



Ministry of Electricity & Renewable Energy  
Arab Republic of Egypt

# **EGYPT: Energy Efficiency**

## **(Success Story)**



# Egypt's Strategic vision for energy



A Coherence among the **Egypt's energy vision 2035**  
& National SDGs 2030  
& UN SDGs 2030.



“Maximize the efficient use of various Energy resources in a competitive, environment manner focusing on **renewable energy**”.

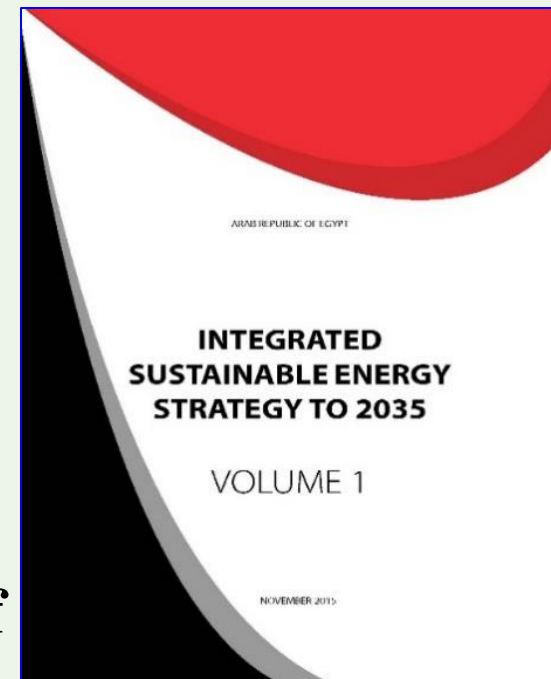
# Integrated Sustainable Energy Strategy to 2035

The “Integrated Sustainable Energy Strategy for 2035” was approved, in which the share of the Renewable Energy in the energy mix will reach 42% by 2035.

## A transformative shift from gas to renewables

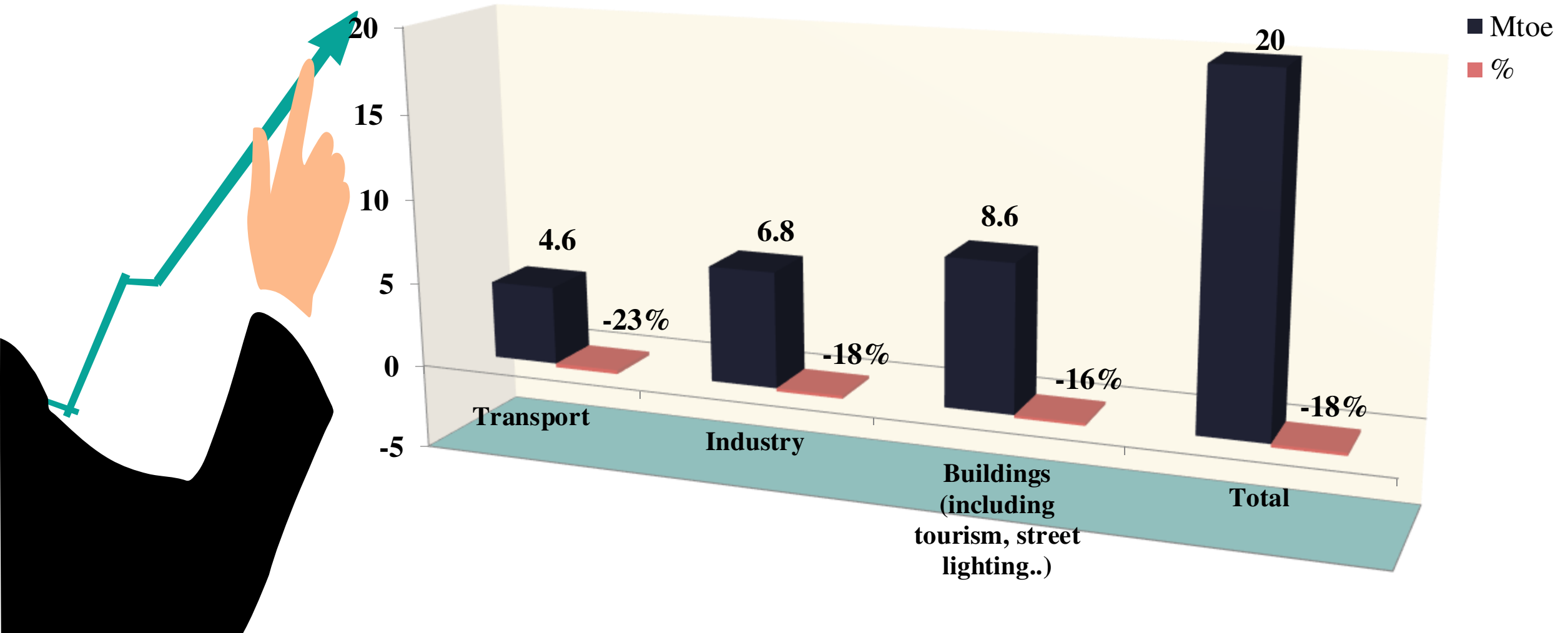
- Targeting by year 2035 :
  - **42 % Renewable Energy** from total Installed Capacity .
  - **18%** Improvement in **Energy Efficiency**.

**Currently**, the Energy Strategy until **2040** is being updated in light of global developments related to renewable energy technologies, development of technologies for energy storage and the new trend towards hydrogen.



# Energy efficiency in the light of Energy Strategy 2035

- ❑ The National Energy Efficiency potential at 2035 is estimated to save **20 Mtoe or 18%** of the 2035 total final energy consumption from the base year 2010 as follows:



# **(NEEAP II) 2019 -2022 Egypt**



# legislative infrastructure

**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%.**

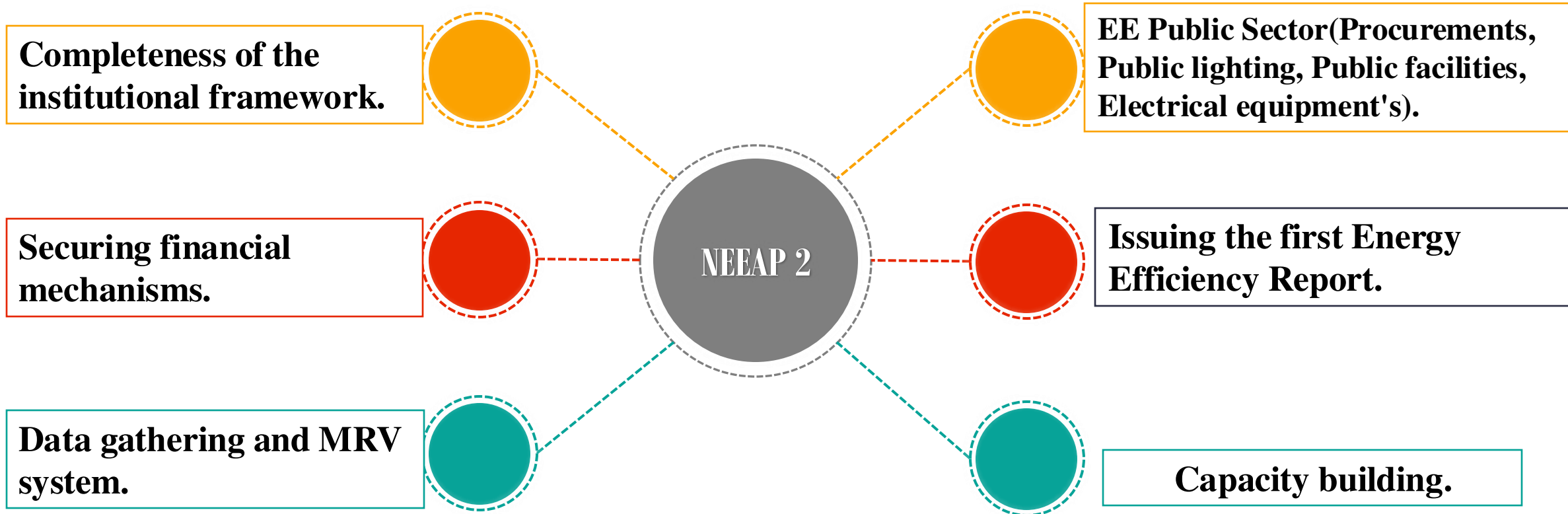
**The plan aims at activating the articles of the Electricity Law No. 87 and its executive regulations issued in May 2016 regarding energy efficiency improvement requirements requested by law.**

**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**

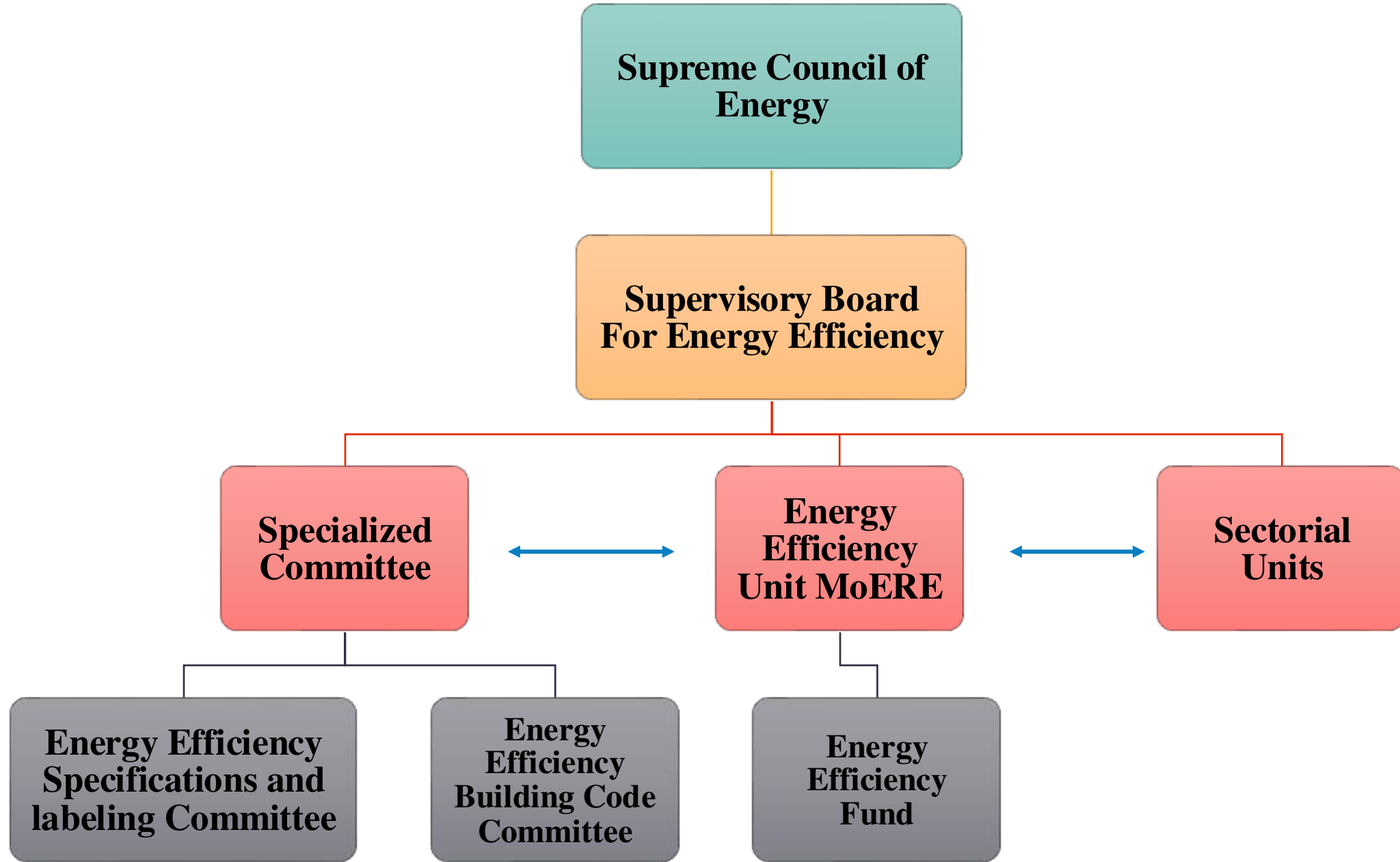
**Decree of a Prime Minister for year 2019 to commission MOERE EECCD to work as the central energy efficiency unit instead of the unit that was in the cabinet , MOERE EECCD will take the role to lead , coordinate and support EE.**

# **National Energy Efficiency Action Plan NEEAP 2, ( 2019-2022)**

**NEEAP2 which aligned with the short term action plan of the national Energy strategy 2035 including the following main future pillars :**



# Institutional Framework of Energy Efficiency





# Institutional framework

## ➤ Sectoral Units

- 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 **5** units are in the process of establishment.

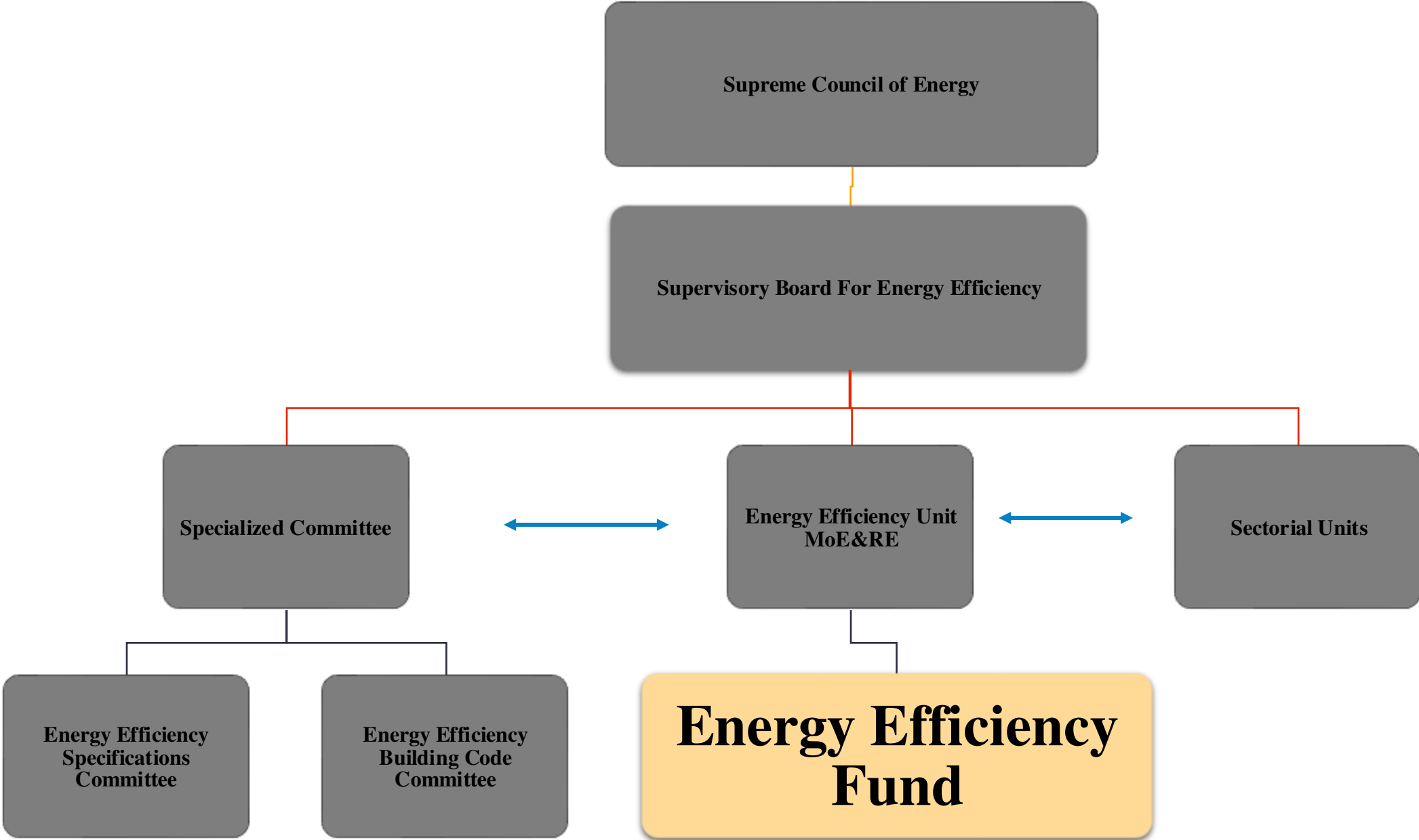
## • Standard and labelling Committee

- The committee is supposed to supervise implementation of standard and labelling system (S&L system).
- To review 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.

## ➤ Energy Efficiency Building Code Committee

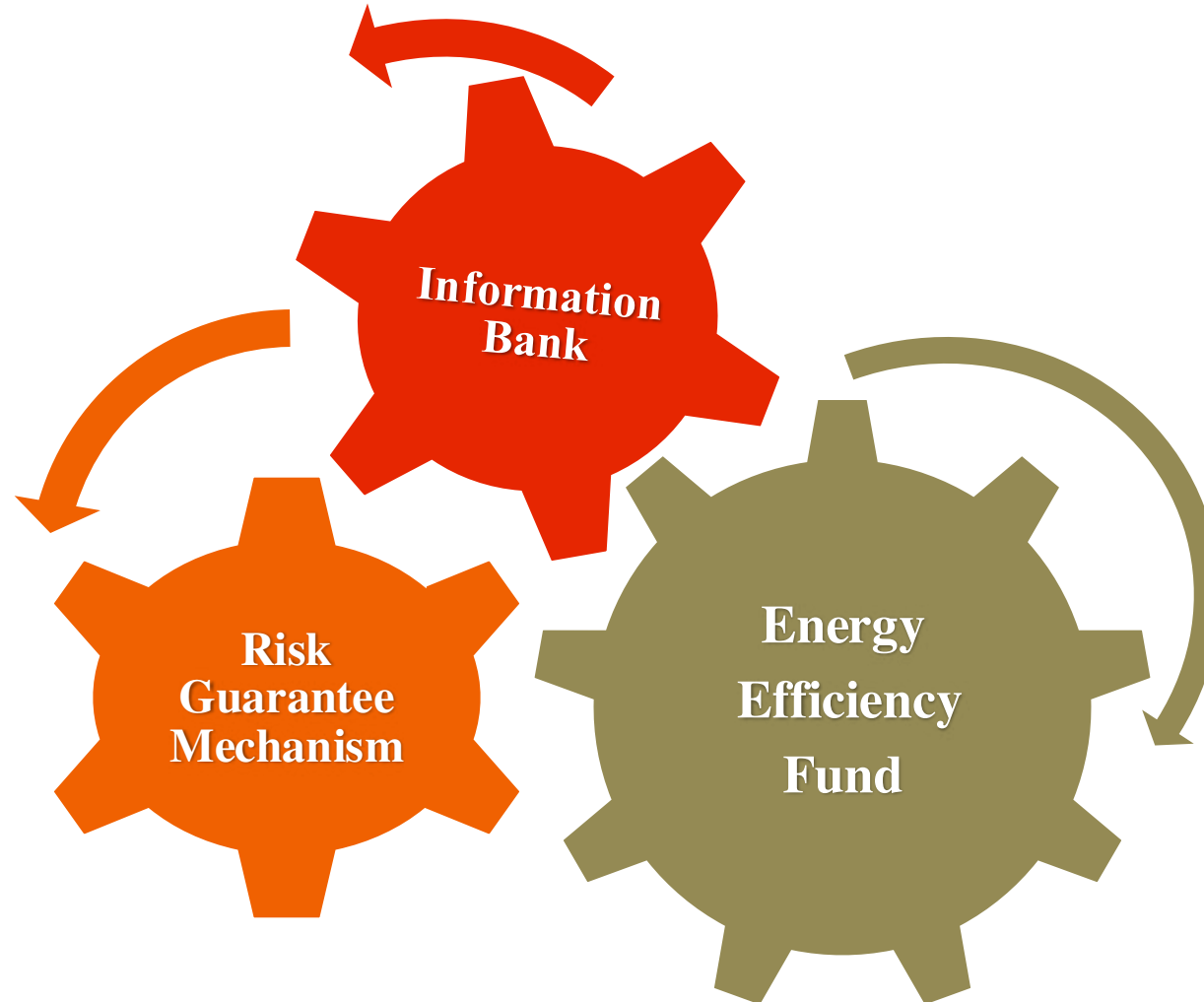
- Building code has been published ,now we are in a phase of activating the building code in addition setting *The National Strategy for Sustainable Green Urbanism and Building*

# Energy Efficiency Fund

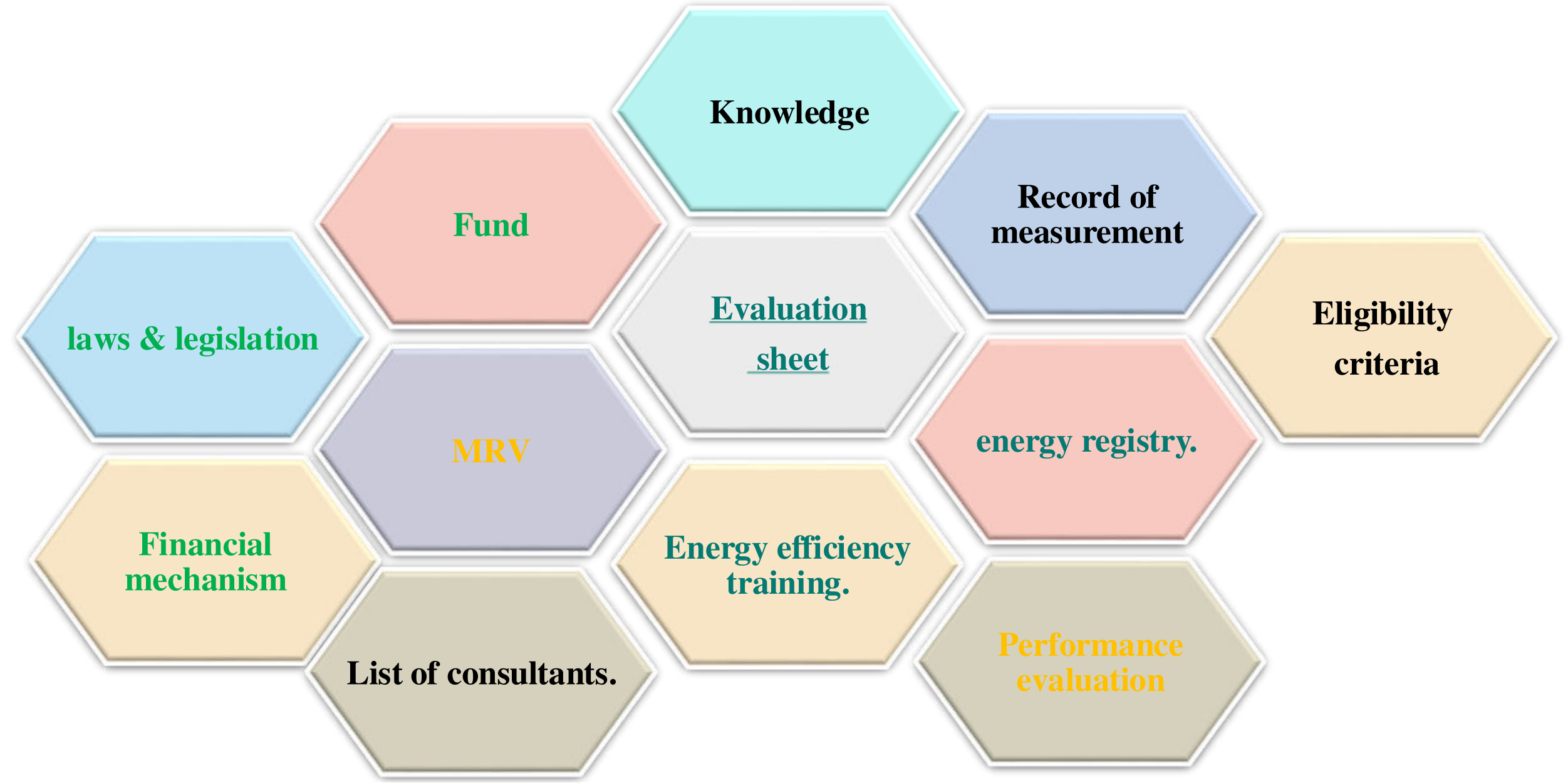


# Mechanism for financing energy efficiency activities

---



# Design A Software Platform Is Proposed That Will Act As **Data Base** For All Energy Efficiency & Renewable Energy Activities Include The Following:-



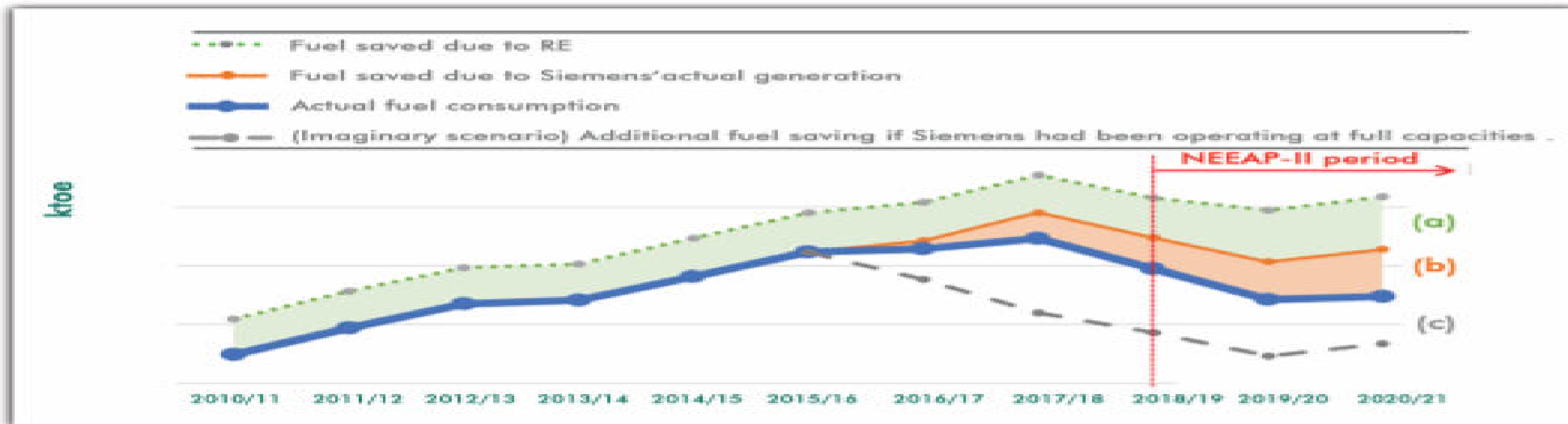
# Preparation of annual energy efficiency report

## FIRST REPORT ON ENERGY EFFICIENCY IN EGYPT



COP 27 SHARM EL SHEKH

- The first report of energy efficiency in Egypt will glow in the sky of COP27 as a product of the most fruitful cooperation between MOERE-EECCD and the T/C team of JICA.
- The report is the first documentation of energy efficiency projects that have a great impact in achieving savings in fuel and money, and its returns are calculated exclusively for the first time concerning primary energy and GDP.



Source: EEHC annual reports

**Figure 2-5 Fuel saving amount from supply side measures**

**Table 2-1 Savings from supply side measures**

Fuel saved due to	Energy saving (ktoe)			Financial saving (Million USD)			CO <sub>2</sub> emissions saving (t-CO <sub>2</sub> )		
	2018/19	2019/20	2020/21	2018/19	2019/20	2020/21	2018/19	2019/20	2020/21
(a) Renewable energy	3,372	4,386	4,500	838	675	1,710	7,920,656	10,301,346	10,570,822
(b) Siemens (Actual generation)	2,641	3,247	4,024	657	500	1,529	6,203,275	7,627,077	9,453,100
<b>Total</b>	<b>6,013</b>	<b>7,633</b>	<b>8,525</b>	<b>1,495</b>	<b>1,175</b>	<b>3,239</b>	<b>14,123,932</b>	<b>17,928,423</b>	<b>20,023,922</b>



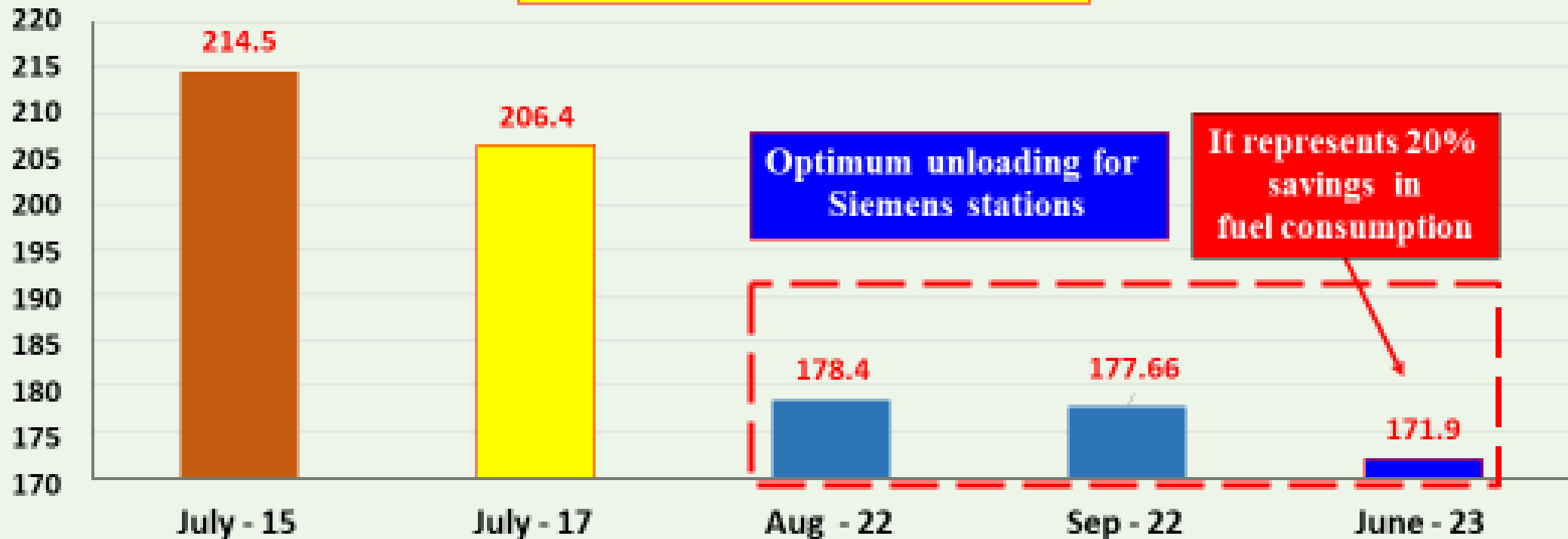
## Savings in the rate of fuel consumption as a result of unloading the full capacity of the Mega Plants on the national grid



Economical operation of electricity production plants has been achieved by relying on high-efficiency generation plants (Mega Projects **Siemens power plants**), and **raising the efficiency of combined generation, by relying on unloading the full capacity of Siemens power plants**. As a result of these patterns, the following has been achieved:

Gram /Kwh

### Reduction in fuel consumption



**Table 2-3 Achieved EE measures in NEEAP-II**

Measure	2018/2019	2019/2020	2020/2021	2021/2022	Average (per year)	Total (4 years)
<b>Final electric energy consumption savings (MWh)</b>						
Activation of the role of EDCs	789,899	789,899	789,899	789,899	789,899	3,159,596
Introduction of LEDs in residential and building sectors	781,740	781,740	781,740	781,740	781,740	3,126,959
Introduction of LEDs in street lighting	234	573	1,841,582	2,608,339	1,112,682	4,450,728
PV installation under FIT and net metering systems	56,464	56,464	56,464	56,464	56,464	225,855
<b>Total</b>					<b>2,740,785</b>	<b>10,963,138</b>
Measure	2018/2019	2019/2020	2020/2021	2021/2022	Average (per year)	Total (4 years)
<b>Primary energy saving (ktoe)</b>						
Activation of the role of EDCs	175	175	175	175	175	700
Introduction of LEDs in residential and building sectors	191	191	191	191	191	764
Introduction of LEDs in street lighting	0.1	0.1	450	637	272	1,087
PV installation under FIT and net metering systems	14	14	14	14	14	55
<b>Total</b>					<b>651</b>	<b>2,606</b>



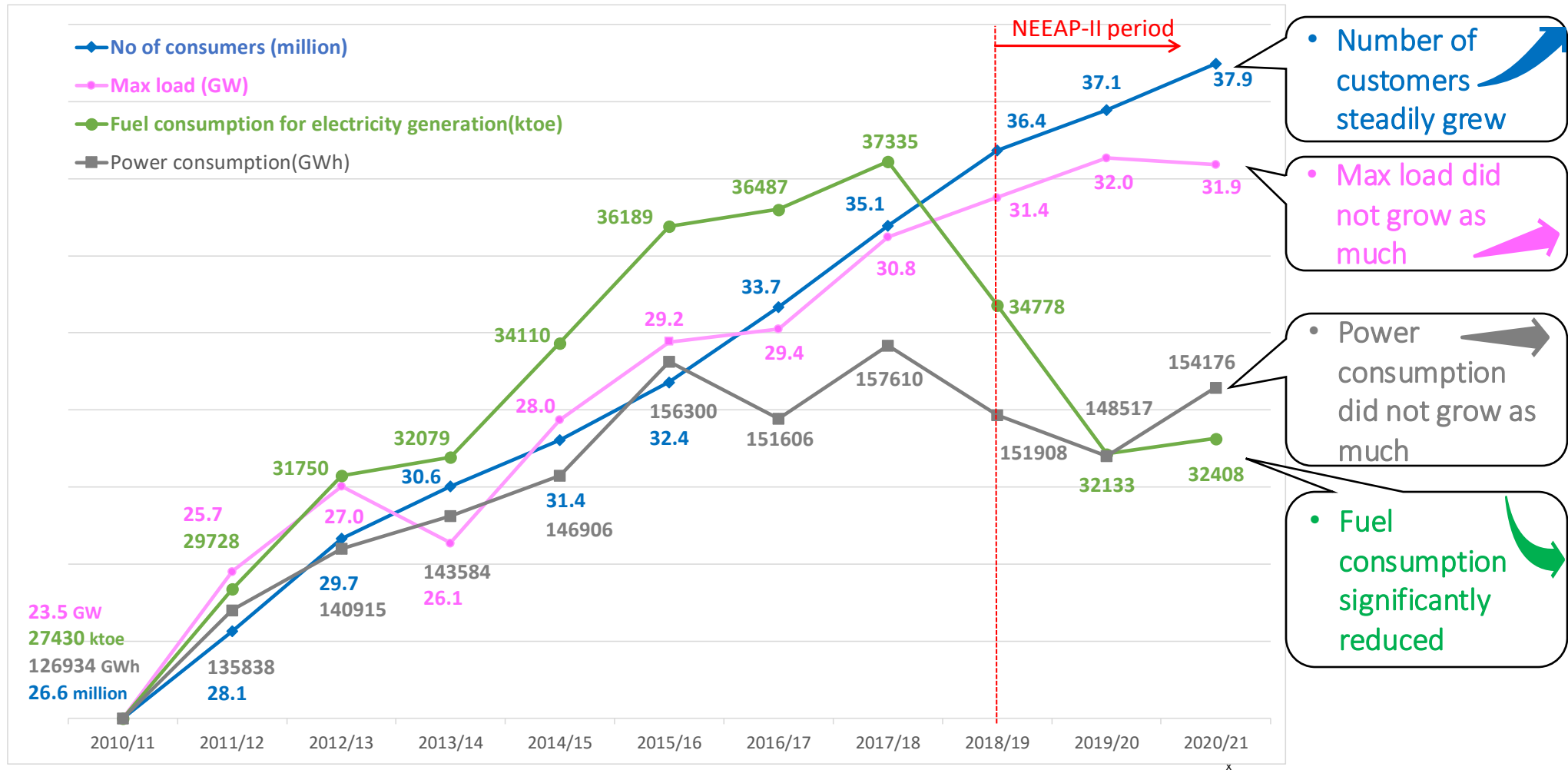
### CO<sub>2</sub> saving due to primary energy saving (t-CO<sub>2</sub>)

Activation of the role of EDCs	410,811	410,811	410,811	410,811	410,811	1,643,245
Introduction of LEDs in residential and building sectors	448,545	448,545	448,545	448,545	448,545	1,794,179
Introduction of LEDs in street lighting	134	329	1,056,658	1,496,606	638,432	2,553,727
PV installation under FIT and net metering systems	32,398	32,398	32,398	32,398	32,398	129,590
<b>Total</b>					<b>1,530,185</b>	<b>6,120,741</b>

### Financial savings due to primary energy saving (million USD)

Activation of the role of EDCs	43	27	66	160	74	297
Introduction of LEDs in residential and building sectors	47	29	73	175	81	324
Introduction of LEDs in street lighting	0.01	0.02	171	584	189	755
PV installation under FIT and net metering systems	3	2	5	13	6	23
<b>Total</b>					<b>350</b>	<b>1,399</b>

# KPIs of energy efficiency in demand side



In terms of EE impact, it is to be particularly noted that:

- The amount of energy consumed for electric power generation did not grow as much as the number of customers.
- The peak load did not grow as much as the number of customers. Energy efficiency measures taken by each consumer such as introducing more energy efficient equipment are a part of the reasons.
- The amount of fuel required for electricity generation decreased significantly, due to ① accelerated installation of renewable energy and ② extensive upgrade and replacement programs of power plants, both of which are the supply side measures.

A person's hands are shown typing on a laptop keyboard. The image is overlaid with a semi-transparent blue banner. In the background, there are faint, semi-transparent financial charts, including a bar chart and a line graph with various numerical values like 83.5, 90.2, +3.5, +83.4, 71.2, 67.5, and 75.5.

# Future Projects

(NEEAP3)

## **NEEAP-III Preparation based on Energy Balance**

Future policy planning for **NEEAP-III** will be based on the national energy balance. The final electricity savings will be converted into savings in primary energy. The prioritization over proposed projects, as well as evaluation of their progress should be based on primary energy basis to reflect the actual energy savings in the country.

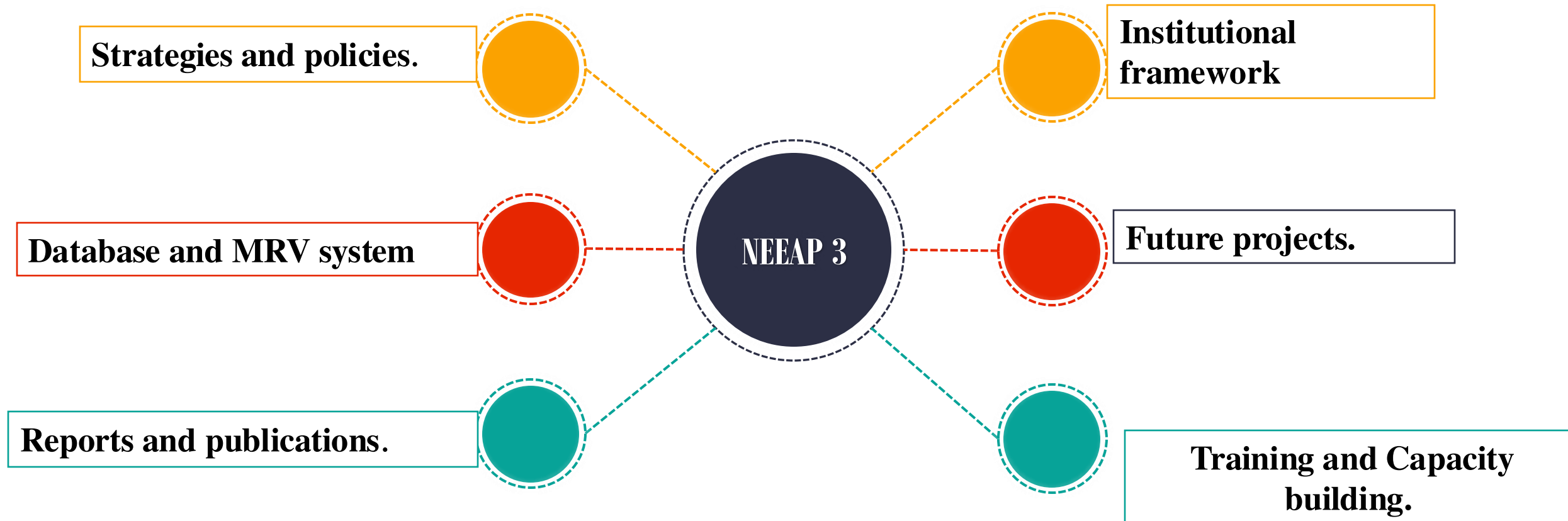
# Energy balance

## 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

# **National Energy Efficiency Action Plan NEEAP-III**

**NEEAP3** which will be aligned with the short term action plan of the **update of national Energy strategy 2040** including the following main future pillars :



## strategies and policies.

- Energy strategy.
- Hydrogen strategy.

### Related strategies:

- Egypt Vision 2030
- Climate change strategy.
- The National Strategy for Urbanism and Green Building.

### Legislation and policies:

**In the field of renewable energy** (Supporting small-capacity solar energy projects)

- Structuring the electricity tariff.
- Expanding the use of prepaid meters.
- Electricity Law.



# Sectoral Units

- Way forward:

- MOERE will further support establishment and activation of 5 units.
- After conducting a status analysis of the ongoing energy efficiency activities, solutions will be proposed to the identified challenges.
- Also, the necessary structure and governance scheme will be provided to the sectoral units, so that these units can effectively work for crosscutting issues and tune up their activities with those taken by other sectors.

# Standard and labelling system

**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.

**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
- Updating testing laboratories will be necessary, including capacity expansion.
- Policy and financial mechanisms to replace non-energy efficient appliances will be explored.
- 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.

## Data gathering and MRV

### Creating platforms for services and information

- Solar energy platform
  - The unified platform for electricity services
  - A platform for monitoring and governance of electricity production power plants
- Project to complete create a platform for energy efficiency including:
- Energy balance
  - Monitoring, reporting and verification system
  - A mechanism system to follow up on the implementation of nationally determined contributions (Ministry of Environment)
  - A mechanism for financing projects.
  - - Creating energy modeling units
  - - Creating an energy registry via an electronic platform
  - - Establishing energy services companies
  - - Activating the energy efficiency code in buildings

➤ **Reports and publications**

**Reports issued by the electricity sector:**

- energy efficiency report.
- Guide to rationalizing and improving energy efficiency in government buildings
- A guide to rationalizing and improving energy efficiency in government hospitals
- Energy audit report for the Electricity Hospital.

- **Participate in preparing and reviewing reports issued by the** Ministry of Environment within the Paris Agreement

- NDC report
- BUR report
- National communication reports.
- BTR report.

## Future projects

Among projects mentions in NEEAP-II, some were not able to make progress due to lack of financing among other reasons ,however these project have high potential in EE

### Summary of “Potential” EE Measures in NEEAP II

Slide #	NEEAP EE Measure	Total Potential Annual Electricity Savings [MWh/y]	Total Potential Annual Cost Savings [EGP/y]	Total Potential Annual GHG Reductions [tCO2e/y]
12	Full Market Potential of LED lamps in Residential and Commercial Sectors	37,562,706	39,816,467,984	17,203,719
15	Energy efficient industrial motors	1,615,921	1,858,309,064	740,092
16	Tourism (EE+PV)	1,031,161	814,858,428	366,649
19	Education (PV)	58,176	66,902,400	26,645
	<b>Total</b>	<b>40,267,963</b>	<b>42,556,537,876</b>	<b>18,337,105</b>

- Elimination of non-energy efficient appliances.
- Small solar capacity support project in cooperation with NAMA FACILITY.

# Future projects

- Elimination of non-energy efficient appliances.
- Small solar capacity support project in cooperation with NAMA FACILITY.

***The role of EE department is to evaluate saving in fuel and emissions***

- Waste to Energy
- electrical Vehicles
- Power - to - X technology
- The Strategic Plan for Water Desalination.
- Renewable energy.

## **NWFE Program**

- Egypt's Country Platform, for the Nexus of Water, Food and Energy (NWFE) Program, was launched in July 2022.
- The program aims at accelerating the national climate agenda and provides opportunities for mobilizing climate finance and private investments to support Egypt's green transition.
- It was developed on the back of the announcement of Egypt's 2050 Country Climate Strategy, and the Nationally Determined Contribution (NDC).
- The Energy Pillar of NWFE Program (N-EP) aims at decommissioning of 5000 MW of existing inefficient oil and gas generation capacity to support the installation of 10000 MW of new renewable energy capacity.
- It is worth mentioning that, Electricity sector already begun to execute the program by decommissioning two power plant at south of Cairo and Ataq.

*Thank You*