

Local Success Stories

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| Country | Italy |
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| # | Name of Example | Location |
|---|-----------------------------|------------------------|
| 2 | District Heating Alto Garda | Riva del Garda, Trento |

The Initiative

The DHC system at Riva del Garda in Trento Province, owned and managed by Alto Garda Servizi Teleriscaldamento (AGST) of the Alto Garda Servizi Group (AGS), will reduce annual energy consumption of Riva del Garda District (16.000 inhabitants) by about 6.700 toe, and decrease around 30% overall air emissions of the town and around 10% the CO₂ emissions.

The project initiated in September 2006, when AGS and Cartiere del Garda (local paper mill industry) constituted a new company, the Alto Garda Power with the mission to build and manage a cogeneration power plant. In the meanwhile, the Alto Garda Servizi Teleriscaldamento company was constituted in order to design, built and manage the district heat grid.

The construction of the CHP plant and of the heat distribution system started in June 2007 and the first customer was connected in October 2008.

A relevant extension of the heat grid in Riva del Garda is planned in 2010; the possibility to deliver the heat up to Arco district (over 16.000 inhabitants, located at about 5 km) is also planned for the near future.

The main technical data of the project are summarised in the following table:

CHP Plant:

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| Cogeneration plant | Gas turbine combined with a steam turbine with exhaust heat recovery |
| Electric power | 45 MW (Gas turbine) + 7 MW (Steam turbine) |
| Global Thermal Energy | 438 GWh/year |
| - thermal energy to the DHC grid | 45 GWh/year |
| - thermal energy to the industry | 393 GWh/year |
| Global efficiency | 85% |
| Fuel utilised | Natural gas |
| Annual fuel consumption (2009) | 106 MNm ³ |
| Annual electricity production | 415 TWh _e |

District Heating system

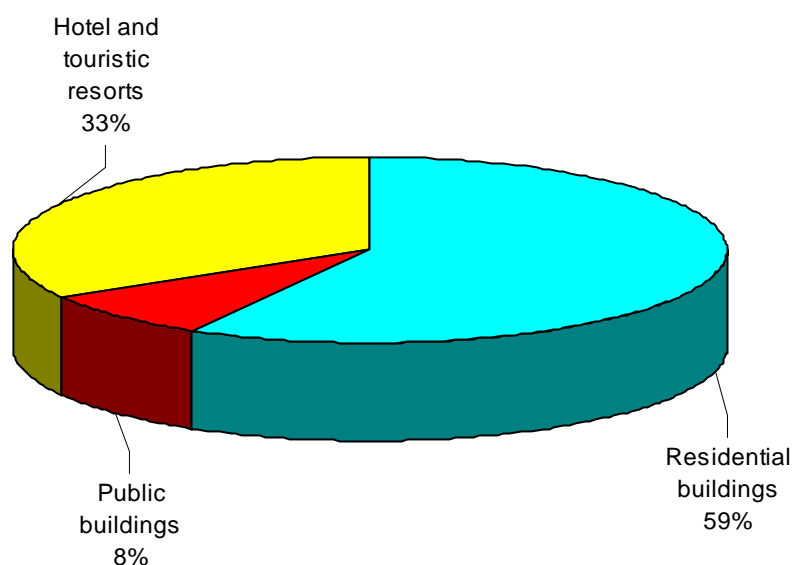
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| Grid extension (2008 and 2009) | 8,5 km |
| Substations number | 170 (130 already connected) |
| Investment up to 2009 | 11,2 M€ |
| Auxiliary boiler | n° 2 |
| Delivered heat temperature | 90 °C |
| Return heat temperature | 65 °C |
| Grid extension (2010) | Up to 22 km |
| Global investment | Up to 20 M€ |
| Substations number | Up to 1000 |

Heat grid management

It should be noted that the heat distribution pipework is equipped with a continuous on-line monitoring system of the operating conditions and for the failures detection, thus greatly improving the reliability and the safety of the service. The system assures as well the automatic collection of the energy consumed by each substation.

The utilization of recovery heat, and the high efficiency heat generation provided a valuable service to the customers, identified as follows:

Customers identification



Social and environmental benefits

The DHC system in Riva del Garda allows an excellent synergy between a strong touristic vocation district and a modern industry mainly based on the utilisation of local resources. The consequent emission reduction resulting from DHC constitutes an important environmental element, particularly appreciated by the foreign tourists.

Furthermore, the realization of the DHC system has been a key element for the refurbishing of the existing low efficiency cogeneration power plant, contributing to the economic and environmental sustainability of the local industry, which represents an important social element for the town.

The realization of the initiative has benefited of a clear commitment from the local authorities. The main obstacle, at the beginning of the project, was represented by the an uncertain potential customers acceptance. However, this problem has been overcome due to the good technical performances of the system and the good economic conditions offered for the delivery of the heat services.



1. Erection of the Power Plant (July 2008)



2. Installation of Gas Turbine



3. Construction of District Heating Pipework



4. Cogeneration Plant start up (December 2008)



5. Friotherm heat pump



6. District Heating section



7. Riva del Garda View



Constuction of the District Heating Grid

