

ITALIAN COMMERCIAL ENERGY STORAGE SYSTEM



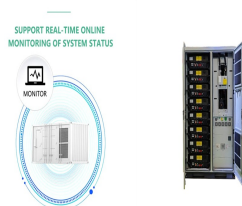
The market for battery energy storage systems is growing rapidly. Here are the key questions for those who want to lead the way. Italy has BESS players that have broken through by winning one of the country's renewables-focused capacity auctions. The opportunities in Germany revolve more around avoiding costly grid upgrades



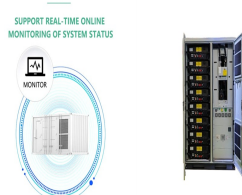
successful Italian company offering energy storage systems (ESS, Energy Storage System), for residential and, to a greater extent, commercial and industrial uses. These are complex systems that store energy from renewable sources and release it when needed. These systems require a combination of interacting hardware and software components



Figures by industry group Italia Solare put the current size of the Italian energy storage sector at approximately 450MW of total installed capacity. Italian transmission system operator (TSO) Terna said that 1GW of storage linked to solar farms will be needed by 2025 to help maintain system adequacy, with additional 6GW of utility-scale



BESS, or battery energy storage systems, are an essential element of the energy transition: the Enel Group is playing an important role in the growth of the sector, in Italy and in the other countries where it is present. Media Enel Green Power is a key player in the growth of battery storage systems in Italy. 12 July 2024. Enel Green Power

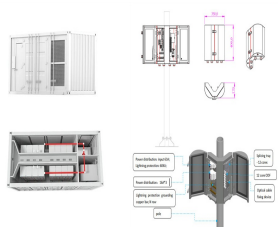


Rodolfo Bigolin is CEO of Innovo Group, which last year formed a 50:50 JV ??? iCube Renewables ??? with Spanish utility Iberdrola to deploy solar, wind and also battery storage projects in Italy. He says the recognition that storage is needed to integrate Italy's big renewables pipeline has been combined with a capital market which is now

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Following the 70MW being delivered by NHOA Energy in the context of the Fast Reserve Units, the award of this project confirms NHOA Energy's capability to design systems able to provide all the different energy storage services in the Italian market and paves the road for additional deployments in sight of the future storage auctions to reach the 2030 ???



As the world embraces sustainable energy, the need for effective energy storage systems is growing rapidly. Europe's energy storage sector is advancing quickly, is home to several top energy storage manufacturers. This article will explore the top 10 energy storage companies in Europe that are leading the way in energy storage innovation

Commercial and Industrial ESS

- Air Cooling / Liquid Cooling
- Single-Phase Inverter
- Renewable Energy Integration
- Modular Design for Flexible Expansion



System integrator Energy SpA and its vertically integrated peer Pylon Technologies (Pylontech) have formed a joint venture (JV) to set up a gigafactory in Italy producing batteries for energy storage. The Italy and China-based companies (respectively) have set up the JV entity Pylon LiFeEU S.r.l, Energy announced on the Italian stock exchange



Commercial and industrial (C& I) energy storage systems still total only 108 MWh of capacity in Italy, said the trade body, but the segment is growing, with 44% (48 MWh) of that total connected in the first half of 2024. The region of Lombardy, with 1,454 MWh of storage capacity, leads Italy for energy storage systems connected to photovoltaics.



Italy, which has always been a pioneer in renewable energy, continues to innovate with BESS (Battery Energy Storage Systems). Enel is leading this revolution with advanced projects both nationally and internationally, thereby contributing to Grid stabilization and decarbonization.

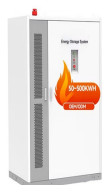
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<Battery Energy Storage Systems> Exhibit <1> of <4> Front of the meter (FTM) Behind the meter (BTM) Source: McKinsey Energy Storage Insights Battery energy storage systems are used across the entire energy landscape. McKinsey & Company Electricity generation and distribution Use cases Commercial and industrial (C& I) Residential ???Price arbitrage



The use of energy storage systems has steadily increased over the years due to its ability to help stabilize and optimize power grids. Industrial and commercial energy storage systems have become an essential part of modern energy infrastructure, providing a range of services to support electricity markets, increase system efficiency, and improve grid reliability.



battery storage projects in Italy. He says the recognition that storage is needed to integrate Italy's big renewables pipeline has combined with a capital market which is now more comfortable with and willing to invest in energy storage. "In Italy, through our JV with Iberdrola we have an indicative target of 1GW for 6 hours (duration).

114KWh ESS



That was the message from the "Unlocking Opportunities in Italy's Energy Storage Landscape" panel discussion on Day 1 of last week's Energy Storage Summit EU in London, hosted by our publisher Solar Media. The MACSE auction has stipulated that 90% of the funding will go to either lithium-ion battery energy storage system (BESS) or

114KWh ESS



Therefore, battery energy storage systems (BESS) are needed in Italy. The Italian market for BESS is growing rapidly and currently amounts to 2.3 GW but it almost exclusively consists of residential scale systems, associated with small scale solar plants, having a capacity of less than 20 kWh.

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Battery system: The battery, consisting of separate cells that transform chemical energy into electrical energy, is undoubtedly the heart of commercial energy storage systems. The cells are arranged in modules, racks, and strings, as well as connected in series or parallel to an amount that matches the desired voltage and capacity.



Rome ??? July 4, 2023 ??? Matrix Renewables ("Matrix"), the TPG Rise-backed global renewable energy platform, today announced that it has started a partnership with Gravel A through a proprietary Development Service Agreement (DSA) for the development of up to 1.5 GW of standalone Battery Energy Storage Systems (BESS) in Italy. The first stage of this partnership ???



Battery energy storage system (BESS) capacity in Italy reached 587MW/1,227MWh in the first three months of 2022, of which 977MWh is distributed energy storage, according to the national renewables association, ANIE Rinnovabili. Like Germany, Italy's BESS market is currently dominated by the residential and commercial & industrial segments.

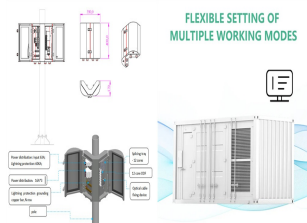


The results of the survey show that 89% of the surveyed installers in Italy offer energy storage to their customers, compared to 64% from last year's survey. A further 10% are planning to include storage solutions in their portfolio by the end of 2022. This development indicates a growing market for storage systems.

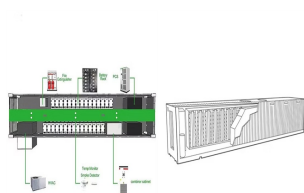


Therefore, battery energy storage systems (BESS) are needed in Italy. The Italian market for BESS is growing rapidly and currently amounts to 2.3 GW but it almost exclusively consists of residential scale systems, associated with small scale solar plants, having an average capacity of less than 20 kWh.

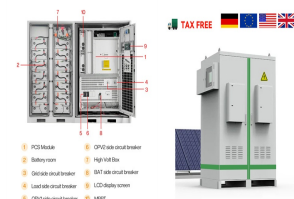
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Introducing the BlauHoff ESS System 3 Phases 12K/30kWh All-in-One: Empowering Energy Storage Solution for Seamless Performance. Take control of your energy storage needs with the BlauHoff ESS System 3 Phases 12K/30kWh All-in-One.



Storage in Italy: "private installations" (1) Source: elaboration of Italia Solare from Terna data at 30th June 2021 11 N. of storage systems connected (2021) Storage systems capacity [MWh] connected (2021) Storage systems power [MW] connected (2021) Storage systems capacity range [kWh] Number Storage systems Power [MW] Capacity [MWh]



Italy added 303 MW/632 MWh of distributed energy storage capacity in the first half of 2022. The segment continues to grow in the country, with the regions of Lombardy and Veneto being the two



The energy storage market in Italy doubled in capacity in the first half of the year, though Q2 saw the first slowdown in nine quarters and that could be repeated in H2, according to the country's renewable energy trade body. The market continues to be led by the residential and commercial sector with the grid-scale market set to take off



The development of Battery Energy Storage Systems (hereinafter "BESS") in Italy has been limited by the fact that the spread of renewable sources is not such as to produce significant price

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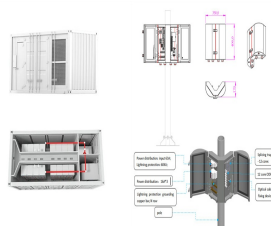
-200KWH is an energy storage product of the Smart String ESS series that is suitable for industrial and commercial scenarios and provides 200KWH backup power. With Huawei's photovoltaic system and cloud management system, it can realize a complete C& I solar storage system solution.



The auction, which was for delivery of projects to begin operation in 2024, has been credited with kickstarting the Italian market for grid-scale energy storage s biggest winner was utility Enel, which won more than 90% of contracts up for grabs. Italy is set to become one of Europe's most active markets, as profiled in a feature article for our quarterly journal PV Tech ???



overview. Battery Energy Storage Solutions: our expertise in power conversion, power management and power quality are your key to a successful project Whether you are investing in Bulk Energy (i.e. Power Balancing, Peak Shaving, Load Levelling???), Ancillary Services (i.e. Frequency Regulation, Voltage Support, Spinning Reserve???), RES Integration (i.e. Time ???



Transmission system operator (TSO) Terna estimates Italy will need 9GW/71GWh of new energy storage to integrate its growing renewables pipeline, an average duration of just under 8 hours. That duration will be split between battery energy storage system (BESS) and select pumped hydro energy storage (PHES) projects, though even on the BESS ???