

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 CO₂ 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 Spain, 10 audits were carried out at 7 large and 3 SMEs with priority in Chemical, Food and Pharma sectors. The total energy saving potential of all audits is 23 GWh/a and expressed in money 1,5 m€. 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. Process improvement and increase in production units per energy unit
2. Environmental benefits
3. Better knowledge of savings potential
4. Improvement in energy management
5. Savings in maintenance

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

Industry sectors audited:

1. Chemical
2. Food
3. Pharma

Type of companies:

- 3 SMEs
- 7 Large enterprises

Total (estimated) Investments

€ 10m

Total (estimated) Savings

€ 1,5m p/a
82.800 GJ p/a

Most important Non Energy Benefits

Increased production
Environmental benefits
Better knowledge and management

More information for Spain

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Best practices in Spain

Several best practices were found in Spain to support the finding and benchmark of energy efficiency measures. As an highly replicable example, we find a processed meat industry where the main objective was to improve efficiency by the substitution of the boiler burner, a shift of fuel to natural gas and a change in boiler operation program to adapt to real production needs. These actions carried out led not only to an increase in productivity but also to enhance sustainability and emissions' reduction. An increase of 14% in energy savings was achieved thus allowing the company to reach better production performance and economic savings. This is a good evidence of the synergy between energy and non-energy-benefits that usually go hand in hand.

However, there is still chance to perform more improvements in the steam system and in the overall process, so these benefits foster other measures to be developed in the close future.

Capacity building and expertise in Spain

In Spain were in total 53 energy experts trained in two training courses (12 each) in the Steam Up methodology. A specific training module based on the EUREM (European Energy Manager) methodology was prepared for this purpose.

There yet highly qualified and experienced energy experts underline the Steam Up project body of thoughts.

Trainees came from chemical, food and beverage and other manufacturing industries, as well as engineers with responsibilities in managing, installing and maintaining energy or steam systems. They come from both large companies and SMEs, as steam is used in all industries.

In some countries, as Spain, Steam Up trainings will be delivered within EUREM trainings by Escan.

Conclusion

Management and energy efficiency measures in steam systems require a specialized team of experts within the own industry and by using external services. Usually there are not specific staff and managers dedicated to monitor this system which, at the same time, might be critical for the final product production and its quality.

Steam-Up in Spain has supported a number of industries in better steam management, by in-depth expert audits and bilateral meetings and workshops to support the real implementation of the measures. Training courses with specific materials prepared by experienced professionals has allowed to increase the capacity of industry managers and engineers which will apply this know-how since now. Energy Management Centre has been used to monitor and follow-up the energy efficiency measures by a internet based platform. Dissemination in Europe and Spain allowed to provide the knowledge to a wider audience and gain feedback from other professionals with interest in steam outside the consortium.