

The balance of power

Britain's energy supply is undergoing a revolution; for the first time since 1880, electricity production was coal-free for 24 hours.

Changes are afoot in Britain's energy scene. An industry once reliant on coal is now dominated by an ever-increasing share of cleaner alternative sources: gas, nuclear, and renewables. The beginning of the end can be traced back to the 1990s, when the so-called 'dash for gas' resulted in an explosion of gas-derived energy. Political obligations to meet Britain's climate change commitments, coupled with economic factors, have further shifted the balance of power from coal to alternative energy. The numbers speak for themselves: the Digest of UK Energy Statistics (DUKES; <http://go.nature.com/2q80ve7>) reports that from 2014 to 2016, the share of coal in the power mix reduced from 29% to 9%, while gas increased from 30% to 42%, renewables (mainly wind) from 19% to 24%, and nuclear remained fairly constant at ~19%.

With the importance of coal dwindling, 2016 saw a number of instances in which this carbon-intensive fossil fuel was not used to power the grid, but these were of

relatively short duration. Until recently, the longest uninterrupted coal-free period was 19 hours in May 2016. However, a milestone in Britain's energy history was reached on 21 April 2017; this was the first continuous 24-hour period in which energy requirements were met without coal since 1882, when the use of coal to generate power first began with the opening of the Holborn Viaduct power station in Battersea, London. Not only was this a first for Britain, but likely for any of the world's major economies.

As Britain moves towards a low-carbon economy, these coal-free periods can be expected to increase in duration and frequency. This comes amid governmental plans to close Britain's 8 remaining coal-based power plants by 2025, as well as increase investment in both gas-based stations and renewables. These proposed changes highlight Britain's desire to shift the balance of power away from coal, setting a precedent for other developed nations to follow suit. France and Canada both have

similar plans to fully withdraw coal power by 2023 and 2030, respectively. Germany, where coal currently accounts for ~40% of electricity generation, further aims to decarbonize coal power 'well before 2050'.

Although Britain is moving in the right direction, more needs to be done to make its energy supply sustainable. The shift from coal to gas is certainly advantageous in terms of curbing greenhouse gas emissions (coal emits twice as much CO₂ as natural gas), but would greater investment in green energy be more fruitful in terms of finding a long-term solution and decreasing emissions? Plans are in place to increase financial support for offshore wind farms, but these are a long way off matching renewable investment and infrastructure in countries such as China and the United States, or the impressive renewable targets set by Sweden (the first 100%-renewable country) and Denmark (fossil-fuel free by 2050). Nevertheless, coal-derived energy in Britain has likely been consigned to history. □

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A requirement for unique author identifiers will enable clearer tracking of scientific contributions.

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