World Energy Investment 2018

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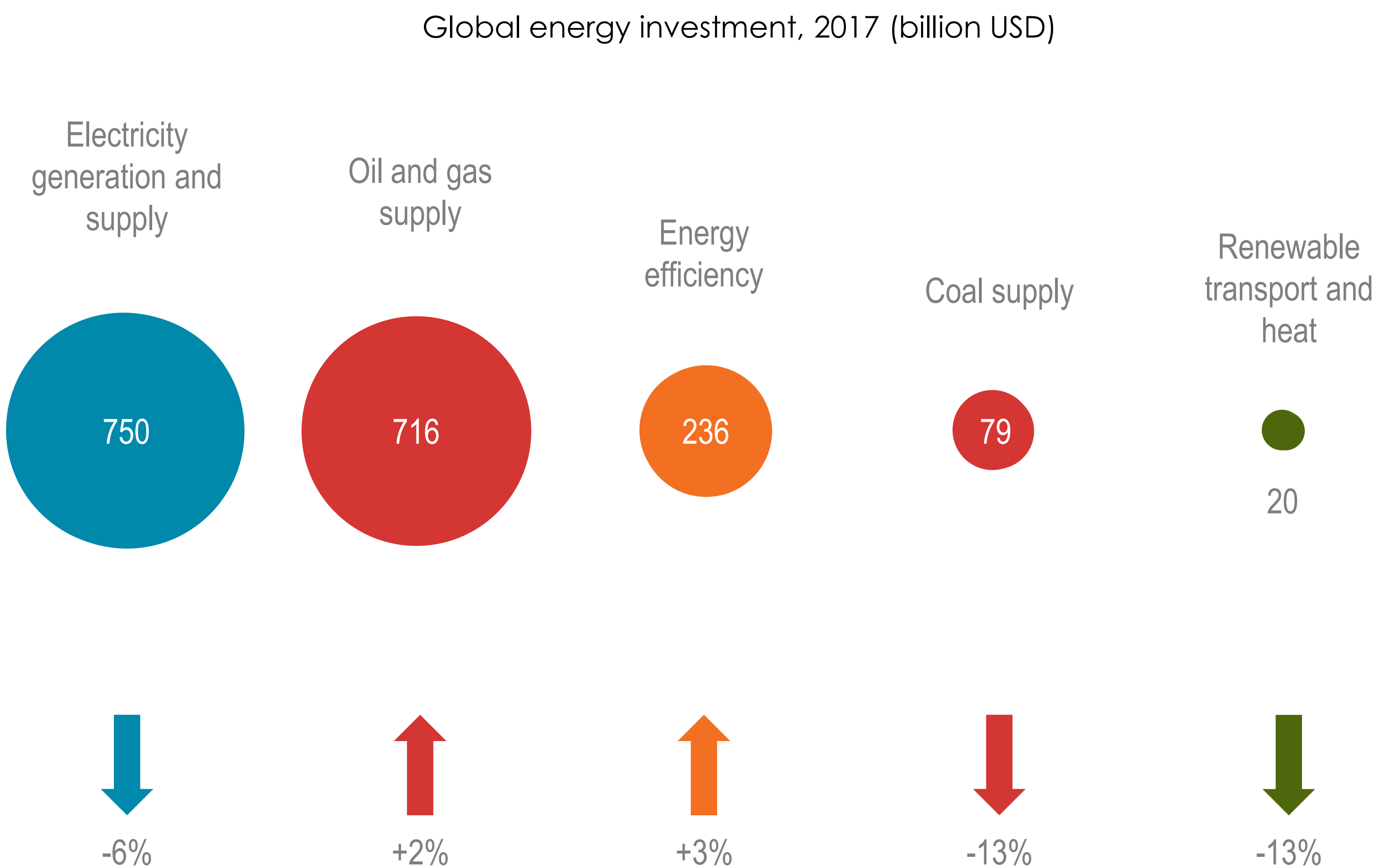
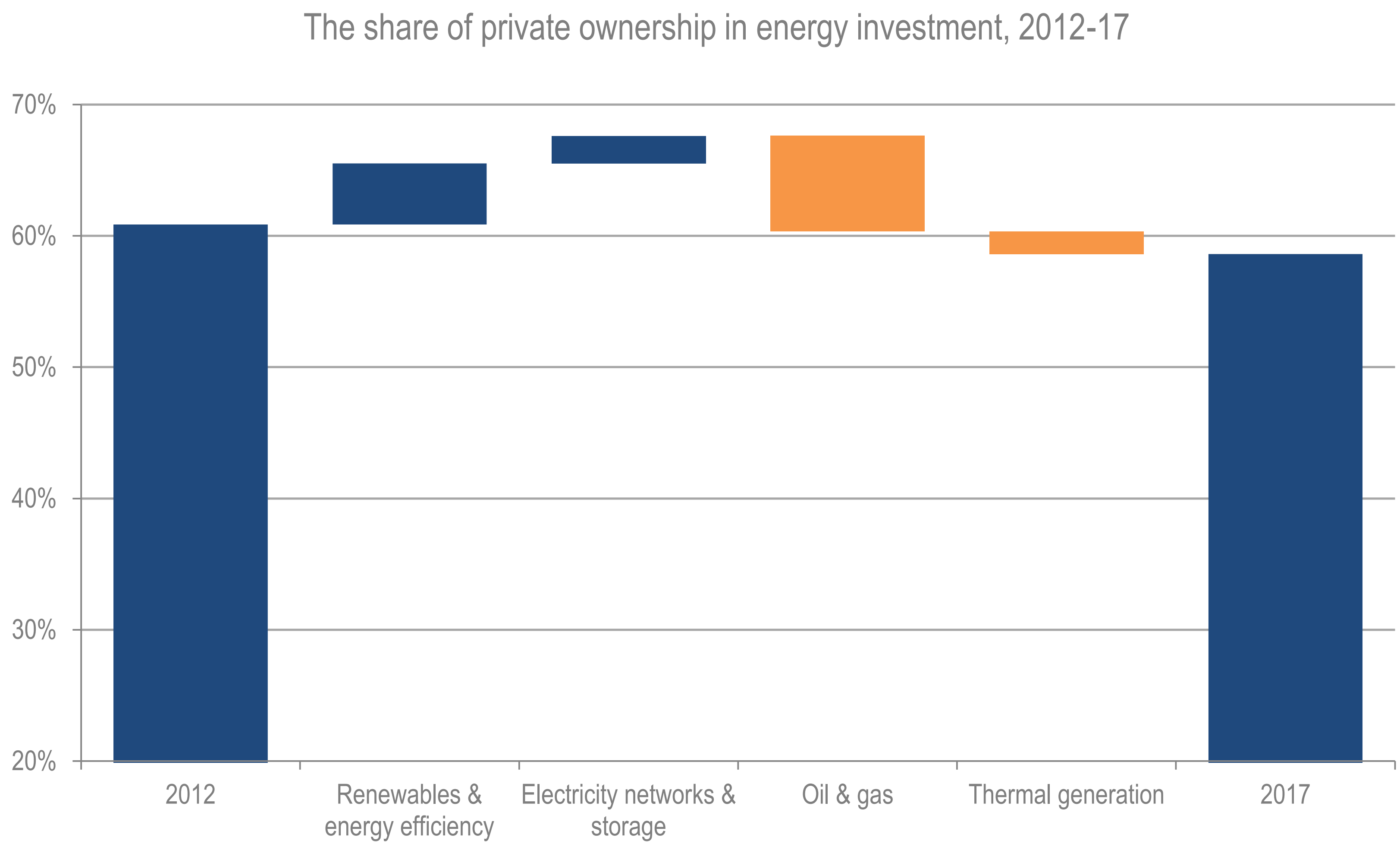
IEA

Global energy investment was USD 1.8 trillion in 2017, led by electricity



For the 3rd consecutive year energy investment declined in 2017 , by 2%, due to less power generation investment, lower costs and continued prudence in the oil and gas sector. Energy efficiency was a lone growth area.

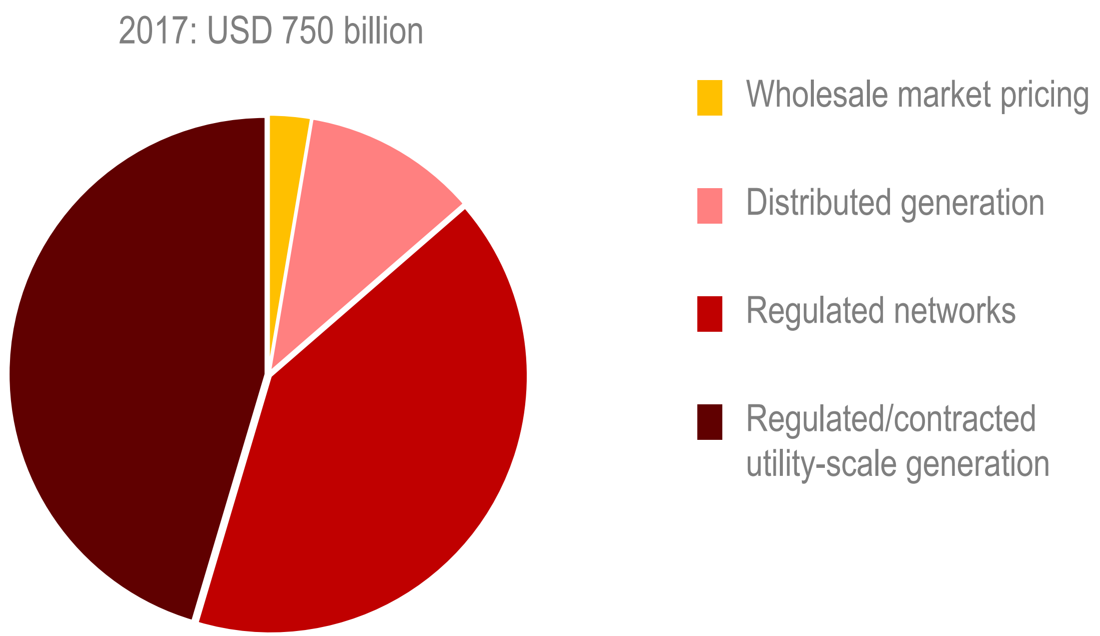
The share of private-led energy investment has declined



Despite a growing role for clean energy and electricity infrastructure led by private actors, the share of energy investment from NOCs and state-owned thermal power rose by more over the past five years.

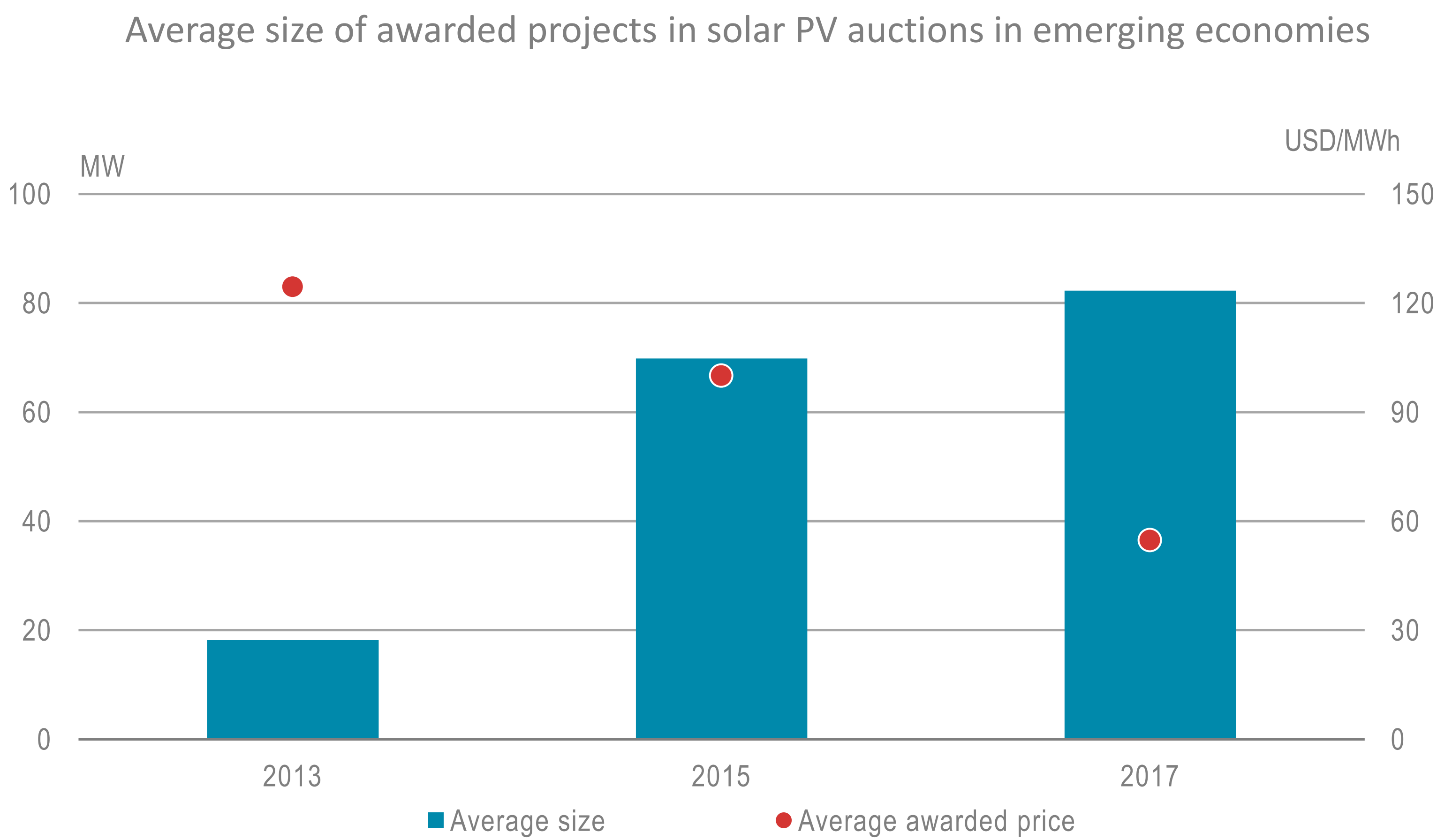
What balance between competitive and regulated power markets?

Global power sector investment by main remuneration model



Over 95% of power sector investments rely on regulation or contracts beyond short-term wholesale markets for their main remuneration, as regulators pursue adequacy and environmental aims.

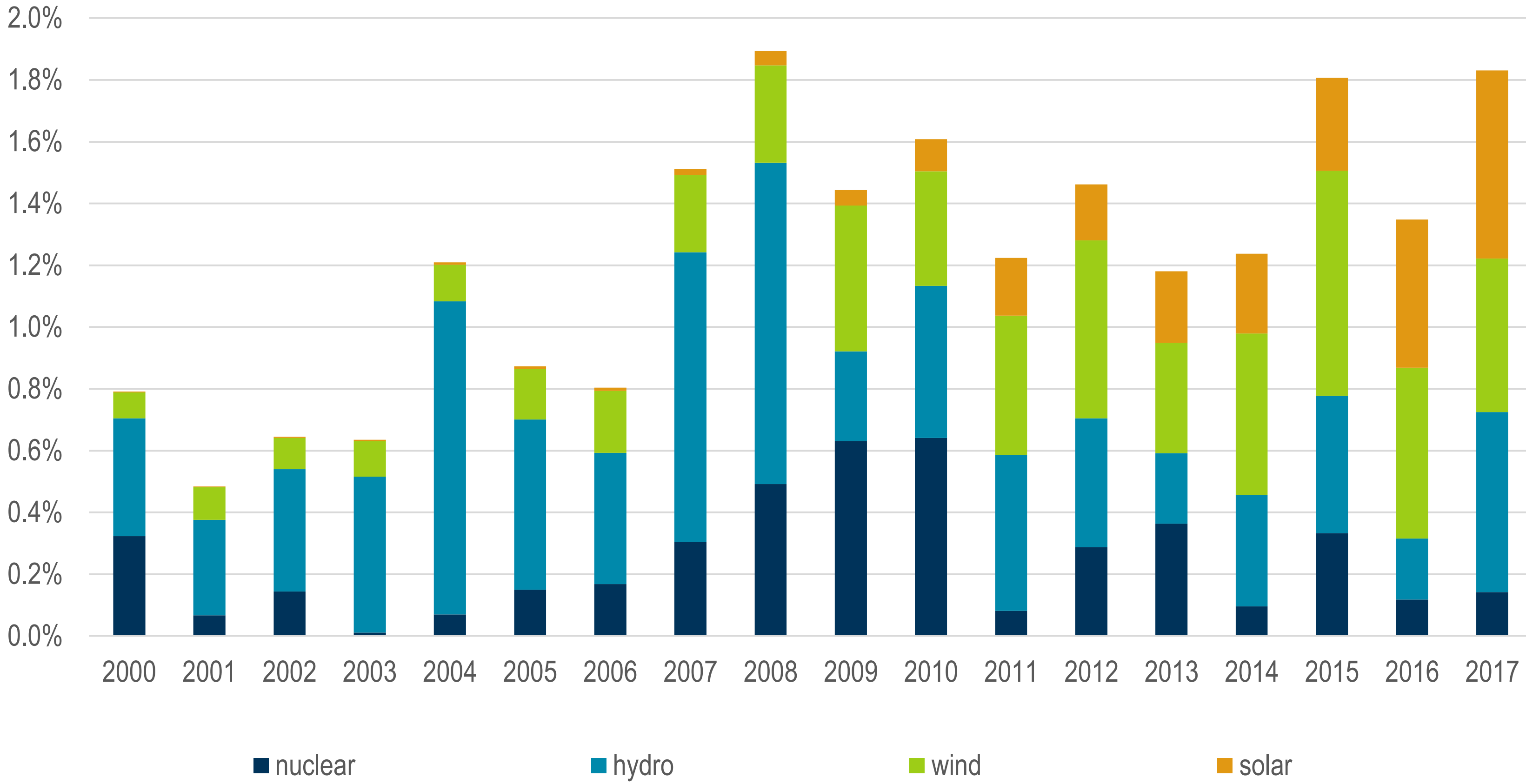
Tenders have facilitated economies of scale for renewables



In emerging economies, the average size of awarded solar PV projects has grown more than quadrupled since 2013 while that of onshore wind rose by half over 2013-17.

Wind and solar only compensates for the slowdown of nuclear and hydro

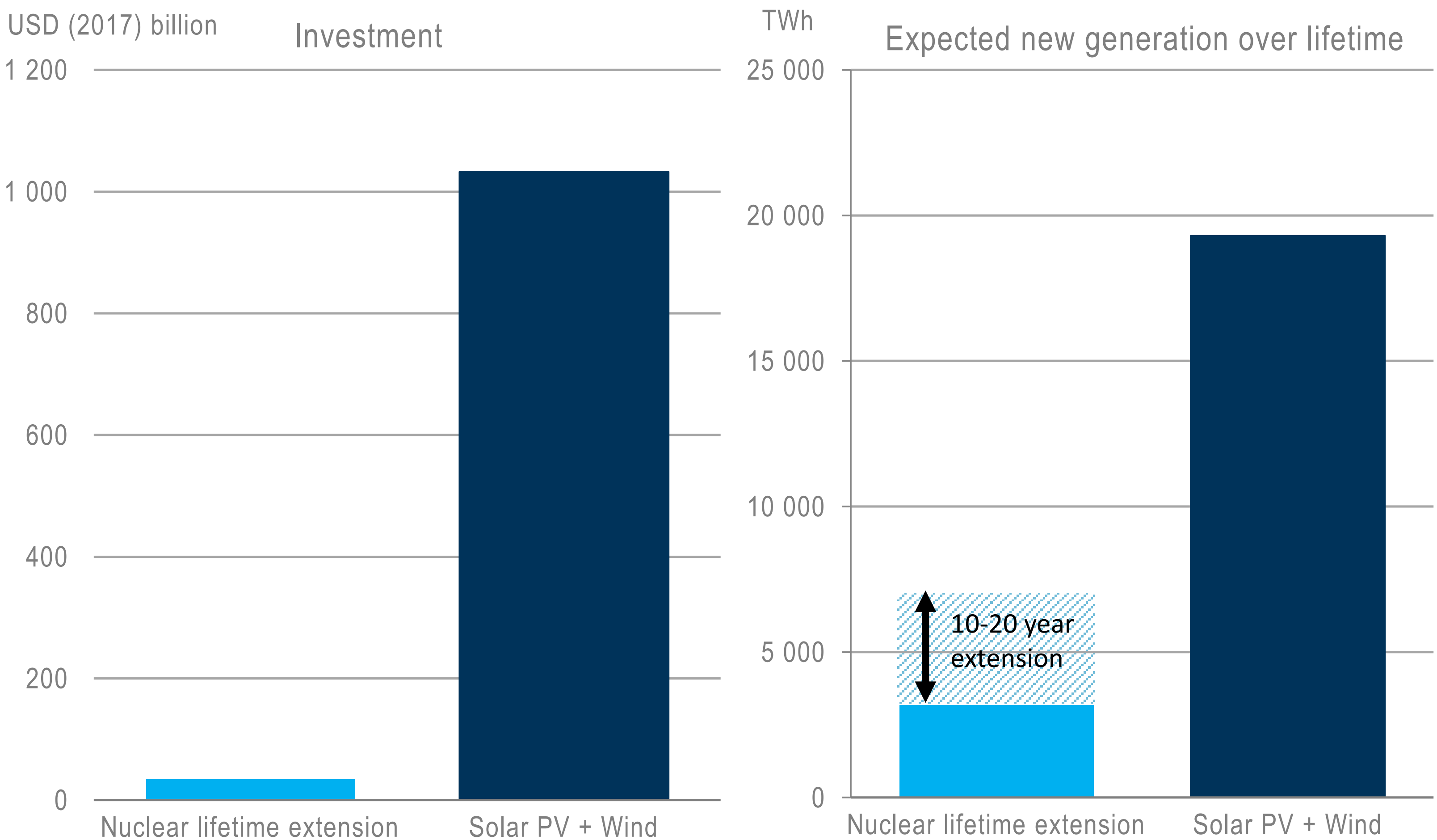
Expected generation from new construction starts as a percentage of global power demand



In the past decade, output from new solar & wind grew 45% faster than investment. Yet, the generation impact of new clean power has declined the past 2 years due to slowing spending on nuclear and hydro.

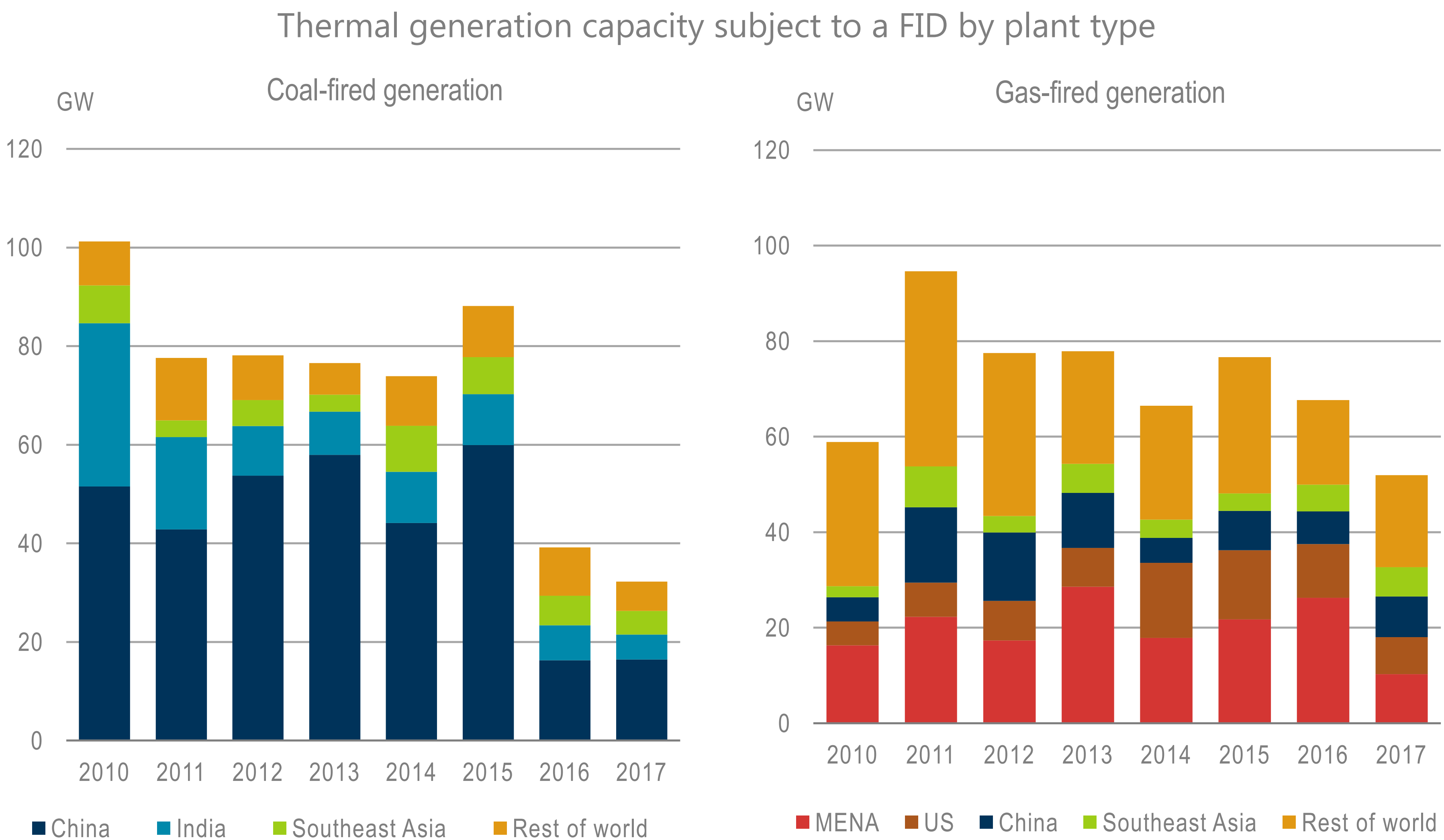
Investment in lifetime extensions for nuclear plants have risen

Global investment in lifetime extensions for nuclear vs solar PV + wind (2013-2017)



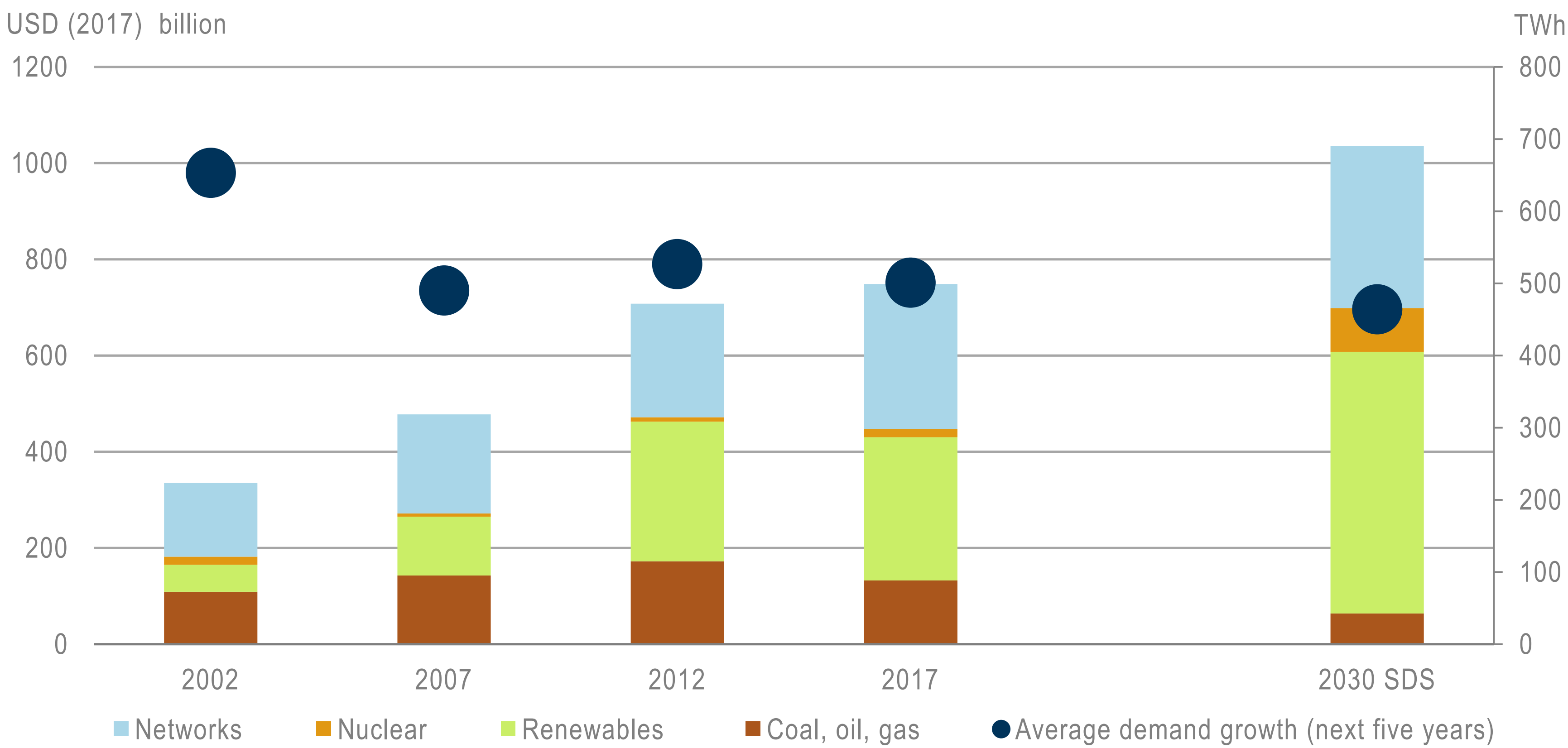
In 2017, half of nuclear investment was from spending on long-term operation for existing plants. Lifetime extensions can be a cost-effective transitional measure for maintaining low-carbon generation.

Thermal power FIDs continued to decline



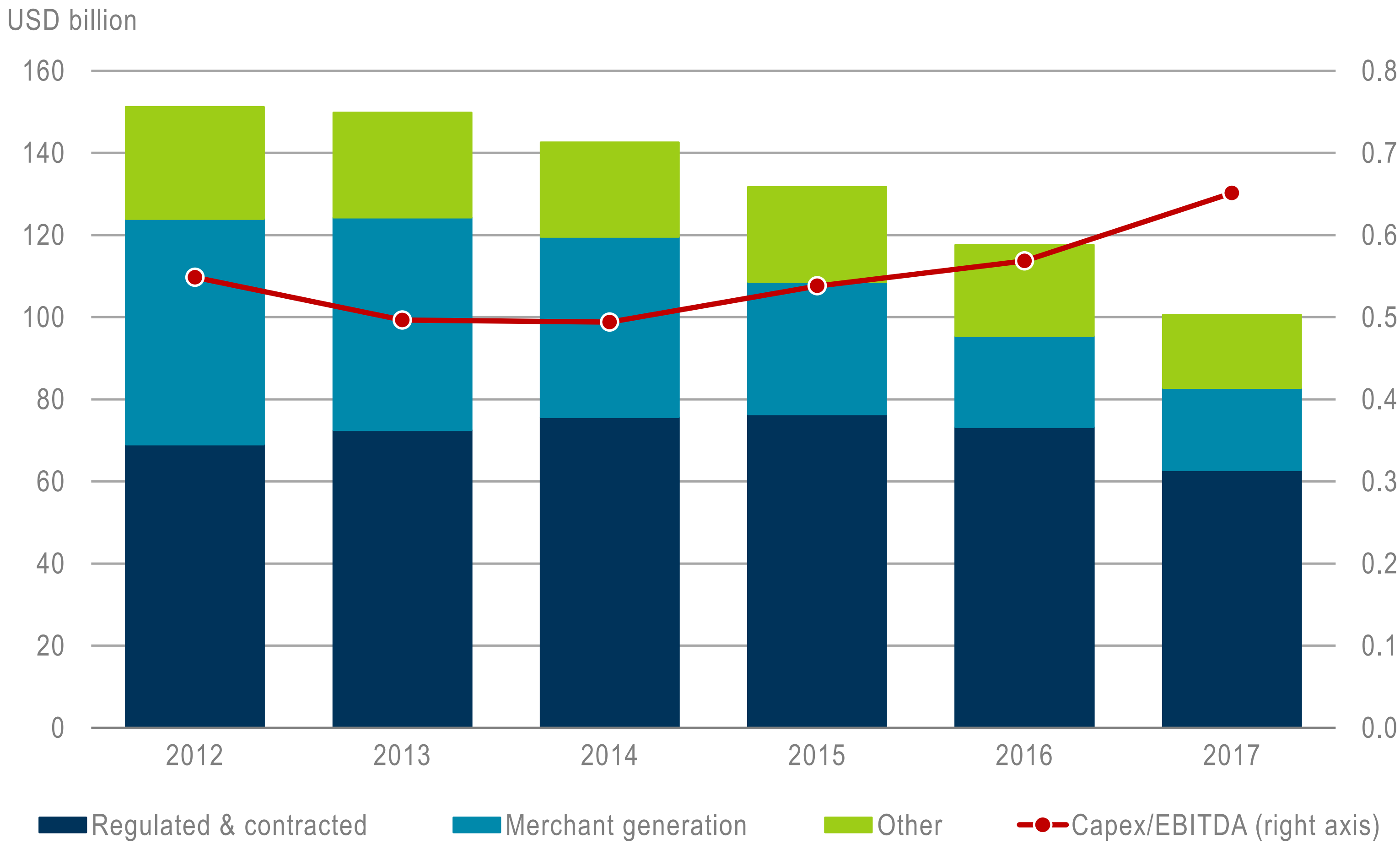
In 2017 newly sanctioned coal power fell 18% to a level one-third that of 2010, driven by a slowdown in China, India & SE Asia. Sanctioned gas power fell nearly 23%, due to the MENA region & the US.

The capital intensity of electricity is increasing



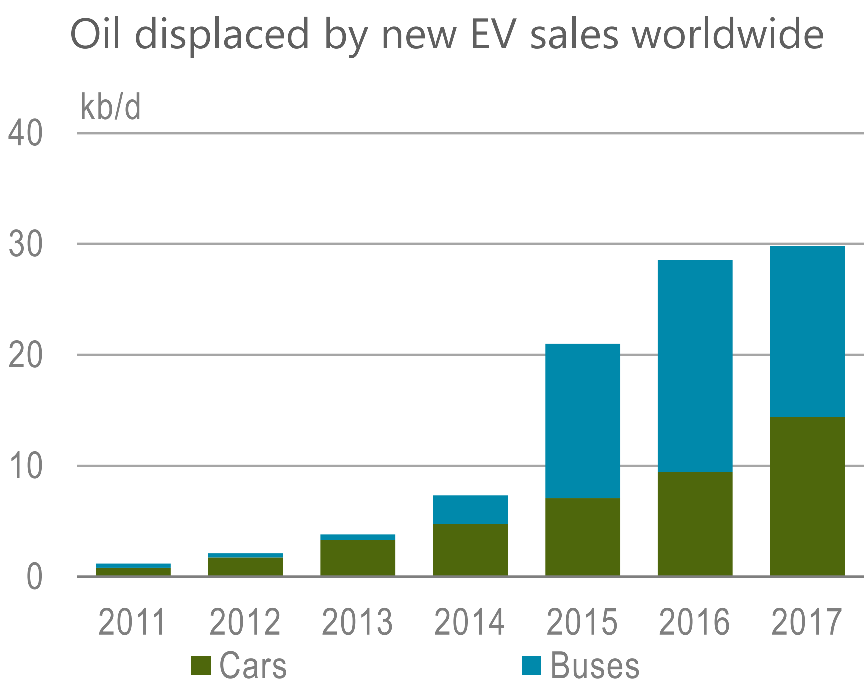
Utility business models are shifting

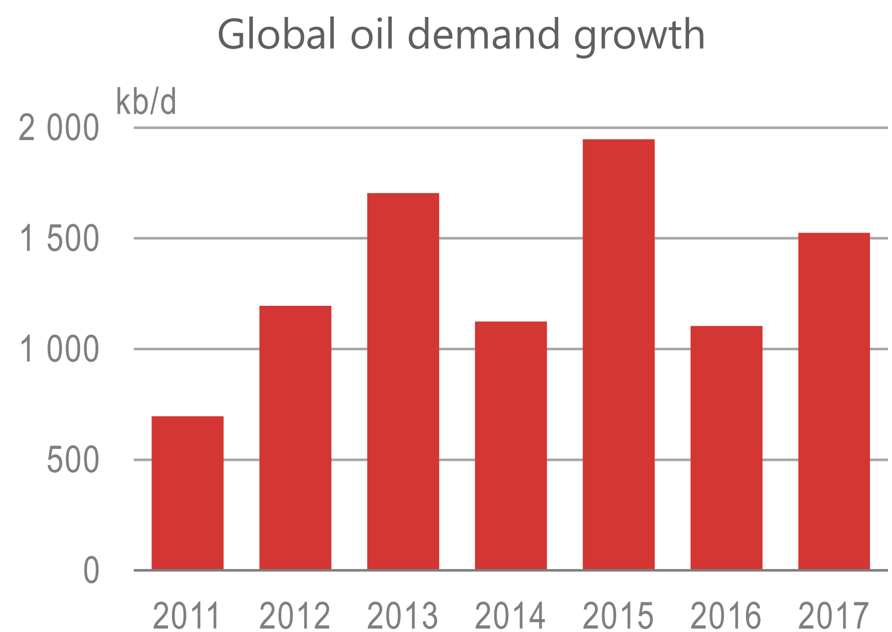
Aggregate earnings of the top 20 European utilities by business segment



European utility earnings fell by one-third in the past five years. Three quarters of earnings now stem from grids and generation with contracted/regulated pricing as business grows more capital intensive.

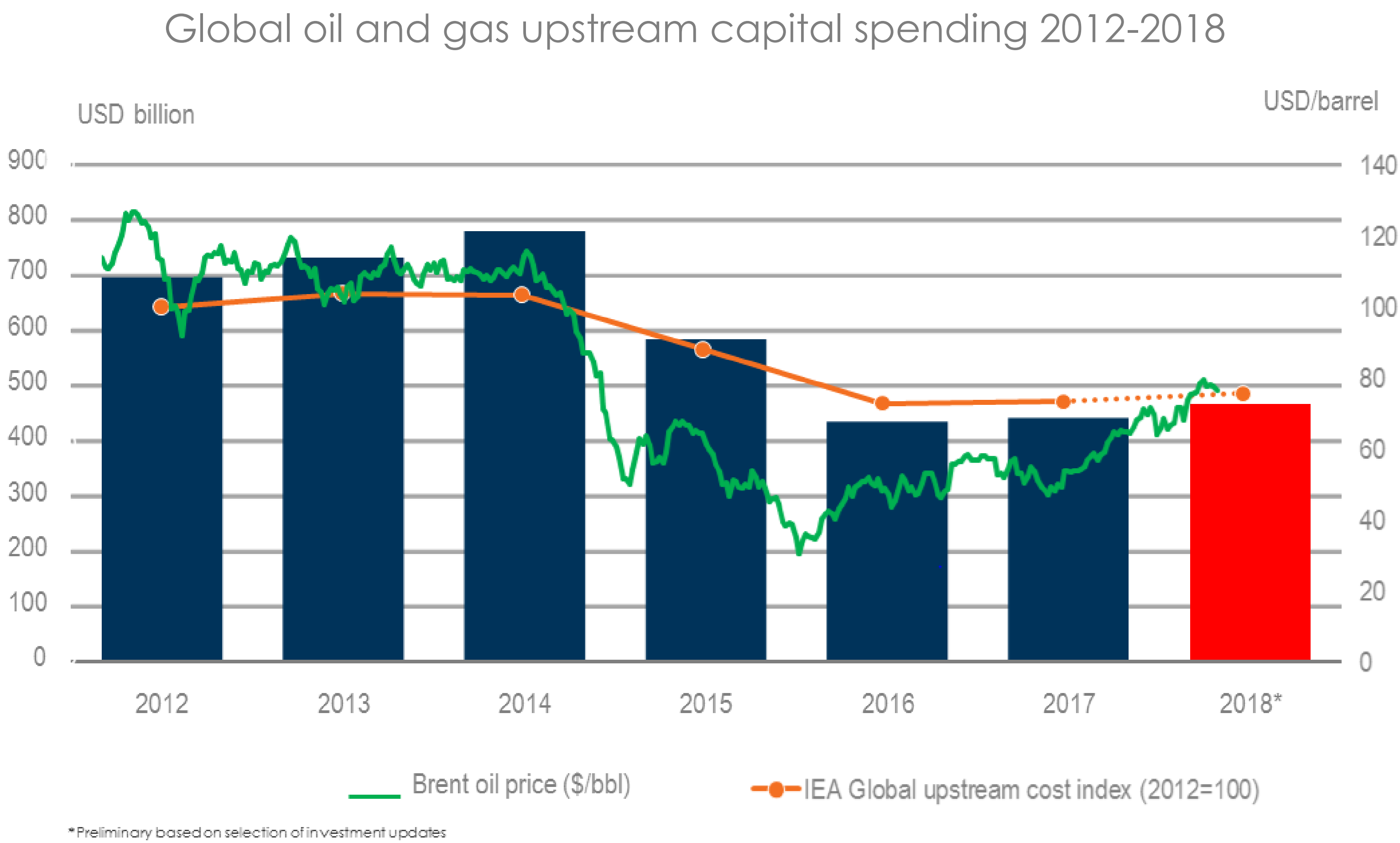
Electric vehicles still only slow down the growth of oil demand





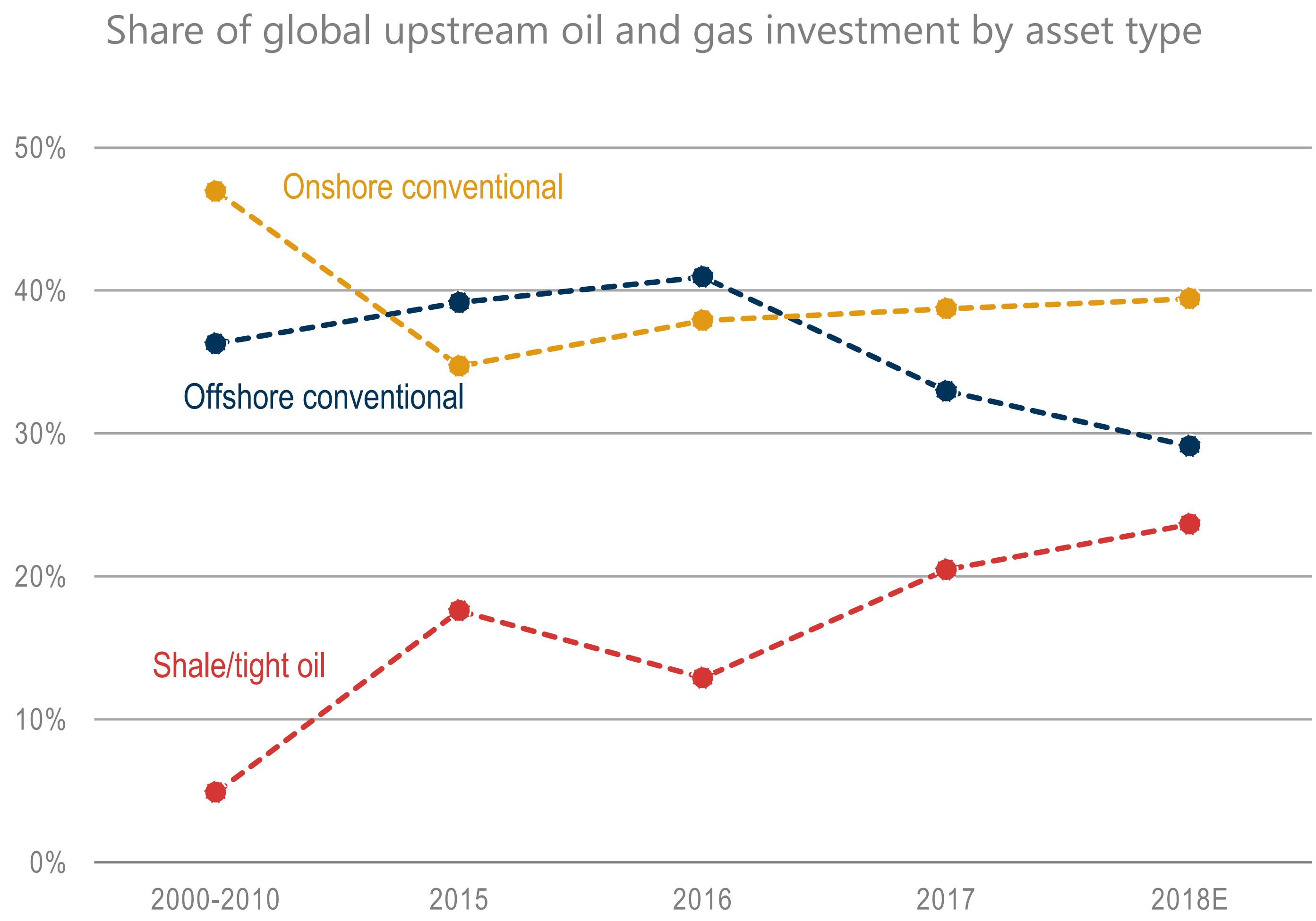
The electric cars and buses sold in 2017 will permanently reduce oil demand by around 30kb/d, with a major contribution from buses in China; but oil demand is rising at fifty times this amount.

Lower upstream spending could lead to tighter markets



Outside US shale, upstream investment continue to recovery very modestly with companies able to keep costs under control.

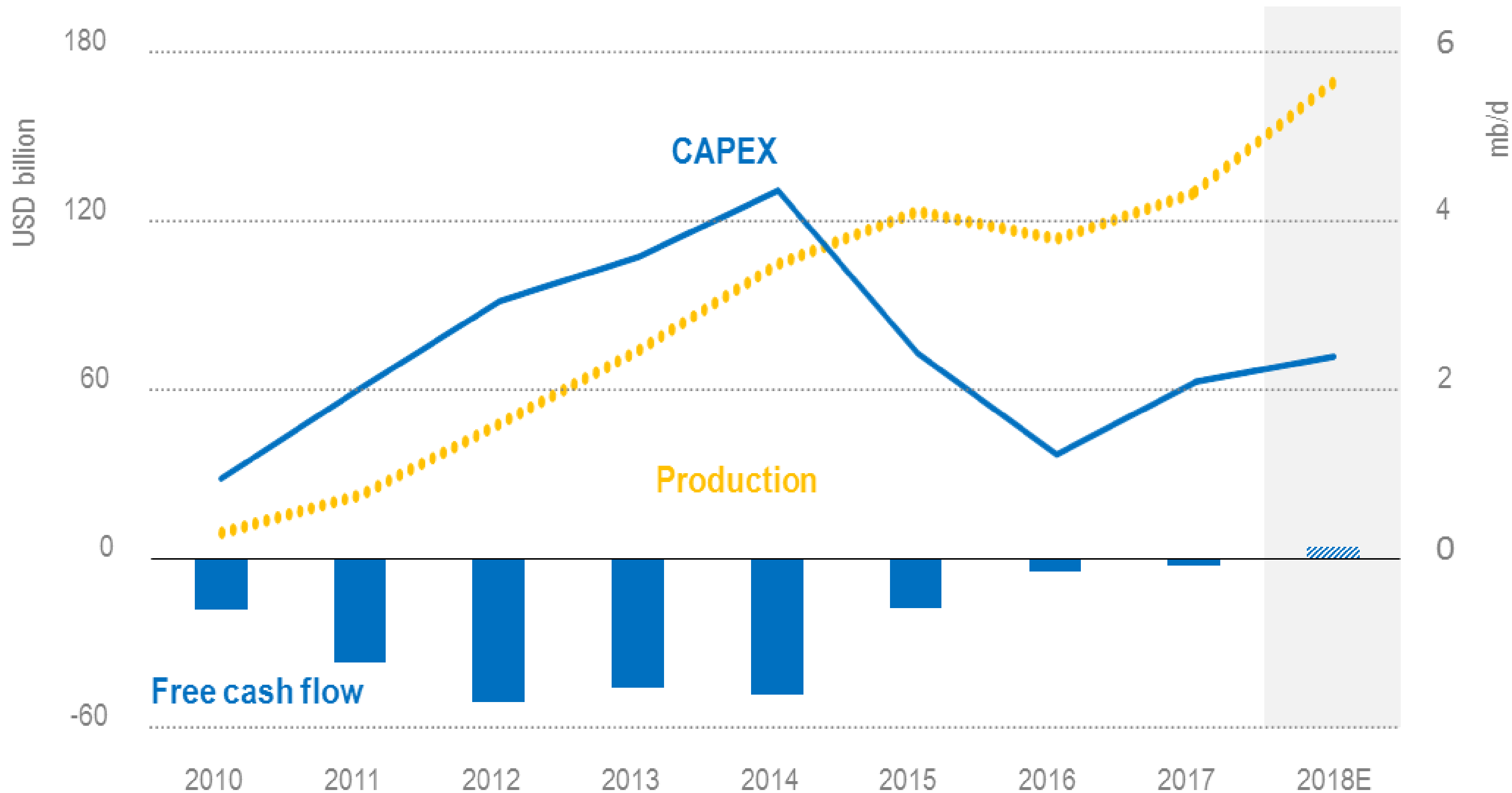
Changing dynamics in the oil and gas industry



The shift of investment towards short cycle projects and assets with high production decline rates suggests more volatility ahead in the markets.

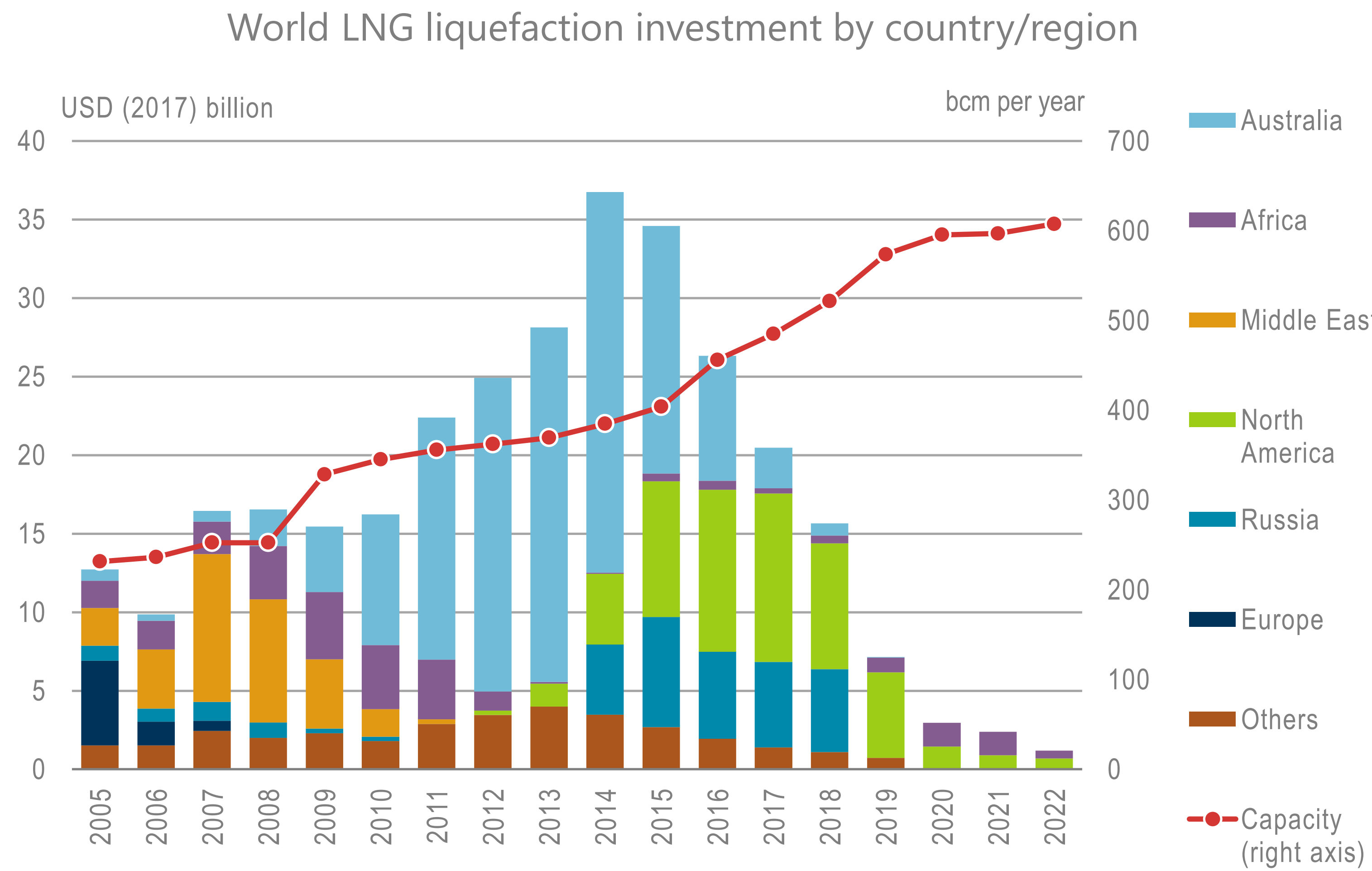
The US LTO journey towards a financially sustainable business

US LTO production, capital investment and free cash flow



IEA estimates that US LTO sector is on track in 2018 to generate positive free cash flow for the first time ever, but downside risks remain.

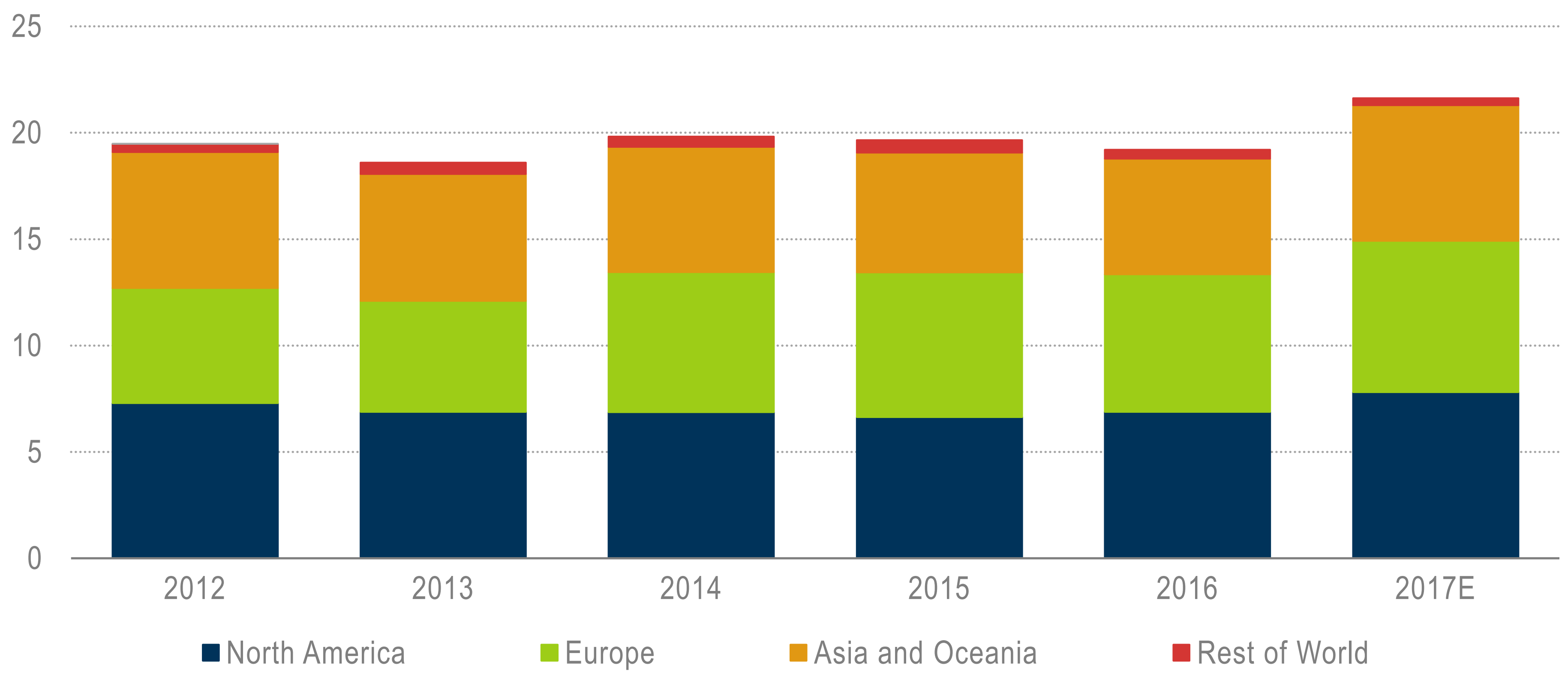
Investment in new LNG plants keeps falling



Given buyers' reluctance for new long-term contracts, companies adopt a wait-and-see approach, although some signs of renewed interest for new LNG plants emerges.

Clean energy R&D investment is finally on the rise…

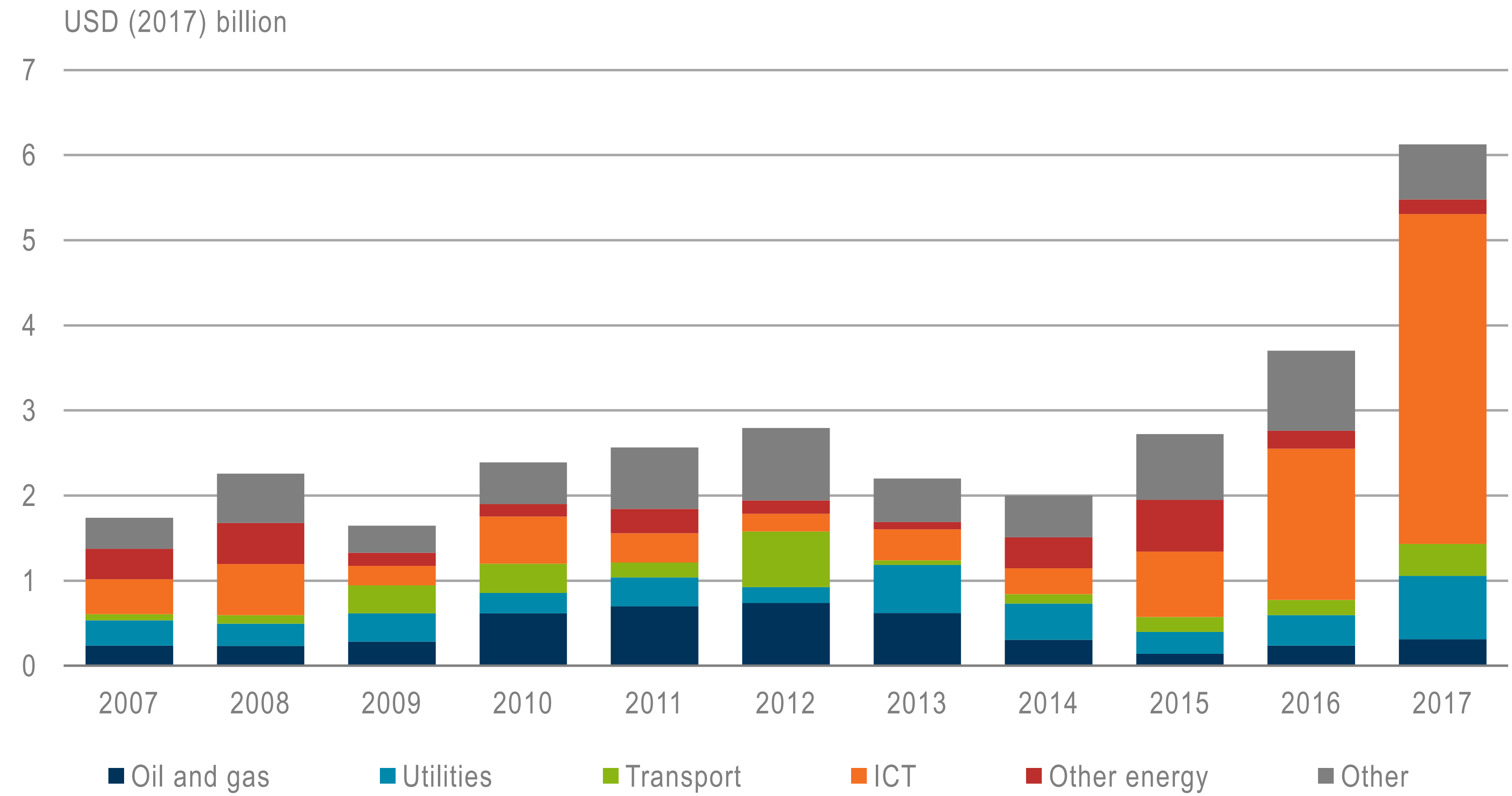
Total public spending on clean energy technology RD&D (in billion USD)



Public spending on R&D for low-carbon technologies rose 13% to USD 22 billion in 2017 after several years of stagnation; however, this is just 0.1% of public spending in major countries.

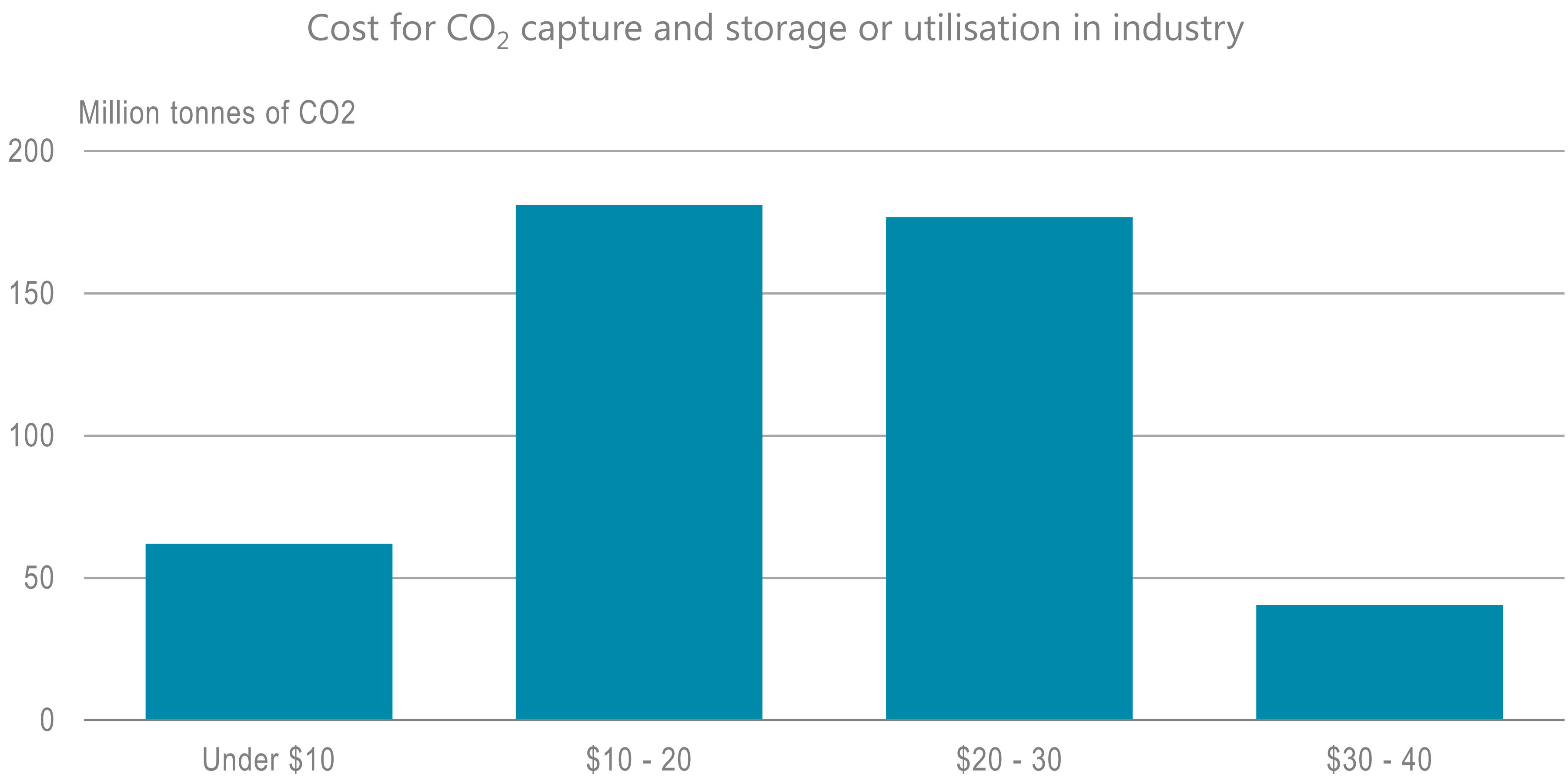
A record year for corporate investment in new energy tech firms

Global deals by corporate investments in energy technology companies (excl. buy-outs)



Corporate investing in innovative energy start-ups is made a return in 2017, but energy company spending is dwarfed by IT company investments, which drove the total to USD 6.1 billion.

Investment in carbon capture, utilisation & storage needs policy



CCUS is vital to tackling climate change, but sustainable deployment needs investment in "low-hanging fruit" today; 450 million tonnes of CO2 per year (equal to all emissions growth in 2017) can be captured and stored for USD 40/tonne.