Combined **C**ycle **G**as **T**urbine **P**lant and **P**ower **L**ine in **T**ermoli (CB)

General information

- ✓ *Years: 2000-2002*
- ✓ *Customer: ENERGIA S.p.A*
- ✓ *Value of work: € 300,000,000*

Basic design of the thermoelectric plant: feasibility study, preliminary design, environmental impact study, assistance during the authorisation process (Min. Environment, Min. Production Activities); study and design of related works

Characteristics of the project

The project concerns the construction of a combined cycle gas turbine plant (CCTG) with a nominal capacity of approximately 750 MWe, to be located in an industrial area in the municipality of Termoli (CB).
From an environmental point of view, the use of natural gas ensures minimum levels of pollutant emissions, combined with the highest energy yields currently attainable.

Description of the plant

The plant consists of two gas turbines associated with a steam turbine (2+1-type architecture), which use the steam produced by recovery steam generators fed from the exhaust of gas turbines, according to the typical combined cycle scheme.
The steam turbine is a condensation-type, with a water-cooled surface condenser: the cooling circuit consists of forced circulation cooling towers.

Related works

The plant project involves the construction of a 380 kV power line over a distance of 14.6 km to connect to the national transmission network.
The power line will consist of single-circuit pylons, armed with nine power conductors and two guard lines incorporating fibre optics.
The creation of an underground gas pipeline about 15 km in length is also envisaged to connect with the SNAM natural gas distribution network.

Photo-realistic insertion of the buildings comprising the plant

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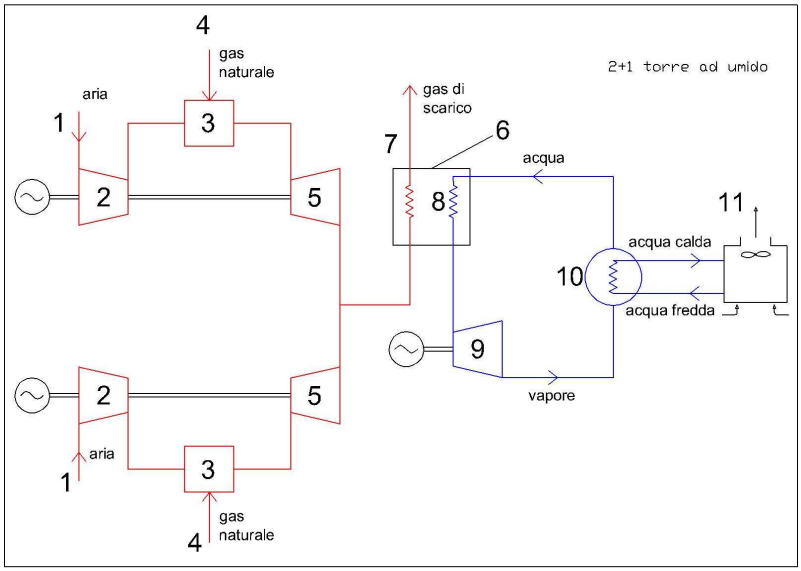
Emissions and environment

The estimation of pollutant diffusion was carried out in detail in the environmental impact study. The following were considered:

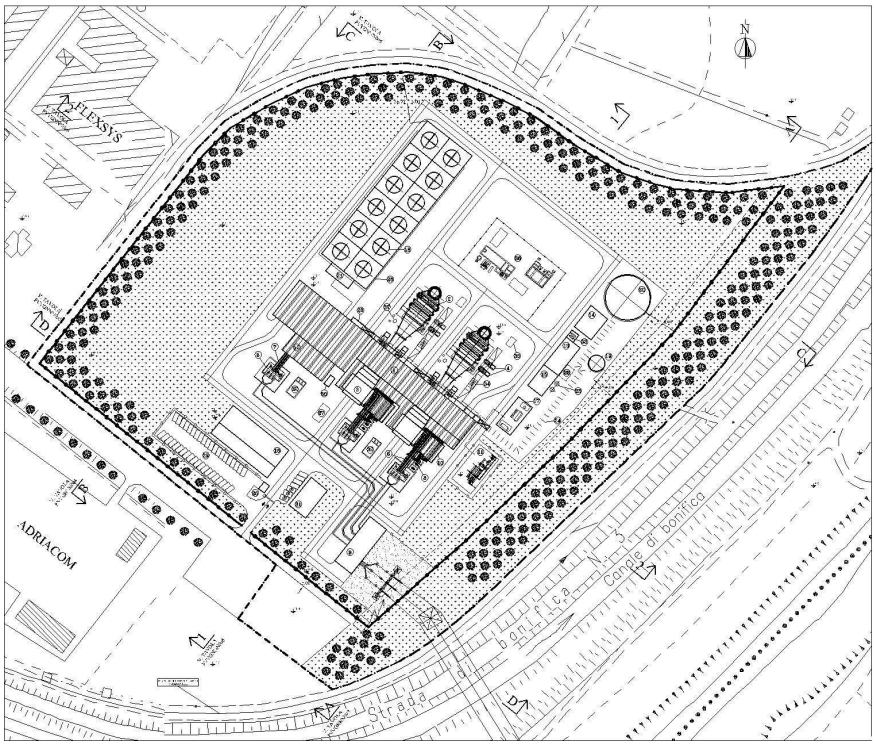
- air emissions (gases and water vapour)
- disposal of liquid and solid residues
- ionizing and non-ionizing radiation
- noise

For this last parameter a forecast of acoustic impact was made with the following steps:

- Phonometric measurements
- Estimation of acoustic emissions from the plant.
- Calculation of the impact of the plant on the environment with a dedicated calculation code



Schematic diagram of a combined gas/steam (CCGTS) thermal cycle with a surface condenser and cooling towers



Plant Layout