The Green Renaissance of Industrial Policy and the Developmental State

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SOAS University of London

Overview

Outline

Theoretical context

- The downfall and (green) return of industrial policy
- Sustainability as an economic opportunity
- State interventions in the face of climate change: different paradigms

Global mapping: Who leads the green industrial policy agenda?

- Climate goals
- Job creation
- Innovation
- Trade

Political Economy forces shaping green industrial policy

- International Level: Geopolitical rivalries
- Regional level: Supranational coordination
- Domestic level: social coalitions, pockets of resistance, populist temptations

Overview

Main arguments

- After decades of being a taboo topic, we are witnessing a **green renaissance of Industrial Policy.**

- The changes in the industrial policy paradigm, as well as the broader effects of climate change, are highly relevant in **informing the development and industrial strategies of developing countries...**

- …which makes **the concept of *Green Development States*** highly relevant. Some states are closer to being GDS than others, but no fully green developmental state exists (due to the persistence of policy contradictions).

- The economics of developmental low carbon transitions, and their geographies, is highly conditioned by **political dynamics,** at the national, regional, & international level.

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Theoretical context

The downfall & the (green) return of industrial policy

A taboo topic

- Loss of popularity since the 1980s
  - Associated with abusive interventionism, elite capture and inefficiencies
  - Selective interpretations of failed past attempts
  - Rise of laissez-faire economics and SAPs

Changing discourse in the face of the sustainability challenge

- The (green) return of industrial policy :
  - *For the 1st time in decades, even the US government explicitly acknowledges the need for industrial policy*
  - *Has industrial policy ever left? Changes in policy-strategies but also the narrative*
  - *Contribution of this paper in this debate*

WED, JUN 23, 2021

The Biden White House plan for a new US industrial policy

Theoretical context

Low carbon transitions as economic opportunities

Economic spillovers & co-benefits

- Job creation
  - 11 million jobs in renewables worldwide
  - Increasing evidence of net job gains of energy transitions
    - *7.49 full time jobs are created in renewables from investing USD1million, compared to 2.65 jobs with the same amount in fossil fuels (Garrett-Peltier, 2017)*
    - *Higher labour intensity in clean energy (compared to machines, drilling operations and energy consumption of polluting industries); & higher the domestic content of spending (Pollin, 2015).*

- Innovation:
  - Sustainability as the next innovation frontier
  - Higher spillovers from low carbon innovation: spillovers from low carbon innovation are over 40% greater than convention technologies in energy production and transportation sectors (Dechezlepretre et al. 2013).

Theoretical context

State interventions in the face of climate change 1/3

Market-based mechanisms and their shortcomings

- Solving the market failure with markets? (Neoclassical perspectives)
  - *High carbon prices "would do more to unleash the decentralized power of capitalistic American inventive genius on the problem of researching, developing, and finally investing in economically efficient carbon-avoiding alternative technologies than all of the piecemeal command-and-control standards and patchwork subsidies making the rounds in Washington these days" (Weitzman, 2007).*
  - In 2019, governments globally raised USD45 billion by putting a price on pollution
- Shortcomings:
  - No guarantee than climate goals can be met in a timely fashion
  - Allowance for buying the right to pollute, and adverse effects on low income groups

Theoretical context

State interventions in the face of climate change 2/3

Stronger government interventions? *(Post-Keynesian, Developmentalist, evolutionary perspectives)*

- State play a key role in leading technological innovations towards accomplishing certain "missions".
  - Public financing was central in national energy transitions, such as in Iceland (from fossil to geothermal energy), Norway (to hydro), France (to nuclear) & the US (from conventional to shale gas) (Semeniuk & Mazzucato, 2018)
  - Innovation requires public institutions that provide R&D support, quality certification, technology transfer & diffusion (see Andreoni & Chang, 2014; Lee & Malerba, 2017; Lundvall, 2010; Nelson & Winter, 1982).
  - Strong role for post-Keynesian economics to understanding decarbonisation policies (Pollitt, 2019)

Green industrial policy

- Growing recognition that markets forces alone will not deliver socially optimal outcomes
- Growing literature on GIP as driver of the structural transformation towards more sustainable economic system (Aiginger 2015; Hallegatte et al. 2013; Lütkenhorst et al. 2014; Naudé 2011; Rodrik 2014; Anzolin & Lebdioui, 2021).
- Extensive use of industrial policy tools in low carbon sectors in the US, EU and China

Theoretical context

State interventions in the face of climate change 3/3

The Green Developmental State

- The *Developmental State* emphasizes the role of government intervention and strong states (and particular social coalitions) featuring some degrees of autonomy from rent-seeking private interests.
- Application of this concept to sustainability to offer a framework to understand the broader role of the state not only for economic development but also for the greening of development.

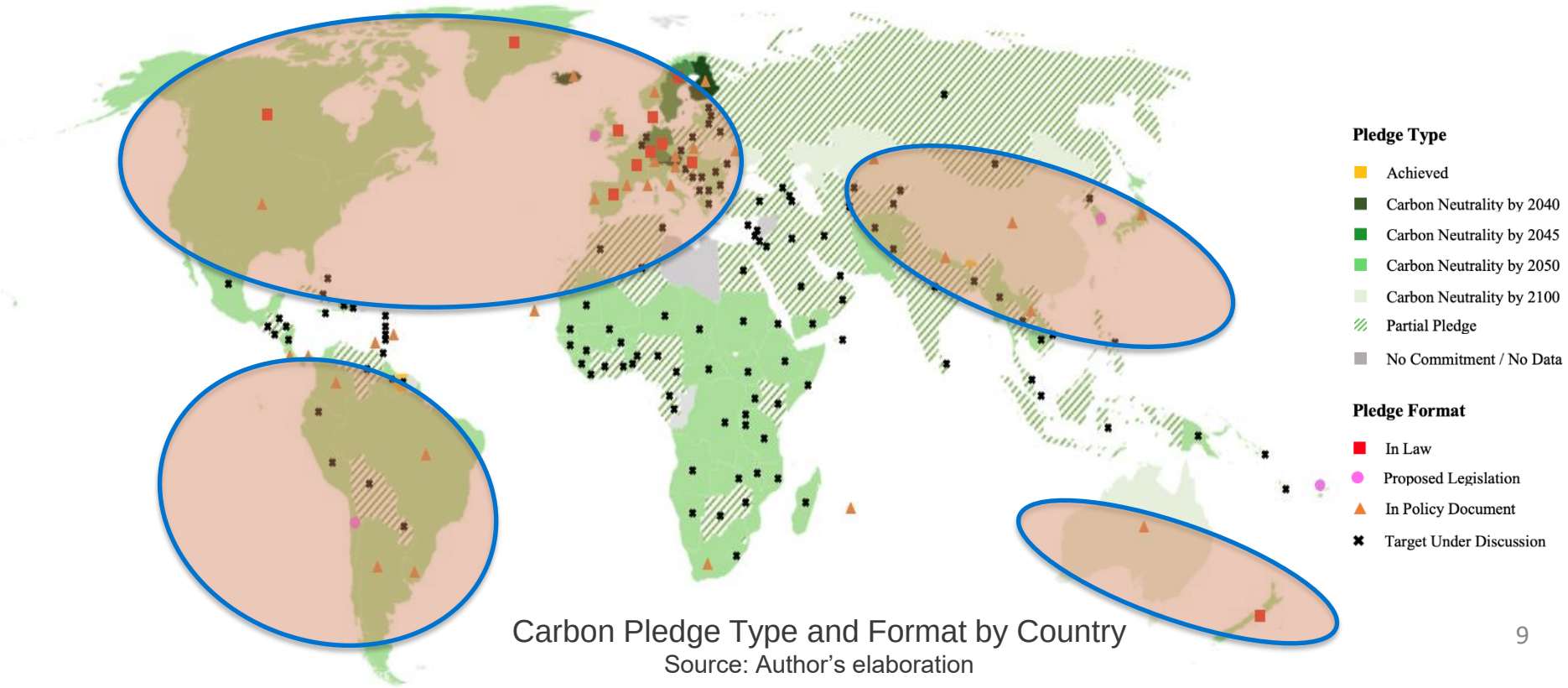
- The GDS would imply a nationwide commitment to greening development, which could be for difference reasons:
  - Commitment to climate (e.g. Costa Rica).
  - Economic dependence and energy security needs (EU)
  - Health threats (e.g. Russia with permafrost, or Beijing with air pollution)
  - or industrial opportunity (China).

- Growing body of literature on developmental states, political settlements and industrial policy in the context of low carbon sectors (e.g. Behuria, 2020; Hariss-White, 2014; Hochstetler, 2021; Chen and Lees, 2016; Mazzucato, 2016).

- Does the GDS concept help frame and bring together this literature?

Global Mapping

Who has low carbon technological ambitions: climate goals



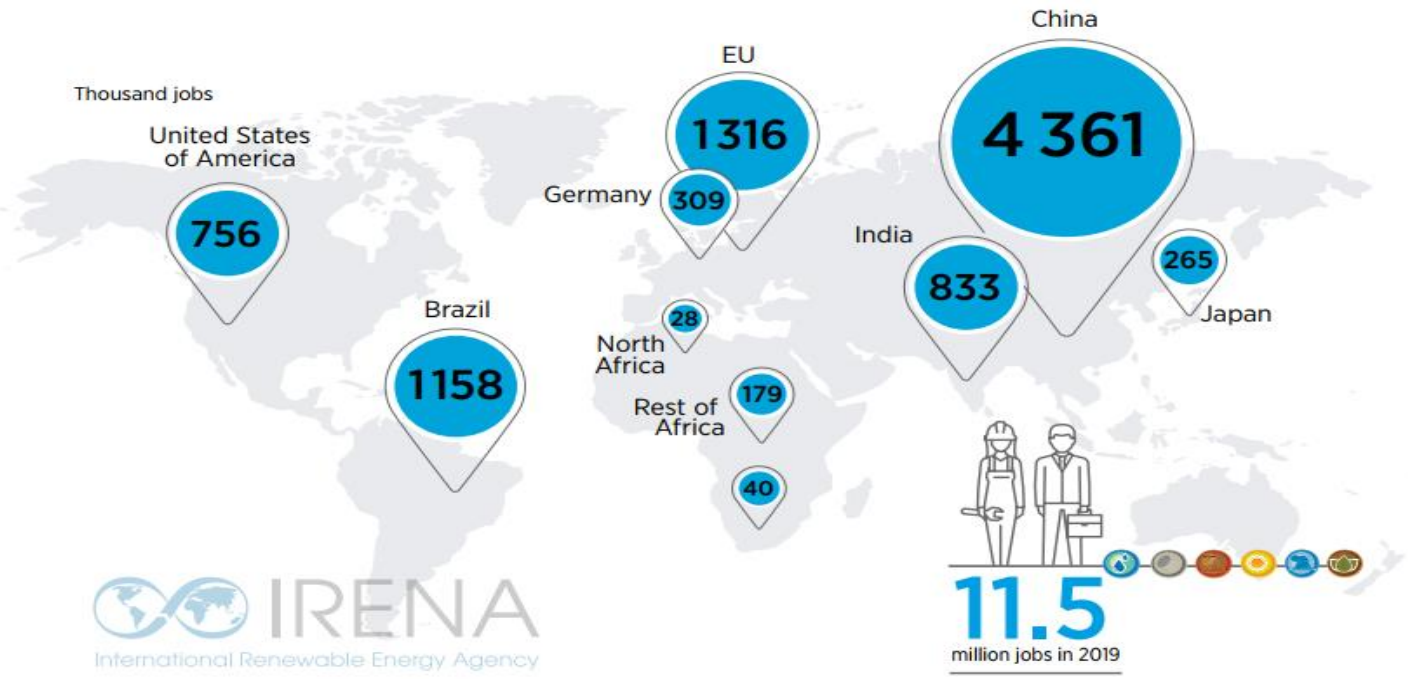
Carbon Pledge Type and Format by Country

Source: Author's elaboration

Global Mapping

Who has low carbon technological ambitions: jobs

FIGURE 11: RENEWABLE ENERGY EMPLOYMENT IN SELECTED COUNTRIES



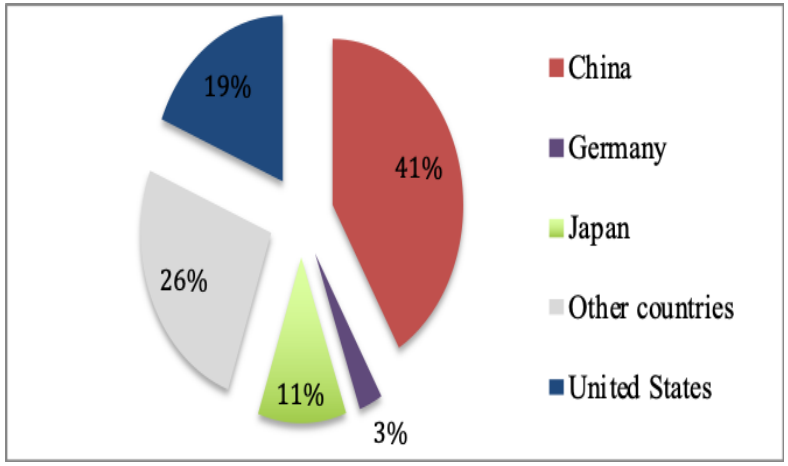
Source: IRENA jobs database.

Global Mapping

Who has low carbon technological ambitions: Innovation

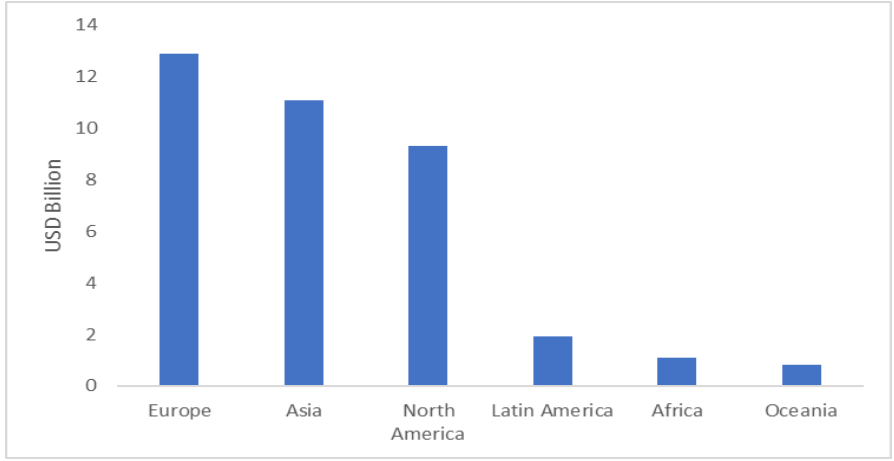
Highly uneven R&D spending in low carbon technologies

Share of Patents filed in renewable energy technologies by country in 2018.



Source: Elaboration based on IRENA databases

Planned Global Wind Energy R&D spending (public & private), 2019-2028



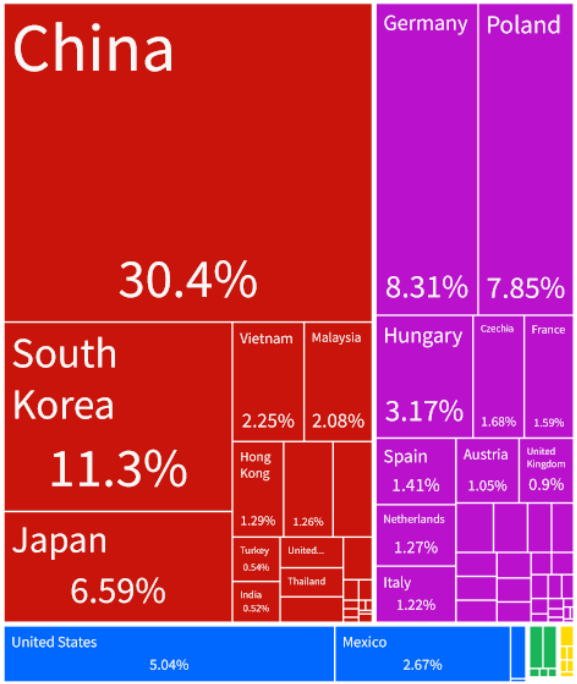
Source: Author's based on Intelstor data

Global Mapping

Who has low carbon technological ambitions

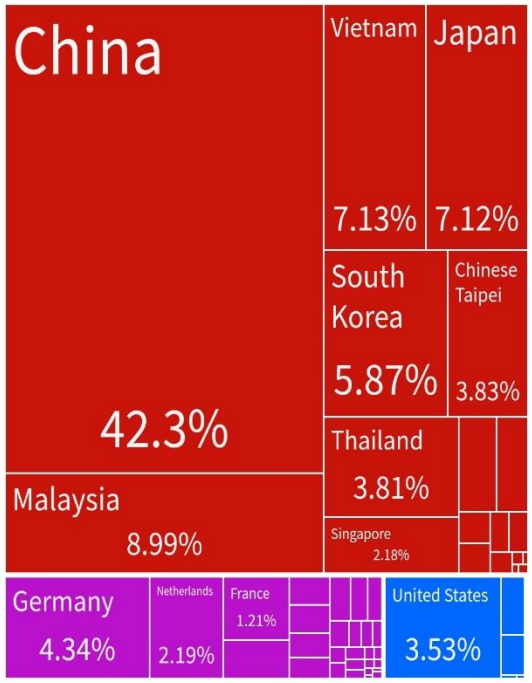
Distribution of electric batteries exports by country, 2020

(Total: $67.5 billion)



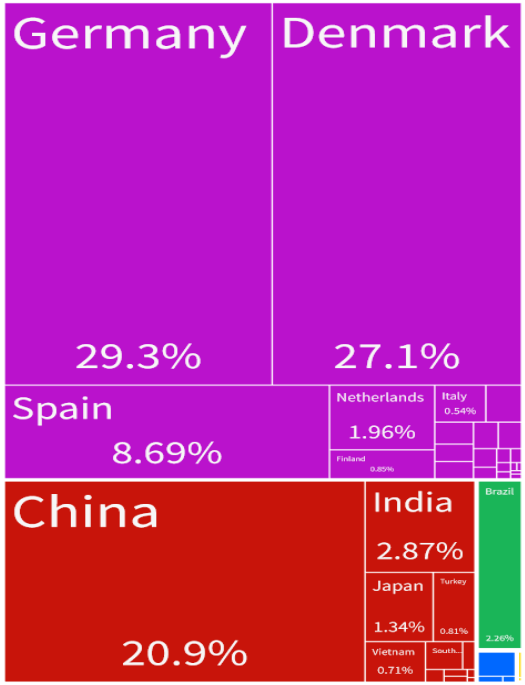
Distribution of solar cell exports by country, 2020

(Total: $56 billion)



Distribution of wind turbine exports by country, 2020

(Total: $8.4 billion)



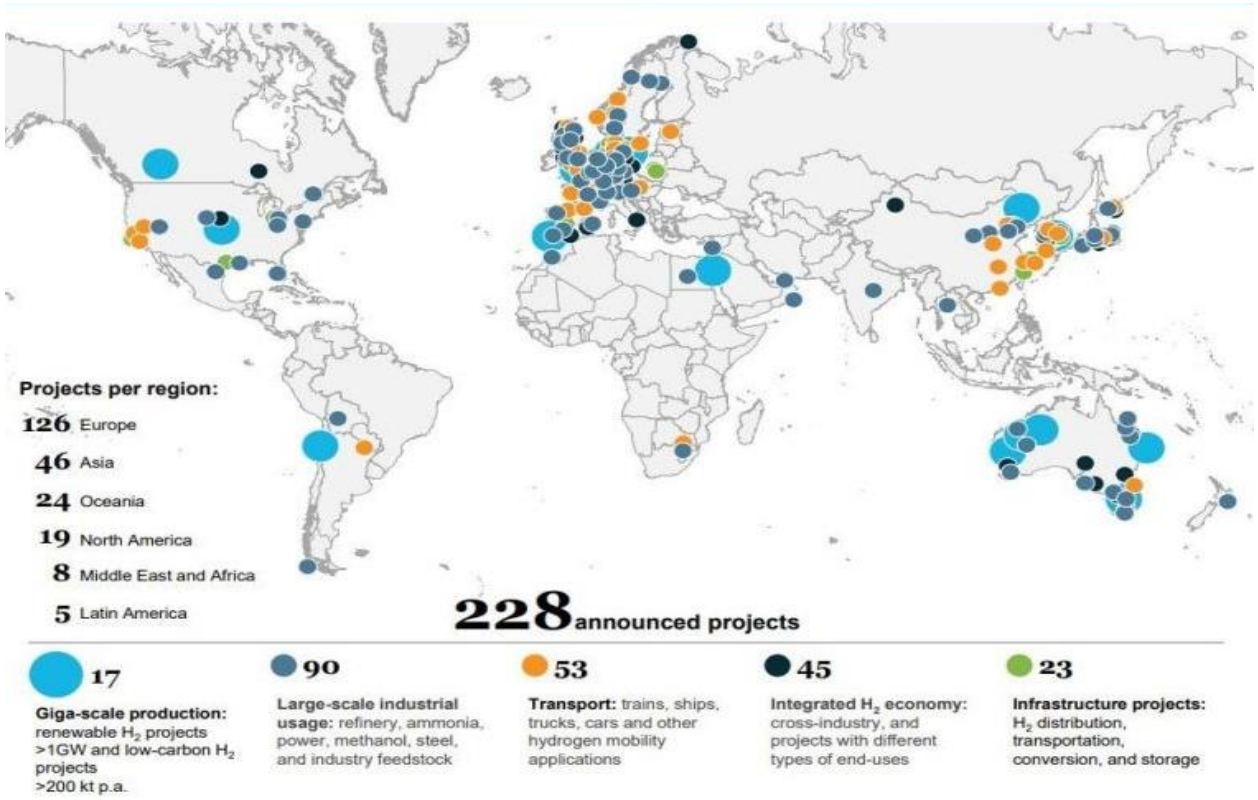
Source: OEC, UN Comtrade

Global Mapping

Who has low carbon technological ambitions: First movers in low carbon H2

- The geography of Green Hydrogen production ambitions
- The political economy of energy intensive industries, and the high cost of keeping energy-intensive industries in energy-poor countries (Hausmann, 2022)
- >30 countries with a national H2 strategy (only 3 in Africa)
- > 228 projects in the pipeline (as of 2021)

Green Hydrogen Project Across the Value Chain



Source: New Hydrogen Council, 2021

Global Mapping

Preliminary – and broad!- observations

Large disparities exist in terms of climate and green economy ambitions, along geographic and socio-economic lines.

- **The 'West'** (EU+ North America + Australia+New Zealand): has adopted climate goals and green industrial policies the most extensively to date
- **East Asia:** Ambitious drive towards decarbonisation and low carbon manufacturing in Japan, South Korea, China. However, the existence of contradictory policy goals persists (e.g. Korea with investment in coal plants overseas)
- **Latin America:** Widespread recognition of the economic opportunities arising from sustainable transitions, but high levels of heterogeneity (some countries such as Chile and Costa have high levels of ambitions, and within countries and over time- Brazil).
- **MENA:** The paradox of lagging behind in the sustainability agenda despite being the region that would benefit the most from such transition in light of considerable opportunity costs. The notable exception in the region is Oman.
- **Sub-Saharan Africa:** Recognition of the importance of climate goals, but little policy tools have been adopted to date (exceptions: South Africa and Namibia).

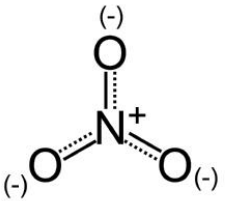
International Political Economy Dynamics

Geopolitical rivalries and implications for low carbon technology supply chains

- United States – China rivalries
  - Motivated the use of green industrial policy in the United States
  - Shifting low carbon supply chains providing potential benefits
- EU energy security vis a vis of Russia
  - EU green deal and implications for Africa, mostly renewing commodity dependencies

The politics of low carbon innovation

- Innovation is political: global race for competing technologies (hydrogen based batteries, versus lithium-ion batteries versus solid state batteries)
- The security of critical minerals supply as key driver of state support for low carbon innovation (e.g. Cobalt-less tech, rare earth, etc.)



Regional Political Economy Dynamics

Supranational coordination for low carbon technology supply chains

- Size matters
- EU – China – Brazil – India – the USA
- In Africa and Latin America in particular (with the possible exception of Brazil & India), domestic market sizes do not allow for reaching economies of scale, and regional coordination is needed to develop manufacturing capacity and foster synergies

- Political misalignments, divisions and lack of consensus across regions
  - Ideological divergence, personal rivalries, and positioning in terms of US-China geopolitical competition which have hindered market integration
  - Yet cooperation persists in some formats even if more effort will be necessary (e.g. the Escazú Agreement in Latin America, Energy & Climate Partnership of the Americas, or AU- and AfDB-led clean energy efforts in Africa)

Domestic Political Economy Dynamics

Social coalitions, short termism, and populistic behaviour

- Short term costs & long term returns on investments, especially for early-stage technologies
- Provides disincentives for Policy-makers with a 5 year mandate or less
- Populistic behaviour in communities that depends on fossil fuels as a source of jobs (Coal miners) and sudden policy shifts (renewables in Mexico)
- Just transitions require adequate policy frameworks and labour market policies given that jobs gains from renewables do not necessarily occur in the same areas (or involve the same type of skills) as jobs lost in fossil fuels sectors.

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THANK YOU
FOR YOUR ATTENTION

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