

# The future of energy investment

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**T**he past few years have seen tectonic shifts shape a new global energy landscape. We stand at a critical juncture in which government policies on energy investment and trade shall decide the future of energy. Numerous developments with their own unique impacts collectively affect the energy market. The drop in oil prices in summer 2014 has deferred upstream investment in conventional resources but also enabled greater resiliency in unconventional production. Environmental pollution in major urban centers and climate change have sharpened policy focus on energy transition and sustainable development goals. New renewable technologies and innovation in transport, and other sectors, have made considerable advances over the last decade that create even greater expectations for the future.

As the energy dialogue has shifted so has the conversation on energy investment. Renewed commitments to reduce greenhouse gas emissions combined with greater geopolitical risk has substantially lowered investment in the oil and gas sector over the past few years and increased decline rates in existing production. If left unaddressed, this will have major repercussions for global energy stability, orderly transitions and the achievement of the UN sustainable development goals. More inclusive and open dialogue is needed to deepen insight and enhance investor confidence to invest in long-cycle and clean energy investments which can lead to further investments in technology research, training and education.

## Demand and supply

Investment in oil and gas is heavily dependent on supply and demand balances. Increased demand has the potential to offset a supply glut and thus maintain a tight demand-supply market. However, the shift in demand from OECD to non-OECD centres means that future demand rests solely on countries such as China and India. While slowing economic growth in non-OECD countries naturally leads to decreased oil demand, import dependencies continue to surge. China's economy grew 6.6 per cent in 2018 – its slowest pace in almost 30 years. Furthermore, both the IEA and OPEC see a downward trend in economic global growth in 2019 at around 3.7 and 3.5 per cent, respectively. Naturally, a slowing global economy can have potentially damaging effects on energy demand growth which, in turn, further reduces investment in much needed oil and gas exploration.

The advent of shale has had a major impact in terms of oil supply. Supply growth in OECD countries increased by over 2 million barrels in 2018. Within the OECD, Non-OPEC countries

have been the primary driver of this growth. According to both the IEA and OPEC, Non-OPEC growth for 2018 reached 2.50 mb/d. Although Non-OPEC supply growth includes Canada and Russia, the real story is in the US, which makes up the large majority at over 2 mb/d due to growth in shale oil. The Permian Basin in Texas itself makes up approximately 1 mb/d of US production growth.

Given these developments, investment is still well below 2014 peaks, with a modest recovery continuing this year. In nominal terms, however, investment is still about 35 per cent below 2014 levels globally. With plays like US shale and other short and medium cycle investments including in renewable energy are more readily available, long-term investment has been put on hold in both the hydrocarbon sector and nuclear.

## The energy transition

Structural policy changes are shifting the energy mix towards lower carbon resource solutions, driven by advancements in technology and growing environmental concerns. These are accompanied by energy-saving measures and regulations. It is no surprise that energy efficiency becomes part of the global energy conversation. World economic growth is projected to more than double GDP by 2040 with the global population rising well above 9 billion people, a secure and orderly energy transition is essential to meeting the steadily rising global demand for energy.

The landmark signing of the Paris Climate Agreement and the UN 2030 Agenda for Sustainable Development in 2015 underscores the movement towards transition on one hand and responsible growth on the other. Countries dependent on oil revenues are now incentivised to both diversify their energy portfolios and cut production costs due to population growth and the need to offer future generations equivalent, if not better, living standards while navigating a volatile market and an unpredictable geopolitical environment.

This shift has given rise to alternative developments that pose investment challenges in the hydrocarbon sector. Growth in renewables such as solar and wind continues with costs decreasing at a rapid pace. According to the IEA, renewables are forecast to meet more than 70 per cent of global electricity generation growth, led by solar PV and followed by wind, hydropower, and bioenergy. The rise of electric vehicles is a prime example of advancements in technology. Over 1 million electric cars were sold in 2017 for a global total of slightly over 3 million. The IEA forecasts 125 million electric cars on the road by 2030.



From an investment perspective, the rise of “responsible investing” means many large funds will not invest money into companies unless they demonstrate mitigation of carbon emissions below a certain threshold. As a result, investment is being diverted to clean energy technologies such as Carbon Capture Use and Storage (CCUS), hydrogen, digitalisation, and artificial intelligence technologies that are making operations more efficient. Together, these developments enable policy makers and investors to approach the energy industry and the challenges it needs to meet holistically as a comprehensive system without unduly discriminating against any energy technology.

### Adopting energy realism

It is important to note, however, that the impact of deferred investments in conventional production can have adverse outcomes. If investment does not move forward, present oil supply abundance may prove short-lived and surprise consumers when they face a structural shift towards a sellers’ market in the 2020s when shale growth is expected to slow and depletion rates in conventional production have deepened.

We must also remember that fossil fuels will remain relevant in the future. Both IEA and OPEC outlooks still maintain that fossil fuels will continue to provide around 60-74 per cent of energy demand in 2040. In fact, by 2040 our energy mix could become the most diverse the world has ever seen with oil, gas, coal and non-fossil fuels each comprising around a quarter of the energy total mix. This is also where natural gas, often seen as the bridge between oil and renewables, takes on a greater role together with the promise that hydrogen technologies hold. More dialogue is needed to accelerate orderly energy transitions. This inevitably means greater focus on energy efficiency and innovation through the entire energy system.

Moreover, we can see several trends that will require additional investment in oil and gas. In addition to a growing population that will naturally increase oil demand, petrochemicals will see the greatest growth with more than a third of the growth in world oil demand to 2030, and nearly half the growth to 2050. This will add nearly 7 mb/d of oil demand according to the IEA. Aviation and shipping fuels will



*Digitalisation and artificial intelligence are enhancing clean energy technologies*

also see a demand growth of around 3 mb/d. Even with electric vehicles growing rapidly, oil demand from 1 billion internal combustion engine vehicles required worldwide will only be modestly affected. Since existing technologies cannot be replaced anytime soon greater focus on energy efficiency and quality standards for fuel consumption will be more productive. Clean technology is not just limited to renewables. There is a role for new technology and innovation that addresses the question of how to make existing supply and demand patterns, and industry processes more efficient and sustainable through investment in waste to energy and circular systems.

The overall lesson is that while energy investment continues to be dependent on multiple market factors, policy frameworks and technology pathways must remain predictable. This is necessary in order to swiftly unlock the major capital and human resources required for a truly secure, sustainable, and affordable energy future. Energy investment in the future needs to be varied, diversified and focused on sustainable outcomes. In the end, environment sustainability and resource development are not mutually exclusive concepts. More dialogue and openness will help to ensure that sustainability and growth requirements become more mutually reinforcing and that policies and technologies work together in tandem to ensure a balanced, healthy and robust energy future for all. ●