

Press

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Clarity on carbon pricing is needed in the Autumn Budget: a cut risks a resurgence of coal generation and higher carbon emissions in the 2020s

- Carbon pricing has been successful in driving coal out of the UK electricity mix, with roughly an 80% reduction in coal generation since the introduction of the Carbon Price Support in 2013
- Reducing the carbon price risks triggering a revival of coal generation, undermining the achievement of carbon targets
- Analysis by Aurora Energy Research suggests that cost increases from a higher carbon price are modest, and partly offset by a cleaner energy mix and reduced subsidies
- The recent surge in price of EU Emissions Allowances means that GB generators face the highest overall carbon prices seen to date
- The government faces a difficult decision in the upcoming Autumn Budget about the future of the carbon price in the period to 2025 and beyond

Ahead of the upcoming Autumn Budget, new analysis by Aurora Energy Research, a leading energy market intelligence firm, suggests that maintaining a higher carbon price is key to decarbonising the UK electricity sector in a timely and cost-effective manner, and achieving the Government's stated intent of phasing out coal power generation.

By contrast, the analysis shows that if Government were to reduce the Carbon Price coal power stations would stay on the system making it more difficult for the UK to meet its carbon targets.

Decision time for the Carbon Price

In April 2013, HM Treasury introduced the 'Carbon Price Support' – a tax paid by coal and gas generators in Great Britain. This policy in part was a response to low carbon costs in the European 'Emissions Trading System' which places similar costs on generators, requiring them to buy certificates against their emissions. At the time, prices in the Emissions Trading System were very low, and the UK government wanted to raise the total carbon price to a higher level.

The introduction of the Carbon Price Support has had a huge impact on coal. Prior to its introduction, coal represented 50% of total power generation. Since then, coal generation has fallen to record lows, with 2017 seeing the first day without any coal on the power system since the industrial revolution.

Records continued to be broken throughout 2018, with coal power generation falling to a new monthly low of just 1% during the summer months. 2018 has also seen a surge in the price of European Emissions Allowances – with prices climbing from less than €8/tonne at the start of the year to a peak of more than €25/tonne in September, and now standing at around €20/tonne.

This has created some uncertainty over the future of the UK Carbon Price Support scheme – with some concern within the energy industry that HM Treasury might respond to rising European carbon prices by reducing the top up paid by domestic generators in the upcoming Autumn Budget.

Carbon price is a vital tool to achieve coal phase out

Aurora's latest research tests a number of different trajectories for the carbon price going forward. The analysis shows that if Government maintains the current Carbon Price Support rate of £18/tonne, then this would result in coal coming off the system as early as 2021/22. The electricity system would continue to function through a mix of mainly nuclear, renewables and gas generation.

By contrast, the analysis shows that if Government were to reduce the Carbon Price Support to £7/tonne, then this would result in coal power stations staying on the system until 2025, generating an average of 12TWhs of power output per year in the period 2021-25. This would make it more difficult for the UK to meet its carbon targets. The UK government is committed to reducing greenhouse gas emissions in line with the legislated 5-yearly 'carbon budgets' – although as it stands the UK is not on track to achieving the 4th carbon budget for the period 2023-2027. Cutting the Carbon Price Support rate would result in an increase in carbon emissions of 29 million tons CO₂ during the 4th carbon budget period - an increase of almost 20% on total power sector emissions compared to a scenario where the Carbon Price Support is maintained at its current level.

High carbon price increases electricity prices slightly, but this is offset by lower subsidy costs

Increasing the carbon price will raise wholesale electricity prices slightly, but this increase in cost is offset somewhat by lower subsidy payments to lower carbon generators under the Government's 'Contract for Difference' scheme. Overall, comparing a 'status quo' scenario where the Carbon Price Support stays at £18/tonne to one where it falls to £7/tonne, raises total power system costs by £700 million per year (on average over the period 2021-40), or around £9 per annum on the average household's electricity bill. At the same time, the higher carbon price scenario would increase Treasury tax receipts by around £330 million per year in the period to 2025.

Maintaining or increasing carbon prices would not only reduce coal generation, but also improve the prospects for renewable power generation. Aurora tested a scenario in which carbon prices are raised

more quickly to £70/tonne CO₂ in 2030 (the original carbon price trajectory stated by the government back in 2011). This would result in an extra 10GW of renewables capacity coming online by 2040 (mainly onshore wind and solar PV).

Commenting on the research findings and implications, Richard Howard, research director at Aurora said:

“The Government faces a difficult decision in the upcoming Budget about the future of carbon pricing. Maintaining the UK Carbon Price Support at least at current levels would ensure that the Government achieves its stated goal of phasing out coal power generation and contribute towards the achievement of carbon targets. If the carbon price was cut, then households would save around £9 per year – but this risks a surge of coal power in the early 2020s making it extremely difficult to meet our climate goals.”

Downloads

A public version of the new report is available [here](#)

Other Insights: “The carbon price thaw: Post-freeze future of the GB carbon price” available [here](#)

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Notes to editors

Aurora Energy Research is a leading independent energy market modelling and analytics company founded in 2013 by University of Oxford professors and economists. Aurora provides deep insights into European and global energy markets supported by cutting edge models and data driven analytics to support project development and investment decisions. Services include subscription-based forecasts, reports, forums and bespoke consultancy services. Aurora Energy Research has offices in Oxford and Berlin. For further information, please visit: <http://www.auroraer.com>