

## ENERGY FOR THE FUTURE. ITALIAN EXCELLENCE

### TERNA IN SARDINIA

In Sardinia, Terna manages **4,323 km** of high-voltage and very-high-voltage power lines and **25 electrical substations**. In addition, Terna also employs a workforce of approximately **170 people** in the region.

Sardinia is electrically connected with the continent through two direct-current power lines: SA.PE.I. (Sardinia-Italian Peninsula) and SA.CO.I. (Sardinia-Corsica-Italy). A further alternating-current connection, called SAR.CO. connects Sardinia and Corsica.

The total installed power in Sardinia is approximately 5,000 MW. The main source powering the thermoelectric plants is coal (almost half), followed by gas, diesel and fuel oil.

#### ELECTRICITY DEMAND, CONSUMPTION AND PRODUCTION

The electricity consumption of Sardinia is 8,869 GWh (latest available data 2015): almost half for industrial use (45%), about a quarter for both tertiary (27%) and domestic consumption (26%) and the remainder for agricultural consumption (2%).

The province of Cagliari accounts for 46% of regional electricity demand, while Sassari with a 15% share is confirmed as the second province out of the 8 in the Region.

In 2015, Sardinia produced 11,618 GWh of electricity destined for consumption, recording an energy surplus of more than 30% (balance between energy consumed and energy produced): **this means that Sardinia exports a third of its energy (2,749 GWh) to Corsica and the regions of the Italian mainland to meet their demand for electricity.**

In Sardinia, all the **renewable sources cover 43% of electricity consumption.**

There are:

- ✓ **325 wind plants** (1,028 MW of installed power, 11% of the national total). Since 2009, the wind power installed has doubled, from 580 MW to more than 1,000 MW
- ✓ **32,912 photovoltaic plants** (732 MW of installed power, 4% of the national total). Since 2009, the installed photovoltaic power has grown more than 20-fold, from 30 MW to more than 700 MW
- ✓ **18 hydroelectric plants**
- ✓ **48 thermoelectric plants**

## TERNA'S INVESTMENTS IN SARDINIA

Terna has carried out and planned a series of projects in Sardinia to develop the electricity transmission grid aimed at resolving the past and current critical issues and significantly increasing the security of the island's electricity system, in terms of both quality and continuity of electricity supply to businesses and households: **€ 1 billion of investments in the territory**, of which approximately **€ 800 million related to work already done** and approximately **€ 200 million for work on developing and maintaining existing plants still to be carried out**.

### MAIN WORKS

#### IN PROGRESS

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##### **Restructuring of the grid in Cagliari**

Investment: approximately € 10 million

What it is for: to improve the reliability of the transmission service, there are plans to create a cable connection between S.Gilla and Portocanale. A new 150 kV cable connection will also be created between Quartu and Quartucciu. Subsequently, it will be possible to restructure the high-voltage grid enabling the demolition of a number of overhead lines and the consequent reduction of the impact of the electricity grid in a built-up area.

Status of the work: in progress

##### **Upgrading of the grid in Gallura**

Investment: approximately € 25 million

What it is for: the transmission grid in Gallura is made up of a long 150 kV ring. The high loads, above all in the summer period make work necessary to ensure that the security parameters are observed.

Status of the work: in progress

#### AWAITING AUTHORISATION

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##### **S.Teresa- Buddusò 150 kV power line**

Investment: approximately € 45 million

What it is for: to upgrade the grid in the North of Sardinia and maintain an adequate level of grid security and quality of the supply, in the coming years three new electrical substations (S.Teresa, Tempio and Buddusò) will be built as well as a new 150 kV power line between the future stations. The work will also guarantee better use of the renewable plants present and planned in the area.

Status of the work: partly in progress<sup>1</sup>/partly awaiting authorisation

##### **Selegas and Nuraminis 150 kV substations**

Investment: approximately € 10 million

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<sup>1</sup> Santa Teresa substation authorised on 14 May 2014

What it is for: in order to improve the service quality and operating flexibility of the HV grid in South Sardinia there are plans to build two substations at the crossing point of the “Goni – S. Miali” and “Villasor – Nurri” (Selegas) 150 kV lines and on the “Villasor – Nurri” (Nuraminis) line.

Status of the work: awaiting authorisation

## PLANNED

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### **Voltage regulation devices (synchronous condensers)**

Investment: approximately € 25 million

What it is for: the Sardinian electricity system is characterised by a small number of generation plants, in some cases also quite old, with consequent limitations on the regulation capacity. It is therefore necessary to install voltage regulation devices in the South of the island.

Status of the work: planned

### **Selargius- Goni 150 kV power line**

Investment: approximately € 5 million

What it is for: the construction of this new power line will strengthen the 150 kV grid in Ogliastra and improve the transmission service, also facilitating a greater integration of production from renewable sources.

Status of the work: planned

### **Taloro-Bono-Buddusò 150 kV power line**

Investment: approximately € 2 million

What it is for: to improve security and operating reliability, and facilitate a greater integration of production from renewable sources, in the Central and Eastern area, a new 150 kV line connecting together the Taloro, Bono and Buddusò plants will be built, using as far as possible existing infrastructures.

The work will be done making full use of existing infrastructures.

Status of the work: planned for 2017/2018