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Minister of Environment Launched “Kafa’a”, the First Industrial Energy Efficiency Campaign in Egypt

HE Dr. Khaled Fahmy, Minister of Environment Launched “Kafa’a” campaign; the first campaign in Egypt for raising awareness about the importance of Energy Efficiency (EE) and energy management systems in the industrial sector. This campaign was launched in partnership with EEAA, UNIDO, Federation of Egyptian Industries and the Ministry of Trade, Industry and SMEs represented by Industrial Development Authority (IDA), Industrial Modernization Center and the Egyptian Organization for Standardization and Quality. Launching Kafa’a took place on the 5th May, at the Cairo House.

HE Dr. Khaled Fahmy stated that “Kafa’a” Campaign is aiming at promoting the concepts of improving EE in the industrial sector and raising the awareness about the benefits of implementing Energy Management System (EnMS) in the industrial facilities.

Dr. Fahmy highlighted that the industrial sector is the driving force for economy and development in Egypt, as it provides job opportunities for more than 1.8 million workers, and contributes to the GDP by more than 37%. However, the industrial sector is the largest energy consumer; it consumes around 43% of the total energy consumption. Dr. Fahmy mentioned that the final consumption rate for each production unit exceeds the global average by 10% to 50%. Consequently, there is

is huge potential for improving the EE in the industrial sector which in turn could contribute to solving the current energy crisis the country is facing resulted from the lack of energy supplies. Dr. Khaled encouraged the industrial sector to register in Kafa’a campaign in order to increase their competitiveness and reduce emissions.

Engineer Ismail Gaber, Director of IDA stated that an information unit for “Kafa’a” campaign was established to promote EE and raise the awareness on the importance of implementing EnMS in the industrial facilities. He emphasized that implementing EnMS will reduce the unit cost of products and thus will increase competitiveness. He also highlighted that implementing EnMS does not require huge investments as it focuses more on No/Low cost energy saving opportunities.



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Towards a National Strategy for Energy Efficiency

The IEE project implemented by UNIDO is currently progressing towards the development of a national strategy for Industrial Energy Efficiency (IEE) in order to accelerate EE efforts in the industrial sector in Egypt. The IEE project has finalized the “Baseline assessment report” and “International best practices report”, followed by 2 think tanks meetings with representatives from government, private sector and academic staff to work on the formulation of the IEE policy. Then the project held a meeting with HE Dr. Khaled Fahmy, Minister of Environment and HE Dr. Mounir Fakhry Abdel Nour, Minister of Trade, Industry and SMEs and a team of IEE project experts to discuss the development of a national Industrial Energy Efficiency strategy followed by 2 consultation workshops to align on strategic objectives, generate potential actions to achieve objectives and mitigate challenges and agree on required policies.

On the 28th March, the IEE project held a meeting with representatives from government and industry to discuss the derivation of potential policies. This meeting took place at the Ministry of Trade, Industry and Small and Medium Enterprises and aimed at discussing the

policies pertaining to the agreed strategic objectives. The meeting is a prelude to the second workshop that will finalize the policies and their implementation plans.

Key points raised during the meeting:

- Phasing of targeted industries within each policy was welcomed to avoid imbalances and bottlenecks.
- Policies should not overburden the industry with bureaucratic procedures.
- EE measures should be mandated and not be left as a voluntary action
- Implementing EMS garnered support from participants who recommended mandating ISO 50001



Energy savings: Case studies from Ezz and Sidpec companies

Under a pressuring energy situation in Egypt with rising energy costs and insecurity of supply, it was clear to Sidi Kerir Petrochemicals (Sidpec) and Al Ezz Dekheila Steel Company (EZDK) companies' top management that a serious commitment to improving their energy performance to reduce their overall costs is the way out. Thus, concrete steps have been taken to adopt an EnMS that is compliant with ISO 50001. In order to introduce a structured approach to energy management in their operations, Sidpec and EZDK companies have joined hands with the IEE project. The project has supported Sidpec and EZDK in the implementation of an Energy Management System (EnMS) compliant with ISO 50001 aiming to improve the company's Energy Efficiency (EE) performance and reduce their environmental impact.

With UNIDO's support, Sidpec and EZDK staff were engaged in a process to implement an EnMS compliant

with ISO 50001 starting with securing management commitment till third party auditing and certification. The implementation of the EnMS has proven to be both easy and cost effective giving a strong management commitment and the availability of adequate resources.

EZDK Company was able to save about 815,000 MWh equivalent to about 128 Million EGP with a total investment of about 43 Million EGP While Sidpec saved 39,100 MWh equivalent to 7.7 million EGP with a total investment of 180,000 EGP. This clearly highlights UNIDO's mandate which ensure inclusive and sustainable industrial development and support industries in developing and emerging economies in promoting cost efficiencies and competitiveness in industry.

You can view and download EZDK and Sidpec case studies from the IEE Egypt website: www.ieegypt.org

Inclusive and sustainable industrial development: Investing in Egypt's future

The UNIDO Regional Office in Cairo held an event “Inclusive and sustainable industrial development: Investing in Egypt's future” with the aim to present the Industrial Development Report (IDR) 2013 as well as UNIDO's activities in the country.

UNIDO stakeholders in Egypt were invited to participate, among participants are the Ministry of Trade, Industry and SMEs, Ministry of Environment and the Ministry of Local Development, in addition to representatives from international agencies, private sector and civil society.

The presentation of the IDR was also an occasion for representatives from the Egyptian public and private sector, together with development specialists and

beneficiaries of UNIDO interventions in the country, to discuss the present challenges and future opportunities of the industrial sector in Egypt. An exhibition was organized to showcase UNIDO projects and the strategic partnership with the Government of Egypt. It also featured products originating from field work.



Honoring Sidpec in Vienna energy forum

Energy Management Systems (EnMS) have emerged over the last two decades as proven best practice methodology to ensure sustainable Energy Efficiency (EE) and to continually improving performance in the industry. The UNIDO Industrial Energy Efficiency (IEE) Programme supports enterprises in developing and emerging economies in the implementation of EnMS, thereby helping them improve their energy performance, productivity and environmental sustainability. The breadth and scope of the programme has expanded significantly since its inception, resulting in significant reductions in greenhouse gases and a stronger market for energy efficiency technologies and services. The Sustainable Energy For All (SE4ALL) target is doubling the rate of improvement in energy efficiency by 2030.



The Vienna Energy Forum 2015 provides an ideal opportunity to raise awareness and promote the further implementation of the EnMS programme by presenting examples of best practices that may encourage new adopters at the forum, while strengthening ties with existing partners.

Sidi Kerir Petrochemicals Company (Sidpec) is one of the Egyptian Industrial companies working in collaboration with the UNIDO-IEE project and experienced multiple benefits beyond pure energy cost savings, including increased productivity and competitiveness, reduced exposure to volatile energy prices and greater reliability of operations.

Sidpec was honored by UNIDO at the Vienna Energy Forum 2015 that took place in Austria as one of the best practitioners of EnMS that significantly saved energy. High level Egyptian delegation from the Ministry of Environment, Ministry of Trade, Industry, and SMES, Ministry of petroleum and Ministry of Electricity attended this celebration which highlight the significance of energy management and energy efficiency as a key driver for inclusive and sustainable industrial development and a substantial opportunity area to support the achievement of the SE4ALL goal on energy efficiency, and contribute to climate change mitigation.

Spotlight on Compressed Air Systems

The IEE Project was successful during the past year in supporting several industrial enterprises in the implementation of Energy Management System (EnMS). A core step in the implementation of an EnMS is the identification of significant energy users (SEUs) which are defined as the “energy uses accounting for substantial energy consumption and/or offering considerable potential for energy performance improvement”.

Compressed Air Systems (CAS) is a cross cutting technology which exist in all industries. Hence, this process should be paid more attention as its energy performance always has great potential for improvement. The data analysis of a random sample of energy-intensive industries shows that CAS have accounted for ~5% of the total energy consumed by all SEUs. Other international statistics estimate this figure as high as 10% of total industrial electricity consumption.

Air compression is around 10% efficient, with about 90% of the energy used by the compressor is being converted into heat. This means that any losses in compressed air systems are considerable and very expensive. In the EU, where energy prices are generally unsubsidized, over a 10-year period cost analysis for CAS, energy costs are 73% of the system lifetime cost.

However, it is widely accepted that many measures to reduce energy consumption require little /no investment, and whilst other actions to improve efficiency do require some investment. In both cases, the investment is usually quickly recouped through energy savings. Due to compressed air being a flexible utility that can be used for numerous applications and duties, in some cases,

UNIDO experts have noted that compressed air is used as a matter of convenience in applications where other, less energy intensive alternatives, are more suitable.

| Inappropriate Use | Alternative |
|---|--------------------------------|
| Ventilation | Fans, blowers |
| Liquid agitation | Mechanical stirrers or blowers |
| Cleaning work areas, floors and personnel | Brushes, vacuum cleaners |
| Rejecting products of a process line | Mechanical arms |
| Transporting powder at low pressure | Blowers |

In one case, a ceramics manufacturer working with the project has avoided the need of expanding its CAS and buying a new compressor by increasing the workers awareness on the appropriate uses of CAS. This has saved the cost of buying a new compressor and long-term operation and maintenance costs.

Project experts also noted that, in most cases, CAS have leaks. when leaks are unmanaged, leakages can be as much as 40-50% of the compressor's output. In addition to wasting energy, compressed air leaks can also reduce process efficiency through fluctuations in system pressure, and cause compressor reliability problems due to the increased loading and cycling. Companies that have adopted EnMS, compressed air leaks are being minimized through systematic and regular checks.

Finally, pressure control and optimizing the compressed air pressure to the lowest set point possible without compromising the operation of the different processes has been identified as one of the major opportunities.

For the First Time in Egypt: Benchmarking 3 Energy Intensive Industries

On the 21st May, the IEE project held a workshop in close cooperation with the Industrial Development Authority (IDA) to share the results of one of the project's main activities; providing a broad picture on Energy Efficiency (EE) by benchmarking the energy consumption and usage of three of the most energy intensive industries: Fertilizer, Cement and Iron and Steel.

Careful planning was carried out by IEE; tailoring the UNIDO benchmarking methodology to the Egyptian context. The data collection process was carried out in cooperation with the IDA, which provided UNIDO experts with the national statistics. Then UNIDO experts worked on statistics regarding energy consumption, production levels and practices used for 3 consecutive years from participating plants. These plants were closely involved in the verification of the data to ensure the homogeneity and accuracy of the results. For the first time, there are now reliable and verifiable figures regarding energy consumption in Egypt that can be used in decision and policy making.

These benchmarking reports highlighted each sector's energy saving potentials. From the three benchmarking reports, the cement sector records the highest potential for energy savings, it can save up to 52 PJ/a while the fertilizer sector comes in the second place saving up to 36.5 PJ/a and finally the iron and steel sector can save up to 11 PJ/a. These savings are based on the scenario where each sector reaches the Best Available Technology (BAT) performance levels by the year 2050.

| Sector | Number of plants analyzed | Total sector energy saving potential (Pj/a) |
|----------------|---------------------------|---|
| Cement | 11 | 52 |
| Fertilizers | 5 | 35.5 |
| Iron and Steel | 8 | 11 |

Benchmarking is not limited to data collection and analysis, but includes the development of benchmarking curves and presents future scenarios, which forecast the potential energy requirements and consumption of these sectors based on EE measures adopted. These forecasts are critical for future policy making and for the formulation of technical support programs, thus setting a foundation for putting industries in the direction of EE.



The industrial sector in Egypt currently consumes about 45% of the national energy consumption. In confronting the energy crisis and climate change, the optimal and efficient use of energy resources is one of the most important areas that requires policy-making by the state and is indeed prioritized in Egypt's 2030 Sustainable Development Strategy. Priorities are not about increasing the production of energy sources or diversifying energy sources, but are about using energy better; using it in the optimal way. Through efficiency measures, energy intensive industries can save up to 20% of their energy consumption, making it the cheapest energy resource, as there are lots of strategies that can be implemented that do not require big investments.

The benchmarking study is expected to support decision makers when adopting new policies regarding industrial EE, contribute to international competitiveness and play a critical role in the development of sectors road maps towards an improved EE of these three sectors. Only through the combined efforts of policies, decision makers and factory owners can shift Egypt's energy from critical to efficient.

You can download the three benchmarking reports from the IEE Egypt website: www.ieegypt.org



National Awareness Campaign for Promoting Industrial Energy Efficiency in Egypt

Facilitating energy efficiency improvements in the industrial sector through supporting the development and implementation of a national energy management standard and energy efficiency services for Egyptian industries.



Improve Competitiveness



Reduce Energy Consumption at No Cost



Decrease Production Costs



Register

to be one of the 30 most energy efficient factories in Egypt

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