

WEBINAR - ENTSO-E RDI Roadmap 2020-2030

TSO innovation for a climate-neutral European energy system

2 July – 11.00-13.00 (CEST)



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Notes & Rules for the Participants

Video and audio

- Video and audio is allowed only for Speakers or Panellists
- Speakers or Panellists will be asked to switch video and audio OFF when not talking

Questions

- Participants can place their questions directly through sli.do and not through GoToWebinar. Feel also free to vote for most relevant questions posted
- Indicate your name and company/institution when posting your question
- Moderator will select a couple of questions and ask the relevant speakers or panellists to comment
- Chat and raise the hand feature will not be used

Sli.do: # Roadmap30



Agenda

Time	Issue	Presenter
11.00-11.10	Introduction	Laurent Schmitt, Secretary General (ENTSO-E)
11.10-11.25	Research, Development and Innovation: A key pillar of Green Deal Q&A	Patrick Child, Deputy Director-General (DG RTD) Moderator: Laurent Schmitt, Secretary General (ENTSO-E)
11.25-11.40	ENTSO-E Vision 2030 Q&A	Timothée Decroix, Chair of Policy & Communication Group (Swissgrid) Damian Cortinas, System Operation Lead of the ENTSO-E 2030 Vision Project (RTE) Moderator: Norela Constantinescu, Research & Innovation Manager (ENTSO-E)
11.40-11.55	Taking the challenge of EU Green Deal: the new ENTSO-E RDI strategy Q&A	Håkon Borgen, Chair of Research, Development & Innovation Committee (Statnett) Moderator: Norela Constantinescu, Research & Innovation Manager (ENTSO-E)
11.55-12.50	Introducing ENTSO-E's RDI Roadmap 2020-2030 Q&A after each of the 6 flagship clusters	Sonja Berlijn, Convener of Working Group Research, Development & Innovation Planning (Statnett) Moderator: Uroš Salobir, Vice-chair of Research, Development & Innovation Committee (ELES)
12.50-13.00	Conclusions	Håkon Borgen, Uroš Salobir

Laurent Schmitt

Secretary General (ENTSO-E)



Bridging the gap from 2030 to 2050 and beyond

Clean Energy Package: 2030 targets & new ENTSO-E mandates

- 32,5% improvement in energy efficiency
- 32% of energy from renewables
- 40% reduction of GHG emissions

Green Deal: 2050 EU Long-term strategy & Climate Law

- Full decarbonisation of the energy system and climate neutrality
- Reduction of emissions from other sectors

European targets

2030

2050



COP21-CMP11
PARIS 2015
UN CLIMATE CHANGE CONFERENCE

ENTSO-E contributions

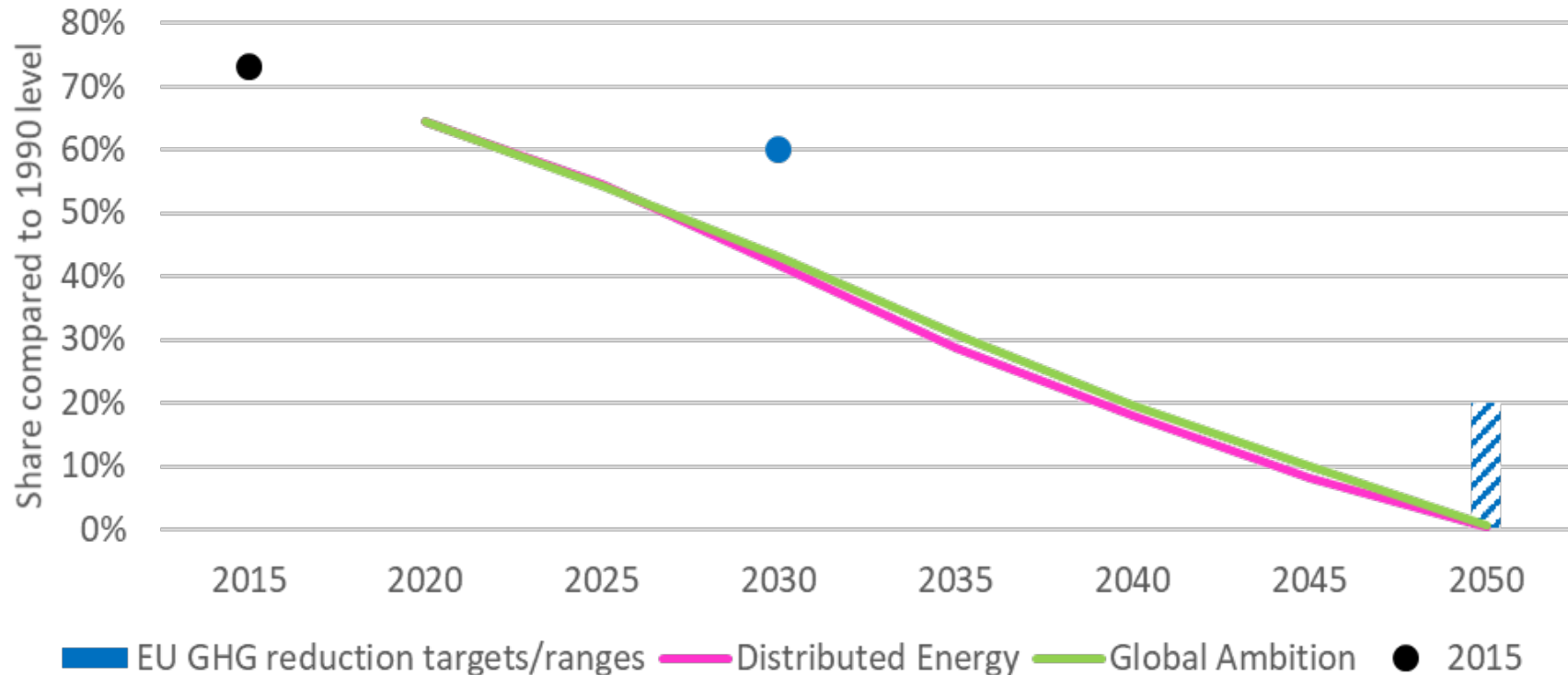
- **Ten-Year Network Development Plans**, compliant with COP21 and National Energy & Climate Plans
- **Network codes and Clean Energy Package implementation**
- **IT tools & platforms**

- **ENTSO-E Vision 2030: a 'system of interconnected systems'**
- New long term scenarios, new TYNDPs and multi-sectorial planning

➡ **ENTSO-E RDI Roadmap**

EU climate neutrality by 2050

GHG emissions compared to 1990 level



	<2050	2050	>2050
Energy and non-energy related CO ₂ emissions	57.1		
Non-CO ₂ GHG emissions (including methane and Fluorinated gases)*	17.7		
Carbon sinks**	-13.4	Carbon-Neutrality	Additional measures needed, e.g.: LULUCF, BECCS, CCS, DAC
Net cumulative emissions	61.4		-13

TYNDP National Trends Scenario are- aligned with NECPs

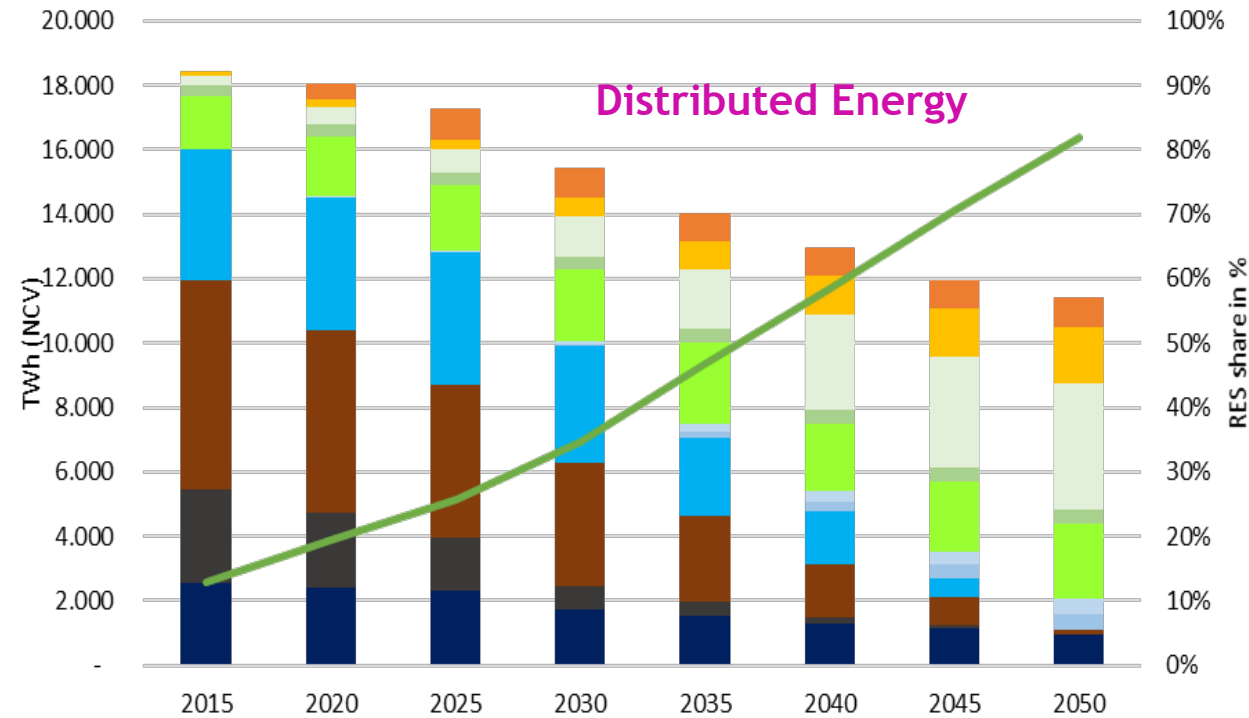
TYNDP COP21 Scenarios assessed all GHG emissions on the path to 2050 targeting net zero

TYNDPCOP21 Scenarios reach **>55% GHG emissions reduction by 2030**

Cumulative **GHG emissions in 2050** confirms European Commission Long Term Scenario 1.5TECH/LIFE calculations (**61.4 vs 65 GtCO₂**)

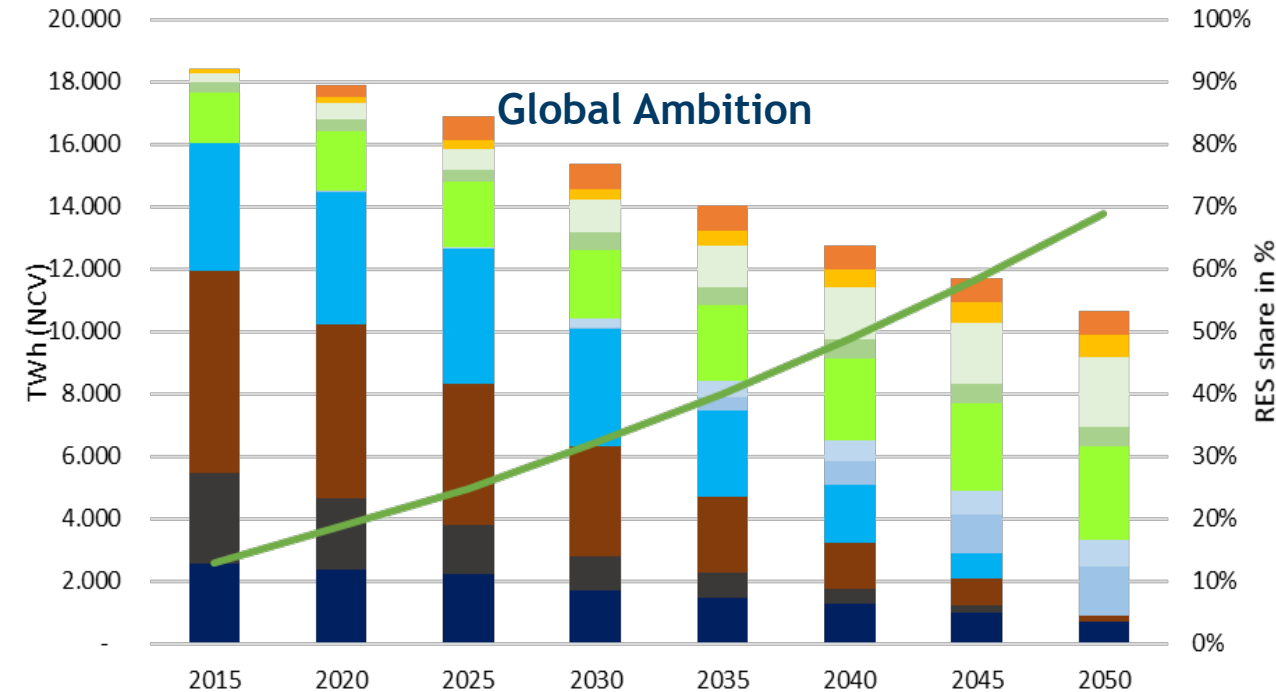
Renewables in primary energy

RES share reaches 82% in Distributed Energy by 2050



Nuclear energy
 Oil (including refinery gas)
 Imports for methane demand (decarbonised)
 Biomass/ BioLiquids/Waste
 Wind (Including P2X)
 Solids
 Natural gas
 Imports for hydrogen demand (decarbonised)
 Hydro (pumping excluded)
 Solar (including P2X)

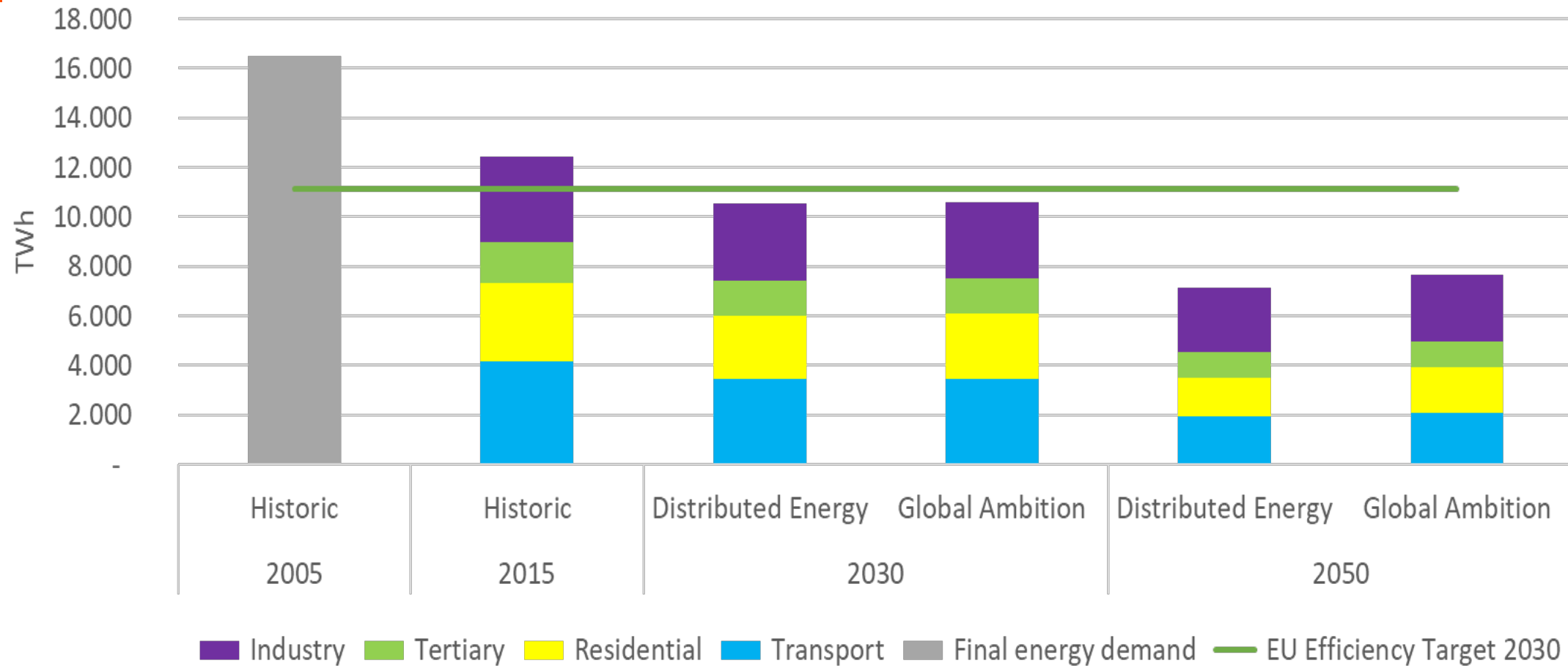
RES share reaches 69 % in Global Ambition by 2050



Nuclear energy
 Oil (including refinery gas)
 Imports for methane demand (decarbonised)
 Biomass/ BioLiquids/Waste
 Wind (Including P2X)
 Solids
 Natural gas
 Imports for hydrogen demand (decarbonised)
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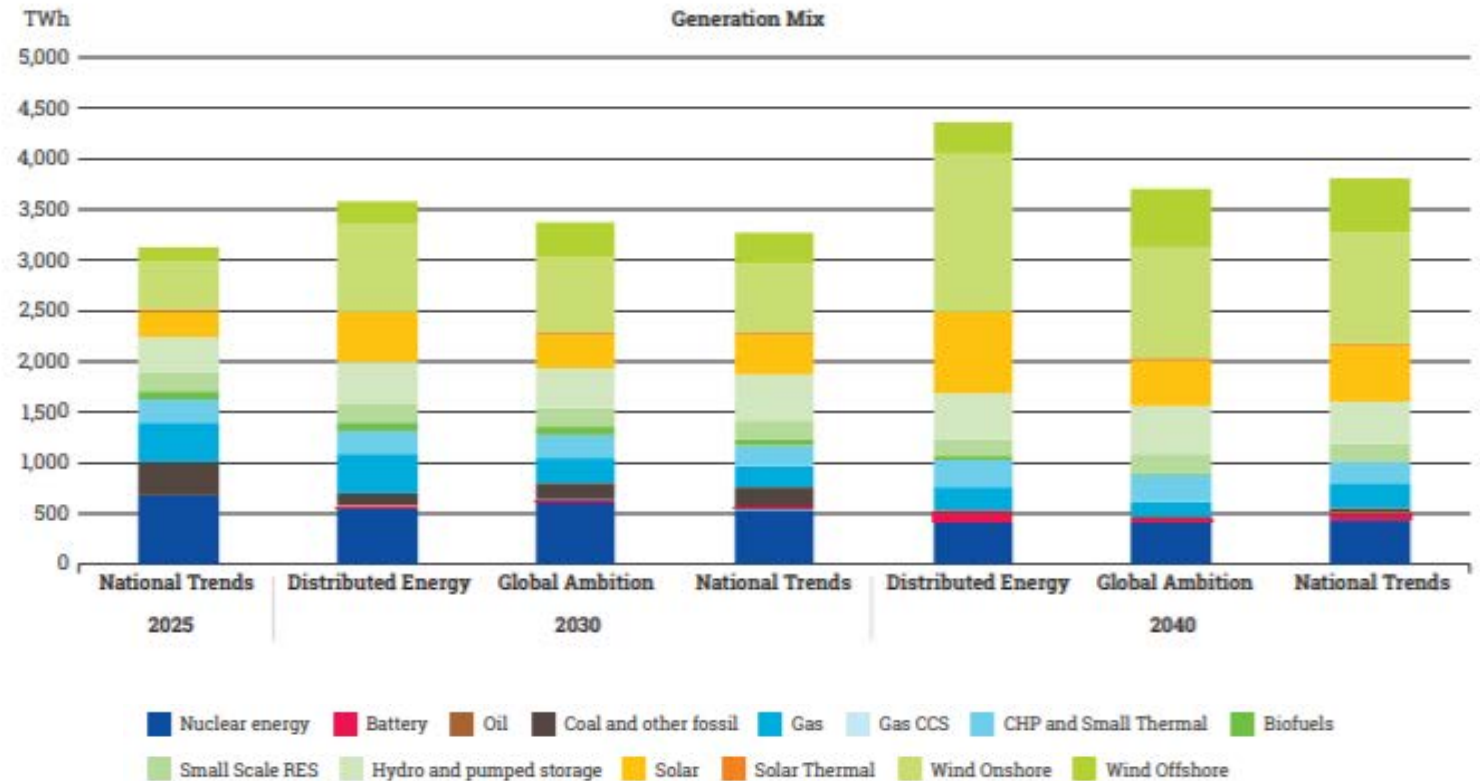
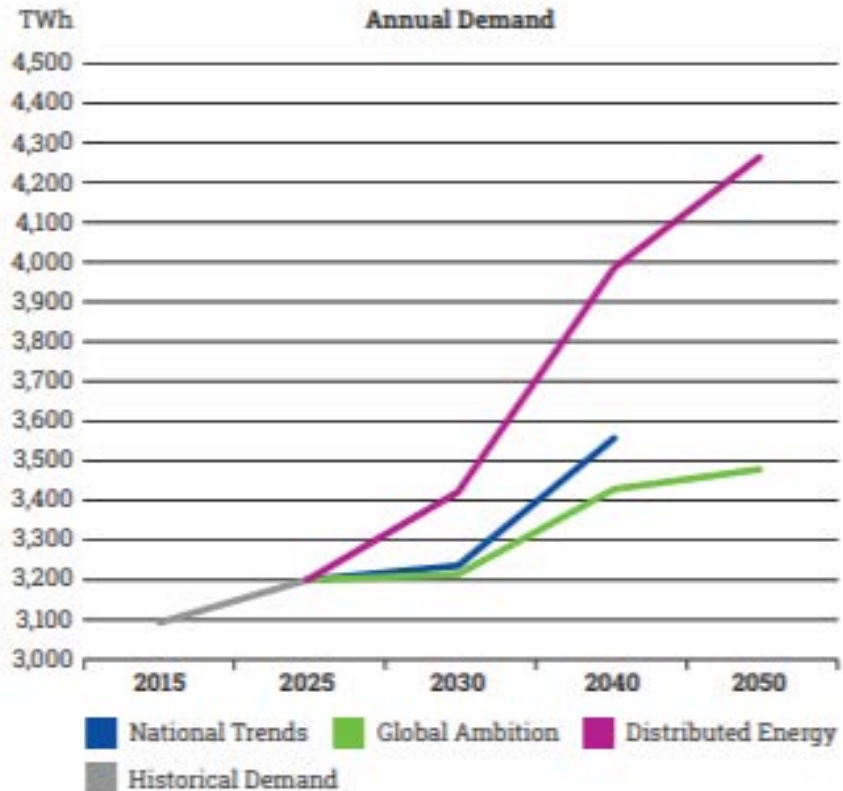
TYNDP COP21 Scenarios are in line with EU's 32% target for renewables in 2030

Energy efficiency



COP21 Scenario Storylines engineered energy efficiency driven by technology improvements per sector. COP21 Scenarios reach higher efficiency in 2030 - max. 10.600 TWh of final demand

Electricity system: challenge and opportunities ahead of us



Research, Development and Innovation: A key pillar of Green Deal

Patrick Child

Deputy Director General, DG RTD



ENTSO-E RDI Roadmap 2020-2030

Moderated by:

Norela Constantinescu

Research & Innovation Manager
(ENTSO-E)



Vision on Market Design and System Operation towards 2030

ENTSO-E Vision 2030



Timothée Decroix

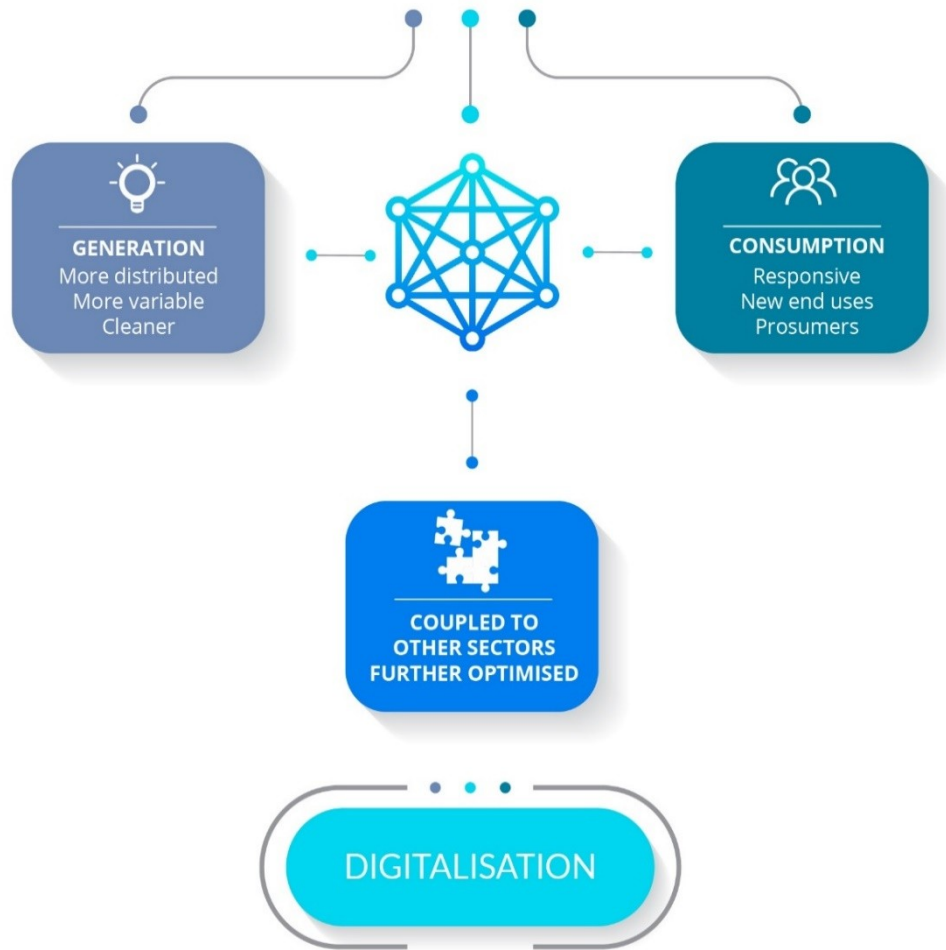
ENTSO-E Chair of Policy &
Communication Group (Swissgrid)



Damian Cortinas

ENTSO-E Vision 2030 Project
Manager (RTE)

Major trends in the power sector and new political framework



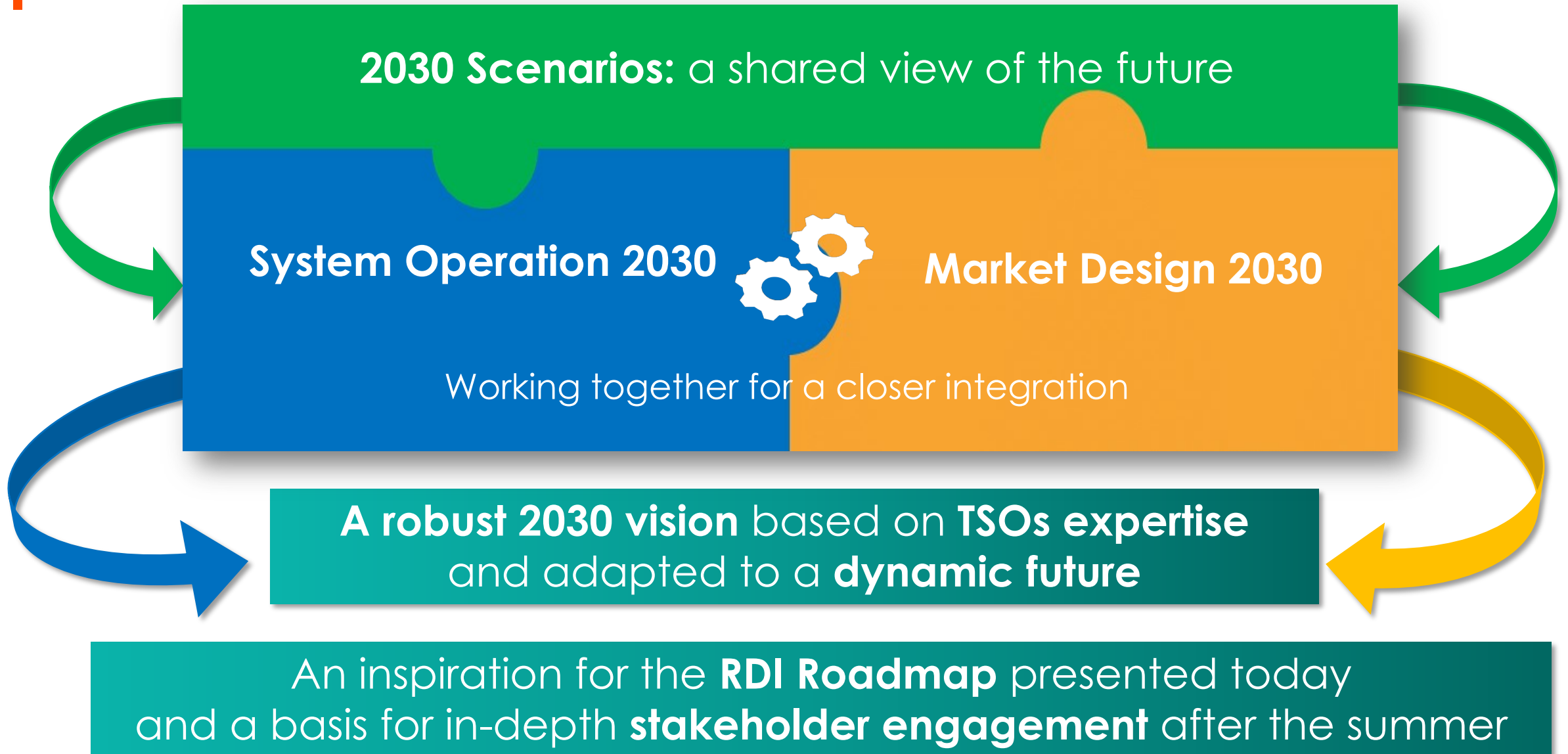
The European electricity system undergoes significant changes driven by a **strong climate action agenda** and related development of renewable energies.

These changes take place at unprecedented speed and add **further complexity** to system operation and electricity markets, while also offering **new opportunities**.

The Clean Energy Package is an important milestone for this transition. Its timely **implementation is the priority** for European TSOs.

ENTSO-E's Vision aims to contribute to the **Green Deal** through the shift of Europe's energy sector to a **clean, digitalised and electrified consumer centric system with many distributed resources**.

How the Vision 2030 was built

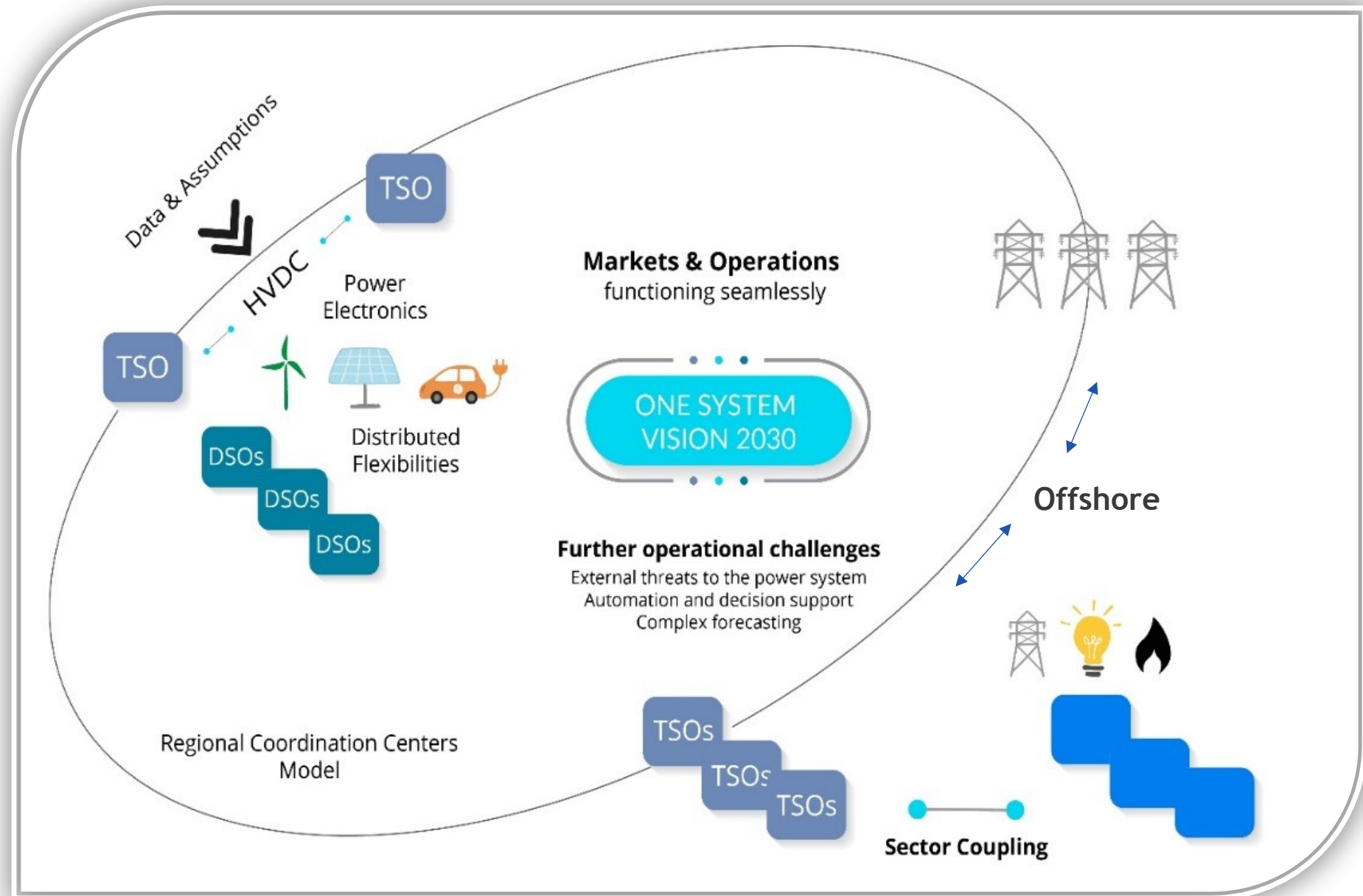


Key drivers for a fast evolving power system towards 2030

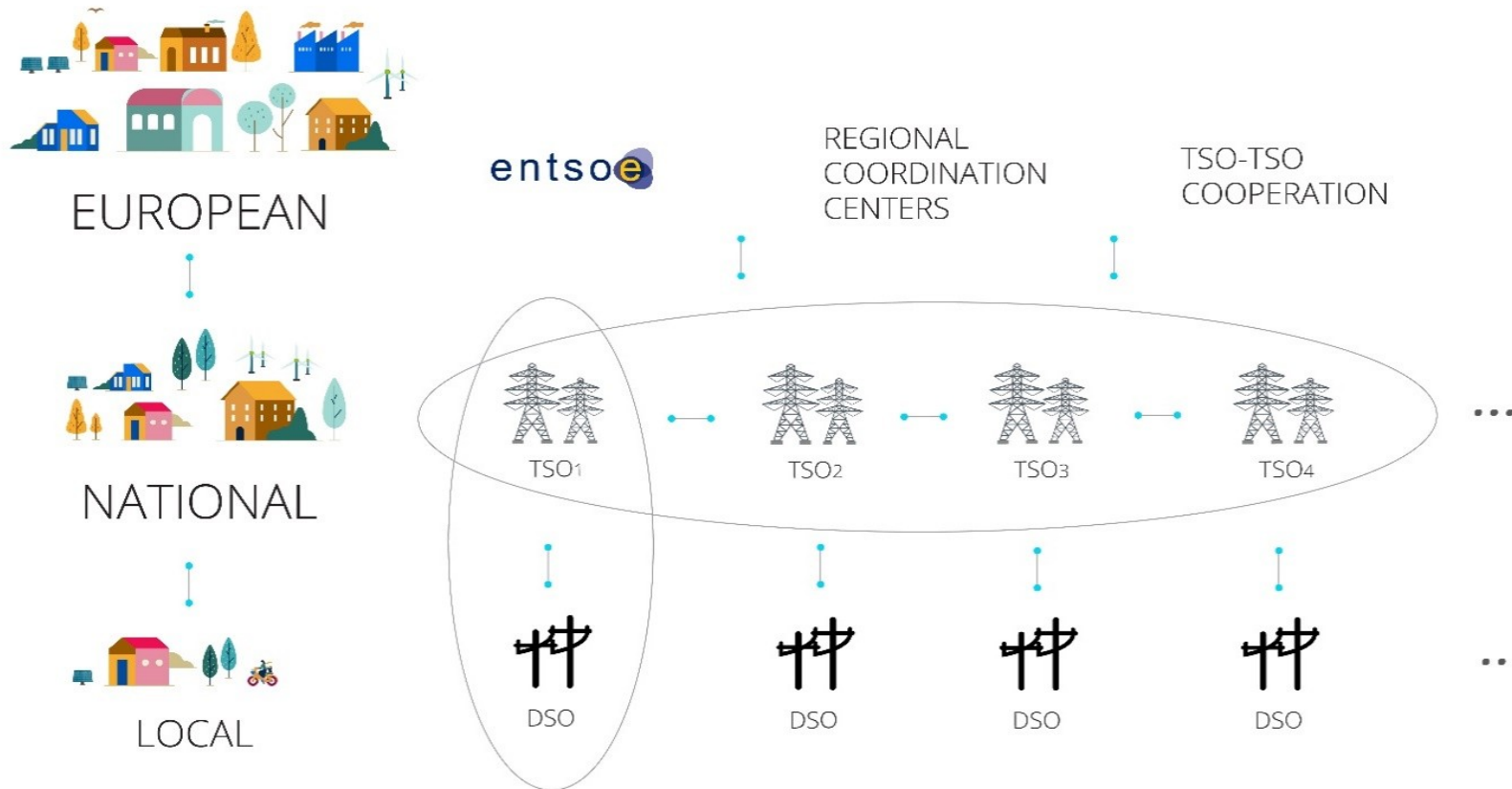
- **Distributed flexibilities** with close TSO & DSO cooperation, customer centric approach
- **Sector Integration** with pivotal role for “system of systems”, beyond power
- **Markets and Physics** seamlessly integrated
- Wind generation and interconnections in the seas, **Offshore Grids**
- **Power Electronics** towards hybrid AC / DC systems
- **Mastering operational challenges** - resilience (including cybersecurity), forecast, automation, Artificial Intelligence



A true System of Systems



Towards a System of Interconnected Systems



- **Geographical scales**
- **Functional layers**
- **Multilateral interfaces**
- **Interoperability**
- **System operators = key facilitators**
- **Governance involving stakeholders**

Taking up the EU Green Deal challenge: the new ENTSO-E RDI strategy

Håkon Borgen

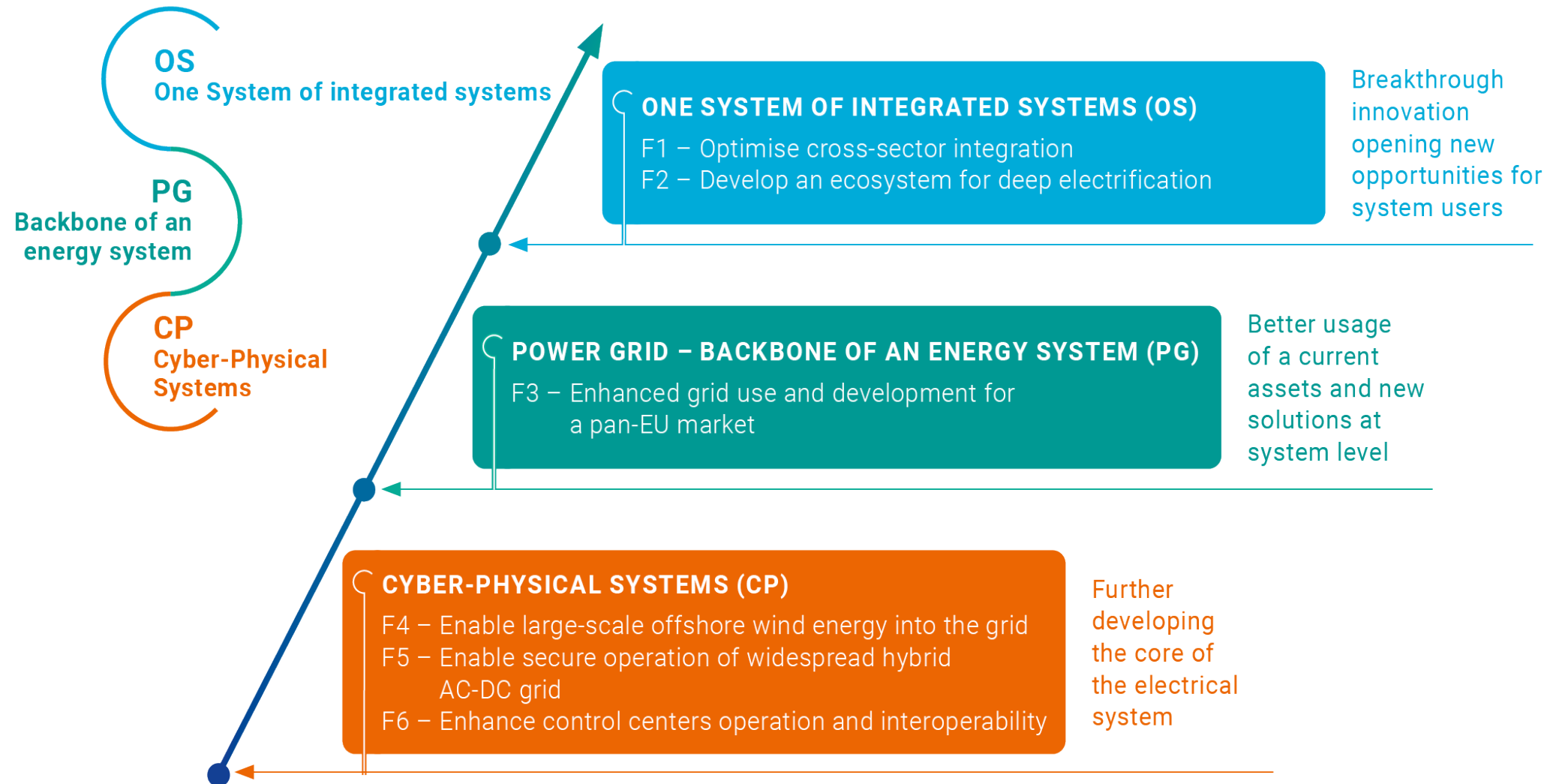
Chair of Research, Development &
Innovation Committee (Statnett)



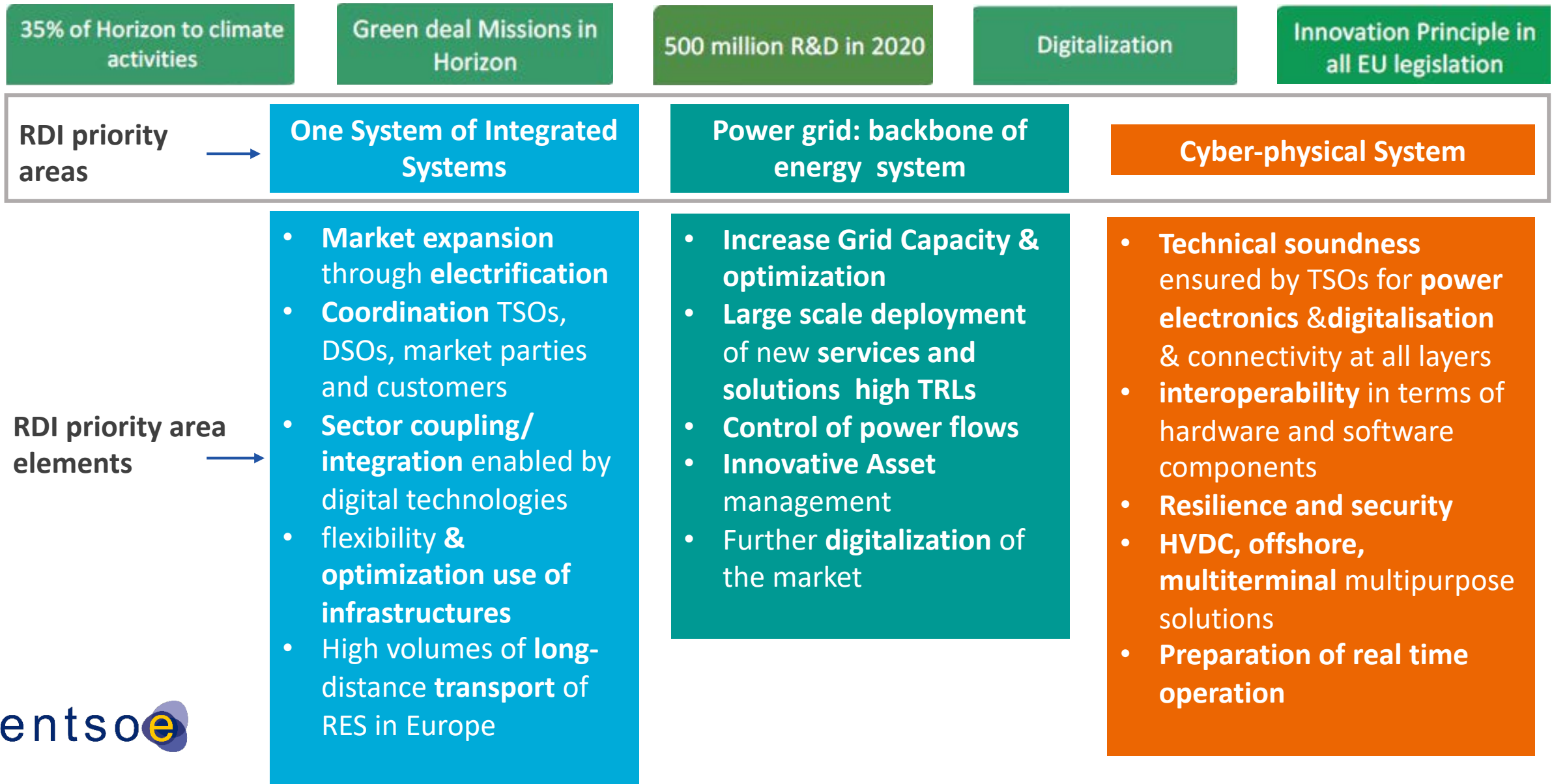
ENTSO-E Legal mandate: Research Plans



The ENTSO-E R&I Roadmap 2020-2030: towards a pan-EU energy system with no net emissions of greenhouse gases in 2050



ENTSO-E key RDI priority areas



Next steps for Roadmap and Implementation

ENTSO-E
RDI Roadmap 2020–2030

The RDI Roadmap 2030-2030 is out for public consultation now
-> Go to ENTSO-E Consultation Hub - consultations.entsoe.eu - and give us your opinion

Public Consultation of the Roadmap - closes 10th August

Webinar to Deep-dive into the Roadmap - 2nd July

Start Implementation Plan

TSOs commitment

Stakeholder involvement

Connect to financing schemes

Horizon Europe & CEF

Introducing ENTSO-E's RDI Roadmap 2020-2030

Moderated by:

Uroš Salobir

Vice-chair of Research, Development
& Innovation Committee (ELES)



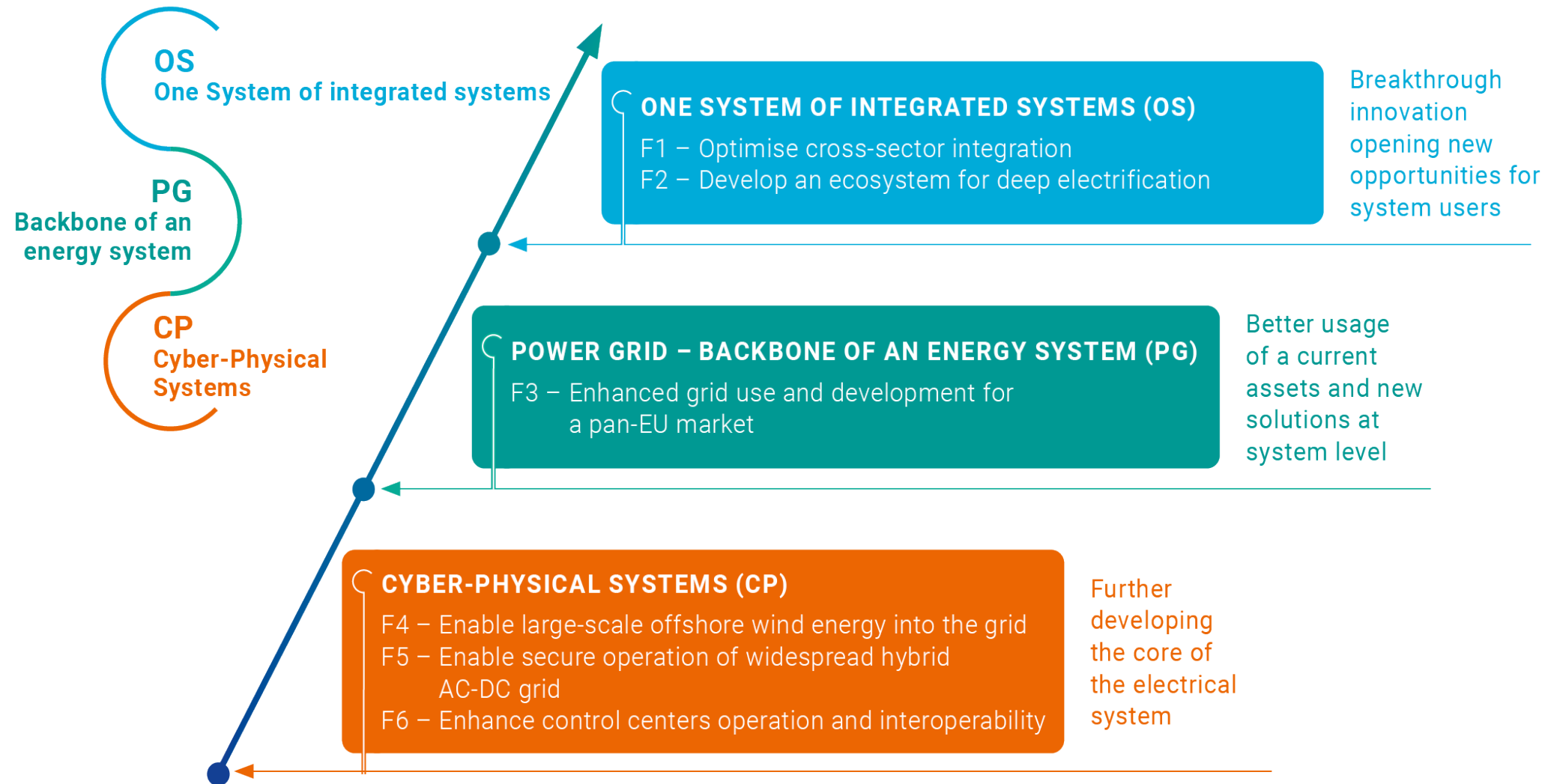
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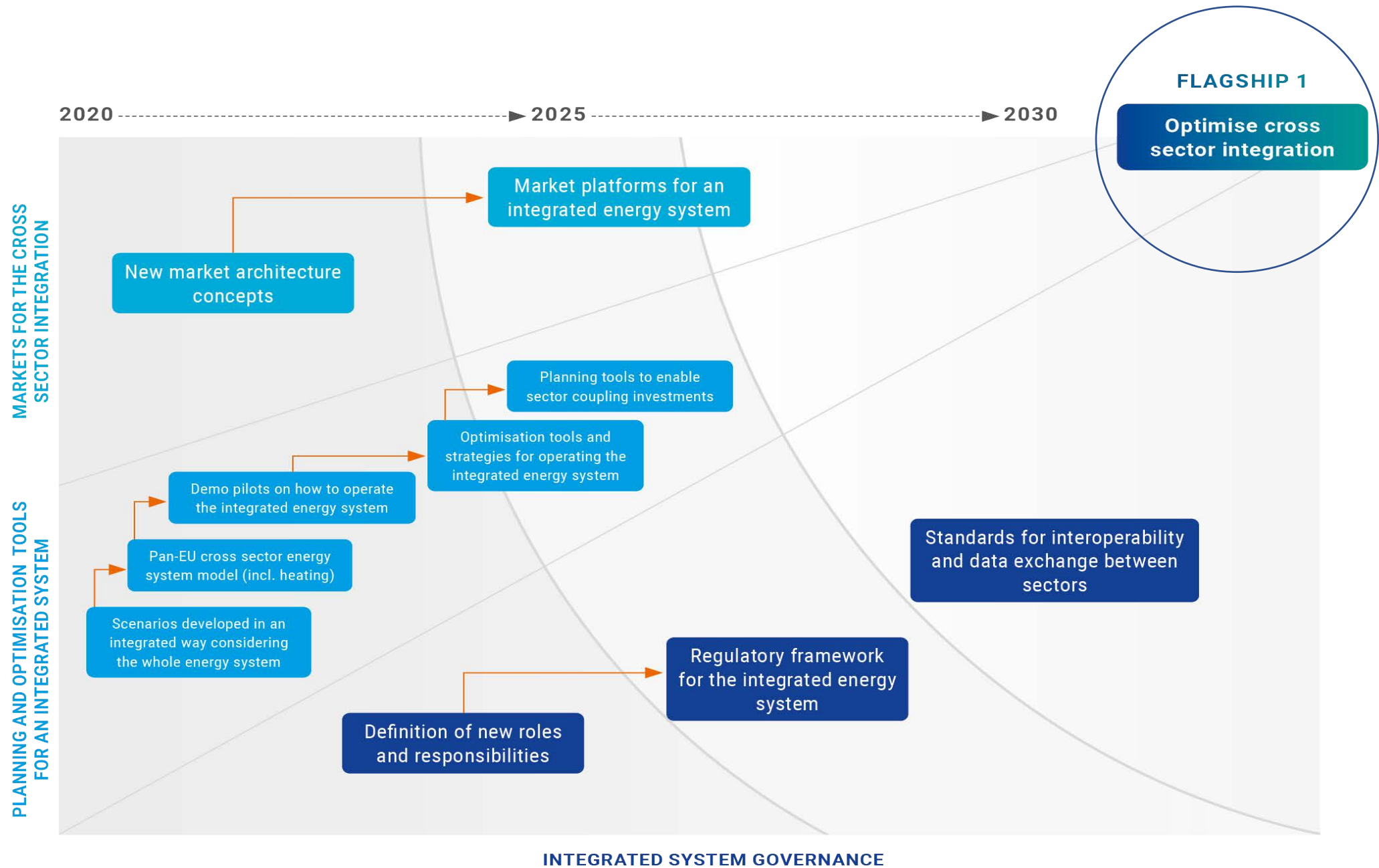


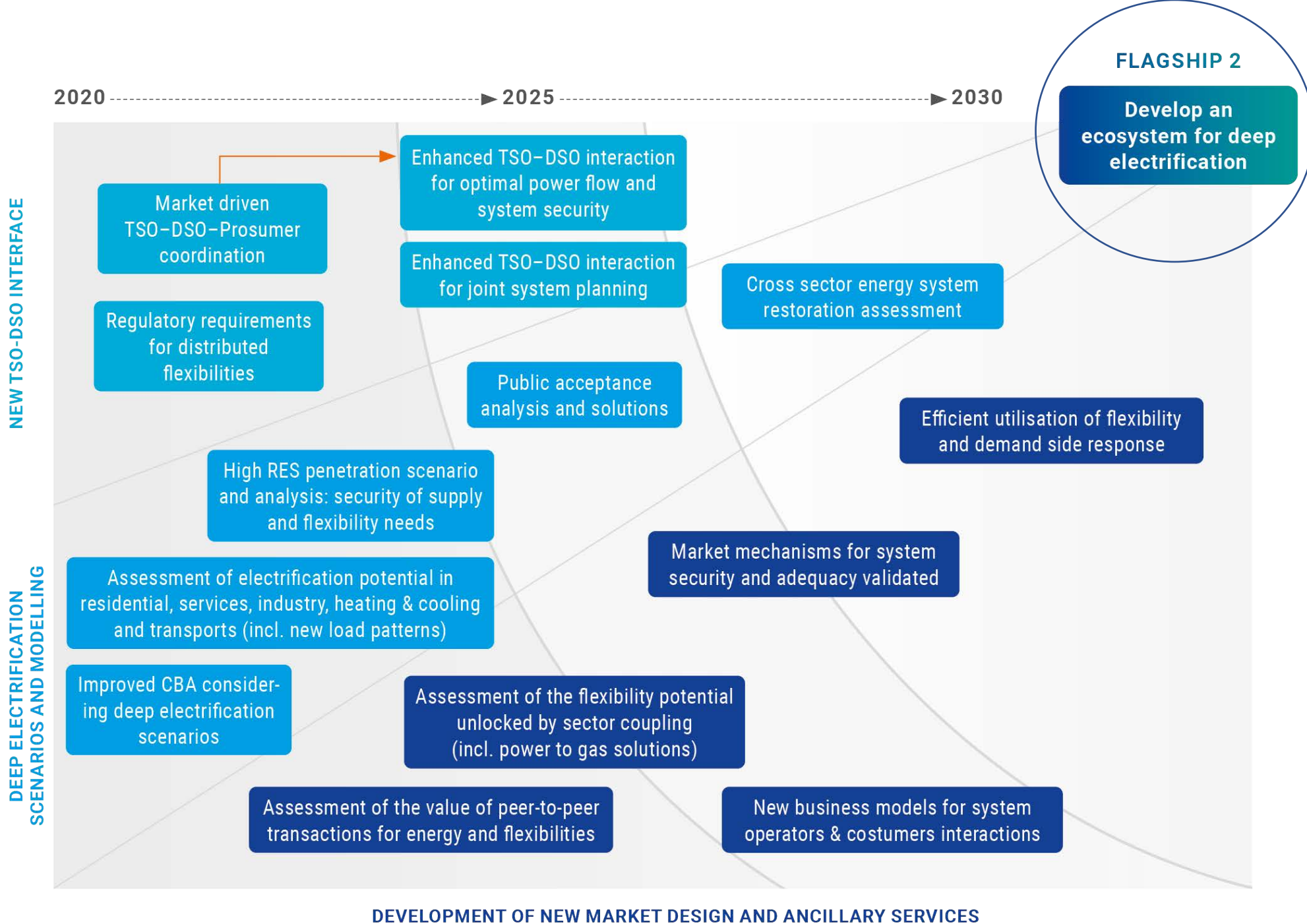
Sonja Berlijn

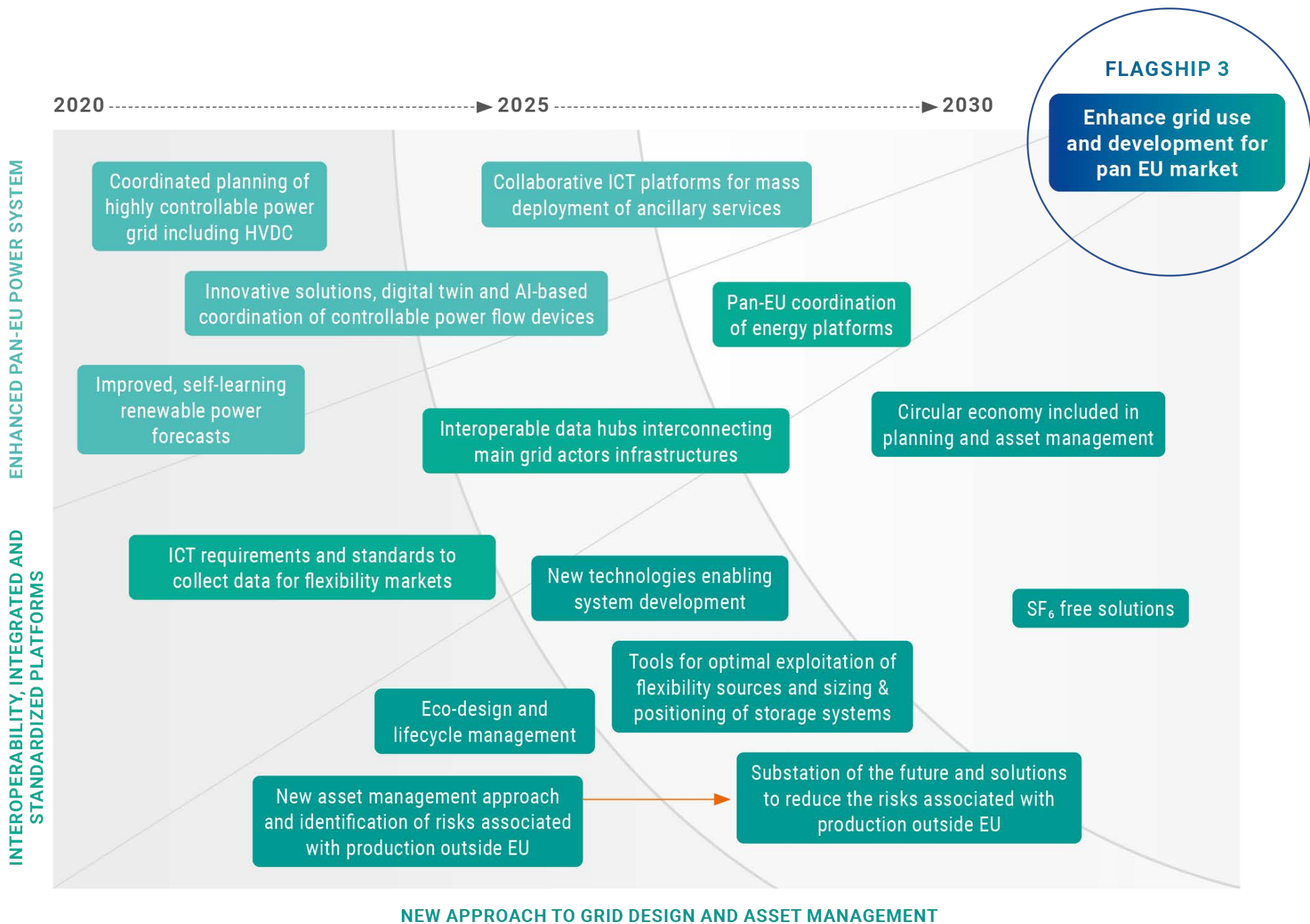
Convener of Working Group
Research, Development & Innovation
Planning (Statnett)

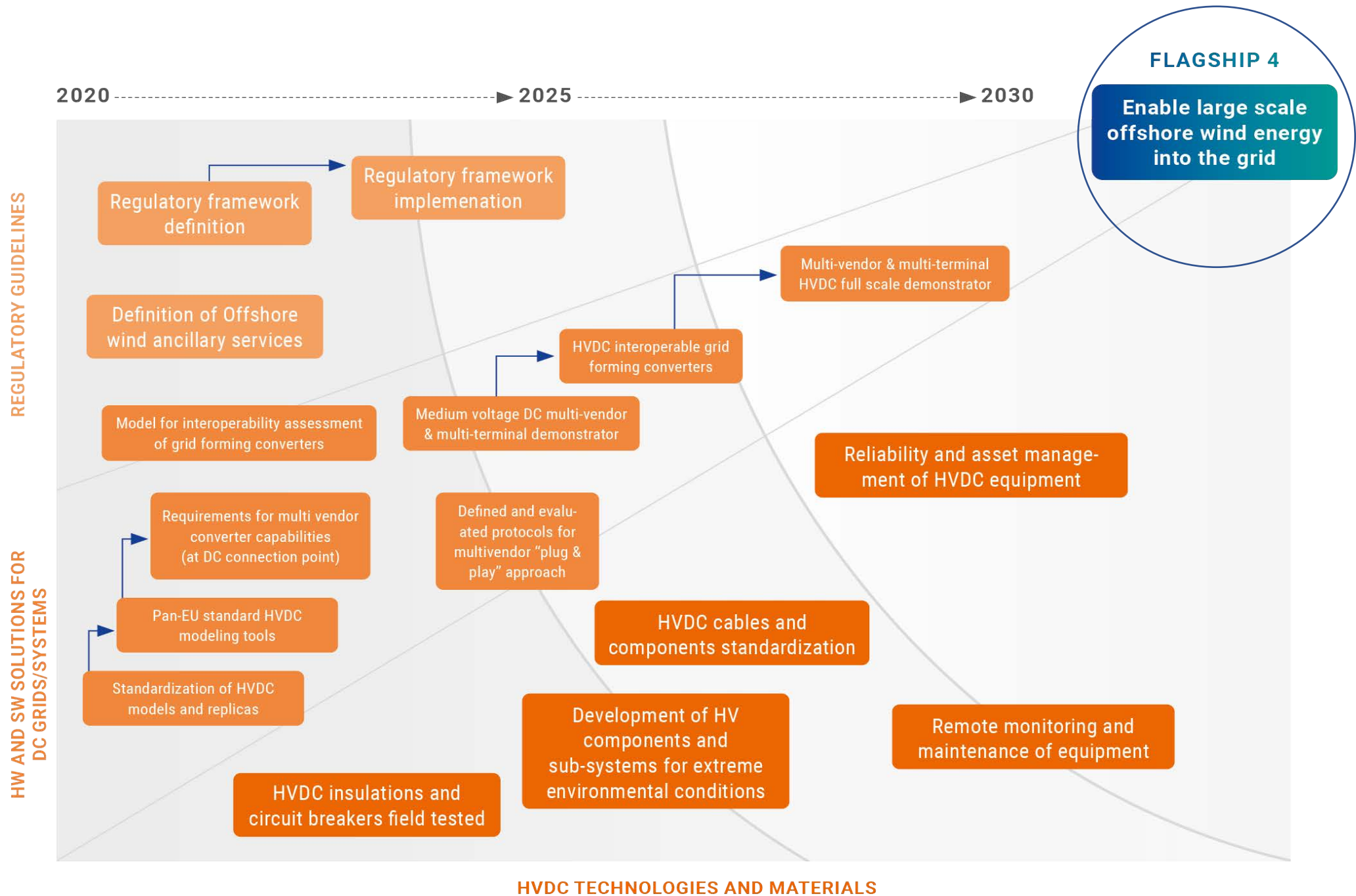
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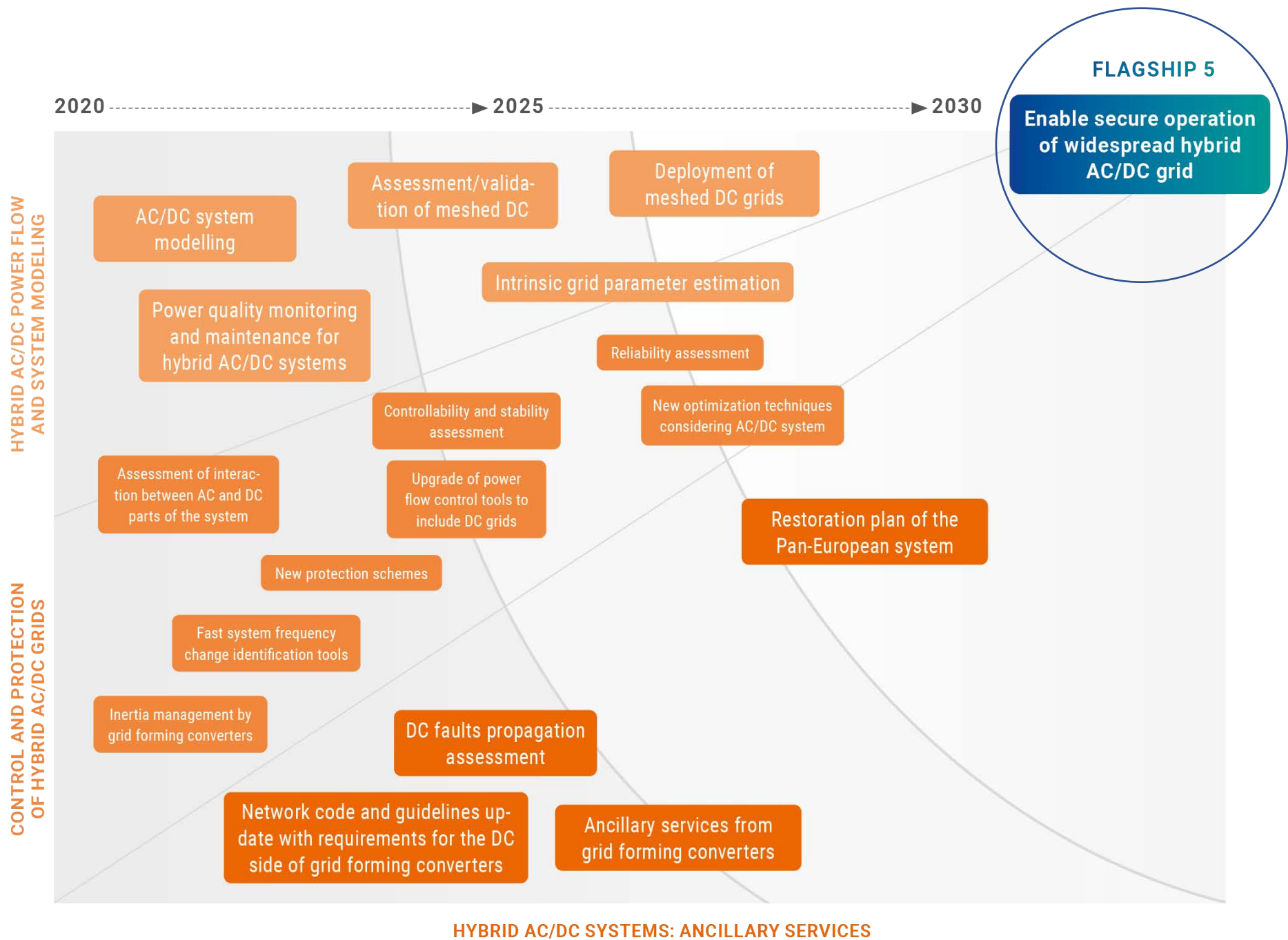


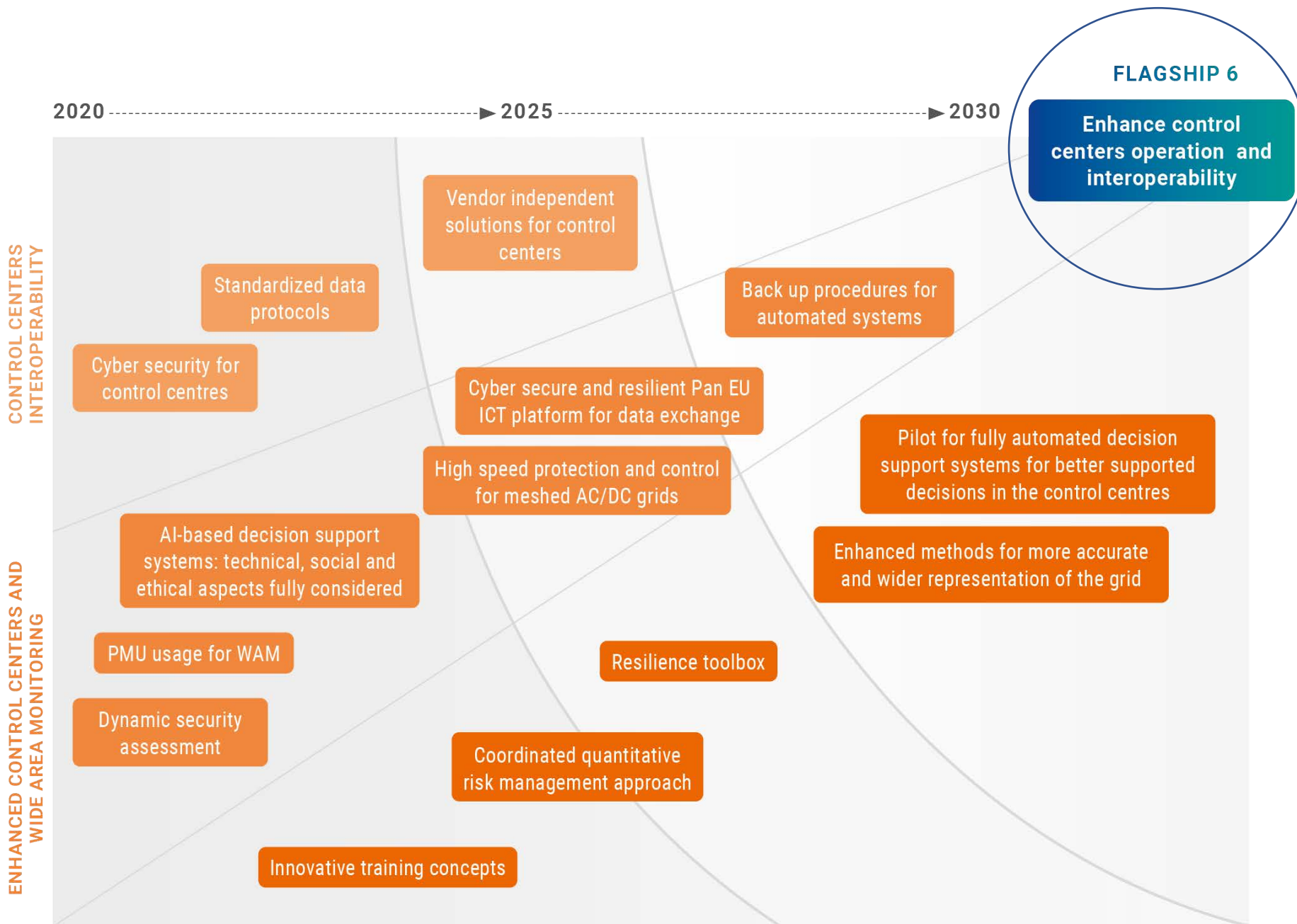












Key takeaways



Håkon Borgen

Chair of Research, Development & Innovation Committee (Statnett)



Uroš Salobir

Vice-chair of Research, Development & Innovation Committee (ELES)

Key takeaways

- **Looking to 2030 -2050:** Climate neutrality, decentralization, increased energy efficiency, deep electrification, flexibility, optimized use of assets and infrastructures, digitalization
- **A system of interconnected systems** is in the center of ENTSO-E Vision 2030 which will play a key role in the European energy transformation
- **Horizon Europe and other financial instruments such as CEF** need to remain strong instruments of the green recovery
- **ENTSO-E RDI Roadmap 2020-2030** aims to **accelerate innovation** for TSOs in order to reach climate neutrality
 - ❑ New approach to planning RDI activities through **use cases: 3 areas/clusters and 6 Flagships**
 - ❑ Focus on **implementation, integration and interoperability** of technologies and solutions
 - ❑ RDI Flagships to ensure progress through the milestones and leading the way to **implementation measures**

Stakeholder cooperation is essential » Have your say by responding to our consultation by 10th August 2020!

@consultations.entsoe.eu