

## Energy storage investment trends Italy

In December 2023, the EU greenlit Italy's energy storage program, earmarking a hefty investment of EUR17.7 billion. This initiative is anticipated to facilitate the construction of over 9GW/71GWh of energy storage systems (ESS).

Italy will promote investments in utility scale electricity storage to reach at least 70 GWh, and worth over Euro 17 bn, in the next ten years. The new storage capacity will be acquired through tenders published by Terna, the manager of Italy's high voltage grid. The next tender will be released in 2024.

Italy's NECP targets between 7.5 GW and 8.5 GW of energy storage by 2030, of which 4.5 GW is expected to come from customer-sited storage systems.<sup>24</sup> The remaining 3-4 GW is expected to come from utility-scale systems. By 2050, Italy aims to achieve 30-40 GW of storage capacity.

The Italian energy storage market is pivoting towards the utility-scale segment significantly, evident from the recent investment trends. Several gigawatts plus pipelines have emerged as a result, starting with Enel, which secured a contract from Terna in early 2022 to provide 1.6GW/6.6GWh of storage capacity slated to come online in 2024 (PV ...

The hybrid energy storage system will be deployed in 500-meter-deep mine shafts at a former coal mine. In another development, Renewable Power Capital and Altea Green Power had entered into a partnership to develop 1GW of battery energy storage in Italy. Other significant developments in the Italian storage market in the last year included:

The pickup in momentum in energy transition, revolving around a more than 3x growth in installed solar and wind capacities over the next 6-7 years, is likely to trigger further development of the energy storage market. The latter has been skewed towards residential rooftop solar-linked battery energy storage systems ("BESS"), and the market structure is expected to undergo a paradigm shift towards utility-scale storage.

Source: IMF, Fred Economic Data, S& P Global, Energy Storage News, Digital Object Identifier, The Energy Institute For pumped hydro storage: (Politecnico di Milano, 2018)

Italy's grid capacity constraint has been a concern for the renewable power generation pipeline. Steps are underway to expand the capacity. Without systems to absorb the energy injected, the power market prices across Italy's regional market zones may diverge to reflect the grid constraints (Reuters, 2023). Storage also assumes a critical role in capturing prices from high-demand conditions. In July 2023, Italy had the most significant increase in electricity demand on the grid due to prevalent high temperatures (REVE, 2023).

While the energy storage market has traditionally remained skewed towards the residential rooftop segment,

there is growing evidence of a larger share of grid-scale capacity in new installations coming online.

Italy has ascended to a leading position among energy storage markets in Europe in the last twelve months and is currently considered a top investment destination along with the UK. There has been a marked shift towards utility-scale installations as electricity market rules were tweaked to accommodate battery storage operators. The transition commenced in early 2022 through Legislative Decree No. 210/2021, which allowed transmission system operator (TSO) Terna to procure new energy storage capacity in advance (Energy Storage News, 2023).

In February 2022, Terna awarded a 1GW capacity contract to Enel. This was followed by a more robust showing in the capacity auctions held in late 2022, where storage projects secured over 30% of the total capacity allocated, amounting to 1,121MW (E3 Analytics, 2023). The steep decline in battery costs has helped rationalise energy storage capex, making projects competitive in auctions. In June 2023, the regulator ARERA approved new criteria and conditions for large-scale energy storage capacity auctions to be run by Terna (Energy Storage News, 2023).

The development of the energy storage market in Italy has diverged from that of its British or German counterparts. While ancillary services represent a vital constituent of the revenue stack for energy storage projects elsewhere in Europe, the capacity market (15-year contracts), along with energy arbitrage, has driven the growth of the Italian market. The last fast reserve auction was held in late 2020 and saw 250MW of BESS projects on 5-year contracts being awarded to Enel and Engie, with projects slated to come online in 2023-27.

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