

British carbon tax leads to 93% drop in coal-fired electricity

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A tax on carbon dioxide emissions in Great Britain, introduced in 2013, has led to the proportion of electricity generated from coal falling from 40% to 3% over six years, according to research led by UCL.

British [electricity](#) generated from coal fell from 13.1 TWh (terawatt hours) in 2013 to 0.97 TWh in September 2019, and was replaced by other less emission-heavy forms of generation such as gas. The decline in coal generation accelerated substantially after the tax was increased in 2015.

In the report, 'The Value of International Electricity Trading', researchers from UCL and the University of Cambridge also showed that the tax—called Carbon Price Support—added on average £39 to British household electricity bills, collecting around £740m for the Treasury, in 2018.

Academics researched how the tax affected electricity flows to connected countries and interconnector (the large cables connecting the countries) revenue between 2015—when the tax was increased to £18 per tonne of [carbon](#) dioxide—and 2018. Following this increase, the share of coal-fired [electricity generation](#) fell from 28% in 2015 to 5% in 2018, reaching 3% by September 2019. Increased electricity imports from the continent reduced the price impact in the UK, and meant that some of the cost was paid through a slight increase in continental electricity [prices](#) (mainly in France and the Netherlands).

Project lead Dr. Giorgio Castagneto Gissey (Bartlett Institute for Sustainable Resources, UCL) said: "Should EU countries also adopt a high carbon tax we would likely see huge carbon emission reductions throughout the Continent, as we've seen in Great Britain over the last few years."

Lead author, Professor David Newbery (University of Cambridge), said: "The Carbon Price Support provides a clear signal to our neighbours of its efficacy at reducing CO₂ emissions."

The Carbon Price Support was introduced in England, Scotland and

Wales at a rate of £4.94 per tonne of carbon dioxide-equivalent and is now capped at £18 until 2021. The tax is one part of the Total Carbon Price, which also includes the price of EU Emissions Trading System permits.

Report co-author Bowei Guo (University of Cambridge) said: "The Carbon Price Support has been instrumental in driving coal off the grid, but we show how it also creates distortions to cross-border trade, making a case for EU-wide adoption."

Professor Michael Grubb (Bartlett Institute for Sustainable Resources, UCL) said: "Great Britain's electricity transition is a monumental achievement of global interest, and has also demonstrated the power of an effective carbon price in lowering dependence on electricity generated from coal."

The overall report on electricity trading also covers the value of EU interconnectors to Great Britain, measures the efficiency of cross-border electricity trading and considers the value of post-Brexit decoupling from EU electricity markets.

Published today, the report annex focusing on the Carbon Price Support was produced by UCL to focus on the impact of the tax on British energy bills.

More information: www.ucl.ac.uk/bartlett/sustainability_20102019_final.pdf

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