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Steps Towards a National Strategy for Industrial Energy Efficiency

Energy Efficiency (EE) is the immediate and effective way to reduce the industrial production costs in addition to its role in the reduction of greenhouse gas emissions and improving the availability of energy supply. It has been widely demonstrated that EE improvements do not require investments and that they can be achieved through applying no-cost/low-cost measures. The Industrial Energy Efficiency (IEE) project believes that achieving significant changes in EE requires integrating EE considerations in the decision-making process within organizations.

On 29 January 2015, HE Dr. Khaled Fahmy, Minister of Environment and HE Dr. Mounir Fakhry Abdel Nour, Minister of Trade, Industry and Small and Medium Enterprises met with a team of experts working within the IEE project in Egypt to discuss the plan for the development of a national strategy and roadmap to promote Industrial Energy Efficiency in Egypt. The strategy identifies the vision, objectives and priorities, with a focus on the current situation in Egypt in terms of energy availability, usage, supply and efficiency.

The meeting displayed the high level commitment of both Ministries to support energy efficiency in the industrial sector. It also gave a good momentum for the first consultation workshop, which took place on 24 and

25 February 2015, which was attended by an experienced team representing relevant ministries, and governmental organizations. The team provided their inputs to the proposed strategy in order to ensure its effectiveness with regard to industrial EE in Egypt.

The aim of the workshop was:

- Present key insights on the current anatomy of IEE in Egypt and receive input from workshop participants
- Align on the proposed IEE vision
- Align on the strategic objectives
- Generate potential actions to achieve objectives and mitigate challenges, and finally
- Agree on policy filters and phasing criteria.



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UNIDO and ECHEM Cooperate to Start the First Peer to Peer Network

Following the participation of staff of Sidi Kerir Petrochemicals Company (SIDPEC) in the UNIDO EnMS training programme delivered within the IEE project and the success demonstrated by the company in implementing Energy Management System (EnMS) and obtaining ISO 50001 which resulted in savings up to 10% of its energy consumed using no cost measures, UNIDO and Egyptian Petrochemicals Holding Company (ECHEM) agreed to cooperate on starting the first peer to peer network within the petrochemicals sector by supporting experts trained at SIDPEC to transfer their knowledge and expertise to staff of all companies in the petrochemicals sector.

SIDPEC staff carried out the first training session to companies on March 15th 2015.

This training was attended by a total of 30 participants from 7 companies including SIDPEC.



UNIDO Transferring Knowledge: EOS Training for Cement and Iron and Steel Sectors

Iron and steel industry is considered one of the most important pillars of the Egyptian Industry, and upon which many significant plants were established and the economy was based on. Cement industry comes in the second place, following petroleum among industries that contribute to the national economy. It supports the national economy by 60 billion USD annually. Despite importance, these sectors face many problems including: high production costs and irregular supply of essential energy, which in fact re-emphasizes the importance of energy efficiency to ensure the sectors' competitiveness.

Recognizing the high opportunities for energy savings using energy management systems in these sectors, the Egyptian Organization for Standardization (EOS) in cooperation with the IEE project held the third workshop for introducing EnMS inside the industrial facilities on Thursday, 15th January at the EOS premises.



The workshop aimed at raising the awareness of decision makers, in the cement and iron and steel sectors, about the importance of applying EnMS, its requirements, benefits and energy rationalization alternatives. This workshop represents a practical example of UNIDO's approach to transfer knowledge and expertise to national experts and create local ownership.

Director General Visited UNIDO Office in Egypt

At the side of his visit to attend the Egypt Economic Conference, the UNIDO Director-General, Mr. Li Yong, visited the regional office in Egypt on the 16th March and launched UNIDO's new solar energy project on the 17th March.

During his meeting with UNIDO – Egypt staff members, he praised the efforts exerted by them and highlighted the importance of upscaling and expanding UNIDO activities in Egypt. He also stressed on the importance of focusing on UNIDO's competitive advantage being the promotion and acceleration of inclusive and sustainable industrial development (ISID) in developing countries and economies in transition.

Li yong and the Minister of Industry, Trade and Small and Medium Size Enterprises, Mounir Fakhry Abdel Nour launched a new solar energy project that will focus on developing local capacities to manufacture solar energy



products and components that are in compliance with international quality norms, with the objective of pursuing ISID. It is expected to bring in considerable investments from the private sector to support building the solar industry within Egypt, allowing it to play a leading role in the Middle East and North Africa region.

First Energy Management Experts Certified by UNIDO

After 1 year of extensive training on the implementation of EnMS, the IEE project steering committee celebrated the graduation of the first energy management experts qualified from UNIDO during their meeting on 11th March.

Throughout this extensive training, the national experts were able to do a complete energy audit on a large scale enterprise and produce an energy audit report. Now these national experts have gained the knowledge as well as technical expertise on energy management system and are certified as energy management local experts.



A System Perspective to Improve Energy Efficiency

In 2011, a study developed by the Central Research Institute of Electric Power Industry in Japan stated, “Energy efficiency will not be significantly improved simply because energy-saving equipment is installed and renewed. In-plant energy systems are complex, and the optimum operation of these systems will lead to further improvements in energy efficiency”.

Through the interaction between the IEE project with the industry managers and engineers, it has been observed that there is a wide notion to focus exclusively on the technology used when working on improving energy efficiency.

Although it is definitely important to take into consideration the technologies used, however experience has proven that extending the system boundaries and seeing the technology within the context of its overall system results in better energy performance and could sometimes save companies unnecessary investments.

It is estimated that by only focusing on individual components energy efficiency gains are typically within the range of 2-5% of initial energy consumption while when adopting a system approach these gains could reach 15-30%.

For example, globally, in industry 68 % of all electricity is used in motorized systems such as pumps, fans, compressors, and mechanical movement; of this, 42 % is used by pumps, fans, and compressors.

If we look at pumping systems, which use 14% of global industrial electricity use, the first energy efficiency measure that would come to mind is the use of variable speed drives (VSDs).

This focus on VSDs neglects the rest of the system component and hence companies might miss significant opportunities to improve their energy performance. With a pumping system, we must understand all the different components that are connected to and interact with a pump. This includes components like controls and drivers for the pump as well as all the piping and other

components like valves and heat exchangers that the fluid passes through. In addition, analyzing and reviewing the process demand and pump installation are crucial in achieving the best energy performance possible. For example, one company realized a 10 fold increase in reliability by instituting new installation specifications relating to Base-plate, piping, and grouting.

Finally, to ensure that the desired energy efficiency levels are achieved, any system should be monitored closely in a systematic way to ensure continual improvements.

This is the rationale behind UNIDO’s approach of combining energy management (EnMS) and system optimization to achieve the highest energy efficiency levels. This has proven to result in not only energy being saved, but at the same time, the reliability and control of the system are enhanced, while maintenance costs decline.

With all of these benefits, one would expect system optimization and EnMS to be standard operating procedure for most industrial facilities. However, most industrial managers are unaware of both the existing inefficiency of these systems or the benefits that could be derived from optimizing them for efficient operation.



EZDK – First Iron and Steel Company ISO 50001 Certified

Al Ezz Dekheila Steel Company (EZDK) is one of the world leading iron and steel manufacturers and they are located in El Dekheila in Alexandria. With UNIDO IEE's support, EZDK is the first iron and steel company in Egypt to become ISO 50001 certified. This achievement is attained through strong partnership with IEE project in Egypt, financed by the GEF and implemented by the UNIDO in cooperation with Ministry of Environment, the Ministry of Industry, Trade Small and Medium Enterprises and the Federation of Egyptian Industries.

EZDK has reviewed and analyzed its energy consumption and production data from 2011 to 2014, which allowed to identify the key areas for improving their energy performance. EZDK has worked with an approach of not to overlook any saving opportunity neither big nor small. Based on this approach, the company has identified twenty-seven energy saving opportunities varying from no investment to high investment costs. An action plan was developed for the implementation of these opportunities over a period of three years and today some of them have already been implemented.

Through a systematic energy performance monitoring mechanism compliant with ISO 50001, EZDK was able to measure the impact of these interventions and make sure they have achieved the desired estimated savings. The company has worked on reducing consumption of both electricity and natural gas, which have resulted in

very significant savings that have improved the company's competitiveness as well as reduced its negative environmental impact.

The close cooperation between UNIDO IEE project and EZDK team that was demonstrated in EZDK's staff attending UNIDO EnMS User and Expert trainings as well as cooperation on site between EZDK staff and UNIDO consultants' has proven that it is possible to have a very smooth and fast implementation of a structured energy management system compliant with ISO 50001. EZDK and UNIDO were able to collect, analyze and document all the EnMS data and implementing energy saving measure in a period less than a year from the beginning until certification. This was only possible due to EZDK top management's commitment to improving the company's energy performance and reducing hence carbon footprint.

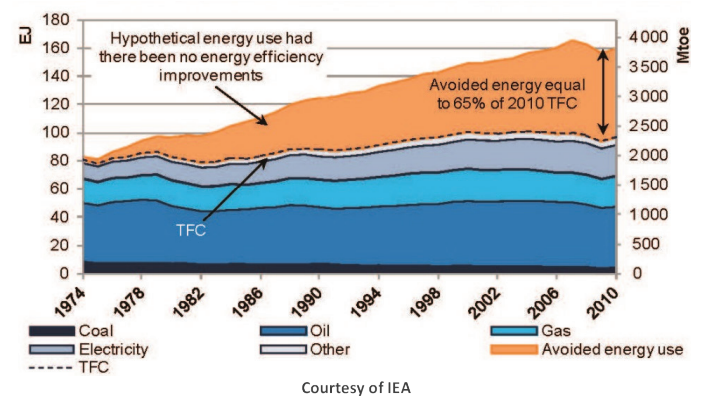


IEA: Energy Efficiency Strengthening its Position

The international Energy Agency (IEA) has recently published its annual Energy Efficiency Market Report for 2014. The report estimates that investment in energy efficiency markets worldwide in 2012 was between USD 310 billion and USD 360 billion. Investment in energy efficiency was larger than supply-side investment in renewable electricity or in coal, oil and gas electricity generation, and around half the size of upstream oil and gas investment.

The report is confirming the place of energy efficiency since their previous report in 2013 as becoming the "first fuel" rather than the most common view as a "hidden fuel". This was clearly demonstrated by the amount of savings from energy efficiency improvements development within the last four decades that is estimated to be 63 exajoules (EJ) (1.52 billion tonnes of oil-equivalent) in the 11 IEA members only. This amount

This amount was larger than the consumption of oil (43 EJ), electricity or natural gas (22 EJ each) in these countries in 2010 alone.



The report highlighted that energy efficiency has moved from being a niche to an established financial market segment. As a result, energy efficiency is becoming everyday an established target sector for financial institutions in several regions and countries such as in the United Kingdom, Malaysia, South Africa, Australia, Japan, the United Arab Emirates and the United States. The report also concludes that Energy efficiency markets are expected to grow worldwide as energy efficiency is strengthening its position as a fuel option for countries in their efforts to balance supply and demand in support of growth, energy security and environmental objectives.

Benchmarking Reports Published

The IEE project has completed the development of the Benchmarking reports for 3 sectors; Cement, Iron and Steel and Fertilizers with the main purpose to deliver energy efficiency in industry and contributing to international competitiveness.

You can download the reports from IEE website: ieegypt.org