STEAM UP

Summary

The Steam Up project aimed to assess the substantial and easily accessible energy-saving potential of steam systems in industries in order to support the EU objectives for energy efficiency. Steam Up presented concrete business cases to decision makers, based on 75 detailed audits from several European countries, ten of which have been executed in Austria.

Energy experts were trained in the Steam Up methodology and body of thoughts, as well as energy managers, end users, technical staff from all types of companies of various size and from all over the country. Moreover, the introduction of a capacity-building programme for technical staff and consultancies ensures a good return on investments.

Introduction to Steam Up

In all sectors of the European industry, there is a considerable and achievable energy-saving potential. Thus, the objective of the Steam Up project was to increase the energy efficiency of steam and to contribute to the CO_2 reduction by saving 55.6 GWh per year in the industry throughout Europe. The European industry has an energy-saving potential of 13%, 75% of which is found in industries that use steam and electrical motor systems. In general, these are large energy-intensive industries like chemicals, paper and pulp, food, and textile services. Steam Up therefore focused on these industries in Germany, Spain, Greece, Austria, the Czech Republic, Italy, the Netherlands, and Denmark.

Unique Selling Points of Steam Up

What made the Steam Up project different from other approaches are

- the focus on steam systems and potential alternatives,
- the attention to non-energy benefits (NEBs),
- the design and use of an energy management centre,
- the effort of bridging the gap between the technical staff and the decision makers (managers, board of directors),
- the aim to influence cultural behaviour and induce a cultural change,
- and the intention to increase the companies' commitment to energy efficiency (ISO50001, environmental policy, etc.).

Audits: savings and Non Energy Benefits (NEBs) achieved

In Italy 8 audits were carried out at 2 small/medium and 6 large companies, respectively in food, chemical, paper manufacturing, pharmaceutical and textile sector. The total energy saving potential of all audits is 75.179 MWh and expressed in money 2.314.152 euro. Apart from the energy savings, the following Non Energy Benefits will be gained after implementation of proposed measures (for an exhaustive enumeration of NEBs visit our website)

1. Less CO2 or other GHG emissions
2. Economic savings
3. Reduction of water and chemicals uses
4. Reduced maintenance costs
5. Good Quality of steam
6. Competitiveness increases

Audit fact sheets for Italy and for other countries are available on the website.

Industry sectors audited:

1. Food & Beverage (dairy)
2. Chemical
3. Paper manufacturing
4. Pharmaceutical
5. Textile

Type of companies:

- **2 SMEs**
- **6 Large enterprises**

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Total (estimated) Investments

€ 8.154.814

Total (estimated) Savings

€ 2.314.152 /year
75.179 MWh

Most important Non Energy Benefits

- Less CO2 or other GHG emissions
- Economic savings
- Reduced maintenance costs
- Reduction of water and chemicals uses

More information for Italy

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Best practices in Italy

"*Using high pressure water to improve paper drying*", an Italian market leader in containerboard production made its big efforts to improve energy efficiency of its production process.

In the paper industry, the process of pulp drying is the most energy intensive. Through the drying section, the pressed pulp sheet passes partly around a series of internally steam-heated cylinders (dryers) that evaporate the moisture. The sheet is held against the dryers by long felt loops on the top and bottom of each dryer section. The higher permeability of felts, more heat will be transferred. The water deposit, however, is able to block the voids on the felts, preventing the steaming of water.

A high efficiency of felt cleaning (without chemical compounds), by using high pressure (200-350 bar) water has been developed, which allows ensuring the highest level of permeability and hence the heat transfer from drying cylinders to the paper sheets, reducing the steam consumption of the drying cylinders.

Best practice fact sheet for Italian and for other countries are available on the website.

Capacity building and expertise in Italy

In Italy were in total 70 energy experts trained in minimum 6 hours class-room training plus minimum 10 hours e-learning in the Steam Up methodology. There yet highly qualified and experienced energy experts underline the Steam Up project body of thoughts.

The expert trainees are mainly engaged in energy management or energy audit engineers, coming from Industry (10), Consulting/Engineering firms (35), University Tech Centre (7) and others (12), about those organisations 34 are small size (<50 empl.), 13 medium companies and 6 large enterprises.

Conclusion

The improvement of energy efficiency in the industrial sector in Italy means to face the following main problems:

– no business case for steam saving measures for enterprise decision makers;
– there is a lack of technical (steam) expertise of energy auditors and within enterprises generally;
– no formal organisational structure for dealing with energy efficiency (energy management)

The implementation of Steam-Up in Italy has tried to resolve these problems by applying the innovative solutions/approaches achieved through Steam-Up. Through in-deep steam system audit, good business cases for steam saving have been shown to enterprise decision maker; innovative Steam-Up energy audit approach has been diffused by means of capacity building activities. Since Steam-Up audits have been carried out with the participation of enterprises' technical responsible persons, it is expected the concept of energy management (including the culture of Non Energy Benefits) should be introduced to the ordinary organisational structure of enterprises.