

BRIEFING NOTE MARCH 2016

UK COAL PLANT CLOSURES A STRUCTURAL SHIFT AWAY FROM COAL

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Four UK coal-fired power plants are due to cease normal generation operations¹ during March 2016, with a further power plant to close in summer 2016. This will see 8GW of capacity retired in total.

This Briefing Note provides context on these closures in respect to the underlying dynamics of the UK electricity market and broader international trends.

Key points:

- > The closing coal plants are ripe for retirement, having been constructed in the late 1960s or early 1970s.
- > The closure of the coal plants and their replacement by low carbon generation is a transition that the power industry has been expecting, and preparing for, for many years.
- > A similar level of coal plant retirements took place during 2012-14 as old coal plants were shut rather than upgraded to meet improved air pollution standards.
- > As system operator, National Grid has many ways to preserve security of supply. 'Power cuts' for households are typically related to a failure of the local distribution network rather than a shortage of generation supply.
- > The challenge for Government is to make the UK a more attractive place for investors in new energy products and services (including low carbon generation) to ensure that there is no temptation to pay the additional costs required to retain the remaining coal fired generation any longer than is necessary.
- > Internationally, a broader structural shift away from coal-fired generation is underway. This reflects the age profile of coal plants as well as the increasing attractiveness of renewables and gas-fired generation in key markets.

¹ At least 3 of these units will form part of the Supplemental Balancing Reserve during winter 2016-17, meaning that they will be available for National Grid to call on in the unlikely event that the electricity market is unable to provide sufficient supply.

UK domestic context

In 2014 the UK's 10 remaining coal plants were responsible for 20% of total CO₂ emissions. Nine of them featured in Europe's top 'Dirty 30' coal plants. They are old, polluting and ripe for retirement. Five are set to close during 2016, totalling 8GW. This will leave just five in operation, totalling 10.5GW of capacity.

The Government announced in November 2015 that the UK will phase out coal-fired power generation by 2025, with a consultation on intended policy measures expected in Spring 2016. This approach provides a 10-year timeframe for remaining coal plants to retire.

Coal plants set to close in 2016

Table 1: Impending coal plant closures

Owner	Plant	Capacity (MW)	Status
EPH	Eggborough	1,960	Announced closure in September 2015. Biomass conversion was considered but the funding bid was unsuccessful. It received no capacity payment in the 2014 auction. <i>Note: 2 units are contracted to participate in the Supplemental Balancing Reserve during winter 2016-17.</i>
SSE	Ferrybridge (units 3&4)	980	Announced closure in July 2015. A fire in 2014 damaged the prospect of life extension.
Iberdrola (Scottish Power)	Longannet	2,240	Announced closure in September 2015. Failed to win tender to provide grid stability services. Did not bid for capacity contracts.
Engie (GDF Suez)	Rugeley	1,026	Expected to close by summer 2016. Failed to secure a contract in 2014 and 2015 capacity auctions. Engie is seeking to close or divest its current coal assets internationally.
Total capacity		6,206	
Future uncertain			
SSE	Fiddlers Ferry	1,973	The closure of Fiddlers Ferry had been expected since SSE withdrew from a contract for 2018-19 claiming uneconomic operating conditions. However the day before closure SSE obtained an additional contract to keep 3 of the 4 units open. <i>Note: 1 unit is contracted to participate in the Supplemental Balancing Reserve during winter 2016-17.</i>

Auctions creating uncertainty

The closure of Fiddlers Ferry has been expected, as SSE had been consulting on the future of the plant following its decision to withdraw from its capacity contract for 2018-19 due to uneconomic market conditions. It had been anticipated that the majority of the plant would close, but with 1 unit entering into the Supplemental Balancing Reserve for winter 2016-17.

On 30th March, the day before the remaining 3 units were scheduled to close, SSE announced that it had secured an additional contract for ancillary services. The plant will now remain open ahead of the new additional capacity auction for 2017-18. The future of the plant therefore depends on whether it will secure additional government subsidies originally intended for gas fired generators in later auctions.

UK coal plants are old, polluting and ripe for retirement

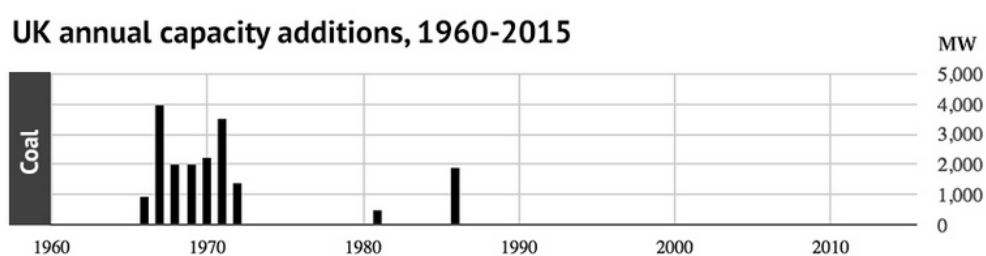
The UK's remaining coal plants are ripe for retirement. Figure 1 below provides an overview of when they started operating, which was mainly in the late 1960s and early 1970s. The lone new coal plant addition in the 1980s (Drax) will approach 40 years of operation in 2025.

At the closure of Longannet in March 2016, Scottish Power highlighted that the life of the plant had been extended to 46 years from an original design life of 25 years². However, there are limits to life extension investments given the rising cost and complexity of repairs and refits.

Three other factors are driving the remaining UK coal plants towards retirement:

- > improved air pollution standards;
- > increasing cost of CO₂ in response to climate change;
- > competition from more efficient and lower-carbon electricity generation technologies.

Figure 1: Age profile of UK coal plants



Source: Carbon Brief³

The second wave of coal plant closures

The UK has already successfully retired large amounts of coal capacity. Seven coal plants closed between 2012-14, totalling 8.4GW of capacity, in response to a phased increase in air pollution standards⁴. This retirement was managed without incident by the UK electricity market and National Grid.

² See <http://www.bbc.com/news/uk-scotland-edinburgh-east-fife-35882883>

³ <http://www.carbonbrief.org/mapped-how-the-uk-generates-its-electricity>

⁴ See https://www.e3g.org/docs/UK_G7_Analysis_October_2015_Final.pdf for full details.

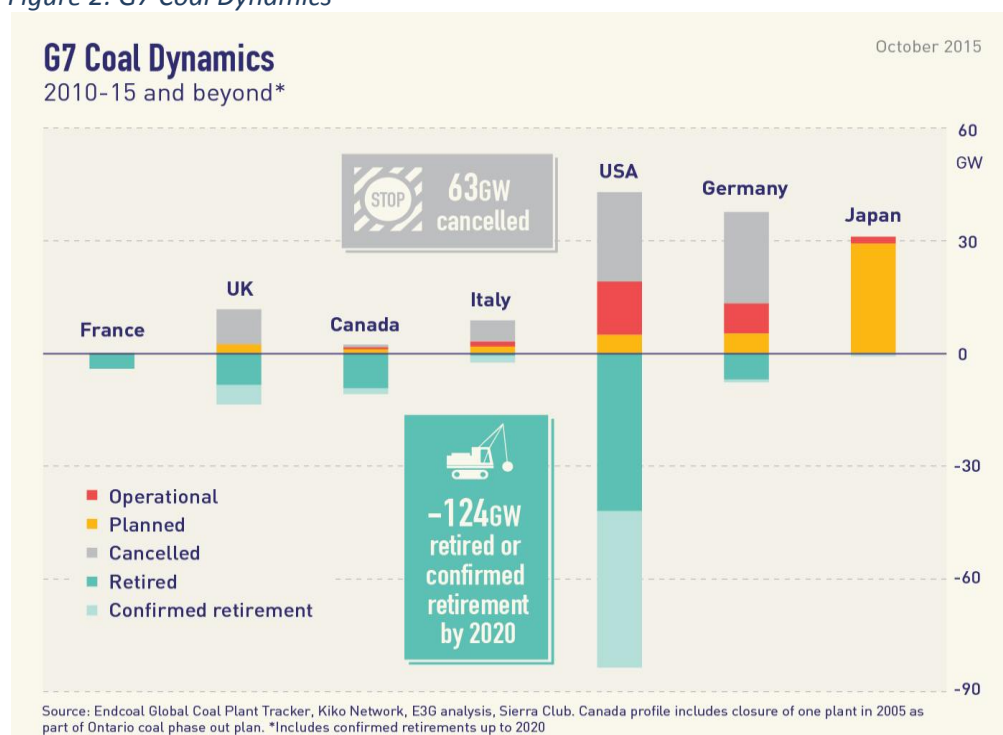
A similar approach is currently underway. New pollution standards will enter force across Europe from the start of 2016. The UK is providing a transitional period until 2020 so that plant operators can upgrade plants with pollution control equipment. Despite the UK's climate change objectives, it is also providing capacity payments, which has successfully incentivised a number of coal plants to continue operating⁵. However, the falling wholesale gas price and increase in carbon pricing through the carbon price support mechanism has shifted the market away from coal-fired generation.

The UK is not alone in closing coal plants

The UK is just one of many countries retiring coal-fired power plants. A broader structural shift is underway across OECD countries as the majority of coal fired plants reach the end of their working lives and face increased competition from renewables and gas-fired power generation.

Figure 2 below illustrates the trend of coal plant retirements across diverse markets including France, Canada and the USA. France has just a handful of coal-fired units; the Canadian Province of Ontario has completed a full coal phase out, while Alberta will phase out coal by 2030 (a significant step given it is home to half of Canada's remaining coal generation). In the USA, states such as New York and Oregon have committed to coal phase out policies, with actions at state level reflecting these broader structural shifts and aligning with Federal policies.

Figure 2: G7 Coal Dynamics⁶



Source: E3G G7 Coal Scorecard

⁵ See https://www.e3g.org/docs/E3G_Briefing_-_Keeping_coal_alive_and_kicking_hidden_subsidies_and_preferential_treatment_in_the_UK_capacity_market.pdf

⁶ See https://www.e3g.org/docs/G7_Coal_Scorecard_Report_-_E3G,_October_2015.pdf for full analysis. An updated version of the scorecard will be published in May 2016.



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