

# Application of a factory wide and product related energy database for energy reduction



## PROJECT DETAILS

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## PROJECT DESCRIPTION

Being an energy intensive industry, the reduction of energy consumption is today of extremely large interest at steel production. To identify possibilities of energy reduction, suitable energy consumption data related to single products and / or to product groups like e.g. one material class are essential. This collection of energy consumption data is today only time related for billing purposes, without relation to products or process conditions.

The proposals idea is to create an energy information database in which the energy consumption is directly assigned to the different intermediate or final products and to connect it with the production conditions, which are stored in existing Quality and Process databases. These connections have to take into account special conditions like e.g. number of pieces in an oven or energy consumption during downtimes.

Manual and automatic procedures for different evaluation purposes will be developed and implemented, taking environmental and technical aspects into account. These will be the cause and effect analysis of energy consumption deviations, improvement of the process route by means of environmental aspects, the benchmarking of comparable plants and the improvement of the control of the process schedule in terms of energy consumption efficiency. The latter application will be realized by the connection to a Manufacturing Execution System (MES) and tested by means of a simulation environment provided by Danieli Automation.

The developed system will be installed at three industrial sites (ArcelorMittal (Spain), ThyssenKrupp (Nirosta) and Riva (Acciaio)) covering stainless, carbon steel and tinplate flat products as well as long products. This guarantees a large amount of different exemplarily cases and therefore a good transferability of the developed system to the whole European steel industry.

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