



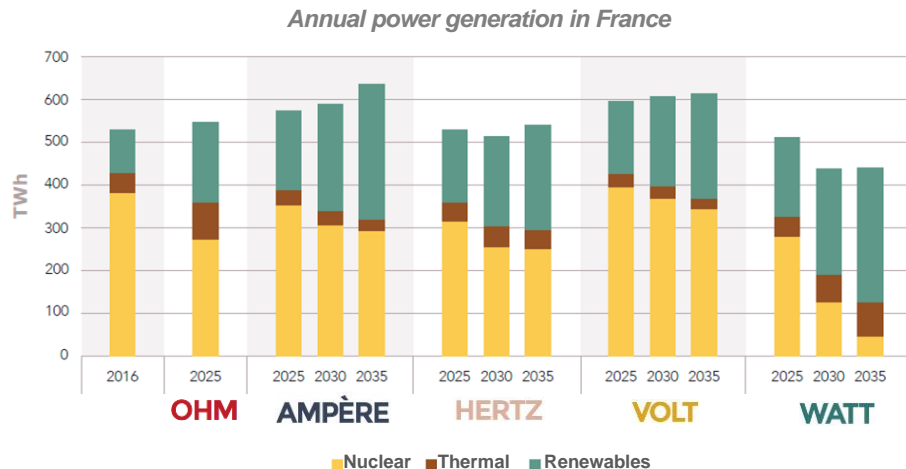
# Electricity supply & demand balance in France

*Thomas Veyrenc, RTE, Director for strategy and planning*

# Adequacy forecasts provide insights and scenarios for the debate on the French electricity mix

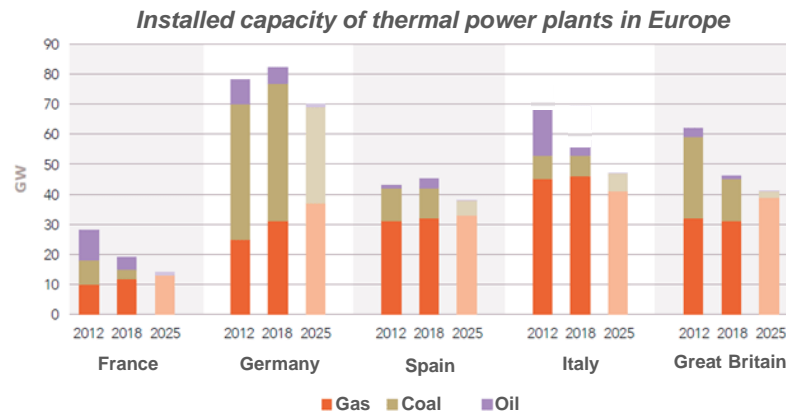


- In France, the Energy Transition law of 2015 set objectives (40% of RES, 50% of nuclear) but with no detailed scenarios or paths to reach these targets.
- In 2017, RTE developed, in consultation with all stakeholders, **five contrasted energy transition scenarios**. These scenarios are detailed in RTE's adequacy forecast. They all include a diversification of the mix but differ on the evolution of RES and nuclear capacities.
- These scenarios have been used for the debate on the new French energy plan (PPE).
- At the end of 2018, the French government presented a reviewed energy plan for the next 10-15 years. The proposed plan is close to *Ampère* and *Volt* scenarios and marked by:
  - Closure of coal plants by 2022
  - Increased development of RES
  - Some closure of nuclear power plants between 2025 and 2035



# Adequacy forecasts provide insights and scenarios for the debate on the French electricity mix

- In France, ~90% of generation is carbon-free, and the oldest oil and coal plants have already been decommissioned in recent years.
- With the closure of the last coal plants (~7 MtCO<sub>2</sub>/y), the French power sector would emit around 15 MtCO<sub>2</sub>/y.
- Issues for short/medium term (2022-2025) and longer term (2025-2030) are different



- 2020-2025 : substitution between fossil-fuel power stations and carbon-free electricity

Currently, security of supply matches exactly the reliability standard (loss of load expectation of 3 hours per year) – no more, no less → raises questions about the possibility to close down the 5 last coal-fired units in 3 years.

- 2022-2035 : addition of renewables are supposed to be bigger than removal of nuclear units

If energy efficiency plans are implemented as planned, **concerns for security of supply should fade away (increased capacity margins).**

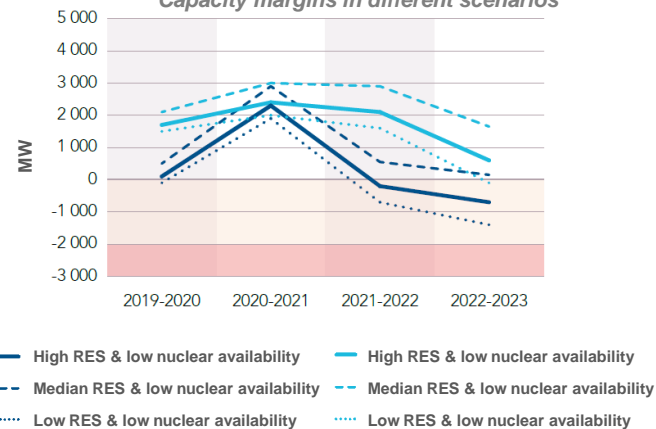
# Rte 2020-2025 : a period of substitution in order to reinforce decarbonisation of the French electricity mix

- The latest adequacy forecast (BP 2018) published by RTE contains an in-depth analysis on security of supply after closure of the last coal power plants.
- Analyses are based on detailed simulations of the European supply and demand balance :
  - Data provided by other TSOs for the definition and the modelling of the European electricity mix,
  - Data and information provided by stakeholders during public consultation process
- **Analyses show that closure of power plants are compatible with the French reliability standard under some conditions** (e.g. transition Fessenheim/Flamanville, interconnections, commissioning of new offshore wind)
- Sensibility checks performed to include different evolutions on power systems (e.g. closure of coal units in Germany).

Countries explicitly modelled in RTE's adequacy forecast

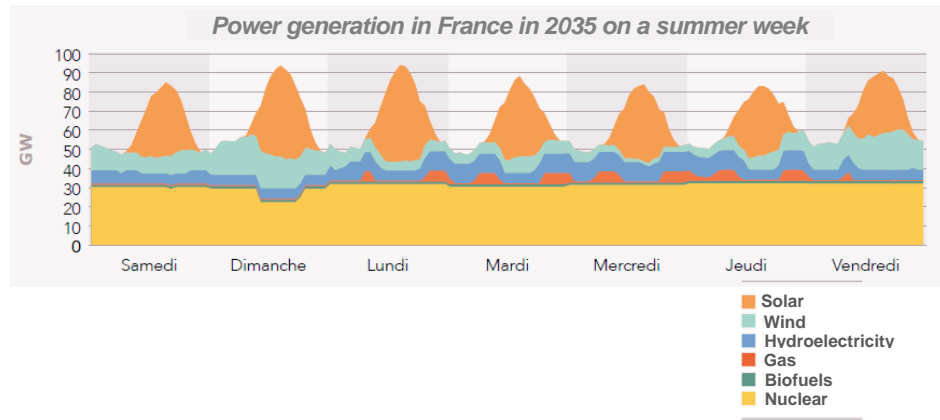


Capacity margins in different scenarios



# 2025-2035 : diversification of the French electricity mix with additional renewable energy capacities

- Between 2020 and 2030, baseload capacity (nuclear + RES) is planned to increase.
- France – already a large exporter (net balance of 60 TWh in 2018) – would continue to be a net exporter (except during peakload) in every scenario and with a great degree of certitude in a highly interconnected system.
- New uses of electricity (electric vehicles, hydrogen production...) should develop to cut CO2 emissions. They could also provide flexibility to the power sector with a positive impact on security of supply and the general cost-efficiency of energy policy.
- Recent (and upcoming) reports of RTE present detailed analyses on these different subjects.



Report on  
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