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وزارة البيئة  
جهاز شئون البيئة



# INDUSTRIAL ENERGY EFFICIENCY PROJECT



## Integration of Energy Efficiency into Chemical Sector Strategy

August 2017





# **Executive Summary**

## ***Introduction***

The Ministry of Trade and Industry has developed and launched the Ministry's strategy for 2020 in November 2016. Concurrently, an Industrial Energy Efficiency Strategy and Policy (IEESP) Report was developed by the United Nations Industrial Development Organization within the scope of the Industrial Energy Efficiency Project in Egypt (IEE Strategy), funded by the Global Environmental Facility (GEF) and implemented by UNIDO in cooperation with the Egyptian Environmental Affairs Agency (EEAA), the Ministry of Industry and Foreign Trade of Egypt (MIFT) and the Federation of Egyptian Industries (FEI). Following the formulation of the IEE policy recommendations in 2015, the Ministry of Trade and Industry requested UNIDO to provide technical inputs to integrate the IEE policy recommendations into the sectoral strategies under development under a broader stream of resource efficiency.

The objective of this report is to integrate industrial energy efficiency (IEE) policy into the sectoral policy strategies of the sector of Chemicals that the Egyptian Ministry of Trade and Industry intends to develop.

## ***Support to National Governmental Goals and Strategies***

The Chemicals Sector strategy was directly linked to the main goals of MIFT 2020 Strategy and the FEI Chemical Chamber Strategy as well as those of the MSMEs and Entrepreneurship National Strategy (2017-2022). As this energy efficiency sector strategy is part of the overall strategy of the Ministry of Industry targeting year 2020, it will work on the short term five year plan which starts with the large and medium energy intensive industries to capitalize the low hanging fruits followed by the small and micro scale industries.

Energy efficiency will contribute to the first MIFT goal which is increase in the annual industrial growth rate to 8%. It will also reduce costs and consequently increase value added of industrial products, hence contribute to Gross Domestic Product from 18% to 21% which is the second goal of MIFT. As for the goal of increasing the growth rate of exports to 10% annually, energy efficiency will enhance production, lower production cost and carbon footprint which increases competitiveness. Moreover, opening a new job market in energy management will contribute to the goal of providing 3 million decent and productive job opportunities.

Incorporation of energy efficiency within the scope of the Chemical Chamber vision, will increase competitiveness in terms of cost reduction, and compliance with emerging international standards related to carbon emissions.

## ***Application of Egypt's IEE Strategies and Policies on Chemicals Sector***

As highlighted in the IEE Strategy Report, the Egyptian industry is highly polarized in terms of size and energy-intensity. The industries were classified as large or small industries according to the number of employees as follows; "large" having more than 100 registered employees and "small" having limited number of employees of less than 50 registered staff. As for energy intensity; energy intensive industries are the ones where energy represents a

significant part of their cost structure approximately more than 10% as opposed to non-energy intensive industries where the cost of energy is minor.

The sub-sector industries are also characterized according to their ownership whether private, state owned and whether they target the local market or whether they export.

The UNIDO IEE Strategies and Policy Report have proposed thirteen policies that can be classified under three key strategic objectives mainly; ensuring responsive supply, drive industrial sector demand to industrial energy efficiency and enabling government institutions to plan, regulate and monitor IEE ecosystem.

Eight of the thirteen policies are a **general set of policies** that should be adopted by the MIFT as they are cross cutting all sectors. These are:

- Establish system for grid-connected combined heat and power (CHP)
- Phasing out selected equipment
- Ensure Quality of Energy Management System Consulting Services through certification
- Link Qualified consulting Services to rising demand on Energy efficiency technologies
- Minimum Energy Performance Standards (MEPS)
- Create an awareness mechanism that leverages integrated information related to IEE
- Mandatory reporting for registered facilities as a condition to renew their license
- Ensure proper & effective governance mechanism of all related IEE policies and procedures
- Capitalize on FEI fund to subsidize Industrial Energy Efficiency Projects
- Augment cooperatives fund to finance IEE projects

Some of these policies have already been initiated by the Ministry of Industry either through the UNIDO IEE Project including training and certification of EE consultants and consulting firms and provision of training on some energy consuming such as motors and compressors or through the ENCPC through issuance of energy performance standards for motors. The new law of electricity will also encourage the policy on establishing a system for grid connected CHPs. These initiatives have to be more formalized in action plans along with the other above mentioned general policies. Moreover, MIFT has already established a policy unit to specifically handle industrial energy efficiency.

There are other policies that should be implemented on the **large energy intensive industries of the Chemicals sector** to achieve the Ministry's short term goals. These are:

- Include EMS in export requirements
- Include EMS as condition for state procurement
- Ensuring efficient energy performance of new facilities, operations and processes

As for the **small energy and non-energy intensive industries of the chemicals sector**, it is recommended to implement the following policies.

- Reach out to SMEs through intermediaries

#### **Relation to MSMEs Strategy**

In November 2016, MTI has launched a National Strategy to “Enhance Industrial Development and Exports” that laid the Ministry's plans for developing the industrial sector (five sectors were prioritized). Within the same document one pillar focused on developing MSMEs and linking the goals with the different prioritized sectors.

The pillars of the MSMEs Strategy were related to Policies 5, 10 and 11 of the IEE Strategy through raising the awareness of industries to the funds offered by the Central Bank of Egypt to support EE initiatives and provision of soft loans, supporting organizations that should encourage sustainable business performance and assist MSMEs in being recognized for that and by providing a link in the proposed web portal to the IEE platform to offer support to industrial startups, and including in the BDS database the service providers concerned with IEE knowledge and technology transfer that are relevant to SMEs.

***Relation to the MIFT Innovation Strategy***

Policies 5 and 10 of the IEE Strategy were also related to the main pillars of the Industrial Innovation Strategy was developed under the leadership of MIFT.

***Relation to TVET Strategy***

The MIFT Vocational Education and Training Strategy specifies that the productivity and vocational training department conducts training for more than 80,000 workers in upper and middle management, supervisors and foremen in industrial facilities. Training is currently being carried out in the fields of Industrial and production engineering, management systems and economic, technical and financial affairs. Therefore, training in EMS has to be introduced along with the other management systems.

## **Acknowledgement**

This report is one of a series of reports focusing on strategy of integration of energy efficiency into different industrial sectors in Egypt. The reports were developed by the United Nations Industrial Development Organization within the scope of the Industrial Energy Efficiency Project in Egypt (IEE). The project is funded by the Global Environmental Facility (GEF) and implemented by UNIDO in cooperation with the Egyptian Environmental Affairs Agency (EEAA), the Ministry of Industry and Foreign Trade of Egypt (MoIFT) and the Federation of Egyptian Industries (FEI).

The report was developed under the overall responsibility and guidance of Rana Ghoneim and the coordination of Gihan Bayoumi. The Integration of Energy Efficiency into Chemical Sector Strategy Report was authored by Environics.

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**List of Acronyms and Abbreviations**

BDS	Business Development Services
CAPMAS	Central Agency for Public Mobilization and Statistics
CBE	Central Bank of Egypt
EE	Energy Efficiency
EEAA	Egyptian Environmental Affairs Agency
EMDS	Electrical Motor Driven Systems
EMS	Energy Management System
ENCPC	Egypt National Cleaner Production Centre
EOS	Egyptian Organization for Standardization and Quality
ERA	Electricity Regulatory Agency
EU	European Union
FEI	Federation of Egyptian Industries
GEF	Global Environmental Facility
GoE	Government of Egypt
IDA	Industrial Development Agency
IEE	Industrial Energy Efficiency
IEESP	Industrial Energy Efficiency Strategy and Policy
ITC	Industrial Training Center
MEPS	Minimum Energy Performance Standards
MoF	Ministry of Finance
MIFT	Ministry of Industry and Foreign Trade
MSMEs	Micro, Small and Medium-sized Enterprises
NQI	National Quality Institute
SMEs	Small and medium enterprises
TDMEP	Trade and Domestic Market Enhancement
UNIDO	United Nations Industrial Development Organization



## **1. Introduction**

### **1.1 Background**

The Ministry of Trade and Industry has developed and launched the Ministry's strategy for 2020 in November 2016. Concurrently, an Industrial Energy Efficiency Strategy and Policy (IEESP) Report was developed by the United Nations Industrial Development Organization within the scope of the Industrial Energy Efficiency Project in Egypt (IEE Strategy), funded by the Global Environmental Facility (GEF) and implemented by UNIDO in cooperation with the Egyptian Environmental Affairs Agency (EEAA), the Ministry of Industry and Foreign Trade of Egypt (MIFT) and the Federation of Egyptian Industries (FEI).

The Ministry of Trade and Industry initiated the development of strategies for five sectors selected by the Ministry namely; Automotive, Chemical, Construction and building materials, Engineering feeding industries and Ready-made garments and textiles. The development of the sectors strategies is led by the EU programme for Trade and Domestic Market Enhancement (TDMEP) which is coordinating among various donors and stakeholders.

Following the formulation of the IEE policy recommendations in 2015, the Ministry of Trade and Industry requested UNIDO to provide technical inputs to integrate the IEE policy recommendations into the sectoral strategies under development under a broader stream of resource efficiency.

### **1.2 Objective of the Report**

The objective of this report is to integrate industrial energy efficiency (IEE) policy into the sectoral policy strategies of the sector of Chemicals that the Egyptian Ministry of Trade and Industry has developed.

### **1.3 Methodology**

The Chemicals sector strategy relied on the approach, findings and recommendations previously developed in the IEE strategy, taking into account the constraints and opportunities based on which it has been developed. The IEE strategy was tailored to the chemicals sector based on:

- Review of relevant documents
- Specifying applicability to specific sector of criteria in the IEE strategy; including dominant size of firms in the sector, energy intensity, export orientation, etc...
- Attending sector strategy meetings, and discussing relevant elements with the members of the committee.

The Chemicals sector strategy was also directly linked to the main goals of the Ministry of Industry and Foreign Trade of Egypt (MIFT) 2020 Strategy and

the FEI Chemicals Chamber Vision as well as those of the MSMEs and Entrepreneurship National Strategy (2017-2022).

As this energy efficiency sector strategy is part of the overall strategy of the Ministry of Industry targeting year 2020, it will work on the short term five year plan.

## 2. Chemicals Sector Profile

The chemical sector relies on raw material produced by the petrochemical industries as shown in figure 1.

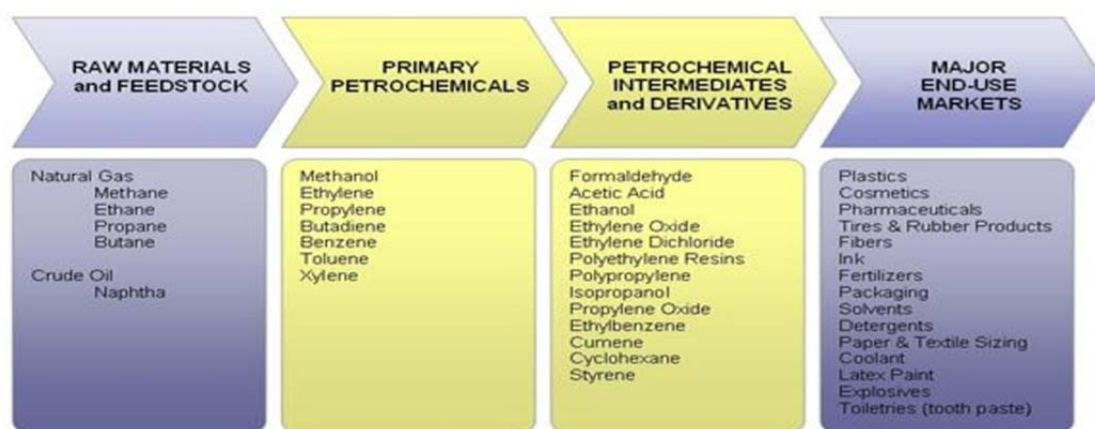


Figure 1: Petrochemical Value Chain (IMC, 2008)

The Ministry of Petroleum is responsible for the industries in the categories of “Raw Materials and Feedstock” as well as “Primary Petrochemicals”. As for the industries classified as “Petrochemical Intermediates and Derivates” and “Major End-Use “ some are also under the Ministry of Petroleum while the majority are the responsibility of the Ministry of Industry.

As this strategy is addressed to the Ministry of Industry then only those industries under the responsibility of MIFT are the focus of this study and the implementation of the energy efficiency policies.

### 2.1 Fertilizers

In Egypt, the main end products produced in the fertilizer sector are:

- Urea
- Ammonium Nitrate (AN)
- Calcium Ammonium Nitrate (CAN)
- Ammonia and Nitrogen solutions (UAN)

For the nitrogen line, ammonia is the main active ingredients of artificial fertilizers (90 % of all fertilizers are derived from ammonia). The production of ammonia is also the most energy-intensive production process. The Haber-Bosch process is used for the production of ammonia as a result of the reaction from nitrogen gas and hydrogen gas. Under high temperatures (300–550 °C) and very high pressures (150–300 bar), hydrogen and nitrogen (from thin air) are combined to produce ammonia. This is an energy intensive process (UNIDO Benchmarking Report for Fertilizers, 2014).

According to UNIDO Benchmarking Report for Fertilizers (2014), the nitrogen (azotic) fertilizer sector includes nine companies; five are privately owned and the rest are public ownership. These large companies are:

- Abu Qir Fertilizer & Chemical Industries Co. (3 plants)
- Egypt Basic Industries
- Alexandria Fertilizer Co. (Alexfert)
- Egyptian Chemical Industries KIMA ASWAN
- El Delta Company for Fertilizers and Chemical
- El Nasr Fertilizers and Chemicals Co. (SEMADCO)
- Egyptian Fertilizers Co.
- Helwan Fertilizer Co.
- Misr Fertilizer Production Co. S.A. (MOPCO)

According to IDA, the sector is designed to produce 4,071,914 Mt/year of ammonia and a total of about 9,000,000 Mt/year of different products. The export is dominated by the private sector fertilizer producers. Exports of fertilizers for 2017 are about \$227 million (TDMEP MIFT, 2017).

The national best available technology (BAT) specific total energy consumption is 26.7 GJ/t ammonia as compared to the international BAT value which corresponds to a specific total energy consumption of 23.8 GJ/t ammonia (UNIDO Benchmarking Report for Fertilizers, 2014).

The government price caps on fertilizers (for the agricultural support initiatives), have resulted in it being less profitable and less attractive to manufacturers. Hence, increasingly, public and private sector manufacturers have been stopping at an earlier phase of the value chain and manufacturing the more lucrative intermediate products for export. (TDMEP MIFT, 2017).

Opportunities for SMEs exist in this sector, they are mainly downstream of the industry (a finding that holds for most of the chemical subsectors) towards the manufacturing of nitro phosphates or mono ammonium phosphates. Both can be manufactured at small scales to cater for regional requirements (TDMEP MIFT, 2017).

## **2.2 Petrochemicals, Plastics and Rubber**

Egypt's petrochemical industry has been growing rapidly in the past 15 years. The Egyptian Petrochemicals Holding Company (ECHEM) of the Ministry of Petroleum is responsible for management and development of those companies. According to ECHEM annual report (2014), the petrochemical companies currently operating in Egypt produce polyvinyl chloride (PVC), ethylene, polyethylene, linear alkyl benzene, liquefied caustic soda, propylene and polypropylene, styrene and polystyrene, polyester as well as methanol. These plants provide the raw material for the other chemical industries including plastics, paints and detergents.

According to the Egyptian Plastic Exporters and Manufacturers Association<sup>1</sup>, the plastics industry in Egypt is growing and modernizing steadily. Scope of production includes raw materials, home appliances, plastic bags, packages, pipes, fiberglass products, bottles, automotive accessories, and others. As the Government of Egypt is focusing on exporting, 75% of local production is meant for exports, while only the remaining 25% is used locally. The 1276 factories are large and medium facilities employing about 415,000 employees.

## **2.3 Paints, inks and resins**

There are a number of large manufactures of paints, polymers, adhesives, dyes and inks in Egypt including companies such as ASIIG, KAPCI, PACHIN and Allied Company for Chemicals and Adhesives. There are also a number of small industries mainly involved in paint and chemical blending rather than manufacturing.

According to available data for the period from 2005-2008, the national average production of paints is about 613,000 ton (IMC, 2008). Its value is LE 2.9 billion (at fixed price of the period 2000-2005). Egypt exports about 10% of its resins production as an exported final product; the other 90% is being utilized as an input (intermediate product) for domestic paint industry. Resin production is estimated at 136,000 ton as an average of the period 2003-2007. The value of Egyptian exports during this period were 65.8% to Arab Countries, 19.6% to Africa (excluding Arab Countries), 4.7% to Europe, 1.7% to Asia (excluding Arab Countries), and 8.4% to other countries.

The IMC report (2008) specifies that the cost of energy represents only 2% of the total cost of production of the paints and coatings as raw material is the

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<sup>1</sup> [http://epema.org/industry\\_profile.aspx](http://epema.org/industry_profile.aspx)

main input cost item representing 80% of the total cost. It can therefore be concluded that this subsector is non energy intensive.

## **2.4 Paper and cardboard**

The 2007 Egyptian market for paper, paperboard and pulp is estimated at \$1.4 billion and is expected to grow at an annual rate of 10% over the next three years. Paper and paperboard represented the bulk of the market at approximately \$1.32 billion (2 million MT), while pulp made up the rest at \$80 million (107,000 MT)<sup>2</sup>. Egypt manufactures 22% of its paper and pulp, including all tissue paper of which it exports 31% to the Gulf and Arab countries. There are three public sector paper mills in Egypt and production of tissue paper satisfies domestic market demand, plus 31% of production is exported to the Gulf countries.

The paper converting industry is completely in the hands of the private sector. The local industry manufactures corrugated carton boxes, cement sacks, micro-flute boxes, egg and food produce trays, writing paper, and tissue and toilet paper. Companies currently working in this sector vary in size and structure and include large corporate entities, small companies that employ ten to 20 workers, and individual enterprises with less than five employees<sup>3</sup>.

Large paper industries are energy intensive but they produce almost half the electrical energy they consume.

## **2.5 Detergents**

There are a number of private and public owned large detergent companies in Egypt including:

- Procter and Gamble
- Unilever
- Henkel
- Arma
- Egyptian Detergent Co.
- Nile Company for Oil and Detergents (Savo Nile)

Detergents production mainly follows consumer trends. As for their exports, almost three quarters of Egyptian exports of detergents are shipped to Arab and African markets (TDMEP MIFT, 2017).

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<sup>2</sup> <http://www.globaltrade.net/f/market-research/text/Egypt/Forestry-Logging-Wood-Work-Furniture-Paper-Paper-and-Paperboard-Paper-and-Paperboard-Industry-in-Egypt.html>

<sup>3</sup> <http://www.globaltrade.net/f/market-research/text/Egypt/Forestry-Logging-Wood-Work-Furniture-Paper-Paper-and-Paperboard-Paper-and-Paperboard-Industry-in-Egypt.html>

### 3. Support of Energy Efficiency to Ministries' Goals

The Ministry's Trade and Industry strategy for 2020 supports the Government's 2030 strategy and proposes a number of measures for achieving the 2020 objectives and thus 2030 goals. The vision driving the strategy is encapsulated in the following statement:

“Industrial development becomes the growth locomotive driving forward the sustainable inclusive economic growth in Egypt, responsive to domestic demand and supporting exports growth, so that Egypt becomes a vital player in the global economy, capable of coping with global fluctuations.”

The main goals of the MIFT are:

1. Increase the annual industrial growth rate to 8%.
2. Increase the contribution of industrial product to Gross Domestic Product from 18% to 21%.
3. Increase the micro, small and medium enterprises sector's contribution to GDP.
4. Increase the growth rate of exports to 10% annually.
5. Provide 3 million decent and productive job opportunities.
6. Institutional development

The IEE strategy is linked to the above main goals as shown in table 1.

**Table 1: Link of the IEE Strategy to MIFT 2020 Strategy**

<b>MIFT 2020 Strategy Goals</b>	<b>In Relation to Energy Efficiency</b>
Increase the annual industrial growth rate to 8%.	To be within energy constraints, need to increase energy efficiency
Increase the contribution rate of industrial product to Gross Domestic Product from 18% to 21%.	Energy efficiency should reduce costs and consequently increase value added of industrial products ( assuming fixed prices), and thus their contribution to GDP
Increase the growth rate of exports to 10% annually.	Similar to production growth, to be within energy constraints, need to increase energy efficiency.  Moreover, lower costs resulting from energy efficiency would increase competitiveness.  Finally, carbon foot print is expected to become a competitive factor.
Provide 3 million decent and productive job opportunities.	Part of these jobs could be in energy management. It will represent a small amount in the range of thousands of jobs.

## 4. Support of Energy Efficiency to Chemicals Chamber Vision

The Chemicals sector strategy is being developed by the EU programme for Trade and Domestic Market Enhancement (TDMEP) in consultation with a number of stakeholders including policy unit head in the Ministry of Trade and Industry, TDMEP experts and consultants, the ENCPC director, various donors who have developed thematic strategies namely GIZ, GAC/ILO, TVET/EU. The committee that was formed to develop the following three themes for the Chemical sector:

1. Add greater value to existing intermediary upstream products including natural gas; and
2. Develop a mineral resource development plan that is able to attract international first and second tier exploration and exploitation companies; and
3. Invest in less energy intensive processes or make use of higher technology, adding value products.

Incorporation of energy efficiency will increase competitiveness in terms of cost reduction, and compliance with emerging international standards related to carbon emissions.

## 5. Application of Egypt's IEE Strategies and Policies on Chemicals Sector

The UNIDO IEE Strategies and Policy Report have concluded that three key strategic objectives address the three main pillars of the Industrial Energy Efficiency ecosystem, as shown in figure 1;

1. Drive industrial sector demand for Industrial Energy Efficiency
2. Ensure responsive supply:
3. Enable government institutions to plan, regulate and monitor IEE ecosystem

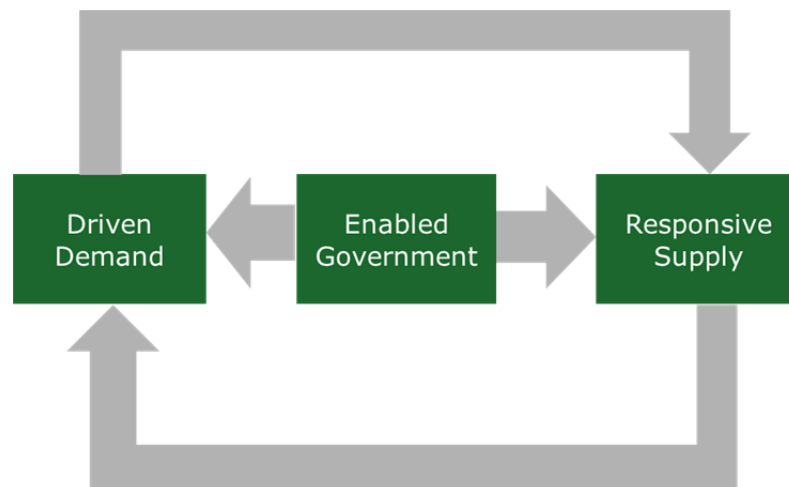


Figure 1: Main Key Strategy Objectives

Multiple approaches are needed to address the various needs of the different target groups addressed in the IEE strategy within the industrial sector depending on whether it is large or small, energy intensive or energy non-intensive.

#### **4.1 Sector Characterization according to IEE Strategy Criteria**

As highlighted in the IEE Strategy Report, the Egyptian industry is highly polarized in terms of size and energy-intensity. The industries were classified as large or small industries according to the number of employees as follows; “large” having more than 100 registered employees and “small” having limited number of employees of less than 50 registered staff. As for energy intensity; energy intensive industries are the ones where energy represents a significant part of their cost structure approximately more than 10% as opposed to non-energy intensive industries where the cost of energy is minor.

The chemical sector in Egypt according to the classification of the Federation of Egyptian industries contains the following subsectors:

- Fertilizer
- Plastics and Rubber
- Paper and cardboard
- Paints, inks and resins
- Detergents

The sub-sector industries are also characterized according to their ownership whether private, state owned or owned by other ministries and whether they target the local market or export. The main characteristic of the sub sectors is summarized in table 2 below.

According to the “Chemical Sector: A Practical Implementation Strategy” Report (July 2017), the top 5 sub-sectors in the chemicals sector that are responsible for 82.2% of the sector’s exports in 2016, are: plastics (33.3%), fertilizers (21.5%), paper and carton (12.8%), detergents (8.2%), and inorganic chemicals (6.4%). The majority of the sector’s exports target the EU, the MENA region and Africa while individual sub-sectors have different markets. For example, almost half of Egypt’s exports of adhesives go to the Turkish market, with another 35% to Arab countries. Almost three quarters of Egyptian exports of detergents are shipped to Arab and African markets (COMESA) while over 60% of Egypt’s exports of fertilizers go to European markets. Finally, paper and carton products generally focus on Arab, African and EU markets.



**Table 2: Characteristics of Chemicals Sub-sectors**

Sub-Sector	Size	Energy Intensity	Ownership	Export	Special Issues
Fertilizers	Large	Intensive	Public Private	Yes	Manufacturers
	Small	Non-intensive	Private	Yes	Mixing and Packaging
Paints, inks and resins	Large	Non-intensive	Private	Yes	Manufacturers
	Small	Non-Intensive	Private	Yes	Blending
Plastics	Large and Medium	Non-intensive	Private	Yes	
Rubber	Large & Medium	Intensive	Public Private	Yes	Manufacturers of rubber products and new pneumatic tires
Paper and Cardboard	Large	Intensive but also energy producer	Public Private	Yes	Mostly recyclers of paper or agricultural waste.
Detergents	Large	Non-intensive	Private	Yes	

Given the different characteristics of the industrial categories as well as their constraints, for the strategy to achieve the objectives, it will have to be sensitive to these characteristics.

Driving demand for Industrial Energy Efficiency will differ according to size. Micro-enterprises, for example, are challenging to address due to their large numbers, different affiliations, limited technical capacity, and non-bankability. This implies the need for extensive support to be able to replace equipment, as well as the need for training to be able to apply IEE interventions.

For the second objective concerned with ensuring responsive supply, the services provided by the different parties will differ according to the category given their different needs and nature. For example, small and medium enterprises (SMEs) need more support in training and capacity building than larger companies who can afford to hire/ outsource experts.

Regarding the third objective which is to enable the government, the government's role will change according to the different categories. For example, there should be a consensus between the government and large industries given the political power they have arising mainly from their size and number of employees. More government support is expected to be provided to small industries to be able to optimize their energy consumption

and reach their energy saving potential. In other words, while energy savings on a national level would imply government focus on energy intensive industries, the government is responsible towards helping smaller industries as well to overcome the impact of subsidy reform through energy efficiency.

In general, supply policies need to be synchronised with demand policies to ensure the success of the overall system. However, first and foremost, policy and decision-making units need to be established at the competent executive industrial entity(ies) to ensure effective governance and decision-making to all IEE policies and procedures.

Accordingly, most of the demand policies will come to effect and carry out their activities after the policy and decision-making units have been set-up and supply policies are enacted. A notable policy exception would be requiring an operative EMS from energy intensive industries with strong organizational capacity such as fertilizer manufacturers.

## 4.2 IEE Policies

The thirteen proposed policies categorized as driven demand, responsive supply and enable government are summarized in table 3 as follows taking into account the following common challenges:

1. Government Funding, mainly reflected in limited ability to subsidize EE investments.
2. Data Challenges including; measurement, availability, accessibility, reliability and consistency.
3. Informal Sector. This sector can hardly be targeted directly before it is formalized. Currently, the ministry of industry is considering viable approaches to formalize these entities. When formalized, they might add to the pool of micro-enterprises which have their own challenges.
4. Micro-Enterprises are challenging to address due to their large numbers, different affiliations, limited technical capacity, and non-bankability.

Some of the policies have to be adopted first by the Ministry as they are cross cutting all sectors while other could be specifically applied to the chemicals sector. Table 3 lists these policies showing which are general and which are specific to the chemicals sector. Section 6.3 gives more analysis to this proposed application.

**Table 3: IEE Policies**

<b>Drive industrial sector demand for Industrial Energy Efficiency</b>	<b>Ensure responsive supply</b>	<b>Enable Government</b>
<b><i>General Cross Cutting Policies</i></b>		
<u>Policy 3:</u> Establish system for grid-connected combined heat and power (CHP)	<u>Policy 7:</u> Ensure Quality of Energy Management System Consulting Services through certification	<u>Policy 12:</u> Mandatory reporting for registered facilities as a condition to renew their license
<u>Policy 4:</u> Phasing out	<u>Policy 8:</u> Link Qualified	<u>Policy 13:</u> Ensure proper

selected equipment	consulting Services to rising demand on Energy efficiency technologies  <u>Policy 9:</u> Minimum Energy Performance Standards (MEPS)  <u>Policy 10:</u> Create an awareness mechanism that leverages integrated information related to IEE  <u>Policy 11a:</u> Capitalize on FEI fund to subsidize Industrial Energy Efficiency Projects  <u>Policy 11b:</u> Augment cooperatives fund to finance IEE projects	& effective governance mechanism of all related IEE policies and procedures
<b><i>Policies Specific to the Chemicals Sector</i></b>		
<u>Policy 1:</u> Include EMS in export requirements  <u>Policy 2:</u> EMS as condition for state procurement  <u>Policy 5:</u> Reach out to SMEs through intermediaries  <u>Policy 6:</u> Ensuring efficient energy performance of new facilities, operations and processes		

Details of these policies, their proposed timeline of application or implementation as well as relevant stakeholders' roles and responsibilities are included in Appendix A; , Industrial Energy Efficiency Strategies and Policies, 2015.

### 4.3 General Policies to be Adopted by the Ministry

From the above thirteen policies, it is proposed that there are a *general set of policies* that should be adopted by the MIFT, irrespective of the specific sector, as they are effectively cross cutting all sectors.

#### 4.3.1 General Policies related to Responsive Supply

***Policy 7: “Ensure Quality of Energy Management System Consulting Services through certification”.***

Description

This policy entails the establishment of a certification mechanism for consulting firms and individuals in the field of Energy Management System that encompasses a renewal processes to the certification holders in order to

ensure that they are actively operating in this field. This mechanism also allows for categorizing the consulting firms based on a point system that aids in having structured clusters of different levels of consultancies.

EMS consulting firms should be able to submit an executive summary of auditing reports to the certifying body for the number of industrial facilities served allowing for data gathering and analysis to build knowledge on sectorial trends and know how.

#### Current Efforts

The UNIDO IEE project in Egypt has already trained and certified a number of national consultants on EMS and ISO 50001. These consultants have already worked with energy intensive industries such as fertilizers and petrochemical industries in establishment of EMS systems and a number of them have already acquired ISO certification.

#### Policy Owner and Stakeholders

Certification will be the responsibility of National Quality Institute (NQi) in terms of administering the consultants, managing and renewing the certification process, managing the database of consultants, analyzing the data submitted by the consultants, continuously upgrading the certification criteria and classification of consultants based on the point system.

The IDA and FEI will support implementation of the policy, as IDA will only accept audits from certified consultants and FEI will communicate periodically to all FEI beneficiaries the latest updated consultant list and their service offering and manage the satisfaction feedback and survey and coordinate with NQi.

#### Phasing Policy

Phasing of the policy will start by limiting EMS consulting service providers to the certified ones while providing a grace period till the system is operational. According to policies 1 and 2, industries will acquire EMS according to the sector's energy intensity and size.

#### ***Policy 8: “Link Qualified consulting Services to rising demand on Energy efficiency technologies.”***

##### Description

The policy aims to provide the market with qualified technical consulting firms / individuals in different engineering fields (mechanical – electrical – chemical- engineering). The first stage of this policy facilitates the registration of Energy Consulting firms in the different engineering fields (technical consulting firms) through developing well designed criteria that ensures coherence and compliance. The second section of the policy is concerned with establishing an accreditation mechanism for energy consulting firms and individuals in the main engineering fields (electrical – mechanical – chemical) in order to ensure the supply of quality engineering consulting services to the industrial sector.

A renewal processes to the accreditation holders from the engineering consulting firms is also proposed including a point system in order to ensure that they are actively operating in their respective fields.

#### Policy Owner and Stakeholders

This policy will also be implemented by NQI which will be responsible for management of the registration and renewal processes, formulation with a steering committee the training syllabus outline in order to avail it for training centers to be delivered, managing the processes of the technical assessment with the Industrial Training Center (ITC), accrediting the technical consultants in a specific engineering field (mechanical – electrical – processes), classifying consultants based on the point system and manage the database of registered consultants and produce analysis.

The ITC will collaborate with NQI to qualify the training centers that will be eligible to deliver a specific technical training and set the consultant's examinations (assessments) and generates the results. Moreover, the Industrial Modernization Center of FEI will formulate a technical committee that will help NQI set the accreditation standards and criteria, comply with policy standards to prohibit, in due time, a consulting service to take place without being accredited and communicate periodically with all IMC and FEI beneficiaries with the latest updated consultant list and manage the satisfaction feedback and survey and coordinate with NQI.

#### Phasing Policy

Due to the need for a focused strategy to ensure timely and efficient implementation, this policy will be first applied to consulting firms and individuals in the field of Combined Heat and Power (CHP) and waste heat recovery followed by electric motor system and compressors as they are already addressed by ENCPC (see Policy 9 below).

#### ***Policy 9: “Minimum Energy Performance Standards (MEPS)”***

##### Description

This policy requires Minimum Energy Performance Standards (MEPS) to be developed with a focus on equipment that comply with the following prioritization criteria:

- Have high potential energy saving
- Are used across a large number of industries
- Are imported

##### Current Efforts

There are currently some scattered initiatives related to this policy as the Egypt National Cleaner Production Centre (ENCPC) is working on the Industrial Electrical Motor Driven Systems (EMDS) Efficiency Programme in Egypt, funded by IFC. Moreover, the IEE project in Egypt has already delivered training in Energy Efficiency in motors and compressors.

#### Policy Owner and Stakeholders

However, implementation of this policy is ultimately the responsibility of the Egyptian Organization for Standardization and Quality (EOS) which is the

accredited national reference and the only entity in Egypt mandated with activities regarding the specifications, quality, tests industrial calibrations in order to raise the quality of Egyptian products to make them competitive in the international and domestic markets. EOS is also concerned with consumer and environmental protection and develops standards for industrial equipment.

Other support entities to this policy include:

- ENCPC to Identify inefficient equipment by performing the necessary studies and agree on the equipment to have MEPS with EOS
- MIFT Policy Unit to set a plan for the equipment needing MEPS in coordination with Industrial Control Authority and ENCPC and coordinate between ENCPC and EOS as well as with ICA and the Ministry of Finance
- Ministry of Finance to develop the capacity of the customs authorities by securing training on the appropriate tools to avoid non-compliance with MEPS
- Industry and technology development sector (MoI) / FEI in identifying local manufacturers and capacity to produce EE equipment

#### Phasing Policy

The first phase will focus on equipment of highest energy saving potential and most cross-cutting equipment and locally manufactured equipment will be slightly delayed in order not to negatively impact their competitiveness.

#### ***Policy 10: “Create an awareness mechanism that leverages integrated information related to IEE”***

##### Description

Establish a mechanism/platform responsible for raising awareness on the benefits of energy efficiency in Egypt, targeting both direct and indirect stakeholders. This including banks, government, industrial sector, with its various sizes and activities, and energy consulting services, in addition to all owners indicated across the other policies. Awareness is also raised on topics including IEE financing options, technologies and announcing relevant strategies and policies.

##### Policy Owner and Stakeholders

The owner of this policy is FEI as it is set to enhance the performance and productivity of the Sector members in addition to providing tools that facilitate the overall commercial and business effectiveness. It is also home for 16 Industrial Chambers. Accordingly, for this policy it is expected to dedicate a unit concerned with communication and awareness to be responsible for initiating the policy mechanism, including chosen platforms that this mechanism will be built upon, ensuring that a communication plan is set annually with milestones, key activities, and those responsible to carry out those tasks, ensuring participation and retrieval of all relevant information from all stakeholders and monitoring publications, round-table discussions, and inquiries and that these activities take place periodically.

The IMC supports FEI in ensuring the participation of its members and their registration on the platform and collecting and gathering feedback from its beneficiaries and reporting to FEI.

### Phasing Policy

There is no phasing for this policy.

### ***Policy 11a: “Capitalize on FEI fund to subsidize Industrial Energy Efficiency Projects”***

#### Description

This policy aims to capitalize on the Federation of Egyptian Industries funds in order to subsidize Industrial Energy Efficiency Projects with special focus on small and medium enterprises (SMEs). In order to ensure that these funds are being put to best use, a ceiling can be set (i.e. maximum amount of money per facility). This ceiling will be more attractive to smaller facilities (as larger ones may need larger amounts).

#### Policy Owner and Stakeholders

FEI would be responsible for managing the fund, defining criteria for fund disbursement, evaluating the eligibility of the different facilities, finance the projects and monitor and evaluate outcomes. The Ministry of Finance would infuse and/or direct funds to FEI.

### Phasing Policy

As for implementation of this policy, the first stage will focus on- but not be exclusive to- SMEs with the highest energy intensity as they are the most sensitive to price increases. Once the policy proves its success it will be rolled out to SMEs with lower energy intensity requirements.

### ***Policy 11b: “Augment cooperatives fund to finance IEE projects”***

#### Description

This Policy will augment the funds available to the only cooperative union in this sector which is the Cooperative Union in order to finance industrial energy efficiency projects for its members. In order to increase this fund, it is proposed that the Ministry of Finance establishes a cooperation protocol with the Cooperative Union to finance its members in order for them to undertake EE projects and interventions based on certain terms and conditions. The flow of funds will only be sustained if data is provided, audits are undertaken, transparent criteria are set, relatively long payback (more than 3 years) is proven.

#### Policy Owner and Stakeholders

The newly established entity for Development of SMES will be responsible for establishment of a cooperation protocol with the Cooperative Union to finance its members in order for them to undertake EE projects and interventions based on certain terms and conditions (according to policy description). The IMC and Industrial technological development sector (MoI) (including ENCPC) will undertake necessary audits to assess progress and communicate progress to IDA. As for IDA, it will receive, verify and process the data (including data from audits), communicate goals met to MoF and maintain databases and feed energy data into a local database (to support decision-making) and ultimately into the national energy information system.

The Ministry of Finance will infuse and/or direct funds to cooperatives union fund and source funds from the national budget and/or direct funds from donors and international banks.

#### Phasing Policy

With regards to implementation, the amount of finance to be made available to the Union will gradually increase over time in accordance to the interest expressed by the SMEs and the success of projects undertaken by them.

### **4.3.2 General Policies Related to Enabling Government**

#### ***Policy 12: “Mandatory reporting for registered facilities as a condition to renew their license”***

##### Description

This policy is more of a long term plan which aims at creating robust data (i.e. reliable and consistent) to enable effective decision making through mandatory reporting for registered facilities as a condition to renew their license. Data collection includes general data and information, data on industrial production, data on energy consumption.

Noting that license renewal is every 5 years, it is a requirement that yearly data must be submitted on time. As such, industrial facilities will be obliged to deliver the required data and face risks of having their license revoked if they do not deliver or deliver inaccurate data.

##### Policy Owner and Stakeholders

The policy will be the responsibility of the new and renewable energy unit within IDA as it is the official custodian of all energy efficiency related data. It will be responsible for identifying data to be collected, creating data template, collecting data in a timely and consistent manner, verifying accuracy of data collected, formatting and storing this data, issuing periodical reports and ensure their dissemination to all concerned entity and renewing industrial facilities’ licenses when all data collection conditions have been met and coordinating with the national energy system.

Supporting entities will include IMC that will be responsible for developing communication plans and developing surveys to measure satisfaction, the Central Agency for Public Mobilization and Statistics (CAPMAS) to support the database creation and ensure that the database at IDA is compatible with that of CAPMAS, as well as the Ministry of Industry, Ministry of Electricity and Renewable Energy, Ministry of Petroleum and Mineral Resources Supreme Energy Council for identifying data required: report the information needed in their decision making process to the IDA to integrate in the report templates and the data to be collected from the different facilities.

##### Phasing Policy

The first phase will focus on Building Capacity and Capable System by:

- Hiring right caliber of employees
- Provide training to bridge any existing gaps



- Build IT infrastructure
- Include data reporting as a criteria to acquire the license

Accordingly, phasing will be based on sectors whose data is being collected through audits. In other words, given that the system will be built in the first phase, data collection should start with a small number of sectors, and then move to targeting all sectors in later phases.

***Policy 13: “Ensure proper & effective governance mechanism of all related IEE policies and procedures”***

Description

This policy aims to ensure proper and effective governance mechanism of all related IEE policies and procedures. It proposes identifying an Energy Efficiency Task Force within the Policy Unit of the Ministry of Industry to specifically handle industrial energy efficiency.

Policy Owner and Stakeholders

The Ministry of Industry Policy Unit will be responsible to achieve accountability and effectiveness of the industrial energy efficiency policies, the industrial energy efficiency policy unit within the Ministry of Industry will have the following roles:

- 1- Creating a national level industrial energy efficiency strategy and policies.
- 2- Ensuring effective cascading of the strategy on more operational planning levels and monitoring the implementation. This can be done through:
  - a. Set the performance indicators
  - b. Identify accountability
  - c. Set the baseline and agree targets
- 3- Follow up on the strategy and policies to ensure effective planning and implementation
- 4- Monitor implementation (for example through random audits)

Phasing Policy

There is no phasing for this policy.

### **4.3.3 General Policies Related to Driving Demand for EE**

***Policy 3: “Establish system for grid-connected combined heat and power (CHP)”***

Description

Establishment of operational system for grid-connected combined heat and power (CHP) should be encouraged in all large energy intensive industries. The operational system should be established such that the electricity prices encourage CHP and resolve any issues that might arise with regards to grid management; metering and accounting systems, etc. are resolved before the decree is issued.

Current Efforts

According to the recent electricity law 87/2015, authorized electricity transmission and distribution companies are obliged to buy or pay the value of electricity produced from recovered energy with less than 50 MW capacity (clause 45). For capacities larger than 50 MW, electricity prices and contracts will be set on a case to case basis as electricity companies are not obliged by law to purchase electricity. Moreover, Decree no. 230/2016 issued by the Ministry of Electricity and Renewable Energy, specifies the method of calculating compensation of selling electricity to the grid based on feed-in tariffs.

#### Policy Owner and Stakeholders

Under this policy Egypt Electricity Regulatory Agency (ERA) will establish CHP feed-in tariff system to resolve issues that might arise with regards to grid management, metering and accounting systems, etc. prior to system initiation. It will also monitor and assess the amount of electricity supplied by CHP. An economic price and general conditions for electricity supplied from CHP will be ensured.

#### Phasing Policy

None, all capacities can be targeted at first with different provisions for capacities less than 50 MW and more than 50 MW.

#### ***Policy 4: “Phasing out selected equipment”.***

##### Description

Selected installed cross-cutting equipment should be replaced, over a specified number of years based on a set of criteria including nameplate performance specification, size and age. It is proposed that Minimum Energy Performance Standards (MEPS) are the reference against which equipment replacement is obligatory, such that equipment whose efficiency is e.g. 80% that of the MEPS or less (depending on the case) will be replaced. The percentage should be set such that, when replacing the majority of equipment, an acceptable payback period (less than 5 years) is achieved. Therefore, this policy is related to Policy 9 and should be implemented concurrently.

#### Policy Owner and Stakeholders

As the Industrial control authority (ICA) has a history in inspection and taking legal proceedings, it will ensure targeted equipment is replaced. It will be supported by ENCPC which has adequate knowledge of the equipment on the market. It will map out cross-cutting equipment used in the different industrial sectors along with their status in order to select a set of equipment for phasing out and replacement, based on existing information.

#### Phasing Policy

Phasing of this policy will be done according to size (the larger first), age (the oldest first) and efficiency (the most inefficient first) simultaneously. This is to be coordinated in conjunction with policy 9 (MEPS).

## **4.4 Policies Tailored to the Chemicals Sector**

As this energy efficiency sector strategy is part of the overall strategy of the Ministry of Industry targeting year 2020, it will work on the short term five year plan which starts with the large and medium energy intensive industries to capitalize the low hanging fruits followed by the small and micro enterprises.

#### 4.4.1 Policies Related to Large Energy Intensive Industries

##### ***Policy 1: “Incorporate EMS in export procedures”***

###### Description

This policy requires sectors exporting energy intensive goods to have an operative energy management system (EMS), reported energy data and approved and implemented EE plan. As these are energy intensive, large and exporting, the sub-sectors addressed by this policy are:

- Fertilizer
- Paper
- Rubber

Incorporating EMS for export can be carried out through the export duty such that export duties are imposed on targeted products and waived on a product if it is produced from a facility with EMS.

###### Policy Owner and Stakeholders

IDA will be responsible for implementation of this policy as it will assess the industrial facility’s compliance. The following roles will be assumed by the new RE and EE unit under IDA to mobilize the different relevant units internally in IDA and coordinate with other external entities in the government and otherwise. Prior to the policy IDA will:

- Set systems for EE plans and data acquisition, consulting the relevant industries
- Set data verification, storage and analysis system

Afterwards, IDA will:

- Receive, verify and process the data
- Follow-up, assess and approve plans
- Issue EMS status certifications
- Maintain databases and feed energy data into a local database (to support decision-making) and ultimately into the national energy information system
- Issue and disseminate reports

The ENCPC will support in setting systems for EE plans and data acquisition, consulting the relevant industry. The export councils of relevant industries and FEI will negotiate the appropriate export duty for goods and the Foreign Trade Sector will draft decree on export duty. Moreover, the Energy Planning Authority will maintain national energy information database.

###### Phasing Policy

The first phase of implementation will start with the large, energy intensive followed by large, medium energy intensive industries. The second phase will include large, non-energy intensive followed by small, energy intensive.

#### Relation to other Policies

This policy is complemented by policies 7 and 8 which ensure quality consulting services for energy management system and EE technologies, respectively through certification. Policies 2 and 6 are also related to EMS implementation and they serve the same purpose. The data collected through these policies prepares for policy 12 and needs policy 13 for it to actualize.

#### ***Policy 2: “Incorporate EMS as a condition for state procurement”***

##### Description

This policy applies to the Chemicals sector as the State is a large consumer of chemicals, including:

- Fertilizers
- Paper
- Rubber tires

This policy entails incorporation of EMS as a condition for state procurement as the government has the right to stipulate certain conditions on the materials they acquire or acquired by their contractors. The conditions could include that such material are sourced from manufacturing facilities with an operative EMS system, which report energy data and implement their plans to pursue EE.

The policy proposes the imposition of these conditions in multiple ways, including adding a condition in the project’s tender documents that specifies that contractors should source specific raw materials from facilities with EMS having an acceptable implementation status.

##### Policy Owner and Stakeholders

IDA is responsible for this policy too as it will assess the industrial facility’s compliance. The following roles will be assumed by the new RE and EE unit under IDA to mobilize the different relevant units internally in IDA and coordinate with other external entities in the government and otherwise. Prior to the policy IDA will

- Set systems for EE plans and data acquisition,
- Consulting the relevant industries
- Set data verification, storage and analysis system

Afterwards, IDA will:

- Receive, verify and process the data
- Follow-up, assess and approve plans
- Issue EMS status certifications
- Maintain databases and feed energy data into a local database (to support decision-making) and ultimately into the national energy information system
- Issue and disseminate reports

Pre-policy, NQI will create an inventory of energy service providers/consultants catering for all industries and establish a system to accredit EMS consulting firms as per policy 7. On continuous basis, NQI will train relevant personnel from the industries targeted on EMS implementation. As for other support entities:

- General Authority for Government Services (GAGS) will revise the project's tender documents and ensure its integrity
- Ministry of Housing will specify suppliers with EMS in the project's tender documents

#### Phasing Policy

The first phase of implementation will include large energy intensive industries such as fertilizers and paper. Then the second phase will include large, non-energy intensive followed by small, energy intensive.

#### Relation to other Policies

This policy is complemented by policies 7 and 8 which ensure quality consulting services for energy management system and EE technologies, respectively through certification. Policies 1 and 6 are also related to EMS implementation as they serve the same purpose. The data collected through this policy feeds into policy 12.

### ***Policy 6: “Ensuring efficient energy performance of new facilities, operations and processes”***

#### Description

Ensuring efficient energy performance of new facilities, operations and processes through limiting license provision to targeted facilities unless:

- the production technology employed is at least at par with that of the most efficient of local manufactures/technologies
- If they are committed to establish their EMS (noting that the EE plan will not include significant interventions such as equipment change for some time)

If an industry does not have a precedent locally, international best practices should be the reference as there are no local plants to compare, and compete, with. This policy is also complemented by policies 7 and 8 which ensure quality consulting services for energy management system and EE technologies, respectively through certification.

#### Policy Owner and Stakeholders

Implementation of the policy will be through IDA which will modify licensing criteria for new facilities to include EE assurance. Pre-policy, ENCPC will support in setting systems for EE plans and data acquisition and consulting the relevant industry.

#### Phasing Policy

During the first phase of implementation, new facilities to be established in all large energy intensive industries will be targeted followed by large non-energy

intensive industries. Then during the second phase small, energy intensive sectors will be targeted.

#### **4.4.2 Policies Related to Small Energy and Non-Energy Intensive Industries**

##### ***Policy 5: “Reach out to SMEs through intermediaries”***

###### Description

Small and medium industries have certain characteristics that necessitate targeting through a tailored approach. They are distributed over various sectors, are large in number and possess limited financial, technical and organizational capacities. Given their large numbers and diversity, it is proposed that the industrial organizations are mobilized to provide tailored support to these industries.

Accordingly, this policy aims to build-up and strengthen the capacities of industrial organizations such that they can independently support their members on matters regarding IEE. These organizations thus become the interface through which SMEs receive assistance. The government will follow-up on the progress of these organizations and provide direct assistance to industrial organizations if requested.

###### Policy Owner and Stakeholders

The Agency for Development of Micro, Small and Medium projects was established by Decree 947/2017. This new entity should mobilize different capacities inside and outside the government, to support industrial organizations, offer awards for best performing enterprises create and publish guidelines and design a “model system” through which cooperatives will provide support to their members.

Support should be provided from production cooperatives and FEI to communicate needs to support their members to new entity concerned with SMEs and support their members in implementing IEE. Moreover, FEI with the Environmental Compliance Office (ECO) should extend their financial and technical services to include more facilities and sectors as per policy 11. The Ministry of Finance could establish a cooperation protocol with Cooperative Union to provide it with additional funds to finance its members on carrying out IEE based of terms and conditions. As for ENCPC it will undertake necessary audits and research to develop and update guidelines and assist in assessing award nominees. Finally IDA would receive and verify and process of the data including data from audits for financing and audits for awards) and maintain databases and feed energy data into a local database (to support decision-making) and ultimately into the national energy information system

###### Phasing Policy

This policy will be phased over SMEs according to their energy intensity, starting with the most energy intensive.

### Relation to other Policies

Financing mechanisms is elaborated in policy 11 that capitalize on the FEI fund to subsidize IEE projects including financial schemes (soft financing) for SMEs. Policy 11b addresses increases the fund for cooperatives for IEE purposes. This policy is also complemented by policy 8 which ensures quality consulting services for EE technologies, through certification.

## **5. Relation to Other Strategies**

### **5.1 MSMEs and Entrepreneurship National Strategy**

Support to the development of Micro, Small and Medium-sized Enterprises (MSMEs) and Entrepreneurship has become an over-arching priority for the Government of Egypt (GOE). In November 2016, MTI has launched a National Strategy to “Enhance Industrial Development and Exports” that laid the Ministry’s plans for developing the industrial sector (five sectors were prioritized). Within the same document one pillar focused on developing MSMEs and linking the goals with the different prioritized sectors. The main policy areas of the MSMEs strategy are:

1. Legal and Regulatory Environment. Objective: reducing the administrative burden and simplifying the regulatory environment for MSMEs, and Institutionalized mechanism for coordination and implementation of strategy
2. Access to finance. Objective: strengthening access to finance including financing products diversification, and innovative tools
3. Entrepreneurship Policies. Objective: Improving entrepreneurship’s conducive environment and policies
4. Exports and integration into value-chains. Objective: expanding the capacity of MSMEs to integrate in local and global value chains
5. Business Development Services. Objective: Creating access to BDS
6. Cross Cutting Themes: Objective: Addressing women’s entrepreneurship, environment, and technology.

The second pillar of the MSMEs Strategy related to access to finance can be directly linked to Policies 10 and 11 of the IEE Strategy by proposing raising the awareness of industries to the funds offered by the Central Bank of Egypt to support EE initiatives and provision of soft loans.

The fourth objective of the MSMEs strategy related to expanding the capacity of the MSMEs to integrate local and global value chains can be linked to Policy 5 of the IEE strategy as these support organizations should encourage sustainable business performance and assist MSMEs in being recognized for that.

As for Policy 10 of the IEE Strategy which proposes creating an awareness mechanism that leverages integrated information related to IEE, it can be linked to objectives 3, 5 and 6 of the MSMEs strategy by providing a link in the proposed web portal to the IEE platform to offer support to industrial startups,

and including in the BDS database the service providers concerned with IEE knowledge and technology transfer that are relevant to SMEs.

The IEE Strategy could be linked to the MSMEs objectives as shown in Table 4.



Table 4: Linking IEE Polices to MSME Strategy Pillars

MSME Strategy Pillars / Actions	Cross-link with IEE strategy		
	<i>Policy 5: Strengthen industrial organizations to provide IEE support</i>	<i>Policy 10 : Create an awareness mechanism that leverages integrated information related to IEE</i>	<i>Policy 11: Strengthen industrial organizations to provide IEE support</i>
<p><b>2. Access to Finance:</b> <b>Debt Finance:</b> The SME strategy states that commercial banks are reluctant to provide tailored financial services/programs for SMEs because of the high risk and costs associated with it.</p> <p>Thus, the Central Bank of Egypt (CBE) announced a new program to improve SMEs access to credit which aims at availing EGP 200 bn of bank credit over the next 4 years with competitive rates.</p>		<p>The CBE program should be made known on the IEE platforms and encourage facilities to apply for these loans to finance EE measures. The banks offering financial services to SMEs should take advantage of the awareness mechanism suggested in policy 10 to regularly promote their products and services.</p>	<p>A portion of CBE's EGP 200 bn should be channeled through the existing FEI fund to expand it. FEI - Environmental Compliance Office (ECO) will in turn provide its members access to soft loans.</p>
<p><b>3. Entrepreneurship Policies<sup>4</sup>:</b></p> <ul style="list-style-type: none"> <li>• Support start-ups through incubators, boot camps and business plan competitions <ul style="list-style-type: none"> <li>○ Information dissemination on existing service providers through web portal (This will include the activity of collecting information on existing providers, their services and procedures).</li> </ul> </li> </ul>		<p>As a support to startups, information on existing service providers will be disseminated through a web portal. This web portal should have a link to the IEE platform to offer support to industrial startups.</p>	

<sup>4</sup> Difference between entrepreneurship policies and MSMEs policies: entrepreneurship policy is defined as policy measures taken before and up to three years after the start of business, MSME policy concerns measures after the first three years and is defined as publicly funded measures.

MSME Strategy Pillars / Actions	Cross-link with IEE strategy		
	<i>Policy 5: Strengthen industrial organizations to provide IEE support</i>	<i>Policy 10 : Create an awareness mechanism that leverages integrated information related to IEE</i>	<i>Policy 11: Strengthen industrial organizations to provide IEE support</i>
<p><b>4. Internationalization and Inter-firm Linkages:</b> Non-exhaustive suggested actions:</p> <ul style="list-style-type: none"> <li>Develop proactive capacity of existing MSME support organizations to assist MSMEs with export marketing opportunities, including ensuring a supply of trained private sector “brokers” to provide services to MSMEs.</li> </ul>	<p>These support organizations should encourage sustainable business performance and assist MSMES in being recognized for that. For example, assisting them in obtaining the required certification e.g. ISO for energy or environmental management.</p>		
<p><b>5. Business Development Services:</b> Non-exhaustive suggested actions:</p> <ul style="list-style-type: none"> <li>Creating Database of existing MSME Business Development Services (BDS) providers including their qualifications, areas of expertise, services provided and cost, to be shared with partners.</li> </ul>		<p>Include in BDS database the service providers concerned with IEE knowledge and technology transfer that are relevant to SMEs such as IMC</p>	
<p><b>6. Cross Cutting Themes:</b> Non-exhaustive suggested actions: <i>Environment (Clean Economic Growth &amp; Climate Change):</i> Facilitative access to BDS including technology transfer, especially in the new growth sectors like renewable energy, logistics and recycling</p>		<p>Include in BDS database the service providers concerned with IEE knowledge and technology transfer that are relevant to SMEs such as IMC</p>	

## **5.2 Promotion of Small and Medium Enterprises Industrial Innovation Strategy**

The Industrial Innovation Strategy was developed under the leadership of the Ministry of Trade and Industry with the objective of driving innovation in the industrial sector and competitiveness forward. This strategy takes the goals of Egypt's Sustainable Development Strategy (Egypt's Vision 2030) and MIFT's Strategy 2020 further, as well as defines 11 key measures that contribute to reach the respective Key Performance Indicators (KPIs) from MIFT's and its affiliated institutions' side.

These measures build on the MIFT's efforts by:

- Stimulating Innovation – an innovation culture that creates more ideas and motivates more companies to consider innovation as a promising way to increase competitiveness
- Enabling innovation – provision of improved framework conditions and knowledge to support industry and academia on how to innovate and accelerate innovative ideas
- Facilitating innovation –mechanisms to support industry and academia to turn those innovative ideas into actual products, processes, services and business models
- Commercialize innovation –new products and technologies on the market. The private sector in Egypt needs better support in obtaining access to national and international clients in order to be an integral part of national and global value chains

It is proposed to link this innovation strategy to Policies 5 and 10 of the IEE policies and strategy as detailed in table 5. Moreover, some additions as linked to industrial energy efficiency in the innovation strategy are also proposed.

Table 5: Link between Innovation Strategy and IEE Policies

Elements of the innovation support chain	Measures of the innovation support chain	Cross link to IEE Strategy		Proposed Additions to the Innovation Strategy as linked to IEE
		<i>Policy 5: Strengthen industrial organizations to provide IEE support</i>	<i>Policy 10 : Create an awareness mechanism that leverages integrated information related to IEE</i>	
<b>Stimulating Innovation</b>	<p><b><u>R&amp;D</u></b> A Matching Fund is a collaborative fund aiming to develop innovative and competitive Egyptian products by supporting collaborative and applied R&amp;D projects.</p> <p>It aims to boost the industrial sector in Egypt by exploiting the research power in Egyptian universities and research centers, with the goal of developing innovative and competitive Egyptian products.</p> <p>Takes the product from the ideation stage, through the proof-of-concept and prototyping stages, until it becomes a complete product ready to be introduced to the market.</p>			It is highly encouraged that the in-house R& D collaborate with members from academia and work towards acquiring the Matching Fund. However, it is suggested that innovation should not be restricted to products but also processes and technologies as there is plenty of room for innovation in these as well.

Elements of the innovation support chain	Measures of the innovation support chain	Cross link to IEE Strategy		Proposed Additions to the Innovation Strategy as linked to IEE
		<i>Policy 5: Strengthen industrial organizations to provide IEE support</i>	<i>Policy 10 : Create an awareness mechanism that leverages integrated information related to IEE</i>	
	<p><b><u>Awareness</u></b>                      The innovation strategy suggested Awareness for Innovation (<b>InnoAware</b>) as a measure to raise awareness about the importance of innovation for the competitiveness of the Egyptian Industry.</p>		Extend awareness campaigns ( <b>InnoAware</b> ) to innovation in resource use (e.g. rationalized water and energy use, reusing waste heat/ products, integrating RE in the facility.	
	<p><b><u>Knowledge sharing</u></b>                      The innovation strategy suggested developing and maintaining an online portal (<b>InnoPort</b>) to inform different industrial stakeholders (particularly SMEs) about innovation and related topics.</p>		The information sharing / awareness platform suggested under Policy 10 could be featured under the <b>InnoPort</b> (the central information portal owned by the MTI to increase knowledge about industrial innovation) as it would have a wider reach and more useful information to the company not just energy efficiency. The IEE platform should be accessible from the InnoPort and vice versa.	Knowledge should also be reachable for those who are not "tech-savvy" i.e. available through periodical publications in Arabic and not just the website
	<p><b><u>Awarding</u></b>                      The innovation strategy suggested the <b>InnoAward</b> which acknowledges innovative</p>	Policy 5 includes creating awards for the best energy performance in SMEs. Innovation in improving energy performance may be promoted		The suggested InnoAward could include EE as one of the criteria upon which an award is granted

Elements of the innovation support chain	Measures of the innovation support chain	Cross link to IEE Strategy		Proposed Additions to the Innovation Strategy as linked to IEE
		<i>Policy 5: Strengthen industrial organizations to provide IEE support</i>	<i>Policy 10 : Create an awareness mechanism that leverages integrated information related to IEE</i>	
	companies and their efforts in order to create awareness for innovation and motivate companies to innovate.	and SMEs undertaking the most innovative EE interventions and achieving measurable savings should also be awarded. The award can be granted along with the suggested <b>InnoAward</b> .		
<b>Enabling innovation</b>	<b><u>Industry and academia</u></b> The innovation strategy promotes collaboration between industry and academia.	The collaboration between industry and academia should be reflected when forming guidelines on EE to be handed out to SMEs. Guidelines on EE handed out to SMEs should encourage critical thinking that enable innovation in energy efficiency and not only dictate specific, rigid measures to reduce consumption.		
<b>Facilitating Innovation</b>	<b><u>Technology and Innovation Centers (TICs)</u></b> The innovation strategy suggests under the <b>TICs Support Scheme</b> strengthening the role and capacity of Egyptian TICs as an important service provider for Egyptian companies.			The <b>TICs Support Scheme</b> will improve the ability of TICs to support enterprises in the broad field of innovation and thus can offer facilities assistance technical and otherwise along with ENCP/IMC.

### **5.3 Relation to Ministry's TVET Strategy**

The MIFT Vocational Education and Training Strategy specifies that the productivity and vocational training department conducts training for more than 80,000 workers in upper and middle management, supervisors and foremen in industrial facilities. Training is currently being carried out in the fields of Industrial and production engineering, management systems and economic, technical and financial affairs.

Therefore, training in EMS has to be introduced along with the other management systems. It is proposed to provide training to students who have not yet joined the workforce as well as for those who already joined the workforce and their companies. Upper and middle management should also be aware of the importance of having an EMS in place. This will be particularly beneficial for the companies that are implementing an EMS.

The productivity and vocational training department has an industrial apprenticeship system for more than 44 jobs. This system is setup by an agency specialized in setting specifications for professions, skill levels and the necessary applied technological knowledge. It is therefore advisable that applied technological knowledge includes energy efficient technologies and processes and means of rationalizing energy use in factory operations.

## 8. Action Plan for Chemicals Sector

This section details the action items of the policies that will be directly applied to the chemical sector. It is worth noting that some of the cost items will be incurred only once by the responsible agency (e.g. IDA) as it is not specific to one sector but it is rather encountered once the agency applies the policy to any sector. This includes the cost of purchase and set up of database.

### 8.1 Policies related to Large Energy Intensive Industries

#### Policy 1: Incorporate EMS in export procedures.

##### SECTION 1: PROGRAM DEFINITION

Program Name:	Incorporate EMS in export procedures
Program Owner:	IDA
Scope of the program:	Energy intensive, large and exporting sub-sectors namely, fertilizer industries and petrochemical industries
Rationale behind it:	Sectors exporting energy intensive products should have an operative energy management system (EMS), reported energy data and approved and implemented EE plan.
Which MTI Strategy 2020 Strategic Objectives it supports:	Energy efficiency sector strategy
Which of the ten dimensions does it support:	7. Expand R&D Budget and <b>Enhance Energy &amp; Resources Efficiency</b>

##### Section 2: Program Operational Conditions

	High	Medium	Low
Priority:	√		
	Risk	Likelihood	Impact
Risks Associated	<i>Unfair practices</i> To mitigate, criteria upon which EMS certification is offered and criteria upon which EMS implementation is considered satisfactory should be clear, transparent and publicly available	Low	Low
Stakeholders / Implementation Partners:	<b>Policy Owner</b> IDA <b>Supporting stakeholders</b> ENCPC Export councils of relevant industries and FEI Foreign trade sector		



	Energy Planning Authority <b>Facilitating stakeholders (not directly involved)</b> NQI NQI / ITC Foreign trade training center <b>Evaluating stakeholders</b> Policy Unit at MOI
<b>Budget:</b>	<b>1,000,000 L.E.</b>
Donor:	
Pre-requisites	Establishment of new RE and EE unit under IDA

## SECTION 3: IMPLEMENTATION TIMELINE

Start date for deploying the strategy: (In yearly quarters)	4 <sup>th</sup> quarter 2017
End date: (In yearly quarters)	On going

No.	Task break down:	Duration	Owner	Precedence	Cost Items	Budget
1.1	Set templates for data and plans	2 months	IDA/FEI		Consultant fees, in cooperation with IDA	100,000
1.2	Set mechanisms for data collection, assessment, analysis and revision	4 months	IDA	1.1		
1.3	Set mechanisms for plan collection, assessment, analysis and follow-up					
1.4	Personnel capacity building *	3 months	IDA	1.1, 1.2, 1.3, 1.4	Training	120,000
1.5	Acquire database software **	1 month		1.1, 1.4	Software	400,000
1.6	Set up database	2 months	IDA	1.5	Designer's fees	200,000
1.7	Prepare list of companies with operative EMS	3 months	IDA	1.6		0
1.8	Update list of companies with operative EMS	Every 6 months	IDA	1.7		0
1.9	Determine export duty as percentage of sales price ( optimized for each individual energy intensive product)	3 months	MIFT/IDA/FEI/Export council		Consultant fess	180,000
1.10	Prepare Decree imposing export duty	1 month	MIFT	1.9		0
1.11	Issue the Decree ( with adequate grace period)	1 month	MIFT	1.10		0
	<b>Total</b>					<b>1,000,000</b>

\*RE and EE Unit is already established at IDA and personnel recruited

\*\*Database software is an investment that will benefit not only the chemicals sector but also all other sectors. IT SHOULD NOT BE DOUBLE COUNTED

Milestones:	<ul style="list-style-type: none"> <li>• Decree for export duty</li> <li>• Companies Database</li> </ul>
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SECTION 4: MONITORING & EVALUATION

Key Performance Indicator	Frequency of Measurement	Data Owner	Baseline	Target
Number of facilities exempted from an export duty	Annually	Foreign trade sector, General Organization for Export and Import Control (GOEIC)	N/A	% (3 years after policy is in force)
% Compliance to plans	Annually	IDA	N/A	over 90% of facilities having their actual savings 70% or more of their planned savings for a specific year (5 years after policy is in force)
% facilities submitting correct data	Annually	IDA	N/A	100% (3 years after policy is in force)

Planned Outcomes	<ul style="list-style-type: none"> <li>• Sustained energy consumption reduction: Facilities will be continuously seeking the best fit reduction in energy consumption per unit product for their facilities.</li> <li>• Extensive information on industries: Data generated periodically from the facilities in an agreed format providing a much needed information database</li> </ul>
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**Policy 2: Incorporate EMS as a condition for state procurement**

**SECTION 1: PROGRAM DEFINITION**

Program Name:	Incorporate EMS as a condition for state procurement
Program Owner:	IDA
Scope of the program:	Agriculture sector of the State is a large consumer of fertilizers and printing sector is a consumer of the paper and transport sector are a consumer of rubber tires
Rationale behind it:	The government has the right to stipulate certain conditions on the materials they acquire or acquired by their contractors. The conditions could include that such material are sourced from manufacturing facilities with an operative EMS system, which report energy data and implement their plans to pursue EE.
Which MTI Strategy 2020 Strategic Objectives it supports:	Energy efficiency sector strategy
Which of the ten dimensions does it support:	7. Expand R&D Budget and <b>Enhance Energy &amp; Resources Efficiency</b>

**Section 2: Program Operational Conditions**

	High	Medium	Low
Priority:	√		
	Risk	Likelihood	Impact
Risks Associated	<p><i>Unfair practices</i> To mitigate, criteria upon which EMS certification is offered and criteria upon which EMS implementation is considered satisfactory should be clear, transparent and publicly available</p>	Low	Low
Stakeholders / Implementation Partners:	<p><b>Policy Owner</b> IDA <b>Supporting stakeholders</b> National Quality Institute (NQI) Industrial training council (ITC) General Authority for Government Services (GAGS) Relevant ministries e.g. Ministry of Housing Energy Planning Authority <b>Facilitating stakeholders (not directly involved)</b> NQI ITC <b>Evaluating stakeholders</b> Policy Unit at MOI</p>		
<b>Budget:</b>	<b>Already accounted for in Policy 1</b>		
Donor:			
Pre-requisites	Pre-policy, NQI will create an inventory of energy service		

	providers/consultants catering for all industries and establish a system to accredit EMS consulting firms
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**SECTION 3: IMPLEMENTATION TIMELINE**

Start date for deploying the strategy: (In yearly quarters)	Q4 2017
End date: (In yearly quarters)	On going

No.	Task break down:	Duration	Owner	Precedence	Cost Items	Budget
2.1	Set templates for data and plans	Same activities as that of Policy 1	IDA/FEI		Consultant fees, in cooperation with IDA	Cost already encountered for Policy 1
2.2	Set mechanisms for data collection, assessment, analysis and revision.		IDA	2.1		
2.3	Set mechanisms for plan collection, assessment, analysis and follow-up.					
2.4	Personnel capacity building*		IDA	2.1, 2.2, 2.3, 2.4	Training	
2.5	Acquire database software			2.1, 2.4	Software	
2.6	Set up database		IDA	2.5	Designer's fees	
2.7	Prepare list of companies with operative EMS		3 months	IDA	2.6	
2.8	Update list of companies with operative EMS	Every 6 months	IDA	2.7		
2.9	Prepare Circular imposing state consumers to employ only companies with operative EMS and EE action plan	1 month	GAGS	2.7, 2.8		
2.10	Issue the Circular (with adequate grace period)	1 month	GAGS	2.9		

*\*RE and EE Unit is already established at IDA and personnel recruited*

Milestones:	<ul style="list-style-type: none"> <li>• Circular imposing state consumers to employ companies with EMS</li> <li>• Database of companies with EMS</li> </ul>
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SECTION 4: MONITORING & EVALUATION

Key Performance Indicator	Frequency of Measurement	Data Owner	Baseline	Target
Number of bidders for tenders	Annually	Government entity issuing the tender	N/A	Annual increase
% Compliance to plans	Annually	IDA	N/A	over 90% of facilities having their actual savings 70% or more of their planned savings for a specific year (5 years after policy is in force)
% facilities submitting correct data	Annually	IDA	N/A	100% (3 years after policy is in force)

Planned Outcomes	<ul style="list-style-type: none"> <li>• Sustained energy consumption reduction: Facilities will be continuously seeking the best fit reduction in energy consumption per unit product for their facilities.</li> <li>• Extensive information on industries: Data generated periodically from the facilities in an agreed format providing a much needed information database</li> </ul>
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**Policy 6: Ensuring efficient energy performance of new facilities, operations and processes**

**SECTION 1: PROGRAM DEFINITION**

Program Name:	Ensuring efficient energy performance of new facilities, operations and processes
Program Owner:	IDA
Scope of the program:	Large energy intensive industries
Rationale behind it:	Ensuring efficient energy performance of new facilities, operations and processes through limiting license provision to targeted facilities unless: <ul style="list-style-type: none"> <li>• the production technology employed is at least at par with that of the most efficient of local manufactures/technologies</li> <li>• If they are committed to establish their EMS (noting that the EE plan will not include significant interventions such as equipment change for some time)</li> </ul>
Which MTI Strategy 2020 Strategic Objectives it supports:	Energy efficiency sector strategy
Which of the ten dimensions does it support:	7. Expand R&D Budget and <b>Enhance Energy &amp; Resources Efficiency</b>

**Section 2: Program Operational Conditions**

	High	Medium	Low
Priority:		√	
	Risk	Likelihood	Impact
Risks Associated	When comparing technologies of new facilities with existing ones it has to be ensured that the facilities are similar in terms of production processes. If not, then the new facility should be compared to international best practice.	Low	Low
Stakeholders / Implementation Partners:	<b>Policy Owner</b> IDA <b>Supporting stakeholders</b> ENCPC Energy Planning Authority <b>Facilitating stakeholders (not directly involved)</b> NQI ITC <b>Evaluating stakeholders</b> Policy Unit at MOI		
<b>Budget:</b>	<b>25,000</b>		

Donor:	UNIDO
Pre-requisites	Pre-policy, ENCPC will support in setting systems for EE plans and data acquisition and consulting the relevant industry.

**SECTION 3: IMPLEMENTATION TIMELINE**

Start date for deploying the strategy: (In yearly quarters)	Q1 2018
End date: (In yearly quarters)	On going

No.	Task break down:	Duration	Owner	Precedence	Cost Items	Budget
6.1	Research local market*	3 month	IDA			
6.2	Update EIA Guidelines with requirement of EMS for new large energy intensive industries	1 month	EEAA		Consultant's fees	25,000
6.3	Update database with new companies**	Continuous	IDA			
	Total					25,000

\* UNIDO IEE Benchmarking studies provides adequate base for a number of subsectors (fertilizers)

\*\* Assuming database is already established for policies 1 and 2

Milestones:	<ul style="list-style-type: none"> <li>Efficient energy performance of new facilities</li> </ul>
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**SECTION 4: MONITORING & EVALUATION**

Key Performance Indicator	Frequency of Measurement	Data Owner	Baseline	Target
Facilities rejected a license due to failure to abide by EE requirements	Annually	IDA	N/A	0%
% facilities submitting correct data	Annually	IDA	N/A	100% (3 years after policy is in force)

Planned Outcomes	<ul style="list-style-type: none"> <li>Sector upgrade: Introduction of EE technologies to the market, improving the sector's energy performance</li> <li>Raising awareness: Signaling to the other market players that the best technologies are available and operative locally. This can be supported by case studies.</li> </ul>
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## 8.2 Policies Related to Small Energy and Non-Energy Intensive Industries

### Policy 5: Reach out to SMEs through intermediaries

#### SECTION 1: PROGRAM DEFINITION

Program Name:	Reach out to SMEs through intermediaries
Program Owner:	The Agency for Development of Micro, Small and Medium projects
Scope of the program:	Small and Medium industries
Rationale behind it:	Industrial SMEs are distributed over various sectors, are large in number and possess limited financial, technical and organizational capacities. Given these constraints this policy aims to build-up and strengthen the capacities of industrial organizations such that they can independently support their members on matters regarding IEE.
Which MTI Strategy 2020 Strategic Objectives it supports:	Energy efficiency sector strategy / MSMEs Strategy
Which of the ten dimensions does it support:	7. Expand R&D Budget and <b>Enhance Energy &amp; Resources Efficiency</b>

#### Section 2: Program Operational Conditions

	High	Medium	Low
Priority:		√	
	Risk	Likelihood	Impact
Risks Associated	There are expected to be plenty of issues on the agenda of the Agency and energy efficiency might not be a priority. Energy efficiency should be considered under resource efficiency and waste minimization which are pressing issues to improve productivity.	Moderate	Moderate
Stakeholders / Implementation Partners:	<b>Policy Owner</b> The Agency for Development of Micro, Small and Medium projects <b>Supporting stakeholders</b> Production cooperatives and Federation of Egyptian Industries (FEI) Ministry of finance Industrial technological development sector (MoI) (including ENCPC) IDA <b>Facilitating stakeholders (not directly involved)</b> Production cooperatives and Federation of Egyptian Industries (FEI) <b>Evaluating stakeholders</b> The Agency for Development of Micro, Small and Medium projects		



	Production cooperatives and Federation of Egyptian Industries (FEI)
<b>Budget:</b>	<b>1,280,000 L.E.</b>
Donor:	
Pre-requisites	Establishment of Agency for Development of Micro, Small and Medium projects (already established)

### SECTION 3: IMPLEMENTATION TIMELINE

Start date for deploying the strategy: (In yearly quarters)	Q4 2018
End date: (In yearly quarters)	On going

No.	Task break down:	Duration	Owner	Precedence	Cost Items	Budget
5.1	Develop data templates	2 months	IDA/MSMEs		Consultant's fees	200,000
5.2	Set mechanisms for data collection, assessment, analysis and revision.	4 months	IDA/MSMEs			
5.3	Conduct audits to develop guidelines	6 months	MSMEs/IMC	5.1, 5.2		
5.4	Develop guidelines	3 months	MSMEs/IMC	5.3		
5.5	Personnel capacity building *	3 months	MSMEs	5.4	Training	120,000
5.6	Acquire database software	1 month	IDA		Software	Cost already accounted for in Policy 1
5.8	Set up database	2 months	IDA		Designer's fees	
5.9	Develop award programs	6 months	MSMEs		Consultant's fees	100,000
5.10	Engage financiers	6 months	MSMEs/ Ministry of Finance			
5.12	Publicize initiatives for first two years (based on submission of awards)	2 years	MSMEs	5.11	Consultant's fees	60,000
	<b>Total</b>					<b>280,000</b>
5.11	Grant awards**	Annually	MSMEs	5.9 & 5.10		<b>1,000,000</b>

\* Assumption: Agency has already recruited staff from MIC or Social Fund

\*\* This amount is assigned annually and is not to be accounted for only once

Milestones:	<ul style="list-style-type: none"> <li>Working system</li> </ul>
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### SECTION 4: MONITORING & EVALUATION

Key Performance Indicator	Frequency of Measurement	Data Owner	Baseline	Target
Guidelines issued relative to the targeted sectors	3 years	Agency	N/A	100% of industrial sectors (3 years)
Number of award	Annually	Agency	N/A	More than 20%

applicants				increase
Number of facilities requesting finance	Annually	Production cooperatives and FEI	N/A	100% annual increase (for the first 5 years)

Planned Outcomes	<ul style="list-style-type: none"> <li>• Awareness: Heightened awareness regarding potential for EE with SMEs</li> <li>• Improved conditions: Alleviating burdens on SMEs due to energy price hikes</li> <li>• Capacity building: Strengthening the role of industrial associations</li> <li>• Better insight on SMEs: By obtaining energy data regarding SMEs industries from awards, audits and finance projects.</li> <li>• Institutional strengthening: Stronger reliance on, and affiliation to, industrial organizations</li> </ul>
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**Appendix A:**  
**Industrial Energy Efficiency Strategies and Policies**