

## Gas to become world's primary energy source by 2035

Oil and gas will still be crucial components of the world's energy future, according to DNV GL's inaugural forecast of the energy transition. While renewable energy will grow its share of the energy mix, oil and gas will account for 44% of world energy supply in 2050, compared to 53% today. Gas will become the largest single source of energy from 2034.

The *Energy transition outlook (ETO)* forecast spans the global energy mix to 2050, predicting that global demand for energy will flatten in 2030, then steadily decline over the next two decades, thanks to step-changes in energy efficiency. The fossil fuel share of the world's primary energy mix will reduce from 81% currently to 52% in 2050.

Demand for oil is expected to peak in 2022, driven by expectations for a surge in the prominence of light electric vehicles (EVs), accounting for 50% of new car sales globally by 2035. However, the stage is set for gas to become the largest single source of energy towards 2050, and the last of the fossil fuels to experience peak demand, which DNV GL expects will occur in 2035.

Gas will continue to play a key role alongside renewables in helping to meet future, lower-carbon, energy requirements. Major oil companies intend to increase the share of gas in their reserves, and DNV GL expects an accelerated shift by 2022 as companies decarbonise their business portfolios.

While demand for hydrocarbons will peak over the next two decades, significant investment will be needed to add new oil and gas production capacity and operate existing assets safely and sustainably. However, the results of the ETO model reinforce the need to maintain strict cost efficiency in order to achieve the margins necessary for future capital and operational expenditure.

'We have seen impressive and important innovative efforts across the energy industry, resulting in cost saving and efficiency gains. The oil and gas industry must continue on a path of strict cost control to stay relevant. Coming from a tradition of technological achievements, and having the advantage of existing infrastructure and value chains, this industry has the potential to continue to contribute to energy security and shape our energy future,' says Elisabeth Tørstad, CEO, DNV GL – Oil & Gas.

'Increased digitalisation, standardisation and remote or autonomous operations will play a central role in achieving long-term cost savings and improving the oil and gas industry's carbon footprint. We also expect the industry to turn to innovations in facility design, operating models and contracting strategies,' she added.

Looking at the renewables and carbon emissions elements of the report, our sister publication *Energy World* notes that the DNV GL forecast warns that the world is not on a track to meet the Paris Agreement goal of a maximum 2°C rise on pre-industrial temperatures. The forecast sees energy-related carbon emissions dropping by 50% by 2050, with the 2°C carbon budget exhausted by 2041 and a resulting 2.5°C of warming.

Launching the *ETO* in London in early September 2017, DNV GL's President and CEO Remi Eriksen said that the company set out to 'avoid wishful thinking' when outlining the forecast – and that the predicted failure to meet the Paris target should focus the minds of policymakers. 'This should be a wake-up call to governments and decision-makers within the energy industry,' he said. 'The industry has taken bold steps before, but now needs to take even bigger strides.'

The peaking of primary energy supply is part of the *ETO*'s wider story in which energy use continues to decouple from global population rises, carbon emissions and especially GDP growth. This is due to the rate of energy efficiency improving faster than the rate of global economic growth in the forecast. The study suggests the world's energy intensity (units of energy used per unit of GDP growth) will decline by a rate of 2.5%/y, almost double the 1.4%/y decline seen today.

As well as a move in China and India to more service-oriented economies, electrification and a growing share of renewables is a large part of this decoupling picture. Eriksen pointed out that the shift to renewable technologies will aid efficiency by avoiding thermal losses from coal and gas-fired power generation. DNV GL predicts that wind and solar power will each account for 36% of the global electricity mix in 2050, and by 2050 both fossil fuels and renewables will have an almost equal share of the total energy mix.

Elsewhere the report says that

the energy transition will be affordable. As the energy system shifts from one that is dominated by operating costs (opex) and fossil fuels to one that is dominated by capital costs (capex) and renewables, the overall yearly expenditure on energy will remain relatively constant, it says. With a projected 130% increase in global GDP by 2050, the proportion of energy expenditure is expected to drop to 2% of global GDP in 2050 from 5% today.

DNV GL describes *ETO 2017* as a 'central forecast', using an in-house model and the company's experience of both the fossil fuel and renewable energy worlds to come up with a single energy future – rather than a range of scenarios.

Speaking at the report's launch former Shell Chairman Lord Oxburgh said the forecast had some 'optimistic assumptions', and that a future world may have to rely more on carbon capture and storage (CCS) and nuclear power should some of these not materialise. Meanwhile, John Knight, Head of Global Strategy at Statoil, said that the decline of energy intensity to 2.5% per year was 'a heroic step-change' that would require 'a big change in policy'.

'Decarbonisation is not just an engineering challenge, it is a governance one,' said Ditlev Engel, CEO of DNV GL's energy business. 'Bold policies are needed to enable the transition.'

To download a copy of the report, visit <https://eto.dnvgl.com/2017/>



### IN BRIEF

Nissan has unveiled the latest model of its Nissan Leaf – reportedly the world's most advanced mass-market electric vehicle (EV) and icon of the company's 'Intelligent Mobility' vision. Visit [bit.ly/2fnKZqh](http://bit.ly/2fnKZqh) for more details.

The Trans Adriatic Pipeline (TAP) is now more than 50% complete, nearly 16 months after construction began. According to TAP Managing Director Luca Schieppati, TAP remains 'on time and on budget' and is 'on track to deliver the first Shah Deniz II gas in 2020, bringing a much-needed new source of energy into the European energy network'. See [bit.ly/2x19unn](http://bit.ly/2x19unn)

As of 1 September 2017, new car models have had to pass new and more reliable emissions tests before they hit European roads, under new European Commission (EC) requirements. See [bit.ly/2y2PY6Q](http://bit.ly/2y2PY6Q)