The Group boasts and manages a power plant in Sardinia, in the Municipality of Serramanna, fed through renewable sources with electric nominal power of 13.3 Mw and thermal power of 49.5 Mw. The plant in Serramanna produces on a yearly basis, approx. 100,000 Mw of power, energy able to satisfy the demand of over 30,000 families. The initiative was born in 2006 thanks to the consolidated thirty-year experience of the founders in energy markets. The human resources, success key factor for the Group, allowed consolidating the activity thanks to a dynamic and flexible approach able to handle the current challenges of energy markets, and stocking up biomass.

Activities

The main activity consists in the production of electric energy from renewable sources, even if during the years, the Group developed the support activity to the power plant. In fact, the Group stocks up in Italy and abroad, whether directly through its own means and forest operators, and also through a selected number of suppliers who provided finished products to the plant, and experiments various agro-energy cultures, in order to identify the best biomasses to satisfy future demand.
About us

The activity based on private capital of Gruppo Sardinia Bio Energy consists in the production of electric energy from renewable energy sources, and in particular from solid biomass.

The power plant, located in Sardinia, in the province of Mediocampidano, eligible to the national incentive program for a period of 15 years, started its first parallel-grid in October 2009 and after a trial period, this became fully operative in 2010.

The activities of Gruppo Sardinia Bio Energy cover multiple fields of the biomass sector. In fact, the Group stocks up in Italy and abroad, whether directly with its own means and forest operators, and also through a selected number of suppliers who provide finished products to the plant. The Group’s activities also developed in the agro-energy culture sector, experimenting the most suitable cultures with the best outputs.

Renewable sources are mainly of local origin, and in order to ensure specific average calories in the combustion process, part of them comes from a few tropical countries and from the Mediterranean basin. These sources consist of wooden chips, made of virgin vegetable materials of multiple origin, and boasting the characteristics imposed by the most recent applicable laws, among which silviculture recycled materials, wood chips, maintenance of rural vegetation, maintenance of fireguard areas, agroindustrial recycled material like marc, artichoke stalk, pruning of olive cultivations, olive residues with and without seed, Palm kernel and almond shells and specific cultivations.
OUR VALUES ARE BASED ON A SHARED, DYNAMIC AND RESPONSIBLE APPROACH TO DO BUSINESS, WHICH COMBINES ECONOMIC, ENVIRONMENTAL AND SOCIAL SUSTAINABILITY.

History

2006  Foundation of company Sardinia Bio Energy and beginning of the process to obtain authorisations carried out by the management directly, without using a main contractor, but the thirty-year experience of the partners in energy markets.

2007  Executive and building drawings of the plant.

2008  The management begins the first works on the property land, and begins structuring the company to manage the bio-mass stocking sector.

2009  The plant is concluded and started-up and the first produced Mw is input in the grid in October.

2009-2010 Tests and development of the system, beginning of the first biomass imports by sea.

2010  Beginning of agro-energy tests on different essences.

2011  The system is fully operative in compliance with the design performances, and at the same time, tests on agro-energy cultures are carried out.

2012  Start-up of the first foreign sectors, and achievement of the authorisation for the 1Mw cogenerative biomass plant.
Production of electric energy

Description of the system

Sardinia Bio Energy began the construction of the 13.3 MW power plant based on biomass combustion in January 2008, terminating the works with the first electric parallel-grid in October 2009.

The plant is divided in the following main sections:

- Input biomass management area, with receipt and storage of the product on an area of 2.5 hectares.

- Biomass loading section in boiler, consisting of a system with two "moving-floor" storage pits, able to mix the biomass and send through redler conveyor system, to the boiler’s combustion chamber.
Main characteristics

Net nominal active electric power: 11.8 MWe
Boiler's nominal thermal power: 49.5 MWt
Annual power production: approx. 100,000 MWh
Annual nominal consumption of fuel: 120,000-140,000 tons/year
Reference fuel's calorific value: 2,800 kcal/kg

The production system complies with the specifications contained in "Chapter 09 – Energy potential of biomasses in Sardinia", volume II of the Regional energy Plan updated in 2002, which identifies the area of Medio Campidano, as one of the nine biomass extraction basins for stocking up woods for energy purposes.

Production system

The system was designed to ensure utmost respect of the environment, limiting the emissions and the proper introduction within the territorial agricultural context of Mediocampidano.
The plant is managed through a high degree of automation and outsourcing of all the operations foreseen for the normal operating sequences including start-ups and inactivity periods.
The activities concerning the receipt and handling of fuel with storage of the biomass in form of chips and logs, are also directly related to the plant's operation.

Employment spin-offs

The employment spin-offs generated by the Group on the Sardinian territory can be quantified to be equal to 190 jobs, 40 of which offered directly.

The staff employed in the various forests also monitors the territory to ensure the woods remain clean and to limit damages caused by events like fires.
Stocking Up

The company stocks up through direct staff and also through a suitable number of local and foreign suppliers, with multi-year experience in handling and stocking up biomasses.

The production of local fuel from the recovery of biomass coming from cultivations, from natural woods and also from tree cultivations in general, also comes from the use of topsoils that have been previously planted for the extraction of cellulose and that reached that maximum level of maturity, therefore with no other possibilities to be exploited in the local wood market. Moreover, forestation activities featuring eucalyptus trees and transitional species (Mediterranean pines) are carried out on the agricultural lands of affiliated companies, thus allowing the development of permanent autochthonous species (Holm-oaks and cork trees). These type of uses are boosting the development of the local forest sector and entrepreneurial class, that was practically inexistent until today. Advanced means and machinery are used for this type of activities in the various work phases, from cutting to logging to chipping that, in addition to rationalize the production, allow raising the quality and safety standards in work places.

When suppliers are not directly organised with proper transport means, transport and logistic operations take place through specialized companies that have invested in the project, purchasing the most suitable machinery to handle biomass, with a low volume weight (in average approx. 300 kg/ Cubic mt), therefore by purchasing means with large volumetric capacities (between 80 and 100 cubic metres) and equipped with particular unloading systems like roll-off systems and moving platforms. Moreover, the group stocks up abroad, purchasing olive residues with and without seed, specific cultivations, palm kernel and almond shells (PKS).
New Agro-energy Cultures

In 2010, after multiple studies carried out in Northern Europe and after verifying the high potential of agro-energy cultures, the Group decided to build an ad hoc agricultural society, Agriwatt, in partnership with Gruppo SAIF/Enviro with the purpose to test the hybrid sterile culture of Miscanthus Giganteus, derived from the crossbreed of Miscanthus Sinensis and Miscanthus Sacchariflorus.

The first results pushed the Group to carry out further planting independently, through subsidiary Sardinia Bio Energy, and in 2011, another investment was made in the culture, bringing the current Miscanthus plantation to be among the most important in the Mediterranean area. The years of tests, in addition to create an important know-how, contribute to identify the best worldwide partners for developing the project.

Our partners avail themselves of twenty-year experiences in the agro-energy field in Northern/ Central America and in Northern Europe, and they boast primary energy multinational companies among their clients, and also tens of thousands of planted hectares worldwide. Our partners, after having analysed and catalogued for many years, over 3,000 different types of Miscanthus, were able to identify the best crossbreeds, among which, those that best adapt to the climatic regions of the Mediterranean area in terms of water supply and output per hectare, and resistance against external parasites.
The Group started the process and obtain the final authorisation for a 1 Mw Cogenerative Biogas plant in the municipality of Serramanna, in the lands owned by the Group near the power plant.

The proximity with the biomass plant allows the recovery of heat generated by the latter; this integration between plants could reduce biomass consumptions. Moreover, authorisations have been obtained for Enel's electric connections for the delivery of electric energy.
Renewable Sources

These sources consist of wooden chips, made of virgin vegetable materials of multiple origin, and boasting the characteristics imposed by the most recent applicable laws, among which silviculture recycled materials, wood chips, maintenance of rural vegetation, maintenance of fireguard areas, agroindustrial recycled material like marc, artichoke stalk, pruning of olive cultivations, olive residues with and without seed, Palm kernel and almond shells and specific cultivations.

Sustainability

The renewable sources are resources for energy production generated by non-exhaustible sources. Since this resources regenerate, their use does not prejudice future natural resources. The sustainability of this plant is based on the fact that solid biomass is a renewable source.

Certifications

The Group also began the process to certify the companies with an organisational and management model in order to prevent some crimes bearing administrative and criminal liability (former Legislative Decree 231/2001).
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