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## IEE Project in Partnership with IMC Disseminate the Concepts of EnMS Among More Than 200 Facilities in 4 Industrial Cities Through “Kafa’a”

The IEE Project in partnership with the IMC “Industrial Modernization Center” organized workshops in four industrial cities namely: El Sadat, Borg El Arab, El Obour and 10th of Ramadan.

These workshops aimed at disseminating the concepts of energy management and raising the awareness of decision makers about the importance of Energy Management System (EnMS), its requirements, means of applying it and the benefits and opportunities offered for improving competitiveness in Egyptian companies. Moreover the workshops focused on reducing production costs and complying with the standards of the International organization for standardization ISO 50001. More than 500 participants representing 200 industrial facilities attended these workshops.

The industrial organization were motivated to join “Kafa’a campaign” and apply energy efficiency systems. “Kafa’a campaign” concentrates on raising the awareness of the Industrial sector in Egypt about the importance of applying EnMS and considering them a sustainable solution for improving energy management in the facilities, not only energy efficiency for one of the equipment or industrial units.

An information unit for “kafa’a Campaign” has been established to introduce to the industrial facilities the importance of energy efficiency, in addition to registration of the data of the industrial facilities that are willing to join the campaign. you can contact the unit through: [info@ieeegypt.info](mailto:info@ieeegypt.info) or through campaign’s hot line: 012 8677 5669



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# Media Coaching Event for Government Officials

In the framework of the national campaign for improving energy efficiency (EE) in industry “Kafa’a campaign” which aims at reaching the largest number of industrial facilities to participate in the campaign through applying systems for improving energy management in their facilities, the IEE project organized an event for media coaching on Wednesday 8<sup>th</sup> July at the project’s premises.

This session aims at providing the necessary skills, technicalities and strategies for dealing with the media to disseminate the principles of EE and the concepts of energy management systems. Media has an important role in crises management and raising awareness inside governmental organizations. The workshop targeted management and media leaders in EE specialized governmental organizations. Representatives from the Egyptian Environmental Affairs Agency (EEAA), Industrial Development Authority (IDA), The Egyptian Organization for Standardization and quality (EOS), Industrial Modernization Center (IMC) and the Federation of Egyptian Industries (FEI).



## The Importance of Setting an Accurate Energy Baseline

One of the biggest challenges to effectively managing energy is to accurately determining an energy management system’s impact on energy use and cost. For an industrial organization to demonstrate improvements in energy performance, the organization has to set an energy consumption baseline. An energy baseline is a reference tool that allows the organization to compare energy performance before and after a change is made to your site or system. The baseline establishes the “before” by capturing a site or system’s total energy use prior to making improvements. Without an accurate baseline, the effectiveness of an energy management system (EnMS) cannot be monitored and hence corrective actions and improvements cannot be identified or implemented.

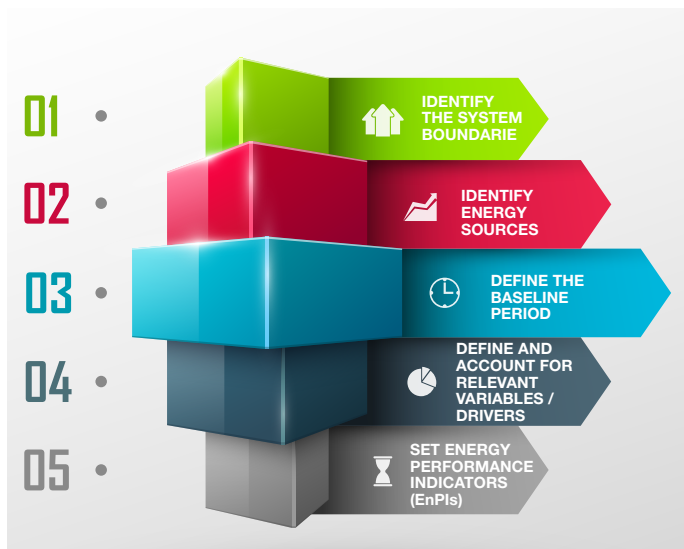
Developing an accurate baseline is not always straightforward. Whatever the method used for the development of a baseline is, it has to discriminate changes in consumption caused by energy efficiency (EE) measures from changes caused by relevant variables (e.g. weather, production, product mix, etc.). These factors can

cause variations that mask the effects one is trying to detect and quantify. Simple baseline development approaches usually have some degree of inaccuracy that can make them misleading, while rigorous and reliable approaches are sometimes more complex than the natural comfort level of most facility managers.

There are many approaches for establishing an Energy Baseline but they all follow the same five key concepts that govern EnMS. There are many steps that any organization should follow in order to establish its own Baseline. (1) The organization has to first identify the system boundaries, (2) then they shall identify the energy sources and (3) define the baseline period. Although the former steps might present some challenges for an organization but they are more or less considered as the simple part in comparison to the later steps. Followed by these steps, the organization has to (4) define and account for relevant variables/drivers and (5) set energy performance indicators (EnPIs).

The main challenge is faced in the fourth step when accounting for the different variables affecting the baseline. In many cases, this is sometimes due to lack of readily available reliable and accurate data. Also when setting EnPIs, sometimes energy managers face internal resistance from the organization to change the standard organization/sector EnPIs, for example in the cement industry specific energy consumption is the “standard” EnPI. In many cases, SEC (or any other simple ratio) is deceiving or misleading especially where other factors are actually affecting the energy performance or when the organization experiences high baseloads.

The bottom line is that setting an accurate baseline could present the most challenging step in the Planning Stage of an EnMS. However, an inaccurate baseline could forfeit the main benefits of an EnMS and could mislead an organization in assessing their energy performance and hence in measuring the impact of EE measures and interventions.



# Energy Efficiency Through Motor Systems Optimization

Electric motor systems account for about 60 percent of global industrial electricity consumption. Electric motors drive both, core industrial processes, like presses or rolls, and auxiliary systems like compressed air generation, ventilation or water pumping. They are utilized throughout all industrial branches, though their main applications vary. Studies show a high potential for energy efficiency improvement in motor systems, in developing as well as in developed countries. The International Energy Agency (IEA) endorses that a theoretical saving of 20% to 30% of electricity consumed by all Electric Motor Driven Systems (EMDS) could be achieved if those systems were optimized, which would reduce total global electricity demand by about 10%. However, taking a more pragmatic view, the IEA suggests an ambitious but achievable target for the global work plan: improving the efficiency of electric motor-driven systems by 10% to 15%.

In the continuous stress of a production environment, there is often little opportunity to pause and reconsider the way in which electric motors are purchased, maintained, and replaced. As long as nobody is given the responsibility for company-wide electric motor asset management, employees in the production environment will continue to act on an ad hoc basis, maintaining, repairing, and replacing motors in the same way they have in the past, without insight into the Total Cost of Ownership.

Under this light, the Industrial Energy Efficiency Project has supported a technical training on the optimization of motor systems (MSO) to achieve higher systems energy efficiency with the aim of qualifying MSO Experts. The training was conducted by UNIDO international experts and was attended by 40 engineers representing 16 organizations. The training objective was to provide in-depth technical information on troubleshooting and making improvements to industrial motor systems. The training also introduced basic principles for energy efficient design of motor systems, how to successfully sell motor systems improvement projects to management and how to select a motor system optimization service provider. National experts were trained through classroom, on-the-job and coaching by international MSO experts.

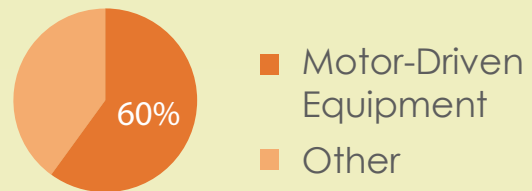
The training has focused on the importance of a systems approach for improving energy efficiency. In a component approach, the engineer employs a particular design condition to specify a component.

In a systems approach, the engineer evaluates the entire system to determine how end-use requirements can be provided most effectively and efficiently. Cost-effective operation and maintenance of a motor and drive system requires attention not just to individual pieces of equipment but to the system as a whole. A systems approach analyzes both the supply and demand sides of the system and how they interact, essentially shifting the focus from individual components to total system performance. Operators can sometimes be so focused on the immediate demands of their equipment that they overlook the ways in which the system's parameters are affecting that equipment.

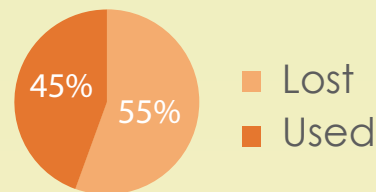
## Motor Systems



### Global Industrial Final Electricity Consumption

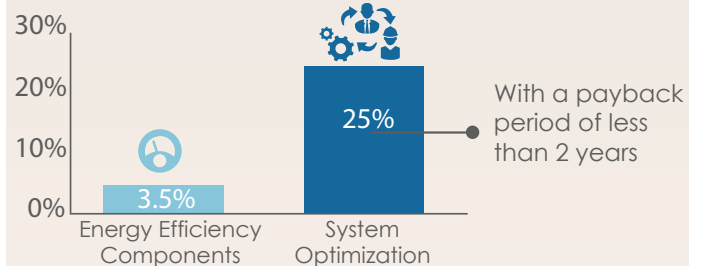


### Electricity used by Motor Systems



Losses can be reduced by using more efficient motors and speed drives, sizing motors appropriately and optimizing motor driven systems

### Average Efficiency Gains



Improving the Efficiency of **energy systems** is more effective than improving **each component's** efficiency separately



## Success Story

# SIDPEC Peer-to-Peer Network

When the UNIDO Industrial Energy Efficiency Project in Egypt (IEE) took the initiative of establishing the Peer-to-Peer Network, SIDPEC (The Sidi Kerir Petrochemical Company) saw this as an opportunity to share their knowledge and experience and expand its' role in industrial energy efficiency to the national level. Having completed the UNIDO Energy Management Expert Training and achieved the ISO 50001 certification for energy management, SIDPEC has been utilizing its position as an industrial role model and training representatives from other companies within this sector, as well as amongst its own staff.

This training aims to tackle the national energy crisis by qualifying Energy Management Experts, and providing them with the technical skills and tools required to achieve significant savings and becoming ISO 50001 compliant through no and low cost solutions.



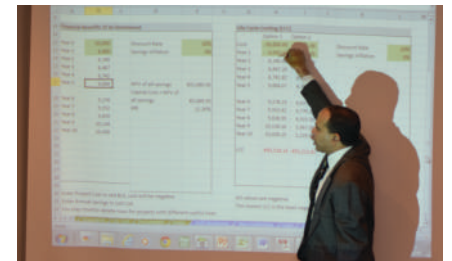
## Participating Companies and Trainees

The Peer-to-Peer Network trains a total of 30 trainees, with representatives from the following companies: E.Styrenics, ELAB, EPPC, EPC, MOPCO, ECHEM and SIDPEC, all from the petrochemical sector.

The participating companies fall under the UNIDO IEE project scope, and hope to achieve the ISO 50001 certification upon completing the training. The efficiency of SIDPEC's Peer-to-Peer Network, as stated by one of SIDPEC's Energy Management Experts, is due to the fact that "we speak the same language as the trainees. We work in the same industry. SIDPEC can invite the participants to visit and witness the energy efficiency measures we have implemented in plants very similar to theirs."

Prior to receiving their UNIDO IEE training, the SIDPEC team knew that they wanted to achieve energy savings, but had not considered the necessity of establishing an effective Energy Management System (EnMS) as a prerequisite. They have now noticed a similar shift in perception among their trainees, who, after understanding the significance of EnMS to achieve energy savings, are now active supporters of EnMS implementation and are encouraging the commitment and support of their top management.

Beginning the training in March 2015, the participating companies noticed significant energy savings and cost reductions within six months.



## Partners

The Peer-to-Peer Network owes its success to the collaboration of the following three organizations:

- **ECHEM**

The P2P network activities are sponsored by the Egyptian Petrochemicals Holding Company (ECHEM). ECHEM is responsible for ensuring participating companies management commitment and monitoring the efficiency of the network.

- **SIDPEC**

SIDPEC provides all the technical support to participating companies including training and on-site technical support for the implementation of EnMS.

- **UNIDO IEE**

The UNIDO IEE Project provides financial sponsorship as well as technical support through the provision of international expertise and technical training material.