d·i·e

Deutsches Institut für Entwicklungspolitik | German Development Institute

Four challenges of decarbonisation

Wilfried Lütkenhorst
Tilman Altenburg
Anna Pegels
Georgeta Vidican

Agenda

1. Decarbonisation: state, market and society
2. Four challenges of decarbonisation
3. Success factors

Decarbonisation needs a proactive state

- Required: **aligning the structure of the economy** with the **needs of sustainable** development within established planetary boundaries.
- **Investment** & change of **consumption patterns**
- **Market in its current form is failing** to direct investment into clean technologies at the pace and scale needed**.**
- '**Proactive state**' (WBGU 2011) needs to intervene, mandated by **society**.
- Once overall direction and rules are clear, **market** can be **efficient instrument**.

Decarbonisation challenges

- (a) pervasive market failures,
- (b) high levels of uncertainty and time pressure,
- (c) need to create new and disrupt old pathways,
- (d) political economy.

Market failures: more than externalities

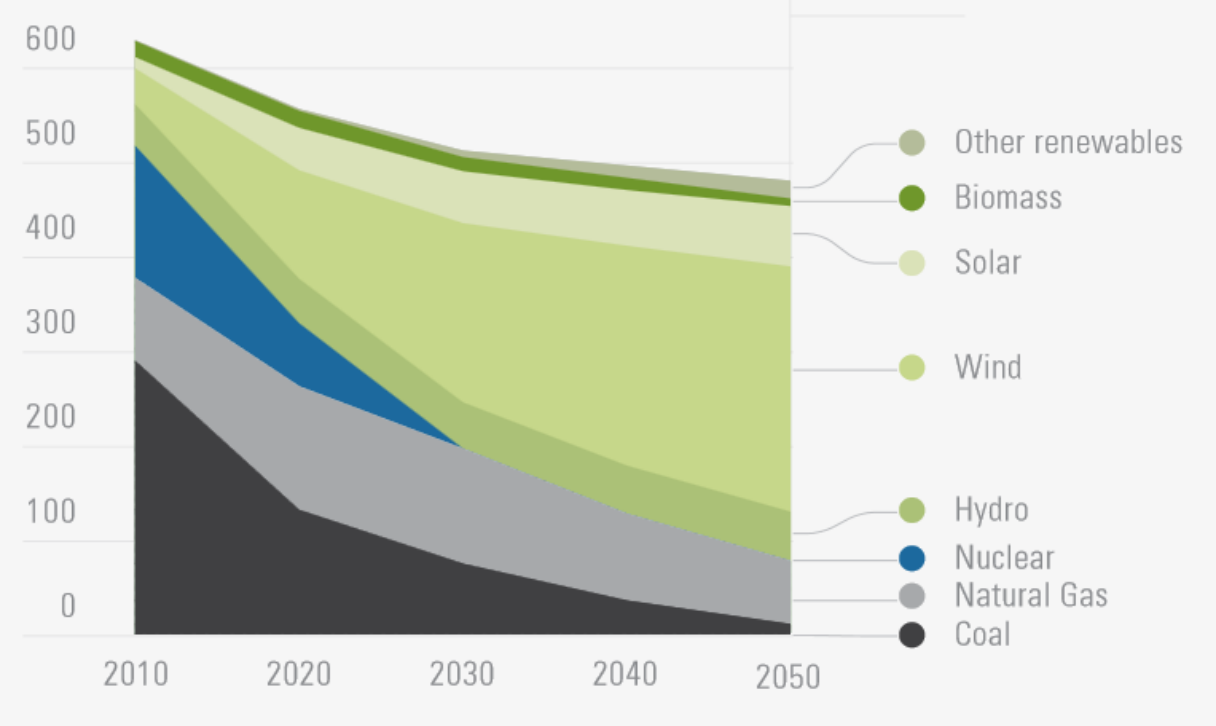
Coordination failures	*Public goods*	*Externalities*
Obtainable benefits are not being reaped due to lack of coordinated action	Goods that are non-excludable and non-rival in consumption	Deviation between private and social costs and benefits
Crucial for creating new and disrupting old techno-economic pathways	**Most severe in case of climate change mitigation suffering from 'free-riding'**	**Pervasive in environmental pollution, waste management and natural resource use**

Uncertainty and time pressure

- **Uncertainty** about
  - Scale, timing, localisation and nature of environmental impacts
  - Technological and market developments
  - Development of international agreements
  - Policy frameworks and impacts
- Pressure to **act now**

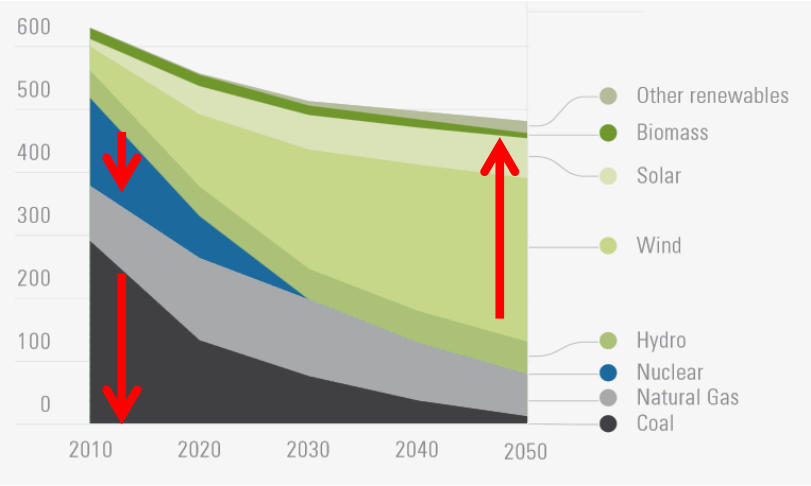
Creating new and disrupting old pathways

- ‚Aligning the structure of the economy': changing **technological pathways**
- Energy supply pathway for electricity generation by source, Germany (SDSN Pathways to deep decarbonization 2014 report)

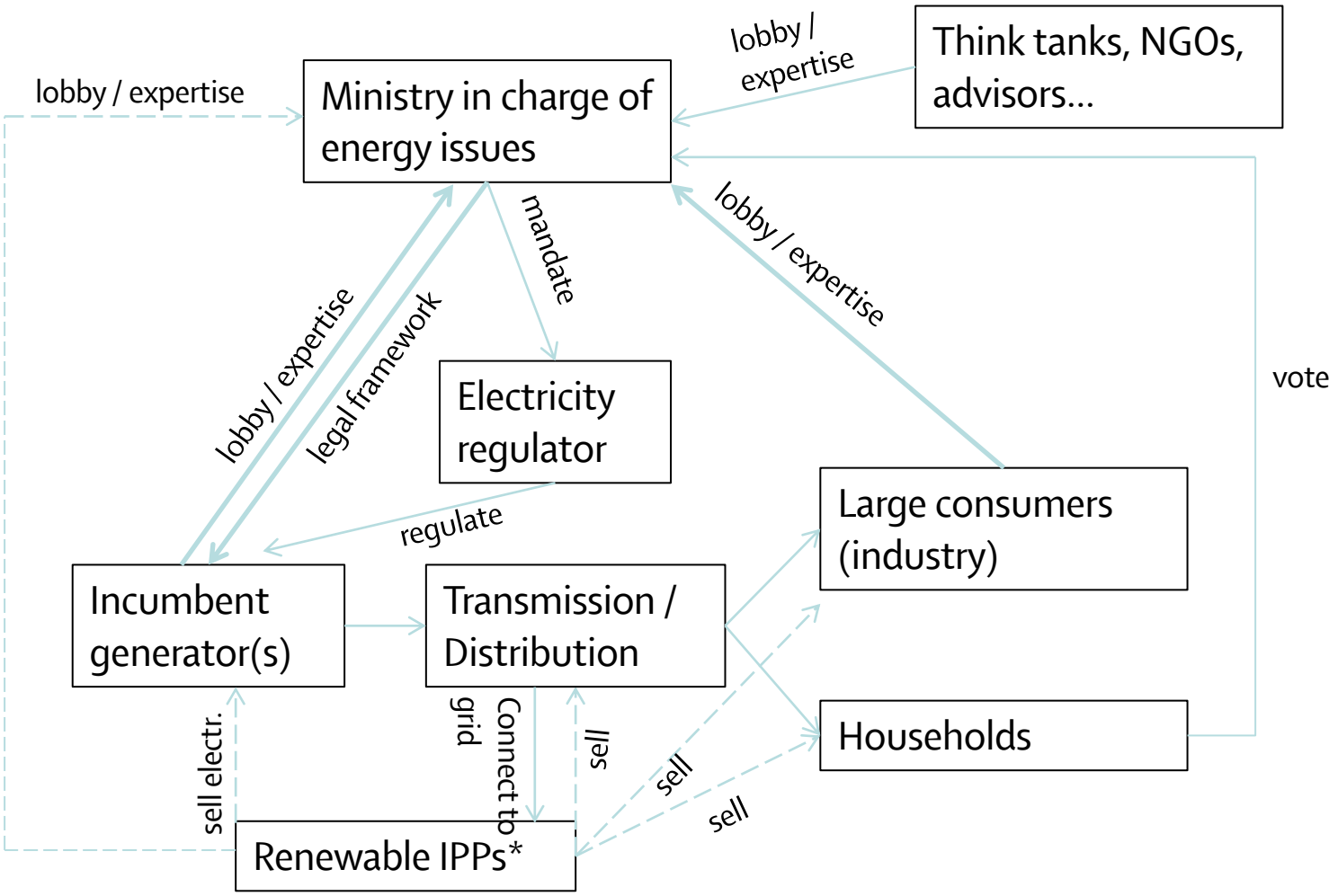


Creating new and disrupting old pathways

- In the past: path disruption usually **gradual** process, **better solutions** replacing old ones (steam engine, IT…). Now: politically driven process, fast disruption and creation of paths (time pressure!).
- Challenging because of
  - organisational, institutional, infrastructural, political, behavioural **lock-in**
  - need to target **supply *and* demand** (i.e. preferences and behaviour)
  - strong **vested interests**…



Actors electricity sector



Political economy

- Most powerful actors must be ‚on board'
- Who wins, who loses?
- How can powerful actors win (co-benefits? Change profit opportunities? Avoid windfall profits!)
- If they lose, can / should they be compensated (stranded assets)?
- How can the power of actors with aligned interests be strengthened?

Policy answers to the challenges

- **Market failures:** internalise costs (and remove harmful subsidies) & agree internationally & coordinate investments
- **Uncertainty:**
  - What are the policies of the future? Accelerate policy learning (Johnson, Altenburg, Schmitz in Pegels 2014): Learning from other countries, systematic learning cycles, policy experimentation
  - What are the technologies of the future? Facilitate technological search processes instead of picking winners (Rodrik)

Policy answers to the challenges

- **Changing pathways**:
  - strategic niche management (Kemp, Schot, Geels…), technology missions (?) → technology push,
  - create policy-induced lead markets (Beise, Rennings, Jänicke, Jacob…) → market pull
  - 'de-legitimise' polluting technologies
- **Political economy:** build coalitions e.g. by using co-benefit arguments (Schmitz / Altenburg), compensate losers where necessary, use market as efficient instrument, support civil society as guardian of accountability…

Thank you!