

Renewable energy solutions
static power converters

Astrid
by BORRI



BORRI[®]



Why choose us

A complete range from
20 kVA to 2 MVA

●
Highly experienced custom engineering

●
Multidisciplinary R&D and
Engineered & Manufactured in Italy

●
More than 500 MW installed

Areas

- Prosumer (producer and consumer of energy on site)
- Micro grids (industrial and trading areas)
- DSO (Distribution System Operators)
- TSO (Transmission System Operators)
- Traditional Power Generation Plants

In recent years, with the technological development of photovoltaic energy generating systems, the market has seen a new category of players emerging, namely local producers of energy for self-use and for sale.

This has led to the creation of power distribution grids operating at local level, often in specific areas such as shopping centres and industrial estates, which have become known as micro grids.

It is a change that has resulted in the shift from a centralized system of energy management and distribution to a decentralized model of production, creating problems for Distribution System Operators (DSO) and Transmission System Operators (TSO), in particular for traditional power generation plants unable to keep pace with the ebbs and flows in demand.

Consequently, there is now a need for solutions whereby energy can be produced from renewable sources, stored and restored in the form of active and reactive power, in response to instant demand. Borri offers a line of products under the Astrid by Borri brand, which can meet the needs of this market.

Applications

- Photovoltaic systems connected to low voltage (LV) grids
- Photovoltaic systems connected to medium or high voltage (MV-HV) grids
- Photovoltaic systems not connected to grids, with storage systems
- Photovoltaic systems connected to grids, with storage systems
- Hybrid energy production systems
- Peak shaving support
- Load balancing
- Storage time shifting
- Battery discharge systems delivering constant power or current to grid



If you need a technological solution capable of interfacing with a power generating and storage system and a distribution grid, which will allow flexible, stand-alone and programmable management of active and reactive power, we can help you to put it all together.

If you need

- Effective energy management
- Flexible and scalable solutions
- A high level of availability
- Complete solutions

We can offer you

- Products capable of delivering active power and reactive power by way of a remote control interface system using international standard protocols
- Single solutions or complete shelters, distributable on a single grid interface transformer, with preventive insulation control
- The freedom to use your energy when and how you please
- The full range of power ratings and solutions from 20 kVA to 1000 MVA
- Products with low maintenance requirements. Predictive Maintenance Program, for monitoring and maintaining your system at maximum efficiency.



Technical advice on design

- System analysis
- Drafting of specifications.

Presales technical support

- Configuration and sizing of products
- Product customizations
- Preliminary verifications for integration into system
- Technical description of the proposed solution
- Calculations for sizing of storage system
- Mechanical and single-line layouts of proposed solutions, product technical data sheets.

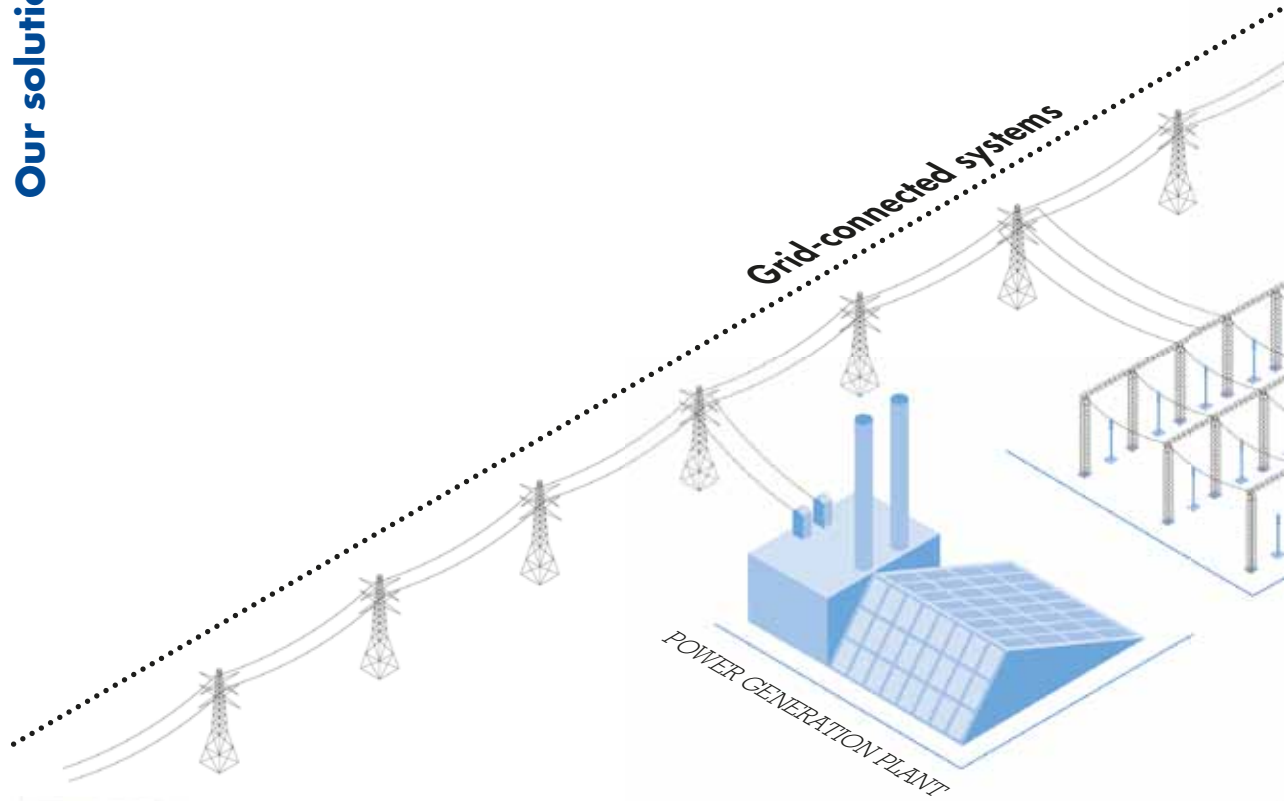
After sales service

- Commissioning and supervision services for start-up of the system
- List of recommended spare parts
- "Predictive Maintenance Program" service
- Training programs for technical personnel operating the system.

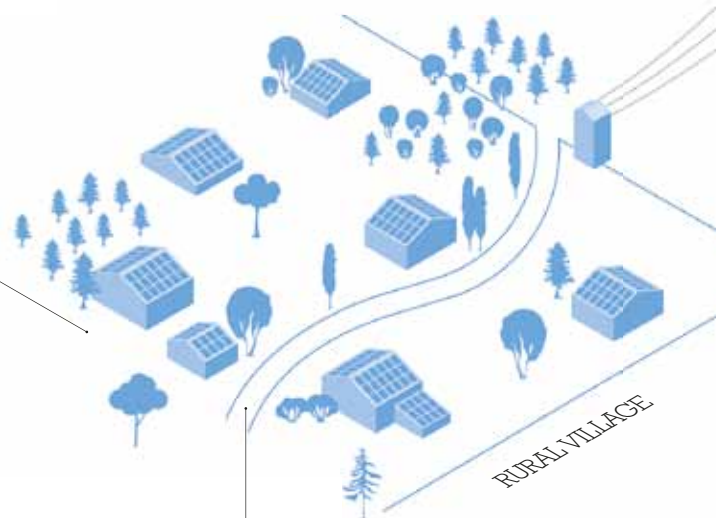
Project management

- Complete systems engineering
- Preliminary drawings of custom solutions
- As-built drawings
- Witnessed factory testing.





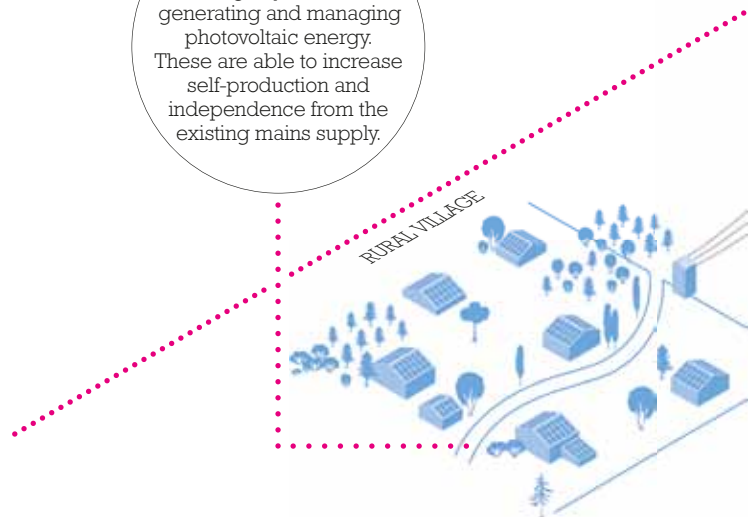
Copernico series
50-100 kVA,
photovoltaic inverters
used for producing
electrical energy
from solar panels



Storage systems
rated 3-50 kW,
storage systems for
generating and managing
photovoltaic energy.
These are able to increase
self-production and
independence from the
existing mains supply.

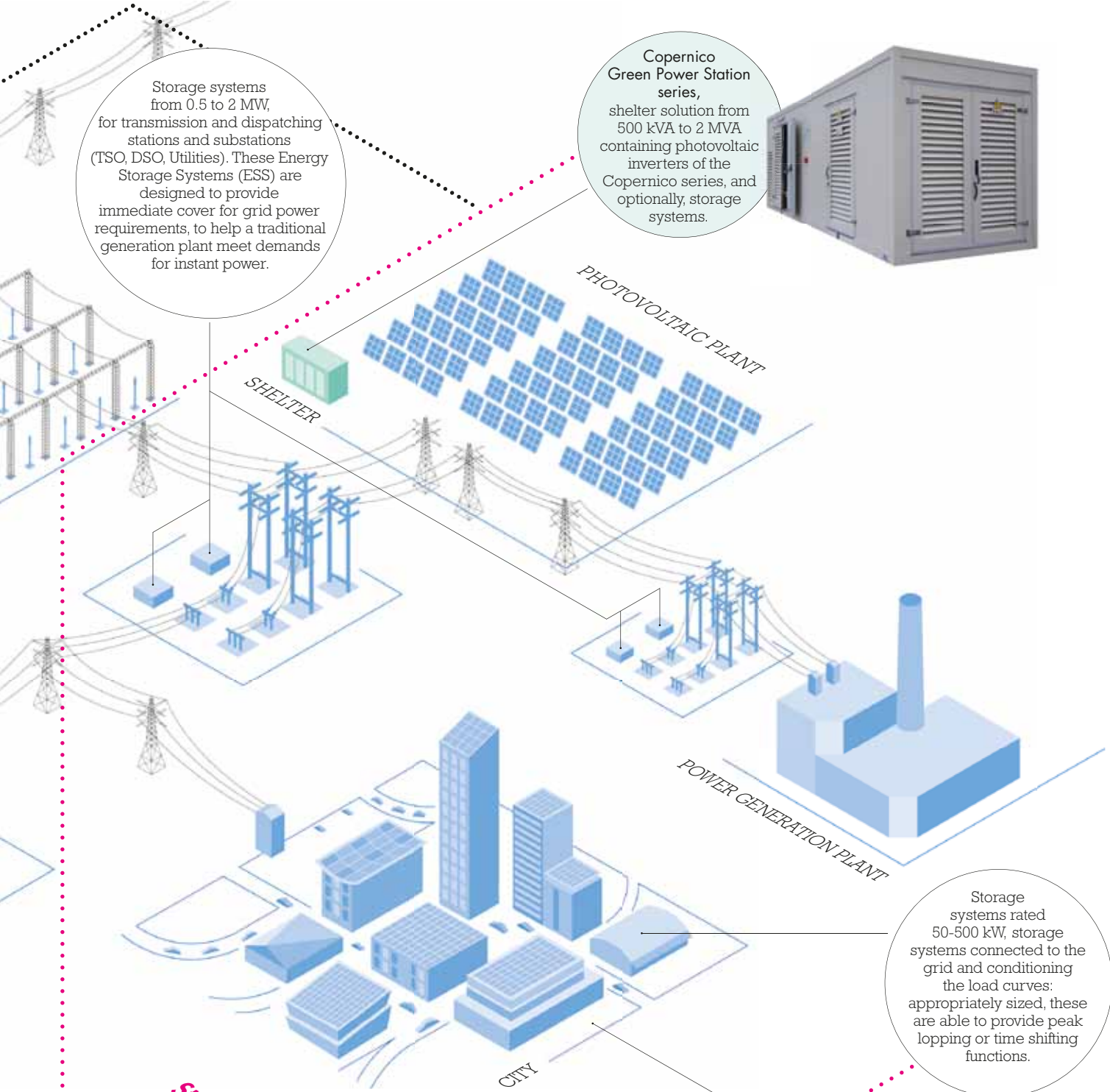
Advantages

- High Euro efficiency rating, even at low power level, ensures maximum return on investment.
- Compatibility with all the main power grid standards in European and extra European countries, including BDEW, guarantees trouble-free certification to local standards.
- Superior MPPT control capability, helping to optimize the production of energy under any time constraints and ambient conditions.
- Hot parallelization on single MV or HV transformer, with insulation test conducted prior to connection, avoids loss of production in the event of problems with a part of the system.
- Ability to deliver reactive power on demand, thereby maintaining operational efficiency of the grid during transients and overloads.



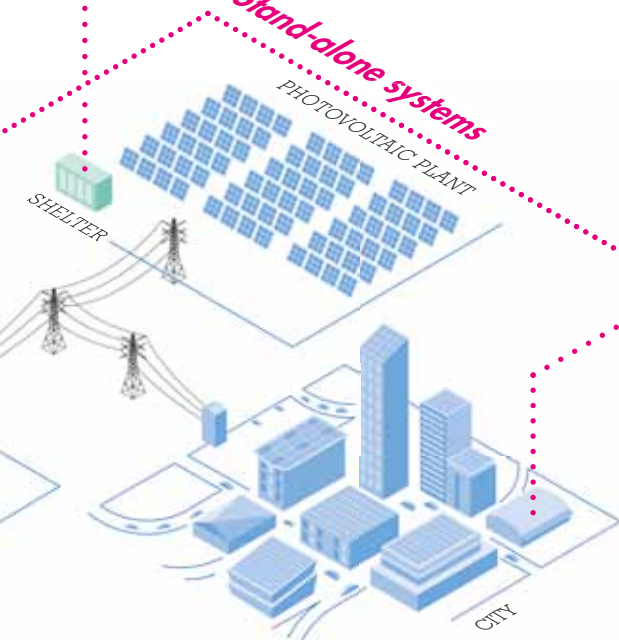
Storage systems from 0.5 to 2 MW, for transmission and dispatching stations and substations (TSO, DSO, Utilities). These Energy Storage Systems (ESS) are designed to provide immediate cover for grid power requirements, to help a traditional generation plant meet demands for instant power.

Copernico Green Power Station series, shelter solution from 500 kVA to 2 MVA containing photovoltaic inverters of the Copernico series, and optionally, storage systems.



Storage systems rated 50-500 kW, storage systems connected to the grid and conditioning the load curves: appropriately sized, these are able to provide peak lopping or time shifting functions.

Stand-alone systems



Copernico series, 50 kVA to 500 kVA, photovoltaic inverters that produce electrical energy from photovoltaic panels. In micro grid applications, these are positioned on the roof.





CE, Gost, IQNet / CSQ for ISO 9001 (Quality),
ISO14001 (Environment),
BS OSHAS 18001 (Health and Safety), TÜV.

Main standards adopted

IEC 61000 series

EN 50178

CEI 0-16

(Reference technical rules for the connection of active and passive users to the HV and MV networks of electricity distribution companies)

CEI 0-21

(Reference technical rules for the connection of active and passive users to the LV networks of electricity distribution companies)

DK 5940

(Criteria for connection of generation systems to the ENEL low voltage distribution grid)

DIN VDE V0126-1-1

(Automatic disconnection device between a generator and the public low voltage grid).

Annex A68 CdR Terna

BDEW TR3, TR4 & TR8

Royal Decree 1663/2000.

List of main installations

Enel Green Power, Italy

Enerray, Romania

Graziella Green Power, Italy

Denso, Italy

Certifications

ISO 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007

Borri is specialized in the custom design, manufacturing and servicing of power backup systems in major sectors such as oil & gas, energy, utilities, industrial, ICT and static conversion for renewable energy sources. The Borri research and development department is among the most complete regarding the coverage of the various disciplines involved in power conversion.

With over 80 years of experience in semiconductor and magnetic components design, our development of one of the most advanced digital control algorithms and extensive microchip programming compounded with our strength of proven expertise in product customization and our continuous quest for excellence has made Borri into one of the leading Power Conversion companies around the world.

The most recent development is the UPSaver® three-phase UPS solution, using Green Conversion patent technology, able to guarantee unparalleled energy savings and the best PUE for data centres and mission critical applications with very low environmental impact.

Under the Astrid brand, Borri offers a wide range of renewable energy solutions, reflecting its commitment to our pursuit of innovation and sustainable development.

Headquartered in Italy, with 15,000 m² of production area and a fully equipped inspection and testing area, the company is able to count on more than 80 years of experience, multi-disciplinary R&D and a highly application specialized custom engineering capability.

Borri is present on all 5 continents with thousands of installations worldwide, professional staff and a network of partners able to provide you value added technical support and services.



Renewable energy solutions
static conversion and storage systems



Power protection solutions
for process, infrastructure and service industry



Power protection solutions
for oil and gas, mining industry, petrochemical, power generation and utilities



Power protection solutions
for ICT critical applications



