German coal phase out agreement

– and how that relates to their energy transition plans and policies

Parallel Session 4-1: Challenges and opportunities from fossil energy to renewable energy;

LCS-RNet 11th Annual Meeting; Rome, 17./18.10.2019

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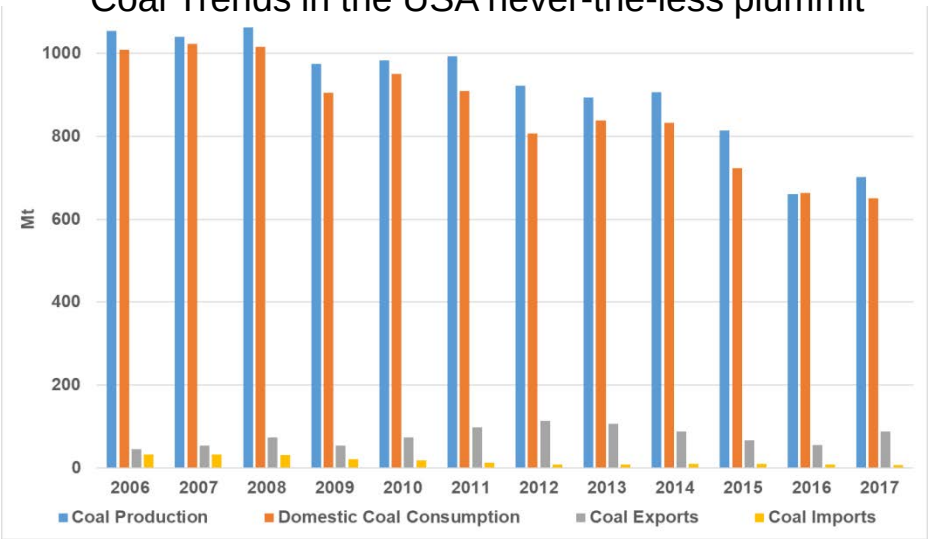
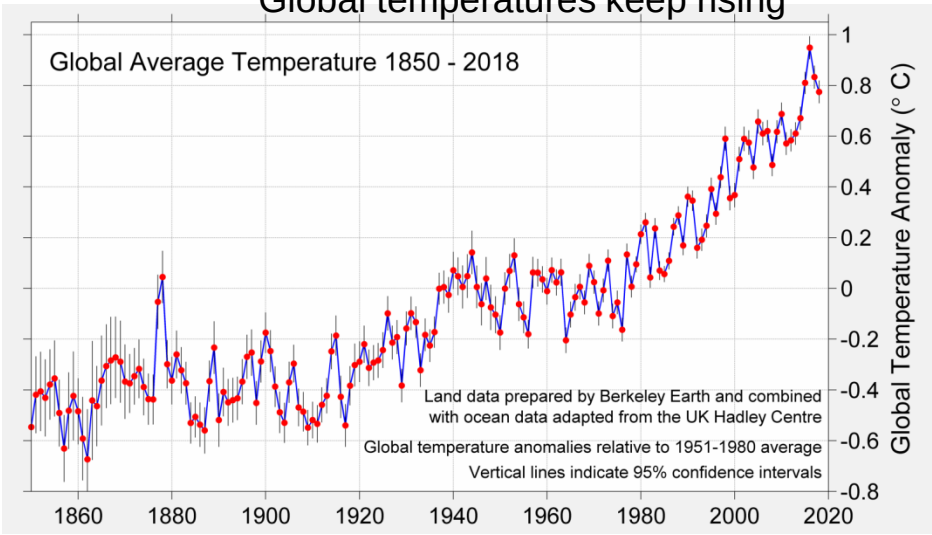
Public reactions to climate change vary

Coal Trends in the USA never-the-less plummit



Global temperatures keep rising



Source: The Guardian (2018), Berkeley (2019), Mendelevitch et al. (2019)

Coal Phase-out within most OECD countries is clearly visible

The share of coal is shrinking in OECD Americas and Europe. An uncoupling of coal consumption and GDP growth can be observed.

Coal consumption within OECD Asia Oceania and non-OECD is increasing

Figure 8: OECD coal[1] consumption and indicators (Index: 2010=100)

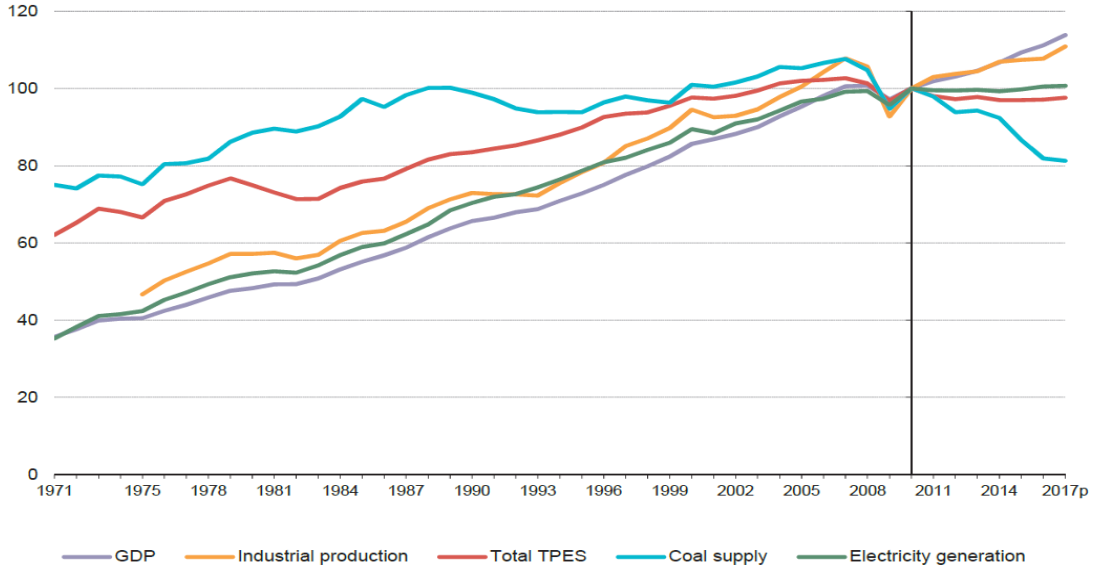
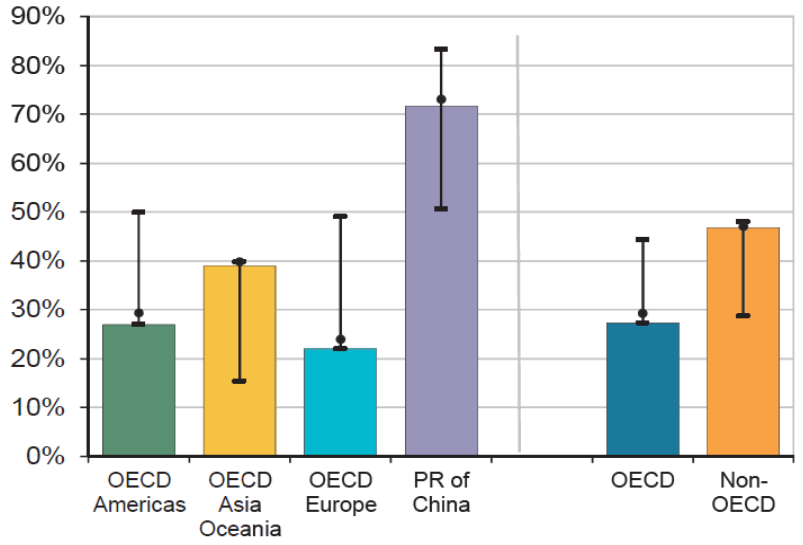


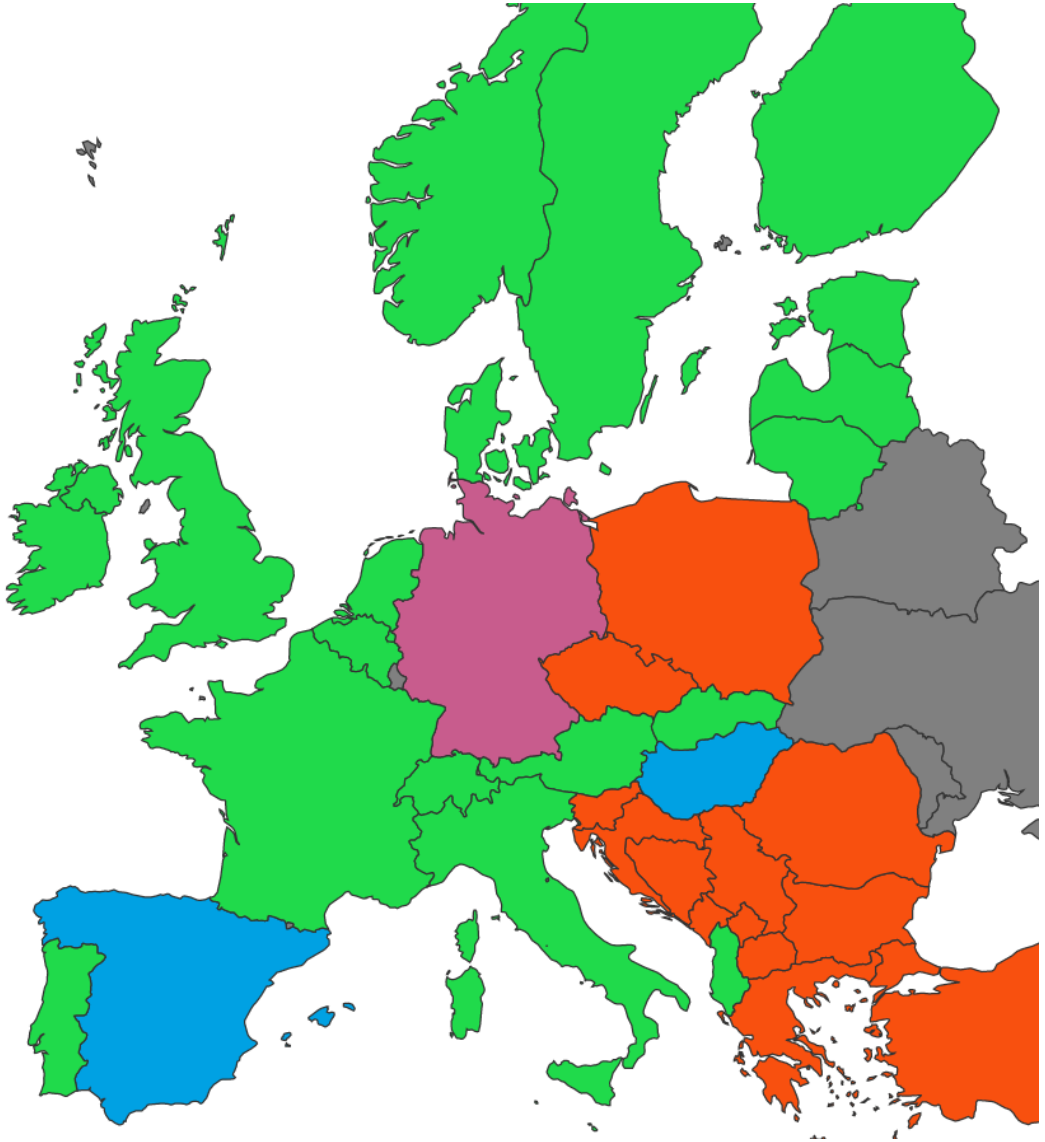
Figure 16: Share of electricity and heat produced from primary coal in 2016 (%)

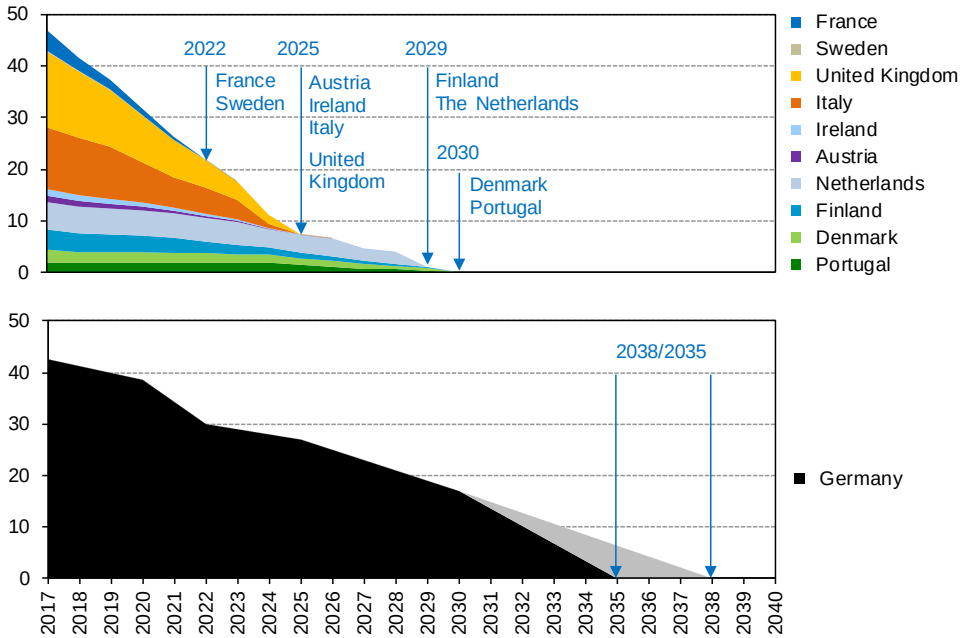


Each vertical line illustrates the historical highest-lowest value (top-bottom). The round point corresponds to 2015 level.

Source: IEA (2018).

Many European countries have decided (green) or consider a coal phase-out by 2030 (blue) or by 2035/38 (violet)

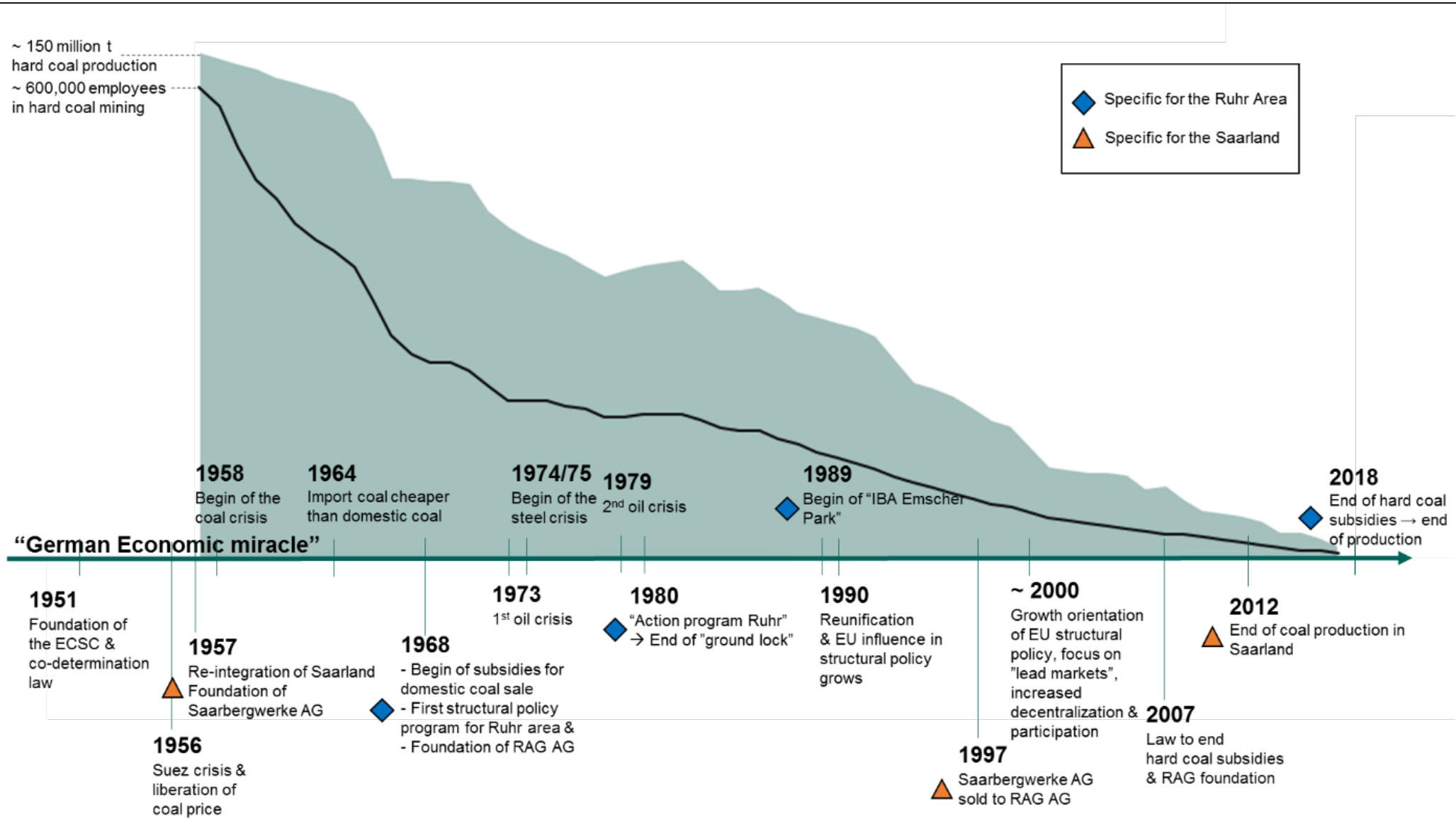




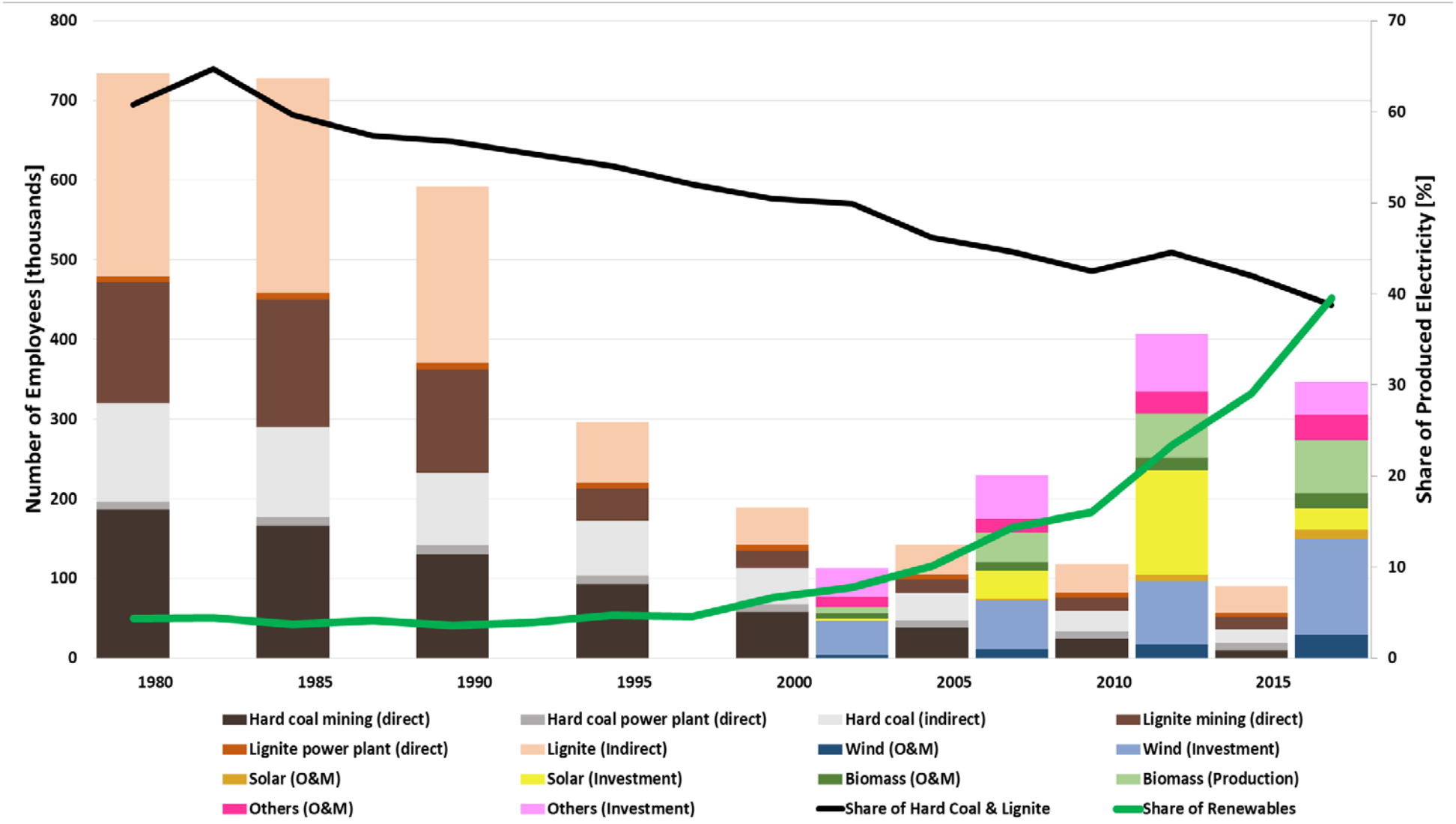
Source: Matthes (2019).

Source: Europe beyond Coal (2019)

Germany: Long history starting with the European Coal and Steel Community in 1951 and coming to an end in 2018



Only Increasing Renewables is not sufficient - Development of coal and RES employment and electricity share in Germany



Source: Own calculations and illustration based on DIW et al (2018)..

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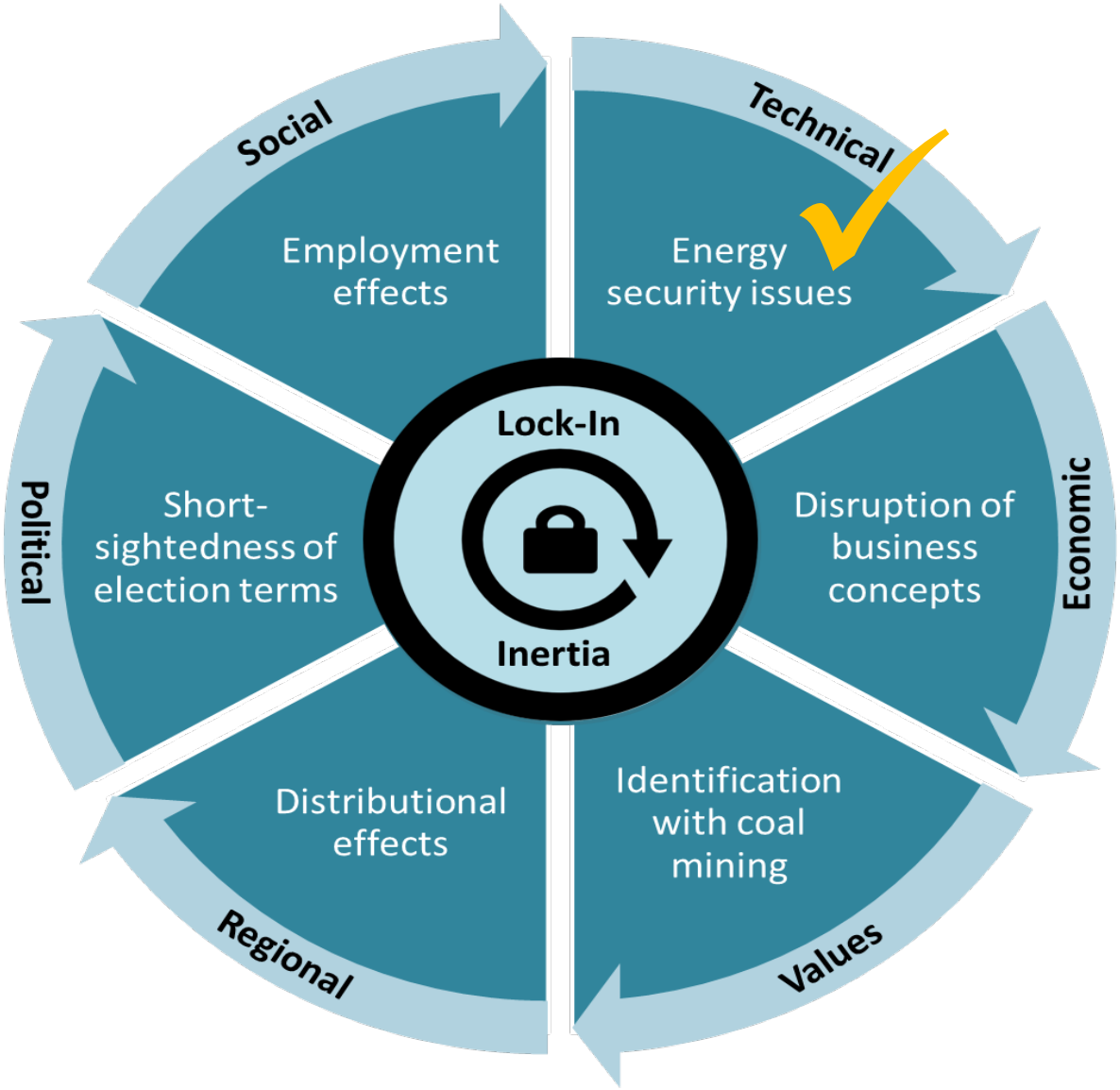
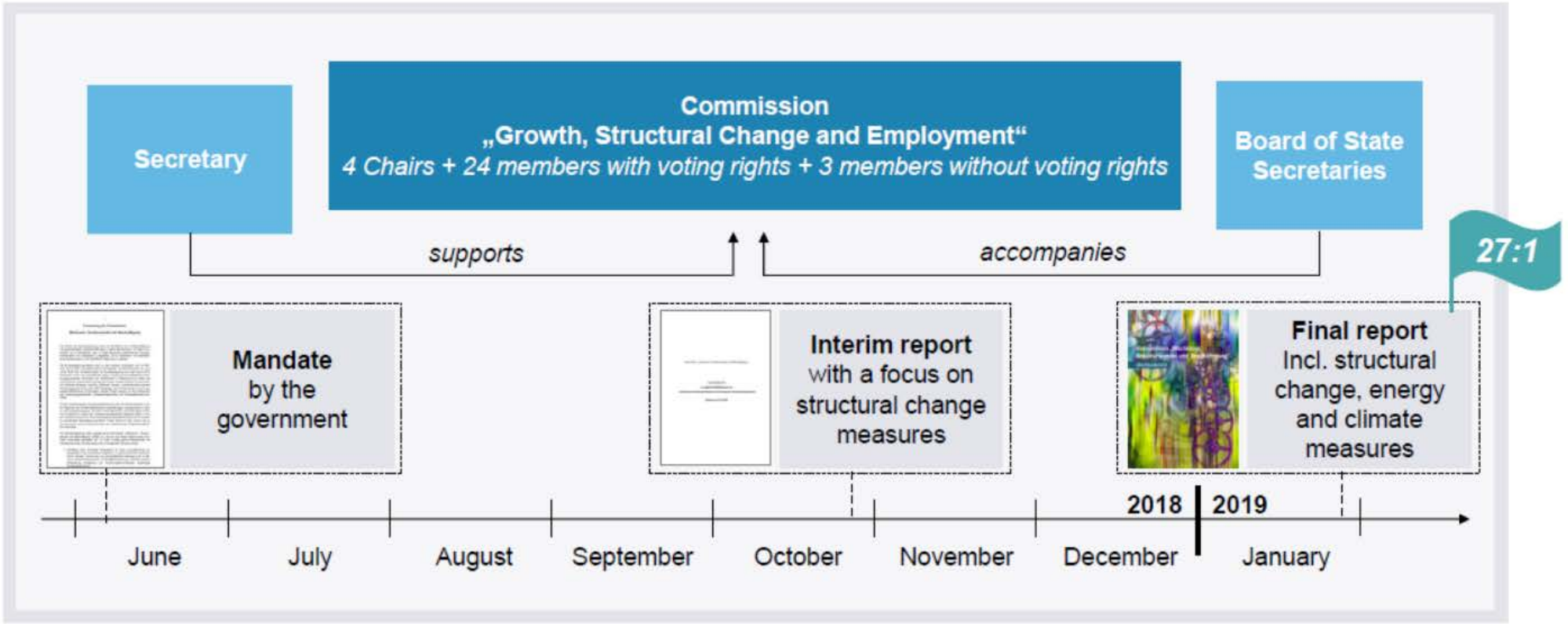
The carbon lock-in of coal regions and actors originates from various sources



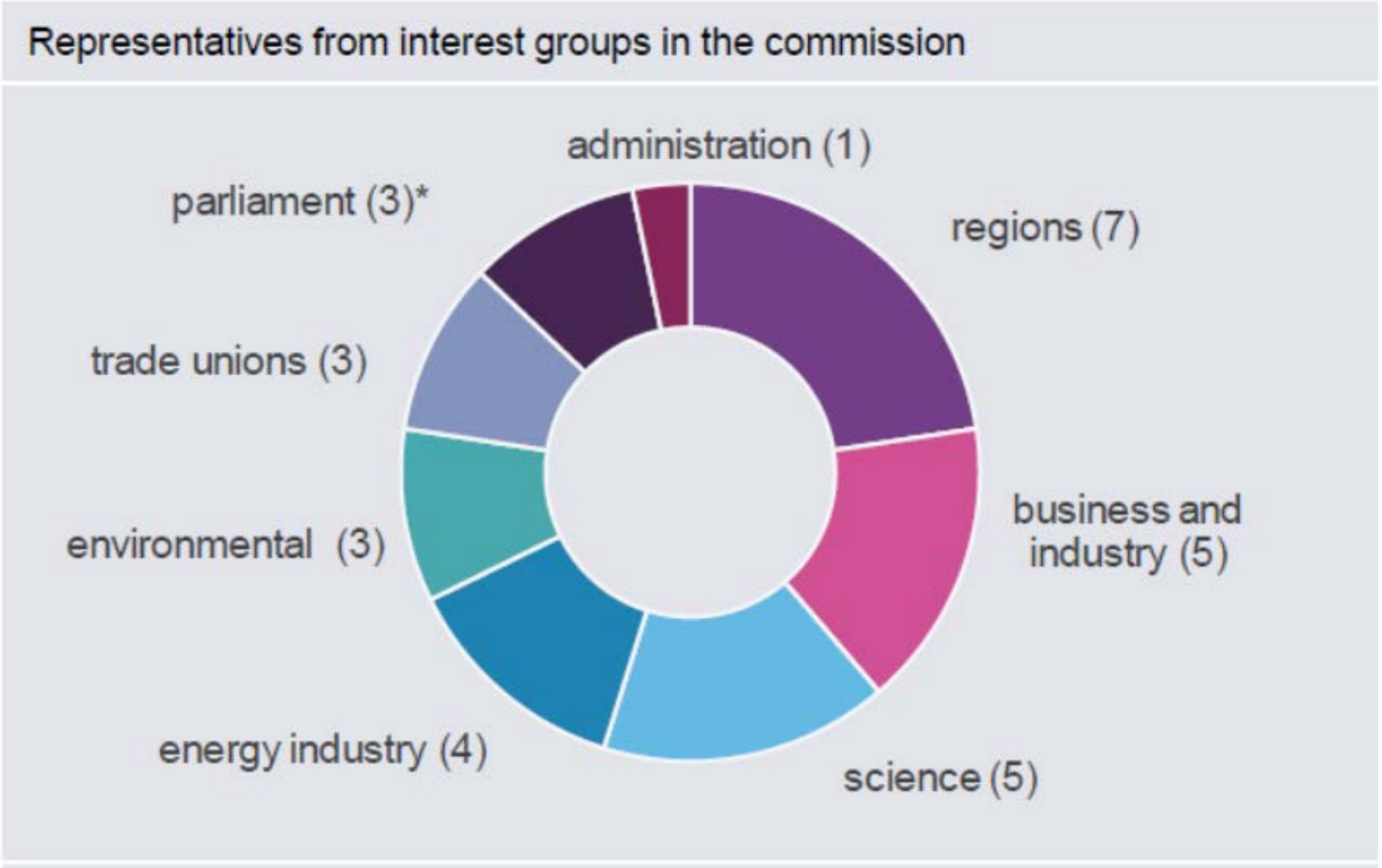
Source: Oei et al. (2019).

So who is in charge of managing a coal phase-out? ‘Commission on Growth, Structural Change and Employment’



Source: Agora Energiewende (2019).

Composition of the commission



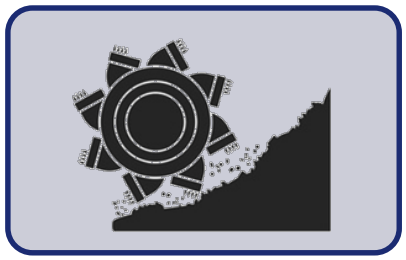
Source: Agora Energiewende (2019).

The ‘coal commission‘s’ decision

- 12.5 GW of coal capacity will go offline by 2022, only 17GW remain by 2030 (of currently ~42 GW)
- Phase-out date 2038 with option of early phase-out by 2035
- A total of €40 billion in transition measures in German coal regions for next 20 years
- Costs and conditions for compensating utilities subject to negotiations with the government
- Confirming target of 65% renewable electricity production by 2030

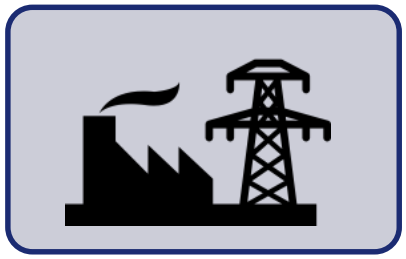
Finding 1:
The upcoming coal phase out affects countries differently

Need to differentiate between countries:



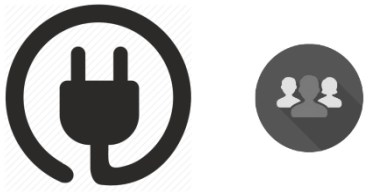
that only mine coal (e.g. Colombia)

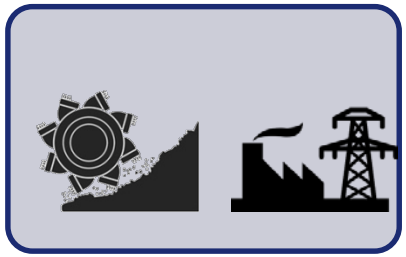
- employment
- income from exports



those burning coal (e.g. UK and many countries in Europe)

- energy security
- (employment)





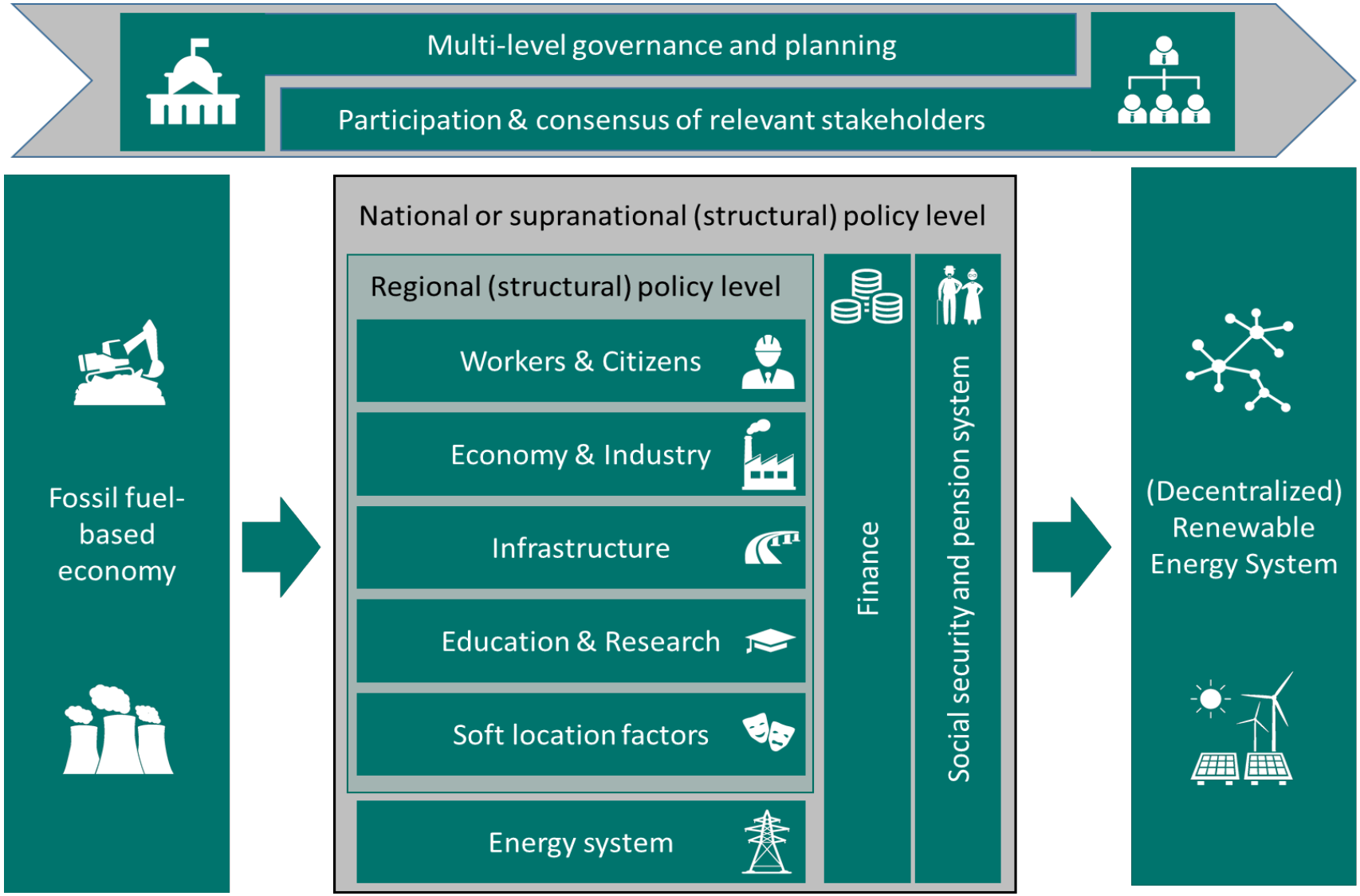
those doing both (e.g. US, China, India, South-Africa, Germany)

- energy security
- employment
- (income from exports)

Finding 2:
Political instruments need regional adjustments

e.g. Colombia	e.g. Europe or US	e.g. China or India
Financial payments as compensation for a moratorium on new mines and export losses	Moratorium on new mines	Moratorium on new mines; maybe linked with compensations
----------	**Existing coal power plant fleets need to be closed**	**Moratorium for new plants to prevent (stranded) assets**
Support for RES to meet rising energy demand, enable energy access & create jobs	Support for RES to replace fossil capacities & create jobs	Support for RES to meet rising energy demand, enable energy access & create jobs
Active & passive labour market instruments to enable a just transition	Active & passive labour market instruments to enable a just transition	**Active labour market instruments to create new jobs**

Finding 3:
The energy system is just one element of a ‘just transition’



Kick-of of Discussions: Main Findings

We need to enable a timely CoalExit to meet climate targets

Different challenges prevail for countries and regions

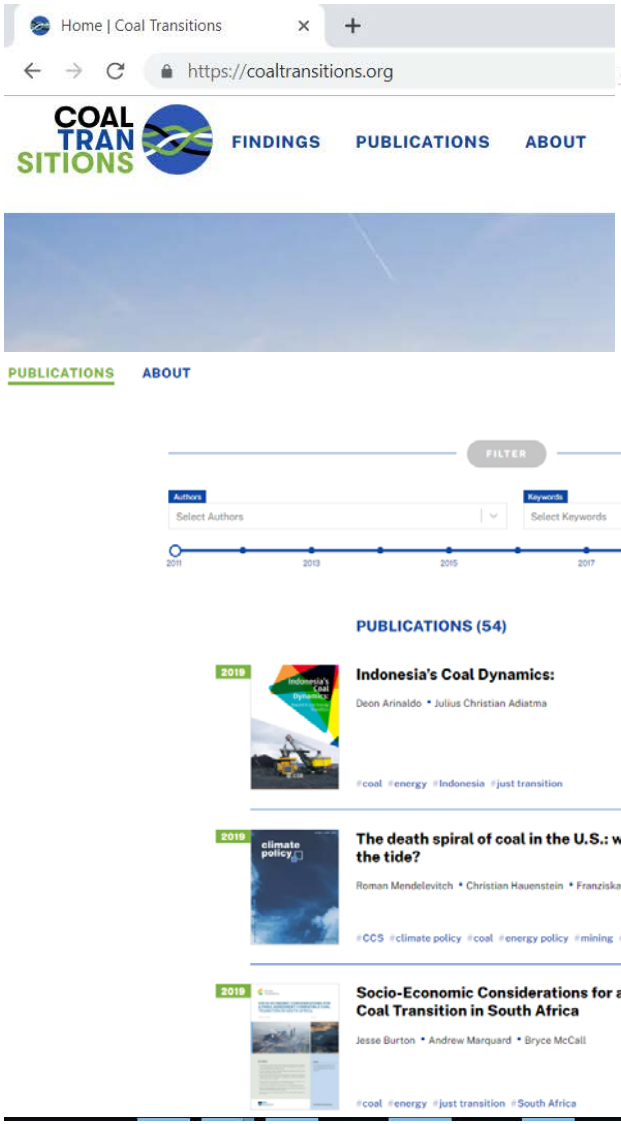
Technical solutions are comparably easy & well researched

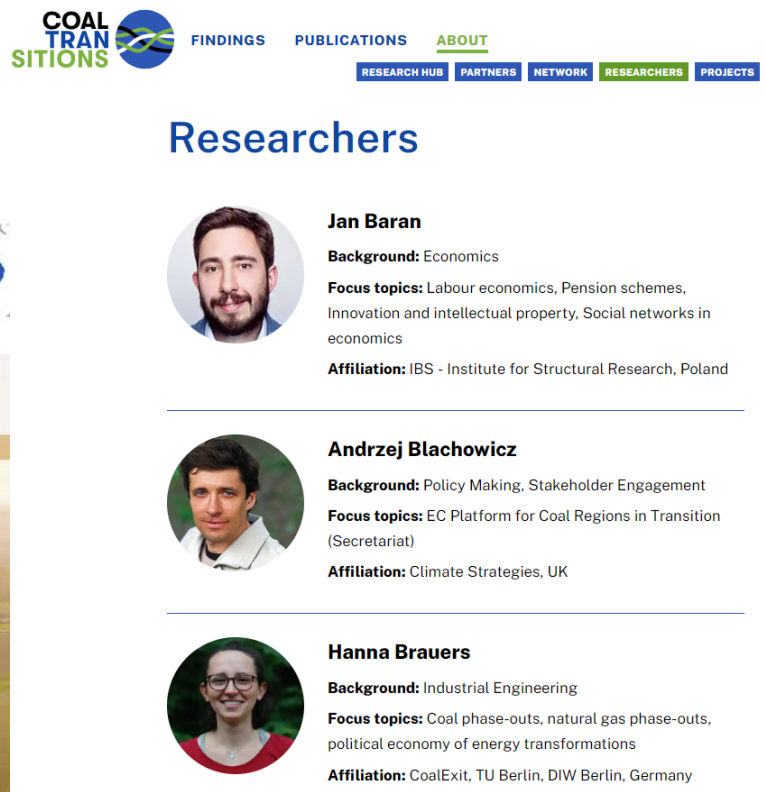
Crucial to prevent coal investments from emerging countries

Only possible if developed coal countries set a positive example

International research platform coaltransitions.org - independent from funding institution or project duration.

We encourage academic scholars, research projects, or institutions to contact us if they want to be included on the website.





Selected References

Brauers, H. *et al. Coal transition in Germany - Learning from past transitions to build phase-out pathways*. (IDDRI and Climate Strategies, 2018). https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Rapport/20180609_ReportCOAL_Germany.pdf

Herpich, P., Brauers, H. & Oei, P.-Y. *An historical case study on previous coal transitions in Germany*. (IDDRI and Climate Strategies, 2018). https://coaltransitions.files.wordpress.com/2018/07/2018-historical-coal-transitions-in-germany-report1.pdf

SRU. *Start coal phaseout now*. (2017). https://www.umweltrat.de/SharedDocs/Downloads/EN/04_Statements/2016_2020/2017_10_statement_coal_phaseout.pdf?__blob=publicationFile&v=4

European Commission, Joint Research Council (2018) EU coal regions: opportunities and challenges ahead. https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/eu-coal-regions-opportunities-and-challenges-ahead

Göke, L., Kittel, M., Kemfert, C., Oei, P.-Y. & von Hirschhausen, C. *Scenarios for the Coal Phase-out in Germany – A Model-Based Analysis and Implications for Supply Security*. (DIW Berlin, German Institute for Economic Research, 2018).

DIW Berlin, Wuppertal Institut & Ecologic Institut. *Die Beendigung der energetischen Nutzung von Kohle in Deutschland: Ein Überblick über Zusammenhänge, Herausforderungen und Lösungsoptionen*. (2018).