



DEPARTMENT
OF ECONOMICS

COPENHAGEN SCHOOL OF
ENERGY INFRASTRUCTURE

OVERCOMING THE BOTTLENEC

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Getting our grids together

- increasing challenges in Europe to
 - interconnect markets and regions
 - connect new generation and demand
 - set up new grids: hydrogen, CO₂, district heating



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COM(2023) 757 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Grids, the missing link - An EU Action Plan for Grids

Opportunities for increases in cross-border capacity in 2030 (additional to the starting grid)

CROSS-BORDER CAPACITY INCREASES NEEDS IN MW (ADDITIONAL TO THE STARTING GRID 2023)

- < 500 MW
- 500 → 2,000 MW
- 2,000 → 4,000 MW
- > 4,000 MW



The future of European competitiveness

Part A | A competitiveness strategy for Europe

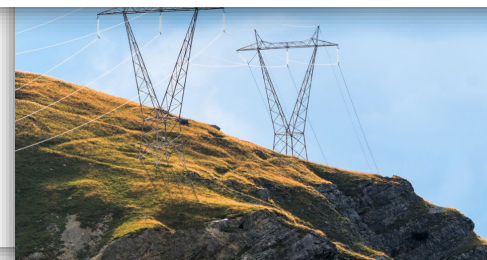
SEPTEMBER 2024

A central element in accelerating decarbonisation will be unlocking the potential of clean energy through a collective EU focus on grids. If there is one horizontal area in the energy sector whose importance cannot be

Electricity Grids and Secure Energy Transitions

Enhancing the foundations of resilient, sustainable and affordable power systems

International Energy Agency



The hurdles

➤ looking beyond a lack of money and bureaucracy...

UNCERTAINTY

- composition and topology of future system
- cost-recovery under future regulation

HETEROGENEITY

- alignment between transmission, distribution and other stakeholders
- distributional effects between interconnected grid and market areas

INERTIA

- bias for capital expending expansion
- accountability for congestion management cost and delays

Some solutions

FUNDING

- increased Connecting Europe Facility and national revenue allowances
- cost - sharing between network areas and including new rate payers

CERTAINTY

- coordinated planning between infrastructures
- long - term agreements with (selected) existing and future users

AGILITY

- transactional arrangements for flexibility
- regulation for grid - enhancing technologies
- regulatory acceptance of early investments and plan corrections

TRANSPARENCY / INCLUSIVENESS

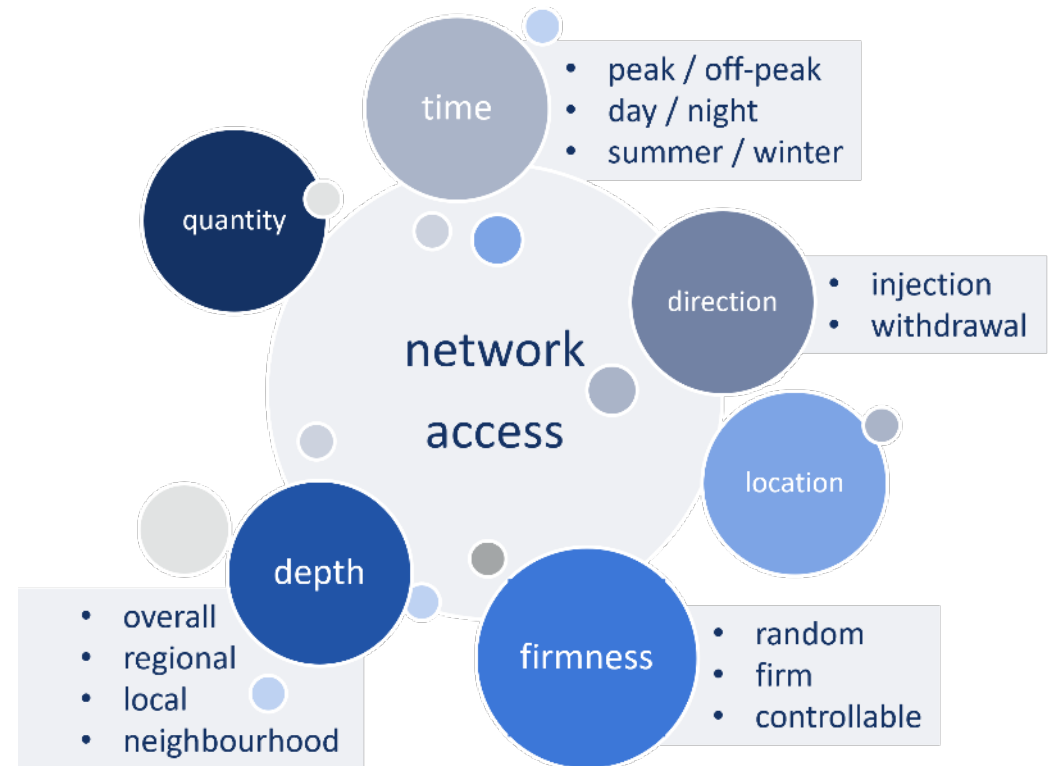
- stakeholder involvement in planning
- communication of planning implications
- accountability for investment decisions

Differentiating network access

- access rights vary in dimensions beyond quantity
- dedicated transaction agreements or market-based mechanisms to allocate access
- mitigate and manage existing constraints
- optimize grid expansion vis a vis grid users' utility

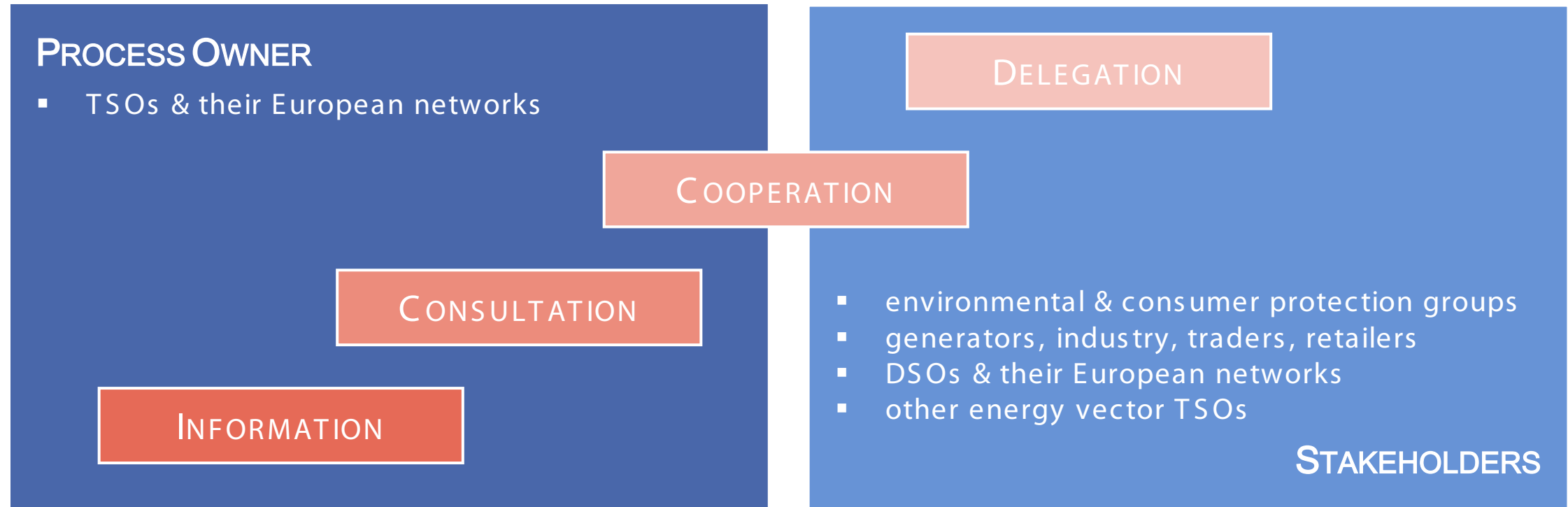
new challenges

- reliability, complexity, acceptance
- interaction with other markets and mechanisms



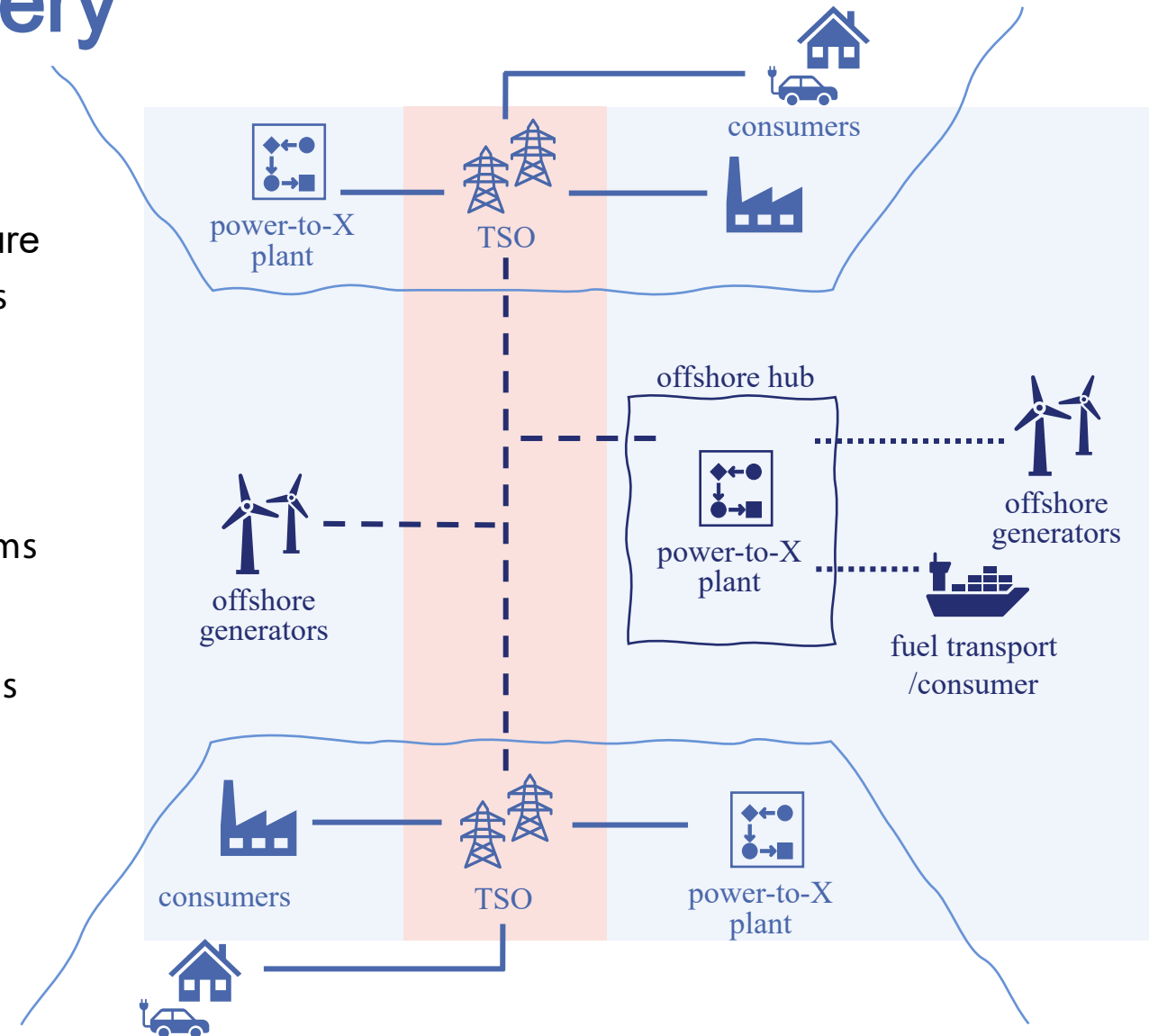
Engaging stakeholders in grid development

- acceptance and alignment of grid expansion
..and of its monetary & non-monetary cost



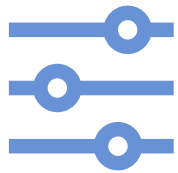
Rethinking ~~energy~~ recovery

- dedicated grid (and market) area for offshore infrastructure
- potentially even combining different energy vectors
- financial commitments (long-term contracts or even shareholding) from key users including for example generators, consumers, and even neighboring systems
- harmonization across a subset of interested countries with positive cost-benefit balance (notwithstanding compensation of net negatives)



Wrapup

The challenge for grids in Europe goes beyond a lack of money and bureaucracy
...and can partly be overcome by pragmatic regulation.



➤ adjust governance and regulation for the transition

- accept and work with the bottlenecks
- include actors who are affected and who benefit



➤ balance between action and efficiency

- explore the trade-off of fast action
- with mechanisms that adjust along the way

Thank you for your time and attention!

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Links and references

- [Map on connection delays in the Netherlands](#)
- [ENTSO-E System Needs map 2030](#)
- [Hydrogen Backbone map](#)
- [EU Grid Action Plan](#)
- [IEA report on electricity grids](#)
- [Book with chapter on differentiated access rights](#)
- [CSEI STEERSproject on European network planning](#)
- [CSEI event on stakeholder engagement in infrastructure planning](#)
- [Working paper on cross-border allocation of costs and benefits for energy Infrastructure](#)
- [CSEI NordH2ub project on hydrogen infrastructure](#)
- [CSEI EDDIEproject on energy data hubs](#)
- [CSEI PAoCCUS project on public acceptance of CO2 infrastructure](#)

