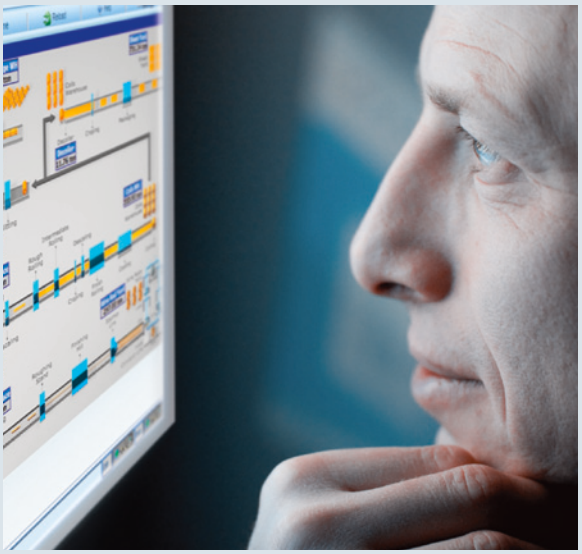
SIMETAL
Energy Management System

Optimized energy flows in the iron and steel industry.

Rising energy costs and ever-stricter environmental regulations are squeezing productivity and reducing competitiveness in the steel industry. Greater energy efficiency is therefore the order of the day. In order to achieve this, there must be more transparency in the actual amount of energy consumed, the degree of efficiency, and the losses.

With SIMETAL Energy Management System, Siemens VAI provides an integrated solution tailored specifically to the requirements of the steel industry. Its exceptionally efficient and flexible functions for recording consumption data, allocating energy charges, planning, and energy forecasting – as well as generating energy balances and CO_2 monitoring – can be easily integrated into existing systems. In addition, it is already in compliance with standard EN 16001 (ISO 50001) for industrial energy management.



The challenge:

Energy costs alone typically account for 20 to 30 percent of total production costs in the iron and steel industries. A large proportion of these costs can be avoided by improved energy awareness and associated measures. For this, energy consumption is recorded and monitored, in order to establish a basis for a precise analysis, for evaluating the existing plant, and for defining sustainable efficiency measures.

Standard EN 16001 (ISO 50001) stipulates the logging of data and a sustainable improvement plan for industrial energy management in the future. Stricter legal requirements and increasing CO_2 penalties and levies will further increase the pressure to be as environmentally sensitive as possible in manufacturing operations. All these challenges, however, also offer the opportunity not only to cut CO_2 emissions, but also at the same time to reduce production costs through the optimized use of energy.

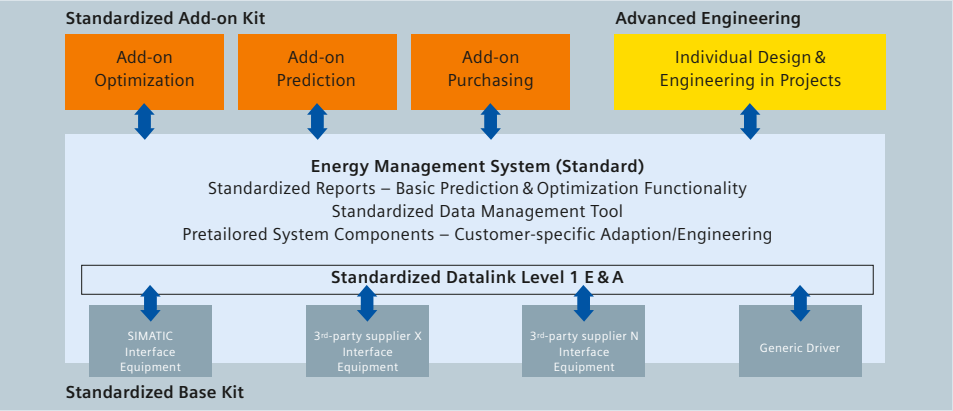
Our solution:

SIMETAL Energy Management System is a modularly configurable and flexibly expandable solution concept featuring combinable modules for the different automation levels. As a result, there are solutions available for the operating and control system, for information and data management, and for the analysis, forecasting, and optimization of energy consumption.

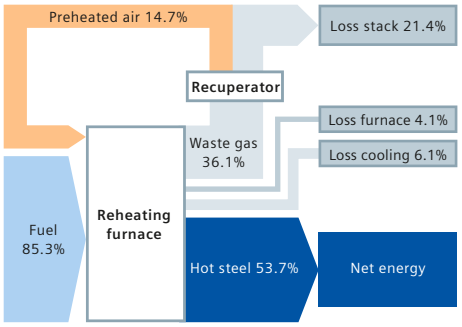
SIMETAL Energy Management System creates the transparency required for revealing actual energy consumption. It detects energy losses, predicts energy demand, minimizes peak loads, and supports the use of low-cost energy tariffs.

SIMETAL Energy Management System plays a crucial role in reducing energy costs in iron and steel production.

SIEMENS VAI



The functions of SIMETAL Energy Management System can be expanded as needed by means of add-ons.



Visualization in the Sankey diagram reveals savings potential.

Higher energy efficiency with SIMETAL Energy Management System

SIMETAL Energy Management System offers a host of functions for the acquisition and analysis of all energy-relevant data. Energy procurement can be optimized through more accurate prediction of energy consumption. Load management highlights methods for avoiding expensive load peaks, and cost center allocation ensures the necessary transparency. Other functions include:

- Reporting and documentation
- KPI calculation
- Flexible energy data analysis
- Forecasting and optimization of energy demand
- Optimization of purchasing contracts
- CO_2 emission monitoring

Operation and control system

The central function is to process all energy-specific measured values at the field level. Special functions for active load and gas management help avoid expensive peak loads and optimize gas usage. Online trending and an attractive visualization system show current and forecasted energy flows. Departures from scheduled operation are recorded by an efficient alarm and fault management system.

High flexibility and expandability

SIMETAL Energy Management System provides a modern user and visualization interface. The client-server system can be expanded in stages and is freely configurable. Individual add-on modules can also be integrated retroactively. Reports and documents can be exchanged throughout the company via a Web interface.

Energy data management

Energy consumption and costs can be allocated according to various different keys, for example, by cost center, product, or CO_2 emission. Through automated reporting, meaningful KPIs, and specific visualizations, the entire energy data can be analyzed quickly and easily – either all together or individually.

Consumption forecasting and optimization

All kinds of different interdependent energy media (for example, electricity, fuel, steam, process water, and gases) are employed in steel production. This results in a high degree of complexity with considerable potential for optimization. SIMETAL Energy Management System produces reliable energy demand forecasts and schedules for the power generating plants. In the event of unforeseen deviations, these values are adapted automatically.

Advantages of SIMETAL Energy Management System:

- **Significant energy savings** thanks to maximum transparency of energy demand, energy costs, and consumption per cost center
- **Reliable cost control** through automated reporting with informative display and meaningful indicators (KPIs)
- **Consumption-optimized load profiles** through avoidance of peak loads and flare losses thanks to monitoring, planning, and optimization of consumption
- **Reliable prediction** of energy demand through the use of mathematical simulation and computational models
- **Greater competitiveness** thanks to permanent reduction of total energy costs
- **Long-term security of investment** thanks to simple, phased expansion with standardized and individualized function modules
- **EN 16001- (ISO 50001-)** compliant reporting and documentation

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