Project no.:   **296003**

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

Project Acronym: **EFENIS**

Deliverable no.:   **D6.2**

Title of the deliverable: **Base case for pinch analysis and total site analysis which will be used for evaluation of the method (Public Summary)**

Contractual Date of Delivery to the CEC:	**Month 12**
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Lead beneficiary:	**P3 MOL**
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Participant(s):	**P3, P1, P8, P10,**
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MOL Group is a leading integrated Central & East European oil and gas corporation with an extensive international Upstream portfolio. Market capitalisation was over USD 8.4 bn at the end of 2012 and MOL shares are listed on the Budapest, Luxembourg and Warsaw Stock Exchanges. MOL is committed to maintaining and further improving efficiency, exploiting potential in its captive and new markets and to excellence in its social and environmental performance and active portfolio management.

The Danube Refinery being analysed in the framework of the EFENIS program is located in the adjacent region of the Capital city Budapest. The refinery nameplate capacity is 8.1 Mt/y. 90 % percent of the processed crude is Russian origin the rest is domestic. The refinery is a complex refinery having no fuel oil output since operating a Delayed Coker unit for squeezing out the last bits of motor fuels from the bottom of the barrel. The refinery has three separated pressure level steam system. Let-down backpressure and condensation turbines are being used. On the top of that let-down valves are being used mainly for LP steam production. Significant portion of low pressure steam are being used for heat tracing. Due to the layout of the refinery, the distance between the production units is significant so the losses on produced steam is significant as well.

The basic data set of the MOL Danube refinery steam system has been obtained, which includes identification of the topology, estimation of the steam flowrates and their balances, as well as estimation of the steam turbines performance.

There is a certain fine tuning of the data that will be needed, which will be performed within the framework of the detailed simulation and Pinch / Total Site Analysis of the system. Steam boilers need performance evaluation for enabling more degrees of freedom for the follow up optimisation. Also there is a certain gap between the steam flows estimated for the representative flowsheet and the range of steam flows for the steam turbine performance correlations. This will need a more detailed analysis at the stage of the work on deliverable D6.2, in order to close this gap and have harmonised steam flow ranges. This should be accompanied by estimation of the variation ranges of the steam flowrates.