Thematic session on Historical and future decline rates in the context of policy pledges

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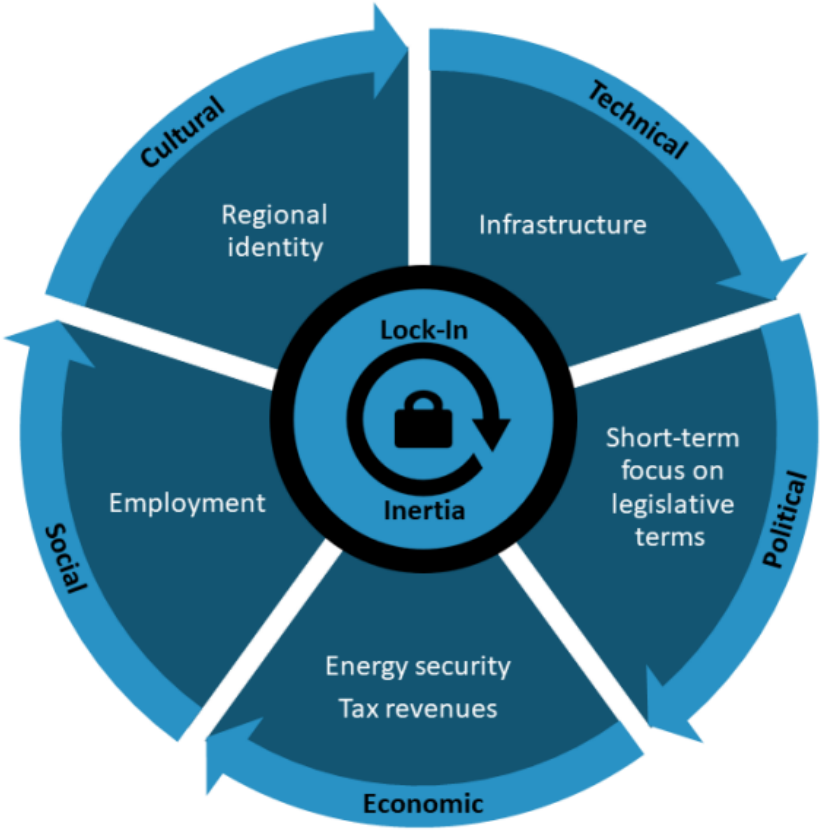
Main takes from presentations

- Coal phase-out needs to be increased
- Historic declines show an inertia within the system
  making rapid coal phase-out more difficult
- Do models replicate this existing inertia ?
- Many mathematical model runs still have remaining fossil shares not in line with climate target. This is, however, not because of built in inertia but because of their own model inertia (making it difficult to model the needed transition to 100% renewable enery; e.g. integrated assessment models have been critized to be to pessimistic, also due to underestimating renewables)
- Other scenarios/models show fast reductions meeting climate target. Such steep fossil reductions are, however, much steeper compared to historic precedents.
- How to adjust models to replicate the real carbon inertia?

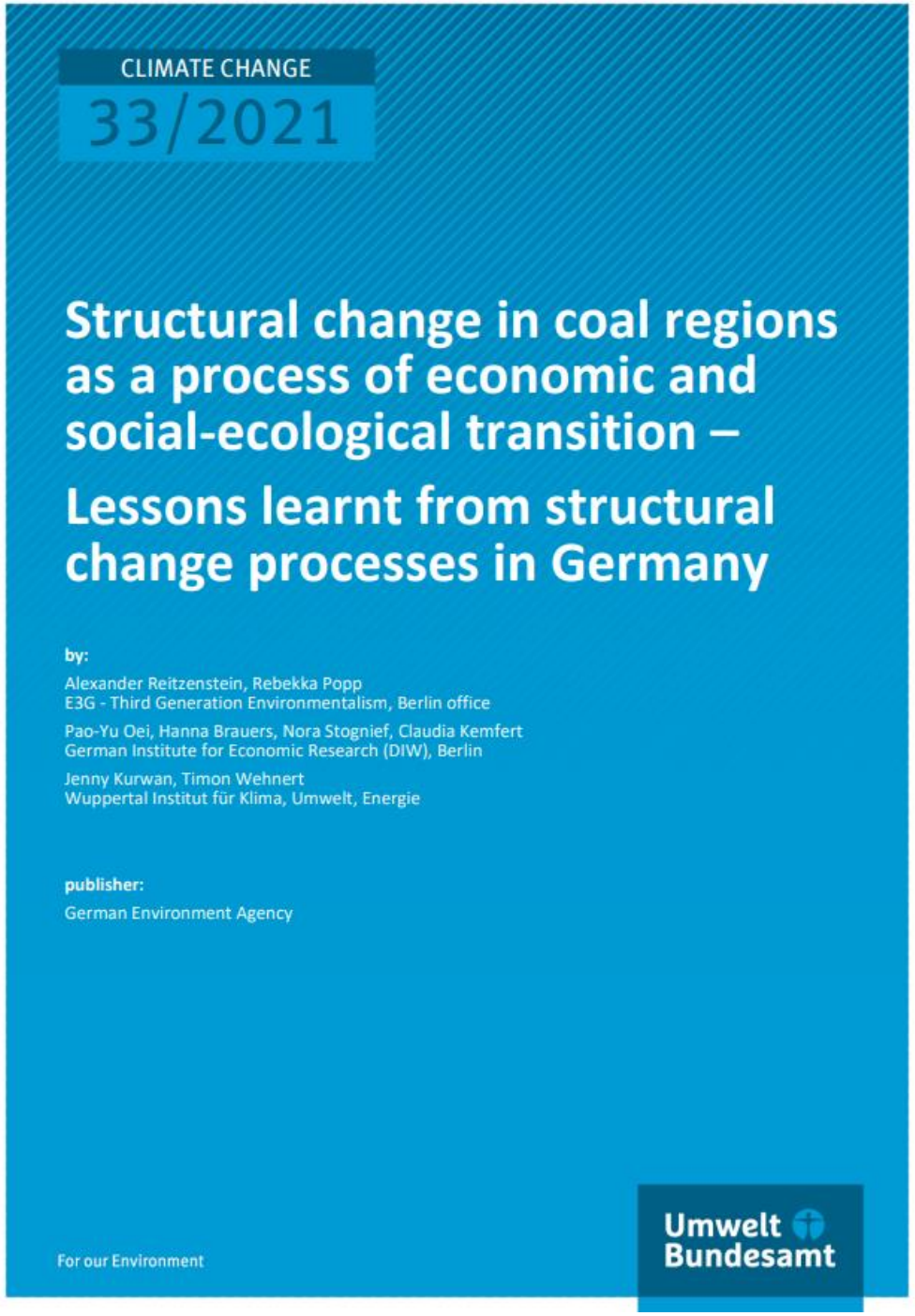
Carbon lock-in

Figure 1: The “carbon lock-in” of coal regions and actors originates from various challenges



Source: DIW, own depiction

https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2022-01-04_cc_33-2021_lessons_learnt_from_structural_change_processes.pdf



What drives and hinders coal transitions? (and was mentioned within academic literature)

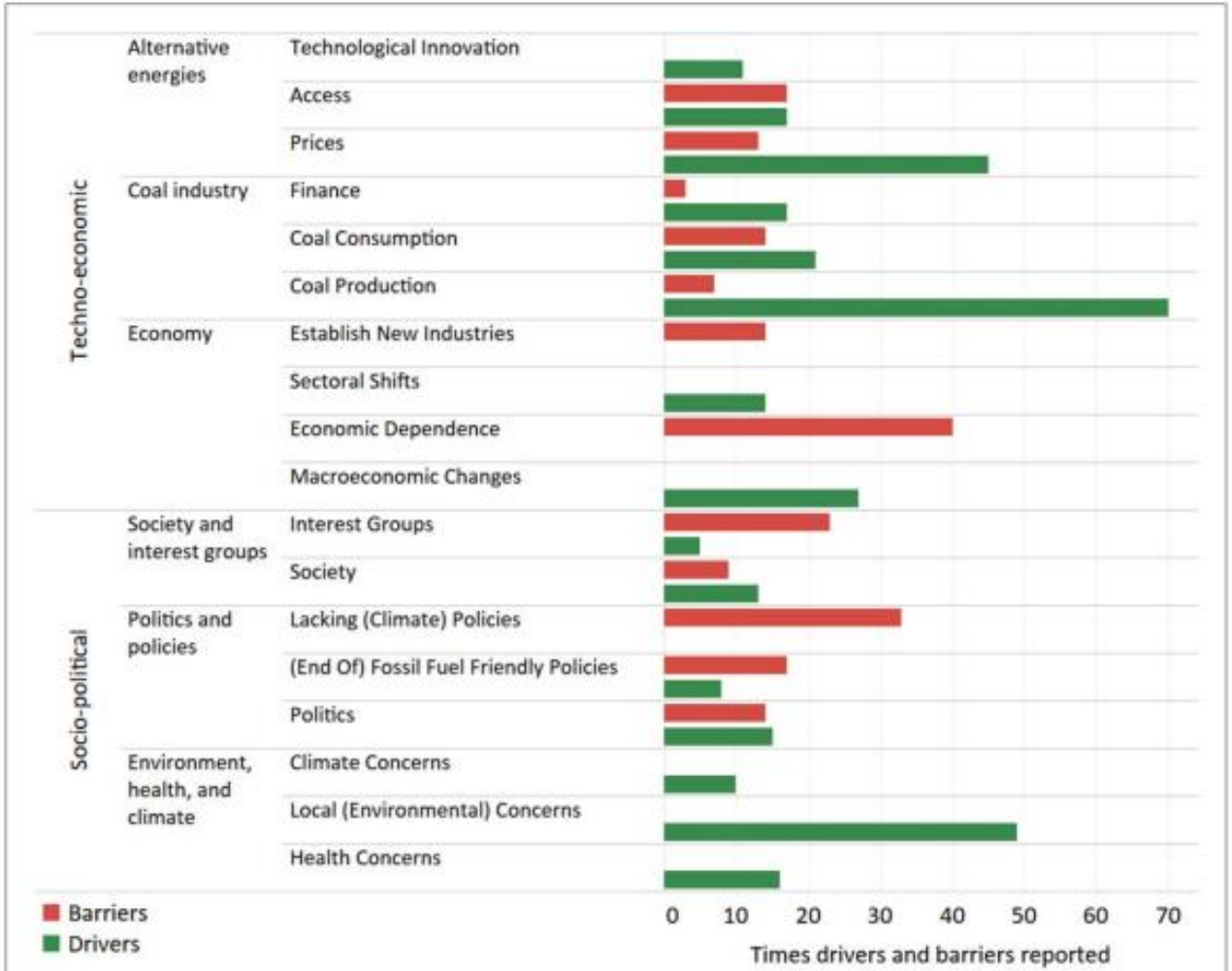


Figure 16. Drivers and barriers of historical coal transitions reported by the studies. Number of occurrences in the dataset.

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Coal transitions—part 1: a systematic map and review of case study learnings from regional, national, and local coal phase-out experiences

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Minor remarks

Underestimating future reduced demands

- Historic events have mostly happend within times of overall growing energy demand
- Positive outlier UK is also due to reduction of energy demand over that time which enabled faster reduction of coal
- An increase of efficiency and sufficieny measures would reduce energy demand and speed up possible coal phase-out.

Influence of Carbon Capture and Storage (CCS)

- I do not believe coal + CCS to be technically or economically neccessary to meet climate targets. It, however, does reduce many lock-in effects and would ease a faster conventional coal phase-out.

→ Your assumptions on maximum reduction rates based on historic evolvments might therefore be to pessimistic if additional instruments support the phase-out or better be interprated as likely not maximum boundary

How to encourage countries to overcome this inertia to speed-up the coal phase-out

- The paper on the Powering Past Coal Alliance (PPCA) is explaining why countries did (not) join the Alliance.
- However, I doubt the influence of it as an instrument to speed up the coal phase-out – esp. for big coal producers/consumers
- What is therefore your insights on how to encourage a faster coal phase-out (as most criteria to join PPCA, e.g. wealth, political stability etc, are nice but not that easy to achieve) ?
- What will be the impact of the COP26 agreement on coal phase-out?

What is the uptake of COP26

COP26 President, Alok Sharma said:

From the start of the UK's Presidency, we have been clear that COP26 must be the COP that consigns coal to history. With these ambitious commitments we are seeing today, the end of coal power is now within sight.

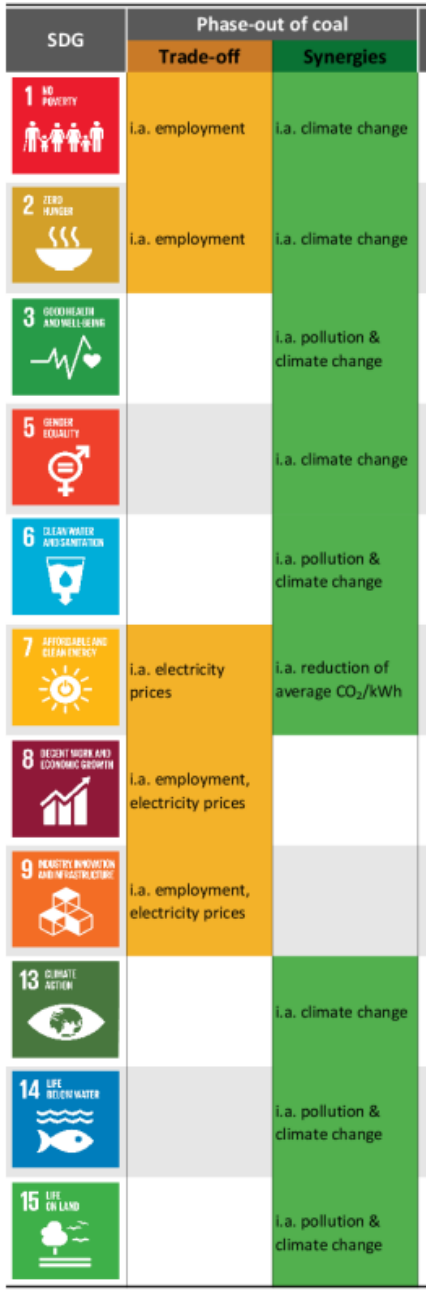
Securing a 190-strong coalition to phase out coal power and end support for new coal power plants and the Just Transition Declaration signed today, show a real international commitment to not leave any nation behind.

Together we can accelerate access to electricity for more than three quarters of a billion people who currently lack access, consigning energy poverty to history as we create the clean power future needed to keep 1.5 alive.

How to encourage phase-out

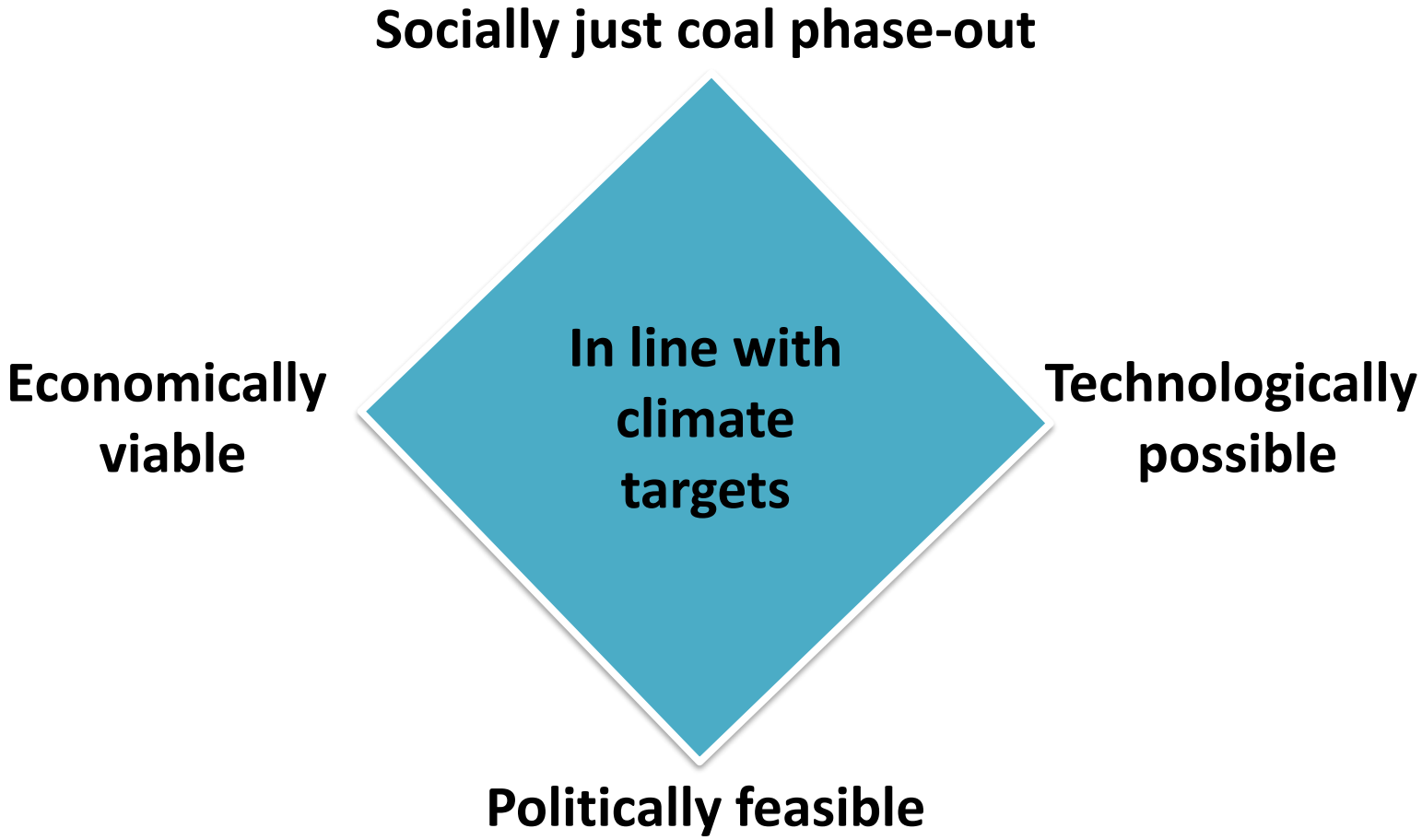
- We always like to talk about employment. But isn´t political power / monetary flows actually the much bigger driver? Other fossil fuels actually have much less involved employment, still they might be even more difficult to replace (not only technically but also politically)
- Looking at COP26, South-Africa was persuaded to agree on coal phase-out plans in exchange for promised (financial) support. Do we need and can we afford such measures for all coal countries, esp. China and India? What about oil & gas countries?

Figure 4: Selection of synergies and trade-offs of phasing-out coal and phasing-in renewable energies in relation to the SDGs



Source: DIW, own depiction

How to solve this riddle ?



Thank you very much for your attention

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