



Electricity procurement for the RE-era

Challenges and way forward

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IRENA's KPFC work on the Energy Transition

IRENA – International Renewable Energy Agency

Comprehensive work on all energy transition dimensions : Technical, Economic, Finance, Policy, Education, Knowledge, Planning, Resources, Environmental ...

KPFC – Knowledge, Policy and Finance Centre

Focus on the social components of the energy transition

★ **Measuring the Socio-economic footprint**

★ **Renewable jobs**

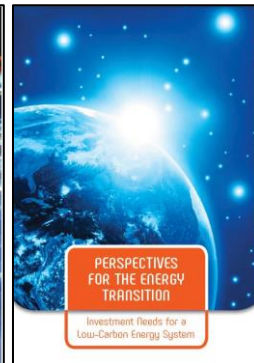
★ **Auctions and Policies**

★ **Power Market design**

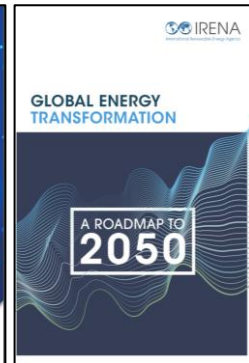
2016



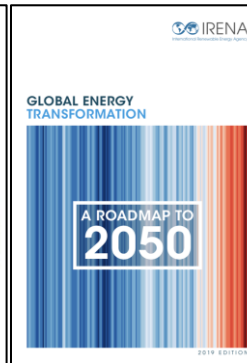
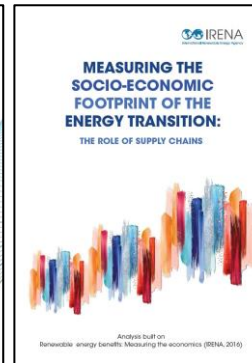
2017



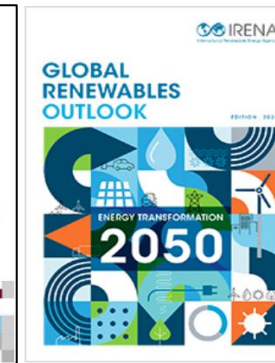
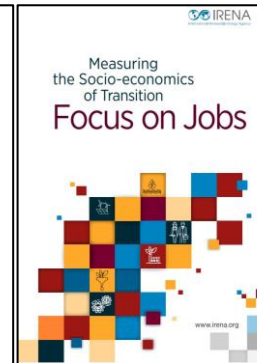
2018



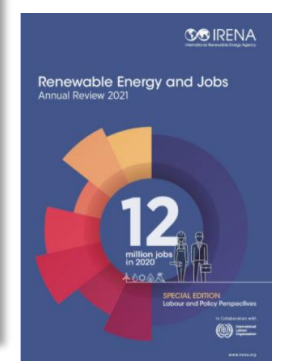
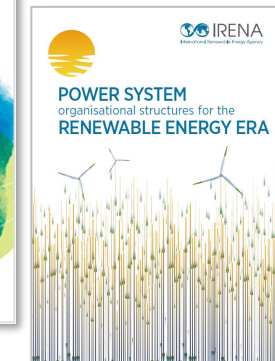
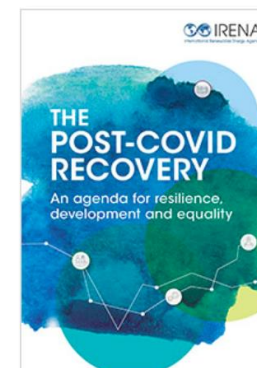
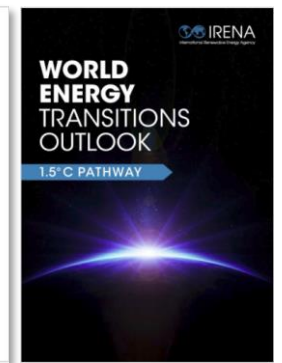
2019



2020



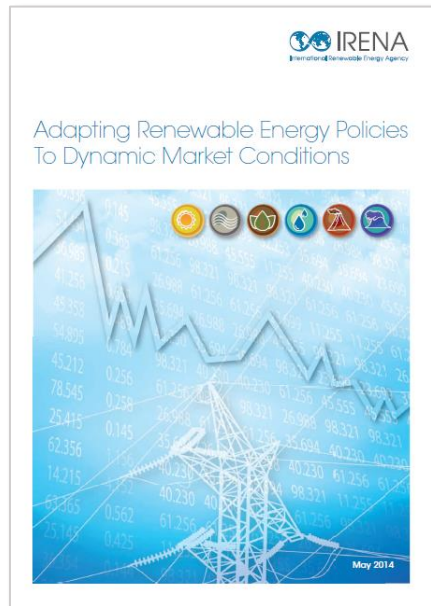
2021



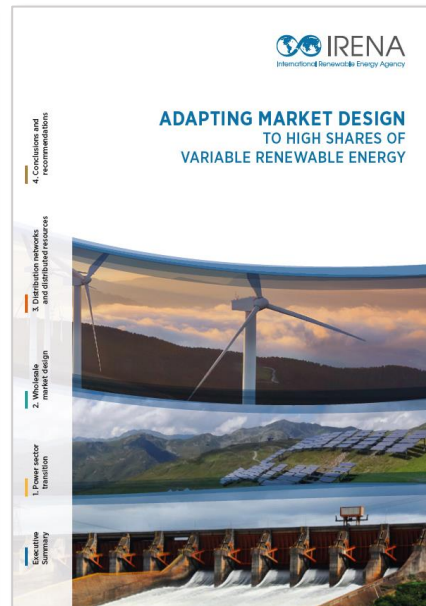
<https://www.irena.org/publications>

Focus on current **market** designs:
initial challenges from VRE

2014



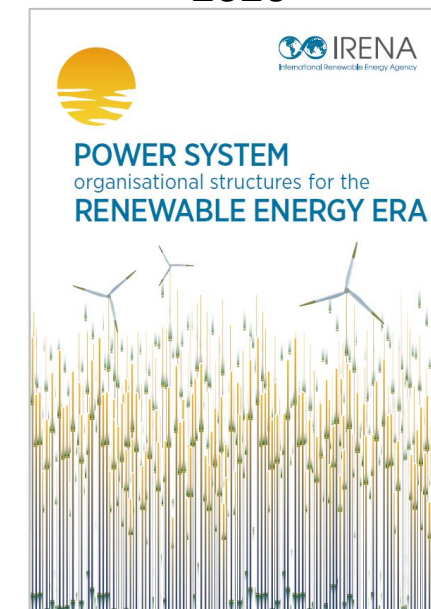
2017



Systemic approach: **Organizational Structures**

- beyond markets
 - common challenges: regulated and liberalized
 - provide vision and enable leapfrogging
- get structures right for the NEW energy system
- focusing policy narrative to prevent barriers
 - long term procurement as a fundamental pillar
 - misconceptions: RE subsidies, low RE prices...
- important links with policy framework:
 - auctions; subsidies; participation & governance

2020



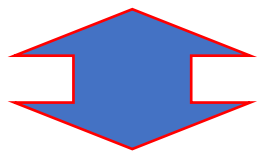
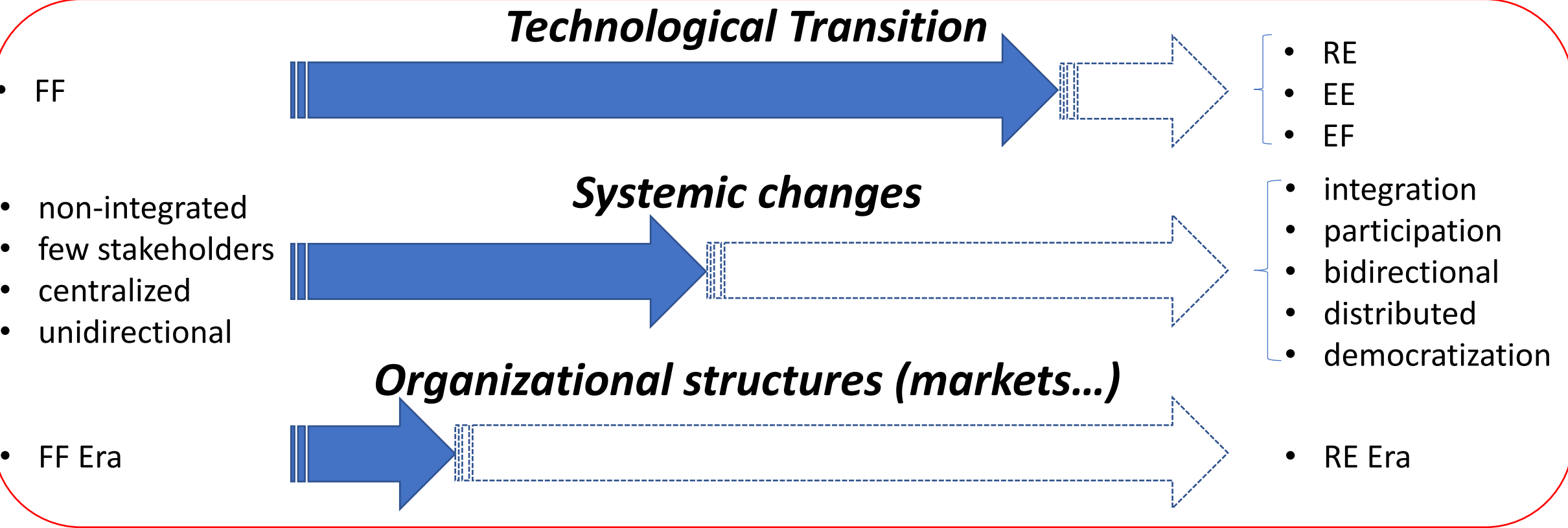
2022

**RE-organising power
systems for the
transition**

**The dual procurement of
electricity for liberalized and
public systems**

Unequal advance in the different transition layers

Energy Transition



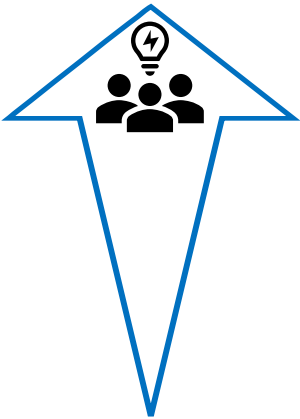
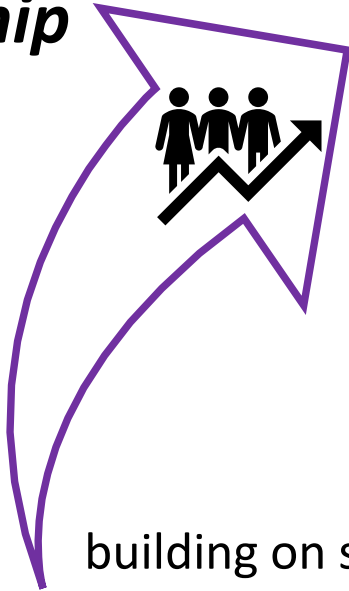
wider systemic links and feedbacks

- Earth and Climate
- Society
- Economy

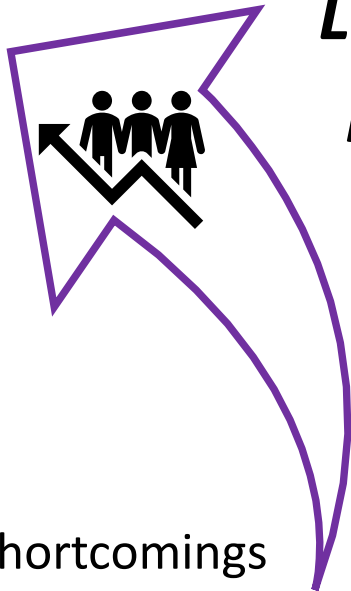
Organizational structure convergence:
Aligned economic and social goals

Improved governance

*Public ownership
pathway*



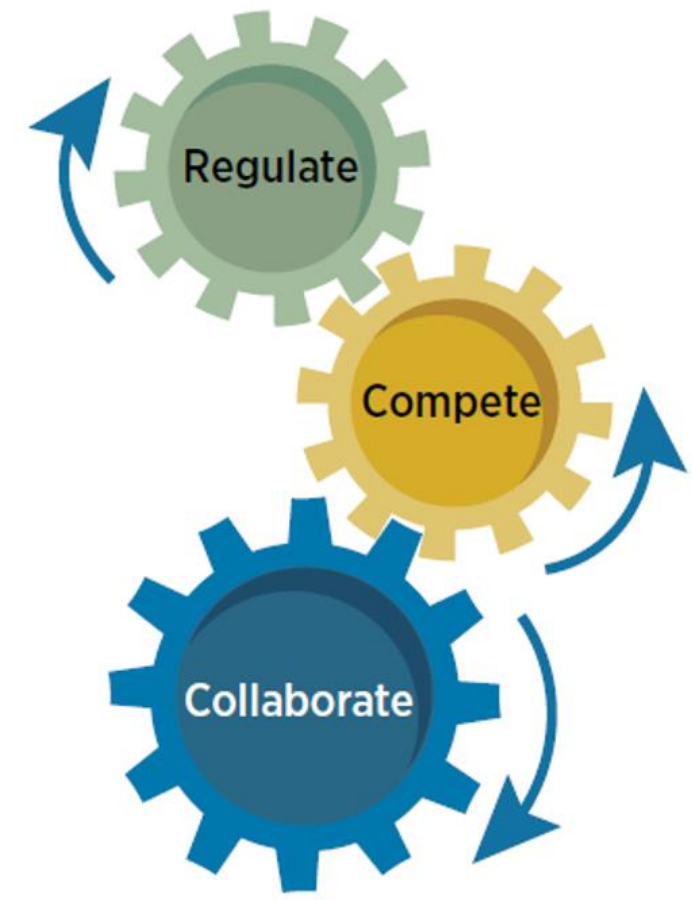
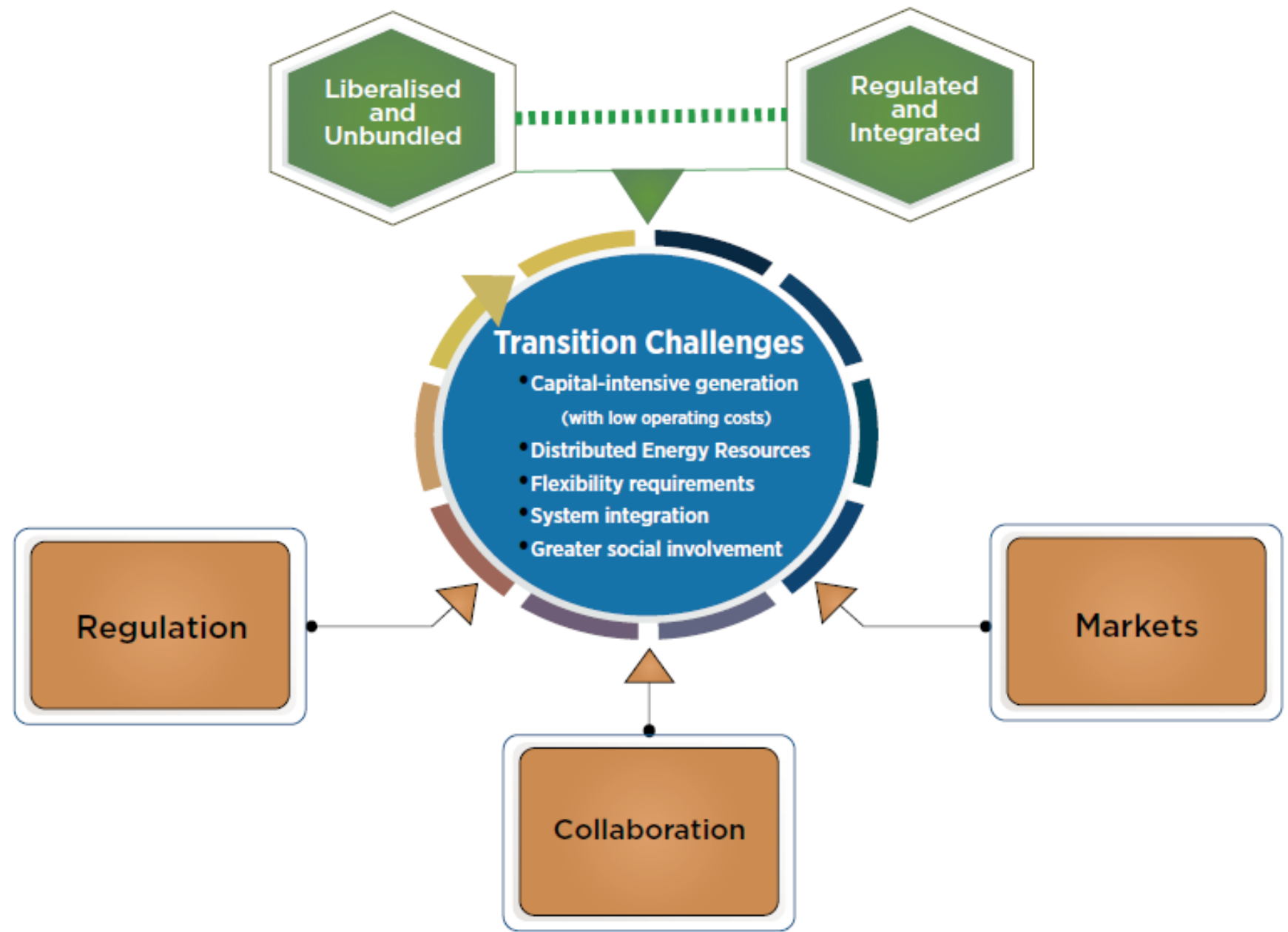
*Liberalized
pathway*

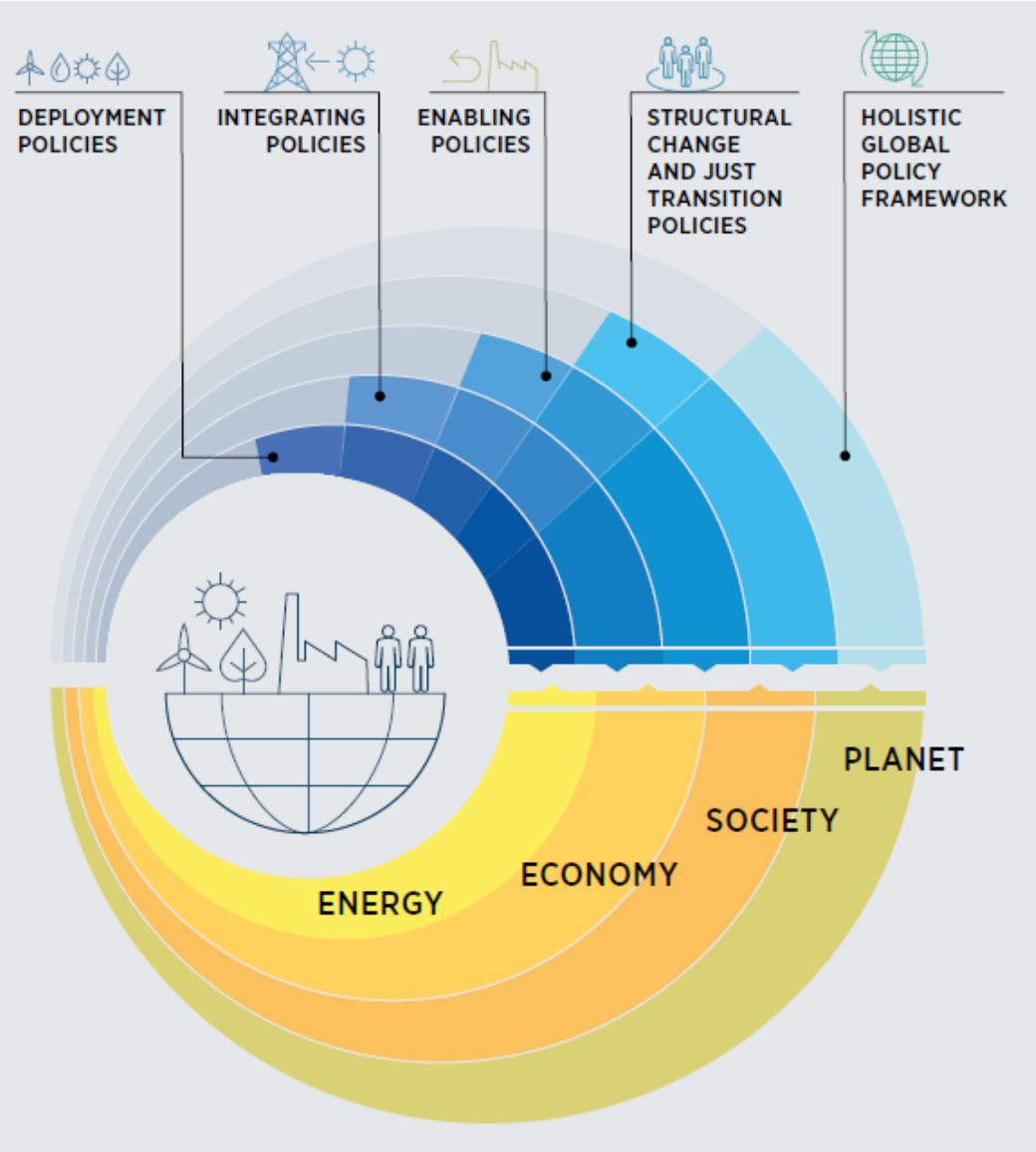


Evolution:
building on strengths and overcoming shortcomings

Different social and economic starting points

Transition challenges common to all system structures





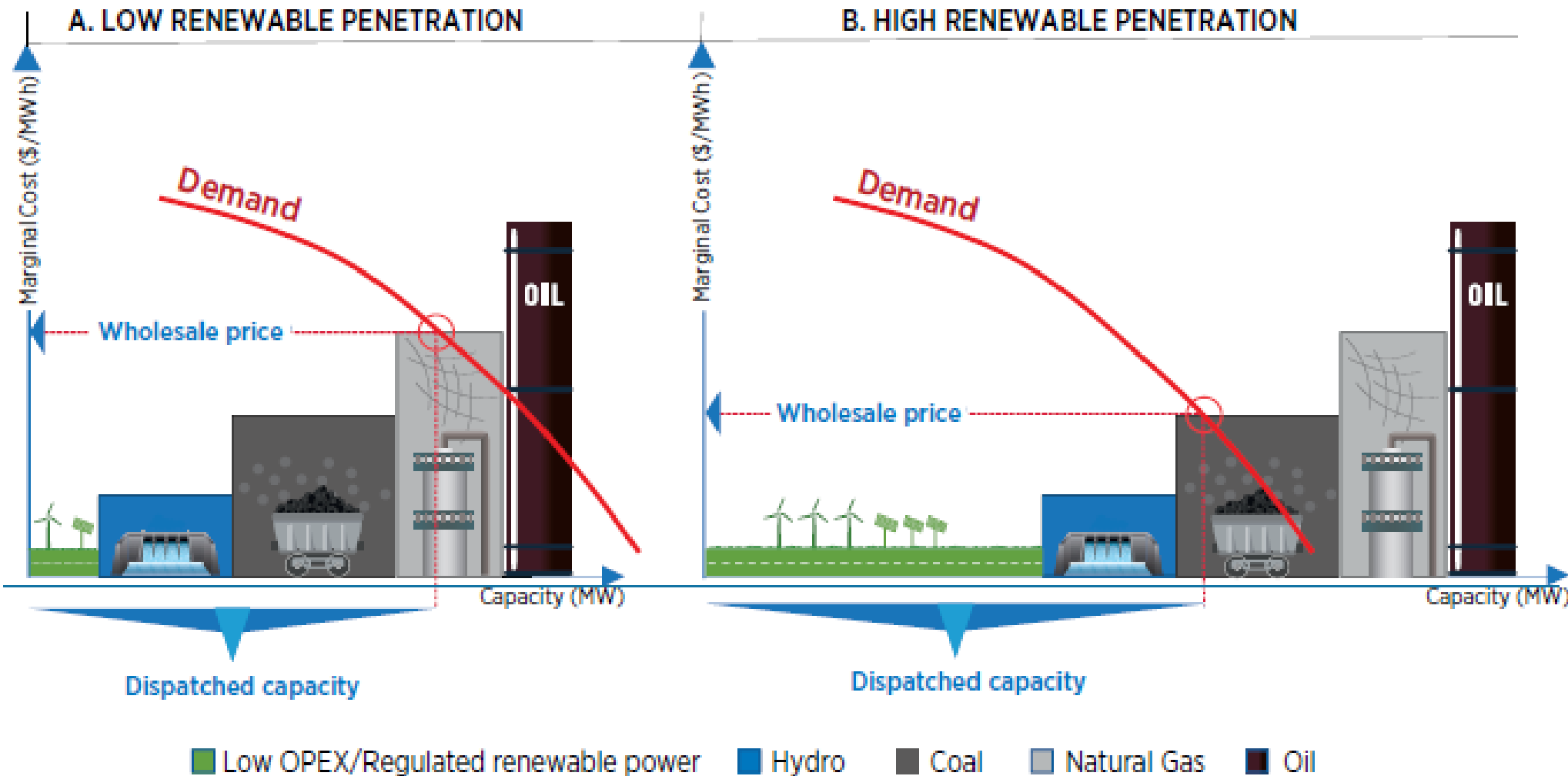
Within power system:

- wholesale electricity pricing
- CRM for fossil fuels
- ancillary services gaps
- bill's disconnect with transition
- grid death spiral
- cost, price and value

Beyond power system:

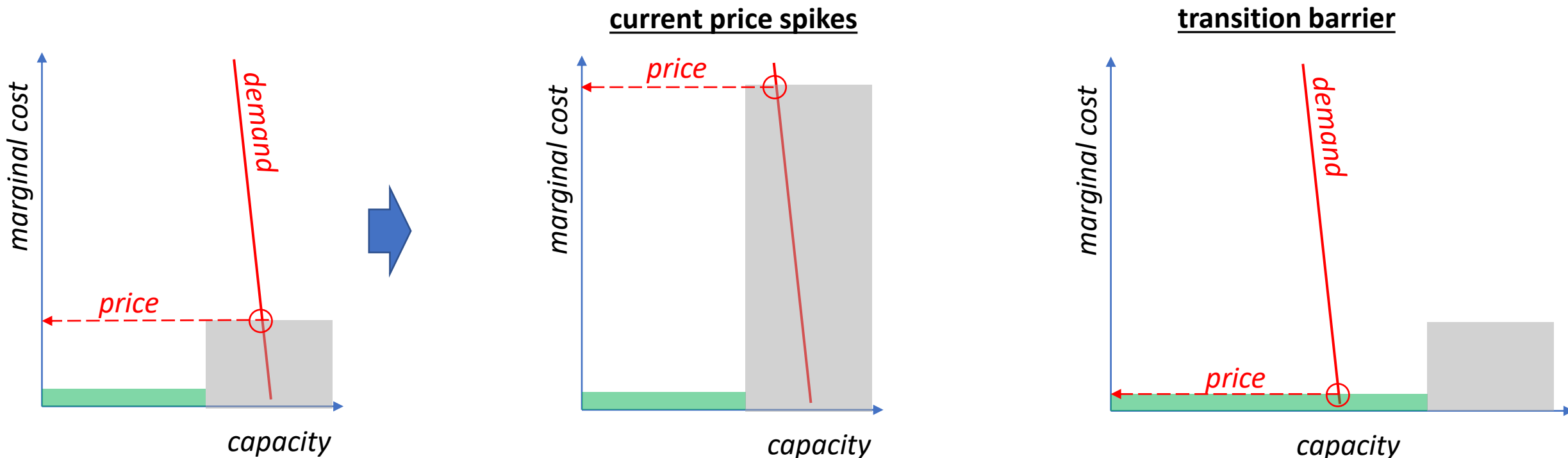
- labour dynamics during transition
- aggregated economic activity growth imperative
- inequality

Wholesale market misalignments

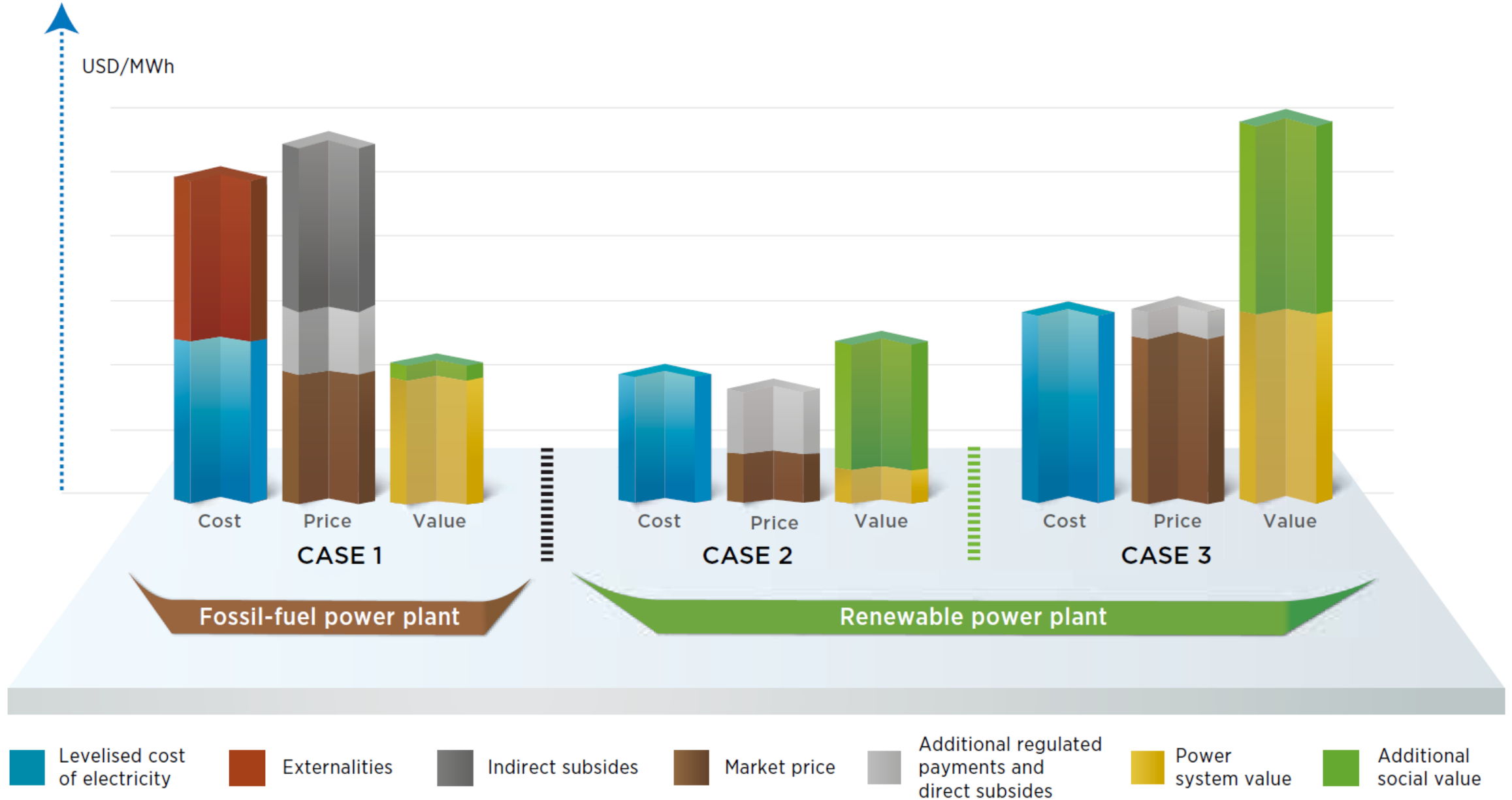


Electricity price spikes: symptom of same misalignment

- marginal pricing of ALL electricity
 - surge in natural gas prices
- } → all time highs in wholesale electricity prices
(up to 700 €/MWh !!!)
- ↓
- Misalignment becoming evident
 - But still failing to see other side of same coin:
transition barriers due to prices tending to zero & price volatility



The cost-price-value misalignments



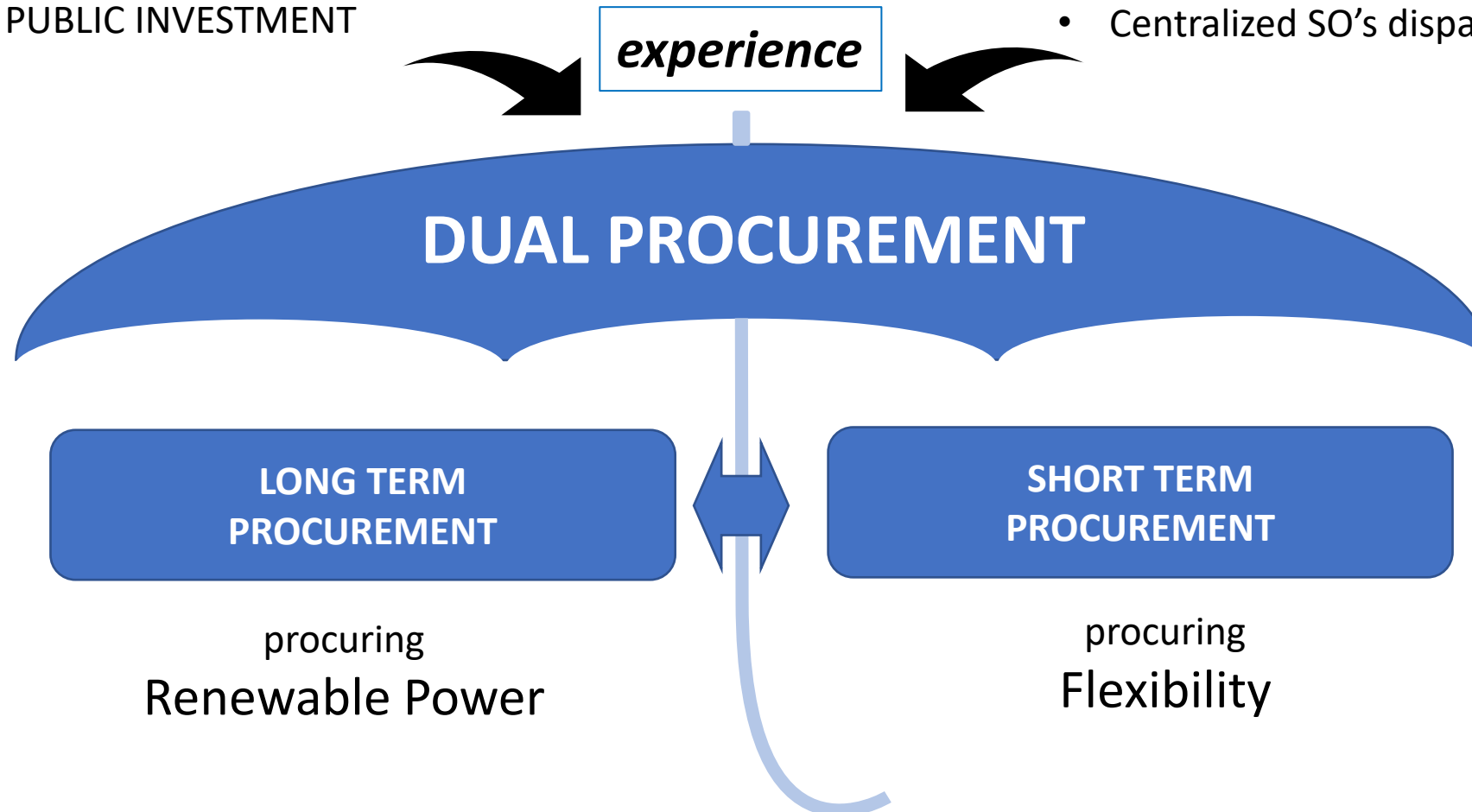
Proposal for way forward: The Dual Procurement

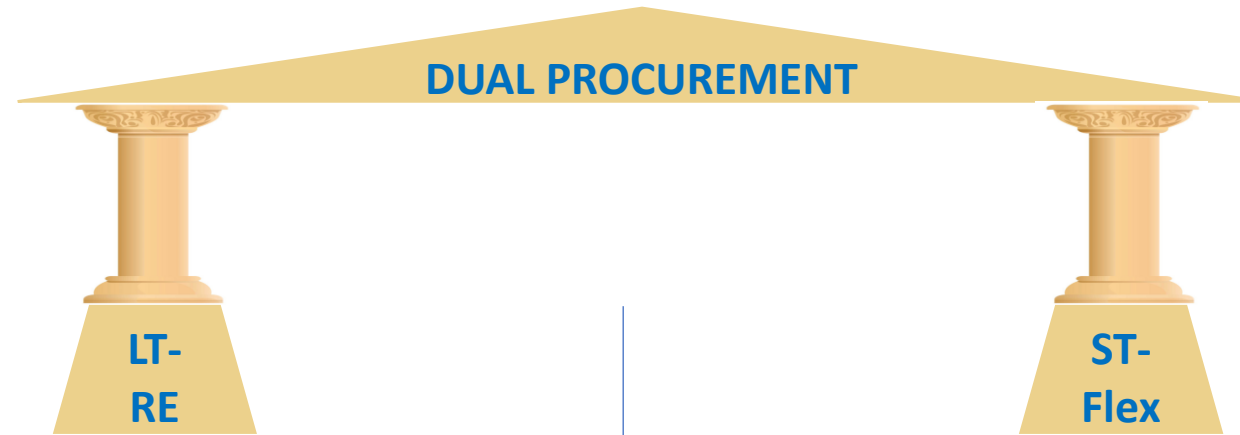
To provide a stable framework:

- SUPPORT MECHANISMS (FiT, FiP, PPA)
- Direct PUBLIC INVESTMENT

To match supply and demand:

- WHOLESALE AND RETAIL MARKETS
- Centralized SO's dispatch





- Procure RE generation through long term mechanisms (auctions or direct public investment)
 - fit for high-CAPEX / low-OPEX generation
 - fosters electricity adequacy
 - minimizes finance costs
 - driven by LT planning with a focus on system value

- Procure Flexibility through dedicated short-term mechanisms (similar to wholesale/ancillary services)
 - enables flexibility resources participation (DSM, storage, dispatchable REs, system integration...)
 - fosters flexibility adequacy
 - driven by ST dispatch requirements



potentiate synergies

Thank you!



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