Industrial Energy Efficiency Project

In order to introduce a structured approach to energy management in their operations, PT. Indah Kiat Pulp Paper has joined hands with the United Nations Industrial Development Organization (UNIDO), the Ministry of Energy and Mineral Resources (MEMR), Ministry of Industry (MOI) and National Standardization Agency of Indonesia. The Global Environment Facility (GEF) funded project, “Promoting Industrial Energy Efficiency through System Optimization and Energy Management Standards in Indonesia” has helped PT. Indah Kiat Pulp and Paper to implement a Steam System Optimization in alignment with ISO 50001 for an overall improvement in energy efficiency and a reduction in energy consumption.

a Steam System Optimization Case Study

PT. Indah Kiat Pulp & Paper located in Tangerang, established in 1976. Sinar Mas Group bought of IKPP’s shares in 1986. Today, IKPP is subsidiaries of Asia Pulp & Paper (APP). Indah Kiat Tangerang (IKT) has produced colour paper. Key products are colour printing, writing and copier, computer and duplicator paper. There are three Paper Machines. Total capacity is 100,000 Ton per year.

More than 90% steam consume by Paper Machine. Consumption rate is about 40 T/hours

After conduct audit in steam system and simulate using SSAT, we get potential saving from adjusted model with 14.3% (12,968 ton) reduction for CO2 and 14.1% (6.16 t/h) for steam.

Optimized Steam Systems to Reduce Energy Consumption at PT. Indah Kiat Pulp and Paper

Eka Tjipta Widjaya established IKPP on December 7th 1976 in Tangerang. At the beginning, in 1977, this company only had two paper machines that had production capacity of 100 tons/day for each machine. On April 1979, IKPP began to produce commercial products. By June 1982, IKPP added one more paper machine to increase the production capacity to 150 tons/day. On March 1984, this company succeeded in producing commercial products; and later on April 1988 there has been several modification and reparation on its paper machines. These efforts increased the paper production until 250 tons/day.
Steam System Performance Improvement

This project helps industry to assess steam system and achieve energy efficiency and cost saving through steam system optimization.

Improve skill and competency of the energy team especially in steam system.

Demonstrated energy saving to Top Management easier using simulation software tools.

Benefits of Steam System Optimization implementation project to the company

- This project helps industry to assess steam system and achieve energy efficiency and cost saving through steam system optimization.
- Improve skill and competency of the energy team especially in steam system.
- Demonstrated energy saving to Top Management easier using simulation software tools.

IKT followed UNIDO’s project as pilot company. Self-assessment conducted in the first time using “Steam System Scoping Tool”, it’s a scorecard designed to help steam system energy managers and operations personnel perform initial self-assessments of the steam systems, with overall score is 75.6%, which are:

- **Steam system profiling = 100%**
- **Steam system operating practices = 69%**
- **Boiler Plant Operating Practices = 69%**
- **Distribution, end use, Recovery Operating Practices = 53%**.

From the score we know that there are some opportunities to improve in distribution, end use, and recovery operating of steam system performance.

Drying capacity of the PM increases significantly. Before we need 4.5 barG of steam to produce 70 gsm, maximum speed 480 mpm.

After modification, we just need 3 barG of steam to produce the same grade, maximum speed achieve 550 mpm.

Project was implemented in PM1, PM2 and PM3. Steam and condensate system was rebuilt to increase the efficiency.

**Steam reduces about 9% and electric reduce about 13.7% with Project Payback is about 18 Month.**

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**within investment 1.5 mio USD and saving 84,615 USD per month**