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Press Release

AT PRIOLO ENEL INAUGURATES THE "ARCHIMEDE" POWER PLANT

- *First in the world to use molten-salt technology integrated with a combined-cycle plant.*

Rome, July 14th, 2010 - Enel today inaugurated the "Archimede" solar thermal power plant at Priolo Gargallo (Syracuse, Sicily).

Participating in the ceremony together with the CEO and General Manager of Enel, **Fulvio Conti**, were, among others, the Minister for the Environment, **Stefania Prestigiacomo**, the President of the Province of Syracuse, **Nicola Bono**, and the Mayor of Priolo Gargallo, **Antonello Rizza**.

The Archimede plant is the first in the world to use molten salts as the heat transfer fluid and is also the first in the world to integrate a combined-cycle gas facility and a solar thermal power plant for electricity generation.

Archimede can collect and store the heat of the sun for many hours in order to use it to generate electricity at night or in overcast conditions. This allows to overcome the common limitation of this renewable source, namely that you can use it only when nature makes it available.

Solar thermodynamic technology uses a set of parabolic mirrors to concentrate the sun's rays on pipes carrying a fluid. The latter, collected in special tanks, can be used to power a steam generator. The high-temperature steam and pressure drives the turbine in the adjacent combined-cycle power plant to generate electricity when needed, reducing consumption of fossil fuels.

The special technology used in the Priolo plant was developed by Enea.

The molten salts used in the system are a mixture of sodium nitrates and potassium, which can accumulate heat for prolonged periods.

The capacity of the solar plant is about 5 MW, representing an annual savings of 2,100 tonnes of oil equivalent, reducing carbon dioxide emissions by about 3,250 tonnes.

The solar thermal power plant consists of a field of about 30,000 square metres of mirrors (the parabolic collectors) that concentrate sunlight onto 5,400 metres of pipe carrying the molten salt fluid. The thermal energy harvested by the system produces high pressure steam that is channelled into the turbines of the power plant to produce electricity, reducing the consumption of fossil fuels and, as a result, enhancing the environmental performance of the combined-cycle plant.

Press Release

The solar collectors (the parabolic mirrors and pipes or receivers), together with a steam generator and two heat storage tanks – one cold and one hot – make up the solar portion of the system.

When the sun shines, the thermal fluid drawn from the cold tank is circulated through the network of parabolic collectors, where it is heated to a temperature of 550 °C and injected into the hot tank, where the thermal energy is stored. The fluid is then drawn from the hot reservoir to produce steam at high pressure and temperature, which is sent to Enel's nearby combined-cycle plant, where it contributes to electricity generation.

This system enables the plant to generate electricity at any time of the day and in all weather conditions until the stored energy is depleted.

The plant is called "Archimede" after the rows of huge parabolic mirrors used to capture the sun's rays, which recall the "burning mirrors" that Archimedes is said to have used to set fire to the Roman ships besieging Syracuse during the Punic War of 212 BC.