Power and productivity
for a better world™

THE SAPEI PROJECT

ABB has worked together with Terna S.p.A. in building the HVDC power line that connects Sardinia's electricity system with the Italian mainland (SA.PE.I). A system with record-breaking numbers: 1,000 MW of nominal power, the equivalent of what a city of two million people consumes and 500 kW of nominal voltage, the highest ever reached in transmission systems in Italy. The work represents an important step toward the "meshing" of the grids within an international prospect. Owing to its location, Italy can become the center of an extended grid that ranges from northern Africa to the Balkans and to central Europe.

A great Group as protagonist

ABB was in charge of entirely developing the project of the two converter terminals: system studies, basic and detailed engineering, supplying all equipment, commissioning and entrance into operation. ABB was responsible for supplying and building the two converter stations, formed principally by converters, relative conversion transformers, 500 kV DC devices, components for filtering the 380 kV AC harmonics, AC devices for connection to the national grid and the various additional supplementary auxiliary and technological plants. The electromechanical and electronic devices installed are mostly built by ABB, particularly for the components that perform fundamental functions for the plant's operation: switches, measurement transformers, condenser batteries, surge arresters, insulator bushings, and above all, conversion transformers and 12 pulse thyristor valves. This wide range of products confirms ABB as a high profile company for utilities and grid operators owing to its experience, technology and know-how. ABB boasts great technical solidity, with local resources and expertise as well as global references and the aptitude to interpret business across the board to explore any opportunity since the moment of its creation.

High-tech HVDC technology

The SAPEI uses ABB's HVDC technology which represents the state of the art for electricity transfer systems over long distances with tens of references throughout the world and its recognized global leadership in the field. Over 50 years ago, ABB was a pioneer in paving the way with the building in Sweden of the first HVDC connection for commercial use. The HVDC technology is used for electricity transmission over long distances as well as for the interconnection of electricity grids belonging to different countries.

SAPEI: A necessary project

The SAPEI connection, in order of time, is the third interconnection system that allows the Italian mainland's grid to inter-exchange electricity with other grids –both national and international- through the HVDC technology. In Italy it came after the SACOI, operating since 1966, and the Italy-Greece interconnection, an HVDC system with thyristor convertors operating since 2002. Thanks to bi-directional converters, the power flow will

be totally controlled in terms of direction and range. Last generation protection technology and electronic control used by ABB allow accurately regulating and adjusting all the electric parameters. In the event of any type of anomaly in the island's or the mainland's electricity system, it will be possible to interrupt the normal import-export activity and contribute to repairing the grid portion involved. Sardinia will also be able to actively participate in the power flow regulation throughout the nation.

SAPEI'S Advantages

- Increasing the safety of the Sardinian electricity system (1,000 MW of the SAPEI correspond to over 50% of the island's energy demand)
- Possibility of exporting electricity in particular wind power and photovoltaic solar energy that are strongly being developed
- Possibility for Sardinia to import electricity from the Italian mainland
- Opportunity for Sardinia's electricity operators to participate with fewer exchange restriction in the electricity market transactions while also ensuring greater flexibility and safety for the system's operation.

About ABB

ABB is the leader in energy technology and automation that allow utilities and industrial customers to improve their performance while also reducing the environmental impact. The companies of the ABB Group employ nearly 124,00 human resources in over 100 countries.
Technological leadership, global presence, applied knowledge and local expertise are key factors in offering products, systems and services that allow ABB's customers to improve their activities in terms of energy efficiency, grid reliability and industrial productivity. The Group is listed in the New York Stock Exchange (NYSE), Zurich (Virt-X) and Stockholm (Stockholm Exchange).

ABB SpA
Corporate Communications Manager
Eliana Baruffi
Tel: + 39 02 2424 3744
Fax: + 39 02 2414 3520
E-mail: eliana.baruffi@it.abb.com

ABB SpA
Corporate Communications
Gian filippo D'Oriano
Tel: +39 06 47499200
Fax: +39 06 47499222
E-mail: gian-filippo.doriano@it.abb.com