

Prospects of powering past coal

Jessica Jewell (Chalmers, University of Bergen, IIASA)

with contributions from

Vadim Vinichenko (Bergen University)

Aleh Cherp (CEU, IIIIEE) & Lola Nacke (IIIIEE)

3 September 2019

Funded by the Norwegian Research Council, Contractions Project

How quickly can coal be phased out?

Powering Past Coal Alliance (PPCA)

COP23, Bonn, Nov 2017

Canada and the UK launch a global alliance to phase out coal electricity



Canada and the UK launch a global alliance to phase out coal electricity

commit to “phasing out existing unabated coal power generation and a moratorium on new coal power generation without operational carbon capture and storage”

Powering Past Coal Alliance (PPCA)

International edition ▾

The Guardian

Environment ▶ Climate change Wildlife Energy Pollution

Coal

'Political watershed' as 19 countries pledge to phase out coal

New alliance launched at Bonn climate talks hopes to signal the end of the dirtiest fossil fuel that kills 800,000 people a year with air pollution

Damian Carrington *in Bonn*

@dpcarrington
Thu 16 Nov 2017 14:53 GMT

f t e ...

This article is 3 months old

8,706 892



▲ A child holds a sign reading 'stop coal' during a demonstration at the UN climate talks in Bonn, Germany. Photograph: Philipp Guelland/EPA

A new alliance of 19 nations committed to quickly phasing out coal has been launched at the **UN climate summit in Bonn, Germany**. It was greeted as a "political watershed", signalling the end of the dirtiest fossil fuel that currently provides 40% of global electricity.

New pledges were made on Thursday by Mexico, New Zealand, Denmark and Angola for the **Powering Past Coal Alliance, which is led by the UK and Canada**

Climatic Change (2018) 150:103–116
<https://doi.org/10.1007/s10584-017-2134-6>



Anti-fossil fuel norms

Fergus Green¹ 

Received: 18 April 2017 / Accepted: 23 December 2017 / Published online: 1 February 2018
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Powering Past Coal Alliance (PPCA)

30 nations

22 sub-national

Austria	Angola	Alberta (Canada)	Australian Capital Territory
Belgium	Costa Rica	City of Rotterdam (Netherlands)	City of Melbourne (Australia)
Canada	El Salvador	Balearic Islands (Spain)	City of Sydney (Australia)
Denmark	Ethiopia	South Chungcheong (S.Korea)	British Columbia (Canada)
Finland	Fiji	Scotland (UK)	City of Vancouver (Canada)
France	Latvia	Wales (UK)	Ontario (Canada)
Ireland	Liechtenstein	Washington (US)	Quebec (Canada)
Israel	Lithuania	Oregon (US)	City of Los Angeles (US)
Italy	Luxembourg	California (US)	City of Honolulu (US)
Mexico	Marshall Islands	New York (US)	
Netherlands	Niue	Connecticut (US)	
New Zealand	Senegal	Hawaii (US)	
Portugal	Switzerland	Minnesota (US)	
Sweden	Tuvalu		
United Kingdom	Vanuatu		

No coal power plants

No coal power plants

50 GW

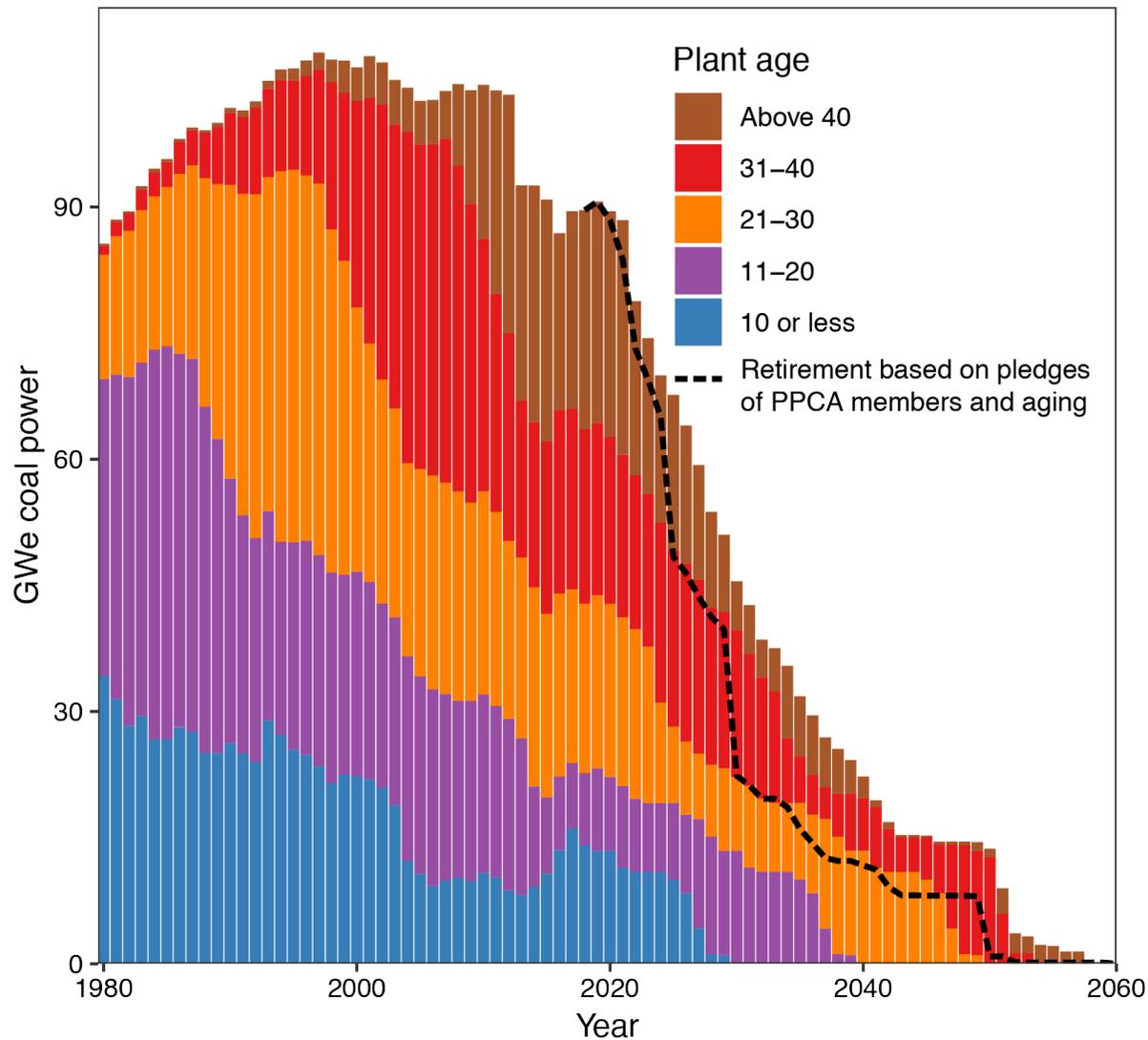
256 power plants

4.4% of global coal capacity

Would coal power plants be retired anyway? The case of United Kingdom

- Average age of power plants: **47 years** (min 28).
- Average recent retirement age: **44 years** (min 34)
- Phase-out planned for **2025**.

Baseline vs premature retirement



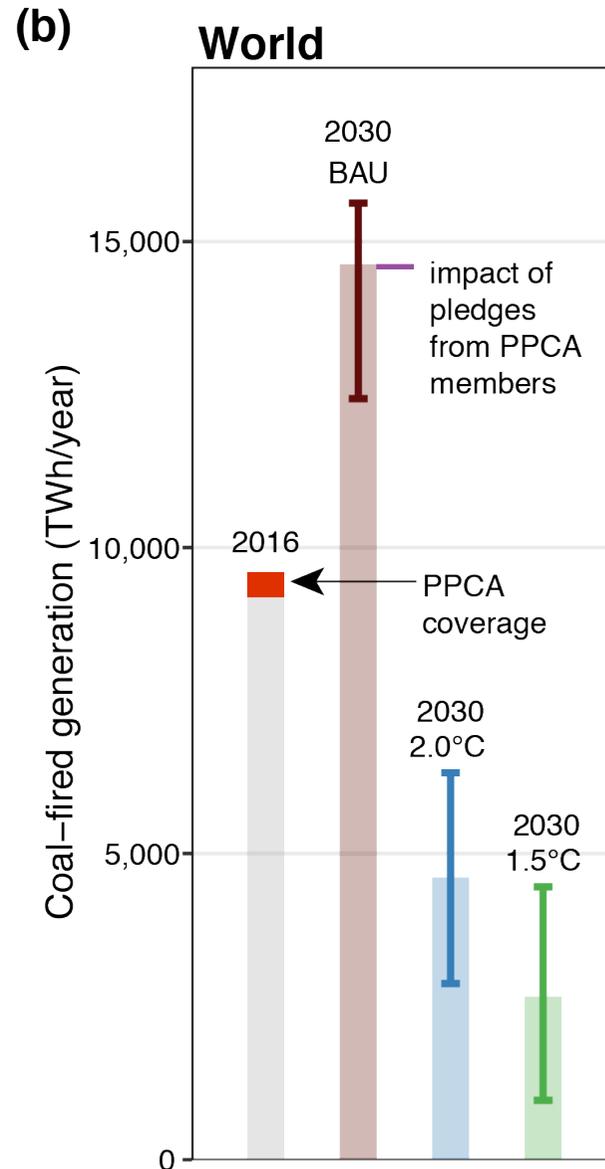
Saves 1.6 GtCO₂
by 2050

1.6 GtCO₂ by 2050

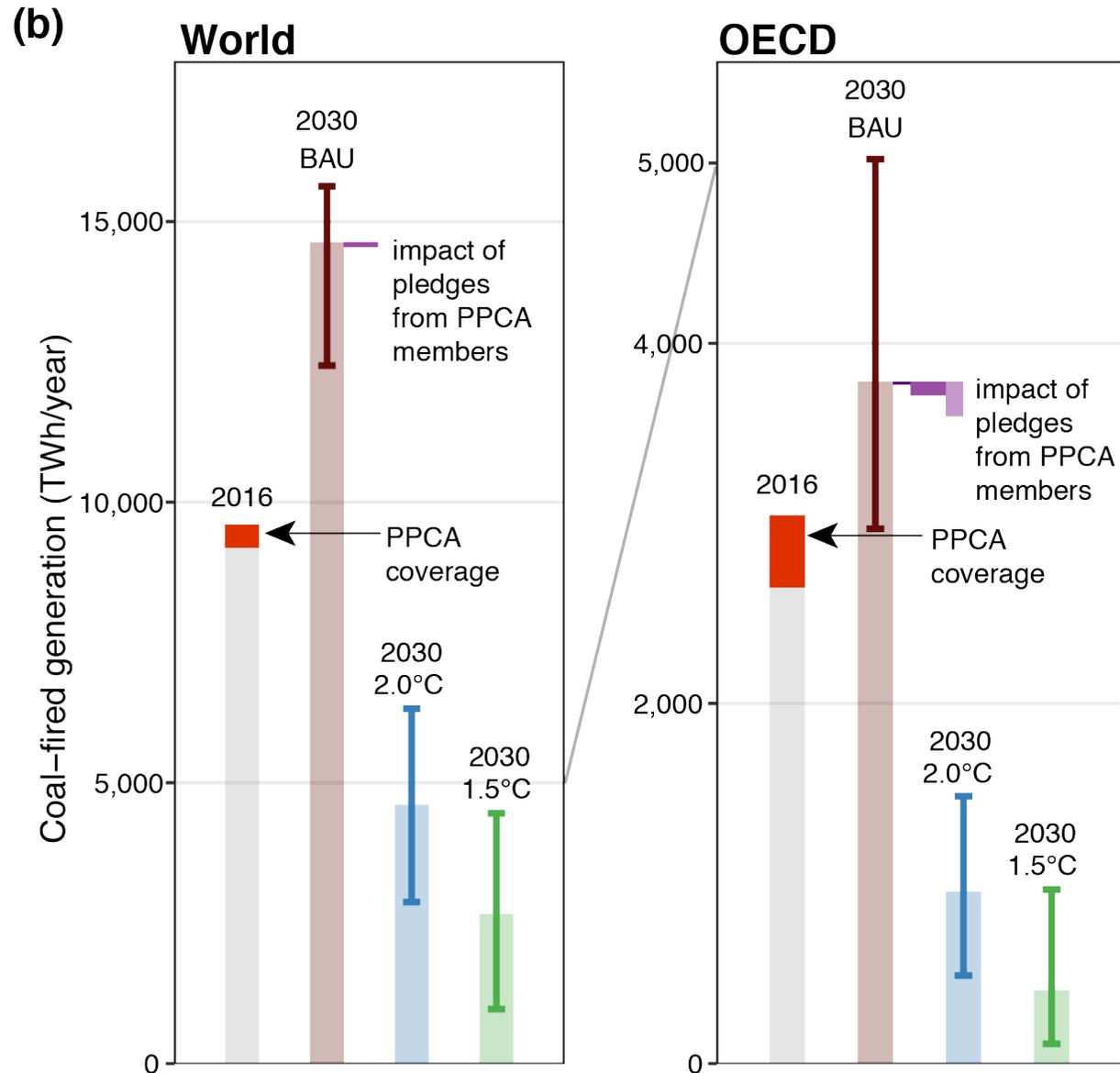
- 242 GtCO₂ committed from coal power plants in operation
- 50 GtCO₂ from plants under construction

Davis and Socolow, 2014

Effect of PPCA on coal power generation and climate scenarios



Effect of PPCA on coal power generation and climate scenarios



Can PPCA be expanded to countries with more coal?

1. How much **coal** is used in electricity?
2. How much **coal** is imported?
3. How much **coal** is produced (per capita)?
4. How much **coal** is used in industry and heating?
5. How old are **coal** power plants?
6. How fast does the electricity demand grow?
7. How much non-hydro renewables are used?
8. How serious is air pollution?
9. Is the country rich?
10. Is the country member of the EU?
11. How functional is the government?

How functional is the government?

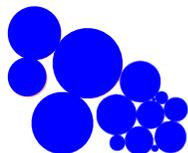
- Functioning of government (FOG) index
 - Absence of undue influence on elected government
 - Government transparency
 - Checks against political corruption

Freedom House

PPCA countries versus largest coal consumers

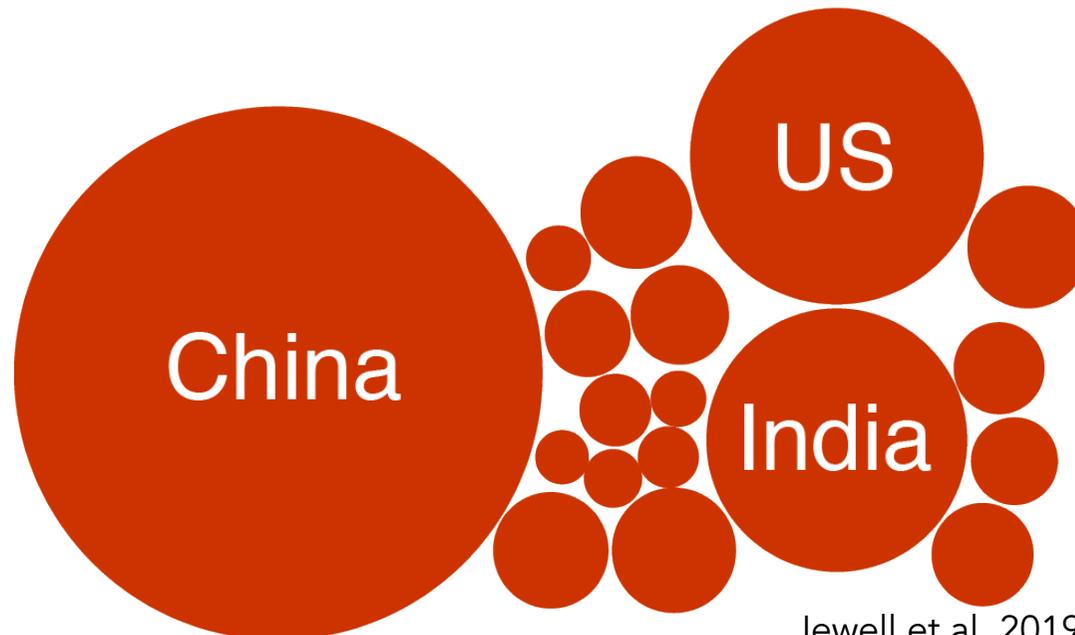
PPCA countries

Austria
Belgium
Canada
Denmark
Finland
France
Ireland
Israel
Italy
Mexico
Netherlands
New Zealand
Portugal
Sweden
United Kingdom

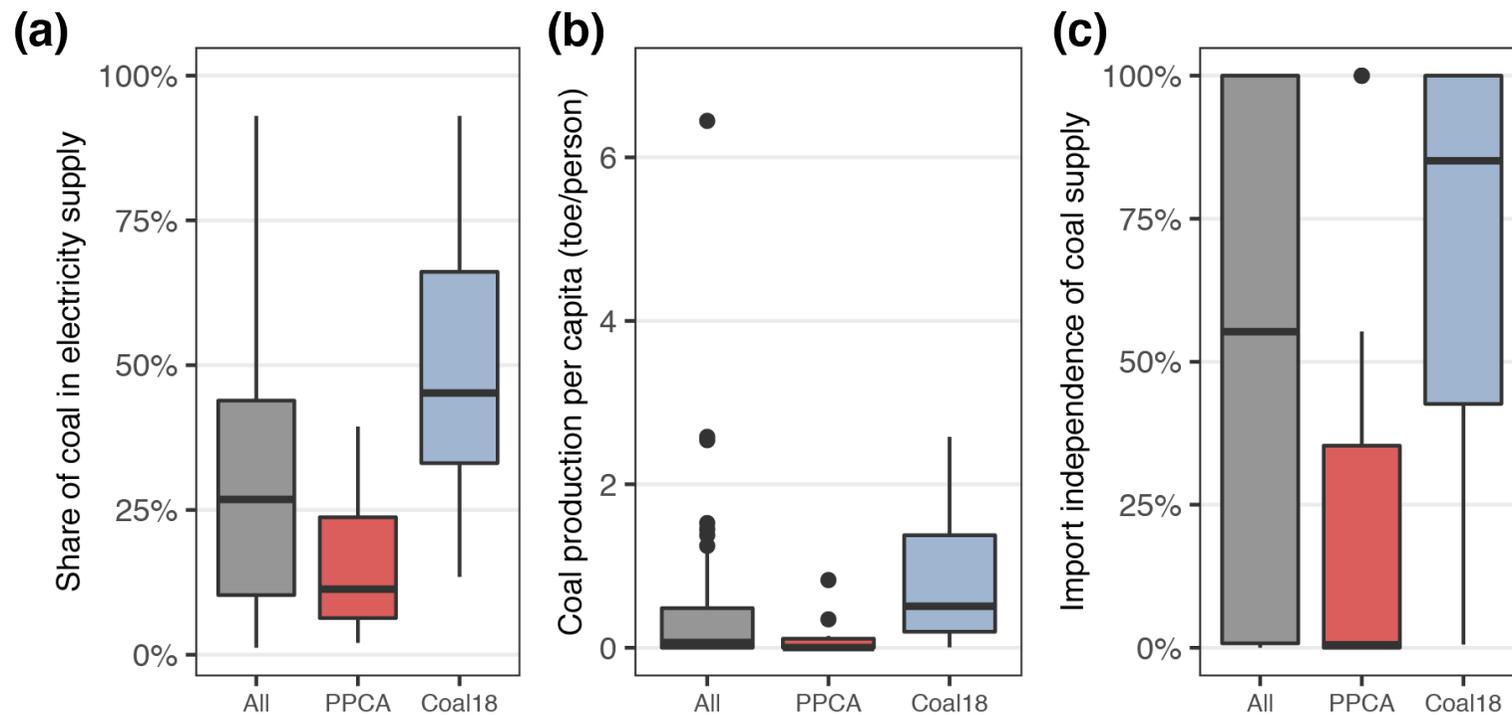


Biggest 18 Coal Consumers > 90% of coal power

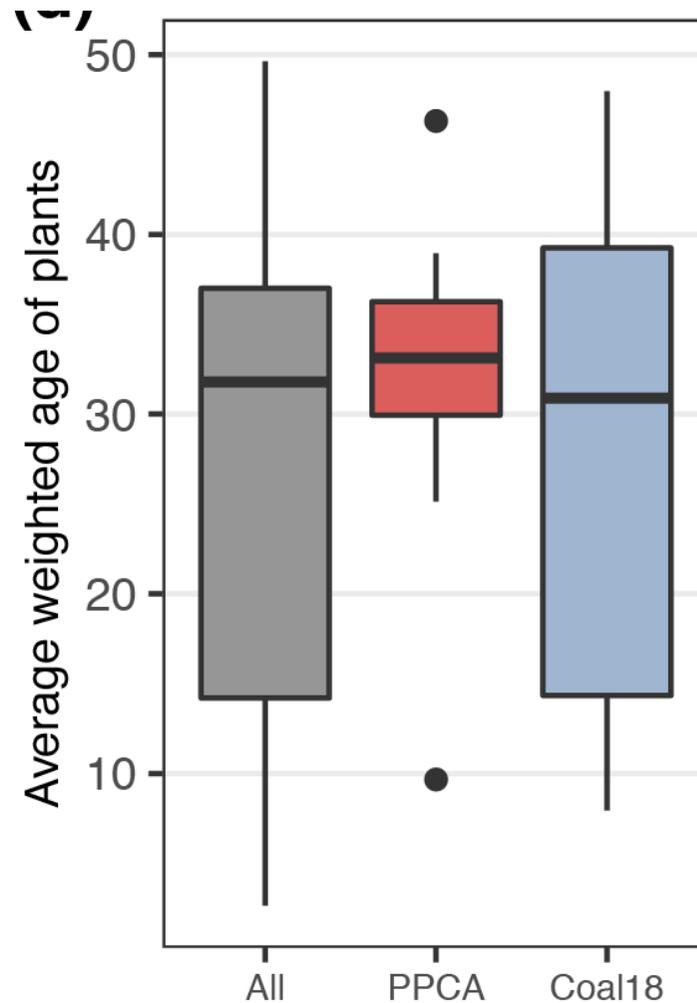
Australia	Kazakhstan	South Africa
China	Korea	Spain
Czech Republic	Japan	Turkey
Germany	Malaysia	Ukraine
India	Poland	US
Indonesia	Russia	Vietnam



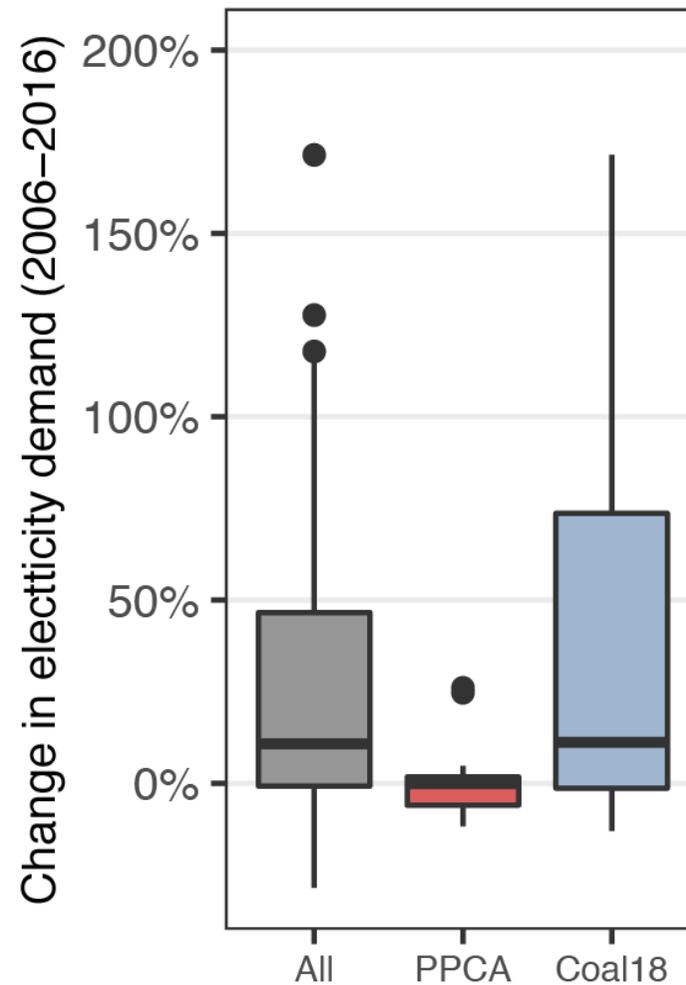
PPCA countries produce and use less coal



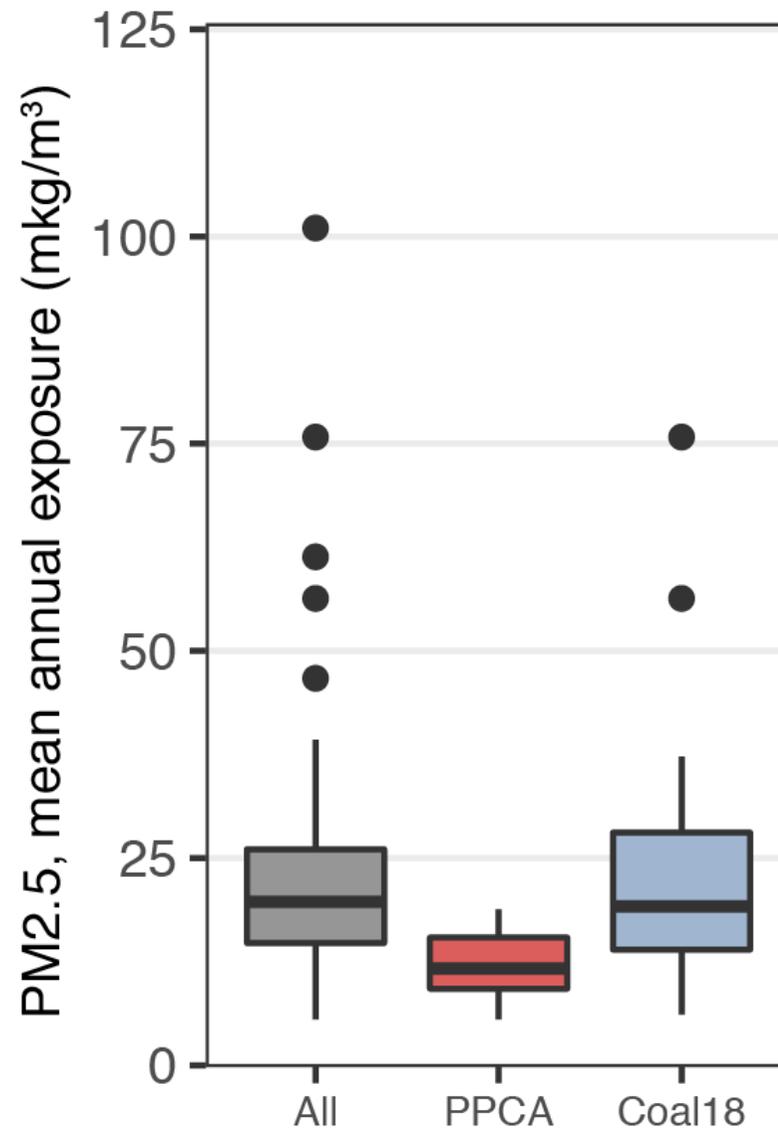
PPCA countries have **older power plants**



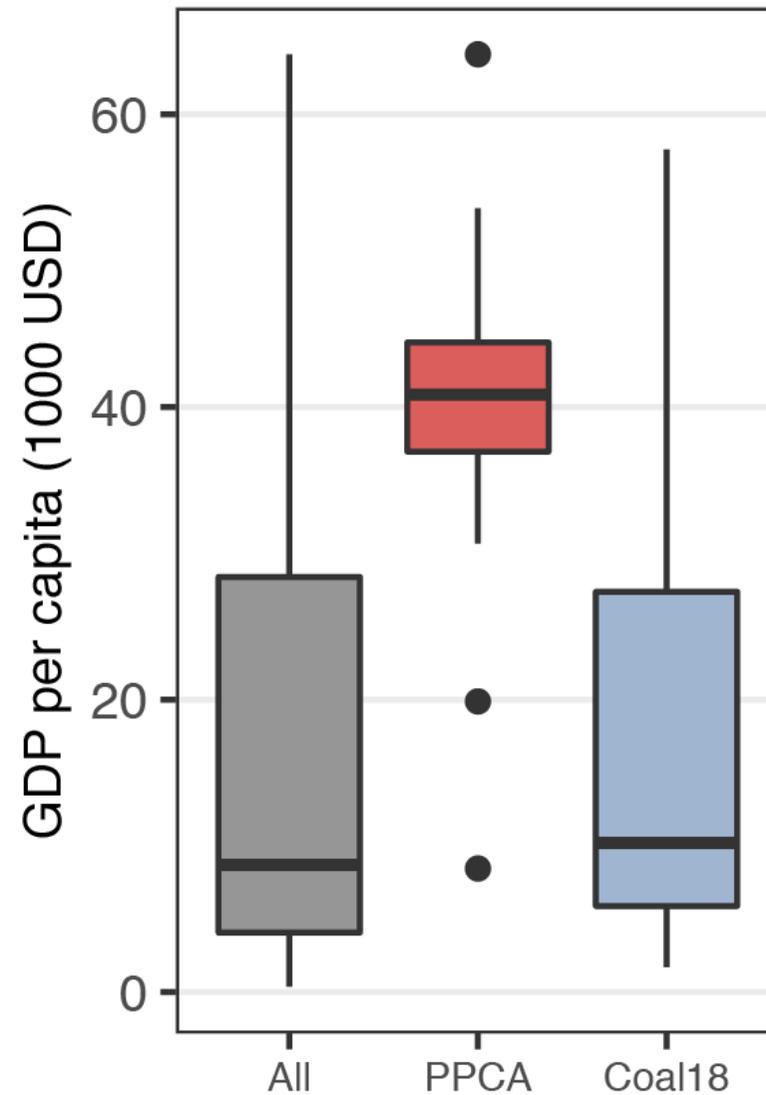
PPCA countries have **declining electricity demand**



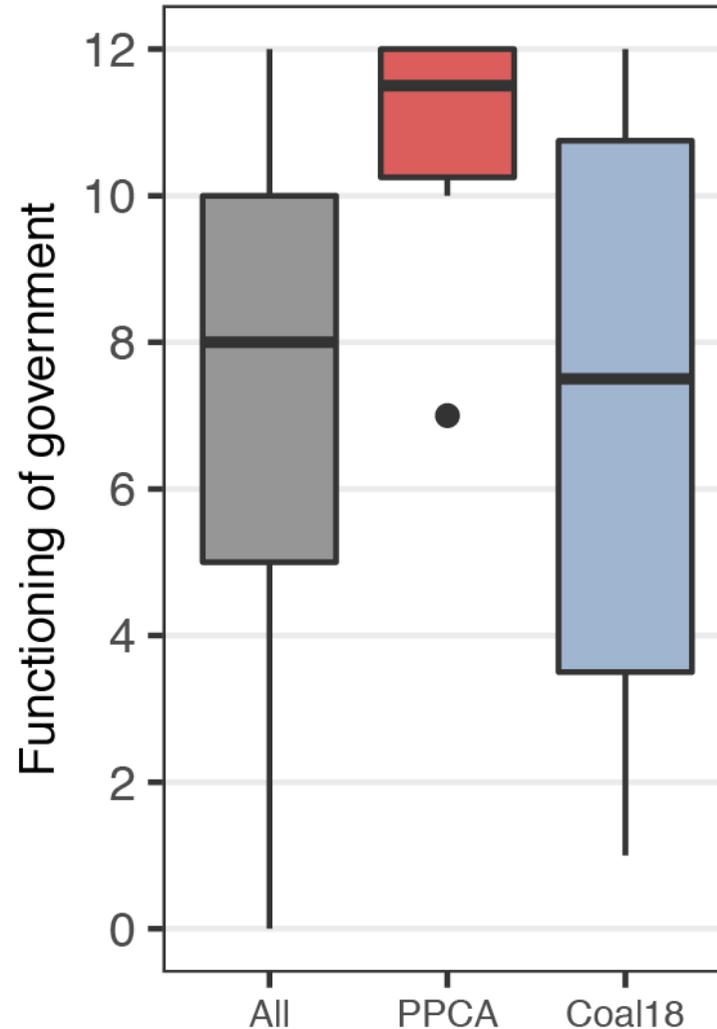
PPCA countries have **less** air pollution



PPCA countries are **richer**



PPCA countries have **better functioning governments**



PPCA countries

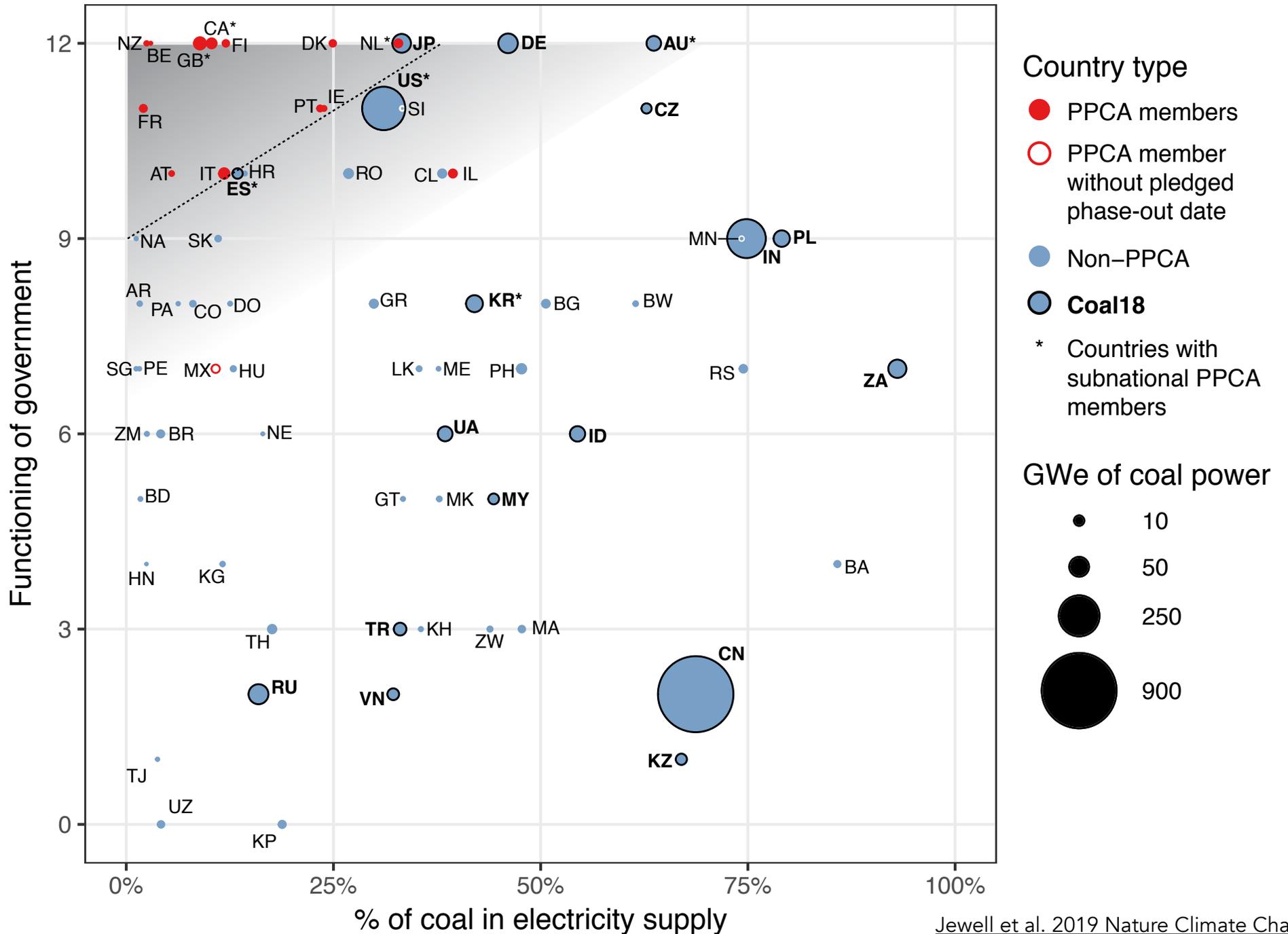
- Produce and use less coal
- Rely on imported coal
- Have older power plants
- Have zero electricity demand growth
- Are richer
- Have better governments

What's most important?

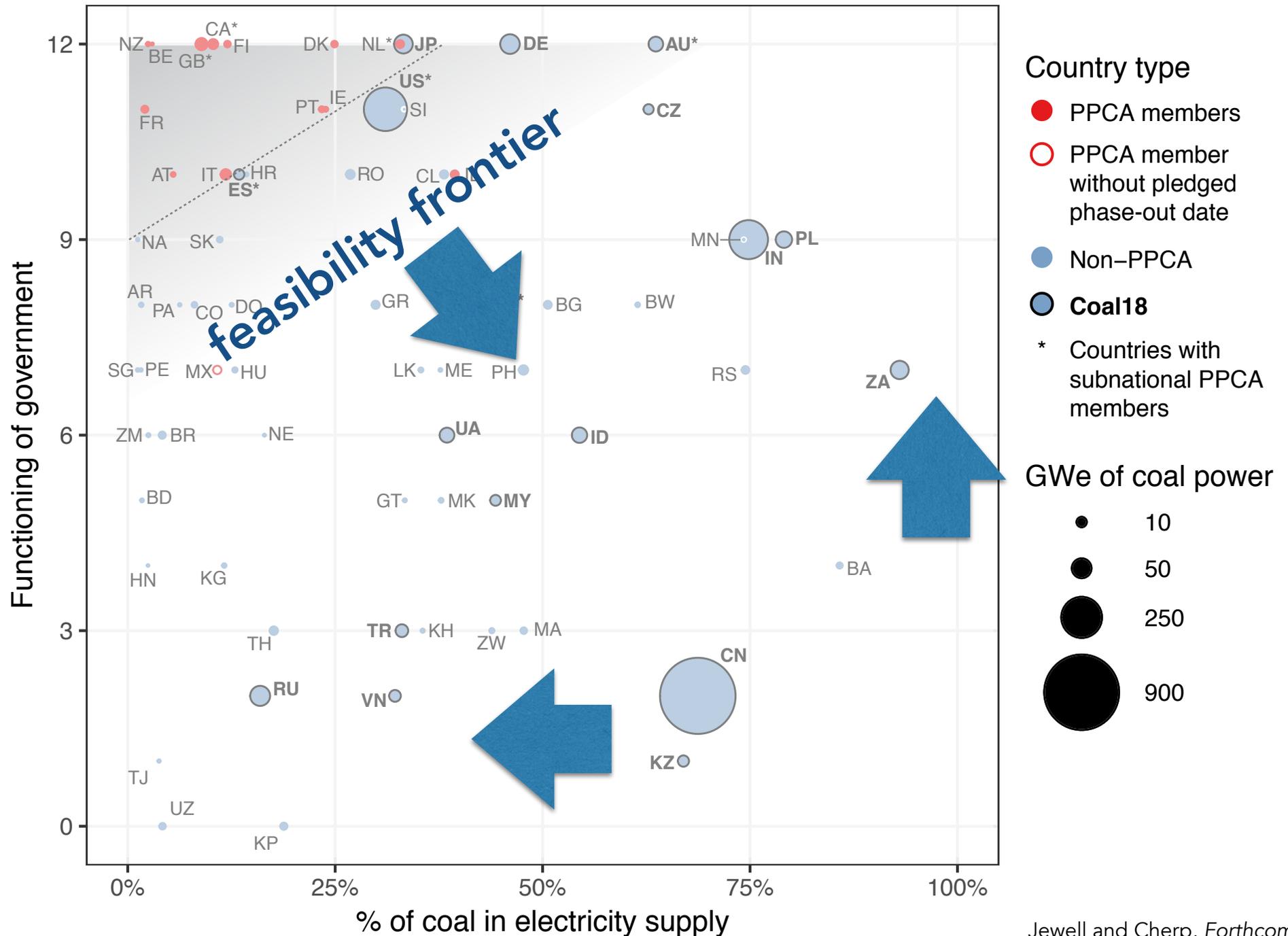
What's most important?

- Produce and use less coal
- Are richer and have better governments

PPCA = little coal + good government



Dynamic political feasibility space: How can this inform modeling?



Germany

Kommission “Wachstum,
Strukturwandel und Beschäftigung”

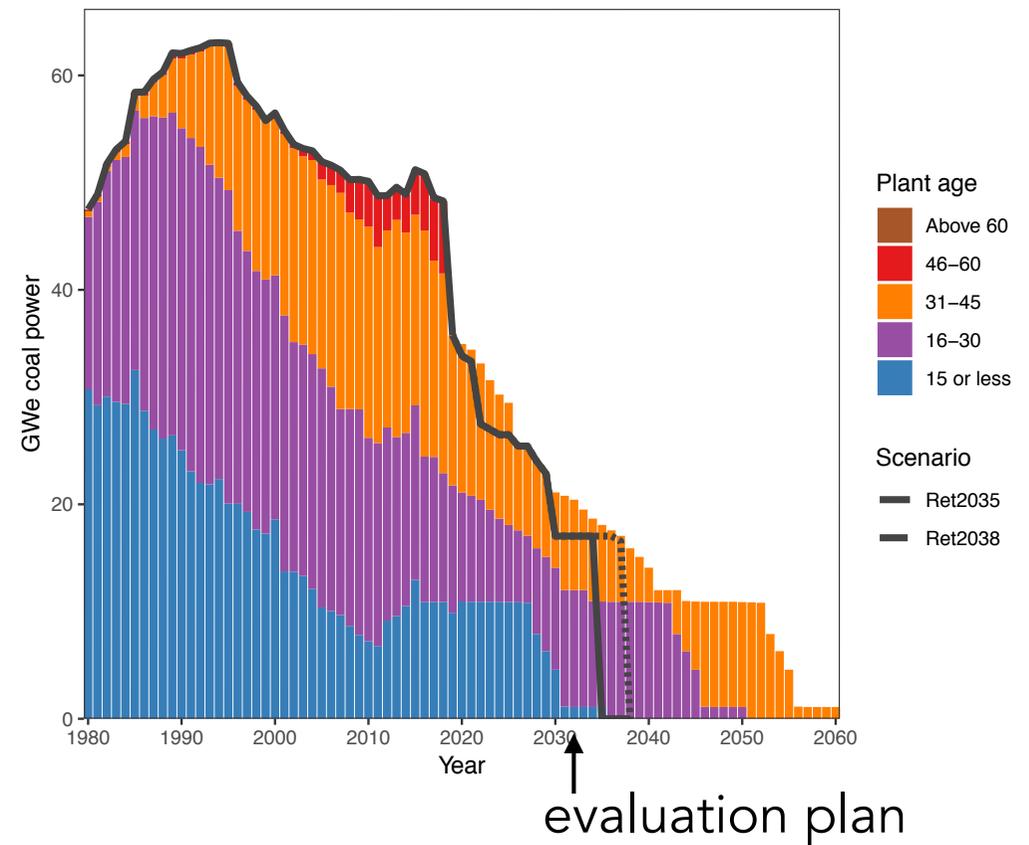
- Almost same capacity as all PPCA countries together
- Many plants built in the 2000s



Commission for growth, structural
change and employment

Germany

- In 2019, pledged to phase out coal in three steps by 2038
- May avoid up to 1.6 GtCO₂
- Cost up to €40 bln + compensation to utilities



Conclusion

- Impact of PPCA is insufficient but Germany's pledge could double emission reductions
- Costs and capacities of joining alliance are more important than benefits
- This empirical material can be used to build politically-informed pathways for coal phase-out