



Contribution ID: 394

Type: Poster

## Italian Scenario: reintroduction of new nuclear and benefits for the system

Challenging European and Italian regulation aims at reaching carbon neutrality in Italy by 2050. A scenario totally fueled by renewable sources would be compliant with this target, with strong drawbacks from economical and system security point of views.

For this reason, through a proprietary model an optimized scenario has been drafted, starting from Italian PNIEC1 energy mix at 2030. Reintroducing nuclear technology2, with the first plant in 2030-35 and one plant per year, at 2050 a pipeline of 15-20 plants would cover the 10% of production. At 2050, ~20% of programmable capacity (nuclear and decarbonized gas) will guarantee economic and adequacy sustainability of the system. This optimized mix guarantees significant investment reduction (more than 400B€3).

The introduction of new nuclear leads to positive impacts for the Italian system:

- Macroeconomic: 40+ B€ GDP increase, 36+ k AWU4 during construction and 3+ k AWU in operation
- Environmental: reduced LC emissions, land occupancy and water need
- Strategic: revitalization of national industrial cluster, valorization of carbon neutral Made in Italy and boost of high-technology export in Europe (benefit enabled by the hybridization of electric and thermal applications)

1. Last version published in 2023, with import hp by Terna-Snam scenario (flat 50 TWh/y)
2. New nuclear technologies: SMR (commercially available after 2030) and AMR (after 2040)
3. Comparison vs 100% RES Scenario over the period 2030-2050, considering key cost items: electric storage, RES, grid and nuclear development
4. AWU: annual working units

### Country OR International Organization

Italy

### Email address

giada.caprioli@edison.it

### Confirm that the work is original and has not been published anywhere else

YES

**Authors:** CAPRIOLI, Giada; Mr MOTTURA, Lorenzo; Mrs OLIVIERI, Valeria

**Presenter:** CAPRIOLI, Giada

**Track Classification:** Topical Group D: Considerations to Facilitate Deployment of SMRs: Track 13: SMRs in Energy Planning for Climate Change Mitigation