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RESEARCH ARTICLE



# Balancing cost and justice concerns in the energy transition: comparing coal phase-out policies in Germany and the UK

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## ABSTRACT

Europe's two largest economies – Germany and the UK – are phasing out coal from electricity production as part of European efforts to fulfil increased climate policy ambitions that require comprehensive energy system transitions. German and UK governments varied in the ways they sought support from diverse societal interests to make the transition socially acceptable and politically feasible. Drawing on 22 expert interviews and process-tracing methods, this paper compares and explains how political and economic institutional differences influenced efforts to balance energy transition concerns, like speed and cost-effectiveness with justice for companies, workers and communities most adversely affected by the transition. We find that the increasing attention to just transition perspectives after the Paris Agreement affected the design of coal phase-out processes in different ways in the two countries. Just transition concerns were given priority by policymakers in Germany, but more so if they overlapped with the interests of incumbents. In the end, politically powerful stakeholders dominated the policy outcome. In the UK, policymakers and stakeholders gave only weak attention to just transition concerns, mainly because coal's market position had collapsed. Coal interests did not have strong representation in the decision-making process. But we find that just transition concerns are likely to gain more attention in the UK because a more challenging transition away from gas will take place over the next two decades.

## Key policy insights

- Policymakers must balance the objective of a fast decarbonization process against two other important concerns: cost-effectiveness and a just transition. Political-economic institutional design and capacity shape the extent to which just transition concerns are given weight in coal phase-out processes.
- State capacity for including just transition concerns in coal phase-out processes is higher when political and economic institutions strongly mediate government-stakeholder interaction in the policy process, and broad stakeholder participation increases the political feasibility and legitimacy of policy change.
- In Germany, the government's attention to just transition concerns was strong because broad stakeholder representation in the formal process, and transition assistance policies to target potential losers in the transition, became crucial to enhance the legitimacy of coal phase-out policies.
- In the UK, cost-effectiveness trumped just transition concerns in the coal phase-out process, but just transition issues have increasing salience and will likely become pertinent in the upcoming gas phase-out process because more jobs and key economic interests are at stake.
- Our findings are relevant for policymakers in countries struggling with balancing speed, cost-effectiveness and just transition concerns in similar transition

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processes: phasing out coal, gas, or oil from their energy system. The findings may also inform future energy transition research.

## 1. Introduction

Decarbonization of the world's energy system is an urgent policy priority in the coming decades to avoid dangerous climate change (IEA, 2021). The IPCC emphasizes that the burning of fossil fuels is the main reason for rising global temperatures (IPCC, 2021), nudging international agreement around the objective of phasing out coal as a priority (Glasgow Climate Pact, 2021). When designing, adopting, and implementing coal phase-out policies, however, policymakers must balance the objective of a fast decarbonization process up against two other important concerns: cost and justice. Cost-effectiveness is the backbone of climate policy design (e.g. Aldy et al., 2010; IPCC, 2018: chapter 2), while attention to just transitions has emerged since the adoption of the UN Sustainable Development Goals (SDGs) and the Paris Agreement in 2015 (Gürtler et al., 2021; Healy & Barry, 2017; McCauley & Heffron, 2018).

Previous literature explore approaches to overcome barriers to fast and cost-effective energy transitions: some identify carbon lock-in mechanisms that came into focus when policy attention shifted from phasing in renewables to phasing out fossil energy (e.g. Seto et al., 2016; Trencher et al., 2020); others analyze coal phase-out processes in various jurisdictions focusing on ideas, interests and institutions involved (Isoaho & Markard, 2020; Leipprand & Flachsland, 2018; Rentier et al., 2019), while a new literature strand explore how just transitions can be designed by taking procedural and distributional justice seriously (Harrahill & Douglas, 2019; McCauley & Heffron, 2018). In this paper, we combine insights from these literatures in a conceptual framework (based on Hall and Soskice (2001)) allowing us to probe *the effects of political-economic institutions for balancing the competing concerns between tempo, costs, and justice in coal phase-out processes*. We distinguish institutional effects by identifying: first, which actors were given (prioritized) access in formal policy-making processes; second, to what extent incumbents' interests dominated the final policy design; and third, how policymakers balanced cost-effectiveness and just transition concerns against tempo when the policy package was designed. Our attention to just transition concerns in this context is novel and complements the existing energy transition literature.

We apply the conceptual framework to compare the ongoing coal phase-out processes in the UK and Germany and investigate how political-economical institutional differences between a liberal market economy (UK) and a coordinated market economy (Germany) influence prioritization of competing concerns.

The empirical analysis is based on 22 semi-structured interviews with UK and German energy sector experts and process-relevant documents including parliamentary reports, government assessment reports, public hearing documents, energy business analyses, think-tank reports and academic literature.

We find that the increasing public attention to just transition perspectives since 2015 (e.g. Harrahill & Douglas, 2019; McCauley & Heffron, 2018; Weber & Cabras, 2017) affected the design of coal phase-out policies, but in ways that reflect country-specific political and economic institutions. In Germany, just transition concerns that overlapped with the interests of incumbents were given priority by policymakers. Moreover, negotiations about compensatory measures were complicated by different views on distributional justice among stakeholders. In particular, the government's decision to compensate utilities was controversial (Bund, 2020; Gürtler et al., 2021). In the UK, attention to just transition concerns was low because coal had a weak market position (Lockwood, 2018), and coal interests were weakly represented in the decision-making process. However, just transition concerns are likely to gain more attention in the UK (e.g. Scottish Government, 2021; Unite the Union, 2020) as the energy industry and environmental non-governmental organizations (ENGOS) expect a more challenging transition away from gas (a much more important domestic energy source in the UK than coal) over the next decades (CCC, 2020; MacDonald & Lytton, 2021). The insights emerging from our study are relevant for policymakers in countries struggling with similar transition processes, phasing out coal, gas, or oil from their energy system, and may inform future comparative research. In section 2 we present our research design. Section 3 traces the two coal phase-out processes we study, and

section 4 presents findings. In section 5 we discuss how policymakers balanced cost-effectiveness and just transition concerns, and section 6 points to conclusions, policy insights and future research avenues.

## 2. Research design

### 2.1. Analytical framework: identifying institutional effects for variation in coal phase-out policies

Coal has been a dominating energy source in many countries since the industrial revolution, feeding economic growth and fostering prosperity, but also entrenched dependency on fossil fuel energy (e.g. Seto et al., 2016; Unruh, 2000). Previous literature identifies how energy system features pose barriers to swift, cost-effective and encompassing energy transitions, and at least four strands in this growing literature are relevant for our analysis.

First, a strand of energy transition studies analyzes pathways to destabilization of the existing high-carbon regime (e.g. Curran, 2021; Geels, 2014; Isoaho & Markard, 2020; Leipprand & Flachsland, 2018; Rosenbloom, 2018). Such studies explore how discourses and problem framing shape the design of coal phase out policies, by mapping dominant arguments and positions reflecting the interests, ideas and institutions involved. Importantly, they identify *the strategies and narratives incumbents apply* for framing discourses to delay or hinder unwanted policy change (e.g. Curran, 2021; Isoaho & Markard, 2020).

Second, a related literature strand explores carbon lock-in mechanisms (e.g. Mildenerger, 2020; Seto et al., 2016; Trencher et al., 2020; Unruh, 2000) identifying valuable perspectives on *path dependency* for explaining the entrenched role of incumbents in energy systems, pointing to various types of lock-in (including technological, institutional and behavioural lock-in) (Seto et al., 2016) that mediate the interaction among actors involved in transition processes, discouraging rapid change (Trencher et al., 2020). Key findings are that carbon lock-in mechanisms slow down energy transitions, requiring coordinated action across economic sectors during ‘windows of opportunity’ to break away from the status quo (Seto et al., 2016).

It follows that the *state capacity* for breaking away from carbon lock-in is crucial. State capacity is discussed in the climate policy literature – a third relevant strand for our analysis – as related to the government’s *institutional capacity* to steer energy transitions through cooperative processes with diverse stakeholder groups and thereby overcome vested interests and carbon lock-in (Četković & Buzogány, 2016; Finnegan, 2019; Green & Gambhir, 2020; Kern & Markard, 2016; Kuzemko et al., 2016; Mildenerger, 2020). Relatedly, adopting cost-effective transition policies can help mediate concerns about adverse economic effects for the energy sector. The climate policy literature discusses whether CO<sub>2</sub> emissions should be reduced by targeting all emissions sources through a single policy instrument, such as carbon pricing (Aldy et al., 2010; Pigou, 1920; Tol, 2019) or by building policy packages serving interest group coalitions (Kern & Rogge, 2018; Rogge & Reichardt, 2016). The well-known Tinbergen Rule recommends one instrument per target (Tinbergen, 1952), although most European countries have adopted several overlapping climate policy instruments in policy packages (Böhlinger, 2014; Skjærseth, 2018). Introducing additional instruments may increase the costs of reducing emissions, unless they correct other market failures such as local pollution (Ščasný et al., 2015) or green innovation (Acemoglu et al., 2012; Newbery et al., 2019). However, if high carbon prices are politically difficult to impose because of carbon lock-in mechanisms, supplementing moderate carbon prices with other instruments may be so-called second-best policy (Rozenberg et al., 2020; Stiglitz, 2019).

Fourth, the comparative political economy literature investigates a related aspect of balancing speed and cost-effectiveness in energy transitions, pointing out that state capacity is closely linked to a country’s political and economic institutions through *functions mediating the interaction* between the state and politically powerful economic interest groups (Finnegan, 2019; Hall & Soskice, 2001; Mildenerger, 2020; Rentier et al., 2019). Within this literature strand, Rentier et al. (2019) apply the ‘varieties of capitalism’ framework (Hall & Soskice, 2001) to compare institutional barriers to coal phase-out across four European economies. They show how institutions shape the balancing between speed and costs, concluding that coordinated market economies like Germany, Poland and Spain face institutional barriers leading to slower and more expensive transitions than liberal market economies like the UK (Rentier et al., 2019).

Our analysis builds on Rentier et al. (2019) but adds key perspectives from the just transitions literature to discuss how political-economic institutions shape state capacities that enable countries to *balance justice concerns against cost-effectiveness* in the energy transition. The just transition literature points out the energy transitions' risks for afflicting adverse consequences on people, labour markets, firms, regions, and states (e.g. Green & Gambhir, 2020; Gürtler et al., 2021; Harrahill & Douglas, 2019; McCauley & Heffron, 2018; Weber & Cabras, 2017, 2021). Emphasizing the need for speeding up the transition, these studies identify strategies for promoting fairness and equity (McCauley & Heffron, 2018) through *procedural justice* that increase participation and dialogue with a broad range of societal actors (Weber & Cabras, 2017), and point to an important role for government in assisting workers and communities in navigating the transition process, providing *distributional justice* (Harrahill & Douglas, 2019).

Bringing the insights of the literature strands reviewed above together, we aim to investigate how differences in political-economic institutions in the UK, a liberal market economy (LME), and Germany, a coordinated market economy (CME), influenced the balancing between speed, cost and justice concerns in the two countries' coal phase-out processes. Since we consider the institutions in a country's political economy as vital for shaping the strategic and cooperative interaction between economic actors (following Hall & Soskice, 2001; Hall & Thelen, 2008), we expect institutional differences entailed in the LME-CME categorization to influence which actors and interests have *best access* and are *most influential* in the policymaking process (Thelen, 2014). These actors and interests are expected to influence the balance between cost and justice concerns, and hence the *policy outcome*.

Specifying these expectations further, in CMEs like Germany, industry associations and labour unions hold strong political power because they provide capacities for coordinated interaction between firms, unions, and with the government through information exchange, monitoring, and sanctioning, which forms an important backbone of industrial-relation cooperation (Hall & Soskice, 2001; Hall & Thelen, 2008). Such coordinated interaction fertilizes conditions for negotiated compromises on policy reforms affecting key economic sectors (Streeck & Thelen, 2005; Thelen, 2001), although economic liberalization since the 1990s weakened this coordinated mode of interest group intermediation and introduced broader stakeholder representation into negotiation processes (Thelen, 2014). In LMEs like the UK, the coordination between business associations and the government is weaker, giving them less prioritized involvement in policymaking than in CMEs. Market liberalization policies in the 1980s led to the demise of unions and employer associations, substantially reducing coordination capacities (Hall & Thelen, 2008; Thelen, 2014). LMEs are generally characterized by a dominant market-orientation, decentralized and short-term industrial relations, and collective bargaining taking place at the firm level (Hall & Soskice, 2001).

Based on the above discussion, we can now hypothesize the effects of political-economic institutional differences for coal phase-out processes in LMEs and CMEs to be the following:

First, mechanisms like carbon lock-in, path dependency, and institutional stability will give priority to incumbents in policymaking processes – most notably sector-relevant industry and labour organizations. These mechanisms will work in different ways in LMEs and CMEs, providing more access and influence for incumbents in CMEs.

Second, we expect that when incumbents have less formal access and influence, as in LMEs, policymakers are freer to pursue market-based policy mechanisms with higher cost-effectiveness when designing policy packages, even when policies hurt incumbents economically. Such effects will be visible in a coal phase-out policy instrument mix dominated by market-oriented instruments. CMEs will prefer a direct regulatory approach when designing policy packages, possibly compromising cost-effectiveness but securing more control with economic consequences for affected stakeholders – especially incumbents.

Third, we expect that policymakers in CMEs assign more weight to just transition concerns than in LMEs to increase the political feasibility of coal phase-out, but more so when such concerns align with incumbent stakeholder interests. In general, stakeholder participation increases political feasibility and legitimacy of policy change in CMEs, and high priority to just transition concerns will be visible in process design through broad stakeholder representation in the formal process, and in transition assistance policies that target potential losers in the transition to enhance legitimacy.

Fourth, we expect that both countries prioritize tempo in the energy transition, but transitional speed will be influenced by the weight given to cost-effectiveness and just transition concerns. Hence, this hypothesis will be analyzed in conjunction with the three previous hypotheses going forward.

While we restrict this study to investigate the effects of institutional differences, we acknowledge that other factors that we do not focus on here may also influence priorities made in the coal phase-out processes in the UK and Germany – including EU's Green Deal, energy import dependence, implementation of Brexit and increasing populism.

## **2.2. Data sources and methods**

Our empirical analysis draws on data sources collected from 2019-2021. Secondary sources include government policy documents, public hearing reports, government assessment reports, stakeholder assessment reports, research institute reports, economic statistics, and academic literature. Primary data sources were obtained from 22 interviews with 27 German and UK experts (see Annex 1). We asked respondents theory-driven questions, reflecting the four hypotheses developed above (see Annex 2).

We selected respondents based on their roles and expertise related to the coal phase-out processes, aiming to gather a broad set of viewpoints on our questions. We included respondents with key roles in ministries, energy industry associations, labour unions, ENGOs, academia, and think tanks. The interviews were semi-structured, based on prepared questions but without strictly following a formalized questionnaire (Leech, 2002). Instead, we asked more open-ended questions, allowing for a discussion with the respondents rather than a straightforward question and answer format, which enabled us to grasp nuances and clarify contextual factors (Kendall, 2008). Interviews were conducted by two of the authors in London and Berlin in September and October 2019, with four follow-up interviews conducted online during October 2019-January 2020. Conversations were recorded and transcribed. We granted anonymity to respondents to ensure that they could speak freely.<sup>1</sup>

## **2.3. Data analysis**

Our dataset allowed us to measure the hypothesized institutional effects described above, providing information about: 1) which actors were given (prioritized) access in formal policymaking processes, 2) to what extent incumbents' interests dominated the final policy design, and 3) how policymakers balanced costs and justice concerns when the policy package was designed.

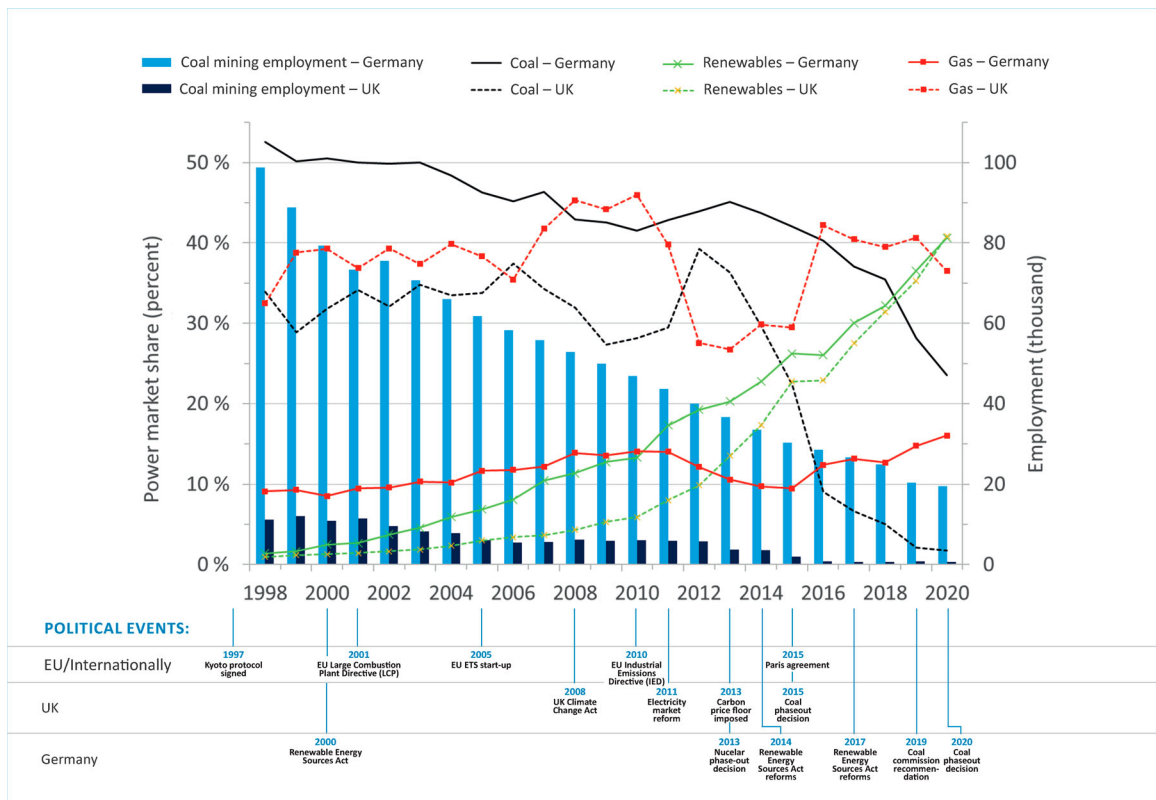
We performed a systematic examination of empirical data that helped identify the role of political-economic institutions in shaping coal phase-out processes (Beach & Pedersen, 2019; Bennett & Checkel, 2014). Interview data was categorized manually, and excerpts from transcripts were organized in a table according to relation to our hypotheses. This approach enabled a systematic analysis of primary data, and a comparison of data sources related to each hypothesis. Systematic data analysis enabled us to document the timeline of the coal phase-out policy processes in both countries (Figure 1), and to identify actors and interests that had access and power to shape the policy outcome.

The UK and Germany were selected as cases because they represent typical LME-CME institutional differences, and both countries have adopted and implemented coal phase-out policies. This makes them suitable for comparative case study analysis of the institutional effects we focus on in this paper. In the next section we describe the policy process for coal phase-out in the two countries.

## **3. Case study background section**

Germany and the UK are similar in several respects when it comes to climate and energy policy. Both countries have adopted ambitious net zero emissions targets for 2050, and targets of 65-68% GHG emissions reductions by 2030 (BEIS, 2021a; BMU, 2019). They have adopted coal phase-out policies as part of national strategies to fulfil Nationally Determined Contributions under the Paris Agreement. In the following, we describe each country's coal phase-out policy process and illustrate the development in Figure 1.





**Figure 1.** Timeline of coal phase-out processes. Electricity market shares in Germany and the UK (Source: BP, 2021); employment in coal mining in Germany and the UK (Sources: BEIS, 2021b; Statistik der Kohlenwirtschaft, 2021a, 2021b); timeline of events in the EU/internationally, UK and Germany, 1998–2020. Note: For employment in coal mining in Germany, data for the years 1998–99, 2001 and 2003 were missing. Data have been constructed by interpolation between observed data.

### 3.1. United Kingdom

As a global forerunner, the UK government announced in November 2015 a phase-out of unabated coal power generation by 2025 (later pushed forward to 2024) (BEIS, 2018a, 2018b). Coal historically played an important role in meeting the UK’s needs for electricity, but coal power generation declined over the past decade in step with the growth of renewables and increased reliance on natural gas (Figure 1). Following political decisions in the 1980s targeting coal miners’ unions, coal mining employment dropped from 239,000 in 1980 to around 1,000 in 2018 (Figure 1). In 2012, coal power plants provided 40% of electricity in the UK, but fell rapidly to only 5% in 2018 (BP, 2021; Figure 1).

Decarbonization targets were cemented with the passing of the Climate Change Act (CCA) in 2008 and establishment of the Climate Change Committee (CCC) determining legally binding 5-yearly carbon budgets (The National Archives, 2008). Policies focused on incentivizing rapid renewable energy build-up and subsidizing carbon capture and storage (CCS) technology development, aiming towards the use of ‘carbon free’ coal (DTI, 2007). The 2011 Electricity Market Reform (EMR) was adopted to ‘ensure that our future electricity supply is secure, low-carbon and affordable’ (DECC, 2011). The UK’s majoritarian democracy electoral system rules produce governments backed by majority power in Parliament, providing political support for implementing encompassing reforms (Lijphart, 2012). With the EMR, the UK experienced strong growth in renewable energy generation (Figure 1). The Capacity Market was designed to address security of supply concerns (DECC, 2011).

In parallel, EU policies aimed at reducing air pollution negatively affected investment decisions for UK coal power plants. The 2001 Large Combustion Plant Directive (LCP) and the 2010 Industrial Emissions Directive

(IED) introduced emission limits for new and existing large combustion plants (EU Commission, 2001, 2010). Moreover, the UK Emissions Performance Standard, part of the EMR, required emissions from any new coal-fired power station to be at par with natural gas-fired power plants, in practice requiring CCS (DECC, 2015). Existing coal power plants had to decide whether to retrofit, and only a handful decided to do so.

Further contributing to disincentivize coal power, the Carbon Price Floor (CPF) was implemented in 2013 to top up the low EU Emissions Trading System (ETS) price (LSE, 2018). The CPF contributed strongly to weakening the market conditions for coal (Lockwood, 2018). When the coal phase-out decision was made shortly before the 2015 Paris climate summit, this string of previous policies had already deteriorated the market conditions for coal in the UK. The government's phase-out decision was followed by a public consultation period soliciting input from society, an Impact Assessment was conducted by the Department for Business, Energy and Industrial Strategy (BEIS) (BEIS, 2018a), and the follow-up Clean Growth Strategy (BEIS, 2018b) and Industrial Decarbonization Strategy (BEIS, 2021c) presented implementation plans.

### 3.2. Germany

The share of coal in electricity production dropped from above 50% in 1990 to below 30% in 2019, mainly because of drastic increases in renewable energy pushed by strong subsidies (Figure 1). Moreover, employment in lignite coal mining dropped significantly after the German reunification from 130,000 in 1990 to around 20-30,000 since 2000 (Figure 1). Germany is still an important producer of lignite extracted and used for close-by/on-site power generation in three federal states: North Rhine-Westphalia, Saxony, and Brandenburg.

In designing a decarbonization policy package for the German energy sector, policymakers until recently focused mainly on phasing in renewable energy rather than phasing out coal (Leipprand & Flachsland, 2018). Policymakers over decades developed the *Energiewende* through policy reforms that incentivize renewables in electricity generation (Strunz et al., 2015). The 1990 Electricity Feed-in Law, followed by the 2000 Renewable Energy Sources Act, massively scaled up incentives for renewable energy (Böhringer et al., 2017). Reforms to the law in 2014 and 2017 overhauled renewable energy incentives, introducing more competition and cost-efficiency (Böhringer et al., 2017).

In 2013, government decided to phase out German nuclear plants by 2022. Due to security of supply reasons, this decision temporarily cemented coal's role in Germany's power mix, making it harder to decarbonize as quickly as promised in government plans (Rinscheid & Wüstenhagen, 2019). Even with a rapid increase in renewable electricity generation, Germany's GHG emissions did not decrease sufficiently (IEA, 2020). The Commission on Growth, Structural Change and Employment ('Coal Commission') was established in 2018 to address how the phase-out of coal-fired generation can contribute to fulfilling Germany's Paris targets (BMW, 2019).

In January 2019, the Coal Commission delivered its report recommending a phase-out of coal-fired power plants in Germany by 2038. The Commission consisted of representatives from business associations, trade unions, NGOs, civil society and regional-level policymakers, deliberating over a period of eight months to find compromises taking account of a range of societal interests adversely affected by a coal phase-out (BMW, 2019). The Commission recommended a carefully negotiated pathway for phasing out coal. Moreover, at least €40 billion in compensation funds will be directed towards affected regions, communities and stakeholders (BMW, 2019). The German Parliament (Bundestag) adopted a legislative implementation package in 2020. Since Germany is a proportional representation democracy, with electoral rules favouring a multi-party system and governments formed through party coalitions in the Bundestag (Lijphart, 2012), the Coal Phase-Out Act and the Structural Support for Coal Regions Act needed cross-partisan support to pass (Bundestag, 2020). With a new coalition government taking power from December 2021, promises have been made to push the coal exit date forward to 2030 (Amelang & Wehrmann, 2021).

## 4. Findings: institutional differences and the balancing of competing concerns

In this section, we apply the analytical framework to the two selected cases: the UK and Germany. Illustrative quotations from interviews are presented in Table 1 (following Eldh et al., 2020; Trencher et al., 2020),



categorized according to the hypothesized effects of institutional differences developed in section 2. The results reported in [Table 1](#) are further discussed below.

#### **4.1. Role of incumbents (hypothesis 1)**

Our UK respondents emphasized, first, that the coal industry's loss of market position compared to gas and renewables had deteriorated their political power over time (see quotes in [Table 1](#)). The closing of UK coal mining since the 1980s, combined with policies incentivizing the Dash for Gas in the 1990s and wind power expansion in the 2010s, changed the energy system ([Figure 1](#)), making a transition away from coal possible. These market changes made 'coal as a political actor much weaker than oil and gas. Oil and gas are wealthy and extremely well-connected political actors' (UK Int.6). Second, coal plant owners had projected that coal would be phased out and had already diversified portfolios to include gas and renewables (UK Int.1). Hence, incumbents in the UK context – the utility companies – were not lobbying for coal, but rather already transitioning to other energy sources for market reasons (UK Int.4). Third, the transition was strongly supported by ENGOs who actively campaigned against retrofitting coal plants in line with EU Directives (UK Int.2), while coal workers' unions had lost political power already during the coal strike period in the 1980s, reducing their role in opposing the coal phase-out (UK Int.7). In sum, no strong voices defended coal interests in the policymaking process.

Our German respondents pointed to state-level and municipal governments from coal districts (including owners of locally owned coal plants), labour unions, and energy industry representatives as powerful incumbents in the Coal Commission and ensuing policymaking processes (see quotes in [Table 1](#)). However, incumbents had different interests. While labour unions and local governments fought for coal jobs and regional coal-dependent economies, energy-intensive industry actors pushed for a planned phase-out that would provide stability for investments and enhance energy security in an energy system without coal (G Int.6). State-level governments dominated discussions such as the order of priority for the phase-out of coal plants, winning support for Western plants to be shut down first (G Int.1). Several respondents pointed out that ENGOs fought for a faster phase-out pathway, but in the end had to accept 2038 as a compromise (G Int.5,6,8,9). Incumbents pushed for a late phase-out date and 'largely won this battle' (G Int.6). One respondent pointed out that the compromise came about partly because of the declining political power of the coal lobby (G Int.7).

#### **4.2. Cost-effectiveness concerns (hypothesis 2)**

UK policymakers adopted market-based policy packages (see timeline in [Figure 1](#)) like EMR, which aimed to quickly phase in renewables, and CPF, which aimed to quickly phase out coal. Policies were designed to cut GHG emissions rapidly to keep in step with the CCC's carbon budgets (UK Int.9). Government prioritized market-oriented policies that could cut emissions rapidly and was looking for 'a quick win' (UK Int.7). Respondents connected policy design to costs for consumers, emphasizing that concern about costs is an integral part of the discussion in the UK and that the weighting of costs against energy security and GHG emissions is always a concern for government (UK Int.2). Distributional effects of coal phase-out were assessed in BEIS' Impact Assessment (BEIS, 2018a), but no specific attention was given to the need for compensation measures (see quotes in [Table 1](#)).

Although the government focused intensely on the cost-effectiveness of national policies (UK Int.4,8) and preferred a market-based approach over direct regulation (UK Int.9,11), concerns about interactions with the EU ETS did not gain traction. The so-called waterbed effect (Perino, 2018), referring to the case where supplementary climate policies on top of the ETS face the risk of only shifting emissions around without reducing total emissions (Böhringer & Rosendahl, 2010), was briefly discussed in government documents in relation to the CPF (e.g. DECC, 2011), but was perceived as complicated and given little attention by stakeholders (UK Int.1,10).

German respondents perceived market-oriented policies as risky, pointing to distributional justice (see quotes in [Table 1](#)). Most stakeholders agreed that a controlled phase-out will manage the decline and the

**Table 1.** Illustrative quotations from interviews. Text in italics is related to the UK case, while text in normal font is related to the German case.

Hypothesized effects of institutional differences	Quotes	Respondent
<b>1. Role of incumbents</b>		
	<i>-Government is interested in having business views heard in the process. Interests align ... and the economic logic and investment logic in the utility companies made it sensible support government policies.</i>	Utility
<i>Incumbents' access in process Public hearing process</i>	<i>-As an absolute minimum we have an obligation to consult through public hearings for all of our policies and to publish impact assessments. We also engage with stakeholders through workshops, seminars, etc. BEIS is often asked to speak at events to explain policy processes, with Q&amp;A. We have regular contact with trade associations and individual companies.</i>	Ministry
<i>New incumbents</i>	<i>- the coal industry stopped being essential sometime around 2012/2013. They were partially outcompeted by gas, and they were outcompeted both by the popularity and the economics of renewables.</i>	Think tank
<i>Decline of coal's power</i>	<i>-From a utility perspective, most coal plants were uneconomical because of the carbon price, so they haven't been campaigning to oppose the phaseout policies. Utilities are vested in the transition because they have mixed portfolios</i>	NGO
<i>Role of ENGOs</i>	<i>- ENGOs were central for stopping retrofitting and new investments in coal plants, through campaigns such as at Kings North</i>	Think tank
<i>Incumbents with strong influence</i>	<i>-The most important voices in the Commission were the energy industry, labour unions and ENGOs. On the structural support questions, the regional governments and unions dominated discussions.</i>	Ministry
<i>Competing voices</i>	<i>- All Commission members compromised a lot. ENGOs feel 2038 is too late but stayed in the Commission to see what they could get out of it.</i>	Academic
<i>Incumbents supported coal phase-out</i>	<i>- Regional representatives, unions and industry associations were crucial because they had high stakes. Energy industry actors didn't have extreme positions and were more bridge builders in negotiations. We had accepted the new reality and wanted to have planning security for how the sector will look like without coal.</i>	Energy industry
<i>New incumbents</i>	<i>-The gas and coal lobby used to be very unified in BDEW, but this unity has cracked more and more lately as diversity in terms of energy sources is increasing. BDEW is still powerful but does not speak with one voice always.</i>	Academic
<b>2. Cost-effectiveness</b>		
	<i>- The UK top-up price (CPF) was adopted because the ETS price didn't rise as fast as expected. The CPF changed the economics of coal and favored gas because of lower carbon content.</i>	Ministry
<i>Market-oriented policy instruments</i>	<i>-EU Directives (LCP, IED) destroyed competitiveness for coal plants, and the coal lobby wasn't able to stop those Directives. The choice was to either retrofit plants or to reduce running hours and eventually stop.</i>	Academic
<i>Influential EU policies</i>	<i>- EMR was designed to do specific things: Decarbonize, keep the lights on, and keep costs down. Energy security was the thing that scared the government the most: Right-wing media drove stories about how the policies of the government would make the lights go out. This connects with deep fears in the population. That made the baseload issue very important.</i>	Think tank
<i>Energy security and electricity price concerns</i>	<i>-Our company didn't present a timeframe for closing down coal plants. The decisions came more as a response to market conditions. Coal plants have become uneconomical, selling electricity into the market only at peak hours or during the winter.</i>	Utility
<i>Market pushed out coal</i>	<i>- The interaction with the ETS has not entered the policy discussion in the UK. The main concern in the UK is to reduce domestic emissions, not European emissions. The UK doesn't care about the impacts on the EU ETS like the waterbed effect.</i>	Think tank
<i>Focus on domestic consequences</i>	<i>- If left to the market, it was a danger that CO<sub>2</sub>-prices would stay low very long and then rise steeply, forcing coal out quickly. BMU argued for a more planned and controlled phase-out to manage the decline and the structural issues better.</i>	Ministry
<i>Direct regulation preferred</i>	<i>- Now we try to get rid of two key energy sources at the same time: nuclear and coal. This led to very fierce discussions in the coal commission. How much risk can we take in terms of changing the energy system, considering intermittency, supply, and balance? On the one hand we worry about losing the coal jobs, but on the other hand also worry about stable, cheap supply of electricity for the energy-intensive industry.</i>	Union
<i>Energy security and electricity price concerns</i>	<i>- The commission wanted to phase out coal in a structured way, with less insecurity than with a market-based approach such as a CO<sub>2</sub>-price. The societal transition is important, not only the end effect.</i>	Academic
<i>Avoid market insecurities</i>		Think tank

(Continued)

**Table 1.** Continued.

Hypothesized effects of institutional differences	Quotes	Respondent
EU ETS less important	<ul style="list-style-type: none"> <li>- The German DNA is not market-based. Germany thinks a bit like autarky in the electricity market and does not want to be a net importer of electricity (not dependent on other countries). This is easier to achieve with regulation than via the market.</li> <li>- Before 2018 no one cared about the ETS (too low price). A CO<sub>2</sub>-price floor was discussed, and a minority vote in the commission preferred CO<sub>2</sub>-price floor. Regarding the waterbed effect, this is no longer one-to-one with the MSR. The Commission proposed cancellation of allowances, but this was not regarded as the most important issue. None of the stakeholders were lobbying much for this.</li> </ul>	Academic
<b>3: Just transition</b>	<ul style="list-style-type: none"> <li>- <i>Just transition has not been an important aspect in the coal phase-out. Coal mines closed a long time ago, and jobs in coal now are the relatively small number of people that work at coal plants. If you search the government's green growth or industrial policy plans you won't find the term just transition, no engagement with those questions. Government is leaving it to the employers to engage with the just transition, at least when it comes to coal phaseout.</i></li> </ul>	Think tank
Not important public policy concern in the past	<ul style="list-style-type: none"> <li>- <i>The sensitive side of the closings are related to the people we employ at the plants, quite a significant number of people. It is the operator's responsibility to help with reskilling or new jobs, but we can't commit to giving everybody a new job. We do as much as we can for our workforce.</i></li> </ul>	Utility
Responsibility at firm level	<ul style="list-style-type: none"> <li>- <i>We did not have specific focus on compensation measures because impacts are expected to be fairly limited. The companies affected have a broader portfolio, so they can deploy staff to work at other areas of business. We didn't see the need for any measures to specifically compensate those affected.</i></li> </ul>	Ministry
No need for public compensation measures	<ul style="list-style-type: none"> <li>- The whole commission was a just transition discussion that can work as an example for other countries. The broad stakeholder representation in the commission laid the ground for taking just transition perspectives into account.</li> </ul>	Ministry
Important public policy concern Build legitimacy through procedural justice	<ul style="list-style-type: none"> <li>- Regions, municipalities and labour unions pushed the issues of compensation into the negotiation. Preventive structural policy is a tradition in Germany ... To achieve acceptance for coal phaseout in society it is necessary to have social protection for the workers. The government must support regions in the structural change.</li> </ul>	Union
Distributional justice	<ul style="list-style-type: none"> <li>- Structural change questions were a politically crucial factor in the Commission's negotiations ... We must build new growth and jobs ... It is very hard for people in mining regions to accept to close down good jobs in mining. There is skepticism towards the political class because of the experiences after 1990. Trust-building is necessary to achieve democracy building. German democracy now has a problem with right-wing populism, and AfD is an umbrella for all kinds of dissatisfaction.</li> </ul>	Ministry
Distributional justice	<ul style="list-style-type: none"> <li>- The main topic of the commission was structural change in East Germany – this was the elephant in the room. Coal phaseout would be the most dramatic event since reunification. The Commission was actually a reconciliation commission on the reunification.</li> </ul>	Academic
Controversial issue	<ul style="list-style-type: none"> <li>- Compensation was a controversial issue because it targeted so few people.</li> </ul>	Think tank

structural-economic issues better and ensure distributional justice (G Int.1,5,2). Reducing risks like intermittency, supply security, and balance was important for energy sector actors and the federal government, not least to provide a stable, cheap supply of electricity for the industry (G Int.2). A think tank respondent summed it up: 'The German DNA is not market-based' (G Int.6). Respondents pointed to the effects of EU policies for the resilience of coal in the German energy system, explaining that EU emissions standards under the LCD and IED were set according to 'best available technology', where German technology was best because plants had recently been upgraded. Germany could sell its technology to other countries in Europe (G Int.7). Although the waterbed effect was more discussed in Germany than in the UK, respondents remarked that the Commission proposed cancellation of ETS allowances to avoid the waterbed effect, but this was not regarded as the most important issue (G Int.7).

### 4.3. Just transition concerns (hypothesis 3)

UK respondents quite agreed that just transition was not an important aspect in the coal phase-out process (see quotes in Table 1). The hard transition for coal mining districts in the 1980-90s was pointed to as an ‘unjust transition’ and the beginning of the end for UK coal industry (UK Int.8). BEIS did not facilitate a focused just transition dialogue or evaluate targeted transition assistance policies because impacts were expected to be limited to coal plant jobs, and the responsibility lies with companies to help with reskilling or redeployment (UK Int.5). Utility respondents underlined their responsibilities in the transition process (UK Int.4). Encompassing notions of just transitions, such as increased dialogue and strategies for broad participation, were not mentioned by respondents, but several respondents indicated that just transition issues are emerging in the UK, pointing to the Just Transition Commission in Scotland and enhanced union attention as examples (Scottish Government, 2021; Unite the Union, 2020).

Several German respondents emphasized that just transition concerns took centre stage in the coal phase-out process (see quotes in Table 1). The Commission negotiated the coal phaseout pathway, but also addressed consequences for the regions (G Int.1). No doubt, the Commission members represented a broad set of stakeholders that discussed procedural and distributional justice concerns expressed in the negotiations. We also note, however, that for three key topics in the negotiations – the end date, the phase-out pathway, and compensation – incumbents’ interests dominated the outcome. Not only did the Commission conclude on an end date suggested by incumbents, it assigned generous compensation not only to workers and regions but also coal plant owners (BMW, 2019). One respondent explained that the question of compensation was a controversial issue for ENGOs because it targeted relatively few people – the ca. 25,000 employed in the coal industry and coal plants. Even more controversial was the compensation for utility owners (G Int.5; Bund, 2020).

Broader concerns related to economic inequality and democracy development in East Germany were linked to the just transition discussion in the Commission and in subsequent legislative debates in the Bundestag (Bundestag, 2020). Targeted economic growth policies and compensation were considered important as means for trust-building, especially since workers in mining regions would have to accept to lose well-paid jobs in coal mining (G Int.4). Many citizens in these regions are skeptical of the federal government because of the scars after reunification when thousands of jobs were lost, and economic hardship struck (G Int.4). For the coal phase-out process to work, therefore, the government saw it as important to build trust. Moreover, the German democracy has an increasing problem with right-wing populism, especially the party Alternative für Deutschland (AfD) as an umbrella for all kinds of dissatisfaction (G Int.4).

## 5. Discussion

Our findings revealed multiple ways that political-economic institutions influenced how the UK and Germany balanced competing concerns in the coal phase-out process. Primary data sources largely corresponded with the assumptions set forth in our analytical framework, and the theoretical discussions underpinning the framework found support. However, findings also revealed complex interactions and interdependencies between the various institutional effects we identified. In this section, therefore, we aim to further identify how cost-effectiveness and just transition concerns were balanced against each other.

To structure the discussion, we revisit our hypotheses. We identified three institutional effects expected to instigate prioritization of speed and cost-effectiveness over just transition concerns in LMEs: relatively low degree of prioritized access for incumbents, strong preference for market-based policy instruments, and less need for broad stakeholder participation to build support for policy change. Our findings point out three interactive effects of political-economic institutions that stand out for explaining the balancing of competing concerns in the UK. First, incumbents in the UK energy system aligned with the government to push coal out of the market. The government aimed for a fast energy system transition and adopted market-oriented policy packages that underpinned a quick coal phase-out (e.g. BEIS, 2018a; DECC, 2011). UK political-economic institutions are designed in a way that discourage time-consuming negotiations to build broad coalitions for policy reforms: the majoritarian democracy system provides government with majority support in Parliament (Lijphart, 2012). Public consultations provide input from stakeholders, together with pluralist lobbying.

Importantly, utilities were already divesting from coal, aiming to diversify their portfolios to include gas and renewables as they increasingly worried about the deteriorating market position of coal (Isoaho & Markard, 2020). Hence, utilities supported the government's emphasis of a market-oriented decarbonization strategy. Market factors had over time transferred political power from the coal industry to the gas and renewable energy industries, making them the new incumbents of the energy system (Isoaho & Markard, 2020). When the final coal phase-out decision was made in 2015, therefore, economically and politically powerful stakeholders in the gas and renewables industries benefitted economically from coal phase-out.

Second, the coal industry had been in decline for three decades when the coal phase-out decision was made (Figure 1). The number of coal mining jobs had been drastically reduced, and market liberalization policies had weakened the political role of unions. In effect, therefore, voices that worried about regional and employment effects of the coal phase-out had weak representation in the policymaking process. The government did not focus on procedural justice issues, and the facilitation of a just transition dialogue was not an issue (BEIS, 2018a). Importantly, however, most UK policy decisions relevant for coal phase-out were taken when the just transition issue was still a relatively marginal discourse globally. The global just transition discourse only picked up salience after 2015, with the SDGs and the Paris Agreement. In comparison, the German negotiations over a coal phase-out decision came a few years later when just transition concerns had gained traction in the global decarbonization debate.

Third, in the pluralist lobbying system of the UK, ENGOs applied effective strategies such as lawsuits, protests and demonstrations, and information campaigns to lobby for a fast coal phase-out (Greenpeace, 2017). Aligning with climate science, ENGOs advocated for fast decarbonization and targeted coal as the first priority. A transition from gas is their next priority (e.g. MacDonald & Lytton, 2021), as outlined by the CCC in the Sixth Carbon Budget (CCC, 2020). The prospect of phasing out gas has brought more attention to just transition concerns, as visible in strategic documents and reports from labour unions, think tanks and the Scottish government (e.g. Scottish Government, 2021). Since many more jobs are at stake, just transition concerns are likely to become more dominant, possibly complicating a similarly fast process as we have seen with coal.

For CMEs, we hypothesized three institutional effects expected to instigate prioritization of just transition concerns over speed and cost-effectiveness: prioritized access for incumbents, strong preference for direct regulation, and high emphasis on broad stakeholder participation to build support for policy change. First, our case study of Germany certainly shows that high attention was given to just transition concerns in the coal phase-out process, especially when they aligned with incumbents' interests. From the federal, state and municipal governments' side, emphasis was placed on wider East–West economic inequality problems and democratic challenges potentially ensuing from coal phase-out, not least how economic support could modify the growth of right-wing populism in Eastern coal-producing regions and help rectify some of the adverse economic effects experienced in the same regions after reunification in 1990s (Oei et al., 2019). In line with our expectations about prioritized attention to incumbent interests, the just transition dialogue in the Commission was dominated by state and local level governments, the energy industry, and the labour unions.

The government's appointment of a broadly composed Commission can also be classified as institutional path dependency, following in the tracks of the Nuclear Commission that negotiated a pathway for nuclear phase-out in 2013. Compromise, negotiations, and stakeholder representation in policymaking processes are very important for the legitimacy and durability of comprehensive policy reforms in Germany (Gürtler et al., 2021).

Second, political institutions reinforced the high attention to just transition concerns in Germany. The federal political system delegates implementation of energy and regional economic policy to the federal states, providing leverage to the states in discussion with the federal government. Moreover, the government depends on support from a coalition of political parties in the Bundestag to secure a majority for comprehensive policy reforms, giving more voices important positions in debates. Such institutional effects helped to elevate just transition topics both in the Coal Commission and in the Bundestag discussions (BMW, 2019; Bundestag, 2020). With many policymakers at multiple decision-making levels involved, together with powerful stakeholders and interest groups, the German political system encourages compromise solutions that are carefully negotiated and time-consuming but also durable and with high legitimacy (Gürtler et al., 2021).

Third, peak associations from industry and labour were not the only stakeholders that were well represented in the Commission. State and municipal stakeholders held important roles in the negotiations and pushed

forward the issues of distributional and procedural justice (Gürtler et al., 2021). What we see is therefore a more encompassing form of interest group representation than in the ideal-type CME. Moreover, ENGOs questioned both 2038 as a too lax end date, and the targeted compensation to coal plant owners as too expensive. ENGOs continued pushing these issues even after the Coal Phase-Out law was adopted in 2020, and Germany's new coalition government taking power from December 2021 promised to push forward the coal exit date to 2030. However, moving the end date in practice means re-opening the negotiated solution, initiating new rounds of negotiations to find a compromise that all stakeholders – including incumbents – can accept.

## 6. Conclusion and outlook

Our analysis emphasized how political-economic institutional effects enabled a fast coal phase-out process in the UK, and a slower process in Germany. While previous studies (e.g. Isoaho & Markard, 2020; Leipprand & Flachslund, 2018; Rentier et al., 2019) explained such variation by pointing to the powerplay between economically and politically strong incumbents and weaker regime challengers, this paper adds perspectives on how political-economic institutional design and capacity shape the extent to which just transition concerns are given weight in coal phase-out processes. We show how the emerging attention to just transition concerns (e.g. Harrahill & Douglas, 2019; McCauley & Heffron, 2018; Weber & Cabras, 2017) brings in a new set of evaluations for governments grappling with decarbonization policies. For Germany, we found that the government's attention to just transition concerns was strengthened because it helped produce legitimate and politically feasible outcomes which also overlapped with the interests of incumbents: Even when compensation measures to utilities conflicted with distributional justice demands from ENGOs, incumbents' positions dominated the final policy outcome (Bund, 2020). For the UK, we found that attention to just transition concerns in the coal phase-out was low, mainly because coal had lost its market position (Lockwood, 2018), incumbents had diversified their investments into more gas and renewables (Isoaho & Markard, 2020), and few voices were left to speak on behalf of coal interests in a decision-making process characterized by pluralism. However, we also found that just transition concerns are emerging in the UK (Scottish Government, 2021), not least because energy sector stakeholders and ENGOs foresee a much more difficult transition away from gas.

Our analysis provides useful insights for policymakers involved in similar decarbonization processes, struggling with balancing competing concerns. With just transition concerns emerging since the Paris Agreement was adopted, literature has focused on identifying good transition assistance policies and inclusive processes (Green & Gambhir, 2020; Harrahill & Douglas, 2019). This paper adds perspectives on how political-institutional design and capacity shape the extent to which just transition concerns are given weight in coal phase-out processes: The UK prioritized speed and costs, but that might change when the more challenging gas phase-out is placed on the agenda. Germany prioritized just transition, but only to the extent that it aligned with incumbent interests and could help produce a legitimate and broadly supported policy outcome. We therefore see differences in political-economic institutions as strong explanatory factors for understanding countries' balancing of cost and justice concerns in the energy transition.

Future research on energy transitions could draw on our analytical approach, be it to study the challenging upcoming transition away from oil and gas in Norway and the UK, or the ongoing phase-out of coal in countries with a strong carbon lock-in but different institutional contexts than the ones we studied, for instance Poland and the Czech Republic.

## Note

1. Granting anonymity was considered more important than the benefits for readers of knowing the source of each statement.

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