

Main takeaways

Nathalie Grisey, RTE





Modelling and quantifying future flexibility

- **Advanced simulations** of the European power system are essential **to support decisions** on investment plans, incentives schemes and market design with quantified evidence.
- **All flexibility needs and sources are closely interrelated** and should be considered in long-term studies. The use of various existing simulation tools is necessary to capture the different aspects of flexibility while considering all time scales (from long-term planning to system operation) and sector coupling.
- Future policies should ensure the best use of the **flexibility potential of power to gas, batteries, RES and grid**. They all have a critical role to play in the coming power system and **their optimal coordination** brings significant value to address increasing variability and uncertainty.



Battery Energy Storage System and converters flexibility

- **Battery Energy Storage Systems can now compete** with other existing flexibility solutions to support system security and stability. **Specific designs and controls** tailored for system services make them all the more cost-effective in specific situations such as isolated systems.
- Due to their criticality for system stability, the **mandatory provision of synchronization services** should be investigated **when it implies no additional cost for the providers**. Anticipating their implementation on the converters connected to the grid is necessary to prevent scarcity in the future European system or high retrofit costs.

RES and industrial flexibility



- **The provision of ancillary services by wind farms is technically possible but some implementation gaps remain** for their daily effective use. TSOs - through grid code evolution - and manufacturers – through industrial development - should accelerate their efforts to avoid scarcity of ancillary services or high retrofit costs in the coming years.
- **Industrial loads** can provide flexibility to the system but **with a limited potential** due to their already optimised industrial processes and with significant retrofitting challenges. Harvesting this flexibility potential for fast regulations should probably not be the priority in the coming years, while they can be counted on for slower regulations.

Grid flexibility and efficient coordination



- **Advanced sensors and tools** like advanced Energy Management System can improve the operation of the grid in congested areas. They are **significant opportunities for TSOs to optimize their operational cost**, although their deployment induces challenging adaptations in already complex industrial environment and practices.
- **Close to real time cross border exchanges** are challenging from an IT perspective but **technically feasible** while taking into account grid constraints and thus ensuring system security. However the economic value of the hydro producers' residual flexibility after existing gate closures **remains limited in the actual system**. A large deployment of this concept should only be considered when higher RES penetration will call for more close to real time flexibility.

Roundtable

Moderated by **Uroš Salobir**, Director of the Strategic Innovation Department, ELES

Mark Van Stiphout, Deputy Head of Unit, EC DG Energy

Zoran Vujasinovic, Policy Officer, ACER

Norela Constantinescu, Head of Section Innovation at ENTSO-E and Vice-Chair of ETIP-SNET

Gerardo Rebollar Trejo, Marketing Strategy Director of Saft ESS division

