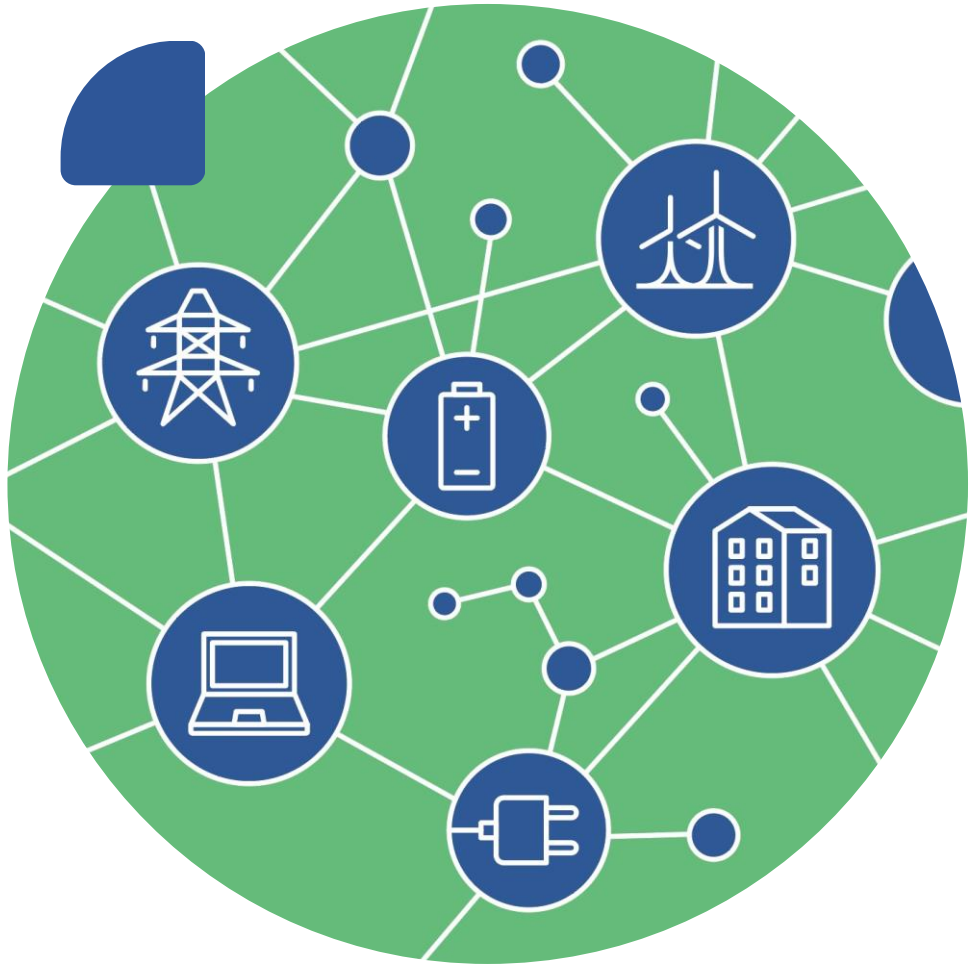


OSMOSE

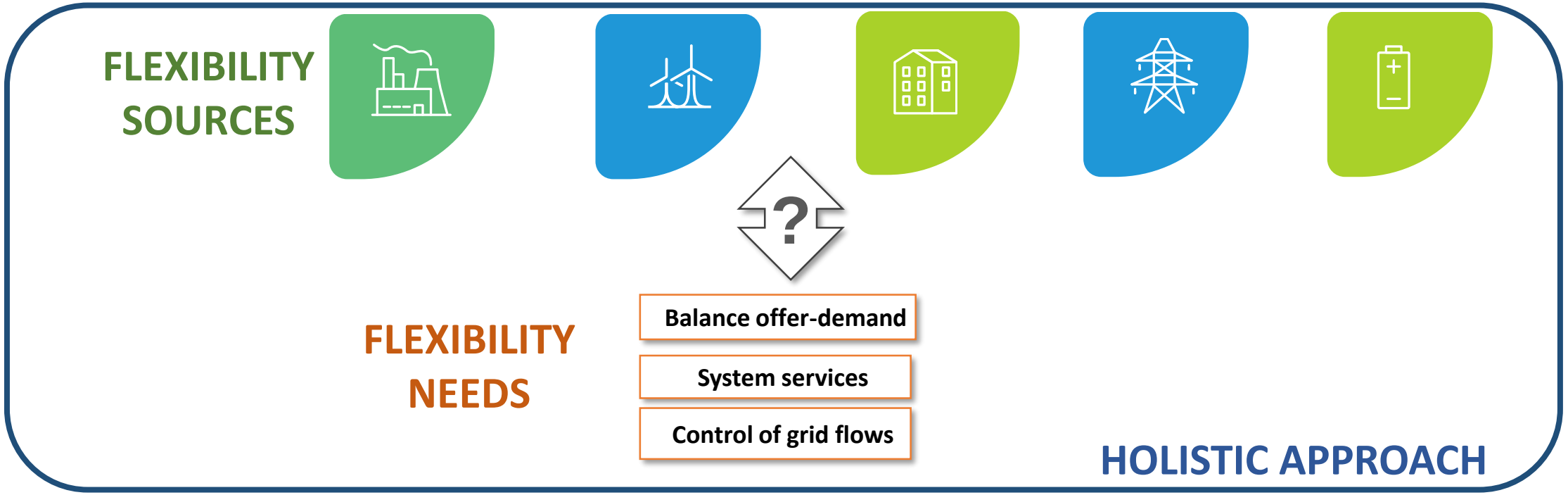
OPTIMAL **S**YSTEM-**M**IX **O**F FLEXIBILITY
SOLUTIONS FOR **E**UROPEAN ELECTRICITY

Nathalie Grisey, project coordinator, RTE

The project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 773406

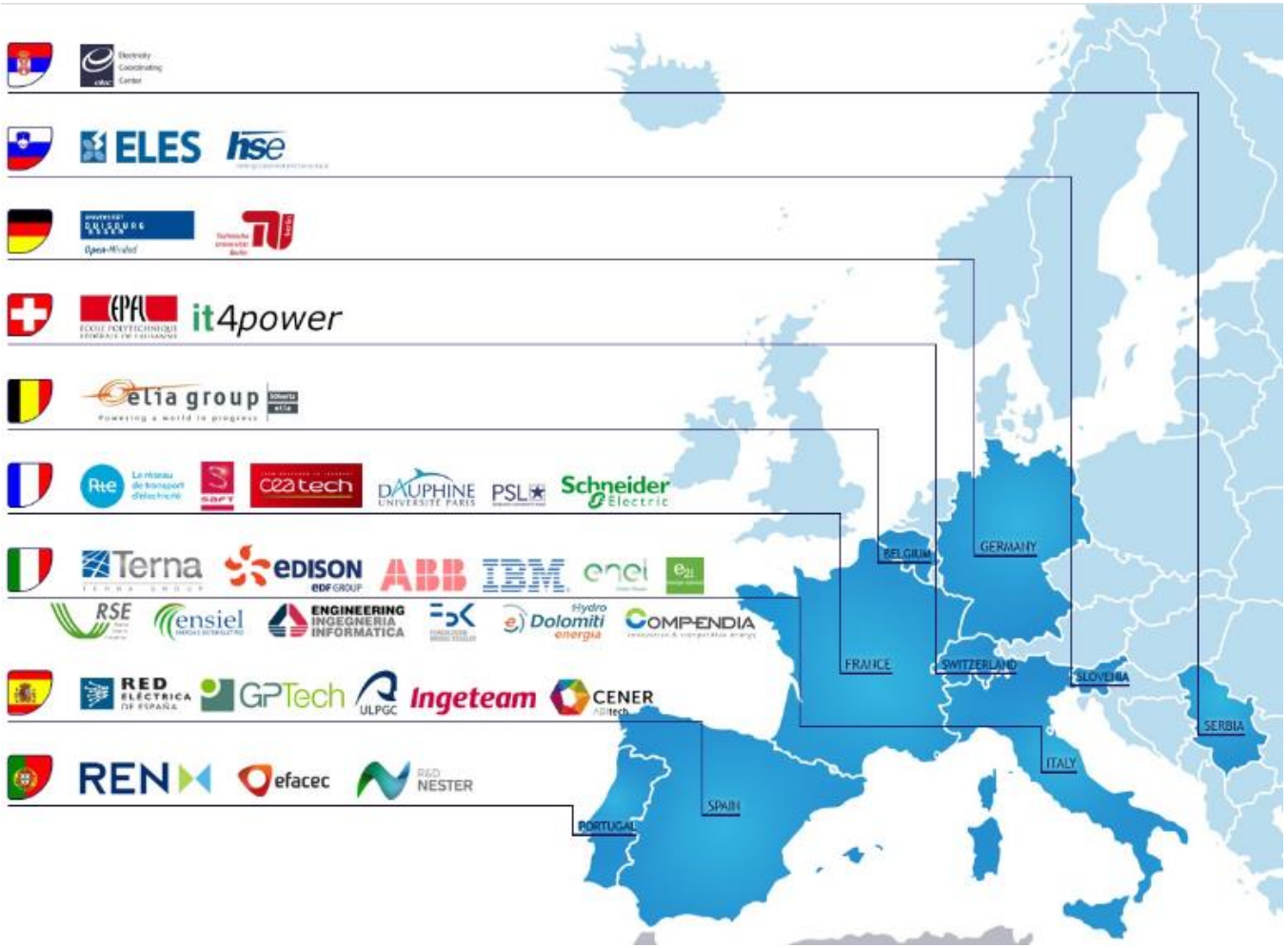
The challenge of flexibility

Flexibility is understood as a power system's ability to cope with variability and uncertainty in demand, generation and grid, over different timescales.



The consortium

- ✓ EU funded (Grant : 21.8 M€)
- ✓ 33 partners
- ✓ Leaders: **RTE**, REE, TERNA, ELES, CEA, TUB
- ✓ 2018 – 2021



OSMOSE workplan

Studies

Technische Universität Berlin — Optimal mix of flexibilities (WP1)

Rte — Market designs and regulations (WP2)

ceatech — Scaling-up & replication (WP7)

Demonstrators

Rte — Grid forming by multi-services hybrid storage (WP3)

RED ELÉCTRICA DE ESPAÑA — Multi-services by different storage and FACTS devices (WP4)

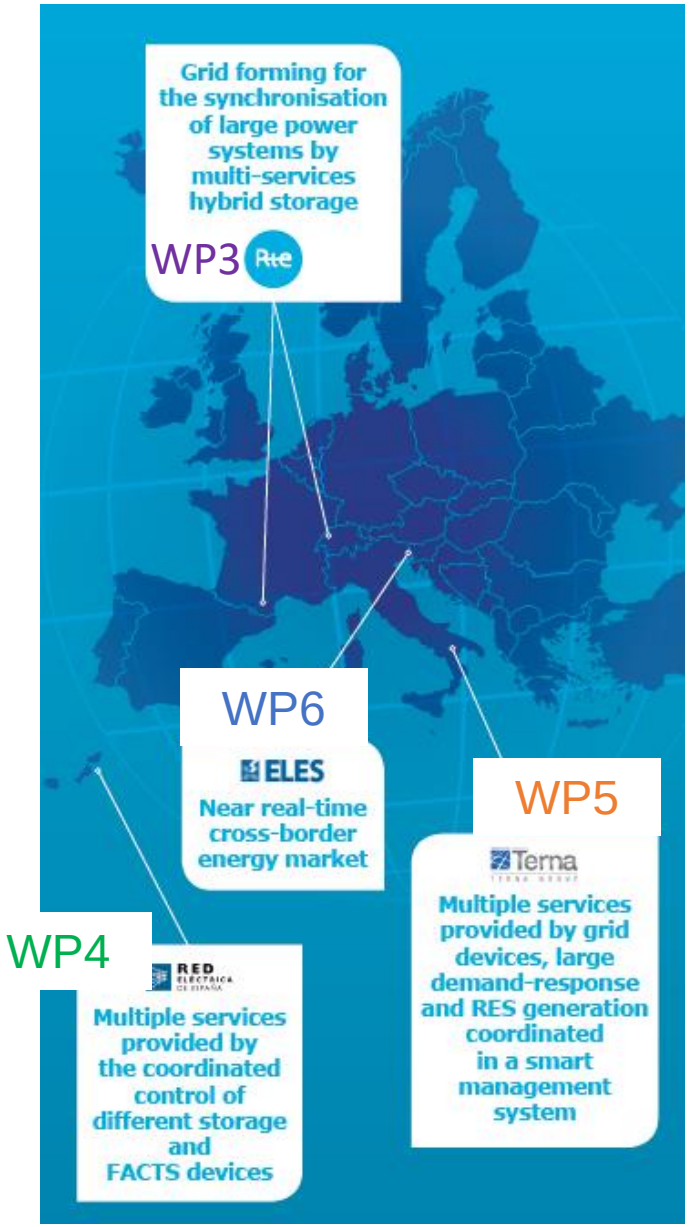
Terna GROUP — Multi-services by coordinated grid devices, large demand-response and RES (WP5)

ELES — Near real-time cross-border energy market (WP6)

OSMOSE PROJECT

Demonstrators Mapping

	Generation		Demand	Grid	Storage
	Wind	Hydro	Industrial	Dynamic thermal rating	Hybrid storage
Offer-demand balancing		WP6			
Reserve (FCR, FRR)			WP5		WP3 WP4
Synchronism and inertia	WP5				WP4 WP3
Voltage	WP5		WP5		WP4
Congestion management		WP6	WP5	WP5	WP4 WP3



OPTIMAL SYSTEM-MIX OF FLEXIBILITY SOLUTIONS FOR EUROPEAN ELECTRICITY

WP2 : Market design

WP2

Market designs to be studied

1. Power exchange with zonal pricing
2. Power pool with nodal pricing

With variations like :

- ✓ Co-optimisation of energy and reserve
- ✓ Improvements of flow-based
- ✓ Different granularity of products
- ✓ Different coordination schemes with DSOs

➔ **Deliverable D2.2**

WP2

Modelling of uncertainties

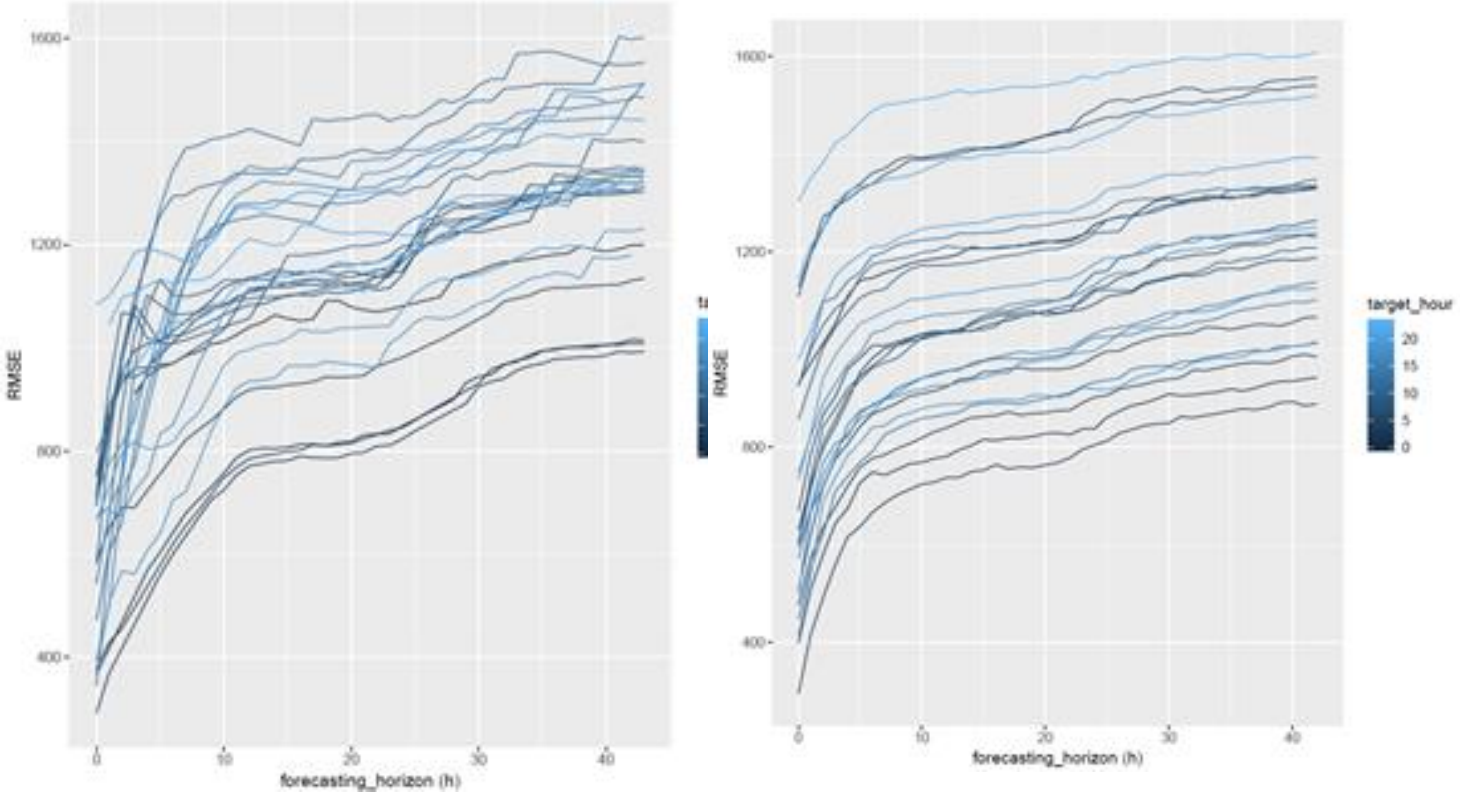
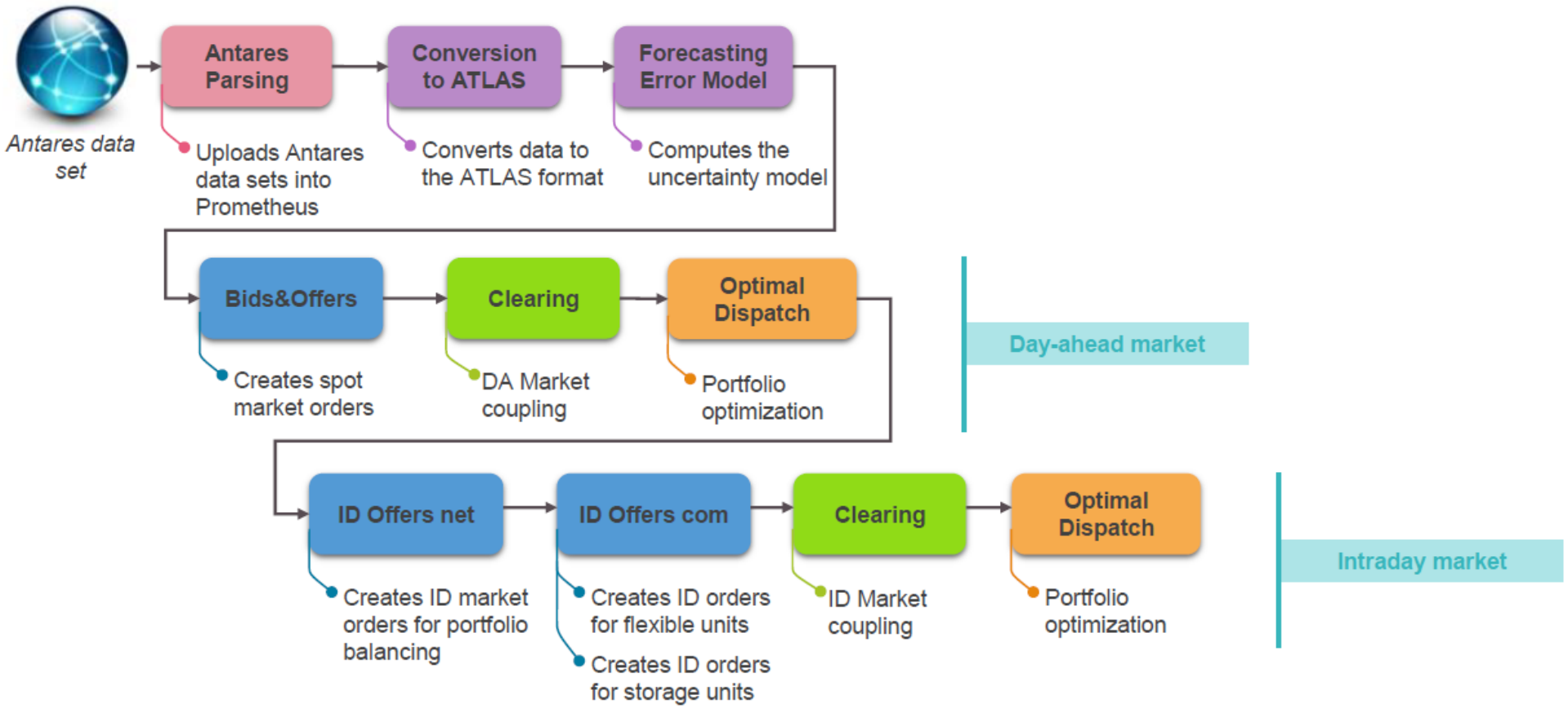


Figure 13 Root mean squared error of observed (left) and simulated (right) load forecasts (MW) as a function of forecasting horizon (x-axis) and delivery hour (color scale)

➔ Deliverable D2.1

WP2

Market modelling in PROMETHEUS



Thank you!

https://www.osmose-h2020.eu/

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