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■ POWER SYSTEM CONSULTANTS



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Power system flexibility

Lucija Rakocevic, PhD

#CE4EUislands – Workshop: Smart electricity systems for facilitating the decarbonisation of islands

Our International Work Experience





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Our Services

Grid Studies

Grid Interconnection Studies

Smart Grid Consulting

Electromobility Grid Integration

Power Generating Unit Modelling

Grid Code Development

Power System Optimization and Planning

Measurement Campaigns

Capacity Building

Annual workshops and conferences

Island Work Experience



Darmstadt, Germany
Headquarter

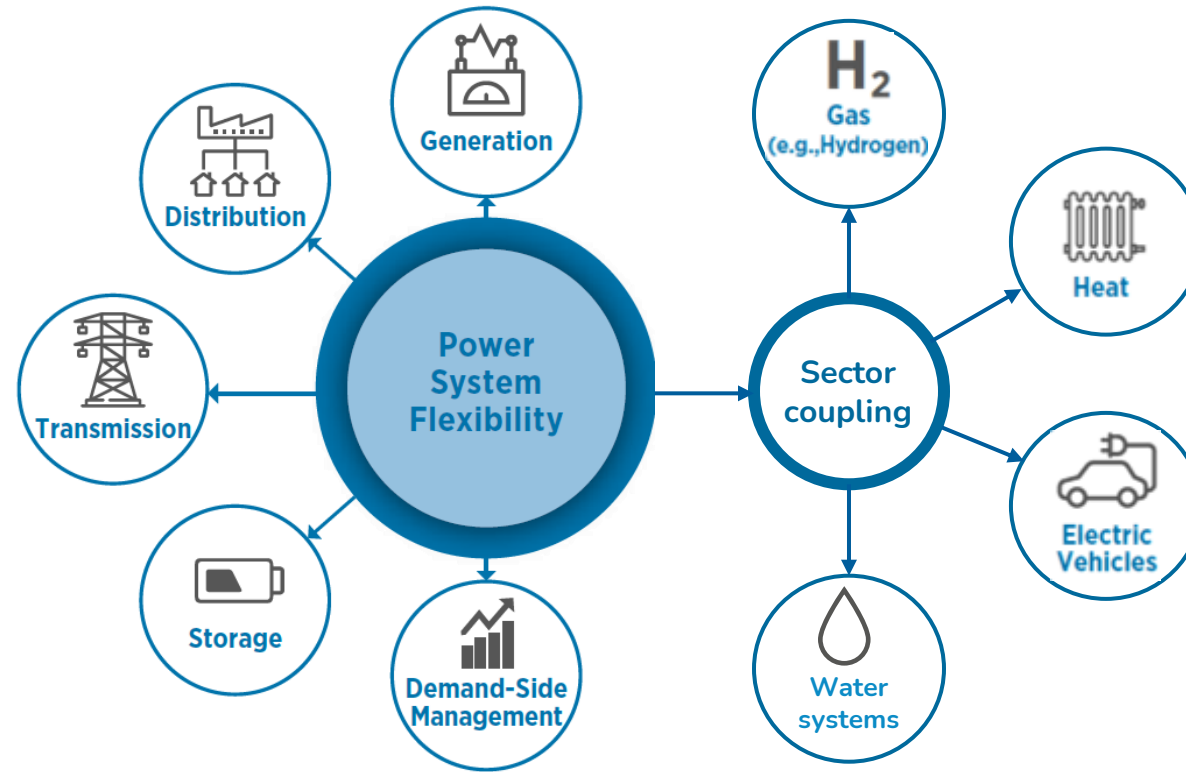
- Projects on islands
- Workshop locations

9th INTERNATIONAL HYBRID POWER PLANTS & SYSTEMS
-WORKSHOP- 03-04 JUNE '25
ÅLAND FINLAND 
organized by energynautics

Power system flexibility

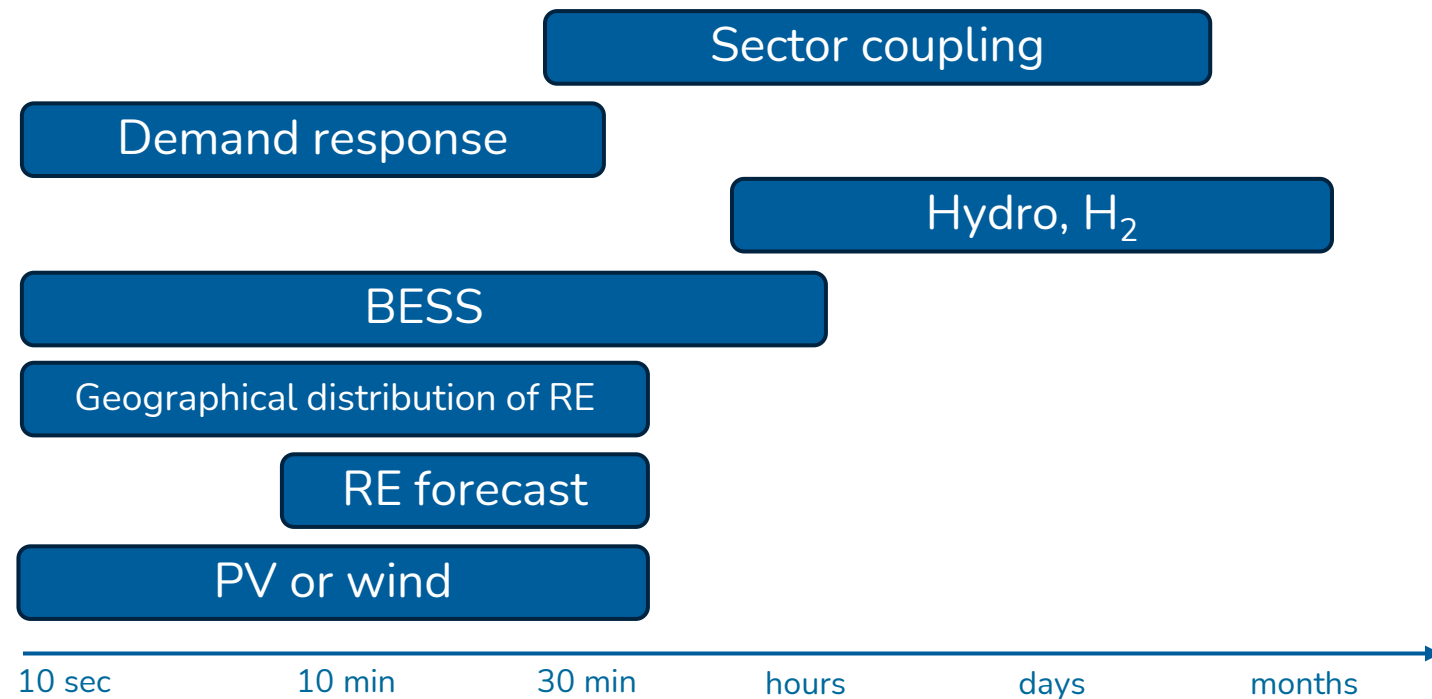
“**Flexibility** is the capability of a power system to cope with the **variability and uncertainty** that variable RE generation introduces into the system in **different time scales**, from the very short to the long term, **avoiding curtailment of variable RE** and **reliably supplying** all the demanded energy to customers”
(IRENA, 2018)

Source of power system flexibility



Modified image from Source: IRENA, 2018, Power system flexibility for the energy transition, Part 1: Overview for policy makers

Flexibility options dependent on timescale



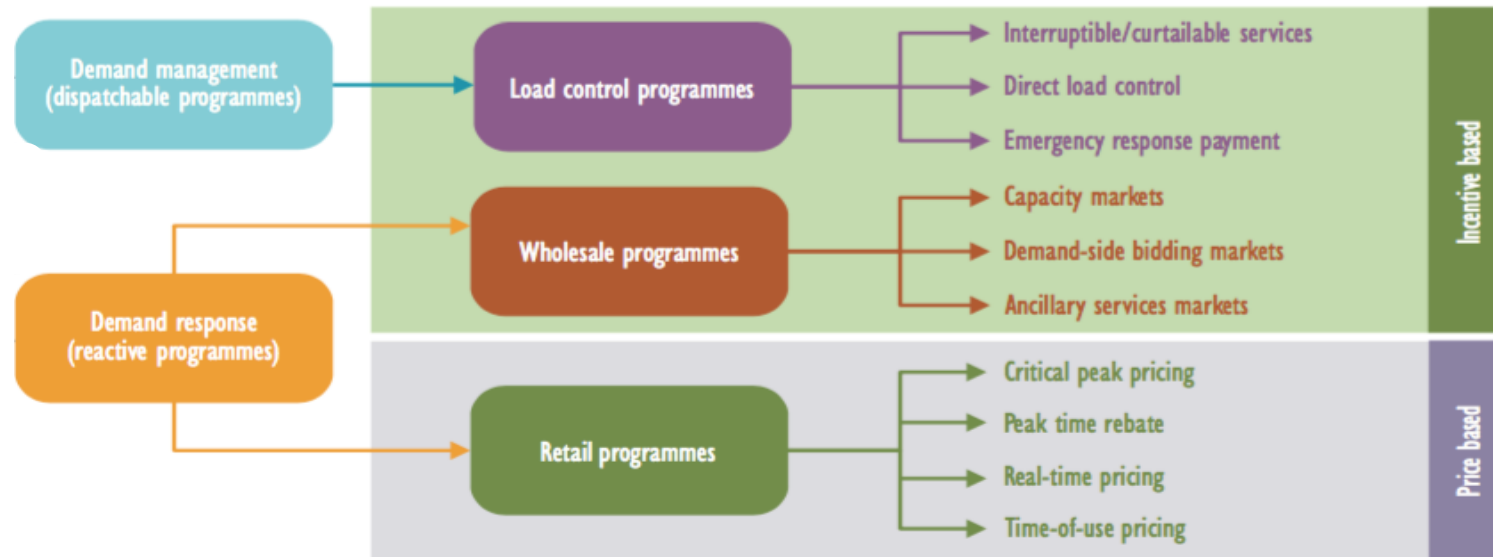
Implementing different flexibility solutions enables the system to cope with RE variability in different time scales, from very short to long term.



Demand-side flexibility

Demand-side management

Demand response



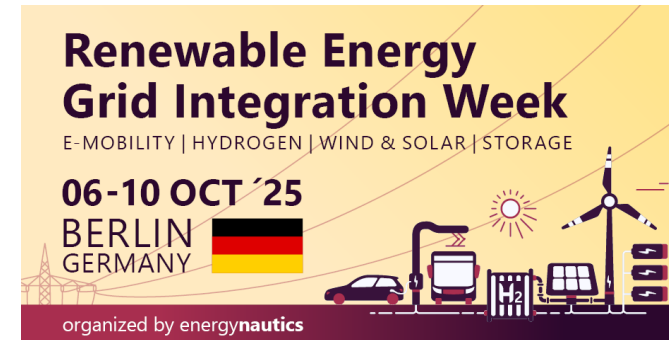
Source: Power of Transformation (IEA, 2014)

Lessons learned

- Smaller systems might experience flexibility shortages at low variable RE shares
- Economically more optimal is to plan ahead for flexibility than wait until issues arise
- Planning should take into account permitting procedures and developments in policy
- Substantial amounts of VRE can be integrated by unlocking existing flexibility rather than investing in new costly assets

Years of Experience in Organizing Conferences

- Upcoming Events:



More information: energynautics.com/en/conference-planning



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