

Global energy brief

The future of oil & gas: shedding light on the obvious

'But it is the mark of all movements, however well-intentioned, that their pioneers tend, by much lashing of themselves into excitement, to lose sight of the obvious.'

So said Dorothy L. Sayers (1893-1957), a contemporary of Agatha Christie and one of her biggest rivals as a mystery story writer.



When it comes to the world's energy future, there is no mystery about oil and gas – although for many, caught up in understandable excitement about renewables, the role of oil and gas seems to have fallen out of the energy equation.

Yet the truth is that the world will continue to rely on oil and gas for decades to come – even as we all travel along the path to a lower carbon future.

The international Energy Agency (IEA) has provided a timely correction to this crucial omission with its latest *World Energy Outlook*. This 667-page analysis reports that, in all likelihood, world demand for oil and gas will grow by 2040. Commenting on this growth, attributed to an increase in the world's population and its energy expectations, IEA Executive Director Dr Fatih Birol says 'We see a solid place for oil and gas energy supply for many years to come.'





According to IEA figures, overall demand for oil and gas will rise by 27% in what is called the 'New Policies Scenario' for 2040. The IEA defines this as a reflection of the way that 'governments, individually or collectively, see their energy sectors developing over the coming decades. Its starting point is the policies and measures that are already in place, but it also takes into account, in full or in part, the aims, targets and intentions that have been announced, even if these have yet to be enshrined in legislation or the means for their implementation is still taking shape.'

Less likely are two other IEA scenarios.

Its 'Current Policies Scenario' includes only those policies firmly enacted as of mid-2016, with no provisions for any future actions to support the goals of COP21.

In contrast, the '450 Scenario' is based on doing what is necessary to limit long-term global warming to 2°C above pre-industrial levels.

The table below shows overall demand for energy in general and oil and gas in particular. It demonstrates how each of the IEA's three scenarios creates differing levels of demand.

	2014	2040	2040	2040	
Demand in MTOE	latest available actual	New Policies Most likely	450 2 degree scenario	Current Policies Do nothing	
	Total Demand	13,684	17,866	14,878	19,636
	vs. 2014		+31%	+9%	+43%
	Total Demand Oil	4,266	4,775	3,326	5,402
	vs. 2014		+12%	-22%	+27%
	Share of Oil	31%	27%	22%	28%
	Total Demand Gas	2,893	4,313	3,301	4,718
	vs. 2014		+49%	+14%	+63%
	Share of Gas	21%	24%	22%	24%
	Total Demand Oil & Gas	7,159	9,088	6,627	10,120
	vs. 2014		+27%	-7%	+41%
	Share of Oil & Gas	52%	51%	45%	52%

The IEA forecasts consumption of natural gas likely to rise by just under 50%, accounting for 24% of energy use by 2040. Growth in oil demand continues, but at a slower rate, topping 103 million barrels per day by 2040.

In contrast, growth in coal, 'hit hard by environmental concerns and, after the rapid expansion of recent years... essentially grinds to a halt,' the *World Outlook* says.

'The largest expansion in the primary energy mix comes from renewables,' the report says. Even so, in 2040, fossil fuels will still be needed to meet 74% of total energy demand according to the New Policies Scenario.

Energy poverty and investment

Meanwhile, the IEA points out that almost 3 billion people – 38% of the global population of 7 billion – risk their health every day by relying on biomass such as wood and dung for cooking. And 1.3 billion have no access at all to electricity.

To help alleviate this situation and to maintain security of supply for those who currently enjoy access to power, the IEA says 'A cumulative \$44 trillion in investment is needed in global energy supply in our main scenario, 60% of which goes to oil, gas and coal extraction and supply, including power plants using these fuels, and nearly 20% to renewable energies. An extra \$23 trillion is required for improvements in energy efficiency.

'The main stimulus for upstream oil and gas investment is the decline in production from existing fields. In the case of oil, these are equivalent to losing the current output of Iraq from the global balance every two years.'

The *World Energy Outlook* goes on to stress that 'The decline in production from currently producing fields far exceeds the decline in demand in the 450 Scenario. Therefore, despite the need to begin transitioning away from a fossil-based energy system, failing to invest in any upstream assets could lead to major problems. Supply shortfalls, and any accompanying price instability, would undoubtedly complicate the transition towards a lower carbon, more sustainable global energy system.'

The IEA's message is obvious: **even as the world moves to a lower-carbon future, oil and cleaner-burning natural gas are likely to be essential for the world's continuing growth and prosperity.**

About the IEA

The IEA is an autonomous agency with a two-fold mandate: to promote energy security amongst its member countries and to provide authoritative research and analysis on ways to ensure reliable, affordable and clean energy for its 29 member countries and beyond. Based in Paris, the IEA was established in 1974, at the time of the world's first energy crisis. More recently, the IEA has supported global collaboration on energy technology to secure future energy supplies and mitigate their environmental impact. This has included a focus on improved energy efficiency and the development and deployment of low-carbon technologies.

Copies of World Energy Outlook 2016 are available from:
http://www.iea.org/bookshop/720-World_Energy_Outlook_2016

In summary:

Even as the world progresses to a lower-carbon economy, demand for oil and gas will continue to rise as the world's population grows in number and prosperity.

Meeting this demand will require trillions of dollars in investment.

Oil and gas will be essential in helping to alleviate the energy poverty.

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oil and gas issues, visit

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