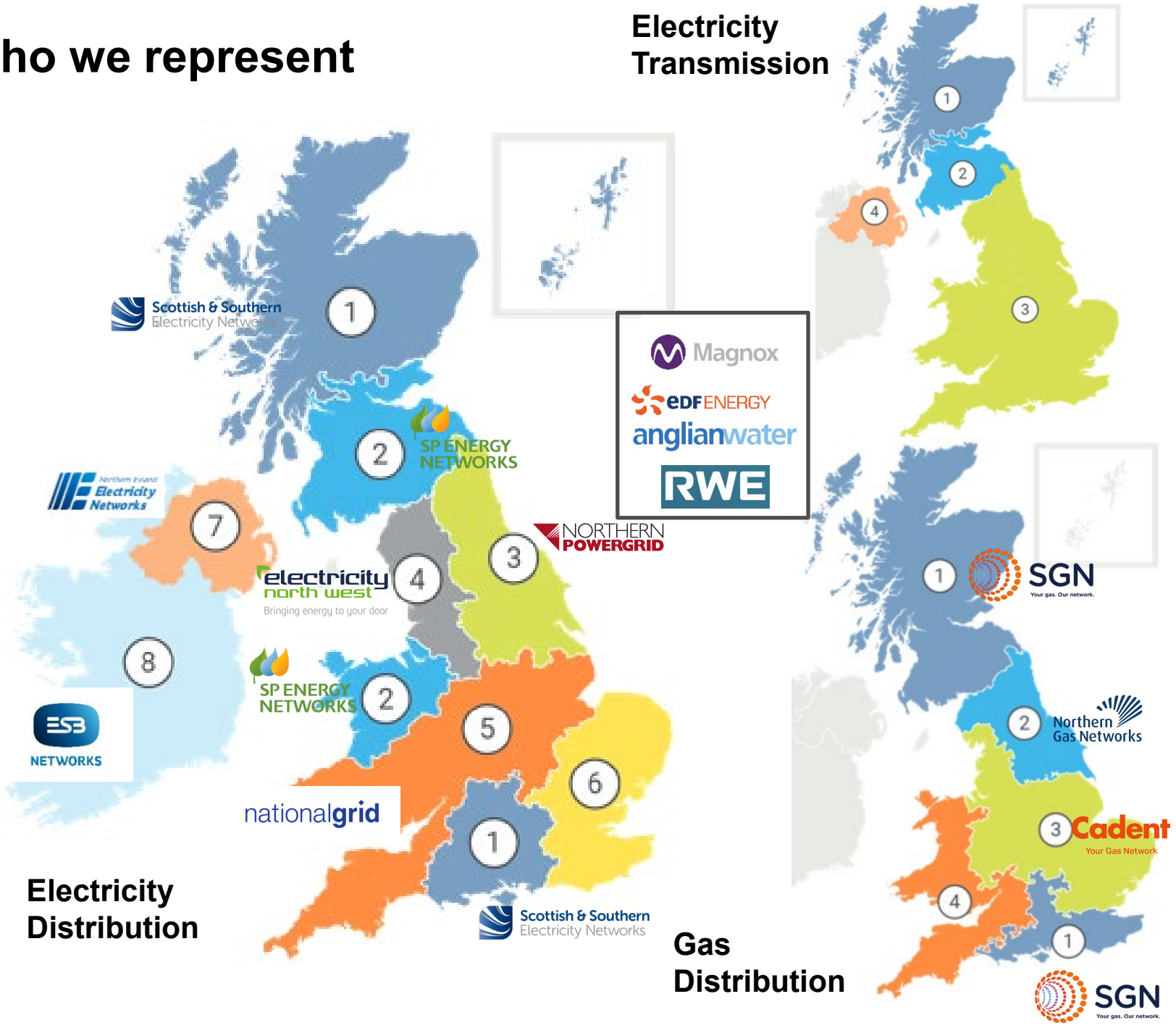
REA Decentralised Energy Event

Enhanced Operational Control

December 2024

joint radio company
jrc

Who we represent



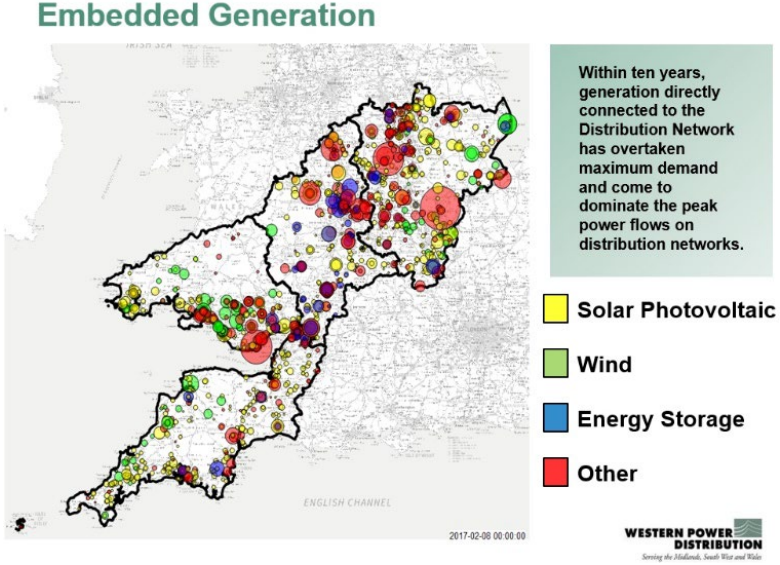
What are the challenges to the UK energy system?

UK energy system, demands and risks are rapidly changing

- Distributed generation largely replacing centralised baseload

> *"Managing a network with 10% renewables is very different to 90%"*

- Forecasted four-fold increase in electricity demand:
  - EVs and heat
  - Transition to hydrogen
- Increased frequency of adverse weather events
- Elevated risk of cyber attack



E3C Storm Arwen Report

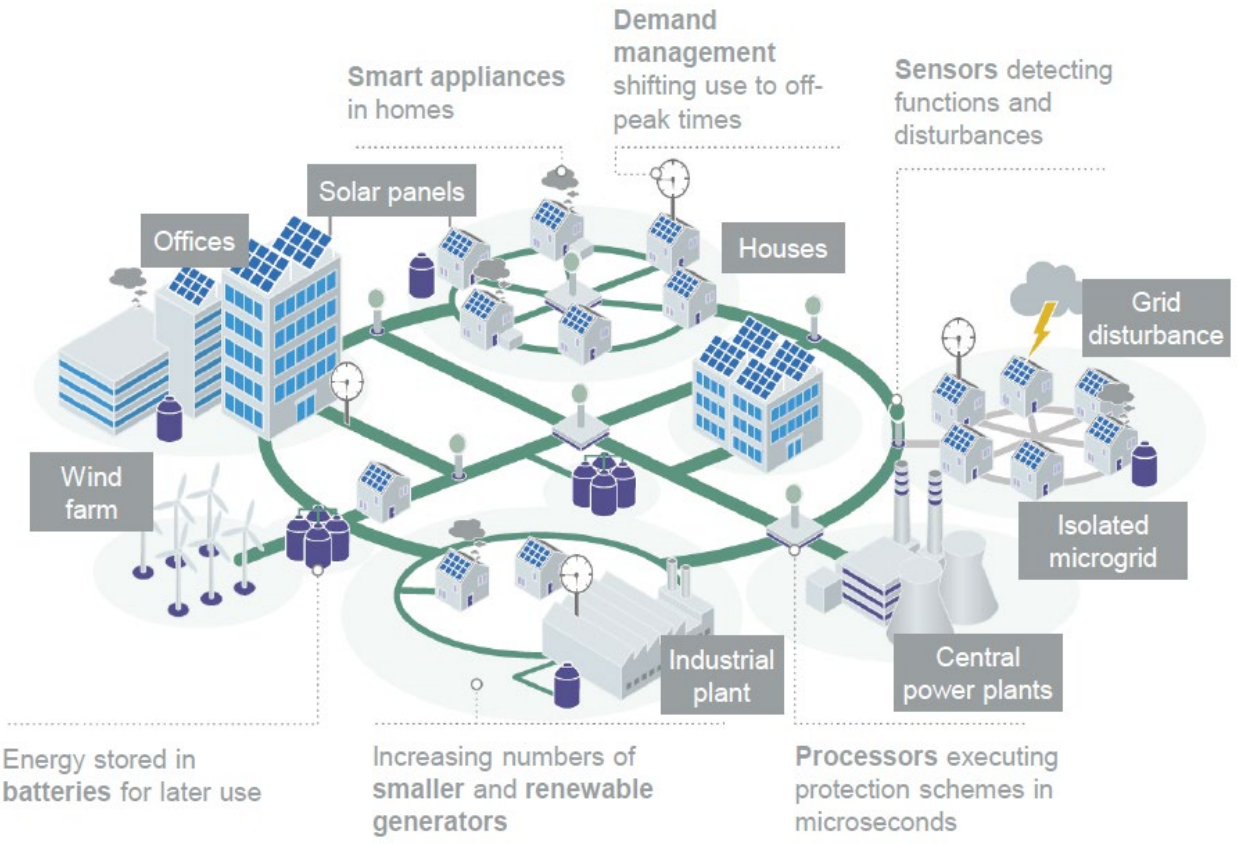
R4	Energy Network Operators should continue to engage with DCMS and Ofcom to secure the utility spectrum so that the energy sector can develop its own resilient data / voice networks in the future	STTG	31 Dec. 2023

What's the solution?

Delivering a low cost, resilient, Net Zero energy system

Transitioning to a Smart Energy System

- Dynamic "active" network management balancing embedded generation, storage and demand



Guidance to Government – NIC Second Assessment Report

Published 18 October 2023, [report here](#).

- **Smart Systems and Lower Costs;** *Smart systems will be essential to meet targets for energy decarbonisation enabling the energy sector to reduce the costs of the network through the emergence of a smaller grid, and allowing smart grids to balance electricity supply and demand in real time as far more assets are connected.*
- **Digitising Infrastructure;** *The potential benefits of digitising infrastructure sectors are substantial but delivering the necessary digital infrastructure will take significant time and investment to achieve.*
- **Benefits of Sharing;** *The government should consider the potential for different sectors to share telecoms infrastructure. If dedicated networks are required – for example due to the need for higher resilience requirements – there may be significant benefits from infrastructure sectors sharing networks, including reduced costs and more efficient use of spectrum.*
- **Government Responsibilities;** *It is essential that responsibilities within government are clear. Departments with responsibilities for each infrastructure sector should determine the connectivity and resilience needs of those sectors and work with their sectors to ensure those needs are met. The department responsible for digital infrastructure (currently the Department for Science, Innovation and Technology) has a clear role to join up these policies and to consider opportunities for infrastructure sharing across sectors.*

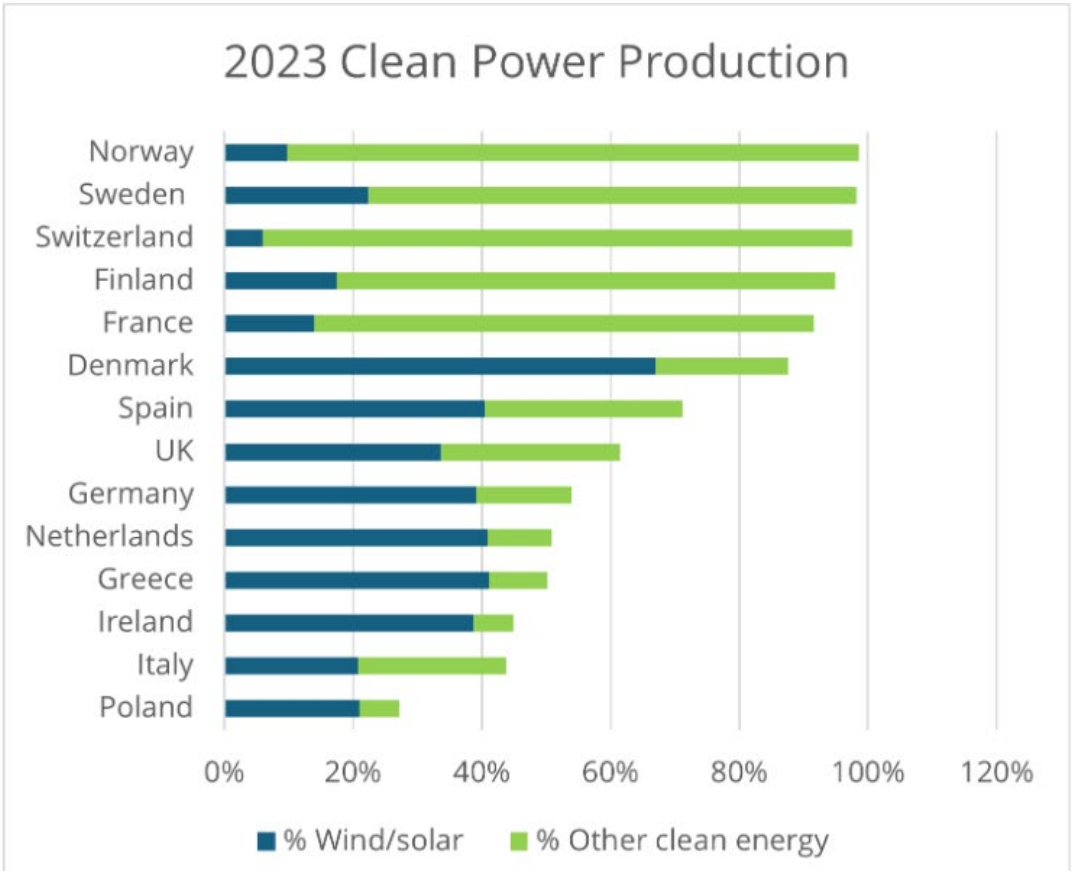
***Recommendation 27**: Government should identify the specific telecommunications needs of the energy, water and transport sectors and **ensure that infrastructure is delivered to meet these by, at the latest, 2030 for the energy and water sectors** and 2035 for the road and rail sectors. **Strategies for how this will be achieved must be set out by the end of 2025 for energy and water** and by the end of 2026 for road and rail, including:*

- *the most cost-effective network deployment models, and the extent to which infrastructure can be shared between different sectors*
- *a spectrum authorisation approach that ensures access to adequate spectrum, whether dedicated national bands or shared spectrum for infrastructure users*
- *clear responsibilities within government for delivering telecoms strategies*
- *consideration of whether dedicated networks and spectrum or upgrades to existing networks can meet specific public policy goals, including consistent and reliable rail passenger connectivity.*

Clean Power 2030 – UK State of Readiness

Clean Power 2030 Plan = Renewable Energy

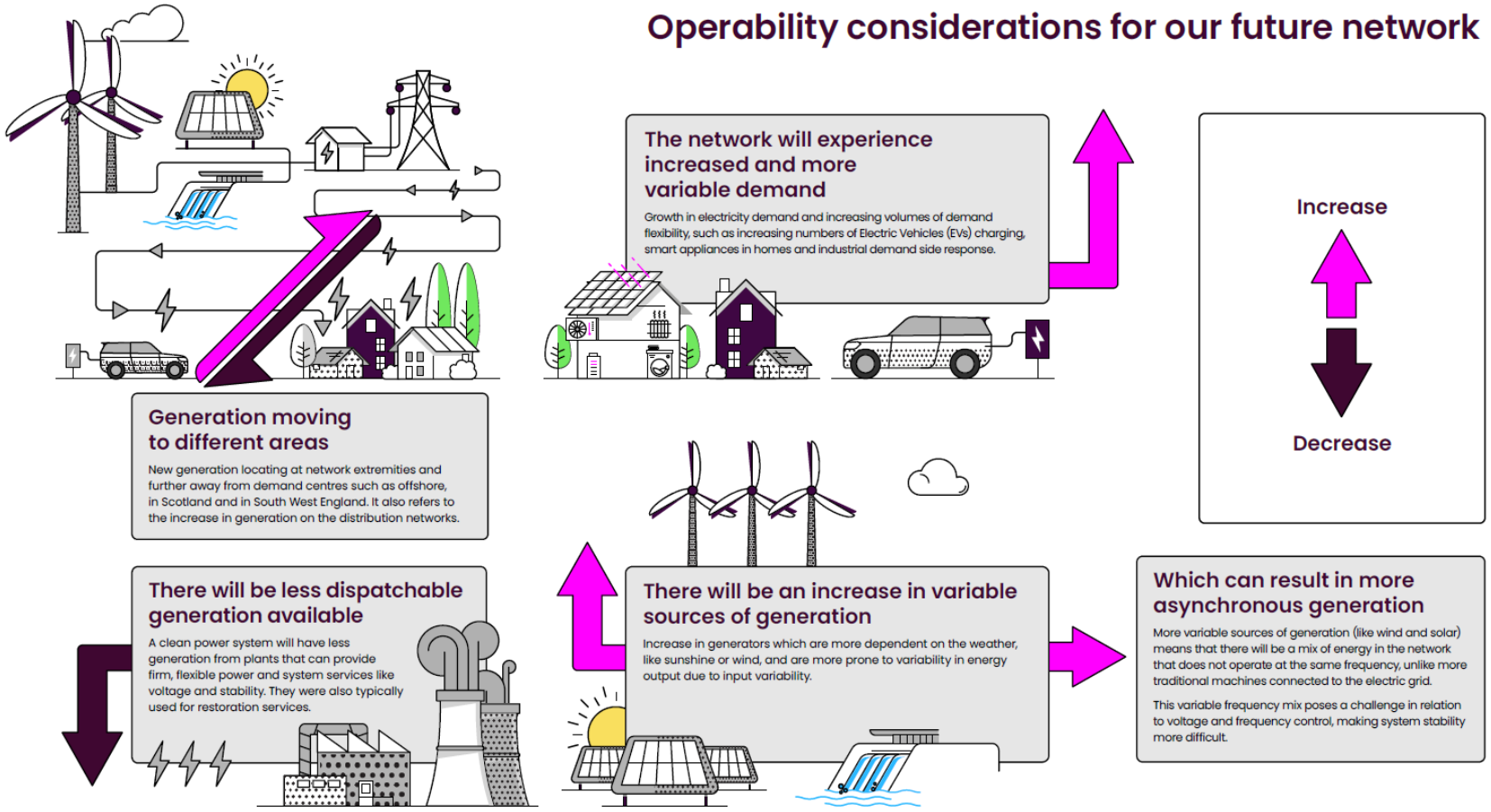
Figure 4: Clean power as % of electricity production (2023) and change from 2022[1]



Country	% Change (22-23)
Norway	0%
Sweden	0%
Switzerland	0%
Finland	6%
France	4%
Denmark	6%
Spain	8%
UK	5%
Germany	3%
Netherlands	7%
Greece	7%
Ireland	6%
Italy	8%
Poland	6%

https://www.r-e-a.net/wp-content/uploads/2024/11/REA-ETRI-2024-full.pdf

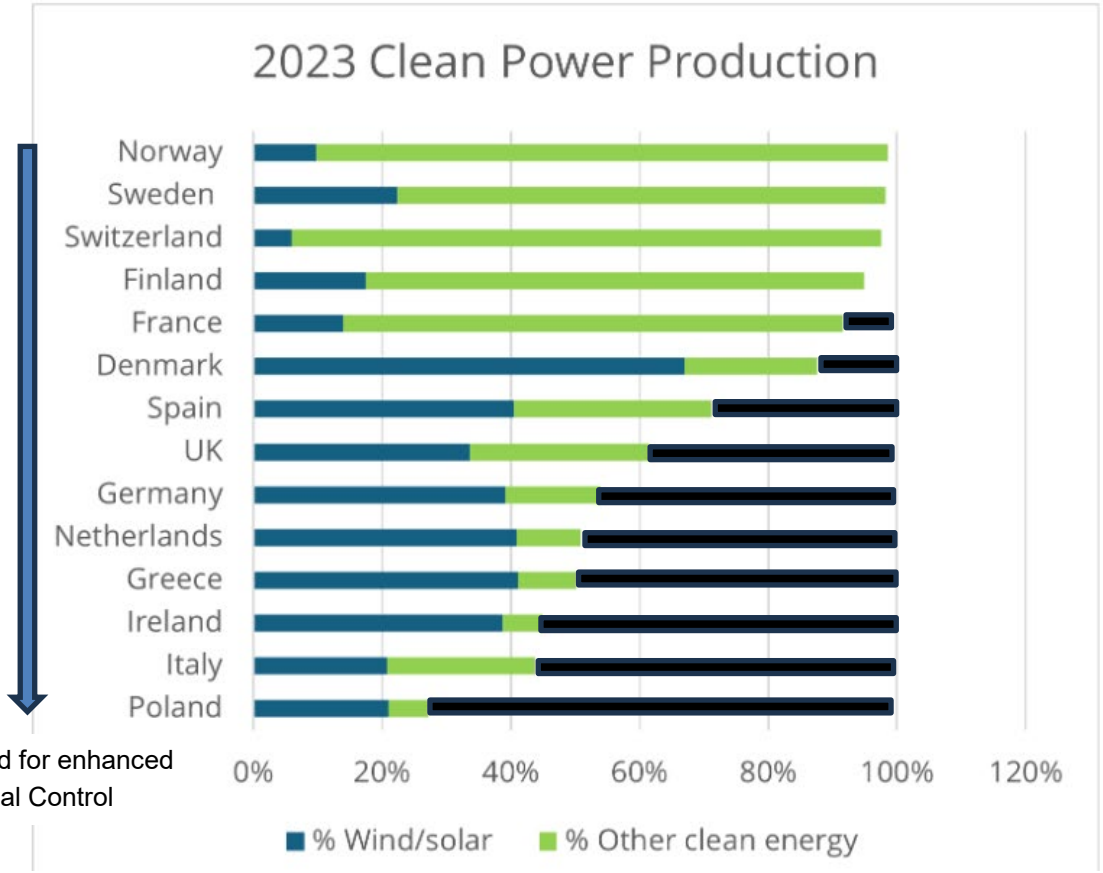
Clean Power 2030 – The System Operability Challenge



A ‘Net Zero’ Energy System

Clean Power 2030 Plan = Renewable Energy

Figure 4: Clean power as % of electricity production (2023) and change from 2022[1]



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Increasing need for enhanced Operational Control

https://www.r-e-a.net/wp-content/uploads/2024/11/REA-ETRI-2024-full.pdf

How would enhanced operational communications benefit renewable generators?

Faster connections, lower costs, and new revenue streams

- ✓ **Speed –** A wireless based communication network would **accelerate the connection of renewable energy assets** by increasing network availability.

- ✓ **Reliability – Smart grids connect renewable generators faster, more reliably, and at reduced cost.** You avoid the need to construct new passive network capacity and reduce the use of constrained connections**.**

- ✓ **Profitability –** More renewable energy generators could re-initiate the energy system following outages, giving them access to **new revenue sources**. By making renewable generators easier to communicate with, it helps them become **more profitable**.

Thank you - Questions

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