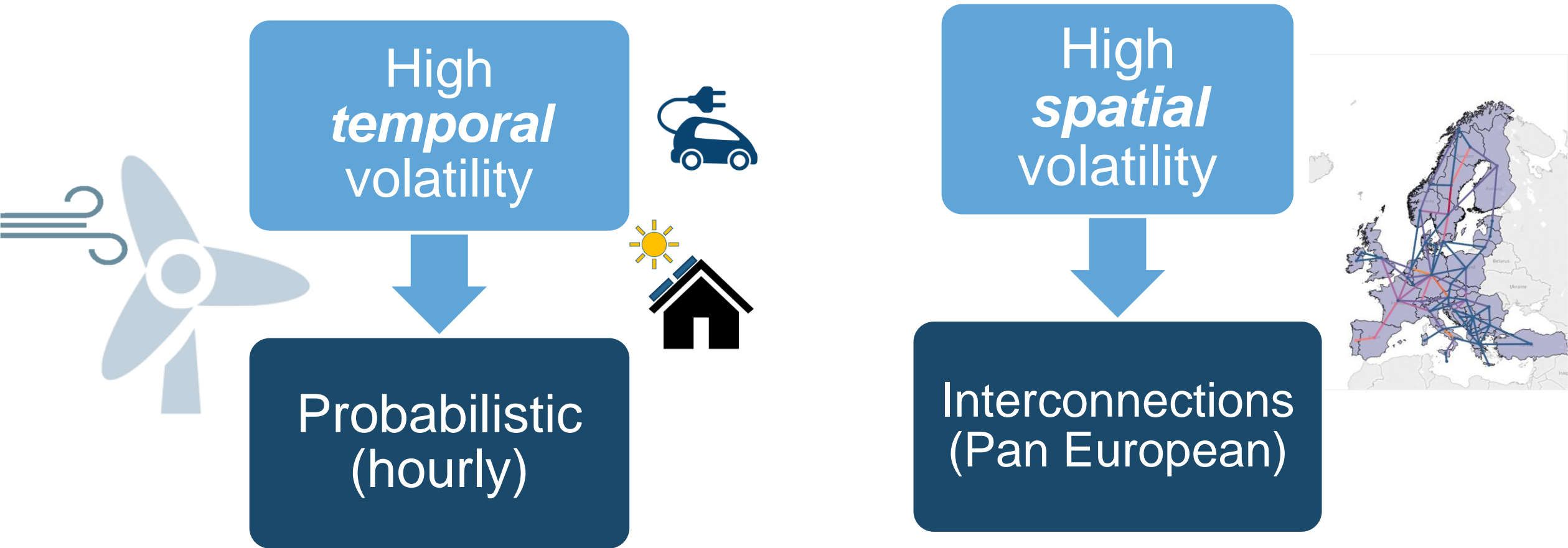


ENTSO-E's Adequacy Assessment in the context of the Clean Energy Package

Dimitrios Chaniotis
(Chair System Development Committee - ENTSO-E)

Elering SoS Conference – 20 June 2019

Energy transition requires a robust methodology



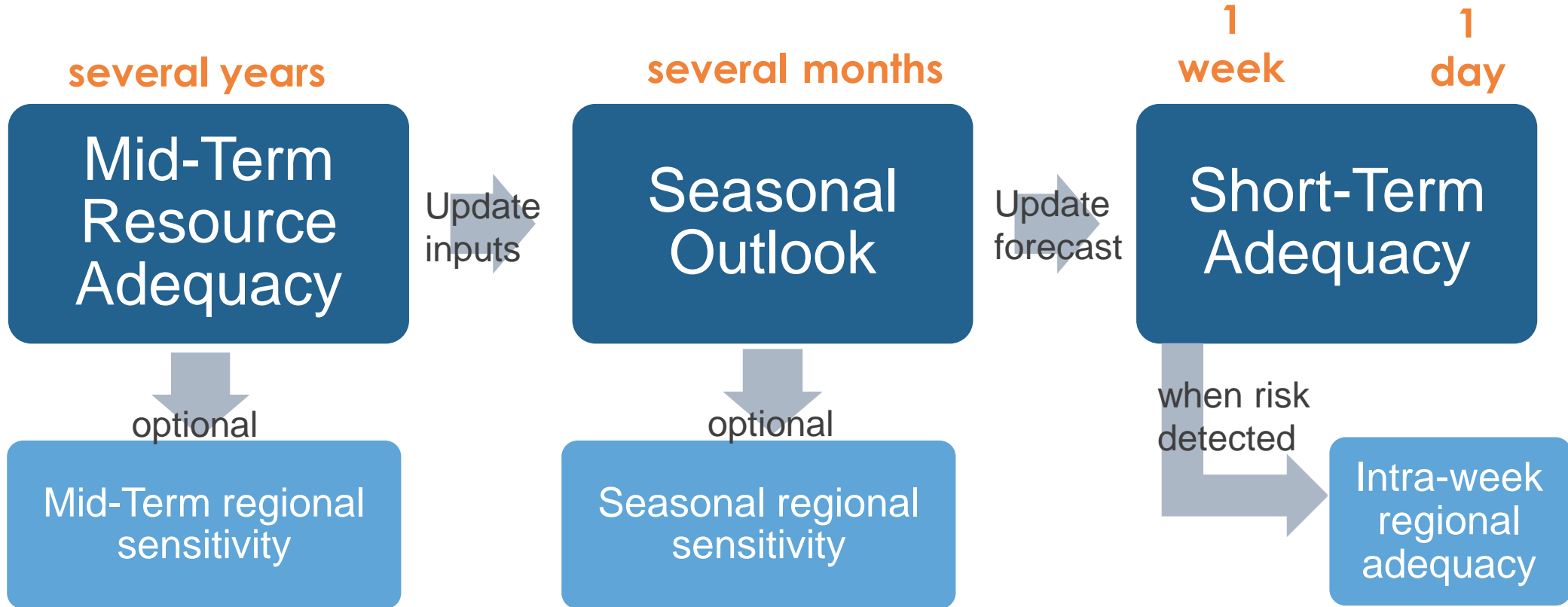
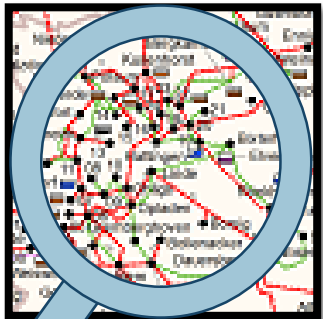
Need to reflect accurately the complementarities of the different technologies (generation capacity flexibility, storage, demand response, energy efficiency)

Resource Adequacy: Temporal and Spatial Granularity

Pan European

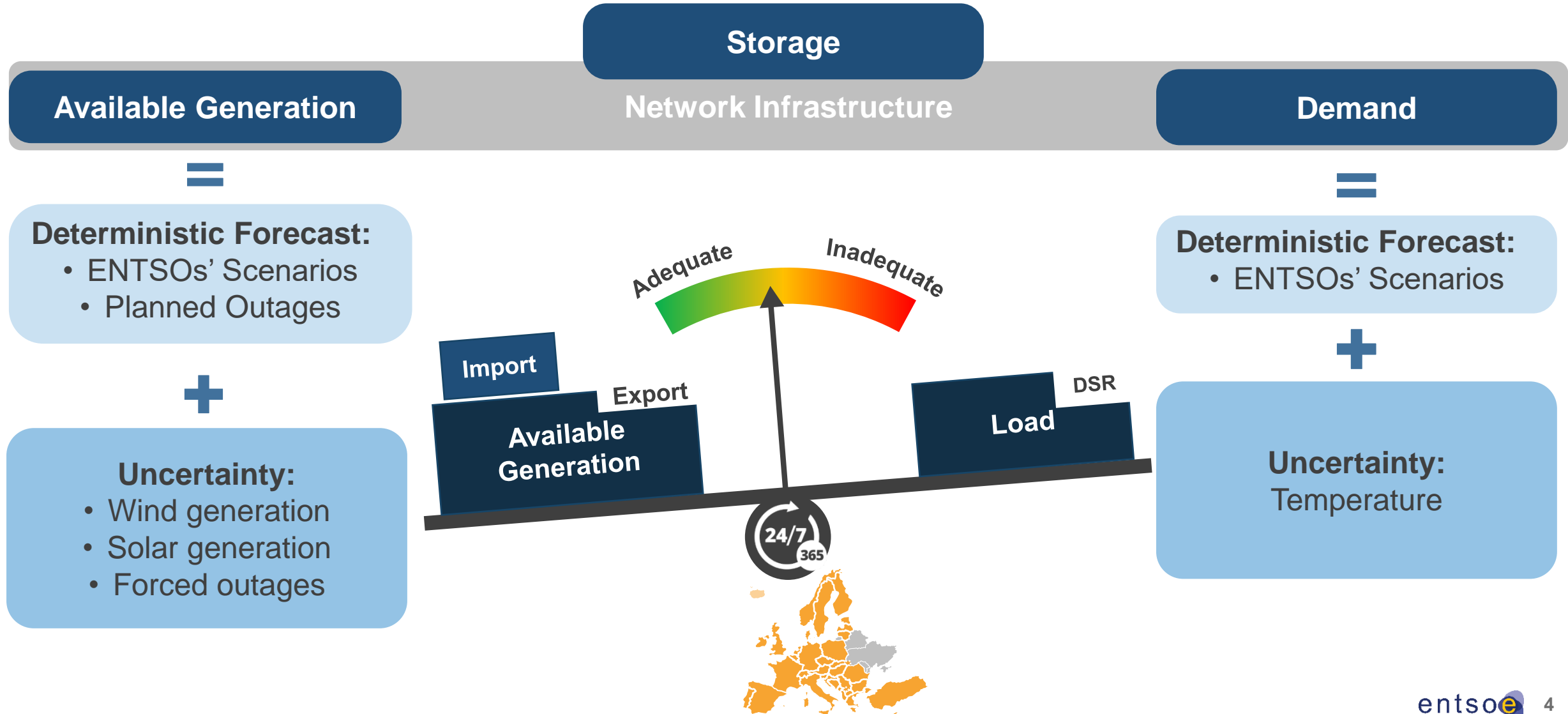


Regional*



- *Regional/national studies focus on detailed modelling of a region while:
- keeping large European geographical perimeter,
 - retaining a global Pan European probabilistic methodology

Resource Adequacy: General Methodology



MAF 2018 scope and limitations

Addressed by MAF

- Identification & quantification of **resource scarcity risk** in day-ahead market in 2020 and 2025
- Accelerated low-carbon** sensitivity analysis for 2025
- Single or multiple areas with **scarcity and contribution of interconnections**
- Hourly ramps and peak residual load to be met by **flexible generation** units

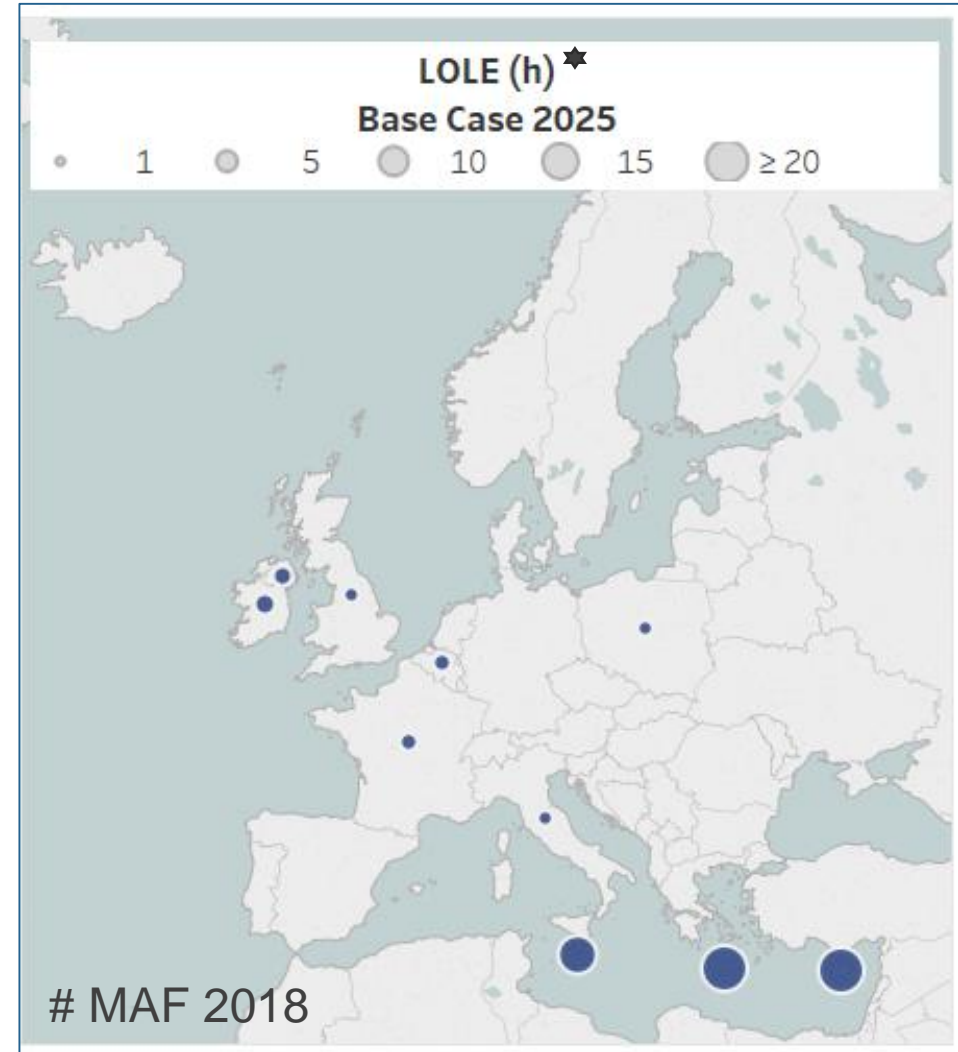
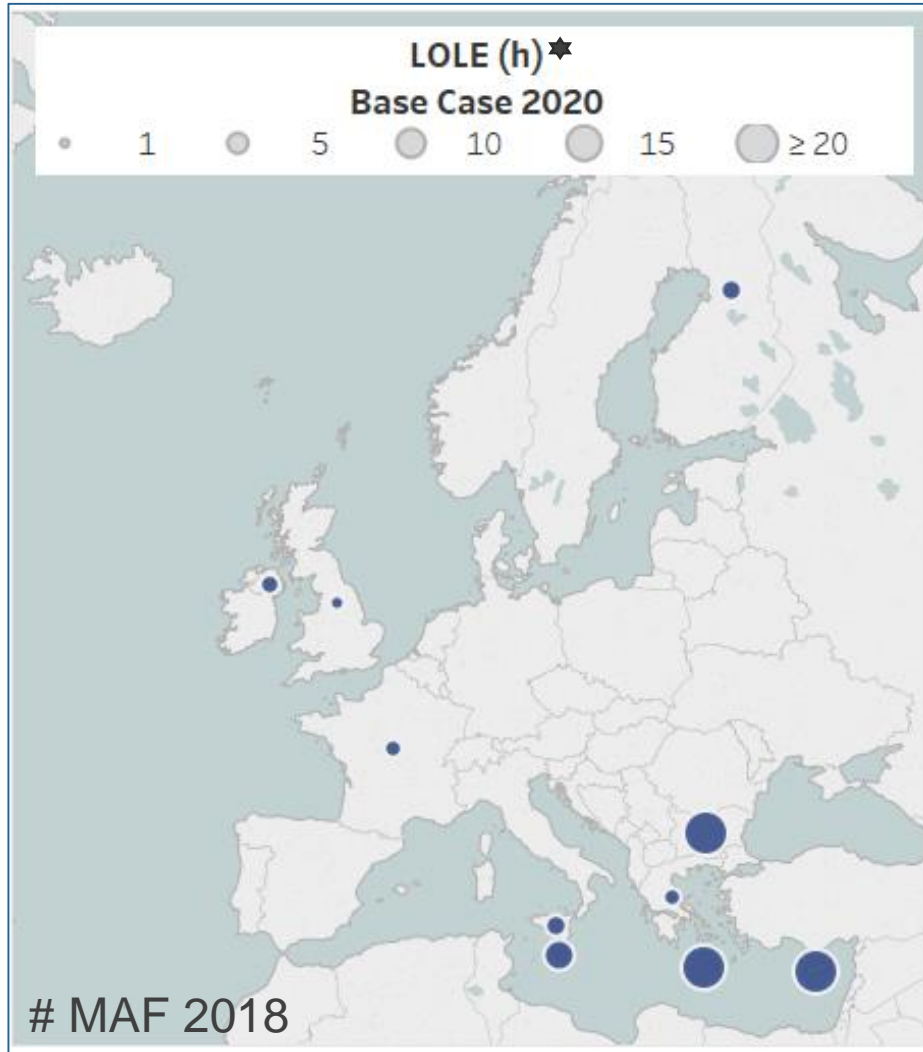
Not yet addressed by MAF

- Economic viability** of conventional power plant units and risk of decommissioning
- Suitability of **regulatory framework & market design** (e.g. need of Capacity Mechanism)
- Internal congestion** within a Bidding Zone (considered as copper plate)

“MAKE EVERYTHING AS SIMPLE AS POSSIBLE, BUT NOT SIMPLER.”

Albert Einstein

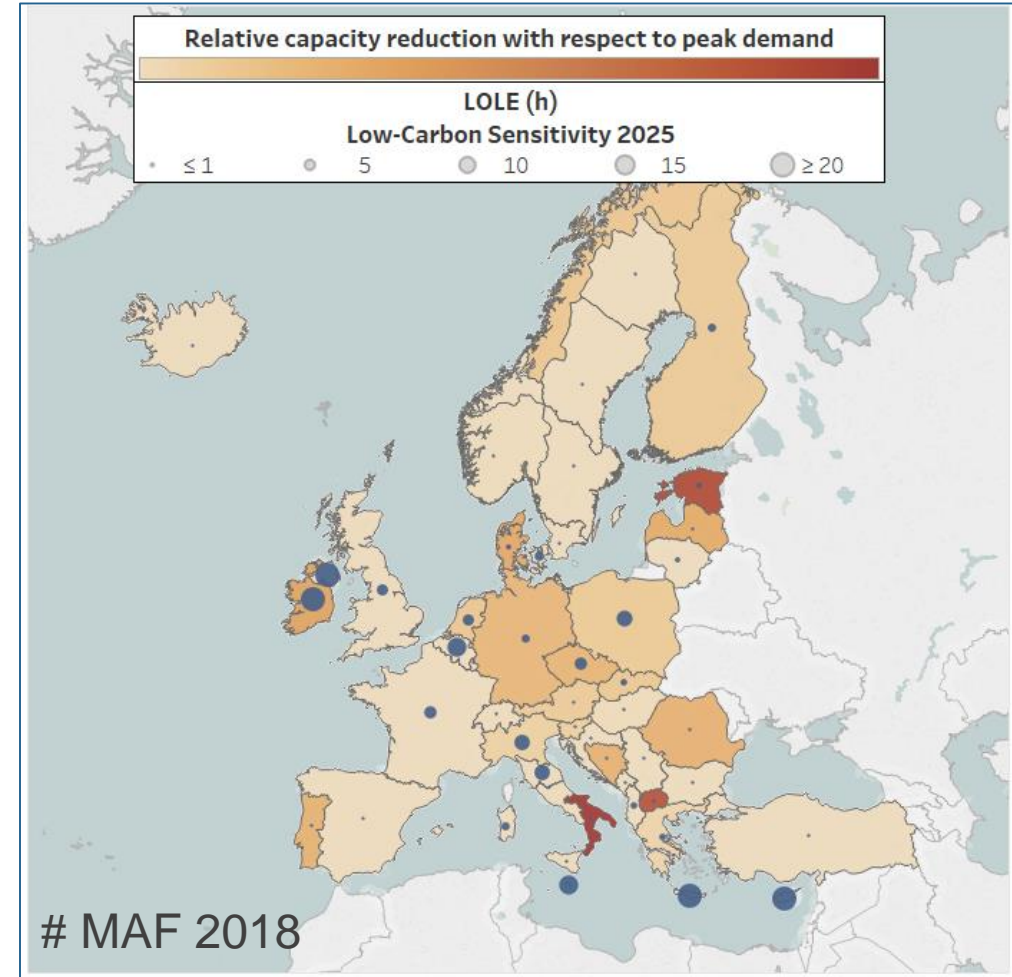
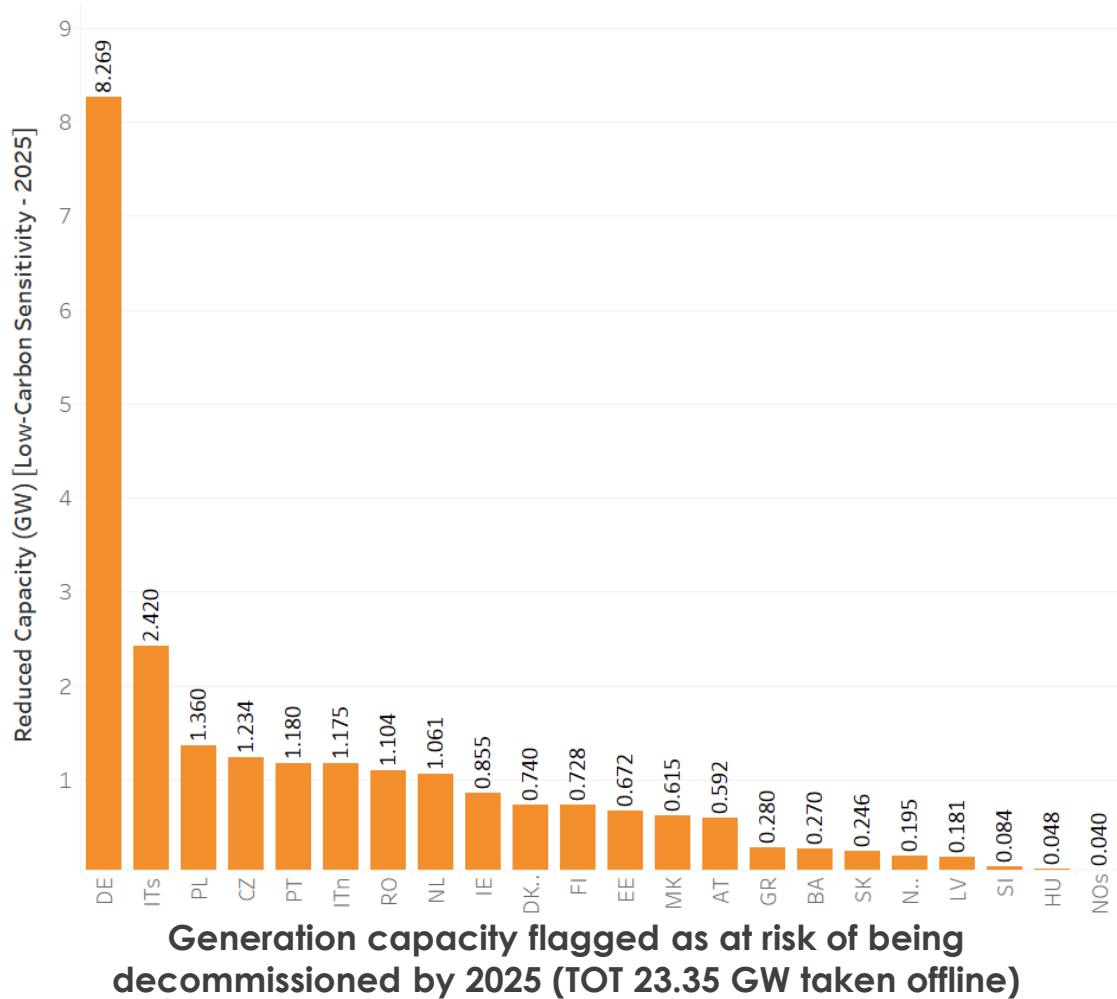
Base case results: Comparison of year 2020 and 2025



By 2025 adequacy gets tighter, but LOLE remains below national thresholds in most zones

* Loss of Load Expectation (LOLE) is the expected number of hours per year with adequacy risk (e.g. lack of reserve)  6

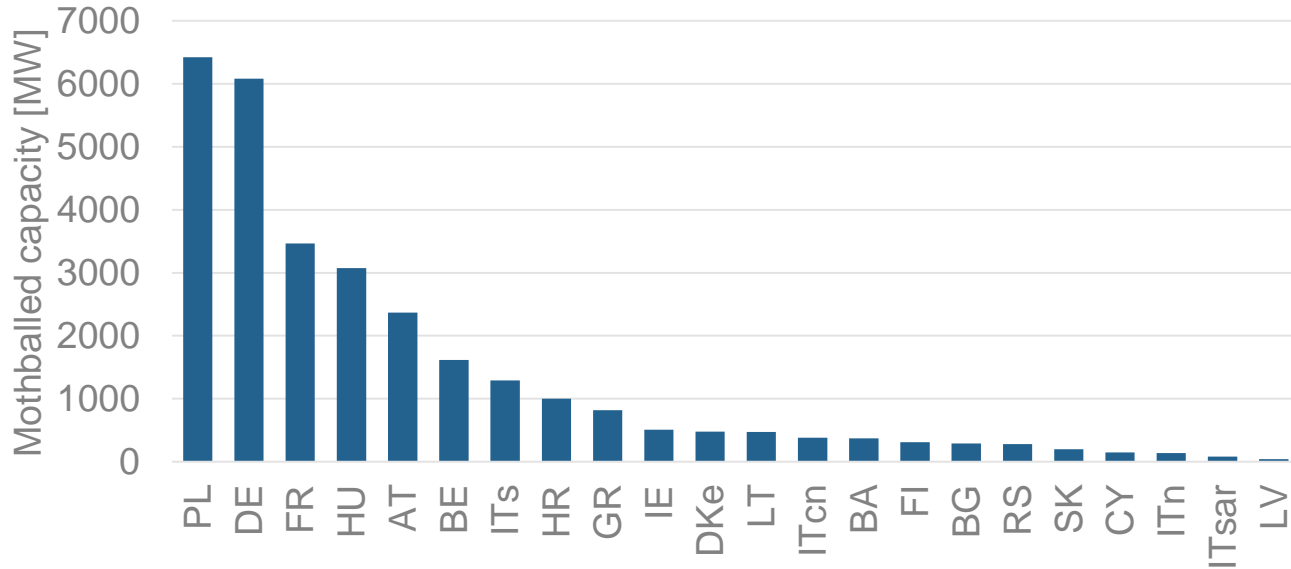
Low-Carbon Scenario for 2025: Input and Results



Need to adjust the resource mix in case an “accelerated carbon phase-out” takes place

Mothballing sensitivity → large uncertainty...

→ 15% capacity reduction vs. base case



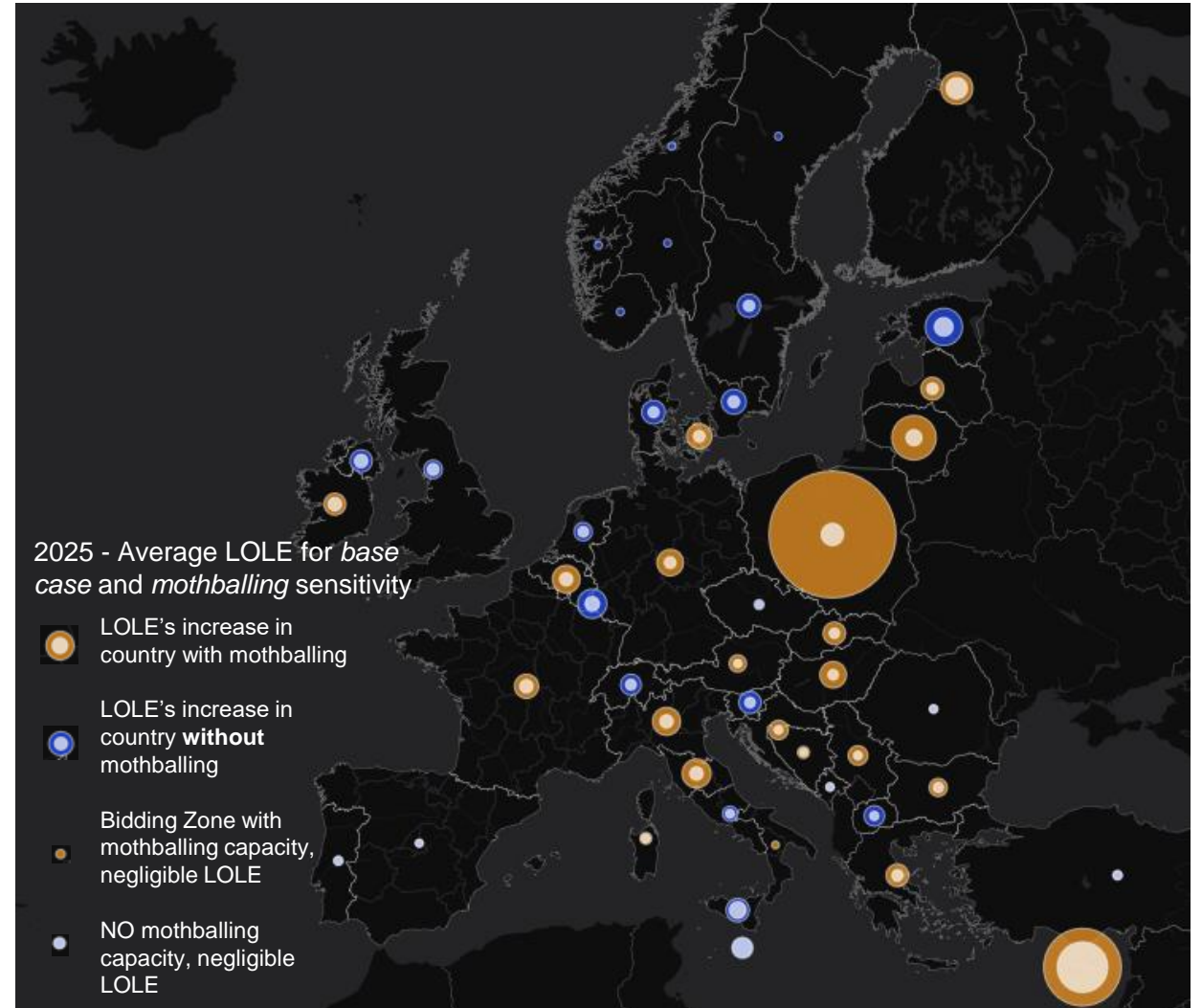
Mothballing in 45% of the countries significantly impacts adequacy in 82% of the countries

- Importance to have reliable generation plan from utility (min 3-5 years)
- Crucial to get a clear picture

...with wide effect → strong interdependency

→ Significant impact on adequacy in a larger region

→ Coordinated studies needed

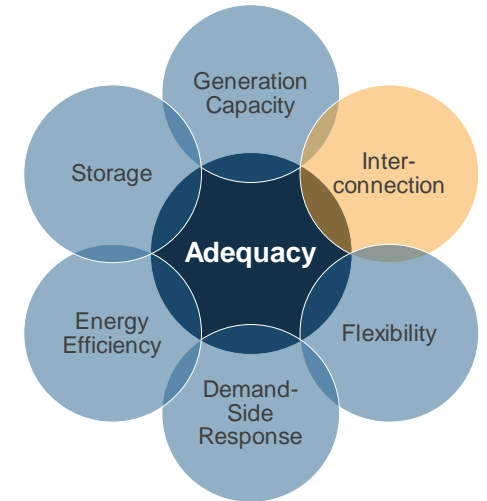
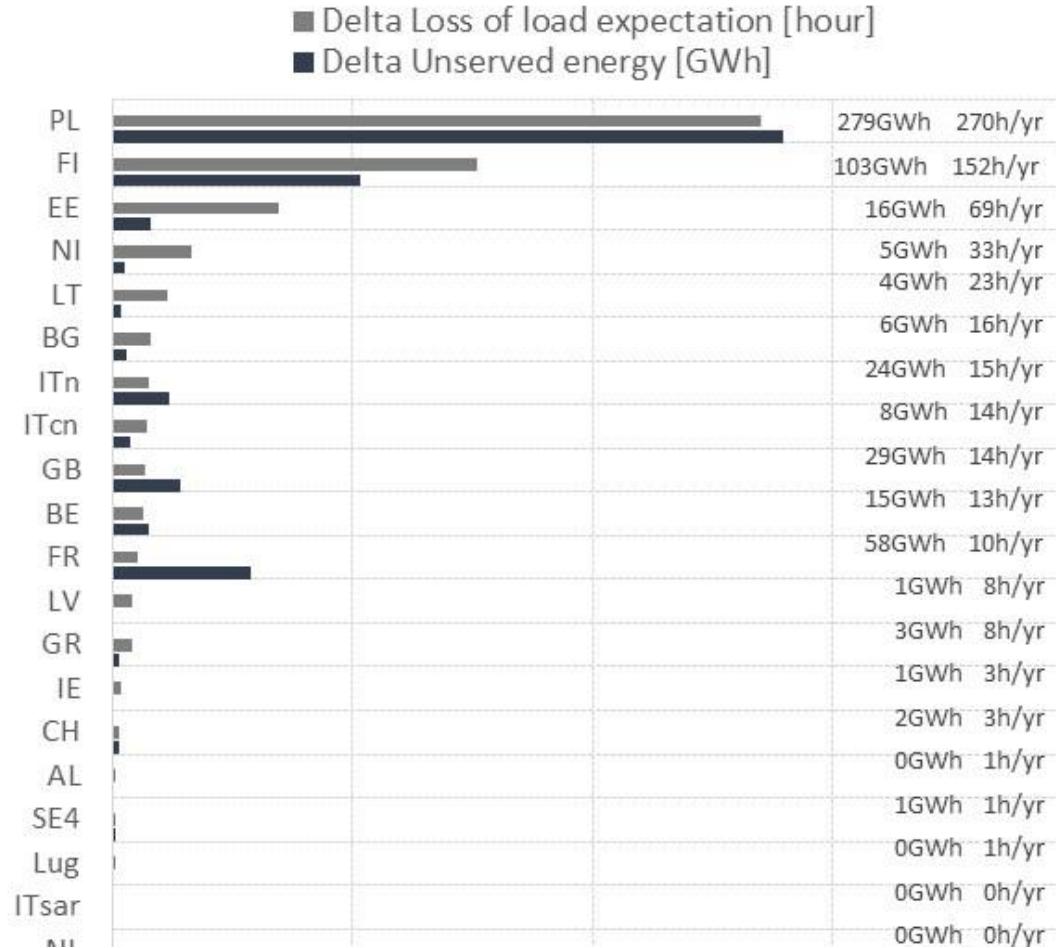


Benefit from spatial aggregation

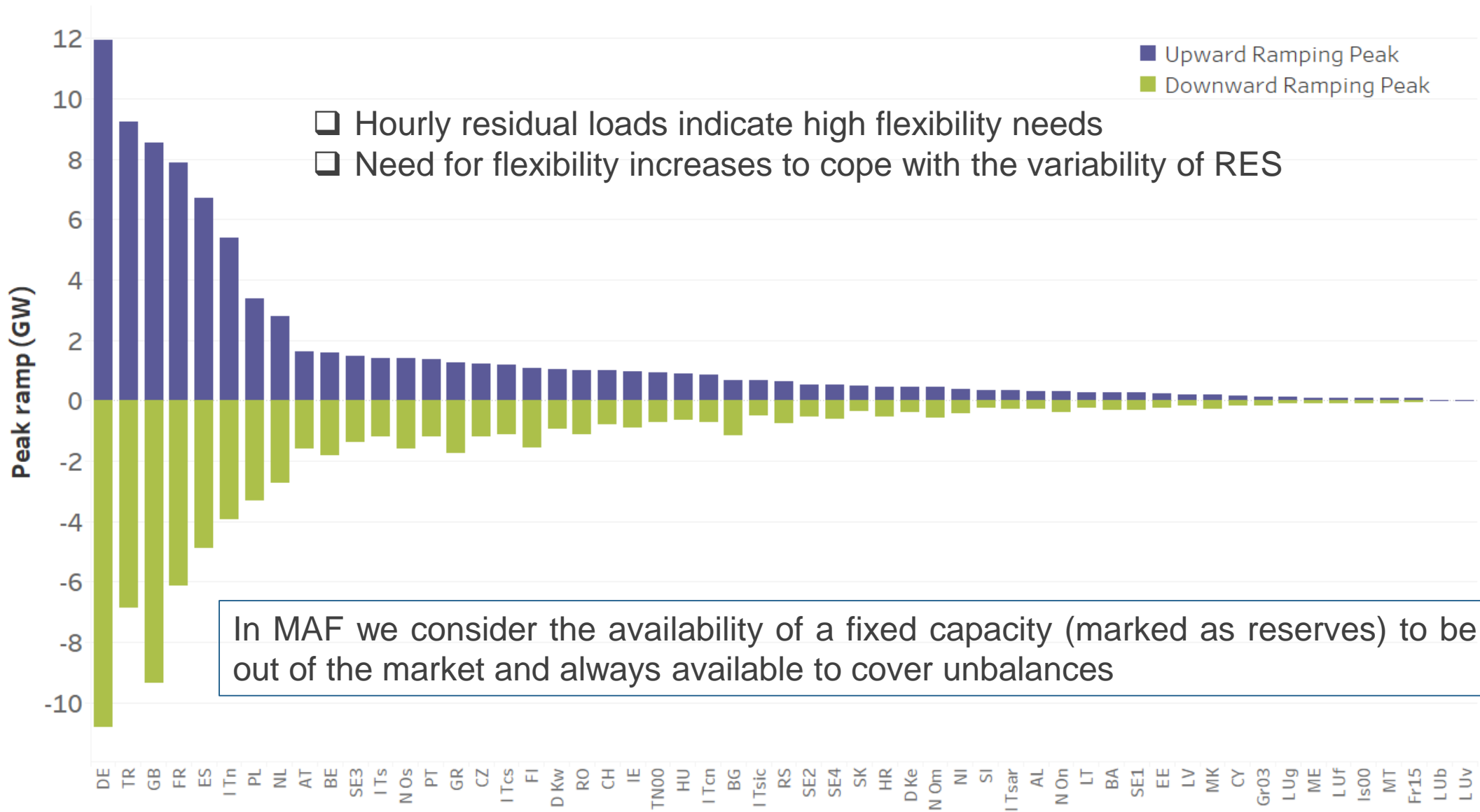
Base case 2025 scenario



2020 capacities, i.e. disregarding the NTC enhancements between 2020 and 2025.
















Flexibility needs: Year 2025



Clean Energy Package – Art. 21-23-24

- *The European resource adequacy assessment shall identify resource adequacy concerns by assessing the overall adequacy of the electricity system to supply current and projected demands for electricity at Union level, at the level of the Member States, and at the level of individual bidding zones, where relevant.*
- *The European resource adequacy assessment shall be conducted by the ENTSO for Electricity.*
- *By 5 January 2020, the ENTSO for Electricity shall submit [...] a draft methodology for the European resource adequacy assessment [...].*
- *National resource adequacy assessments shall have a regional scope and shall be based on the [ENTSO-E] methodology referred in Article 23(3) [...].*
- *National resource adequacy assessments may take into account additional sensitivities [...].*
- *Where the national resource adequacy assessment identifies an adequacy concern [...] that was not identified in the European resource adequacy assessment, the national resource adequacy assessment shall include the reasons for the divergence between the two resource adequacy assessments [...].*
- *Member States shall not introduce capacity mechanisms where both the European resource adequacy assessment and the national resource adequacy assessment, or in the absence of a national resource adequacy assessment, the European resource adequacy assessment have not identified a resource adequacy concern.*

A European Adequacy Assessment: Impact of CEP Implementation and New Challenges

Topic	MAF 2019	Target Methodology	Already Achieved
Modelling approach	Probabilistic approach	Probabilistic approach	  
Communication	Annual publication	Annual publication	  
Network	NTC approach. Testing flow-based since 2018	Compliance with FBMC	 
Time granularity	2 Target Years	10 Target Years	 
Available capacity	Bottom-up expectations of (de-)commissioning (up to 7 years ahead)	Economic viability of generation assets, integrated in the model (10-year ahead)	
Capacity Mechanisms	No explicit CM considerations	Integrated consideration of CM;	
Sectorial coverage	No sectorial integration	Sectorial integration (P2X consideration)	

**THANK YOU
FOR YOUR ATTENTION!**