

Process and efficiency optimization

Changing market conditions, increased competitiveness as well as reduced emission goals have led to the need for reviewing and improving the current processes and efficiency of a plant, be it an industrial, process or power plant.

For an holistic plant optimization it is necessary to review the whole process and not restrict the optimization to individual components. The evaluation usually has to consider technical, operational, environmental and economic criteria.

Our solutions

- Multi-stage energy optimization study.
- Thermodynamic modelling and optimization of power plants, petrochemical plants and industrial processes.
- Decreasing stable minimum load of a power plant in compliance with emission regulations.
- Increasing part-load efficiency of power plants.
- Design of model-based control concepts based on dynamic simulations.
- Interdisciplinary plant and process review, involving mechanical, process, civil, electrical and I&C expertise.
- Energy analysis and identification / evaluation of heat recovery potential, including use for absorption cooling.
- Evaluation of drive concepts.
- Modification of the operating parameters to fully utilize design margins of processes and components.
- Reduction of waste streams.
- Development of efficient lighting concepts.

Benefits

- Energy and cost savings associated with reduced emissions.
- Higher operational flexibility of your plant.
- Improve energy efficiency without or with limited hardware investments.
- Improve your competitiveness, for example by increasing primary or secondary frequency control.
- Increased knowledge and understanding of energy consumption due to thorough risk review process and additional monitoring.
- Strengthen your position as an informed owner/operator, informing negotiations with original equipment manufacturers and suppliers.

References

Plant type	Scope of work
CCGT generation plant	Part load efficiency improvement e.g. efficiency improvement by one percentage point at Kirchmöser power plant.
Paper mills	Optimization of the control concept e.g. achievement of control accuracy for process steam.
Steel mills	Waste heat utilization.
Industrial power plant	Increasing secondary frequency reserves by improving control algorithms.
CCGT power plant	Maximizing steam extraction for process steam or heat generation purposes while maintaining full operational flexibility.
Bio-diesel production plants	Energy efficiency review including identification of a range of measures to deliver gas and electric power savings, development of process designs and preparation of cost estimates.