

COGENERATION PLANT MONCALIERI- GT2 RPW

CATEGORY

Energy efficiency (Cogeneration facilities)

LOCATION



DESCRIPTION

The second combined-cycle thermoelectric group (called RPW 2GT) was built from a pre-existing plant for the conventional-cycle production of electrical and thermal energy (2GT) and made up of a conventional combustion vapour generator (CSG) which fed a condensation vapour turbine.

The project consisted of converting the conventional-cycle 2GT into the combined-cycle RPW 2GT.

The second closed-cycle thermoelectric group is made up of:

- an electric-powered gas turbine of approximately 260 MW, powered by methane gas, with an air-cooled electric generator;
- a heat RVG, with chimney, into which the gases discharged from the gas turbine are piped;
- an electric-powered condensation vapour turbine of approximately 138 MW, with the related air-cooled electric generator, with low-pressure vapour intake for the production of superheated water for the district heating system, complete with a vapour bypass system;
- a condensation system for the vapour turbine, using cooling water taken from the diversion channel;
- system of exchangers for producing heat for the district heating system, using the low-pressure vapour taken from the vapour turbine;
- a gas decompression and fiscal measurement station.

ENVIRONMENTAL PERFORMANCE INDICATORS

KPI	UM	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Electrical energy produced per operating year	MWhe	1,669,146	2,028,560	1,585,195	1,292,799	1,515,332	1,882,310	1,807,728	1,792,325	1,400,952	1,474,560	1,474,560
Thermal energy produced per operating year	MWht	659,604	751,435	817,637	477,307	612,983	680,375	538,323	543,157	517,001	432,117	432,117
Primary energy saving per operating year	MWh	84,092	97,341	84,700	58,099	871,249	1,026,936	905,088	730,886	540,591	820,670	840,349
Avoided CO ₂ emissions from fossil sources per operating year	t	310,931	400,332	349,098	265,512	303,862	321,873	269,818	263,595	177,513	257,175	265,655

The single-camshaft and single-body gas turbine (GT) in use, which has a multistage axial compressor and a multistage turbine, is equipped with:

- a discharge gas collector;
- a natural gas intake and regulation system;
- a turbine and generator lubrication systems;
- a system for filtering the air drawn into the turbine, complete with silencers;
- expansion joints, connecting ducts and accessories;
- acoustic cabins for protecting and soundproofing the GT and alternator, complete with ventilation and fire detection and extinction systems (the latter for the GT area)

AMOUNT

Full project amount (€ millions)	Financed amount (€ millions)
164.5	57.0 (GB3) 18.6 (GB2)

