The Phase out of Coal in Britain and Germany: A Comparative Analysis of Drivers and Barriers

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Overview

Britain and Germany are in the process of phasing out the use of coal in power generation and this represents a major shift in the energy supply system of both countries. The article compares the process of phasing out coal power generation in both countries. A PESTEL analysis technique is used to capture the external context of the coal phase out in both countries. This technique allows the identification of the drivers and barriers of the coal phase out, taking into account the differences between the two contexts. Important contrasts and lessons arise out of this comparative discussion of Britain and Germany. This comparison leads to an analysis of the risks and opportunities for the coal phase out in both countries and enables the transferability of the analysis to other countries that may face a decision to phase out coal. For instance, several central and eastern European nations are still reliant on coal in power generation, but may need to reconsider energy policy in view of their climate obligations. The evaluation of factors identified in the PESTEL analysis phase helps the formulation of suggestions for policymakers in relation to the management of the coal phase out.

Methods

Addressing these contextual factors in the macro-environment is crucial in understanding the drivers, barriers and risks in relation to the phasing out of coal. PESTEL is a technique which is designed to aid the study of the macro-environment of an industry and is widely attributed to Aguilar (1967). This method is employed in this article to study the macro-environment of the coal phase-out, in terms of the components of PESTEL, namely: the political, economic, social, technological, environmental and legal factors influencing the phase out. In conducting a PESTEL analysis, a comprehensive and systematic overview of the contextual factors relevant to the coal phase out in both countries will be presented.

Results

Highlights from the PESTEL analysis include:

- In Germany, the existence of a strong state-level layer of government operating alongside the federal government is in stark contrast to the UK's more centralized system. This strong decentralized element in government makes the phase out of coal more complicated in Germany, as certain states may resist the phase out, especially if the coal industry is important to their local economy. This is compounded by the fact that the German coal industry is concentrated in a few main geographical centres.

- Germany's proportional political system has led to a greater role for the "Green Party" in politics and this has led to a greater focus on energy and environmental issues, acting as a driver for the coal phase out. In contrast, the UK's system is dominated by two moderate political parties that place less emphasis on energy and environmental issues, with a third more marginal party taking greater interest in this area of policy.

- Indications are that the phase out of coal would not, in itself, have a significant effect on market power prices; the evolution of prices depends, rather, on how coal generation is replaced. In the UK, natural gas will largely replace the loss of power from coal and the evolution of prices will depend far more on the speed at which nuclear power and renewables are deployed. In Germany, renewables will, most likely, act as the price setter in determining the electricity cost. Overall lower prices from renewables in Germany would be accompanied by greater volatility compared to the UK market in which natural gas is more important. The lower age of coal power plants in Germany compared to Britain implies higher costs of the coal phase out to German plant operators and this presents a potential barrier to a successful phase out.

- In terms of technology, Germany has yet to approve carbon capture and storage whereas the UK has abandoned government financial support for CCS. Given Germany's greater industrial strength in coal technology, not pursuing CCS could represent a missed opportunity; clean coal could offer possibilities for technology transfer from Germany to emerging markets. Likewise, in the UK, not pursuing CCS could means the loss of a potential back-up technology should there be difficulties with the expansion of nuclear power and gas generation.

Conclusions

The coal phase out represents a major shift in the socio-technical regime (Geels, 2002) of the British and German power sectors and this paper analyses this shift from the point of view of the technology to be phased out, with this old technology interacting with new technologies which are being diffused in the transformation of the sector (Vögele, 2016). The two contexts have different dynamics resulting from different energy policies and paths of industrial development, so provide opportunities for rich contrasts and greater transferability of findings to third countries.

References

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