Visual MESA Real Time Energy Management System

Refining References

In general, refineries exhibit a very good potential for real time monitoring and optimization using Visual MESA Energy Management System.

Based on our extensive experience, overall benefit in the range of 2% to 5% of the total energy cost can be achieved. Expected project payback is always less than one year.

Visual MESA was successfully applied to more than 50 Refineries worldwide, several of them with capacity, steam, fuels and power generation networks of different complexity but all with energy cost savings.

Several published references reported Visual MESA application success:

1. Kuwait National Petroleum Company (KNPC), Mina Al-Ahmadi (MAA), Mina Abdullah (MAB) and Shuaiba (SHU) Refineries, Kuwait

   4.4 MM USD per year and CO2 emission reduction of 27,600 tons per year were reported for MAA Refinery. In addition, What-If case example with 2 MM USD per year of potential savings is presented.

   24.8 klb/h of steam excess reduction example are reported for MAB Refinery.

   SHU Refinery reported also very good results.


   • Online Energy Management System Implementation in KNPC Mina Al-Ahmadi Refinery, M. Ershaid, A. Al-Tarkeet, D. Periyasamy, N. Visuara, C. Ruiz, S. Cúneo, Middle East Process Engineering (MEPEC), Bahrain, September 2013.

2. YPF SA, Complejo Industrial Ensenada, Argentina (Refinery and Petrochemical)

   YPF Complejo Industrial Ensenada that is composed by a Petrochemical (Aromatics, Olefins, Polybutenes, Maleic Anhydride) and a Refinery (180 Kbd of capacity). Visual MESA real time energy management system provided consistent benefits to both sites since its inception in 2005.

   • Manejo de Energía en Línea y en Tiempo Real en la Refinería y el Complejo Petroquímico de YPF Ensenada, S., A. Aguilar, S. Cuneo, E. Benvenuto, C. Ruiz, Latin American Refinery Technology Conference, Cancun, Mexico, April 2014.
3. **SARAS SpA, Italy (IGCC and Refinery)**

Examples presented shown up to 4% of energy cost reduction.


4. **BP Lingen, Germany (Refinery)**

5% energy cost reduction was reported due to Visual MESA online optimization.


5. **Raffineria de Milazzo, Italy (Refinery)**

Savings in the order of 4% on total energy cost were reported.


6. **LOTOS Gdansk, Poland (Refinery)**

Examples of 2-3% energy costs reduction are shown.

- Energy Management: A Polish Case Study, J. Majchrowicz, M. Herra (Grupa LOTOS), F. Serralunga and D. Ruiz (Soteica), Hydrocarbon Engineering, September 2011, pages 41-45.

7. **ENAP Aconcagua Refinery, Chile (Refinery)**

Energy related key performance indicators calculated in the real-time Visual MESA model are presented.

- Online real-time optimisation helps identify energy gaps, Marcelo Galleguillos, Michel Maffet, Marcos Kihn, Ruben Monje and Carlos Ruiz. Petroleum Technology Quarterly (PTQ), Q4, 101-109, October 2010.

8. **Exxon Mobil, Baytown Refining/Chemical Complex, TX, USA (Refinery, Petrochemical, Olefins, Cogeneration)**

9. REPSOL Cartagena Refinery, Spain

Energy cost savings between 2 and 3% by using Visual MESA for what-if planning are presented.


10. TOTAL Feyzin Refinery, France

An example of savings of 7 ton/h of high pressure steam is shown.


11. REPSOL Puertollano Refinery, Spain

Energy savings in the order of 5% are reported. Trend with data extracted from the Plant historian during a week is presented as an example.


12. REPSOL La Coruña Refinery, Spain

Energy cost savings in the order of 3% are reported. Trend with data extracted from the Plant historian during a week is presented as an example.


13. Exxon Mobil, Research & Engineering Center, USA


14. REPSOL Tarragona Refinery, Spain

Savings of more than 2 MM Euro per year are reported. Historical data trend for the energy cost, 3 months of operation, before and after the implementation of Visual MESA is shown.


15. REPSOL Petronor Refinery, Bilbao, Spain

Energy cost savings in the order of 5% are reported. Trend with data extracted from the Plant historian during a day is presented as an example.