

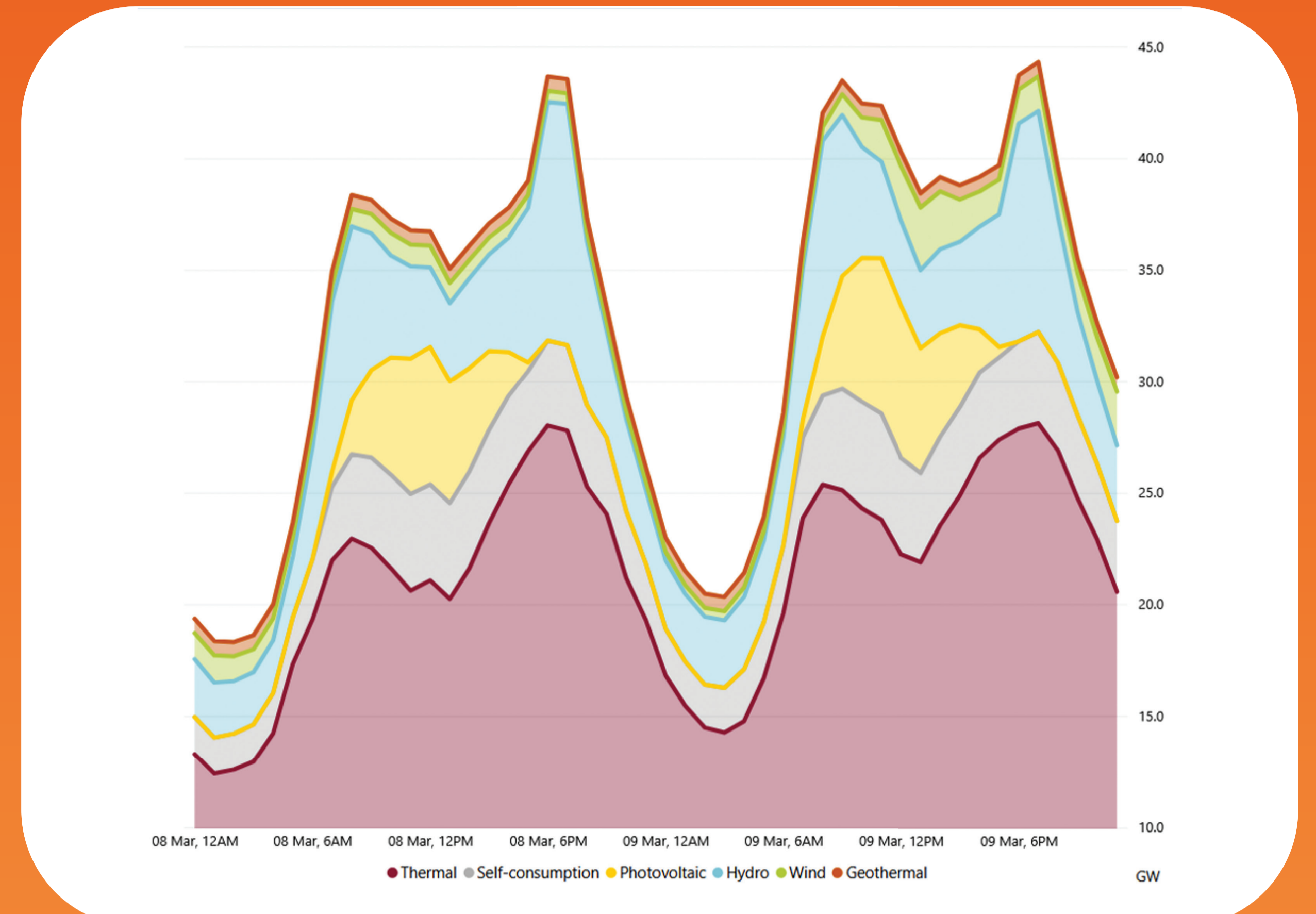


SCO2OP-TES

sCO₂ Operating Pumped Thermal Energy Storage for grid/industry cooperation

CHALLENGE

- Renewable Energy Sources (RES) and electric grids are always more present in the EU Energy system while electrified processes are becoming more and more common.
- Many renewable sources are non-programmable.
- It is important to achieve convenient ways to store a large amount of energy for a long-time horizon to shave peaks and align production and demand.
- Grid flexible and fast reactive energy storage based on rotating machines as new long-duration energy storage should be able to rapidly respond to grid flexibility needs, being able to provide a significant amount of power (>10 MW) in daily ramp-up moments.

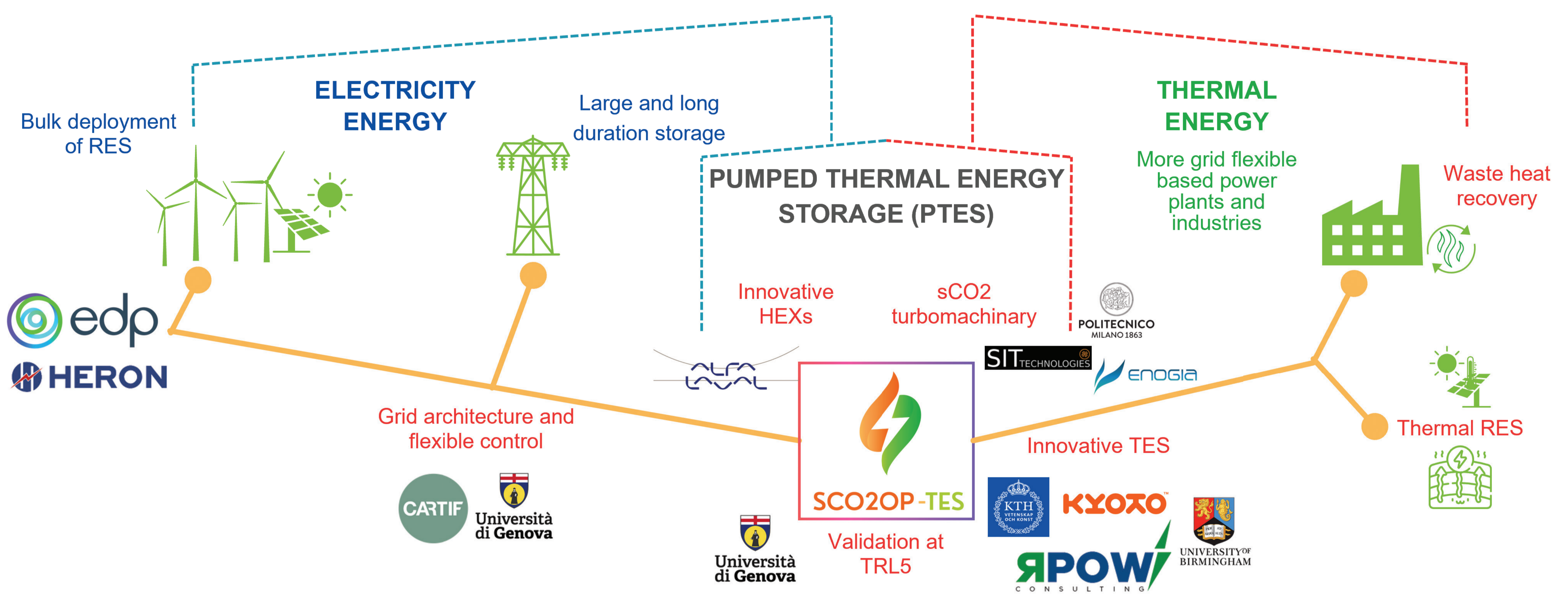


This is Italy's actual electrical generation for 8 and 9 of March 2023, taken as example

SCO2OP-TES promotes a new **Thermally Integrated Pumped Thermal Energy Storage** based on sCO₂ technologies and integrating mid temperature (200 - 400°C) waste heat and thermal RES sources **to increase the overall storage round trip efficiency (RTE)**.



TRL 5 Validation of 1st of its kind sCO₂ TI-PTES



LESS CO₂ IN EU ENERGY SYSTEM THANKS TO CO₂

PARTNERS



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