26 MAY 2016

COMPETITIVENESS IN OIL & GAS SECTOR

OIL &GAS COMPETITIVENESS REVIEW BOARD

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Outline

- Market Context
- Response to Low Oil Prices
  - *What other regimes are doing in this low price environment*
  - *What regimes primarily compete with Alaska for capital investment*
  - *What elements should we evaluate for competitiveness especially in Government take/incentives*

Market Context

Questions for the energy market in 2016 and beyond

1. **What is the timing of the crude oil price recovery?**

2. **At what price level will growth in US crude oil production return?**

3. **OPEC does not exist as we knew it. What does this mean for oil supply and the oil market?**

4. **Is a peak in global oil demand approaching?**

5. **Are we approaching a "Global Gas Reset"? What is the future for LNG?**

6. **What will be the impact on energy mix of efforts to address climate change and local pollution?**

Note: Issues numbered for ease of reference and not necessarily order of importance.

Snapshot of global oil fundamentals and prices

Snapshot of global oil fundamentals and price outlook

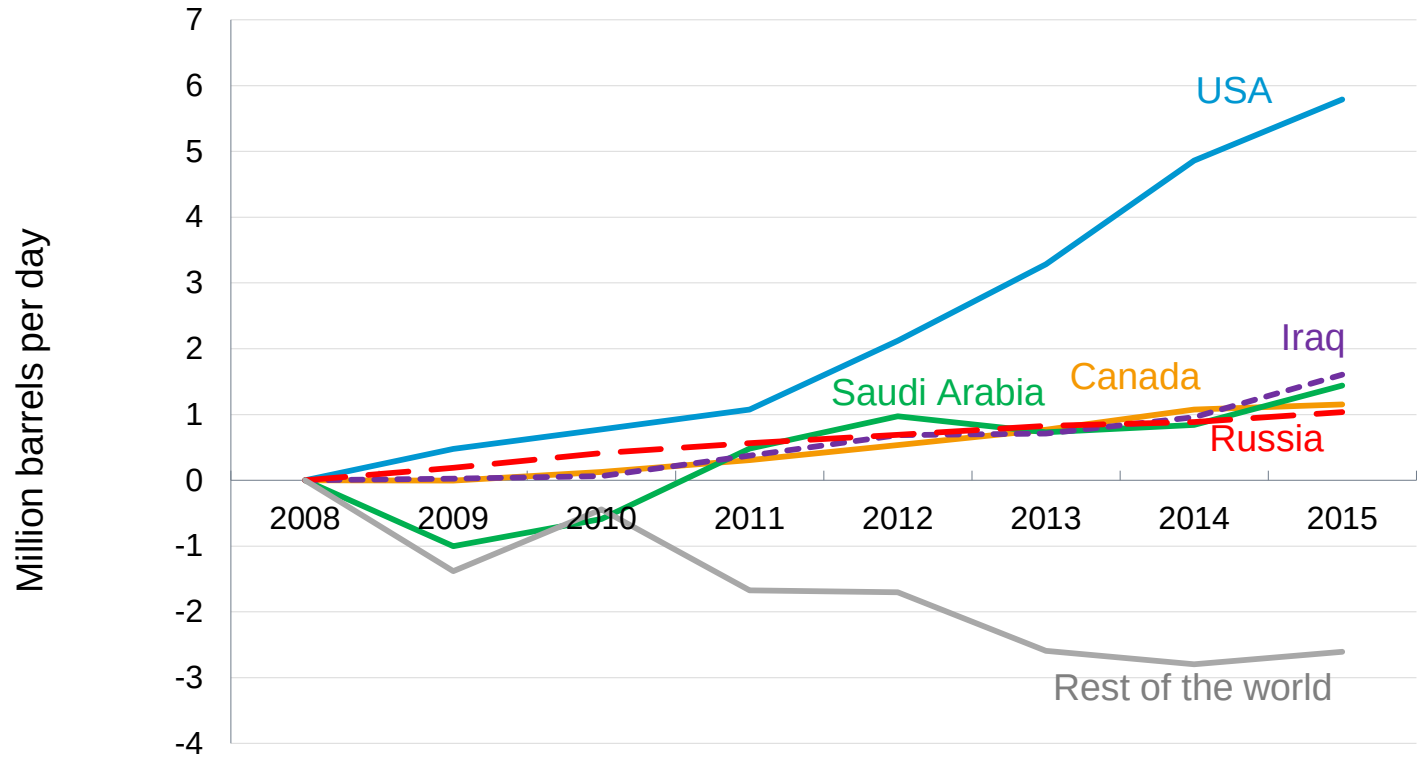
		2013	2014	2015	2016	2017
FUNDAMENTALS						
	World economic growth (from previous year)	2.5%	2.7%	2.6%	2.6%	3.1%
	World oil (liquids) demand growth* (from previous year in MMb/d)	1.3	0.5	1.6	1.2	1.4
	Non-OPEC liquids supply growth* (from previous year in MMb/d)	1.3	2.1	1.4	-0.8	0.8
	Call on OPEC crude* (annual average in MMb/d)	32.4	30.5	30.4	31.9	32.2
	OPEC production* (annual average in MMb/d)	31.2	31.0	32.1	32.5	32.5
PRICES						
	Dated Brent (annual average per barrel)	$ 109	$ 99	$ 52		
	WTI (annual average per barrel)	$ 98	$ 93	$ 49		

*This outlook is based on our April 2016 balances, which we plan to release along with our monthly Global Crude Oil Markets *Market Briefing*.
Notes: OPEC production includes production from all current members (including Indonesia). Liquids supply includes crude oil, condensate, and natural gas liquids (NGLs). Liquids demand includes all refined products, blended biofuels, synthetic fuels, as well as liquefied petroleum gases (LPGs) and ethane. Call on OPEC crude = total global liquids demand - non-OPEC liquids supply - OPEC condensate and NGL supply - processing gains - biofuel supply - other liquids supply. OPEC spare capacity is for crude oil only. Figures are rounded. MMb/d = Million barrels per day.
Source: IHS, Argus Media Limited

How do you upend the order of the global oil market?

See the stunning growth in USA production from 2008-15

Cumulative growth in oil production relative to 2008



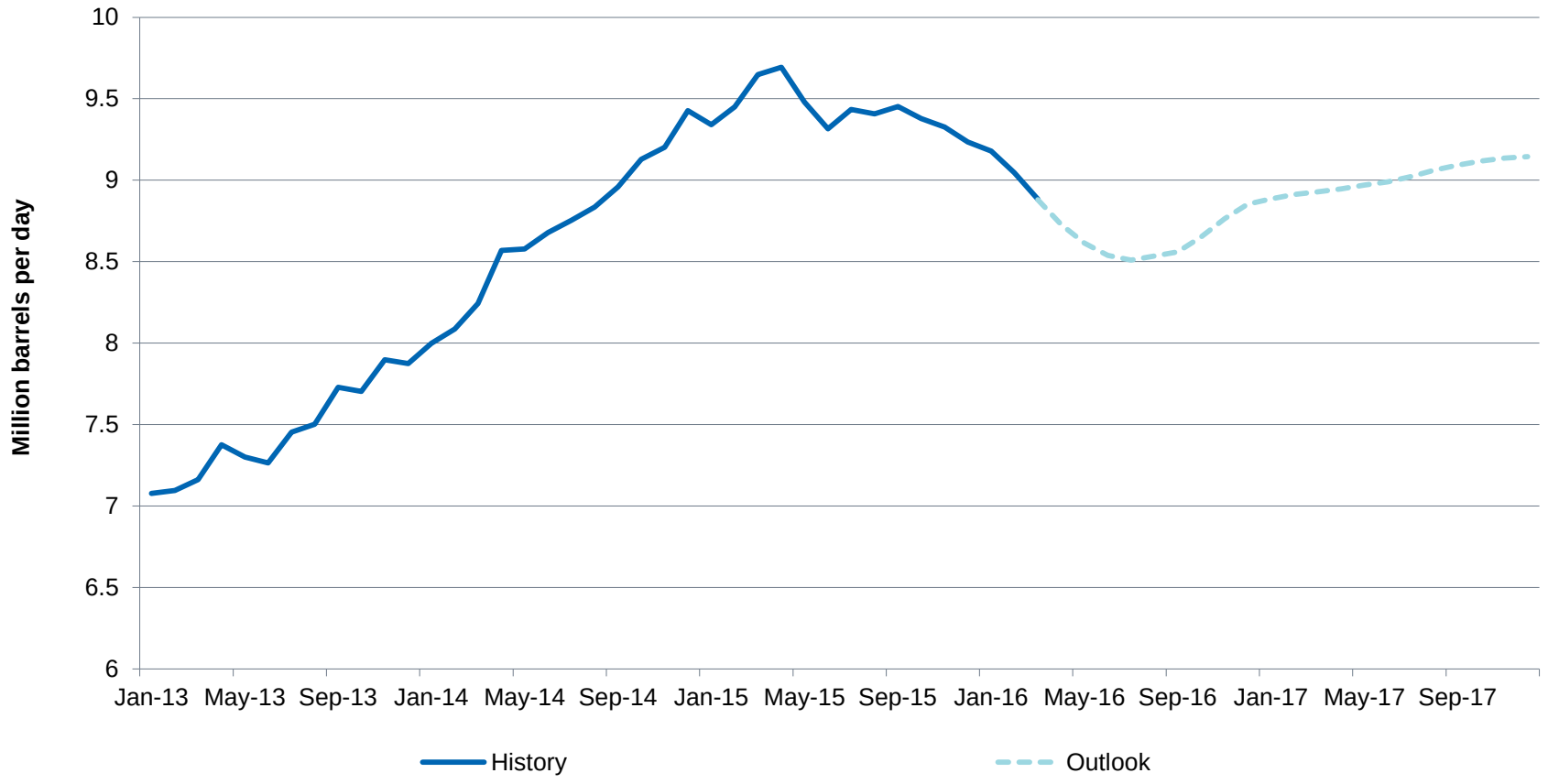
Notes: Production growth is for crude oil, condensate, and natural gas liquids.
Source: International Energy Agency, EIA, IHS. .

Mapping the oil price recovery: Supply reactivity, China demand, Middle East politics and economic headwinds

US crude oil production

Declines expected to continue for the next few months as sharp drop in activity reverberates across the US onshore

Monthly US crude oil production



Source: EIA (history through January 2016); IHS (estimates for February 2016 and March 2016, and outlook)

Charting the Path to Market Rebalancing

The road from consolidation to mid-cycle prices goes through Riyadh

April to July 2015:
$55/bbl - The spring rally

August to November 2015:
$45/bbl - Testing US resilience

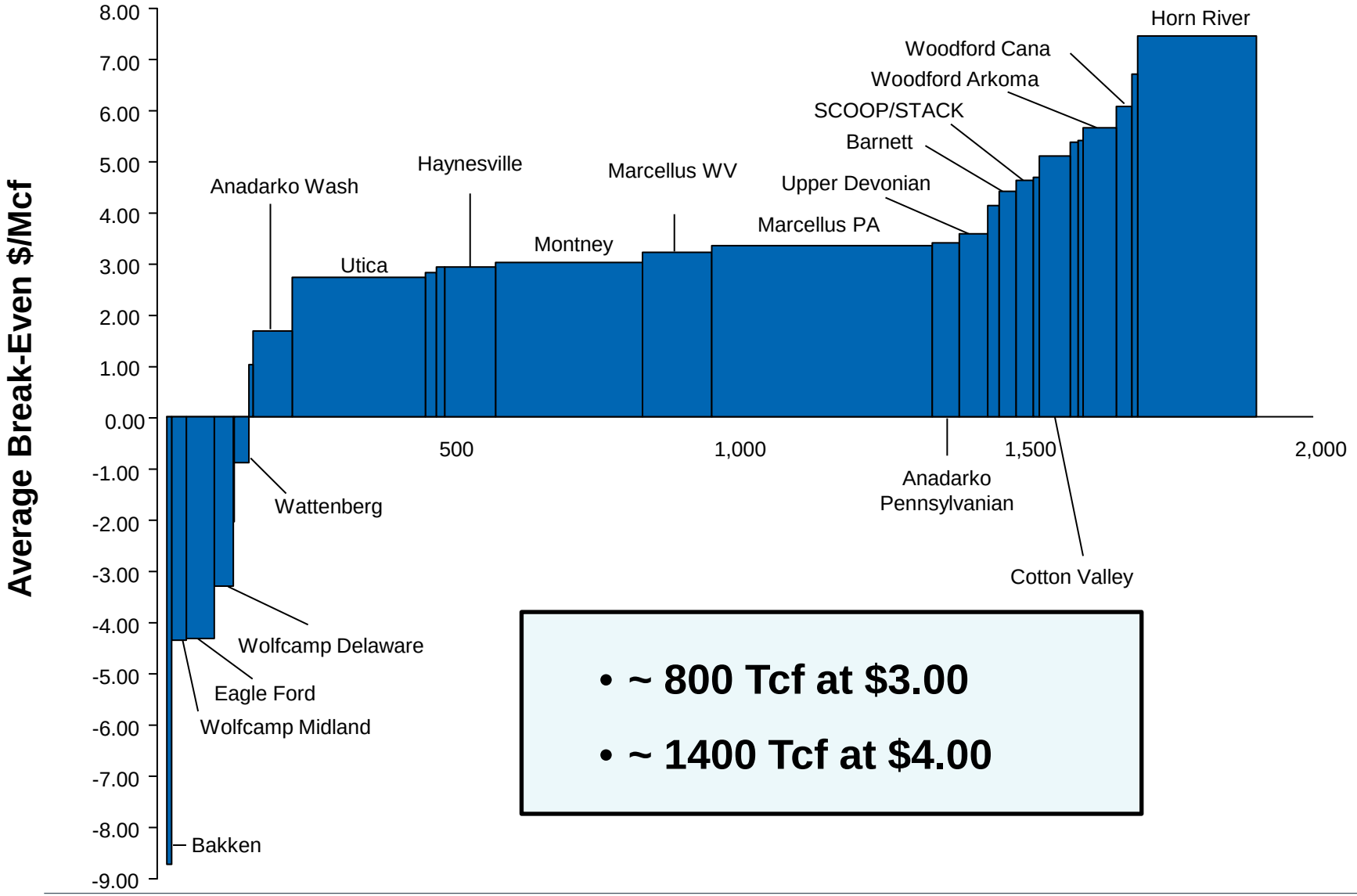
December 2015 to mid-April 2016:
$35/bbl - Cash Suffocation

April 2016 to June 2016:
$45/bbl - Consolidation

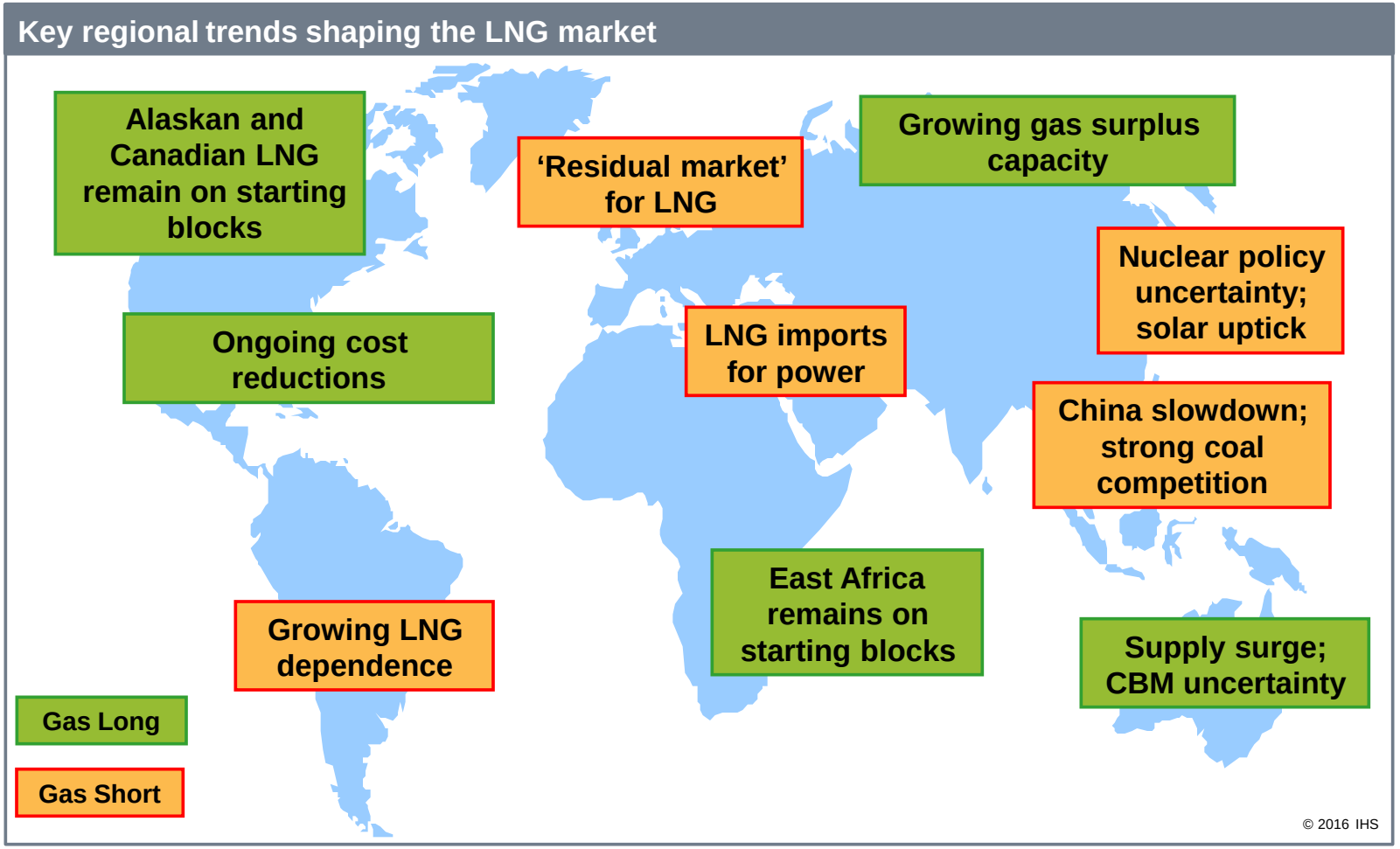
3Q16 to 2Q17:
$50/bbl - Recovery

2H17:
$57-$63/bbl - Mid-cycle price?

Economically accessible natural gas resources continue to grow



Global gas snapshot – May 2016

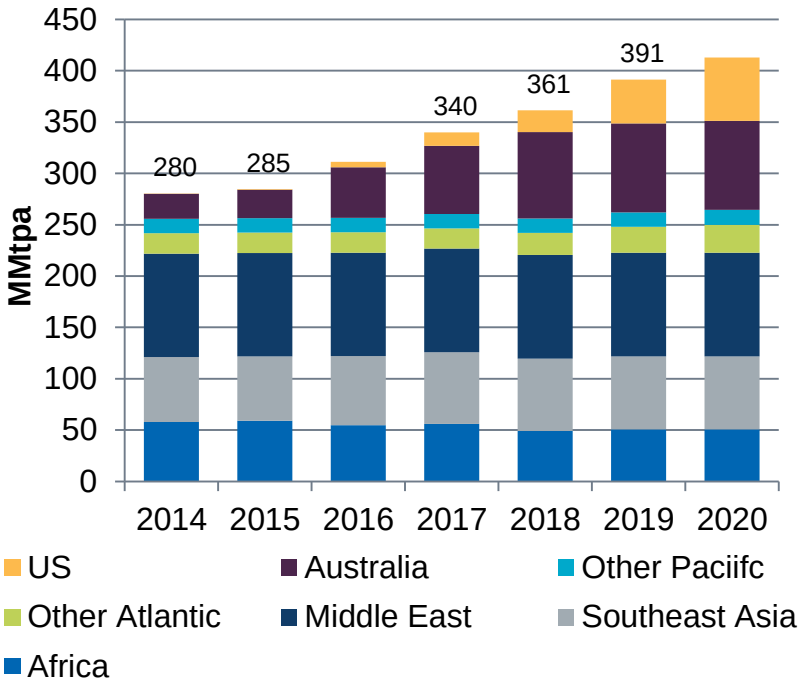


A Bear Market for LNG

- Supply capacity increasing by 50% in the next 5 years.
- Demand is much weaker than anticipated in core importing markets.
- Prices could fall very low for an extended period of time. Variable cost of LNG will influence how low prices can go and how much US production might be shut-in.
- Europe will serve as the key LNG market balancer.
- Key implications in the near term:
  - Weak outlook for new Final Investment Decisions (FIDs)
  - Aggregators key to market balancing
  - Heightened optimization of LNG trade
- Liquefaction project FIDs in the longer term will be impacted by these changing market dynamics.

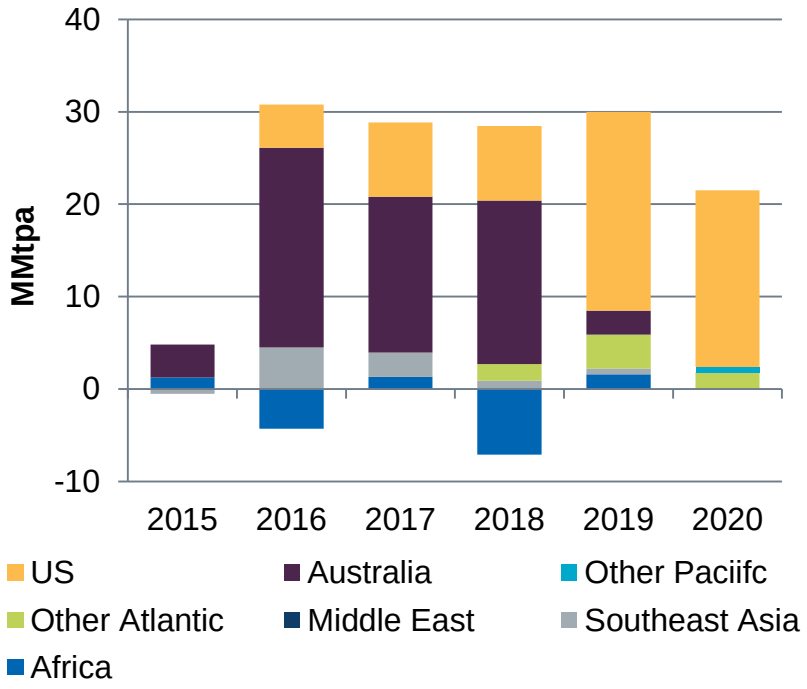
The LNG supply step-up is just starting and will be sustained

Global liquefaction capacity



Note: MMtpa = Million metrics tons per annum
Source: IHS

Incremental liquefaction capacity additions

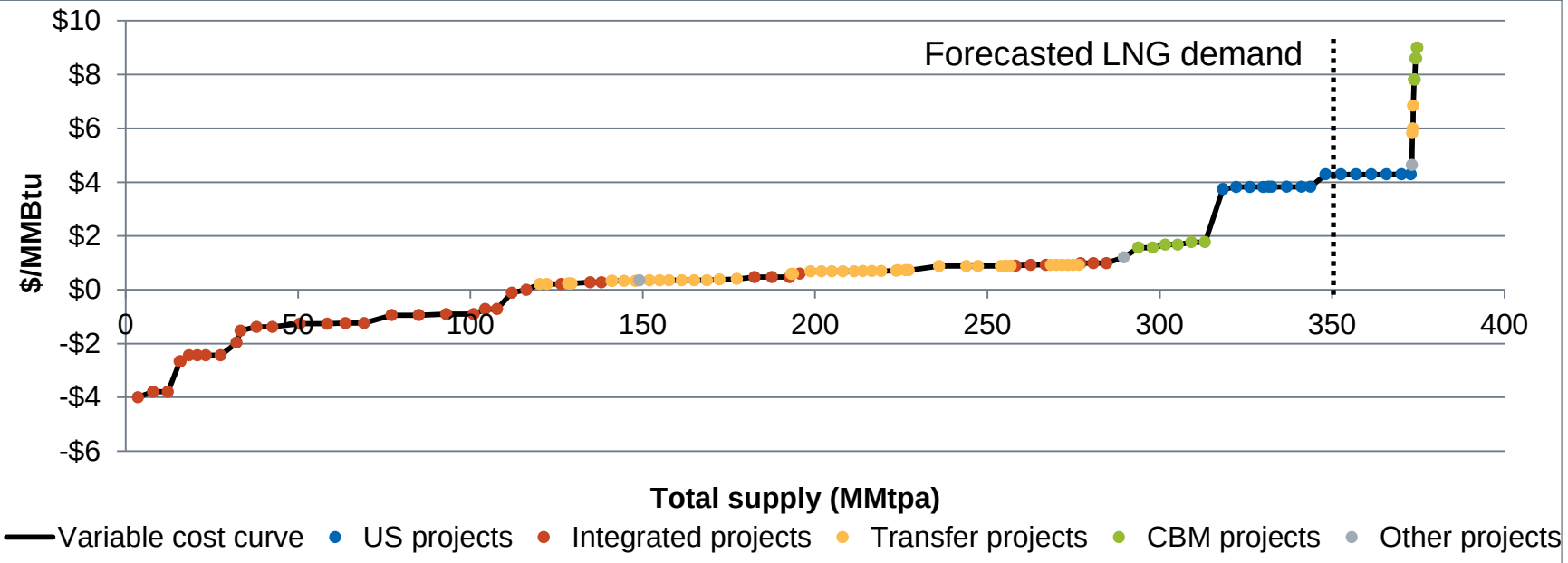


Note: MMtpa = Million metrics tons per annum
Source: IHS

- Australia and the US Lower-48 are set to increase liquefaction capacity by ~50% by 2020.

Variable cost of LNG: US Lower-48 establishes price floor

Short-run variable cost curve: LNG supply in 2020

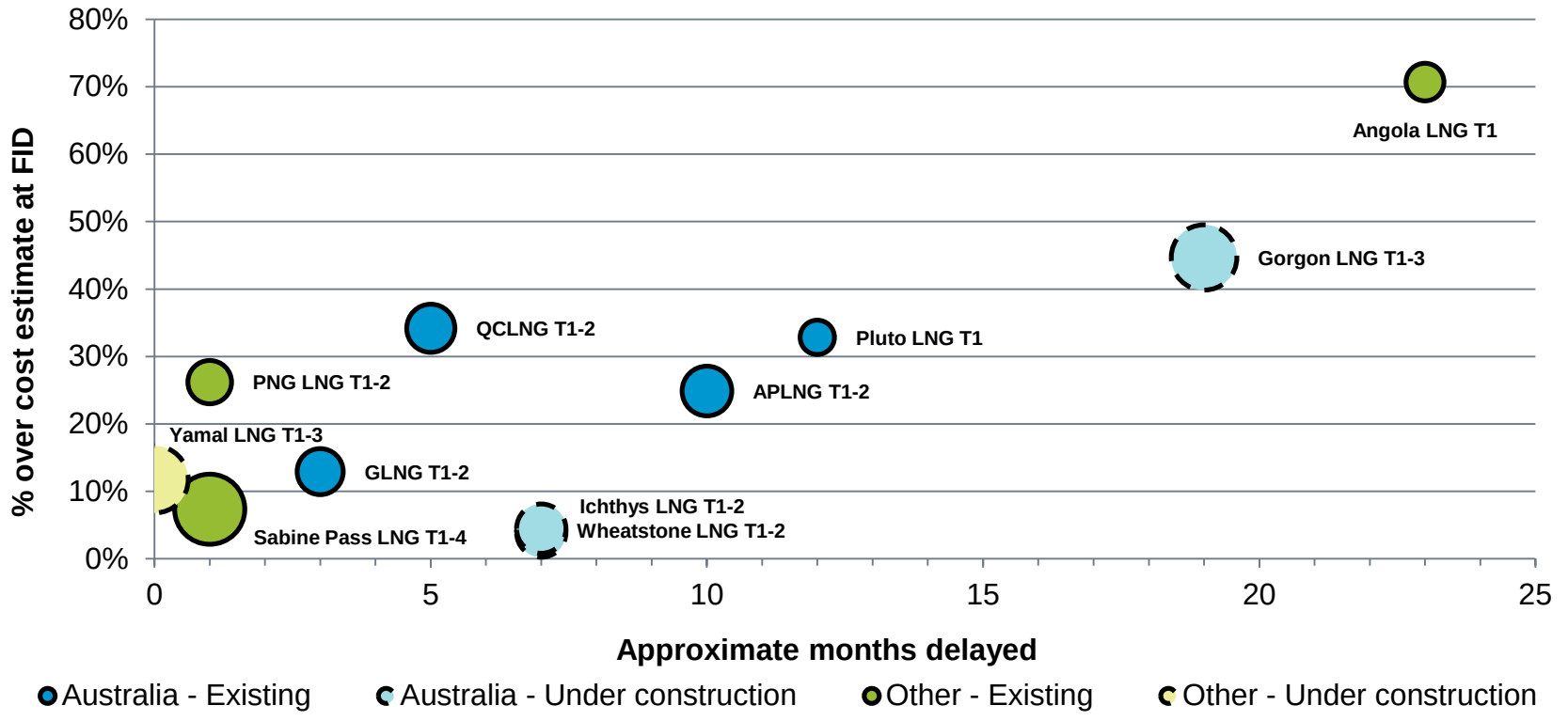


Notes: FID = Final investment decision; CBM = Coalbed methane; excludes projects that have not yet reached FID
Costs shown represent delivery to the United Kingdom, to the regasification terminal point.
Source: IHS Energy

- Most non-US producers will not see a price signal to shut-in large volumes of production. US LNG will balance the oversupply at the end of the decade; as much as 35% will be unutilized in certain years.
- European gas prices will limit how much US LNG will be needed on the market.

Complexity of liquefaction project development can lead to costly cost over-runs and delays

Project delays versus cost overruns

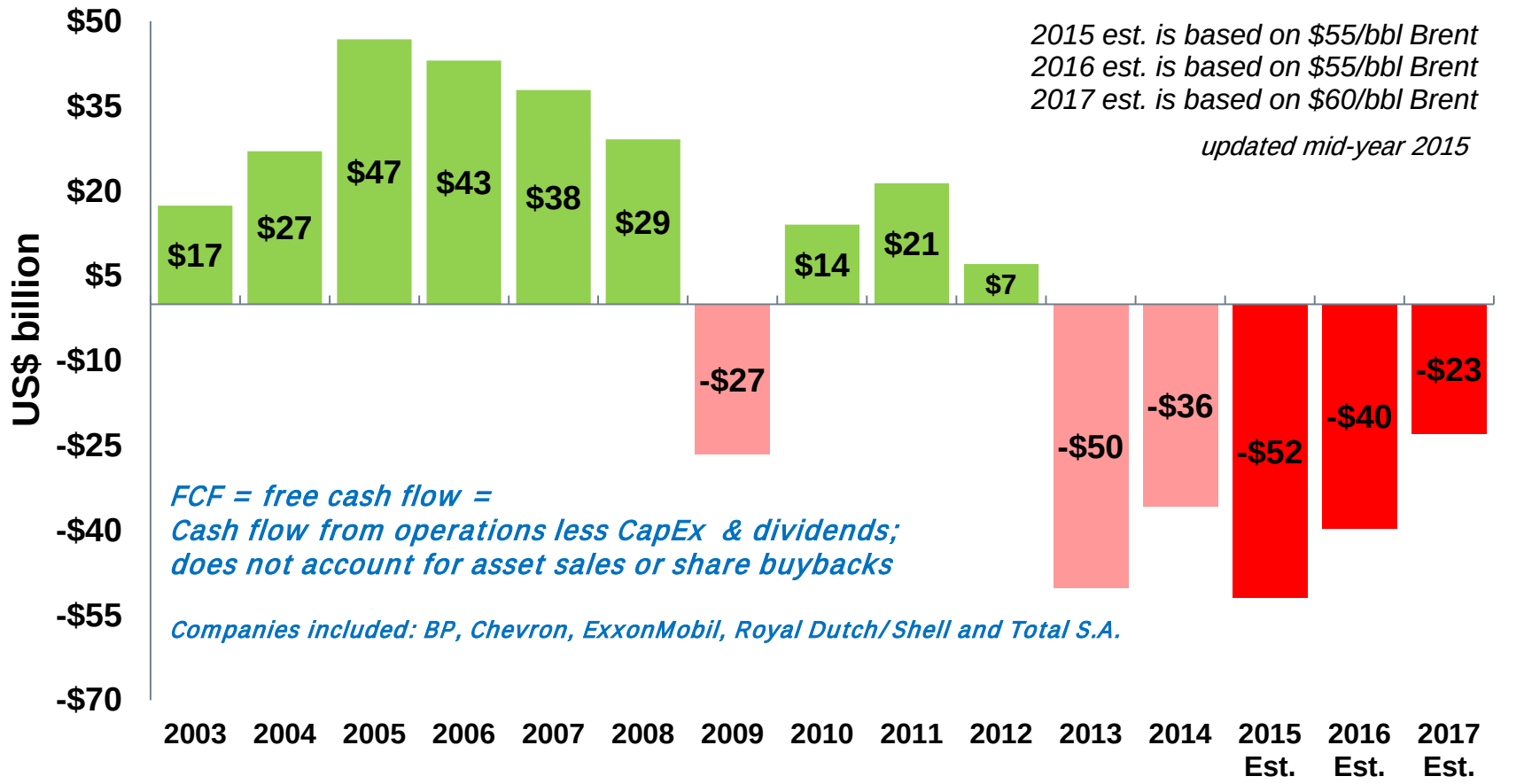


Notes: All costs are in real 2014 dollars. Angola and Sabine Pass LNG CAPEX estimates only include liquefaction. Estimated repair costs at Angola LNG are also included. "Approximate months delayed" is calculated as the difference between projects' announced start dates at FID and the actual or latest announced commercial start date. Projects deemed to be "existing" have at least one train in commercial operations.

Source: IHS Energy

Cash flow deficits for Global IOC group

Global IOC peer group will significantly outspend cash flows through 2017

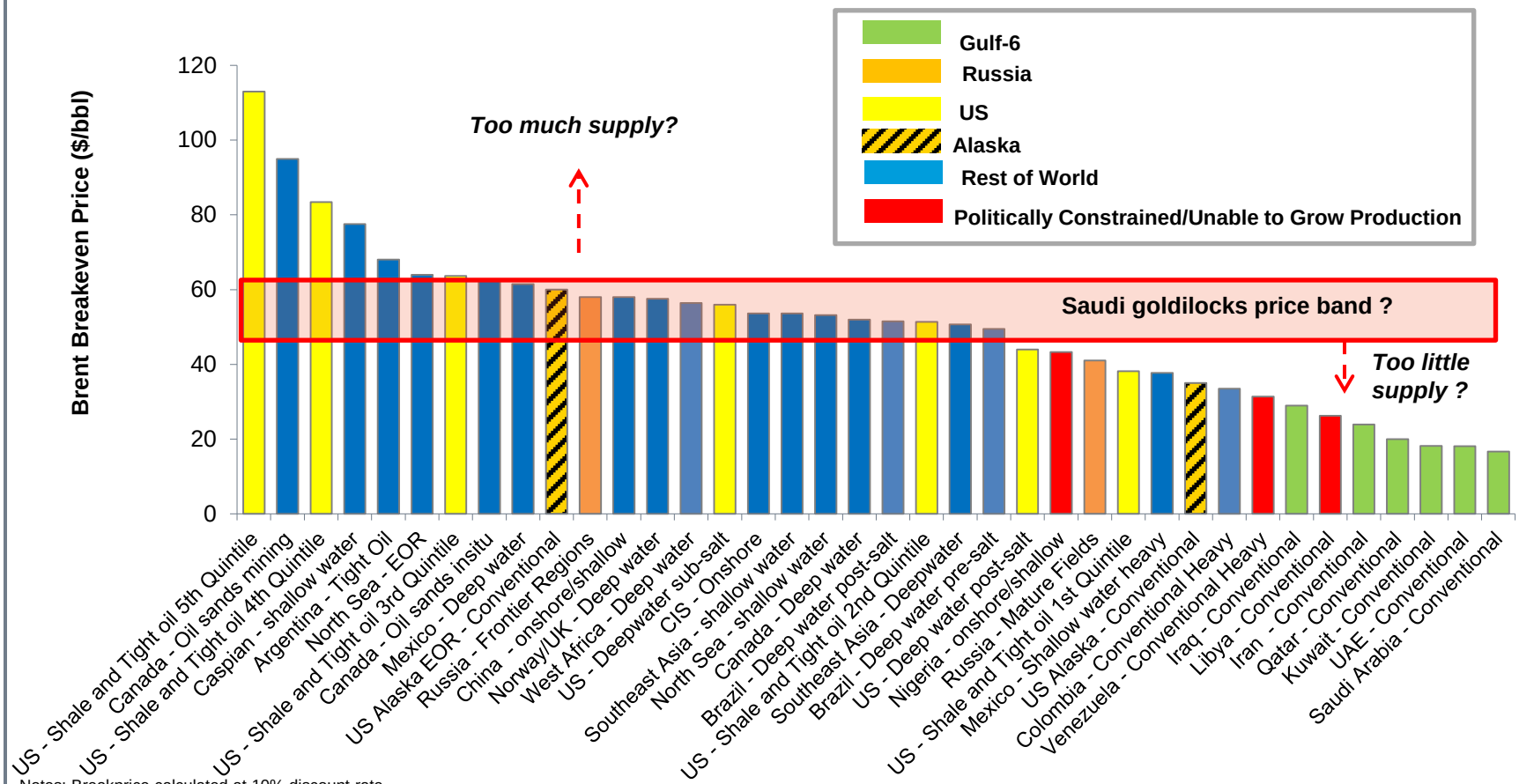


Source: IHS

- For Global IOC group, deficit jumped ~50% in 2015 vs. 2014
- Combined deficits for 2015 - 2017 expected to exceed $100 billion

Global Cost Curve

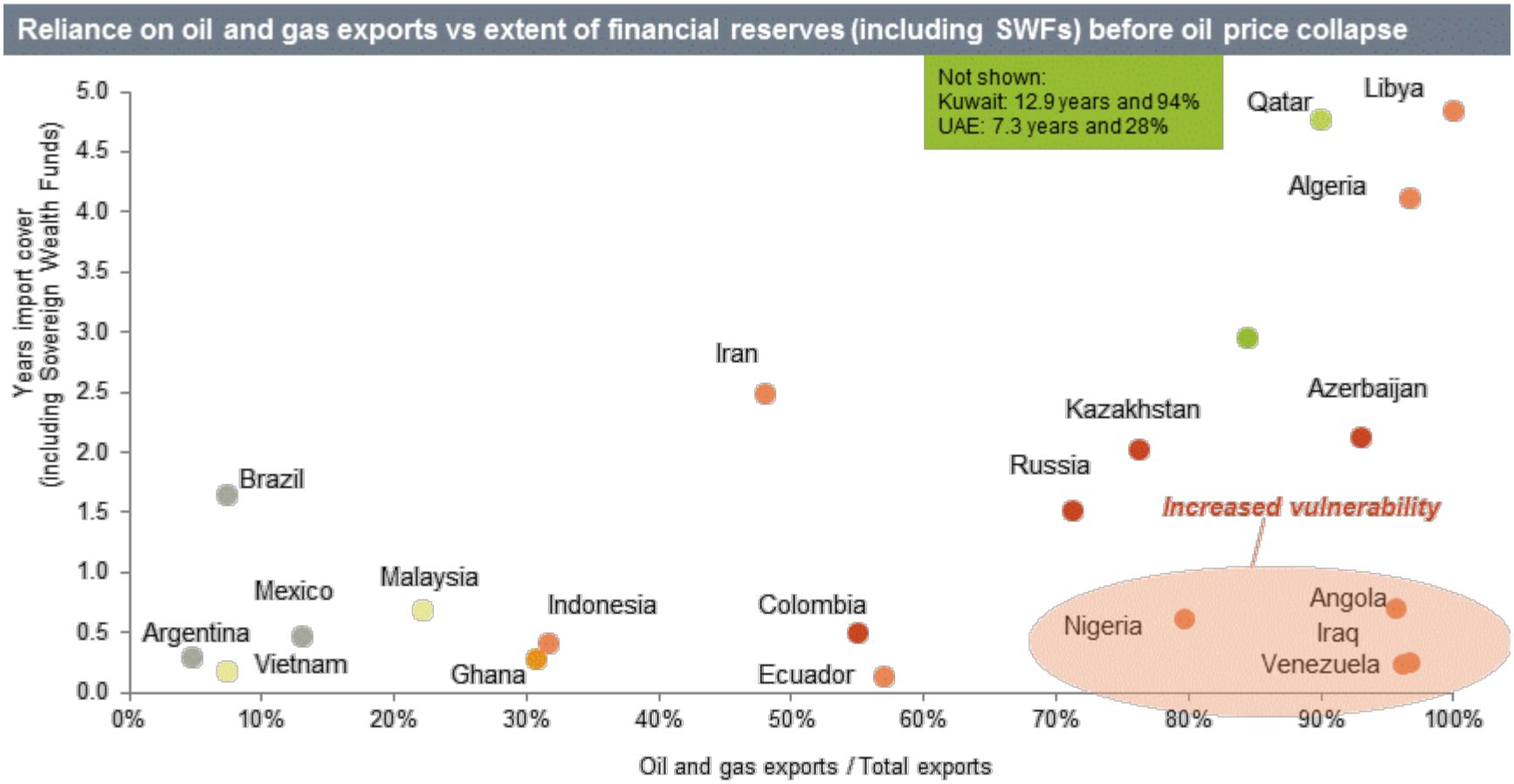
Global oil plays cost curve - Gulf 6, Russia, US, and the Rest of the World



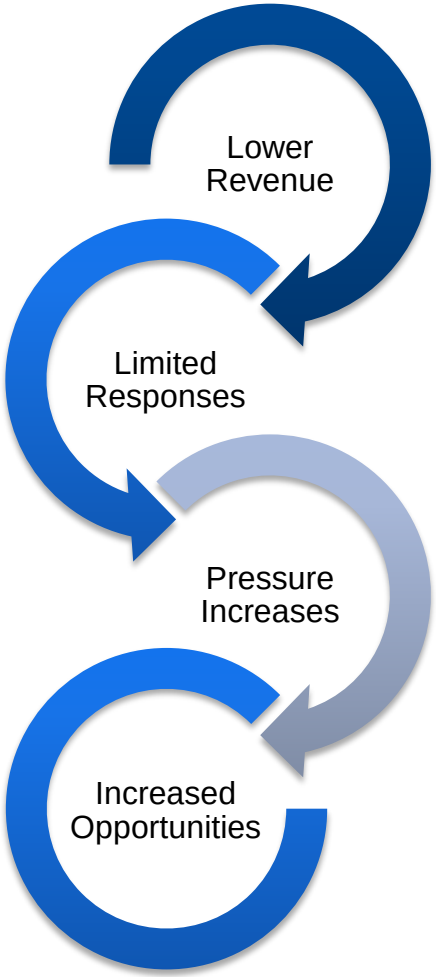
Notes: Breakprice calculated at 10% discount rate
Source: IHS

Government Response to Low Oil Prices

Not all producers are equally vulnerable: some have mitigation options, others are under extreme pressure



For non-diversified producers, investor “retrenchment” will help drive future improvement in terms



Inertia

As prices began to slide many producing countries adopted a wait and see approach until falling currency values and weakening budget and current account balances forced some of the more seriously affected undertook modest counter measures to temper the effects .

Financial preservation

Initial steps include drawing down financial reserves to defend the currency and cutting spending and imports. Increased fiscal pressure prompts producers to focus on capturing additional rent through contract amendments to increase government take and tightening fiscal terms to increase revenue. NOCs in some countries begin to cut capex and to prune sell non-strategic upstream assets

Investor reaction

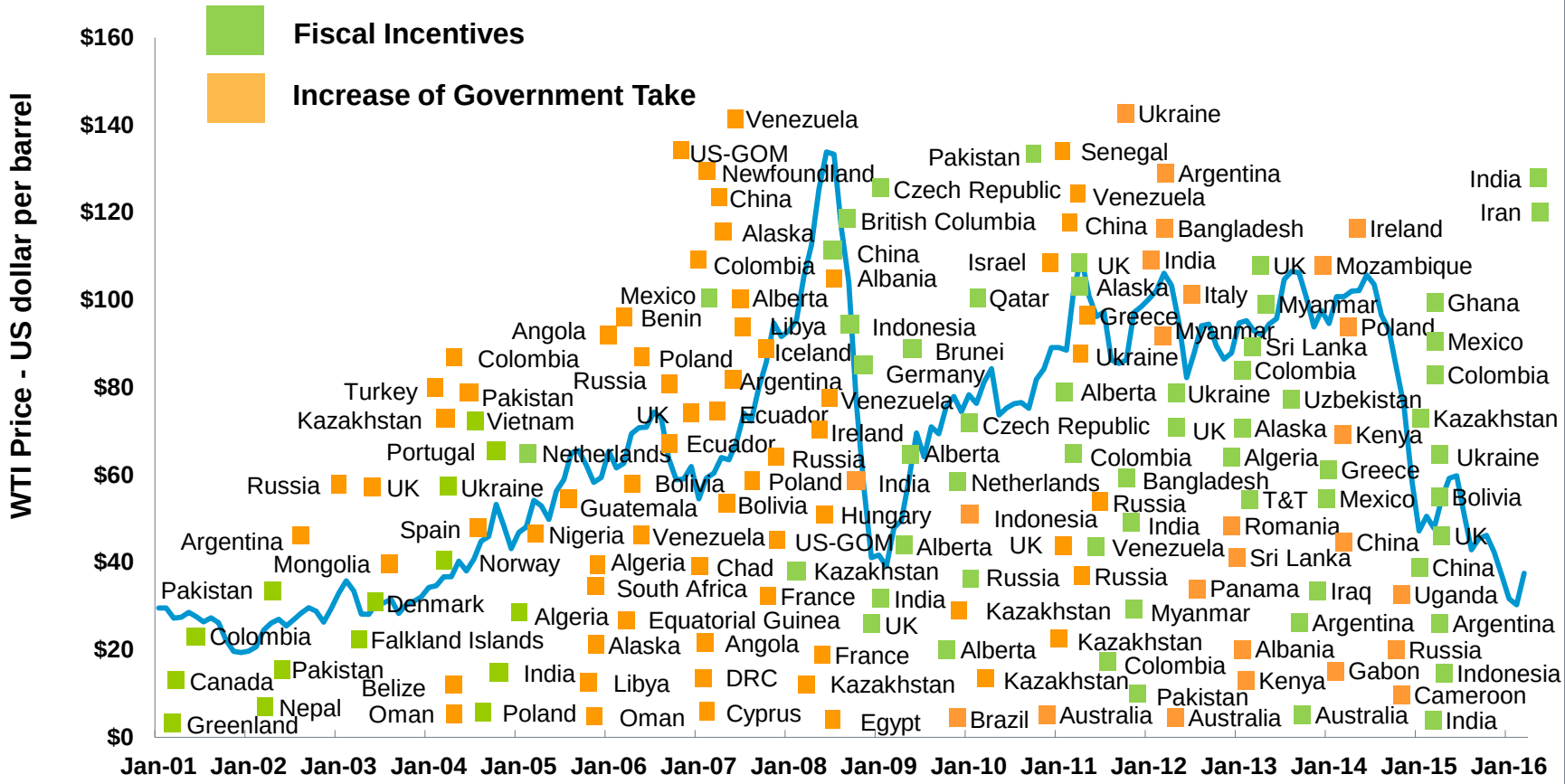
As prices remain low, the weakening of fiscal and current account balances and the gradual exhaustion of financial reserves, combined with cut backs in spending by hard pressed investors, convince some governments that different approaches must be considered if dramatically worse outcomes are to be avoided.

Government reversal

As pressures continue to mount some countries will be compelled to reverse earlier steps including the tightening of fiscal terms. Others may opt for different approaches including opening the upstream and privatizing non-core functions of the NOC to minimize cash outflows and maintain investment

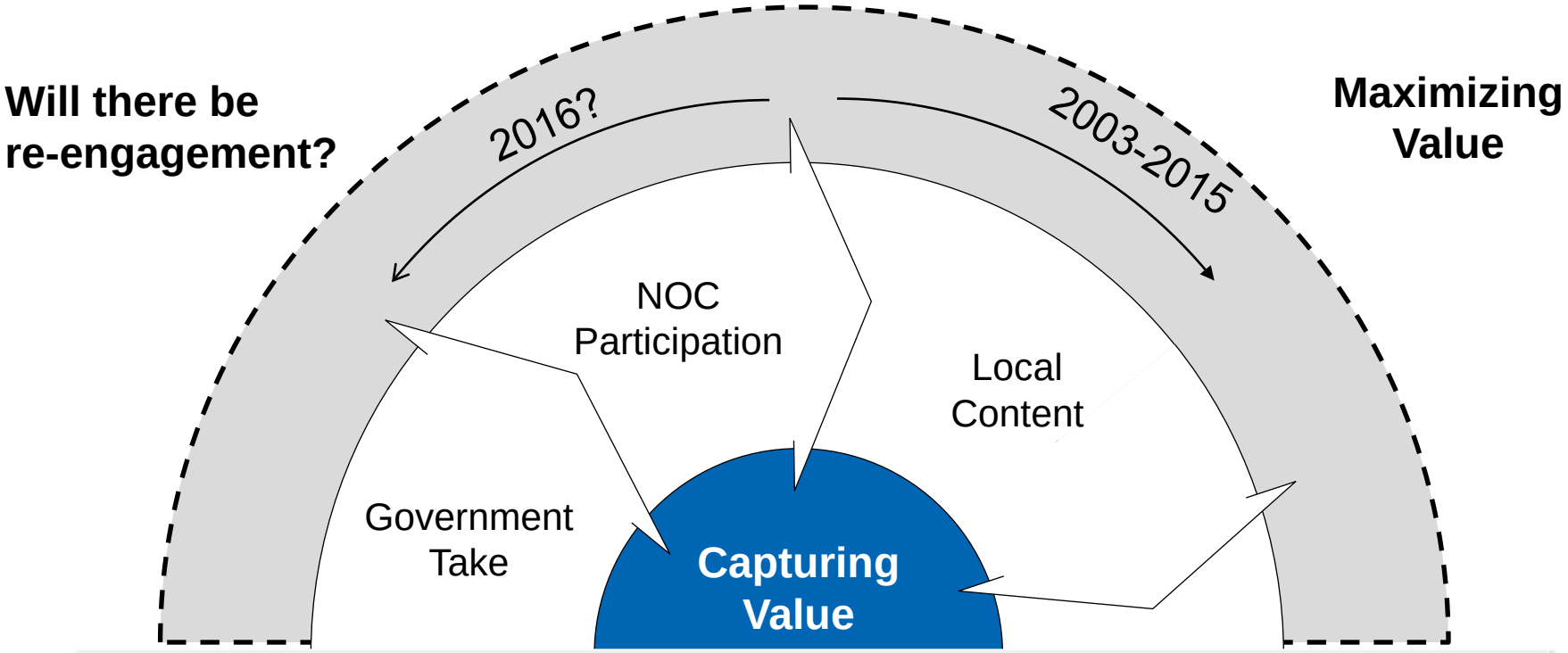
Government Reaction to Market Changes
Lookback to the Future?

Government Action v. Oil Price



Source: IHS

Government Value Addition Instruments



Government take increased between 20%-50% and local content targets between 35%-100% (2003-2015)

Current Trends for Course Reversal

1 Response to Disappointing Licensing Rounds

- Ecuador
- Bolivia
- Peru
- Brazil

2 Exposure of Fault Lines within Current Framework

- Ecuador
- Brazil

3 Push by IOC to Improve Terms

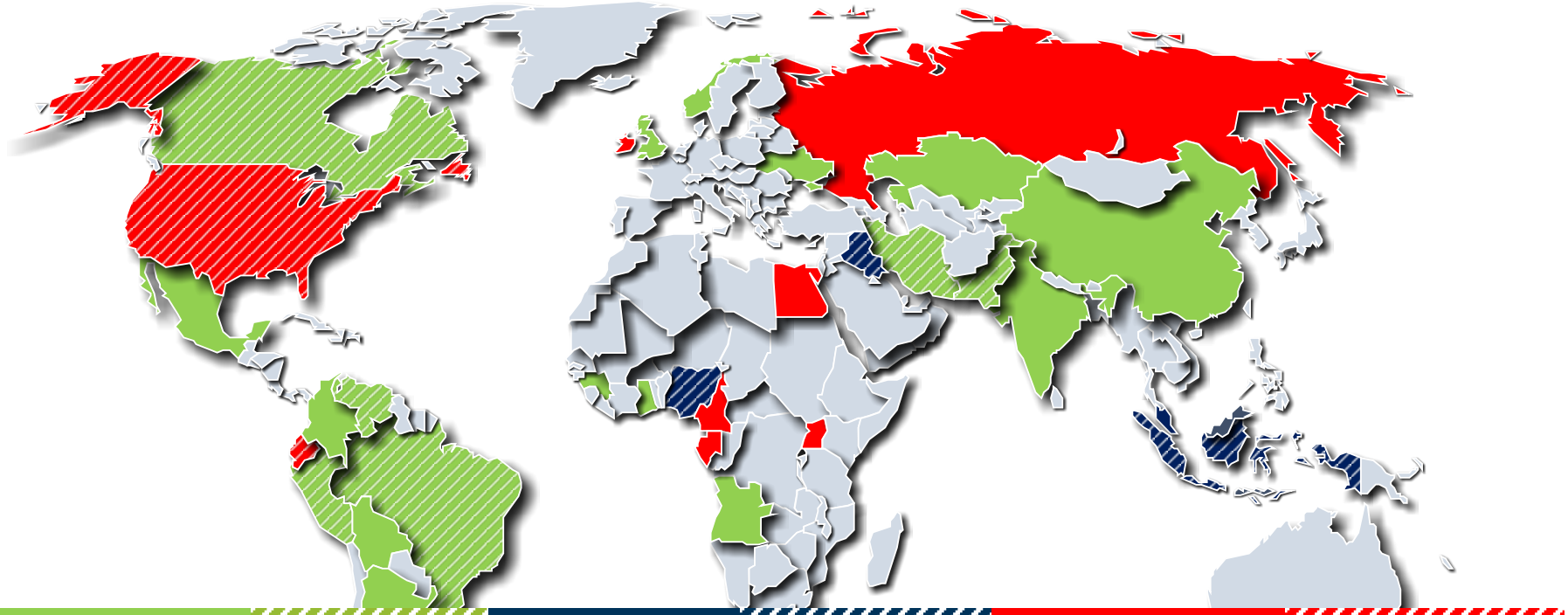
- Angola
- Mexico

4 Proactive Government Initiative

- Alberta
- Argentina
- China
- Colombia
- India
- UK

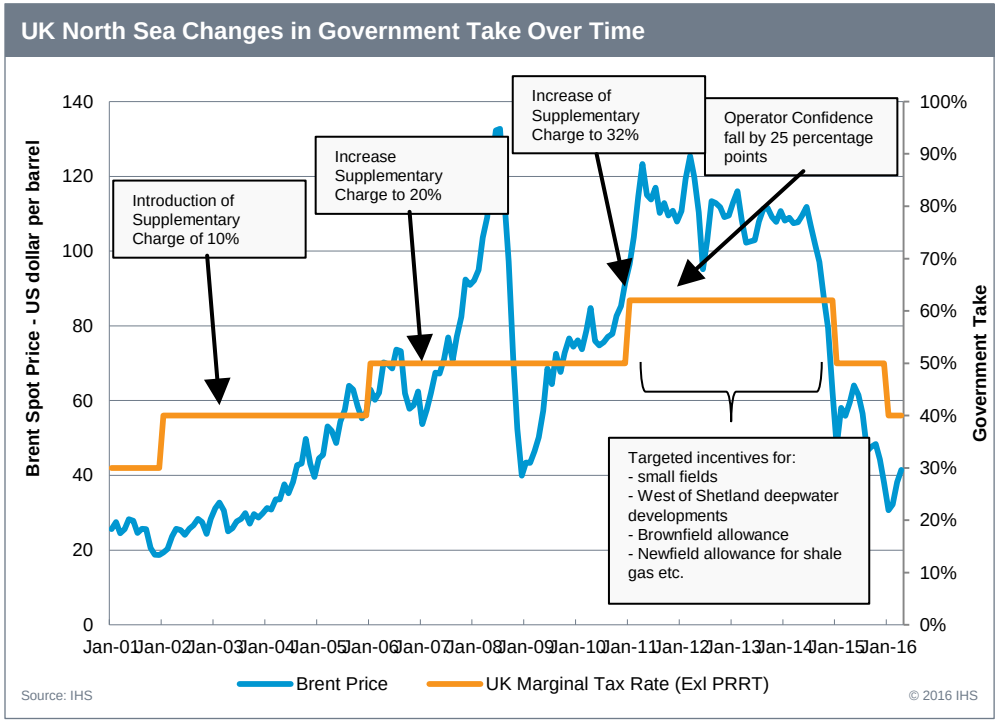
Changes in Fiscal Terms

Mixed reactions and varying degrees of impact and focus



Improved Terms		Potential Improvement		Mixed Measures	Potential Mixed Measures	Tightening of Terms		Potential Tightening of Terms
Angola	Argentina	Alberta	Brazil	Malaysia	Iraq	Egypt	Cameroon	Alaska
Bolivia	Colombia	Ecuador	Iran		Nigeria	Ireland	Russia	Newfoundland & Labrador
China	Ghana	Pakistan	Peru		Indonesia	Uganda	Uzbekistan	US Federal
India	Kazakhstan	Venezuela						
Mexico	Norway	US-North Dakota						
UK	Ukraine							

UK Sector of North Sea
Government Take and Investor Reaction



UK Supplementary Charge rate reduced from 32% to 20% from January 2015 and to 10% from January 2016, reducing the marginal rate of tax for all but the oldest PRT-paying fields (see below) from 62% (2011-2014) to 40% (2016)
NB: **UK Ring Fence Corporation Tax** rate unchanged at 30%

Basin Allowance (an uplift) equal to 62.5% of "qualifying investment capital" incurred after March 2015 is deductible for **Supplementary Charge**

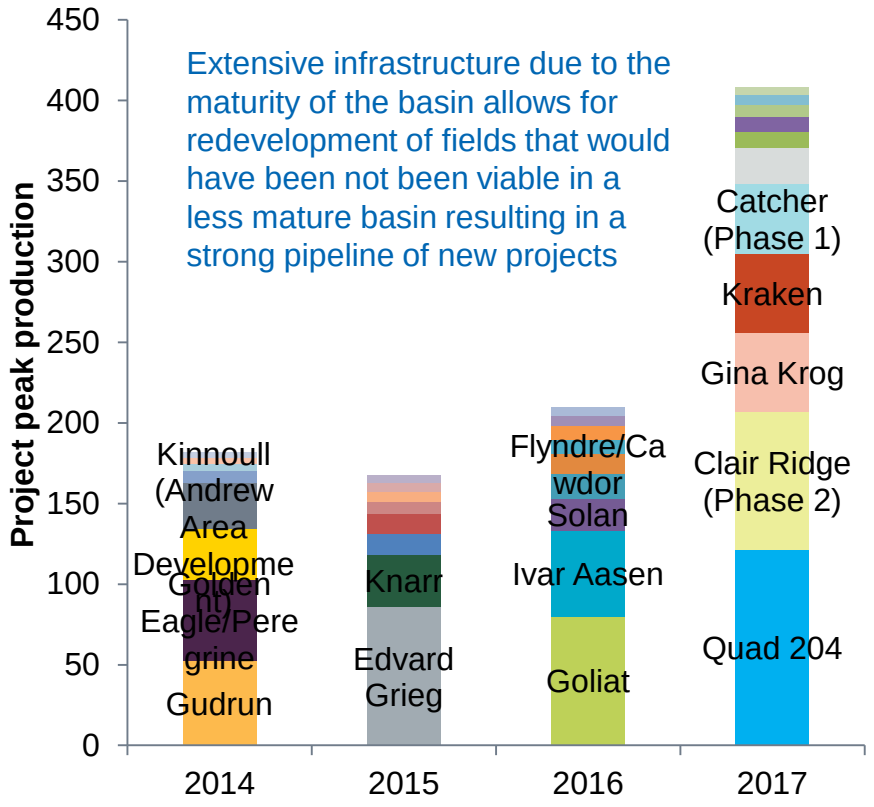
UK Petroleum Revenue Tax (PRT) rate reduced from 50% to 0% (zero percent) from January 2016, reducing the marginal rate of tax for fields subject to this levy from 81% (2011-2015) to 40% (2016)

- Long period of underinvestment
- While government revenue increased investment in North Sea declined
- In 2013 and 2014 investment in brownfields in mature basins intensifies
- The 2015 basin allowance is replacing all the various incentives introduced during the 2012-2014 period.

North Sea Fighting The Storm With An Army of Sanctioned Projects

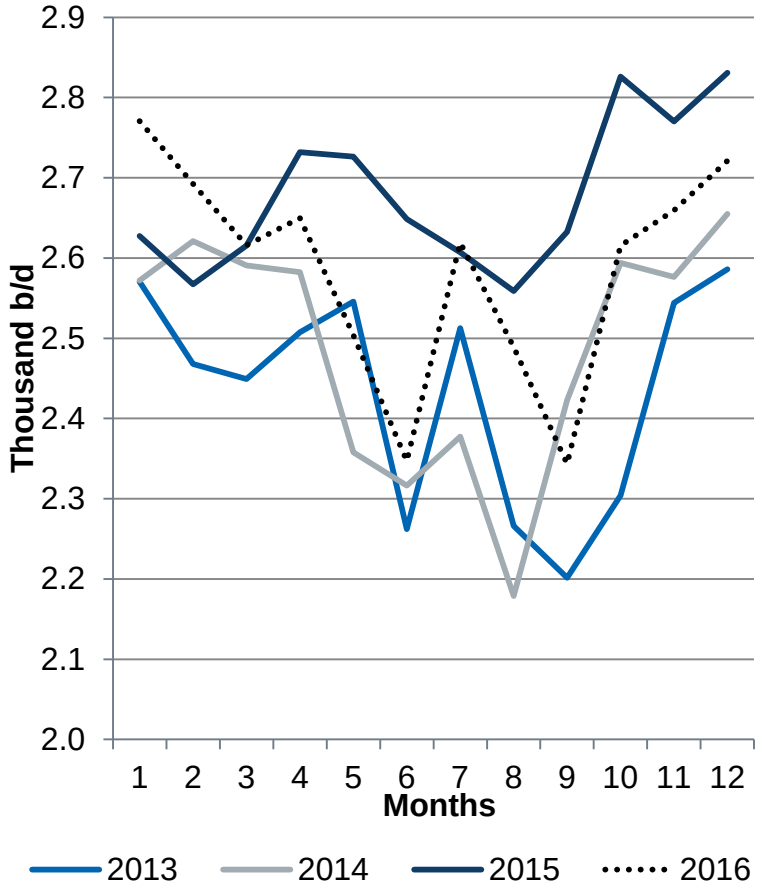
Declines to remain shallow in 2016 and 2017

North Sea major oil project additions



Source: IHS

North Sea production "swings" driven by maintenance

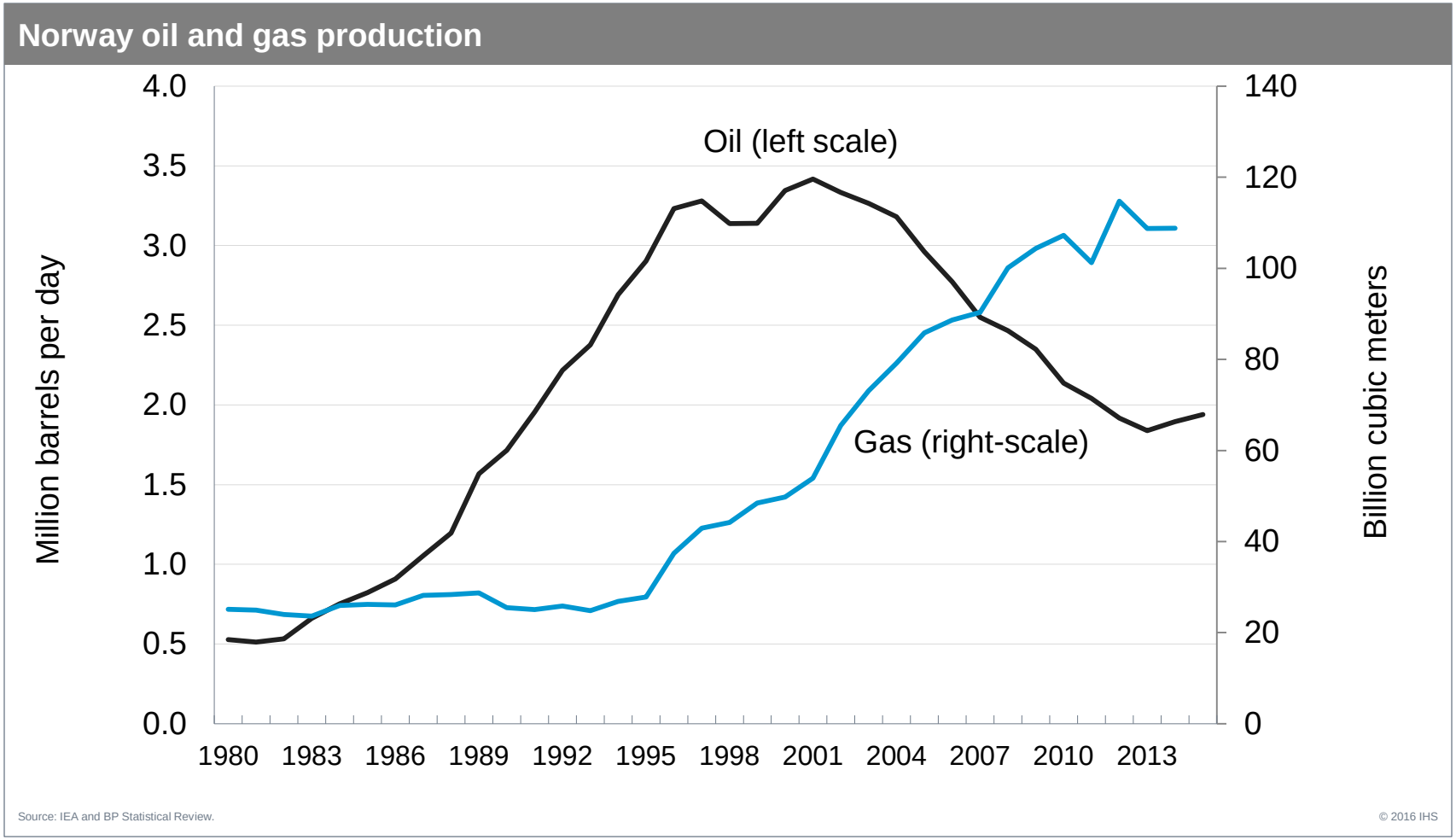


Source: IHS

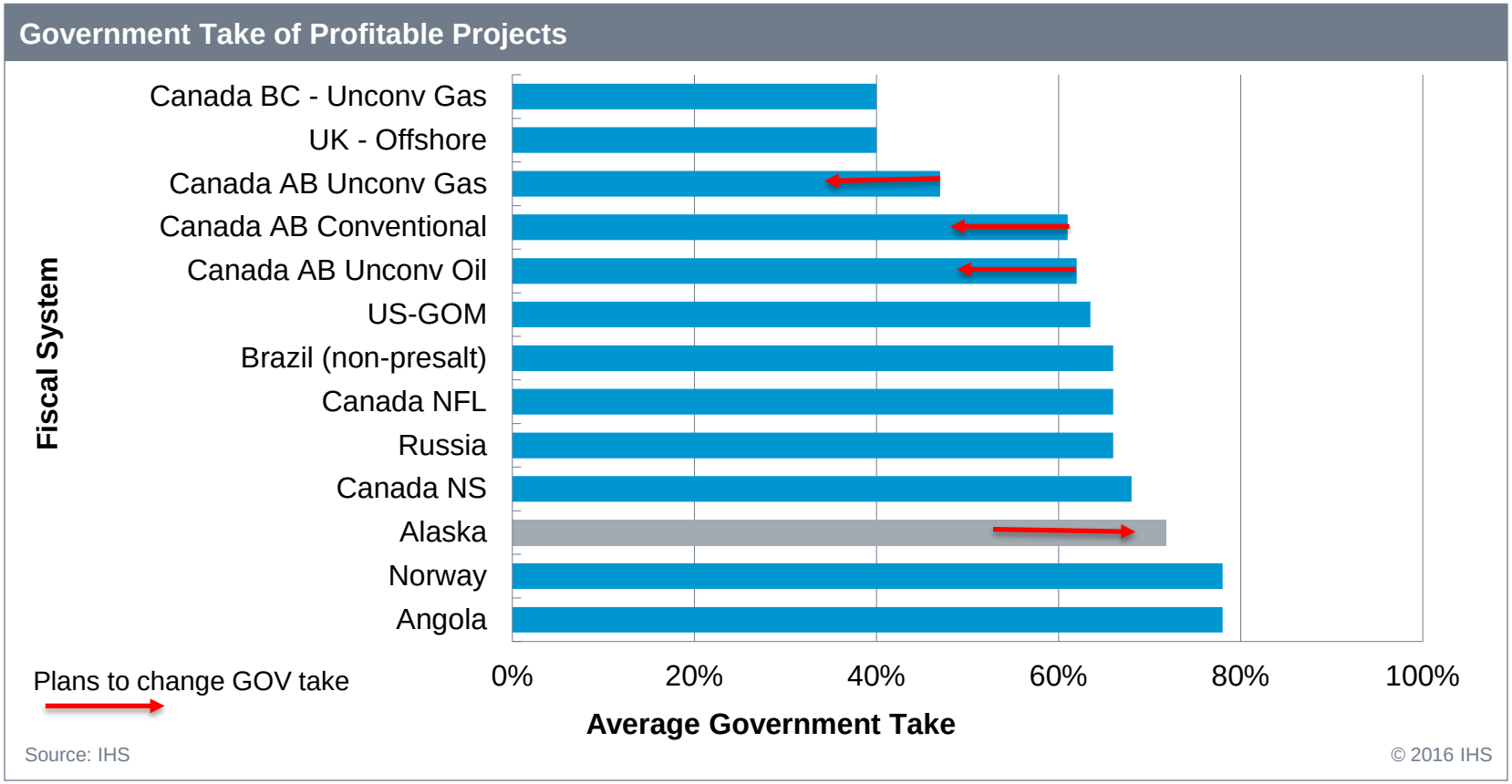
Norway's role in oil and gas supply: Is a slow, but long decline likely? No trend—up or down—is predetermined.

- Political and operating environment stability are key positive attributes, but is that enough?
- North Sea oil finding, development, and production costs are high. Can it survive in a low oil price world? Does the world need that oil?
- Gas supply faces strong competition from Russia and LNG. Will Russia go for market share or price? And will LNG constrain demand for Norwegian gas?
- European gas demand expected to grow slowly, but could this turn into a decline ?
  - Weak economic growth? Greater than expected penetration into renewables? Space heating efficiency gains?

Can Norway's oil decline be reversed? And how will competition for gas market share in Europe impact Norway?



Government Take of Select Peer Group



Trends in Government Respond to Low Oil Prices

- Changes to fiscal terms in response to low oil prices have been muted:
  - Governments face domestic pressures to making concessions for investors
  - Introducing legislation for new E&P terms is typically a drawn-out process
- Some established producers have improved terms for investors:
  - A major driver is maturity of the resources base
- Non-diversified (e.g. Russia) and less-established (e.g. Uganda) producers have failed to improve terms for investors:
  - Non-diversified producers focusing on financial preservation; decline of E&P investment required to shift policy emphasis from near-term revenue to resource development
  - Less-established producers lack understanding of investor decision processes and feel populist pressure to maximize domestic benefits
- Many governments contemplating reducing role of domestic NOCs

Thank You!

For more information about this presentation or IHS Energy in general, please contact

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