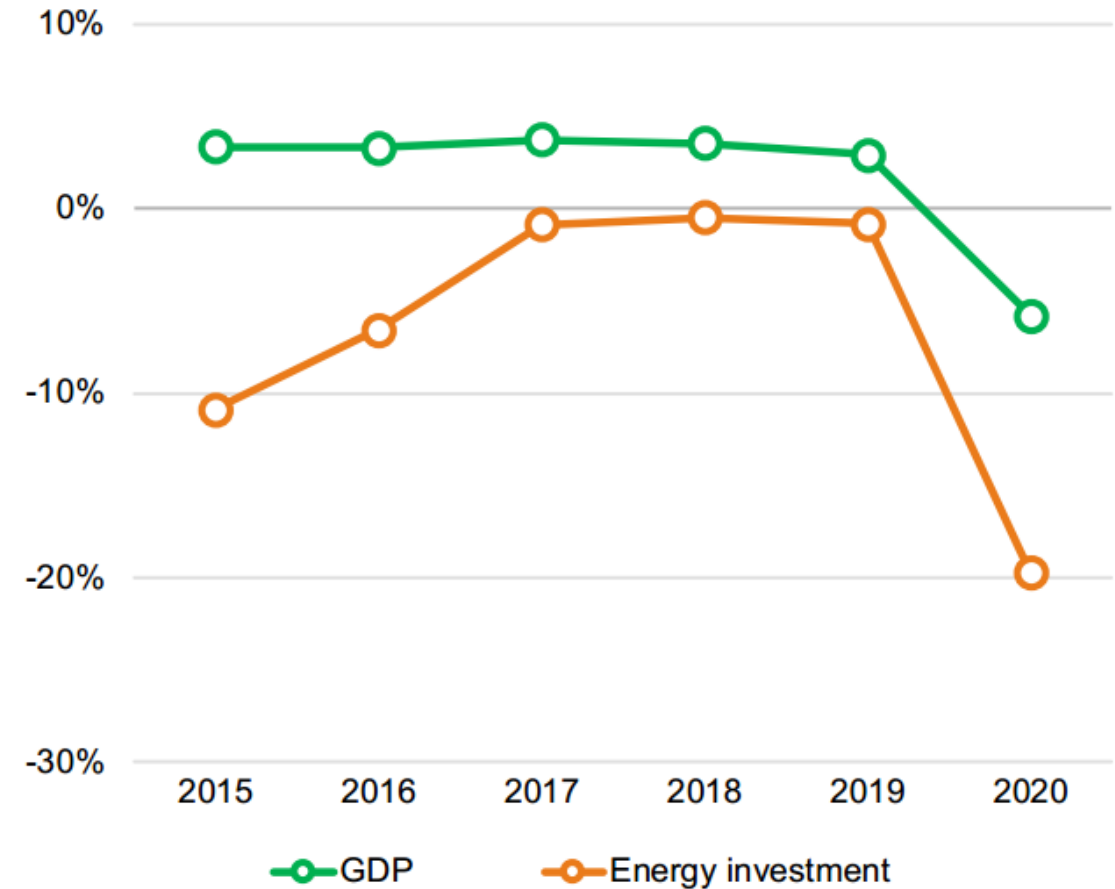


Energy Investment & GDP

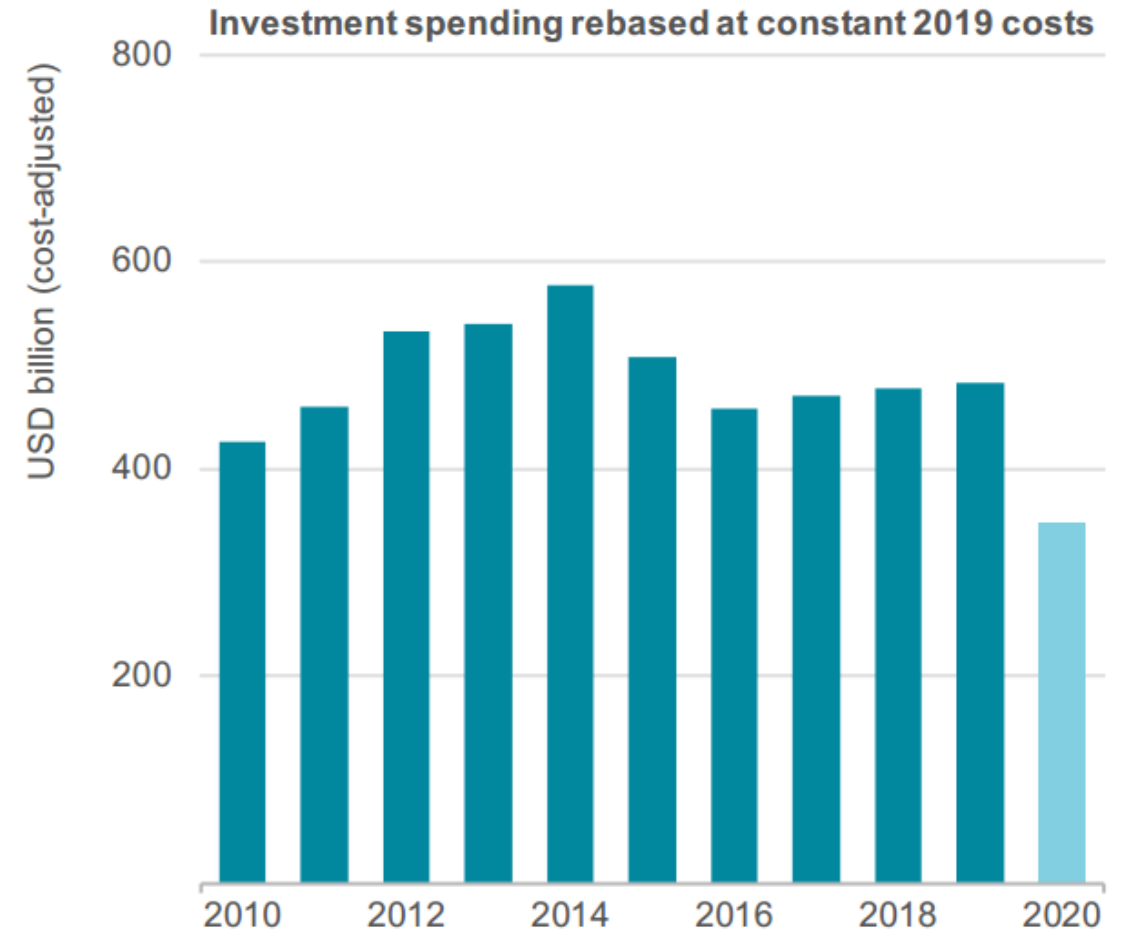
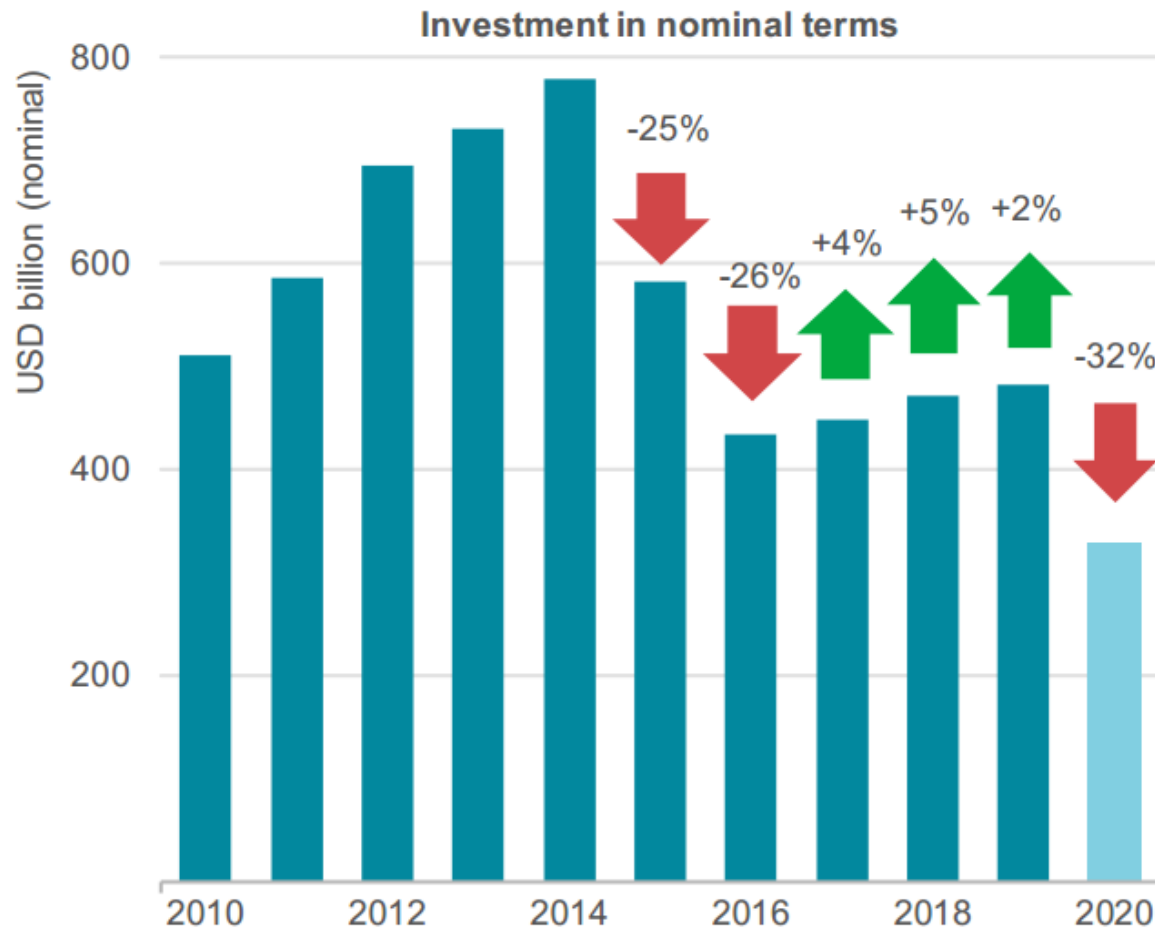
Energy investment by sector as a share of global GDP



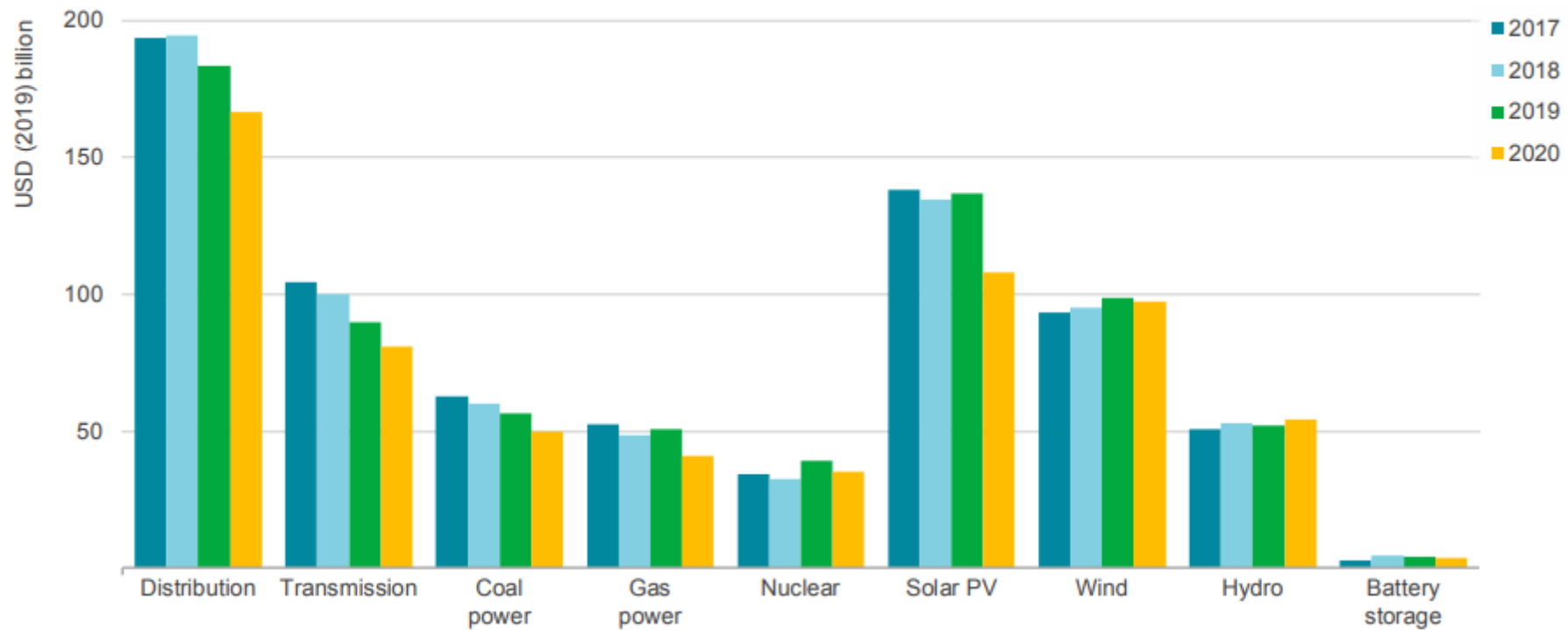
Annual change in GDP and energy investment



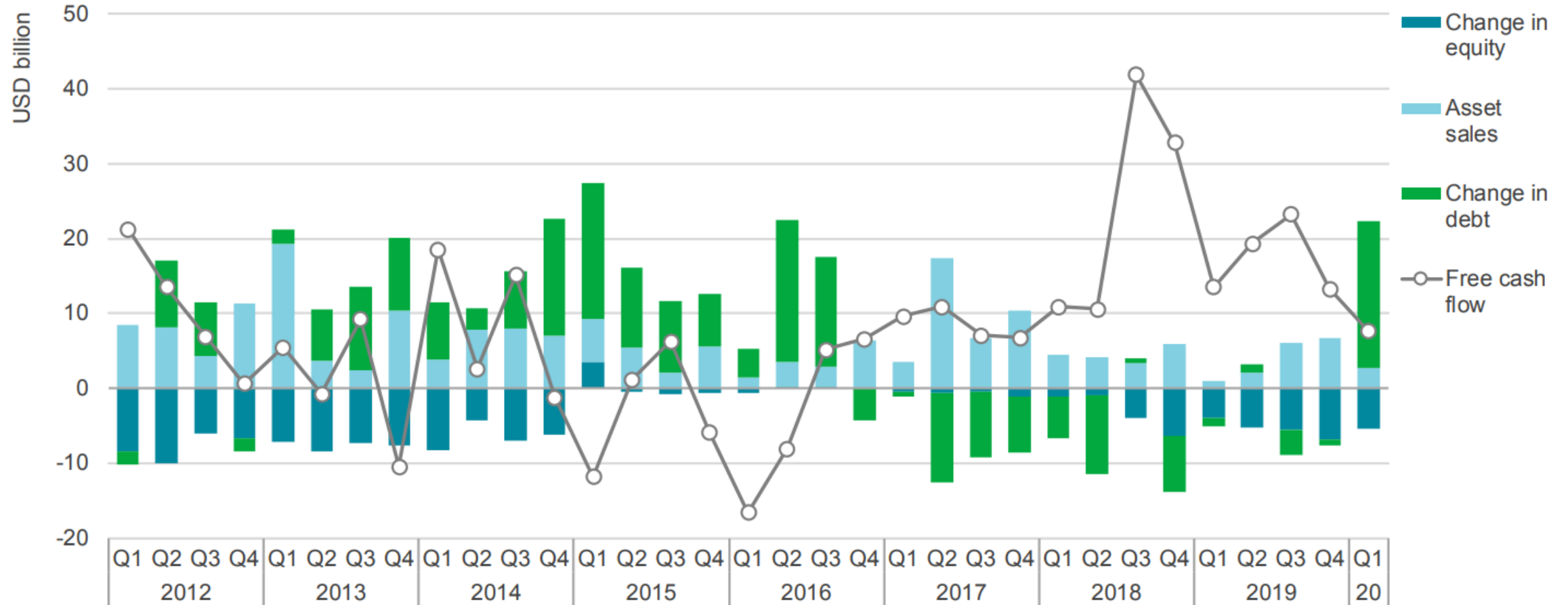
Global Upstream Oil & Gas Investment



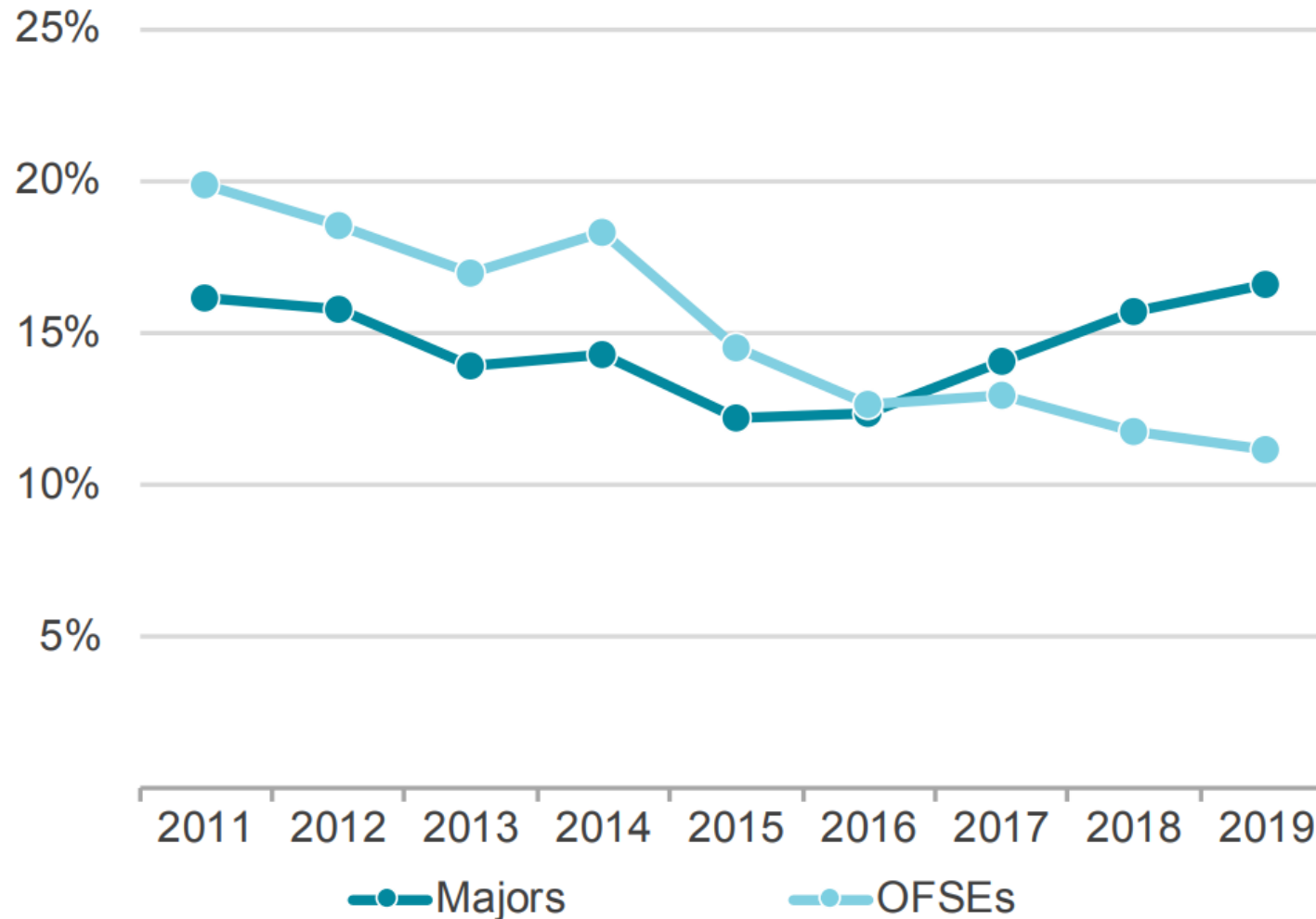
Global Investment in the Power Sector



Majors' Indicative Sources of Finance and FCF

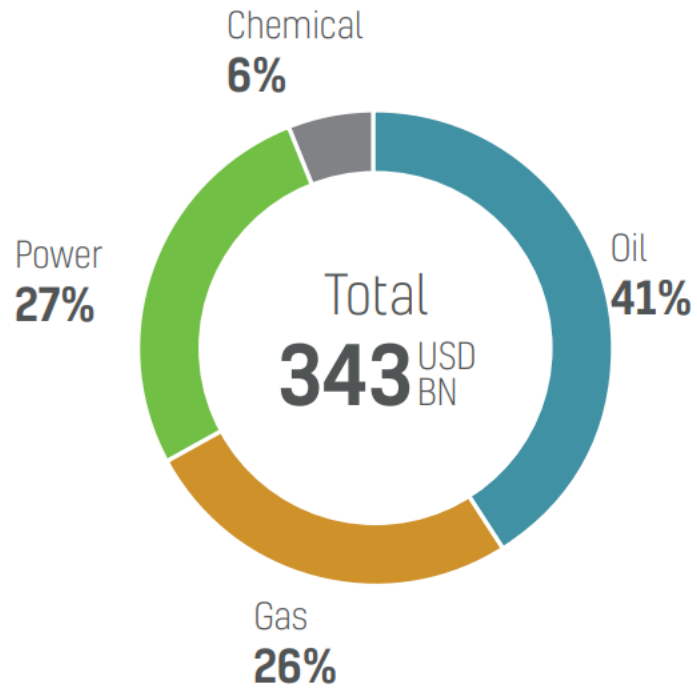


EBITDA Margins by Oil and Gas Company Type

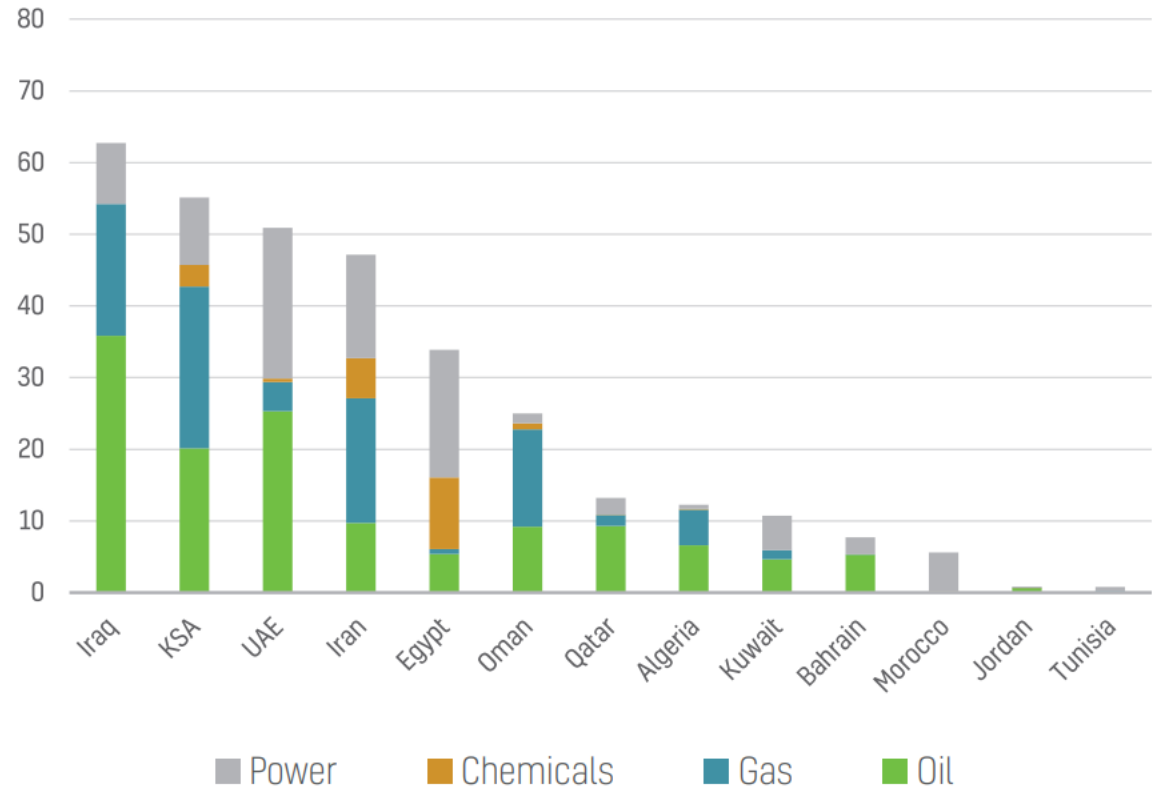


MENA Energy Investment Outlook

MENA 2020-24 Committed Projects by Industry



Committed MENA Energy Investment (USD Bn)

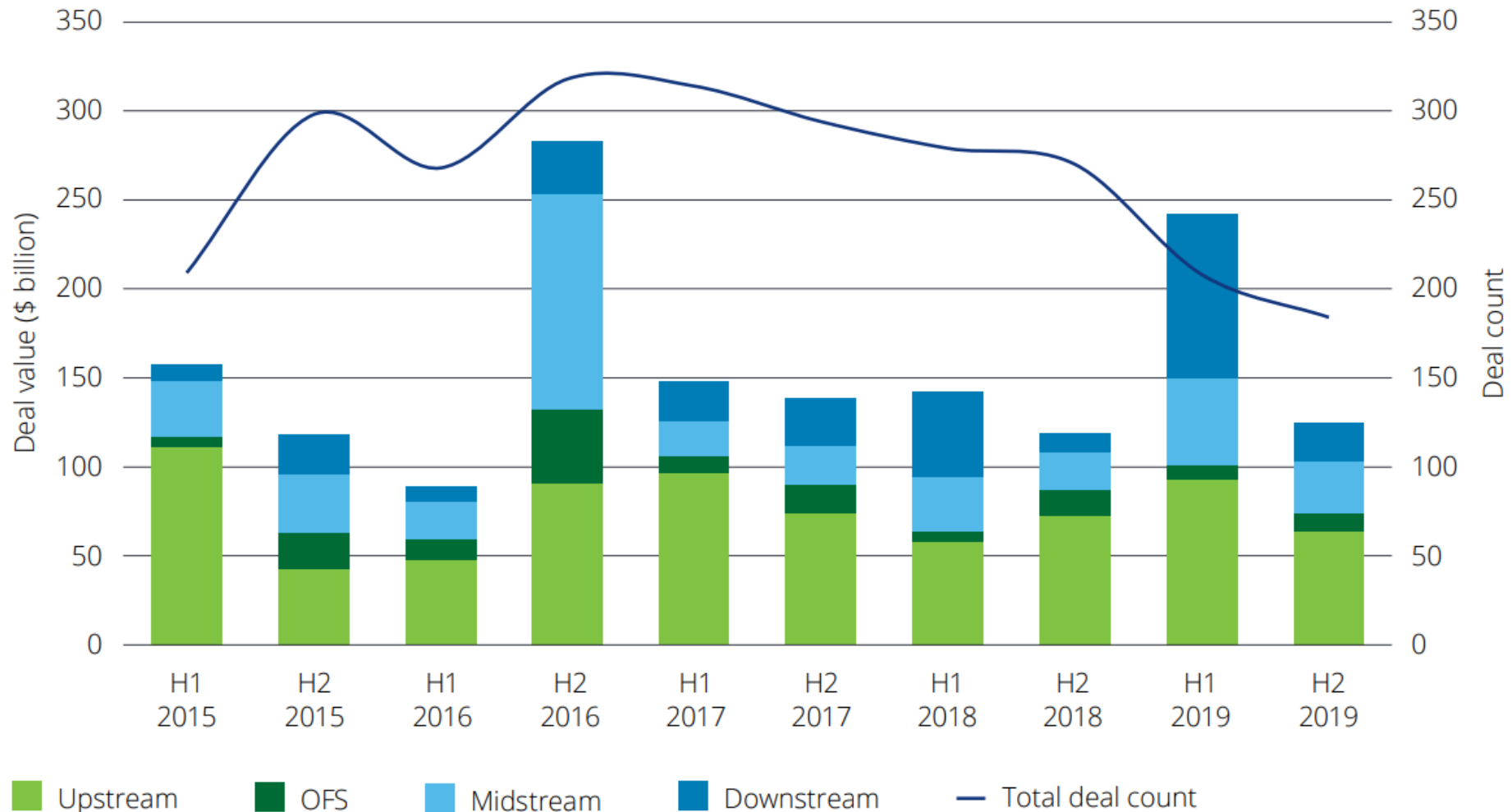




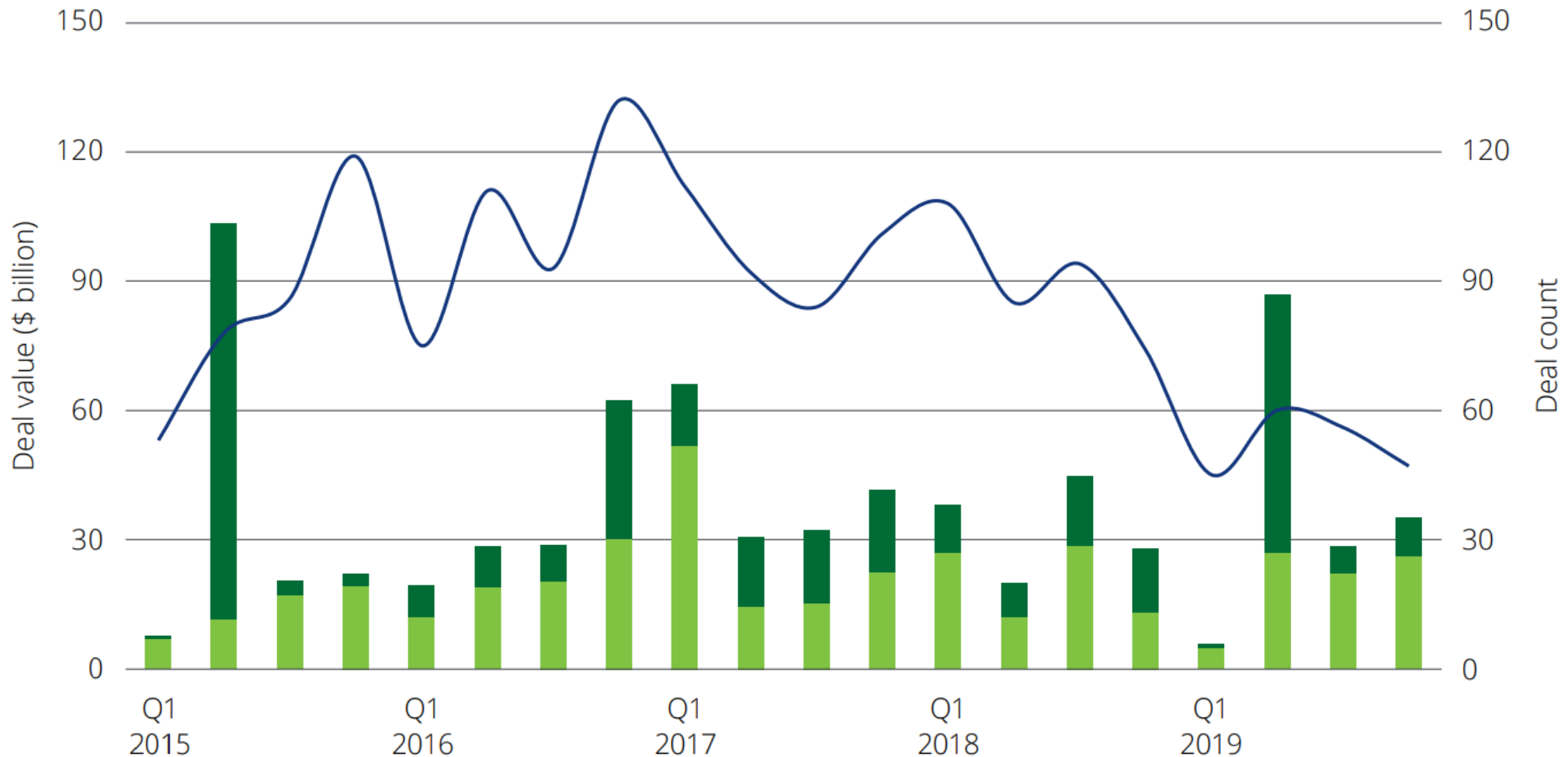
Consolidation Trends

Trends in Oil and Gas Mergers and Acquisitions

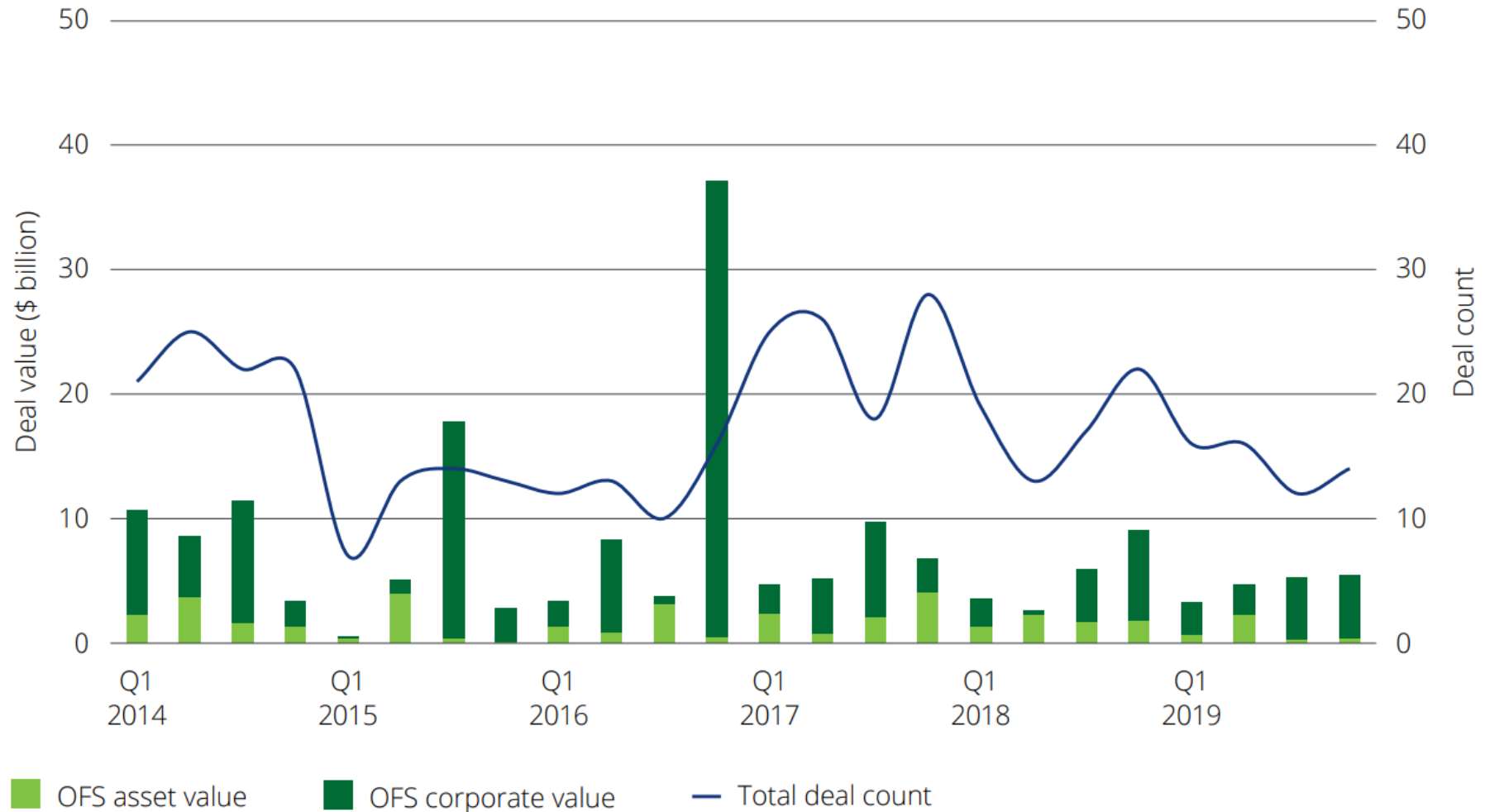
M&A in Oil and Gas Industry



Upstream M&A Trends



OFS M&A Trends



Drivers

Upstream

- Economy of scale
- Regional focus
- Product mix
- Focusing on core assets
- Portfolio optimization

OFS

- Economy of scale
- Regional considerations
- Integrated solutions
- Capital restructuring
- Vertical/Horizontal integrations

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