



green CHP

COGENERATION

Cogeneration consists of the combined production, in a single process, of electrical or mechanical and heat energy. It represents one of the main energy efficiency measures in the industrial world, as it favours the greater energy autonomy of a plant.

In Italy, high-efficiency cogeneration is incentivized through the White Certificates system. Green CHP is Whitenergy's tool to encourage the development of cogeneration in the industrial, tertiary and civil sectors.



Turnkey cogeneration plants with no investment costs.



GREEN CHP INTERVENTIONS

Whitenergy's Green CHP service allows the customer to benefit from the advantages offered by High Performance Cogeneration without the burden of investing in the plant or overseeing its management and maintenance.

In addition to the energy savings guaranteed by autonomous energy production, which reduces system and transport costs, cogeneration offers numerous other advantages:

- CAR White Certificates;
- the possibility of providing interruptible power without the issue of energy supply interruption;
- tax exemption on gas used by the cogenerator and boilers for steam or hot water production, where the plant is linked to a district heating network.

Green CHP is designed for companies that wish to:

- invest in energy efficiency and autonomous electricity and heat production;
- devote themselves entirely to core business, without concerning themselves with the management and maintenance of utilities (steam generators and other autonomous production systems);
- renovate obsolete and inefficient electricity generation plants.



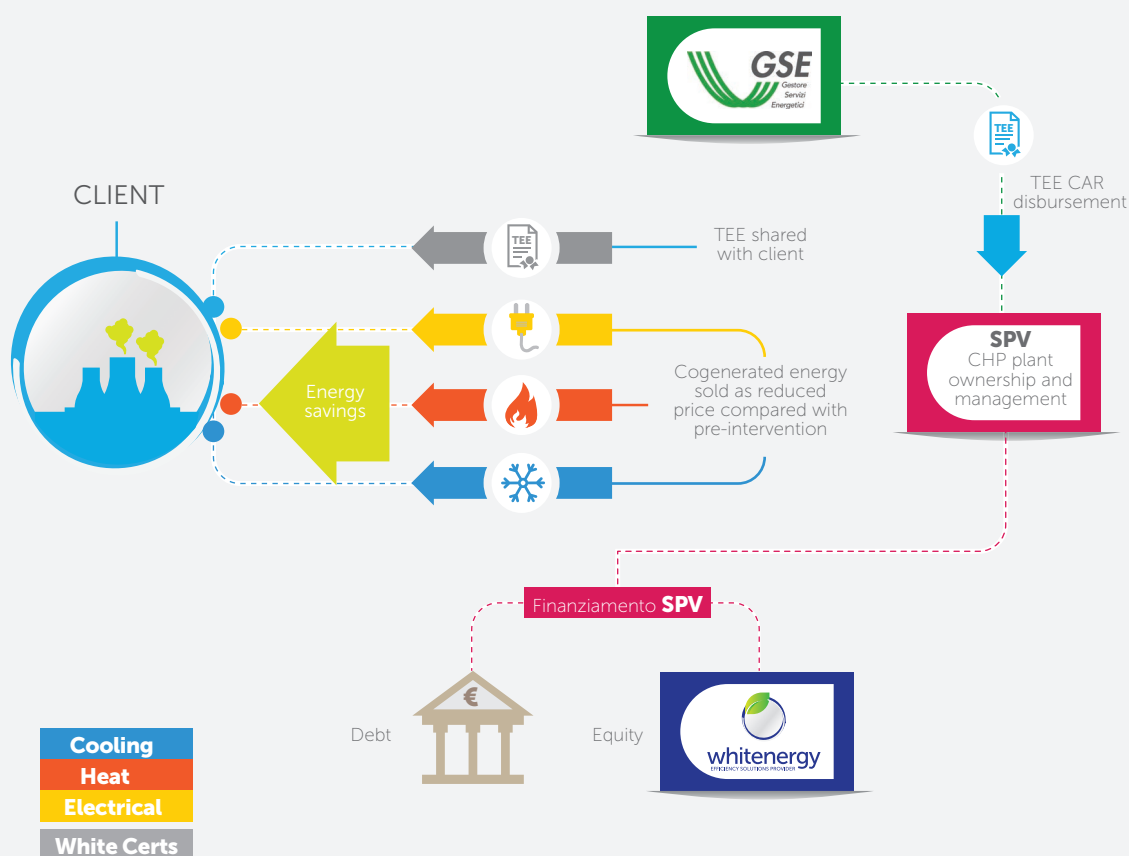
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EFFICIENCY SOLUTIONS PROVIDER

WHO IS IT FOR?

Green CHP is designed for companies with a cogeneration plant that has been in commercial operation for at least ten years, or for companies who do not have autonomous production facilities but have a noteworthy profile of both electricity and heat consumption.

They can use the Green CHP service:

- the industrial sector;
- the services sector, in particular large-scale retailers and hospitals;
- the agri-food sector;
- the civil-residential sector: accommodation facilities, medium and large condominiums.



THE WHITENERGY GUARANTEE

- Preliminary study of the project's technical and economic feasibility
- Acquisition of permits and choice of financing

CASE STUDY

GREEN CHP intervention with renovation of existing plant

Paper mill owner of a 6 MW cogeneration plant comprising a gas turbine and a HRSG (Heat Recovery Steam Generator). The client constantly requires electricity and steam: a minimum of 8,000 h per year in a continuous cycle. The plant, which has been in operation for almost 20 years, shows inefficiencies compared with current average market level.

Situation prior to intervention

The paper mill had an energy expenditure of 5 million euros a year to supply the cogeneration plant. Additionally, frequent shutdowns that forced the paper mill to obtain energy from the electricity grid at a much higher price resulted in high maintenance costs.

The proposed intervention and post-intervention situation

Following a technical and economic analysis, Whitenergy renovated the cogeneration plant using more efficient technologies, thereby guaranteeing an electric turbine efficiency of over 30%.

The results of the renovation are:

- savings on costs incurred through the purchase of gas for the joint production of electricity and steam, corresponding to € 1.5 million a year;
- access to the TEE-CAR system for 10 years;
- savings on cogeneration plant maintenance and on damages from plant shutdown.

The investment, management and maintenance of the plants are fully supported by Whitenergy. Whitenergy manages generation and provides the paper mill with electrical and heat energy at an agreed price, guaranteeing minimum savings. Generated TEEs are shared between the parties.

GREEN CHP intervention with a new system

The client is an agricultural cooperative that processes vegetables and fresh fruit, over three shifts a day for five days a week. The electricity demand is higher during work shifts but is also present at weekends as the system requires cooling energy. Steam is also used, both in the production process and to clean the plant.

Situation prior to intervention

The Cooperative had annual expenditures of € 900,000 a year on electricity € 300,000 a year on gas. The customer also paid negligible maintenance costs for the methane steam generators.

The proposed intervention and post-intervention situation

Following a technical and economic analysis, Whitenergy created a 800 kWe plant for the production of electricity, steam and hot water with thermal tracking.

The results of the operation are:

- savings on energy costs incurred for the purchase of gas for the production of steam, equal to € 90,000 per year;
- savings on the costs of purchasing electricity from the Network, corresponding to € 210,000 per year.

The investment was made entirely by Whitenergy, which leaves the choice regarding the management and maintenance of the plants to the client. Having no experience in the operation of cogeneration plants and wishing to concentrate its resources on its core business, the client chose to rely on Whitenergy to manage the plant. Whitenergy manages the plant by paying the operation and maintenance and by selling the electricity and heat produced to the Cooperative at an agreed price. This method provides guaranteed savings, allowing the customer to attain a substantial economic advantage. Generated TEEs are shared between the parties.

- Detailed design and implementation
- Plant management and TEE recognition practices



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