CASE HISTORY

FIMER: a 15 kWp single-phase residential solar PV system with battery storage and backup power

An integrated solution to optimise solar energy generation and ensure a continuous power supply in the event of a power cut.

In Venice, a detached house equipped with a heat pump has undergone an energy upgrade aimed at improving energy efficiency and reducing reliance on the electricity grid.
The project, carried out by Tekno.Group S.r.l., an installer based in Rosolina Mare (Venice), with equipment supplied by GMT S.p.A. of Padua. Its 15 kWp single-phase solar PV system is a distinctive feature.
This configuration provides substantial generating capacity, particularly during the winter months, without requiring a switch to a three-phase electricity supply. This is an advantage in Italy, where homes typically have a single-phase supply and switching to three-phase can lead to higher fixed electricity costs.

15 kWp single-phase system: designed to meet the home's energy needs

The system combines **two FIMER PowerUNO single-phase hybrid inverters**, with rated power of 6 kW and 4 kW respectively, and a **10 kWh FIMER PowerX battery storage system**.
An export limitation function caps the power fed into the grid at 6 kW. This allows the home to benefit from **15 kWp of installed solar PV capacity** without necessarily requiring a three-phase electricity supply.
This configuration is particularly useful in a home with a heat pump, where electricity consumption can peak during winter. The additional solar PV capacity helps maximise generation during daylight hours, meeting a significant share of the household's energy needs.

Power availability even in the event of a blackout

A further distinctive element of the project is the integration of the **FIMER PowerBOX backup power kit**, which enables designated loads to remain powered during a power cut.
Combined with the battery storage system, it provides access to stored energy when the grid supply is interrupted, improving continuity of supply and providing greater peace of mind in everyday life.
The system therefore helps maximise solar generation and self-consumption while making the home more resilient to grid disruptions.

Greater energy independence, less reliance on the grid

By combining solar PV, battery storage and backup power, the project is expected to achieve **energy independence of 70% to 100%**, depending on the season and patterns of electricity generation and consumption.

This estimate highlights the potential of a system designed around the home's specific needs: more self-generated electricity, less reliance on the grid and backup power during a power cut.

«*We chose FIMER solutions for their product quality and the technical features of the inverters, particularly their certification for export limitation, which enabled us to implement this single-phase*

configuration," says ***Emanuele Maestri****, representative of* ***Tekno.Group****. "Another important factor was the ability to integrate a backup system, giving the customer greater continuity of supply during a grid outage. The fact that the products are* ***Made in Italy*** *also gives us added confidence in their quality, technology and long-term reliability.*».

This project shows how careful system design and collaboration between the installer, distributor and manufacturer can deliver flexible solutions tailored to the needs of each home.

The products

PowerUNO is the single-phase hybrid inverter for residential and small commercial applications. Available in different sizes, from 4 to 10 kW, it has one of the highest power densities on the market, with a small and light footprint. Its main advantages include super-fast installation thanks to Plug & Play connectors that greatly facilitate the installer's work.

PowerX is the modular high voltage storage system designed for advanced residential applications, to simplify energy management. It combines configuration flexibility, compactness and quick installation. Thanks to its modular architecture, PowerX allows the storage capacity to be configured according to the real needs of the system, with values from 5 to 30 kWh. The small footprint and dedicated connection solutions allow for an orderly, fast and secure installation

PowerUNO and PowerX – in addition to the three-phase hybrid inverter **PowerTRIO** - are part of the **FIMER Power Platform**, the complete and integrated solution, designed to increase energy autonomy, optimize self-consumption and ensure advanced energy control.

About FIMER
FIMER is a brand owned by MA Solar UK and a leading manufacturer of renewable energy solutions. The Company, specializing in the production of solar inverters, offers a wide range of solutions designed for any application. With local training centers, 2 production sites, one in Italy and one in India, FIMER is close to its customers in the evolving dynamics of the energy sector.
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