

THE YEAR IN ENERGY*

1) US oil production soared past expectations

A year ago, the Energy Information Administration forecast that US crude production would rise in 2018 by a little under 600,000 barrels a day, December to December. That turned out to be a colossal understatement: the actual increase was about 1.6m b/d, with US output estimated to be running at about 11.6m b/d as 2018 draws to a close. That is well above the previous peak, reached in 1970, and also a little ahead of Russia, the world's second-largest producer, which reported its own record output of about 11.4m b/d for October.

2) Strains emerged in the US-Saudi alliance

The US friendship with Saudi Arabia is its longest-standing alliance in the Middle East and has survived many tests since it was forged in the 1940s. But the re-emergence of the US as the world's largest oil producer has changed the nature of the relationship, and there have been signs this year of new tensions emerging. President Donald Trump has made a point of defending the alliance: in the aftermath of the murder of Jamal Khashoggi in the Saudi consulate in Istanbul, the president repeatedly insisted on the importance of the kingdom's oil production. The administration has seen Saudi support as critical for its strategy of reinstating sanctions on Iran. Not everyone in Washington has been so eager to remain in Saudi Arabia's good graces, however. Senior Republican senators said there was "zero" doubt that Saudi Arabia's crown prince, Mohammed bin Salman, was involved in the killing, and the Senate voted 56-41 in favour of withdrawing US military support from the Saudi-led coalition fighting in Yemen. The crisis sparked by Mr Khashoggi's murder now threatens to undermine Crown Prince Mohammed's bold plans to attract foreign investors to modernise the Saudi economy.

3) China's coal country became a battleground for competing policy priorities

China accounts for about half of the world's coal consumption, so its decisions on fuel use are critically important for the global market, and for greenhouse gas emissions. Its coal demand peaked in 2013 and dropped about 4 per cent between then and 2016, as the government pushed to cut local air pollution. That effort showed some success: the air in Beijing became the cleanest it had been in a decade. However, the downsides of restrictions on coal use have also become increasingly apparent. In the bitter cold of last winter, regulations on coal burning had to be eased, because gas supplies to northern regions proved inadequate to meet the demand for heating, and China's coal consumption rose in 2017 for the first time in four years. China is attempting to avoid a similar gas crisis this year, and it has been helped by milder weather. The position this winter has been described as "so far, so good".

4) Emerging economies took the lead in renewable energy

Most of the world's investment in renewable energy since 2015 has been in emerging economies, with China in the lead. This year, as the data from 2017 was collected and analysed, it became clear just how far lower-income countries now dominate additions of renewable energy capacity worldwide. In 2017, those countries added about 114 gigawatts of low-carbon electricity generation capacity, including nuclear and hydro power as well as wind and solar, almost twice the 63GW added in OECD members, according to BNEF.

5) Energy storage became the hottest new technology investment

For many years Bill Gates has talked about his interest in the problem of energy storage. Electricity grids that are becoming increasingly reliant on variable wind and solar power need ways to manage those fluctuations, and energy storage through batteries or other technologies is expected to be increasingly important for maintaining reliable supplies. Breakthrough Energy Ventures, the \$1bn fund for new energy technologies that Mr Gates launched in 2016, reflected his interest in the issue in June with its first two investments, which were both in energy storage companies.