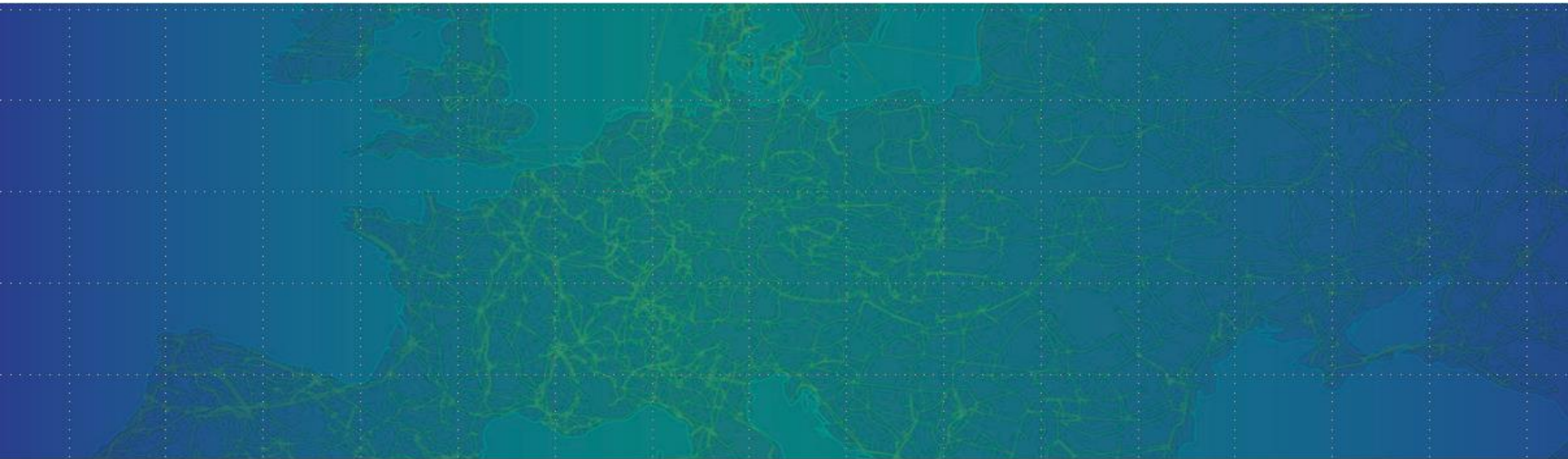


ENTSO-E view on system integration

Energy Infrastructure Forum, 25 November 2021



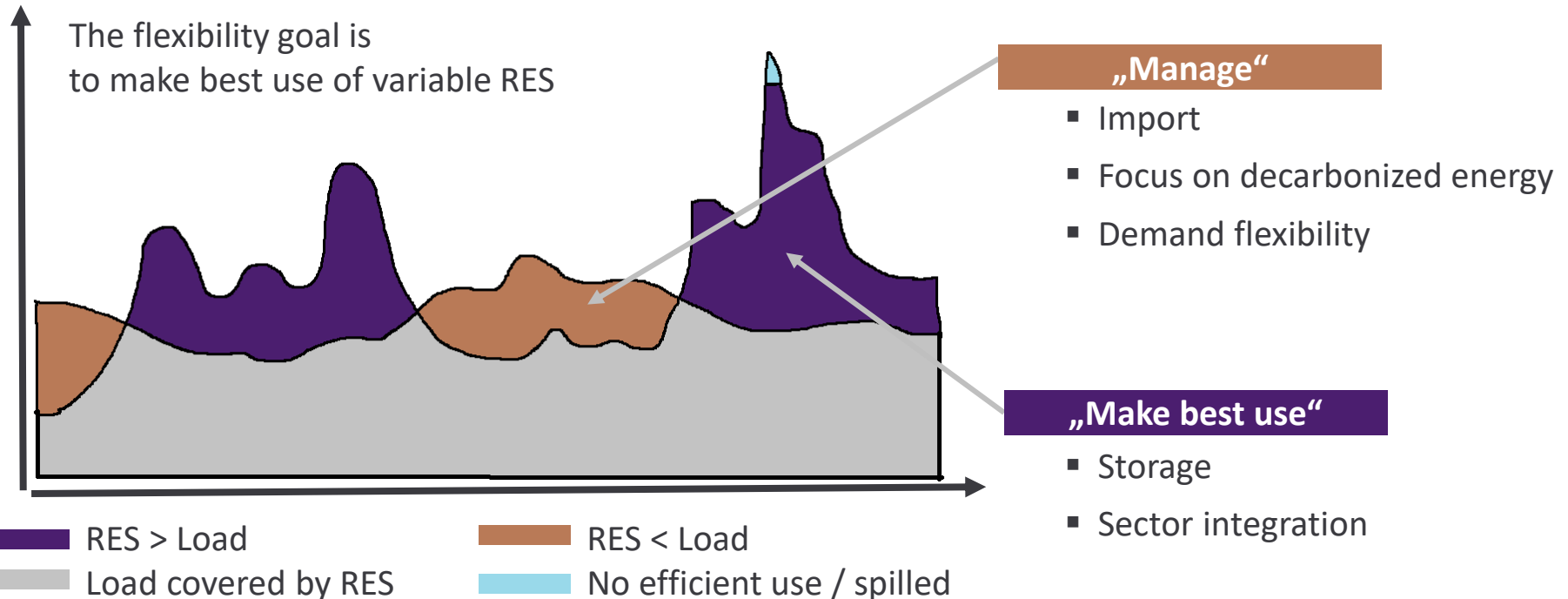
Gerald Kaendler, ENTSO-E

Aim of sector integration // Contribution of ENTSO-E

- Climate neutrality
- 'Energy efficiency first' principle
- Minimal system costs
- Security of supply

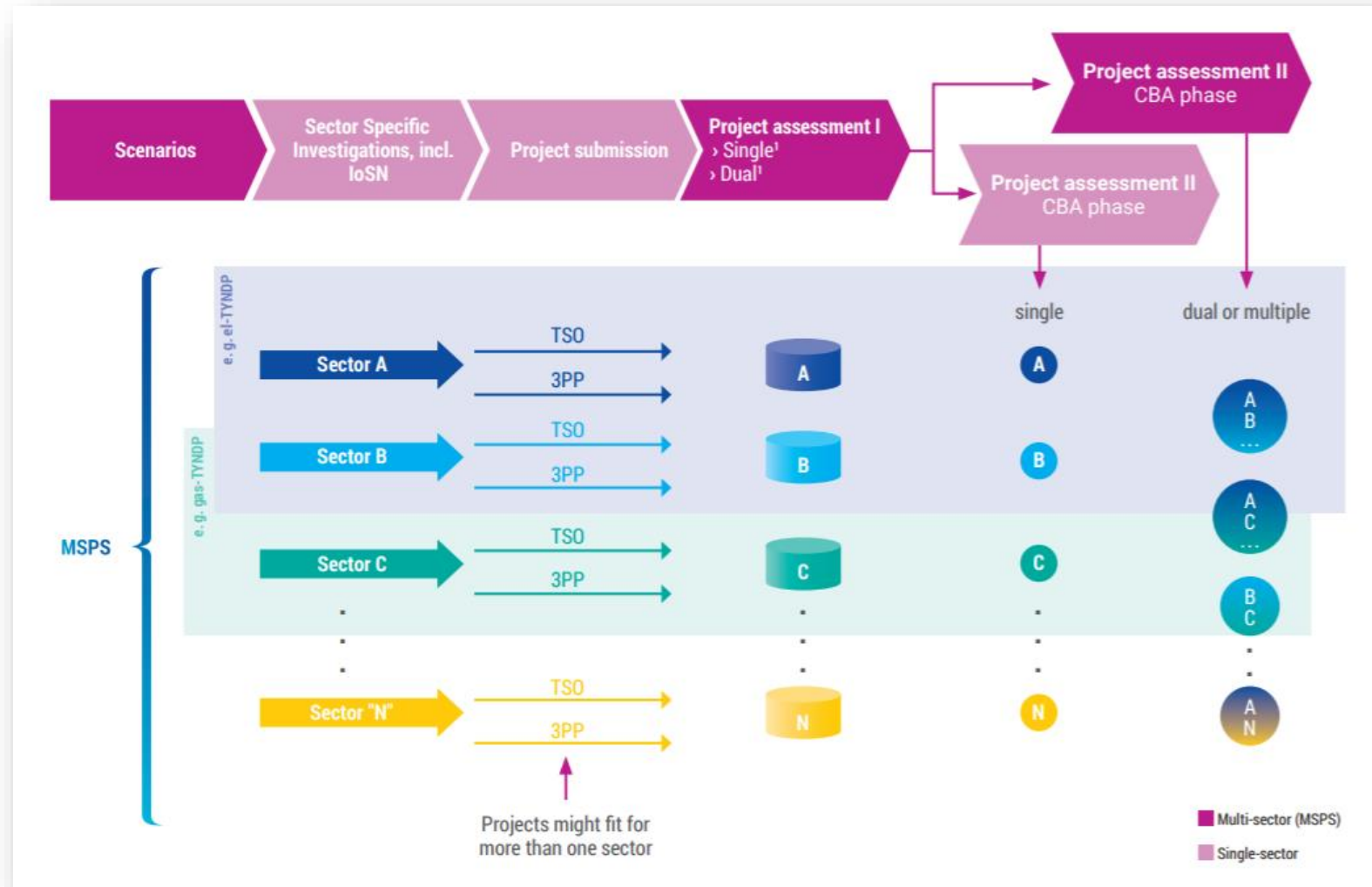


- Integration of variable renewable energy sources
- Facilitation of electrification of processes
- Interlinking sectors for a cost-efficient system
- Maintaining system adequacy and stability



ENTSO-E's Roadmap for a Multi-Sectorial Planning Support

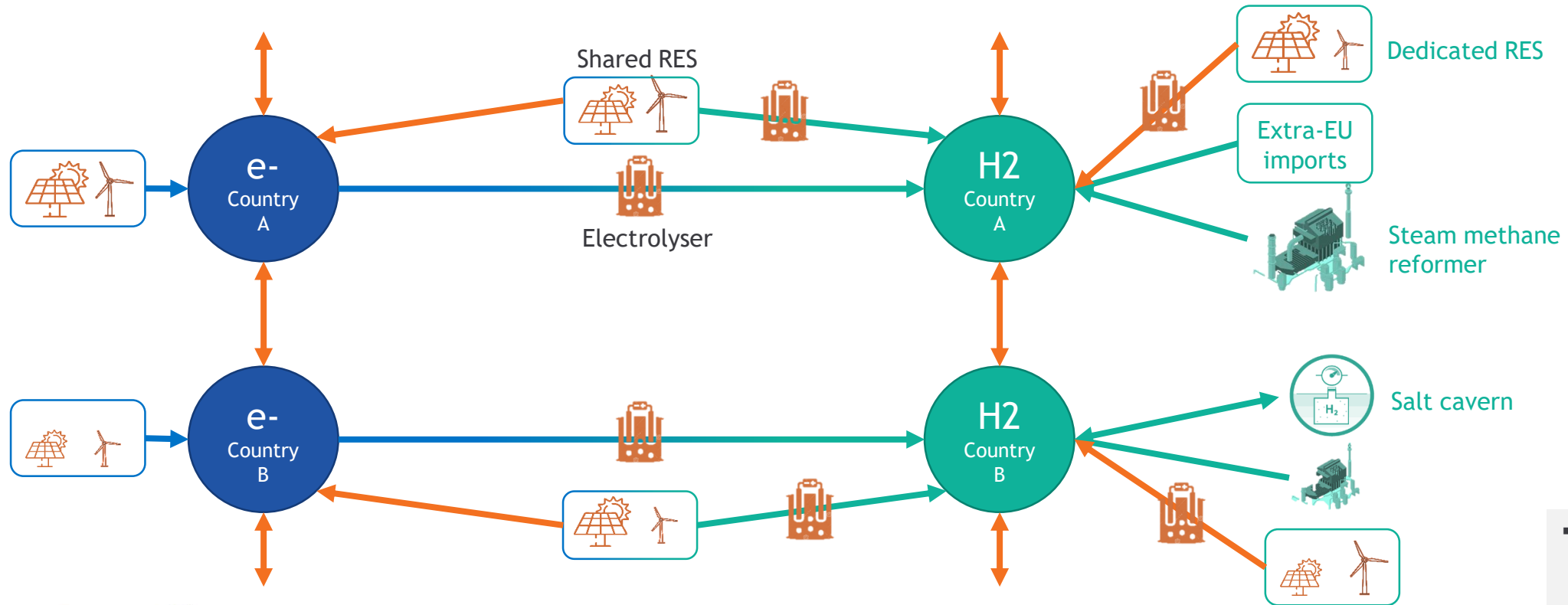
- Greater coordination across sectors throughout scenario building & infrastructure planning steps
- Stakeholder collaboration central to the process
- One energy system view
- Multi-sectorial elements in scenario building and project assessment phases ('interlinked model')
- Multi-sectorial cost-benefit analysis and indicators



TYNDP Scenarios showcasing market integration of P2G configurations

TYNDP 2022 Scenarios Distributed Energy and Global Ambition built on **multiple electrolyser configurations**, including ambitious market integration between electricity and hydrogen markets.

This enables **optimization** at bidding zone/country granularity of **electrolyser capacity and siting**, taking into account H2 demand location, RES and electricity and hydrogen interconnections.



- H2 interconnections cover repurposed natural gas pipes and new ones.
- At this stage there is no explicit modelling of the backward loop H2-to-power.

Back-up

Innovation uptake through Regulation

1

KPI-based incentives can help steer TSO innovation investments
>> should be at national level.

2

Share of monetized benefits should be shared ex post with the TSO
>> innovative projects accompanied by a full Cost Benefit Assessment decision should be based on the maturity level of the innovative solution
>> not suitable for all types of innovation and thus to be restricted to more mature innovations with quantifiable benefits

ENTSO-E recommends national *“Innovation Development Plans”*

- TSOs and NRAs to agree on specific areas of innovation
 - TSOs to receive a reward for dedicating resources on the identified priorities
- provide a dedicated incentive for TSOs to invest in less CAPEX-intensive, yet more efficient solutions, supported by a simple evaluation (not a full TYNDP CBA)