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Ingenuity for life

Ventotene, Italy

Stable energy supply for an off-grid island

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Small island with a major challenge

Ventotene is an island in the Mediterranean region situated about 100 km from Rome. Around 700 people live in an area of 153 hectares – until the summer months, when the number of inhabitants grows to more than 3,000. It is an extreme situation for the energy supply as well: Ventotene is not connected to the Italian power grid. Until now, the necessary energy has been supplied by four diesel generators and a photovoltaic system.



Greater sustainability and a reliable supply

The objective was to create a supply grid for the island that is more efficient, ecological, and stable – using innovative and intelligent solutions. This approach included the integration of renewable energy sources to reduce the supply of diesel and to create greater sustainability. An additional goal was to perfectly coordinate all existing and new

A strong solution for Ventotene – the results after seven months

- Fuel savings of approx. 14.7 percent
- Operating hours of all generators reduced by approx. 55.5 percent
- Reliable operation and stable supply at all times
- Sufficient supply even during maintenance time periods

components of the energy distribution in order to be able to quickly and reliably respond to seasonal fluctuations. These are due in particular to the heavy influx of tourists. And the ultimate goal was to ensure a stable grid.

“This has improved our way of life on the island – and it is the beginning of a new co-existence with respect for our environment.”

Mr. Pennacchio (Resident, Ventotene)



A customized complete solution for Ventotene

The primary focus was on a reliable and stable system that increases the efficiency of the existing diesel generators while maximizing the use of renewable energy sources. The solution consists of the interplay between all the components – converters, batteries, low-voltage and medium-voltage switchgear, and a control unit – integrated in a cutting-edge control system.

A SIESTORAGE storage system stabilizes the grid

To compensate for fluctuations in the grid, a SIESTORAGE storage system with an output of 500 kW and a storage capacity of 600 kWh was installed. The combination of lithium-ion batteries and state-of-the-art power electronics prevents peak loads and offers an alternative energy supply during maintenance or in the event of a failure. The grid remains in balance, with environmental added value: More solar energy can be integrated and the operation of generators can be optimized.

A stable grid under expert control

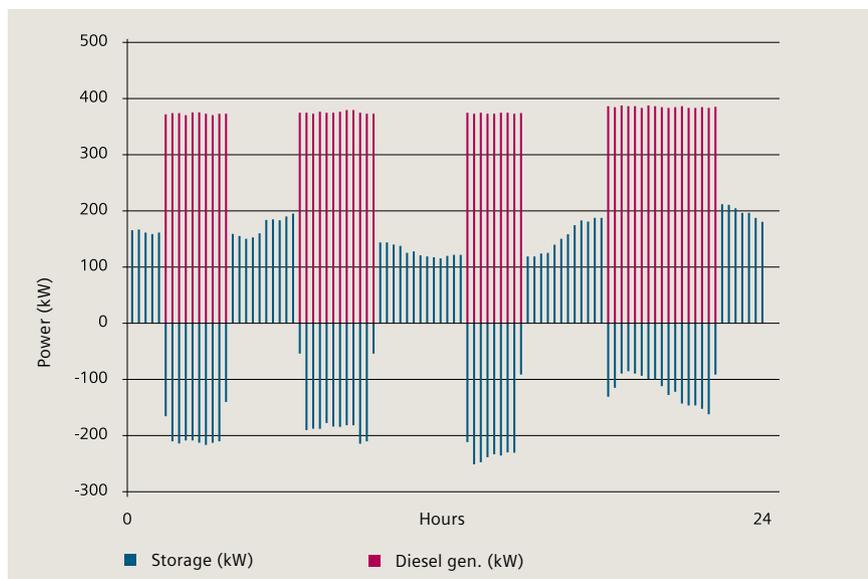
To ensure that both components supplement each other optimally, the Microgrid Controller handles the comprehensive monitoring tasks. Among other things, it ensures that short-term peak loads are handled by the SIESTORAGE storage

system – and not by the existing diesel generators, as was the case previously. During off-peak periods, the diesel generators can even be switched off entirely. The benefits are immediately apparent – in fuel savings, decreasing delivery and storage costs, reduced maintenance costs, and lower CO₂ emissions.

A strong outcome for Ventotene

Thanks to a customized complete solution, the energy supply on Ventotene was tailored to meet the new needs of the island. The island residents themselves benefit from a reliable grid operation, as do the tourism industry and agriculture. A hybrid solution made up of diesel generators, renewable energy sources, and an innovative storage system, controlled by the Microgrid Controller, reduces fuel consumption, cuts emissions, and saves money – and increases the quality of life.

With this, Ventotene is a future-oriented example of how technically innovative solutions can interact with existing systems – to ensure maximum reliability, efficiency, and sustainability.



The use of SIESTORAGE reduces the operating hours of the generators.

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