

SEVENTH FRAMEWORK PROGRAMME



Project full title: **Efficient Energy Integrated Solutions for Manufacturing Industries**

Project acronym: **EFENIS**

Project number: **296003**

Deliverable 5.1 - Consistent data sets (base case) for further analysis
Public summary

Workpackage: **WP5 - Title**

Lead partner: **BAYER**

Deliverable nature: **O**

Dissemination level: **CO**

Delivery date: **Month 8**

Version: **1.1**

This deliverable comprises a consistent base case which enables evaluating the results of the whole project in an industrial environment. The base case includes extensive data from the site as well as reference results obtained from standard tools and methods.

Process modelling has been used as assisting data source e.g. if no measured data of important energy consumers is available. Pinch studies of the single production units and a total site analysis of the cluster with common available tools have been done in order to define a reference case.

The following steps need to be done:

- Data collection:
 - Heat streams for each unit
 - Design data for the utility system
- Conventional analysis of the cluster
 - Static pinch analysis of the existing units
 - Perform a static total-site-analysis of the cluster
 - Rough evaluation of improvement measures in terms of energy and financial savings potential, investment costs and feasibility/operability.

The resulting outcome of D5.1 is a consistent data sets (base case) for further analysis

Data Collection

Heat streams for each unit

The cluster of the demo site comprises several production units. Data for heat streams for those processes have been analysed are combined in the table template below.

Heat streams unit X

Unit	Inlet T	Outlet T	Enthalpy
	[C]	[C]	[kW]

The production units are connected with each other through internal utility lines and through the utility supply network with the power plant.

The total current utility demand of the production units is given in the table below.

Utility consumption (steam and natural gas)

Unit	Utility	Consumption/Export [kW}

Design data for the utility system

The design data for the utility generation in the power plant has been collected based on a questionnaire provided by partner No. 1 (UNIMAN). It includes the data collected for

- Steam Pressures stages
- Dearerator
- Boiler fuel data
- Boiler Capacity
- Boiler efficiency