

SPE OLEF 2019

The Global (Political) Economy and the Future of Oil

April 2019



Agenda



Global
(Economic)
Developments
and the Future of
Oil

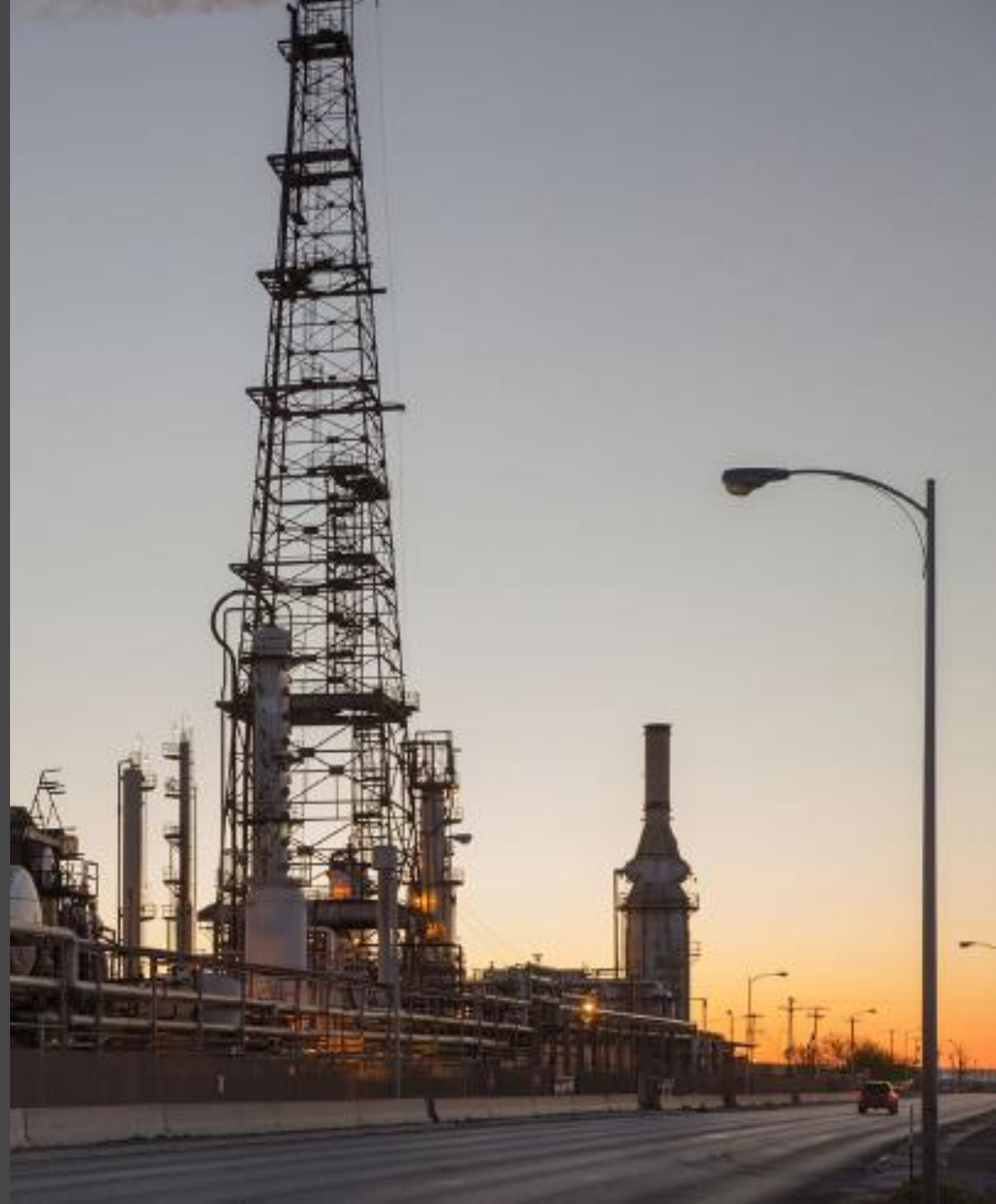
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Future Business
Model Options

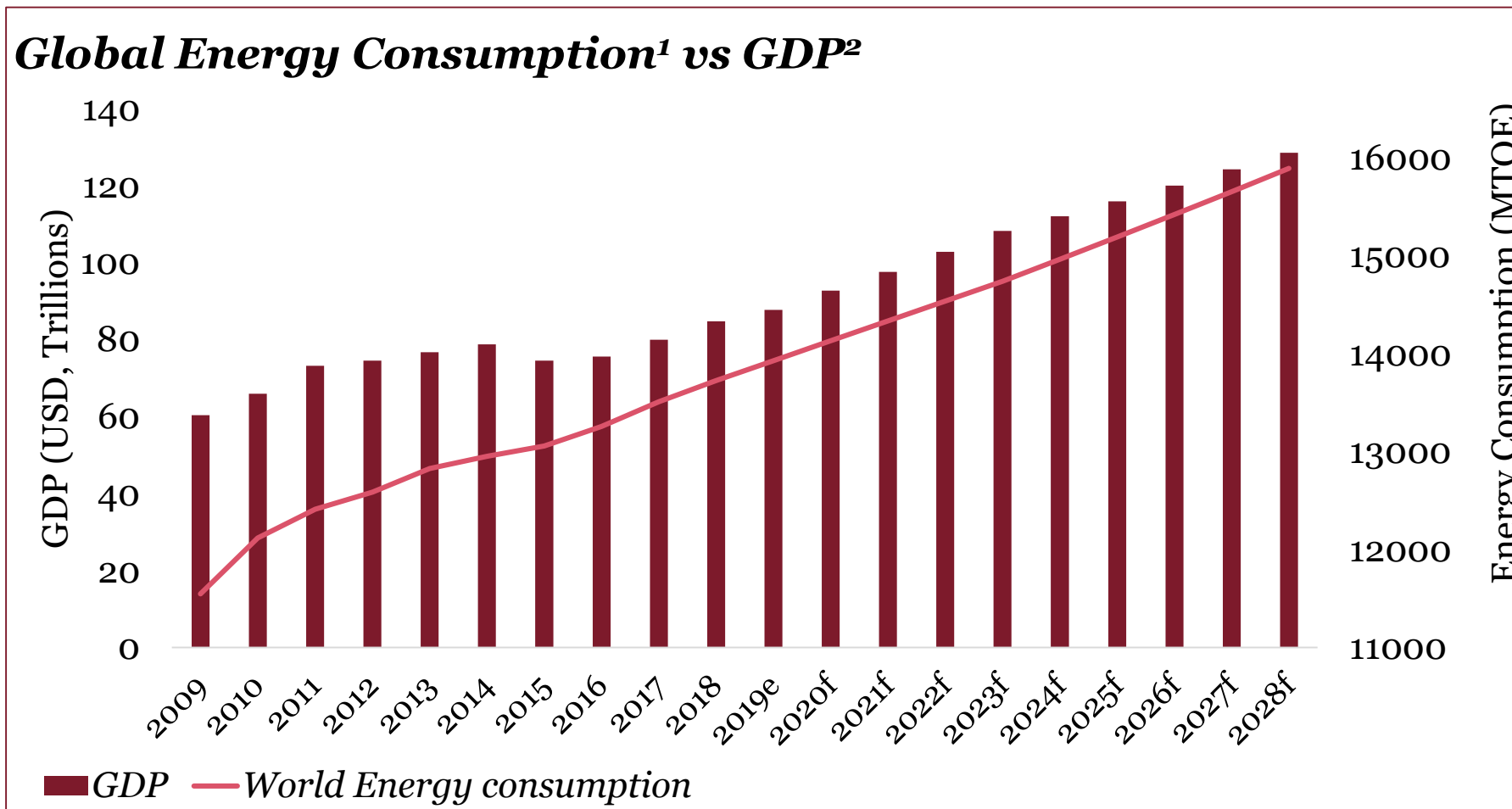
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Global (Economic) Developments and the Future of Oil



Projected global economy growth is positively correlated to forecast volumes for energy consumption



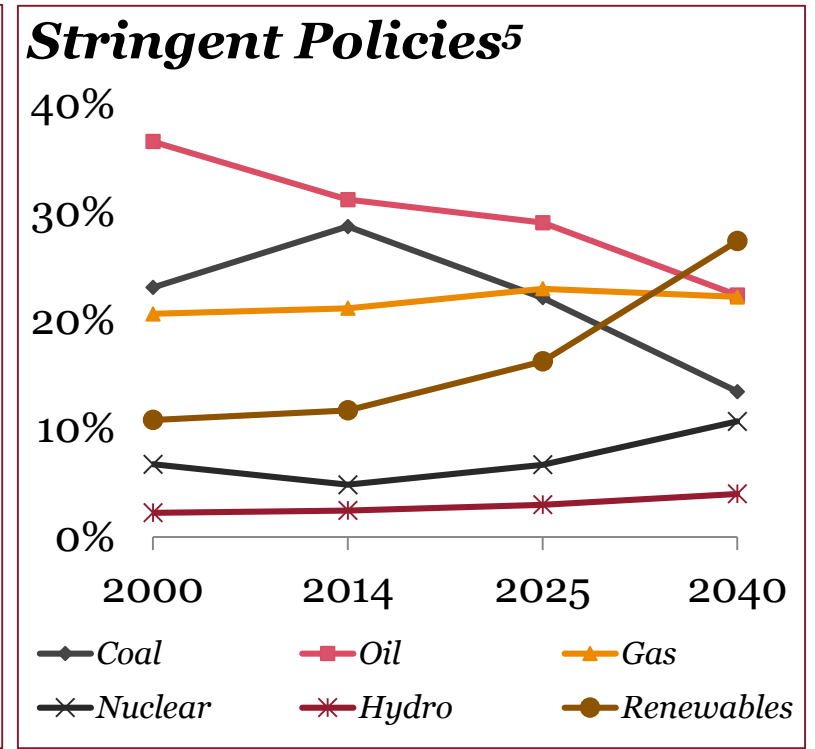
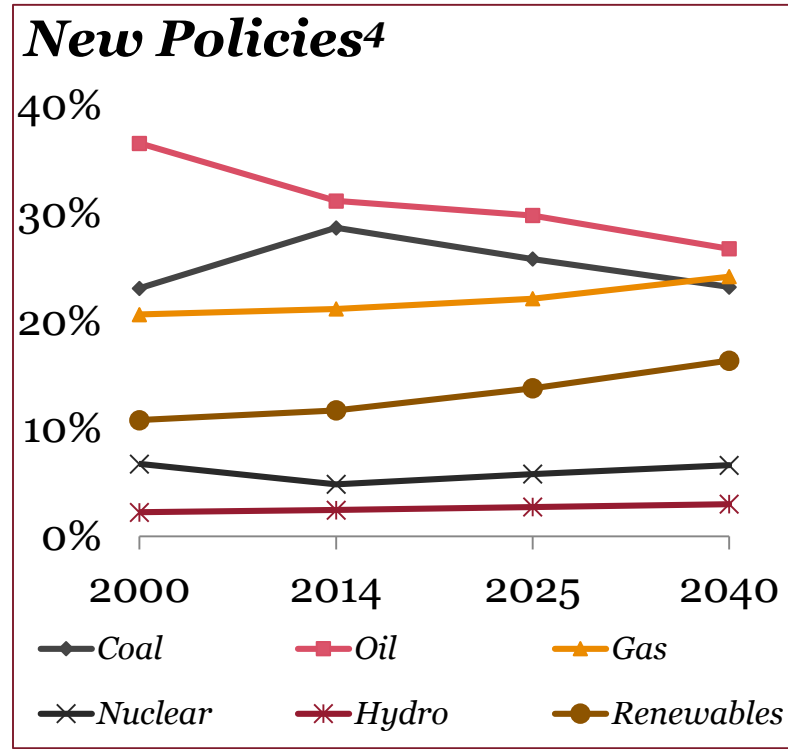
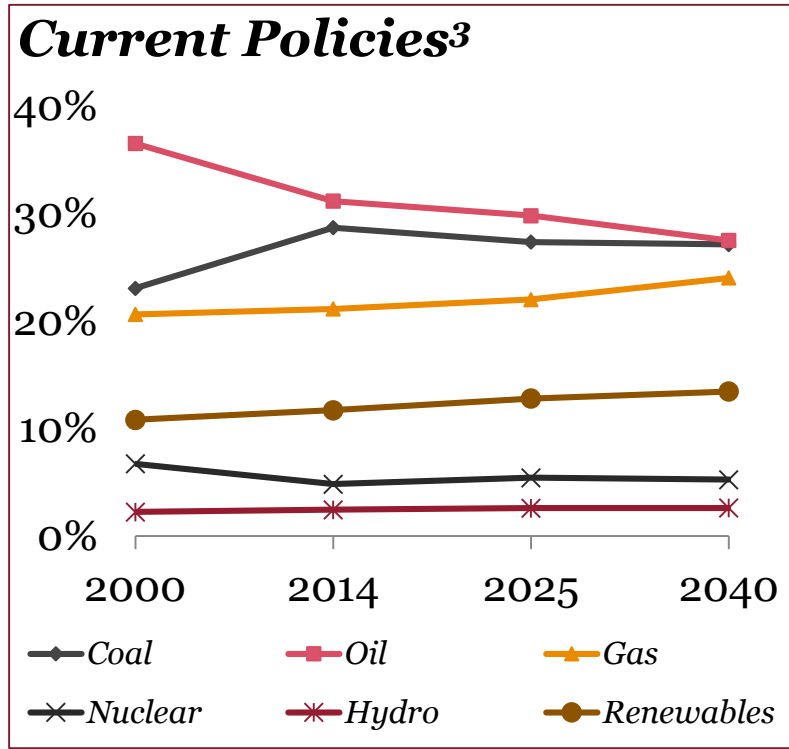
The Energy Challenge

- Growing Population
- Rising Demand
- Need for energy solutions
- Mitigating climate change
- Improving air quality

CAGR	2009-2018	2019-2028	CAGR	2009-2018	2019-2028
GDP	3%	4%	Energy Consumption	1.7%	1.3%

1: International Monetary Fund World Economic Outlook (2018) PwC Analysis, 2: International Energy Agency (2018)

However the global energy mix is shifting gradually in favour of renewable energy as demand for dirty fuels decrease



2040⁶

Electric Vehicles	50million
Renewables (2014-2040) ⁷	65%
Oil Demand	0.5mb/d

2040⁶

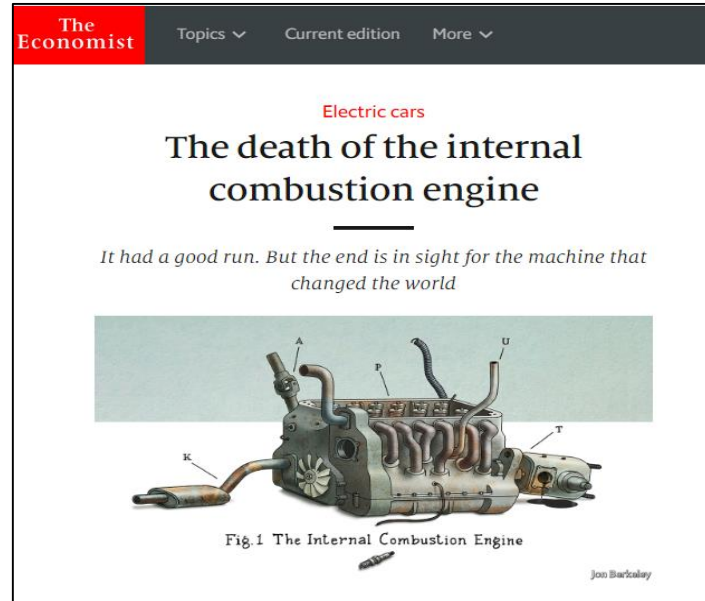
Electric Vehicles	150million
Renewables (2014-2040) ⁷	82%
Oil Demand	1.3mb/d

2040⁶

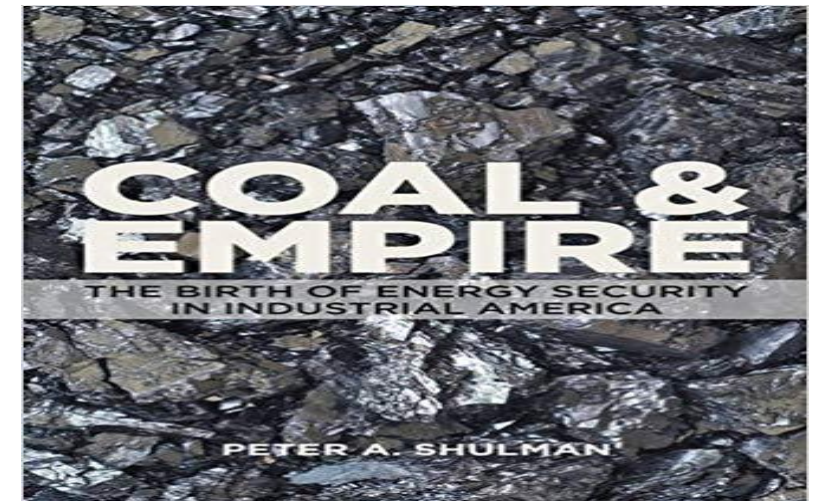
Electric Vehicles	700million
Renewables (2014-2040) ⁷	154%
Oil Demand	6 mb/d

3,4,5,6: International Energy Agency World Energy Outlook (2016), PwC Analysis,
 PwC SPE Oloibiri Lecture and Energy Forum

...driven largely by two main forces - push for clean(er) energy and energy security, which sometimes collide



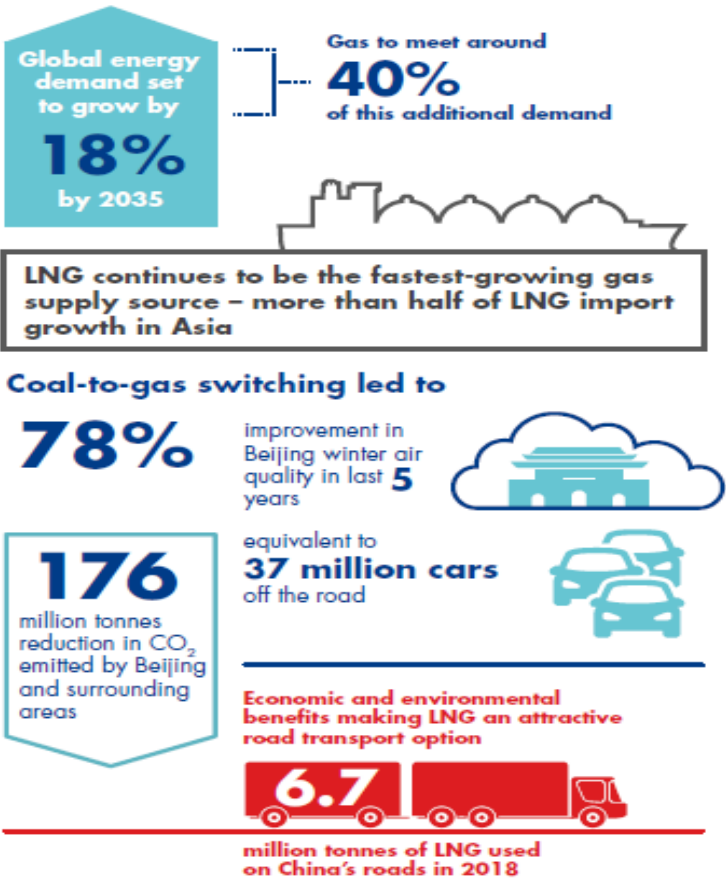
- By 2040, 55% of all new car sales and 33% of the global fleet will be electric⁷
- 280,000 LNG trucks expected in Europe in 2030⁸
- Global investments in renewable energy have consistently exceeded US\$200bn per year in the past eight years with cumulative investment of US\$2.9 tn since 2004⁹



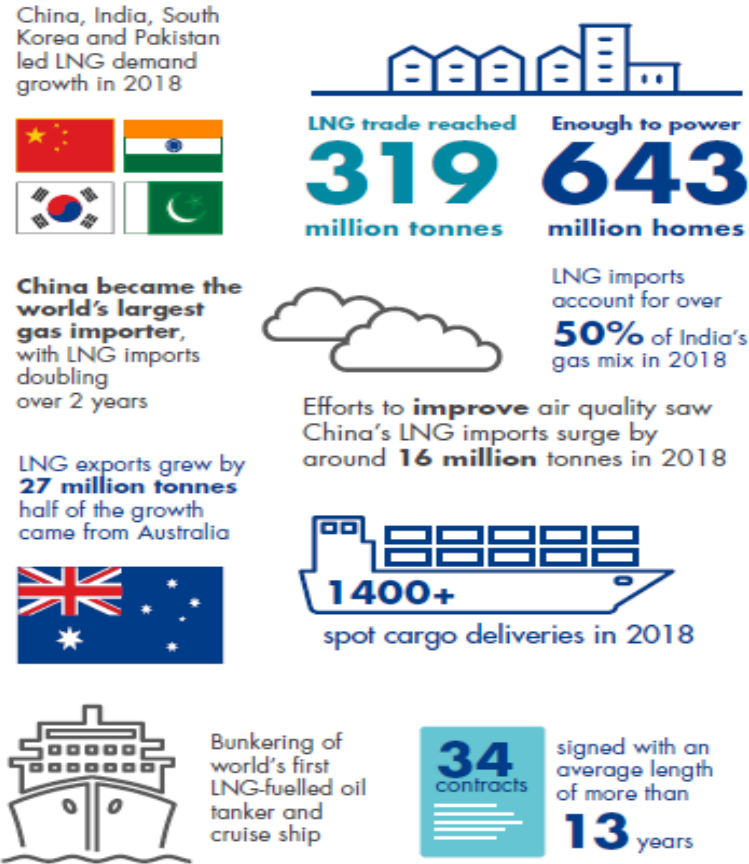
7; Bloomberg New Energy Finance, *Electric Vehicle Outlook (2018)*, 8: Shell LNG Outlook (2019), 9: United Nations Environment Programme *Global Trends in Renewable Energy Investment (2018)*

...nations across the world are also placing a bet on gas as the transition fuel in their clean energy drive⁶

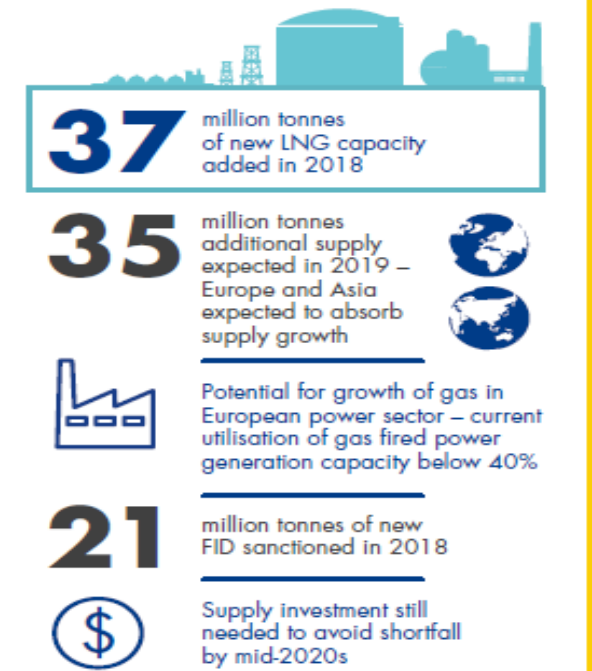
Growing recognition of the role of gas and LNG



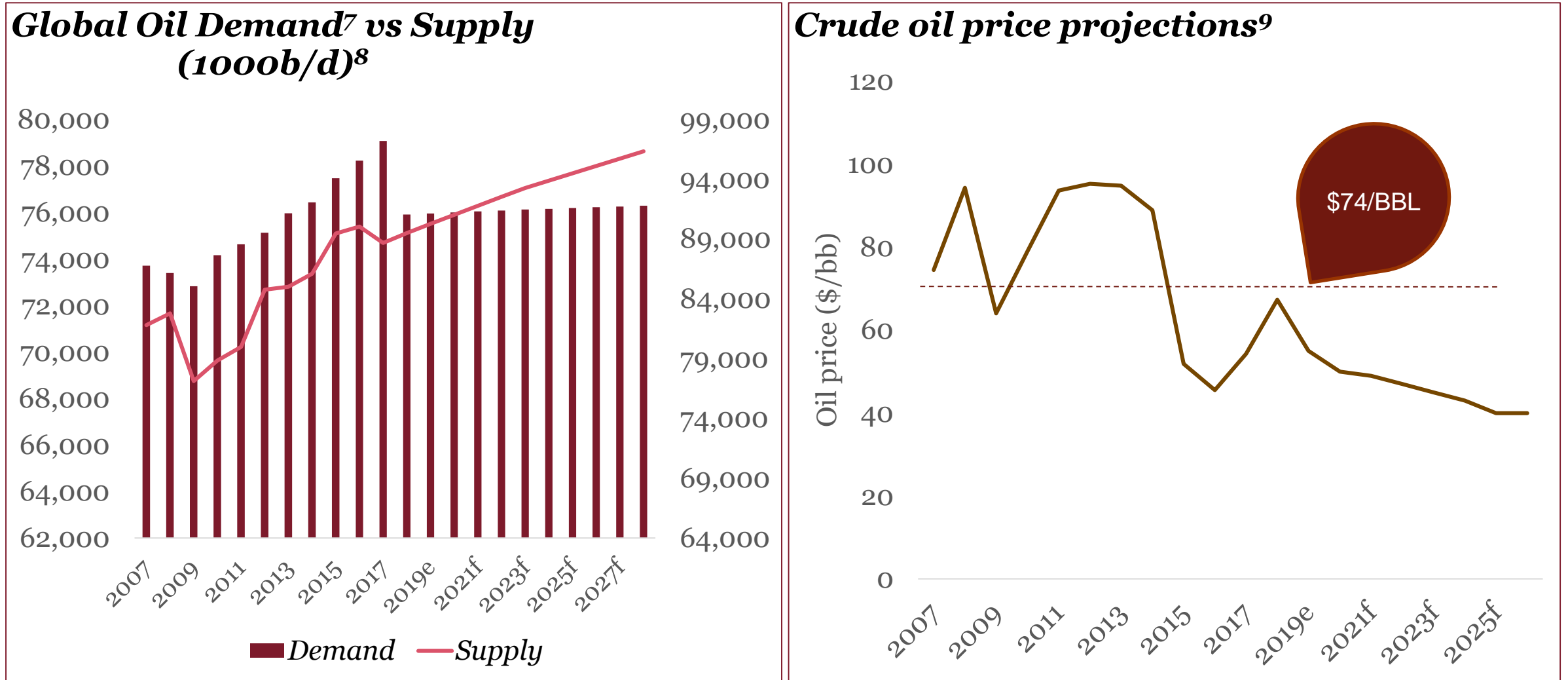
Asian LNG imports exceed expectations again in 2018 absorbing continued supply growth



Near term supply growth expected to be absorbed by Europe and Asia – continued need for investment in supply to meet long-term demand growth

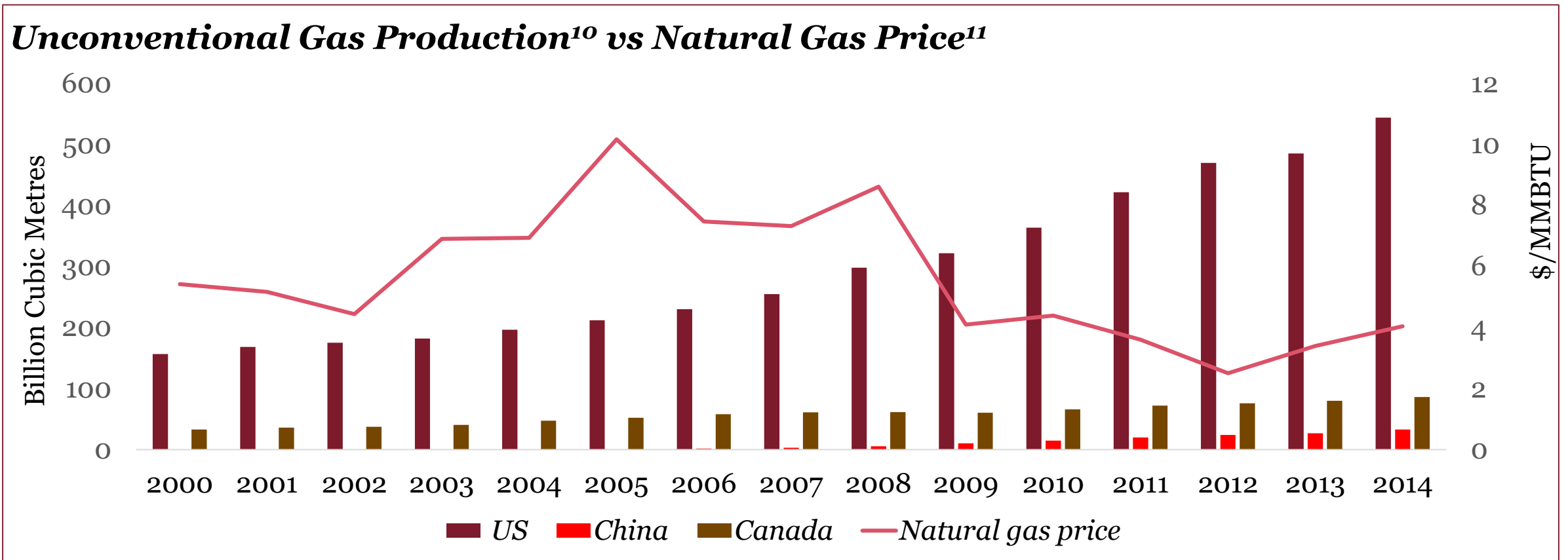


Oil supply is forecast to exceed demand, with impact on price



7, 8: Organization of Petroleum Exporting Countries Annual Statistical Bulletin (2018), PwC Analysis, 9: World Bank Commodities Price Forecast (2018), PwC Analysis

...even as natural gas prices also witness a downward trend due increased supply from unconventional sources



- The United States and Canadian unconventional gas production has grown at 9% and 7% CAGR respectively between 2000 and 2014. Unconventional gas production in China has grown at 48% CAGR between 2006 and 2014.
- The price of natural gas has fallen at -2% CAGR between 2000 and 2014.

10: International Energy Agency, 11: World Bank World Commodity Price Data (The Pink Sheet) 2018

However IMO 2020 regulations is good news for “sweet” crude

In 2016, the International Marine Organization (IMO) agreed to limit the sulfur content in all marine fuels to 0.5 percent, against the current limit of 3.5 percent as from January 1, 2020. This exempts fuels used in Sulfur Emission Control Areas (ECAs), which will remain at the 2015 standards of 0.1 percent. The implementation of the IMO 2020 regulation will have far-reaching effects on the oil and gas industry as bunkers account for 30% of oil fuel demand

Implications

01 Increased Demand for Compliant Fuels

- Maritime operators are required to switch to using Low Sulphur Oils (LSO) and Ultra Low Sulphur Oils (ULSO). This could be positive for Nigerian blends generally known to be sweet and light

03 Abatement Technology

- Ships with scrubbers can burn High Sulphur Oils (HSO) and still comply with the 0.5% Sulphur limit. The regulation should result in an increased demand for ships built with scrubbers
- Installation of scrubbers in ships to reduce Sulphur emissions

02 Refining Investment

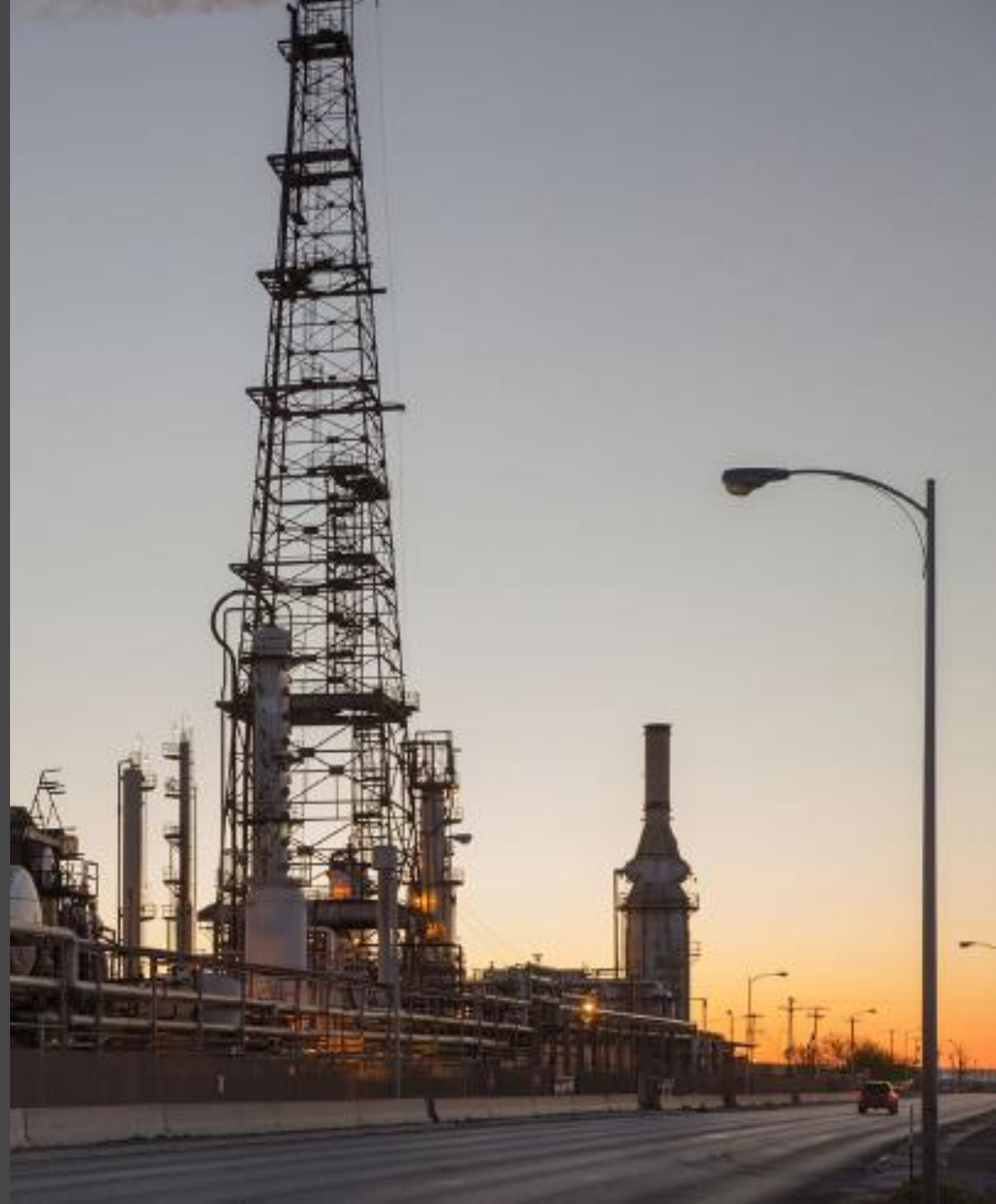
- The IMO 2020 will create opportunities for modern, complex refineries with secondary units capable of upgrading fuel oil into higher value lighter products

04 Increased Demand for LNG

- Investment case for the development of a worldwide network of LNG bunkering infrastructure due to the potential demand for LNG for shipping
- The retrofitting of engines of ships to use LNG
- Marine operation is projected to consume 35MMTPA of LNG by 2035

2

Future Business Model Options



Oil companies can employ a combination of business models for expansion, evolution or survival

Push full speed ahead on fossil fuels.

- Forward integrate along the oil and gas value chain
- Service offerings to self to cut cost
- Service offerings to the industry

Diversify your portfolio

- Expand to other industries outside energy
- Forward integrate along the gas to power value chain

Take the “Big Dive”

- Go all in on renewables
 - Solar
 - Wind
 - Biomass

Acquisition

Acquire existing companies in your industry or business line of interest

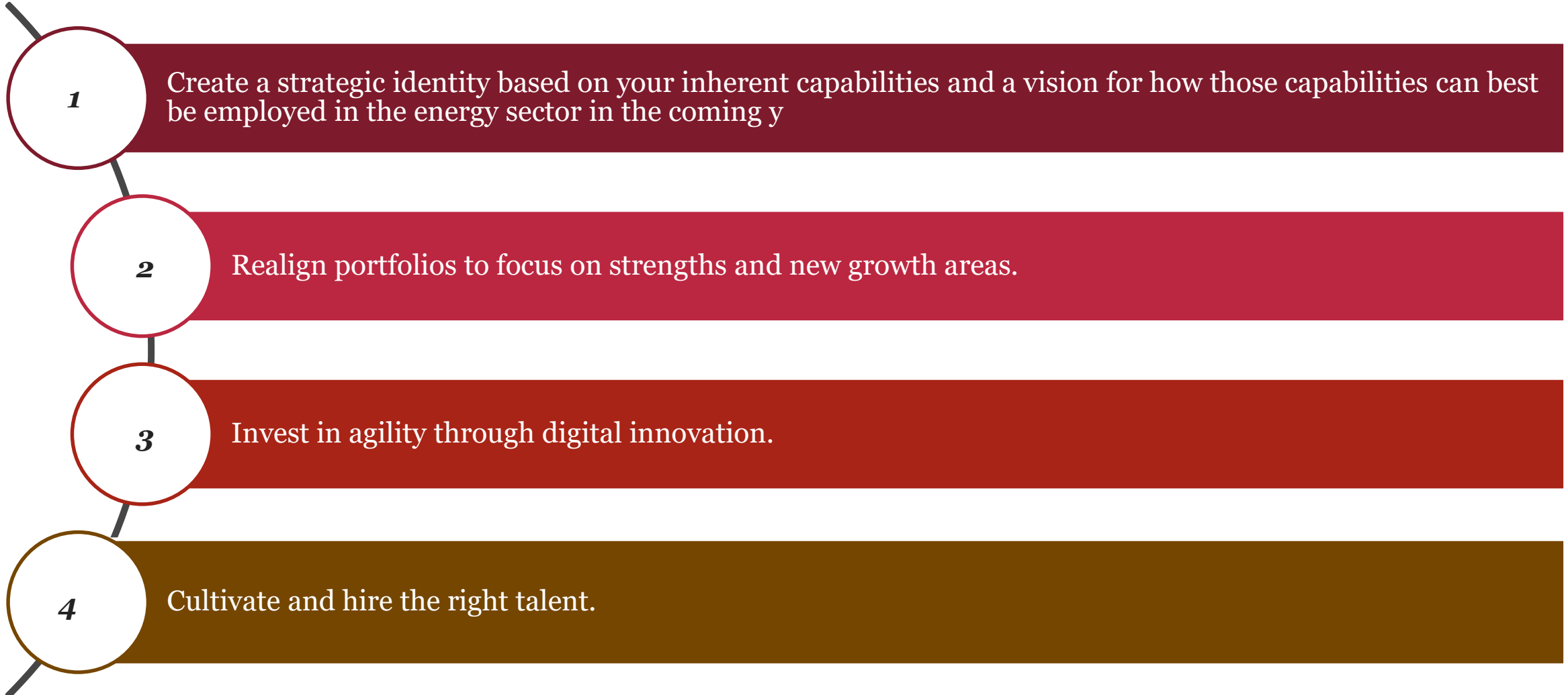
Joint Venture

Partner with organisations that have capabilities in the industry or business lines to pull together resources and capabilities

Startup

Establish a new organization as a subsidiary of your organization or as a stand alone business

In view of the industry's transformation, industry players need to pay attention to four essential strategic elements



Thank you

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