

Industrial Energy Efficiency Project

CP Kelco is a recognized global leader in the manufacture of hydrocolloids, which are vital ingredients in various foodstuffs, pharmaceuticals, personal/oral care products, industrial processing aids, household and consumer products, and in the petrochemical sector. CP Kelco Philippines Inc., located in Sibonga, Cebu, is one of nine manufacturing sites of CP Kelco worldwide.

CP Kelco Philippines Inc. has an annual production capacity of 3,200 megatons (MT) of refined and semi-refined carrageenan, which is derived from seaweed farmed in the Philippines. This food processing firm employs a total workforce of 150 people, a third of whom are directly involved in manufacturing.

CP Kelco

Management Systems

The Cebu plant strives for continuous improvement in environmental, health, safety, and sustainable development as measured by the Huber Environmental Performance Index (HEPI). As such, CP Kelco Philippines endeavours to uphold the best environmental, health, and safety (EHS) practices for the benefit of its workers.

The company is well-versed with management systems and is certified to Food Quality Standard ISO 9001, and Food Safety Standard ISO 22000. Through the establishment and implementation of Energy Management Systems (EnMS) at the plant, the company plans to reduce its energy consumption by 5%. Energy usage currently accounts for approximately 4% of the plant's total operational costs. To achieve the targeted reduction and to comprehensively include energy in the company's existing management system, CP Kelco Philippines participated in the Philippine Industrial Energy Efficiency Project (PIEEP) of the United Nations Industrial Development Organization (UNIDO).

Energy Review

Management commitment is a key factor in the implementation of an Energy Management System. CP Kelco Philippines approached this through the establishment of an energy team and by investigating energy consumption on site. The company focused on electricity at the onset since almost 95% of total energy consumption at the plant is electricity usage.

The Significant Energy Users (SEU) were identified, quantified, and ranked based on their energy usage as follows:

1. Refinery machinery
2. Wastewater treatment plant
3. Lighting

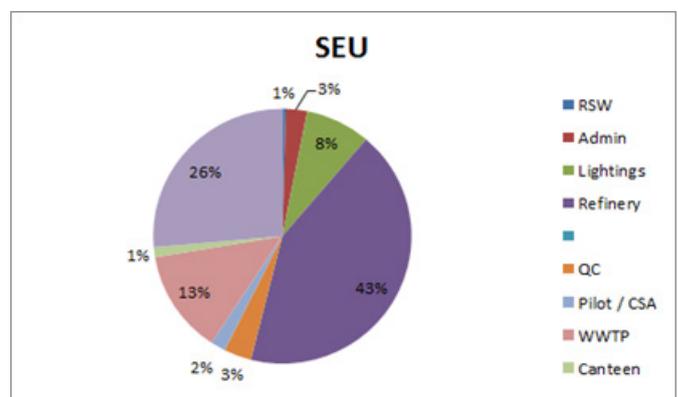


Figure 1 - Breakdown of Significant Energy Users electricity consumption

Focus is Key

As a first step in this process, CP Kelco Philippines identified and investigated the drivers of the refinery, noting that production was the principal driver affecting energy consumption. A detailed analysis of the data revealed that shifting to a single line run would result in higher efficiency than maintaining the current two-line operation. This new approach would affect the procedures and operation of the refinery, while saving 6% on total energy consumption.

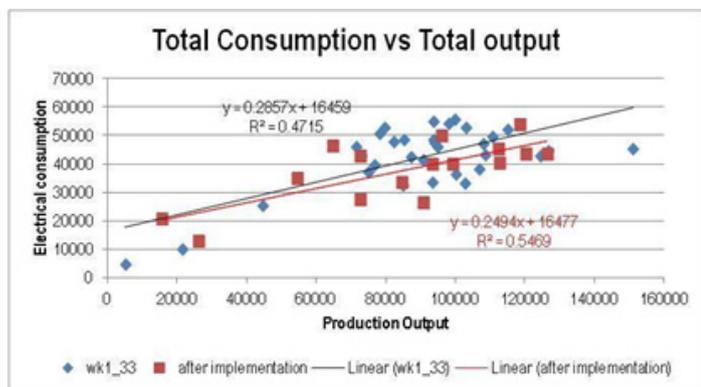


Figure 2 - Regression analysis graph after implementation

In Figure 2, the blue line and points mark the Energy Performance Indicator (EnPI) trend prior to the application of the single line run initiative; the red trend line and points, meanwhile, chart the status post-implementation. The graph illustrates a clear reduction in energy consumption with the implementation of the single line run.

Additional opportunities

Building on the positive results of the initial improvement project, additional low-cost and no-cost opportunities were explored and directly implemented with the support of international and national UNIDO-trained EnMS experts. Among these measures are the following:

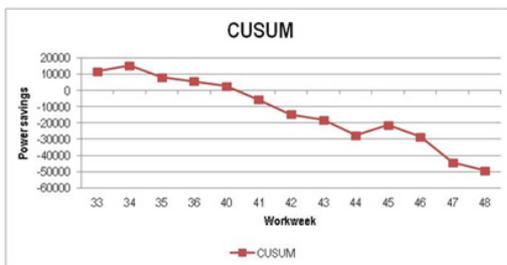
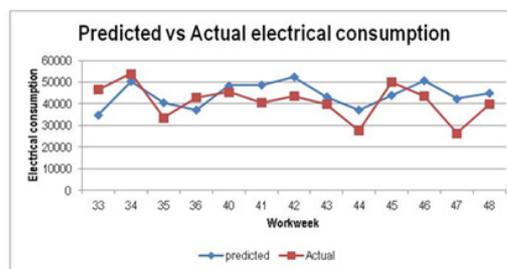
- Repair of air driers in the compressor and chiller areas;
- Implementation of a balanced line slime formation evaluation;
- Replacement of filter bags at the driers.

These additional solutions resulted in another 2.2% reduction in total electricity usage. Still other projects have since been identified and included in future action plans.

Barriers to implementing an EnMS

Some barriers were encountered during the implementation of the EnMS. These were overcome through the following:

- Ensuring that all improvements in the plant have a manageable to minimal effect on current processes, procedures, and plant operations;
- Gaining increased management commitment to overcome the initial resistance to change;
- Installing meters to foster improved metering and measuring.



Benefits of EnMS implementation

The implementation of an EnMS, and training of the plant's personnel on a system, rather than a component, approach, was an eye opener for the company and has ensured that energy is made a management priority. With continuous improvement and feedback, the company can now initiate actions to improve environmental sustainability and lessen its carbon footprint.

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The technical training offered by the UNIDO project provided the staff with valuable knowledge and tools, and with a better understanding of their facility. It also impressed on company personnel the importance of planning so they can avoid unbalanced setups in the future and improve the impact of all their activities.

For more information:

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