Financing Energy Efficiency in Buildings and Appliances

(NEEAP II) 2019 -2022 Egypt

7 February 2023
The plan issued guided by EU directive in accordance with the requirements of the Arab Energy Efficiency guidelines.

The plan complies with the objective of Egypt SDS 2030.

It also committed to Egypt's Integrated and Sustainable Energy strategy for 2035, which aims to diversify energy mix in addition to saving in energy by about 18%.

The plan aims at activating the articles of the Electricity Law No. 87 and its executive regulations issued in May 2016 regarding energy efficiency improvement requirements requested by law.

Decree of a Prime Minister for year 2019 to form the Steering Committee for Sustainable Electrical Energy headed by the First Undersecretary of the MOERE and membership of the First Undersecretaries in another ministers whom concerned with sustainable energy.

Decree of a Prime Minister for year 2019 to commission MOERE EECCD to work as the central energy efficiency unit instead of the unit that was in the cabinet , MOERE EECCD will take the role to lead , coordinate and support EE.
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Institutional framework

Awareness & Outreach

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NEEAP-II
2019–2022
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Institutional framework

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NEEAP-II
2019–2022
Institutional Framework of Energy Efficiency

- Supreme Council of Energy
  - Supervisory Board For Energy Efficiency
    - Specialized Committee
      - Energy Efficiency Specifications and labeling Committee
    - Energy Efficiency Unit MoERE
      - Energy Efficiency Building Code Committee
    - Sectorial Units
      - Energy Efficiency Fund
Energy Efficiency Unit MoERE

**Coordination** with relevant bodies:

with the Electricity Regulatory Authority and licensed companies in production and distribution regarding EE activities besides supplying and following up the implementation of EE procedures

**Database** of EE record and energy service companies registry;

Record of measurement and verification companies and database of accredited centers for EE training & granting accreditation certificates.

**Availability** EE activities of financing:

EE Fund Coordinating with the Central Bank's initiative for the medium and medium enterprises and coordination with donors

**Technical** Secretariat of the Steering Committee on EE
Sectoral Units

• **Achievements:**
  - The institutional framework is based on central planning, coordination and follow up and decentralized implementation of procedures through specialized sectoral units in different ministries.
  - So far 10 sectoral units have been established with decree, and 4 units are in the process of establishment.

• **Way forward:**
  - MOERE will further support establishment and activation of 4 units.
  - After conducting a status analysis of the ongoing energy efficiency activities, solutions will be proposed the identified challenges.
  - Also, necessary structure and governance scheme will be provided to the sectoral units, so that they can effectively work for crosscutting issues and tune up their activities with those taken by other sectors.
Standard and labelling system

• **Achievements:**
  - The committee is supposed to supervise implementation of standard and labelling system (S&L system). The S&L system will set the minimum energy performance standard (MEPS) and eliminate non-efficient appliances.
  - So far, work was done to organize S&L Committee for capacity development on energy efficiency and conservation. All the stakeholders related to standards and labelling program met regularly to discuss about issues and challenges they are facing.

• **Way forward:**
  - **The Committee concluded that further actions will be required especially in the following issues.**
    - Guidebook will be developed to clearly define each stakeholder’s role and activities.
    - If there is a need for support, concept note requesting for further cooperation will be developed.
    - Some MEPS will be reviewed. Support will be provided for Egyptian Organization for Standardization & Quality (EOS) technical committee for updating standards.
    - Standards will be revised so that all the labels shall be unified with the same format for all appliances (i.e. A--to--E).
    - Updating testing laboratories will be necessary, including capacity expansion.
    - Granting licenses to more laboratories to conduct the required test on energy efficiency is another possible option to explore.
➢ Policy and financial mechanisms to replace non-energy efficient appliances will be explored.
➢ A fund to replace non-energy efficient appliances was not secured until now, and it requires financing for this policy component to move forward, Major power consuming appliances (such as AC, refrigerator) are examples.
➢ Incentives and programs for encouraging replacement will need to be proposed, such as rebate system for high efficient products and bulk purchasing of high efficient products through public procurement.
➢ Capabilities of manufacturers to execute the standard will be checked.
➢ Appropriate education, awareness and communication campaigns targeting manufacturers, distributors, retailers and end-users will be planned and conducted.

The NEEAP- Energy Efficiency Specifications Committee will be activated and will manage the program from the following perspectives:
• Coordinate stakeholder roles & responsibilities,
• Conduct market analysis & set targets
• Monitor & evaluate the program impacts
• Information sharing among the stakeholders should be enhanced.
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Energy Efficiency Building Code Committee

Energy Efficiency Fund
Mechanism for financing energy efficiency activities
Mechanism for financing energy efficiency activities

Information Bank

Risk Guarantee Mechanism

Energy Efficiency Fund
Design a software platform is proposed that will act as **data base** for all energy efficiency & renewable energy activities include the following:

- **Knowledge**
- **Fund**
- **Record of measurement**
- **Eligibility criteria**
- **MRV**
- **Energy efficiency training.**
- **Companies registry.**
- **Performance evaluation**
- **Evaluation sheet**
- **List of consultants.**
- **Financial mechanism**
- **laws & legislation**
Energy balance

Evaluation sheet

• The energy balance is the most complete statistical accounting of energy products (entering, exiting and used), it offers a complete view on the energy situation of a country in a compact format, such as on energy consumption of the whole economy and of individual sectors..

• Express all forms of energy in a common accounting unit and show the relationship between the inputs to and the outputs from the energy transformation processes, this allows users to see the total amount of energy used and the relative contribution of each different source, for the whole economy and for each individual consumption sector. In addition, it allows users to compute the various energy transformation efficiencies".

• The energy balance allows studying the overall domestic energy market and monitoring impacts of energy policies, to this end, energy balances are a key input for the Commission's impact assessments in the area of energy policies and energy efficiency target of strategy.
Figure 2-8 Energy flow chart based on energy balance table (2020/21)
Mechanism for financing energy efficiency activities
EE Fund Operational model

ESCO Tasks:
• Interface between EEF and the energy user
• Verify and consolidate requests (With DISCOs)
• Installation and assessment

PIU Tasks:
• Eligibility criteria (Positive list)
• Awareness rising and Marketing
• Development of Retailers network

Energy Efficiency Fund system (EEF)

Local implementation

EE Fund

Start

Energy user (commercial, residential)

Application(s)

Request for Disbursement

Disbursement of Subsidy + Fees

Service Provider (ESCO)

Price and Delivery

Verification and consumption data

Appliances Retailer

DISCO

Project Implementation Unit (PIU):
(Management Consultant + MoERE / MoF)

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Mechanism for financing energy efficiency activities

- Information Bank
- Energy Efficiency Fund
- Risk Guarantee Mechanism
## Grant for EE Services

### Examples of eligible EE - Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appliances</strong></td>
<td>- EE Fridges</td>
</tr>
<tr>
<td></td>
<td>- Freezers</td>
</tr>
<tr>
<td></td>
<td>- Cooking technologies</td>
</tr>
<tr>
<td><strong>Building shell</strong></td>
<td></td>
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<tr>
<td></td>
<td>- Shading</td>
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<td></td>
<td>- Window film</td>
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<tr>
<td><strong>Lighting</strong></td>
<td>- Lighting retrofit (e.g. LED)</td>
</tr>
<tr>
<td></td>
<td>- Lighting controls</td>
</tr>
<tr>
<td><strong>Cooling</strong></td>
<td>- Energy efficient air conditioning (AC)</td>
</tr>
<tr>
<td></td>
<td>- Energy management system for AC</td>
</tr>
<tr>
<td><strong>Solar</strong></td>
<td>- PV roof top system</td>
</tr>
<tr>
<td></td>
<td>- Solar water heating system</td>
</tr>
<tr>
<td><strong>workshops</strong></td>
<td>- Energy efficient motors</td>
</tr>
<tr>
<td></td>
<td>- Heat exchangers</td>
</tr>
<tr>
<td></td>
<td>- Compressed air systems</td>
</tr>
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</table>
Preliminary NAMA project description

• In October 2022, the NAMA Facility approved a grant to the Government of Egypt (represented by the Ministry of Electricity and Renewable Energy) as support for implementing the technical and financial components of the Egypt Industry PV program (Egypt In-PV).
• Implementation of the program is planned from 2024 to 2027 (4 years).
• Program steering will take place through a high-level committee headed by Ministry of Electricity and Renewable Energy (MoERE).

Initial high-level eligibility criteria for program beneficiaries include:
• Solar Photovoltaic (PV) systems between 50 and 500kW implemented in industrial Small-to-Medium Enterprises.
• Beneficiaries are either the industrial SMEs directly or solar developers taking loans to implement PV systems in industrial SMEs.
• Larger systems and/or enterprises may be considered according to market conditions during implementation

severe local inflation (on PV system prices) and currency devaluation in 2022 due to the global crisis mean that it is likely that the finance currently allocated by partner local banks to be provided to participating industrial SMEs will need to be increased.
Experience from Egypt
The Egyptian Electricity and Renewable energy Sector succeeded with SIEMENS company to establish 3 Mega Power Plants high-efficiency compound cycle (60.5\%).

With total capacity of 14400 MW installed in 2.5 years (45% of the installed capacities in 2015).

**EPC + Finance Cost of 6 Billion Euro.**
Figure 2-5 Fuel saving amount from supply side measures

Table 2-1 Savings from supply side measures

<table>
<thead>
<tr>
<th>Fuel saved due to</th>
<th>Energy saving (ktoe)</th>
<th>Financial saving (Million USD)</th>
<th>CO₂ emissions saving (t-CO₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Renewable energy</td>
<td>3,372</td>
<td>4,386</td>
<td>4,500</td>
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<td>(b) Siemens (Actual generation)</td>
<td>2,641</td>
<td>3,247</td>
<td>4,024</td>
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<tr>
<td>Total</td>
<td>6,013</td>
<td>7,633</td>
<td>8,525</td>
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Source: EEHC annual reports
### Table 2-3 Achieved EE measures in NEEAP-II

<table>
<thead>
<tr>
<th>Measure</th>
<th>2018/2019</th>
<th>2019/2020</th>
<th>2020/2021</th>
<th>2021/2022</th>
<th>Average (per year)</th>
<th>Total (4 years)</th>
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<tbody>
<tr>
<td>Final electric energy consumption savings (MWh)</td>
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<td>781,740</td>
<td>781,740</td>
<td>781,740</td>
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<td>234</td>
<td>573</td>
<td>1,841,582</td>
<td>2,608,339</td>
<td>1,112,682</td>
<td>4,450,728</td>
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<td>PV installation under FIT and net metering systems</td>
<td>56,464</td>
<td>56,464</td>
<td>56,464</td>
<td>56,464</td>
<td>56,464</td>
<td>225,855</td>
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<td><strong>Total</strong></td>
<td><strong>2,740,785</strong></td>
<td><strong>10,963,138</strong></td>
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<table>
<thead>
<tr>
<th>Measure</th>
<th>2018/2019</th>
<th>2019/2020</th>
<th>2020/2021</th>
<th>2021/2022</th>
<th>Average (per year)</th>
<th>Total (4 years)</th>
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<tbody>
<tr>
<td>Primary energy saving (ktoe)</td>
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<td><strong>Total</strong></td>
<td><strong>651</strong></td>
<td><strong>651</strong></td>
<td><strong>2,606</strong></td>
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<td>CO₂ saving due to primary energy saving (t-CO₂)</td>
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<td>---------------------------------------------</td>
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<td>1,794,179</td>
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<td>329</td>
<td>1,056,658</td>
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<td><strong>Total</strong></td>
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<td><strong>4,610,741</strong></td>
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<table>
<thead>
<tr>
<th>Financial savings due to primary energy saving (million USD)</th>
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<th></th>
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<td>29</td>
<td>73</td>
<td>175</td>
<td>81</td>
<td>324</td>
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<td>0.02</td>
<td>171</td>
<td>584</td>
<td>189</td>
<td>755</td>
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<td>2</td>
<td>5</td>
<td>13</td>
<td>6</td>
<td>23</td>
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<td><strong>Total</strong></td>
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<td><strong>1,399</strong></td>
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</table>
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http://egypt-energysaving.com/publications
Thank You