

# Efficient Energy Management Inside Philippine Economic Zones

by Ester Ivy Tariman

*How can Philippine-based companies be globally competitive if the country has one of the highest energy cost in Asia, higher than Korea, Vietnam, Thailand and China?*

The Philippine Economic Zone Authority (PEZA), the government agency tasked to facilitate business operations of export-oriented manufacturing and service facilities in the country's economic zones, has long addressed this issue. Now, it is poised to further improve the situation through the Eco-Industrial Development Project jointly undertaken with the German Technical Cooperation (GTZ).

Energy Management is one important component of the Eco-Industrial Development (EID) approach being developed for economic zones in the country. Its aim is to improve energy efficiency of the zones and their locator enterprises in order to reduce energy consumption and consequently CO<sub>2</sub> emissions. GTZ tapped energy experts to develop an energy management concept for economic zones. This was pilot tested in Mactan Economic Zones (MEZ) 1 and 2, industrial parks located on the island of Mactan, Cebu and home to over a hundred-forty locator enterprises.

Project activities included technical trainings, energy audits, consultations of key stakeholders, and exchange of best practices to develop PEZA and locator enterprises' energy management capability.

Halsangz Plating Cebu Corp. (HPCC), a Japanese firm in MEZ, was one of the participants in these project activities. Established in 1994, Halsangz has proven its capacity to adapt and thrive in the competitive electroplating industry. It has now grown to four plants, with companies in various economic zones in Cebu as its market.

*"The initiative on establishing a Management Approach for the Eco-Industrial Development of Philippine Economic Zones, referred to as the EID Project is a development cooperation between the Philippine Economic Zone Authority (PEZA) and the German Technical Cooperation (GTZ) on behalf of both governments.*

*The EID Project aims to promote and implement concepts of sustainable development, balancing economic development with environmental protection and social progress. This includes engaging partners to work for the overall improvement of environmental conditions within the economic zone areas.*

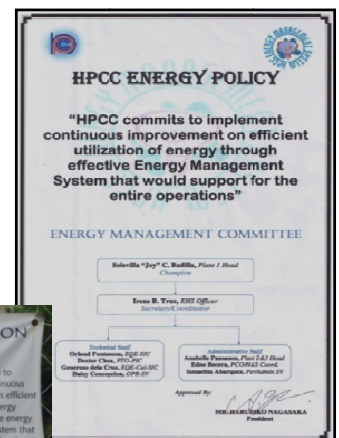
*The project runs from 2006 til 2009, focusing on pilot zones in Mactan, Cebu."*

Energy takes up a big percentage of Halsangz' operating cost, thus reduction of energy consumption is high in its priorities. Eager to identify areas of potential energy savings, it volunteered for the Walk-Through Energy Audit offered by the EID Project. In addition, the company also attended the Project's capability building events on Energy Audit, Technical Improvements, Energy Performance Matrix, Energy Data Monitoring, and Project Proposal Writing to develop its in-house energy management competencies.

The EID project provided further support by fielding in an energy expert to guide the company in implementing the walk through audit recommendations.



Figure 1 A streamer hanging at Halsangz' main entrance



Adopting these recommendations, Halsangz established its Energy Management System in January 2008. It formulated its Energy Policy and formed its own Energy Committee aptly called "Transformers".

Starting with implementation of "no cost - low cost" recommendations, the company obtained immediate energy savings which motivated the workers to pursue their target of 8 percent energy reduction. Aside from the audit recommendations, the *Transformers* did their own analysis of prevailing conditions and came up with more improvement measures.

As a result, Halsangz exceeded its target and achieved a **staggering 27.1 percent energy reduction** by November 2008, barely 11 months after the launching of its Energy Management Program. Capping its achievements, the company was awarded as "MEZ Locator with Outstanding Achievement in Energy Management - SME Category" given during the First Energy Management Conference for Economic Zones organized jointly by PEZA, MEPZCEM (Mactan Export Processing Zone Chamber of Exporters and Manufacturers) and GTZ in November 2008 at Waterfront Hotel Mactan.

"We would like to thank the support that GTZ and PEZA had extended to our company on our quest for conservation of resources. Indeed, it was successful in our company", wrote Ms. Edna Nagasaka, HPCC General Manager, in her thank you note to the Project.

Other MEZ companies participating in the project's energy management activities experienced similar reduction in energy consumption per production unit ranging from 4 to 27 percent.

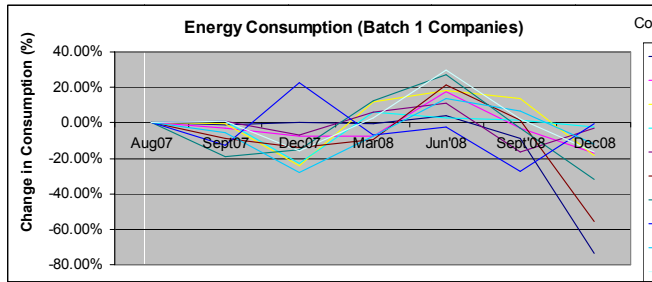


Figure 2 Energy monitoring results of first batch of participating companies in the EID Project Energy Walk -Through Audit in August 2007

### Lessons Learned

One important factor for a successful energy management program is top management's strong commitment. Improvement measures require resources such as personnel time and funds. Workers' cooperation also greatly depends on how they perceive top management's support. This must be clearly communicated to all, usually through the company's Energy Policy signed by the highest ranking company official.

As shown by Halsangz' experience, company size is not a barrier to good energy management. Even small companies can obtain big savings through determined implementation of energy efficiency improvements starting with "no cost - low cost" measures, and then investing the savings in the next project.

Change is not always welcome. Though a promise of savings was at the offering, companies did not jump right away at the Project's offer for energy audit and capability building trainings. One probable way of getting companies to commit to an energy management program with PEZA, complete with jointly agreed energy reduction targets, is through an incentive scheme. This is the subject of the Project's latest study and will be pilot tested still this year (2009).

### Conclusion

The positive experience of Halsangz and the rest of the companies that participated in the EID Project's energy management activities have proven that a disadvantage can be overcome through determined and thoughtful actions.

The country's energy disadvantage may prove to be an advantage after all as investors realize the superior abilities of Filipino workers in overcoming difficulties through talent and hard work.

### Some No Cost – Low Cost Energy Management Improvement Measures Implemented by HPCC

#### Energy Management Awareness / Trainings

1. Raise energy conservation awareness among employees
2. Technical trainings of energy personnel
3. Posting of signages and reminders
4. Close monitoring of energy consumption
5. Posting of energy monitoring results
6. Establish feedback mechanism to concerned workers, ex. regular meetings
7. Inclusion of energy consumption in monthly management report
8. Formulation of guidelines on the use of machineries.

#### Lightings

1. Establish lights use schedules
2. Replacement of T12 tubes to T8 tubes, magnetic ballasts to electronic ballasts
3. Regular cleaning of fluorescent tubes
4. Removal of unnecessary light tubes
5. Localized light switches
6. Re-layout of lights

#### Airconditioning units

1. Establish schedules for the use of exhaust fans, airconditioner, and computers
2. Regular cleaning of airconditioners

#### Scrubbers

1. Reduction of start up time by 2 hrs
2. Motor audits to evaluate performance
3. Redesign of ducting system

#### Compressors

1. Reduction of air usage / pressure control
2. Regular switch off at intervals/ no operations
3. Motor audits to evaluate performance
4. Regular leak test
5. Replacement of inefficient spray guns
6. Regular cleaning of filters

#### Boilers

1. Reduction of start up time by 1.5 hrs
2. Provision of tank insulation
3. Regular leak checks
4. Installation of solenoid valve and temperature controllers

#### Burners

1. Regular burner checks
2. Regular leak tests
3. Installation of regulator per burner

#### Other Technical Improvements

1. Replacement of analog voltmeter and ammeter to digital meter.
2. Proper sizing of machineries.

