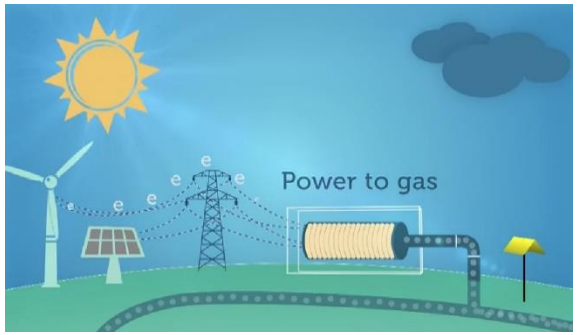
1. Introduction

Power System challenges and needs

- RTE as Transmission System Operator has to:
  - **Ensure a stable and secure** operation which means:
    - *Adequacy* – Acceptable steady-state
    - *Stability* – Stable and possible transition between two operating points
    - *Planning* - Better plan and optimise the enhancement of infrastructure
  - **Support the energy transition** to reach carbon neutrality at the European level

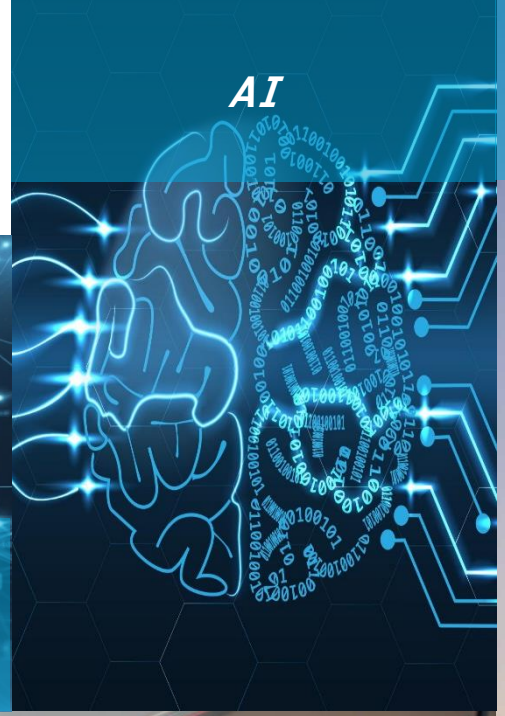
- A **system evolving** at a very high pace due to a global demand for cleaner energy
  - Massive integration of Renewable Energy Sources
  - High-Voltage Direct Current (HVDC) links boom => interconnected system
  - Deep evolution of the consumption uses (active consumers, electric vehicle, microgrids, etc.)
  - Multi-energy system : P2X, V2X,...

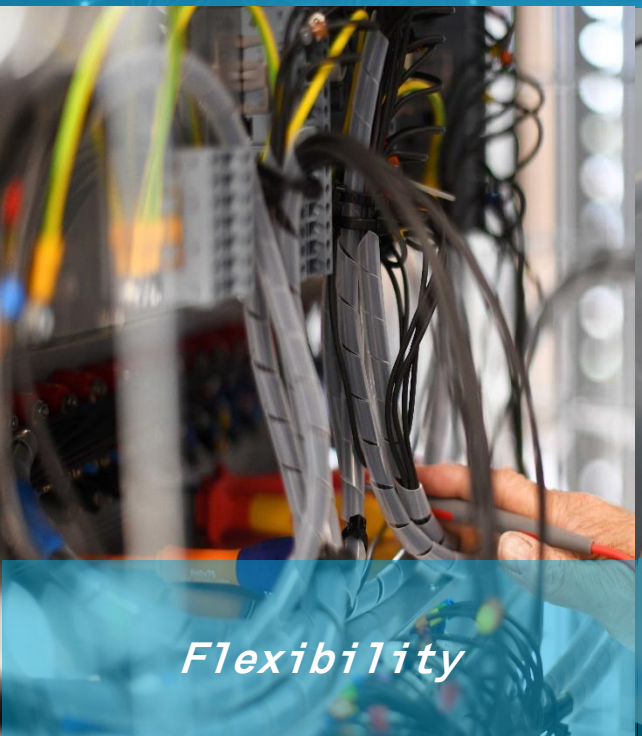


- A complete switch from an easy-to-predict and physically-driven system to a more complex, unpredictable and numerically-driven system

⇒ All of this advocates for more collaboration, more transparency and more flexibility.

NEW OPPORTUNITIES IN THE ENERGY SECTOR





II. Opportunities and key success factors

Key success factors

- **Collaboration in the energy sector** is essential to face the challenges to come.
  - Collaborative work is needed between all stakeholders: industries, associations, universities, public bodies, and research labs.
  - Relying in collaboration structures to facilitate cooperation: RTE is a member of the CRESYM association.

- Need to develop **open and efficient tools**:
  - **Transparency** will allow to ensure quality of the developments, and confidence from public authorities.
  - **Digitalization** of tools and processes to ensure fast and efficient decision-making and network operation.
  - Focus on developing **flexible, effective tools and models** to cope with different use cases and ensure adoption.

- A switch in the electricity sector from a world with dispatchable production and fatal consumption, to an ecosystem with fatal production and dispatchable consumption.
  - **Flexibility opportunities** and their associated characteristics must be correctly modelled, and these models must be validated on physical demonstrators.
  - This will ensure the best use of these new flexibilities to optimize overall welfare and ease the integration of renewable energies.

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Thank you!