

F Company, located at the north of Italy, is a producer of chemical products for agriculture use.

The company started own activities in 1976, having different production plants with 66 employees, its productive plants run 24 hour per day, 11 months per year.

Currently, the company has not yet adopted an energy management system based on CEI EN ISO 50001; anyway it is evaluating the cost and the benefits of this investment.

### Steam system

The steam used in F company is generated by a steam system with three boilers. Usually one of three boilers is kept in stand-by condition although in winter the steam demand is increased due to the colder temperature.

There are three steel tanks in company, where 8 vats are positioned to contain the raw materials of the process; all these vats are heated with water at 80 °C and the water, in its turn, is heated through the direct use of steam for about 24-36 hours. Plus the steam consumption of the production process, the total steam demand in winter will achieve a flow of 5-6 tons/h.

### Steam system problems identified

The steam system is in a good overall condition, nevertheless, still some potential improvements have been identified:

- operating and maintenance practices
- additional equipment and/or system
- new technology or confirmation of performance

### Proposed energy saving measure(s), investments, and expected results (in figures)

As the conclusion of the steam audit, three energy saving measures have been proposed:

1. increment of the rate of condensate recovery (to 60%)
2. optimizing boiler blowdown
3. installing a CHP plant (20 hour/day)

The estimated energy savings and the investments needed are given in the table.

n. proposed EE measure	energy saving (kWh/year)	economic saving (€/year)
1	440.000	14.660
2	236.450	7.920
3	-	372.430

### Achieved and/or expected Non Energy Benefits (NEBs) as result of implemented and/or proposed measures and investments involved

NEBs will be achievable through the implementation of the proposed measures:

- CO<sub>2</sub> emission reduction;
- reduction of NO<sub>x</sub> emissions due to the installation of a system for smoke recycling;
- employees Safety.

### Involvement of internal stakeholders

The company’s top management together with its technical responsible persons were attended the kick-off meeting organised by team audit team, the project scopes and possible benefices deriving from steam audit were illustrated. Although in the



F company



Boiler house

present conditions the company management gives its priority to other aspects because the energy costs are negligible respect to the other costs of production, the steam audit team was able to convince the company top management to take part in Steam-Up pilot activity.

### F SPA

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**Manerbio (Brescia), Italy**

**Chemical industry**

**66 employees**

**Total (estimated) Investment**

**€ 741,700**

**Total (Estimated) Savings**

**€ 395.010/year**

**> 676.450 kWh/year**