



## **Energy Efficiency: A strategy for sustainable economy and greener future**

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# Future Energy Development as per the International Agenda

**Two major international agreements reached in 2015 will be guiding the future energy development patterns in all sectors, including industry.**



The United Nations General Assembly in September 2015, global leaders adopted 17 Sustainable Development Goals to mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change by 2030.



*Goal 7 is specifically about providing clean and affordable energy to all and energy services will be important for the achievement of all goals.*

COP21 established the Paris Agreement to address the urgent challenge of global climate change. A total of 160 (INDC), presenting concrete plans and targets for climate change mitigation and adaptation actions by 2030.



*Energy Efficiency is one of the key mitigation options included in plans of many countries.*



# ENERGY



## Conservation

Energy conservation is an effective way to lower overall energy consumption.



**BEHAVIOR**

## Efficiency

Energy efficiency is an effective way to lower overall energy consumption, but keeping the same level of service.



**BEHAVIOR + SCIENCE & TECH**



**POWER  
SUPPLY**



**AWARENESS**



Irrational use

**LAW**



Energy theft

Obsolete Equipments



**REPLACEMENT**

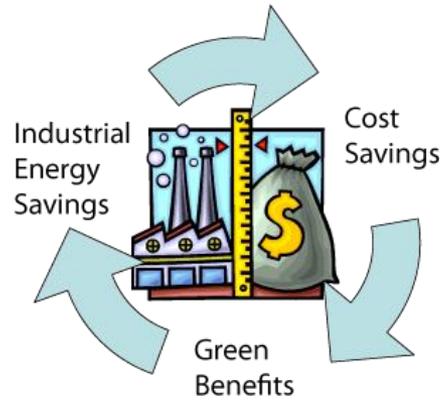
Lack of system Optimization



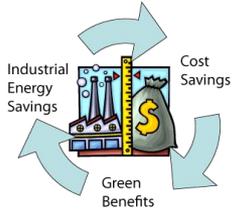
**ENMS**

**DEMAND**





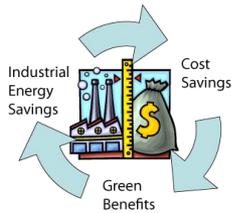
## **Energy Efficiency in Industry as an example**



## Why Industrial Sector?



**Globally** the industrial sector is responsible for around one-quarter of total energy consumption, and in many countries it is concentrated in a small number of industrial facilities, making it relatively easy to identify the big energy consuming enterprises.



## The Egyptian Context



According to the Central Bank of Egypt, industry share of total GDP accounted for more than 37% in 2012. Meanwhile, total number of public and private industrial establishment account for more than 29 thousand with more than 1.8 million workers.

The Egyptian industry is responsible for approx. 43% of national final energy consumption, and 33% of national electricity consumption (IEA, 2013). Overall industry related emissions account for 29% of the total emissions in 2005 and expected to increase their relative share to ~36% by 2030 (McKinsey 2010)

The final energy consumption per unit of output (i.e. specific energy consumption) in the most important industries of Egypt is 10 to 50% higher than the international average (Salmawy, 2010). In other words, the Egyptian industry could have produced the same output with almost 20% less energy.

***There is a huge potential of energy efficiency gains reaching up to 25% of Total Primary Energy Supply***



Improving Energy Efficiency in the industry and other sectors is the most effective measures, low cost and fast payback to achieve a balance between increased energy demand , growing supply shortages, economic growth and environmental degradation resulting from it. more over it has been one of the easiest way to hit target of INDCs.



# Case Study



# IEE Partners





## Goals

Address some of the key barriers to industrial energy efficiency, to deliver measurable results and to make an impact on how Egyptian industries manage energy through an integrated approach that combines capacity building and technical assistance interventions at the policy and energy efficiency project level

Reduce greenhouse gas emissions by establishing a policy environment that enables and supports sustainable adoption of energy efficient technologies and management as an integral part of industries' business practices; an environment in which a cadre of well-trained and equipped experts in system optimization and energy management assists industries in developing and implementing energy efficiency improvement projects.



**Energy Management Systems  
EnMS**



**GHG Reduction**

**2.91** Mt CO<sub>2</sub>e/10years



**Energy Saving**

**1277** GWh

## Project Components

National program to define energy benchmarks and Energy Efficiency policy

Awareness raising on industrial EE

Technical capacity building on EE services

Access to finance for EE improvement projects

Implementation of energy management systems and system optimization

## Project Outcomes

*Supportive policy instruments (EnMS) for delivering EE in industry and contribute to international competitiveness*

*Widespread awareness on EE and Energy Management*

*A cadre is available of specialized / certified energy management and system optimization experts*

*Increased access to financial assistance for implementing EE projects*

*State of the art energy management practices and EE measures are demonstrated*

OVERVIEW OF IMPLEMENTATION FOR THE THREE CYCLES	
Number of Companies*	31
Number of Technical Site Visits Performed*	215
Number of ISO-certified companies*	2
Number of Companies planning for Certification***	8
Number of National Experts*	45
Planned Energy Savings (GWh)**	2022.7
Planned GHG Reduction (MtCO <sub>2</sub> eq in 10 years)	4,13
Achieved Savings (GWh)	965.7
Achieved GHG Reduction (MtCO <sub>2</sub> eq in 10 years)	2.44
Project Energy Saving Target (GWh)	1,277
Project GHG Reduction Target (MtCO <sub>2</sub> eq in 10 years)	2.91
Planned Energy Savings/Total Project Target	158%
Planned GHG Reduction/Total Project Target	141%
Achieved Energy Savings/Total Project Target	75%
Achieved GHG Reduction/Total Project Target	84%



The IEE project finalized the development of an IEE policy report. A framework represented by a “Value Chain” serves as a narrative to aid in assessing the process of creating an Industrial Energy Efficiency policy set. Six segments represent the conceptual value chain; *Input, Vision, Strategy, Policy, Implementation, and Monitoring.*

### *IEE Proposed Vision*

**“The Egyptian industry continuously achieves the optimum energy efficiency level economically viable for the Egyptian society”**



The results achieved by the project to improve energy efficiency in the industrial sector has shown that it is possible to achieve a manifest reduction in greenhouse gas emissions without the need for huge investments that provide technical support by experts in each area under a specialized unit has a technical and management required for efficient management



By similarity , it is possible to identify similar future activities aimed at different sectors of the energy used for various industrial or other sectors such as roads lighting and government buildings, etc



It is worth noting that these results are consistent with the global trend , which is to rationalize consumption through conscious administration along with fostering rational policy is the first step towards reducing energy consumptions precedes modification technologies used or any other steps .



## CONCLUSION

**Energy conservation and efficient newer technologies are what Egypt direly need today. With technology and human resources in place, it's high time to meet the demands of changing market needs and help shape the future responsibly.**

**Thank you**