

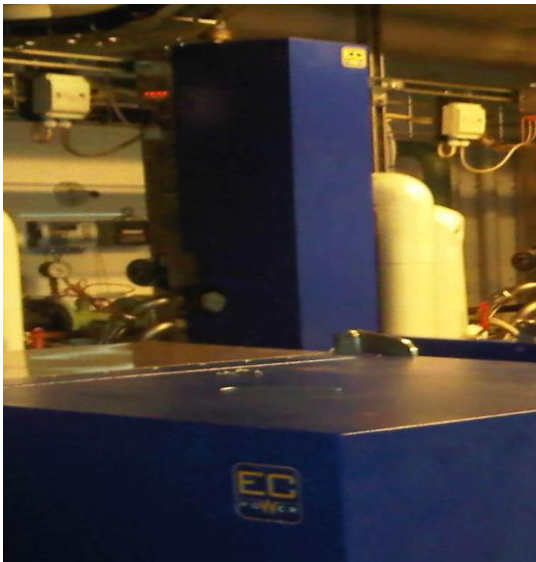
Caransebes Wellness Center

Leisure /Micro CHP

Main CHP project indicators

Heat capacity (total)	kW _{th}	40
Electrical capacity (total)	kW _{el}	20
Technology	Motor engine	
No. of units	1	
Manufacturer	EC POWER	
Type of Fuel	NG, propane, buthane	
Heat: yearly generation	MWh	350
Electricity: yearly generation	MWh	175
Year of construction	2013	
Total investment costs	EUR	50.000 (CHP)
Financing	Own funds + Loans	
State support	Soft loans	
Return of investment (payback period)	Years	3,5-4 Years
Location	Caransebes, Romania	

Picture



General description of the case

The whole installation consists of a CHP + two peak boilers (50 kW each), destined to provide the heat and power for a wellness center, a showroom and some, small, production and service facilities. The heat will be, exclusively, used for heating the water in the swimming

pool, approx. 300 m³ and for heating the building, during the cold weather. The power will cover the needs for electricity for the wellness center, showroom and production/service facilities around. From electrical point of view, the CHP is connected inside the LV installation of the facility.

The CHP will cover the baseload for heat and power, while the peak loads will be covered by the local electricity network (ENEL) and by the peak boilers.

Success factors

The determination of the investor to fight against all bureaucratic obstacles, the soft loan provided by the bank, the fast delivery and implementation done by the technology providers (EC Power – DK, Valeg Creative Solutions – RO).

Main barriers

Long, complicated and non-transparent permitting process, especially with the local electrical distribution company.

Lack of experience and reluctance of the local authorities.

Comparison: before and after

It is expected the installed system to cover the need for heat and power for approx. 5-6 month per year (May to Sept). The expected energy bill reduction, compared with the no CHP solution, is around 35-40 %. The expected bill reduction is mainly generated by the high price ratio (MWh/MWh) between power and gas (>4) and by the very high global efficiency of the CHP (aprox. 96 %). This is an estimation, while it's a green field investment, and needs to be checked after 12 months of operations.

Conclusions

Installing a CHP solution for an wellness center (swimming pool, sauna, Jacuzzi, etc.) looks as a perfect application for a (micro) cogeneration system, due to the constant and long term need for heat. The constant heat and power consumption assures a high degree of utilization, contributing to a high IRR of the project. We intend to replicate the project in similar sites/applications within Romania and in the countries around.