

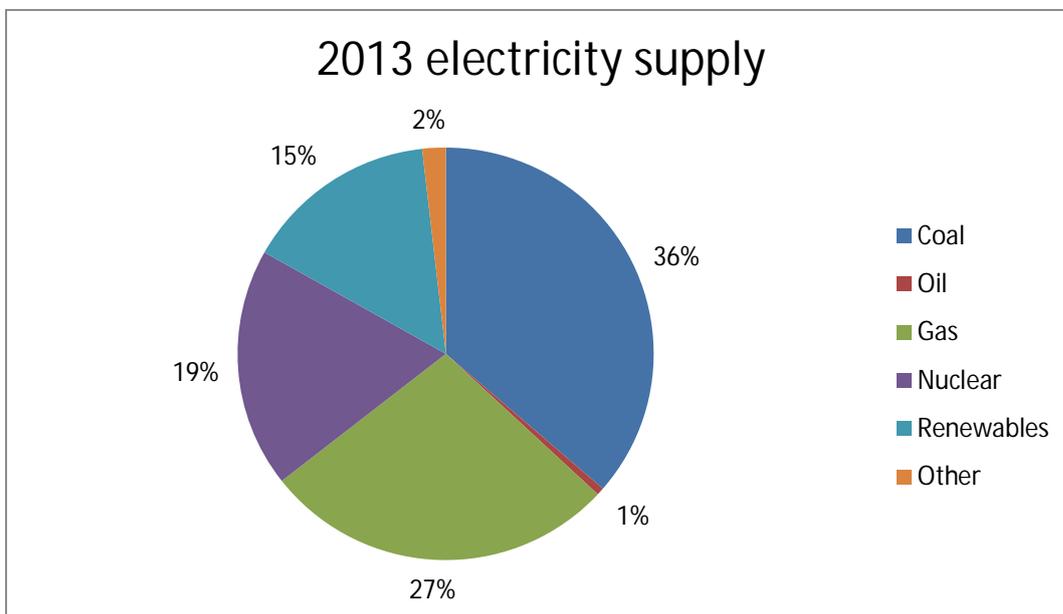


Policy briefing: Could retaining coal jeopardise our climate goals?

Introduction

The mining and use of coal has a cultural and historical resonance across much of the UK. It fuelled the industrial revolution and provided much of our electricity throughout the 20th century. But science tells us that burning coal is by far the most polluting way of producing electricity in terms of the carbon it emits which is changing our climate, and the air pollutants it producesⁱ.

Despite this, in 2013 sixteen aging coal power stations still provided 36% of our electricity. With one exception, these coal power stations were all built in the 1960s and '70s.



Source: DECC 2014

Policy context

The Government's independent adviser – the Committee on Climate Change (CCC) – has recommended that the UK must reduce emissions from the power sector to around 50gCO₂/kWh (one tenth of today's levels) by 2030 to meet the goals set in the Climate Change Act.

Burning coal in the UK's existing power stations, which don't have carbon capture and storage fitted, is very carbon intensive. The age and inefficiency of these power stations makes them unsuitable for retrofitting carbon capture and storage.

Running even one large coal plant full time in 2030 would provide only 3% of our electricity but use up over 50% of the UK's emissions target. So coal plants without carbon capture and storage must close in the 2020s to minimise the risk of compromising UK carbon targets.

Official forecasts from DECC project that all existing UK coal plants will shut by the mid-2020s owing to their age and high emissionsⁱⁱ. But many now question these forecasts and are concernedⁱⁱⁱ that coal

will continue to operate. This is primarily due to the expected implications of three recent Government policy decisions which have substantially improved the outlook for existing coal plants:

- The Emissions Performance Standard (EPS). Under the Energy Act 2013 the EPS limits emissions from new power stations to 450gCO₂/kWh – half the level of a coal plant. But this won't apply to existing power stations.
- The Carbon Price Support mechanism (CPS). As the carbon price rises, it becomes increasingly attractive to use lower carbon sources of electricity, rather than burning coal. But in the 2014 Budget, the CPS was frozen. This has significantly improved the outlook for coal plant, and increased the probability of life extensions.
- The Capacity Market. From 2019 onwards, the capacity market will pay coal and other power stations for being available to supply electricity when it's needed. This will lower the risk involved in making the investments required for coal plants to comply with new pollution regulations. It will also boost revenues for coal plants.

To explore these concerns, WWF commissioned Imperial College's Centre for Energy Policy and Technology (ICEPT) to model a number of scenarios to investigate whether current Government policies could encourage owners of the UK's eleven remaining coal plants to invest to comply with the Industrial Emissions Directive (IED)¹ and therefore extend their lives.

The report assesses the likelihood that coal plants continue to operate beyond the early 2020s and if so how large a role they might play until 2030 to the detriment of the UK's legally-binding climate targets.

ICEPT's key findings

1) *Without changes to government policy, up to half the UK's remaining coal power stations could still be running in 2030.* In all scenarios modelled, some coal power stations are still operational in 2030.

2) *Retaining coal threatens to result in a failure in climate policy.* The 2030 power sector emissions reduction target recommended by the CCC is missed in all scenarios.

3) *The carbon price is key.* In the absence of any regulation – such as an EPS for existing power stations– the key policy that determines how much coal plant is still operational in 2030 (and how much electricity it generates) is the level of the carbon price:

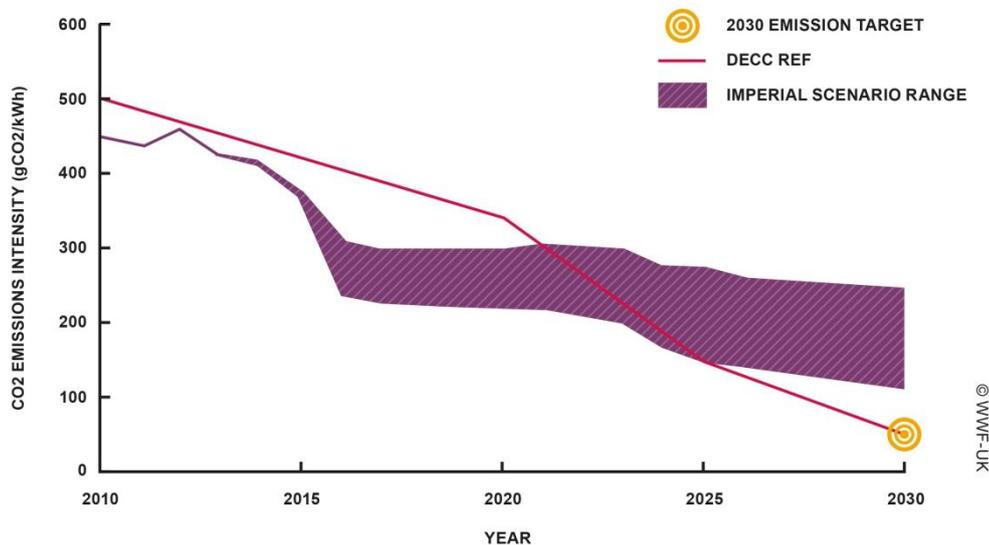
- With a *low* carbon price, coal could still provide nearly 15% of UK electricity demand by 2030. In this scenario, carbon emissions are nearly five times the CCC's recommended target.
- With a *high* carbon price, a quarter of existing coal power stations remain open in 2030 and coal provides only 2% of UK electricity demand. In this scenario, the mix of coal and gas still running means that carbon emissions are two and a half times the CCC's recommended 2030 target.

4) *Regulation would prevent coal from jeopardising climate goals.* Effective regulation to cap and progressively reduce carbon emissions from coal power stations from the 2023 onwards would ensure that such emissions don't jeopardise UK climate goals.

¹ Power plants across Europe must comply with progressively stricter European pollution standards. Around 8GW of UK coal power stations have closed in recent years or will close by 2015 as they don't meet pollution standards mandated under the Large Combustion Plant Directive (LCPD). The successor to the LCPD is the Industrial Emissions Directive (IED), which comes into force in 2016. Owners of coal plants have until the end of 2015 to decide whether to comply with the IED or take an option that allows them to run for limited hours until 2023 and then close.

5) *Regulation would benefit security of supply* - The prospect that large amounts of coal plant will still be running through the 2020s poses a significant risk to potential investors in new capacity. Regulation would provide clarity on when coal plants will either close or run limited hours and therefore incentivise investment the replacement capacity, needed to achieve security of supply in the long term.

PROJECTIONS FOR AVERAGE POWER SECTOR CARBON EMISSIONS OUT TO 2030



Won't closing coal plants threaten security of supply?

Much of the UK's coal electricity generation capacity is already operating beyond its anticipated lifespan. Older power stations are less efficient than modern alternatives and need replacing. Prolonging their lives is therefore only a sticking plaster not a long term security of supply solution.

Security of supply has been a focus of media attention in recent years and it is clear that closing coal overnight would not be feasible. Therefore, the report focuses on the role of coal in the 2020s rather than the immediate future. Around 9 GW of coal has recently closed or committed to do so soon, which leaves 19 GW operational. But, as ICEPT's report highlighted, a lack of certainty on the closure dates for existing capacity risks making investing in the required replacement capacity less attractive.

The ICEPT report recommends providing certainty now about regulation of coal in the 2020s – for example, by stating that coal plant will be included under the EPS in 2023. The report says this would provide certainty to investors in replacement electricity capacity, which is required to ensure long-term security of supply.

A future for coal beyond 2030?

The ICEPT report modelled six plausible future scenarios for the electricity sector. To account for uncertainties, ICEPT used a range of mainstream assumptions on key variables such as coal and gas prices, carbon prices, costs of IED compliance, demand growth, the rate at which low carbon capacity is built, and the capacity market clearing price.

In all scenarios, some existing coal plants are still operational in 2030. This includes scenarios where the carbon price rises in line with DECC's current published trajectory – now considered unlikely by many given the carbon price freeze announced in the 2014 Budget.

Overall, emissions per unit of power in 2030 range from 130gCO2/kWh in the lowest-carbon scenario, to 240gCO2/kWh in the worst case. All scenarios fail to meet the CCC's recommended

decarbonisation target for the power sector of 50gCO₂/kWh by 2030. ICEPT's findings contrast starkly with Government projections which see all existing coal plant closing by the mid-2020s^{iv}.

What should the next Government do about coal?

The report shows that coal shouldn't be 'assumed' away. It shows that without new policy measures a significant proportion of the UK's existing coal power stations are likely to invest in life-extensions – which would directly threaten statutory climate targets.

The Coalition Government recently committed to close existing coal plants by 2025-2030^v. The Liberal Democrats committed to do so by 2025^{vi}. But no party has yet suggested concrete policies which would be sure to deliver such a commitment. ICEPT's modelling found that with current policies, existing coal may not shut down of its own accord. ICEPT concluded that regulation would provide certainty about the timeline for coal closures, as an incentive for the investment needed to ensure long-term security of supply.

By the end of December 2015, owners of coal power stations must decide whether to upgrade their plants to comply with new air pollution standards or commit to closing by 2023. To enable plant owners to make informed decisions and to bring forward investment in alternative capacity, the next Government must set out the policies it intends to introduce to ensure that existing coal plants close by the mid-2020s. Otherwise, it will compromise the decarbonisation of the power sector.

Our recommendations

Direct regulation to close coal - The next government should introduce a regulatory backstop by extending the EPS to existing coal plant that complies with the IED by 2023. And it needs to progressively tighten regulation to ensure that coal plant must close if it doesn't have full carbon capture and storage by 2025.

Contracts for Difference (CfDs)- The next government should provide clear signals on the availability of CfDs (and funding for them), to drive growth in low-carbon generation after 2020 and to provide confidence to investors.

Future Carbon Prices - The next government should provide a clear trajectory for UK carbon prices in the 2020s and continue to support a strong carbon price by strengthening the EU Emissions Trading Scheme.

Capacity market - The next government should change the rules of the capacity market to get rid of long-term contracts for generators. It should reward flexible capacity and eliminate the barriers that currently prevent the demand-side from competing on a level playing field with generation capacity.

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Date	10 November 2014

i http://www.env-health.org/IMG/pdf/heal_briefing_what_does_coal_cost_health_in_the_uk_29112013final1_1.pdf

ii <https://www.gov.uk/government/publications/updated-energy-and-emissions-projections-2014>

iii <http://www.e3g.org/news/media-room/unpicking-the-uks-coal-vs-climate-clash>

iv <https://www.gov.uk/government/publications/updated-energy-and-emissions-projections-2014>

v <http://www.theguardian.com/environment/2014/sep/24/uk-coal-power-plants-david-cameron-un-climate-pledge>

vi <http://www.bbc.co.uk/news/uk-politics-29525171>