

Coal and oil demand to peak by 2020, according to new report

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Credit: Imperial College London

A boom in the popularity of solar panels and electric cars could spark irreversible changes in the energy sector within three years.

By 2020, the global demand for coal and oil could peak and start to decline, according to a new report published this week by researchers at the Grantham Institute—Climate Change and the Environment at Imperial College London, and independent think-tank the [Carbon Tracker Initiative](#).

The power and [road transport](#) sectors account for approximately half of [fossil fuel consumption](#), so growth in the solar panel and electric vehicle markets can have a major impact on demand. The findings of this report could have serious implications for businesses and governments that supply these [fossil fuels](#), say it's authors.

[Expect the unexpected: The disruptive power of low-carbon technology](#), warns that fossil fuels may lose 10 per cent of market share to solar panels and electric vehicles within a single decade. In the past, a similar 10 per cent loss of power market share caused the [collapse of the US coal mining industry](#).

Similarly, Europe's five major utilities lost more than €100 billion in value from 2008 to 2013 because they were unprepared for an 8 per cent growth in renewable power, of which solar panels played a big part.

Mr Ajay Gambhir, Senior Research Fellow at the Grantham Institute, led the analysis with colleague Dr Tamaryn Napp. Gambhir said: "It's time we fully understood the implications of these technologies' relentless ride down the cost curve."

Expecting the change

Solar panels generate electrical energy from the sun's rays, and many of the latest electric vehicles are powered by on-board batteries that are recharged with electricity supplied by the national grid, or a local energy source such as solar panels on a domestic roof.

Until recently, the upfront costs of early versions of these technologies were too high for many, but the falling costs of buying and running newer models are now making them more attractive to consumers and businesses, and they are quickly gaining in popularity.

According to the report, growth in electric vehicles alone could lead to two million barrels of oil per day (mbd) being displaced by 2025—the same volume that caused a major oil price collapse in 2014-15. The report finds 16mbd of oil demand displaced by 2040 and 25mbd by 2050.

This contrasts with expectations of big energy companies—in which oil demand continues to grow—and could have implications for the way they conduct their business.

"Electric vehicles and solar power are game-changers that the fossil fuel industry consistently underestimates. Further innovation could make our scenarios look conservative in five years' time, in which case the demand misread by companies will have been amplified even more," said Luke Sussams, senior researcher at Carbon Tracker.

The report explores how plausible advances in solar panels and electric vehicles could affect future fossil fuel demand alongside efforts to reach international climate targets. It models a range of scenarios using the latest data and market projections for future cost reductions in these technologies, with varying levels of global climate policy effort and energy demand.

Emerging technology, such as printable solar panels, could mean the scenarios used in the study in fact still underestimate growth in the renewables sector.

Counting the cost

The cost of [solar panels](#) has fallen 85 per cent over the last seven years and the report sees it becoming 'materially cheaper than alternative power options globally' with huge investment adding more than 5000 Gigawatts of supply between 2030 and 2040.

Electric vehicles are currently growing 60 per cent year-on-year and there are already more than a million on the roads. Battery costs have fallen 73 per cent to \$268 per kilowatt hour (kWh) in the seven years to 2015 according to the US Department of Energy, and Tesla, the electric car maker, predicts they will reach \$100/kWh by 2020.

The report assumes that electric vehicles will be cheaper than conventional internal combustion engines by 2020.

The report finds that electric vehicles could have a fifth of the road transport market by 2030 and, with additional growth in hydrogen cars and oil/electric hybrids, conventional vehicles could account for less than half the market. By 2050 [electric vehicles](#) could grow to 1.7 billion (69 per cent of the market) while conventional vehicles would make up just 12 per cent.

The report is accompanied by an [interactive dashboard](#) so readers can delve into the results.

Provided by Imperial College London

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