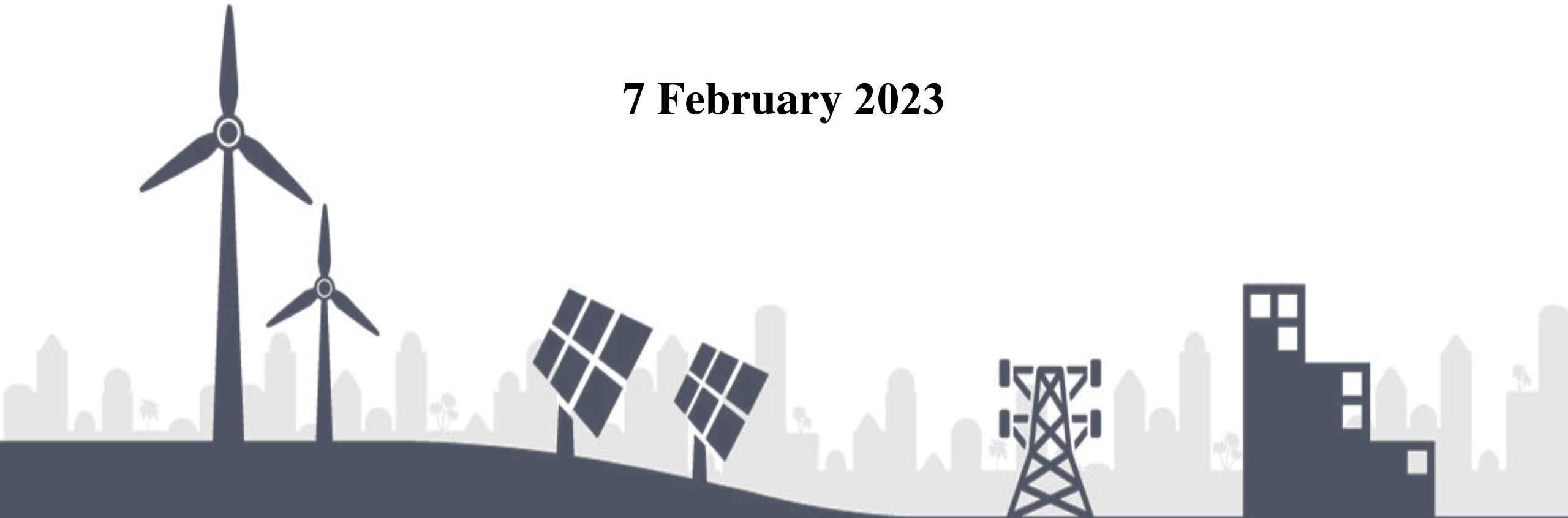


# **Financing Energy Efficiency in Buildings and Appliances**

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

**7 February 2023**



# 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.**

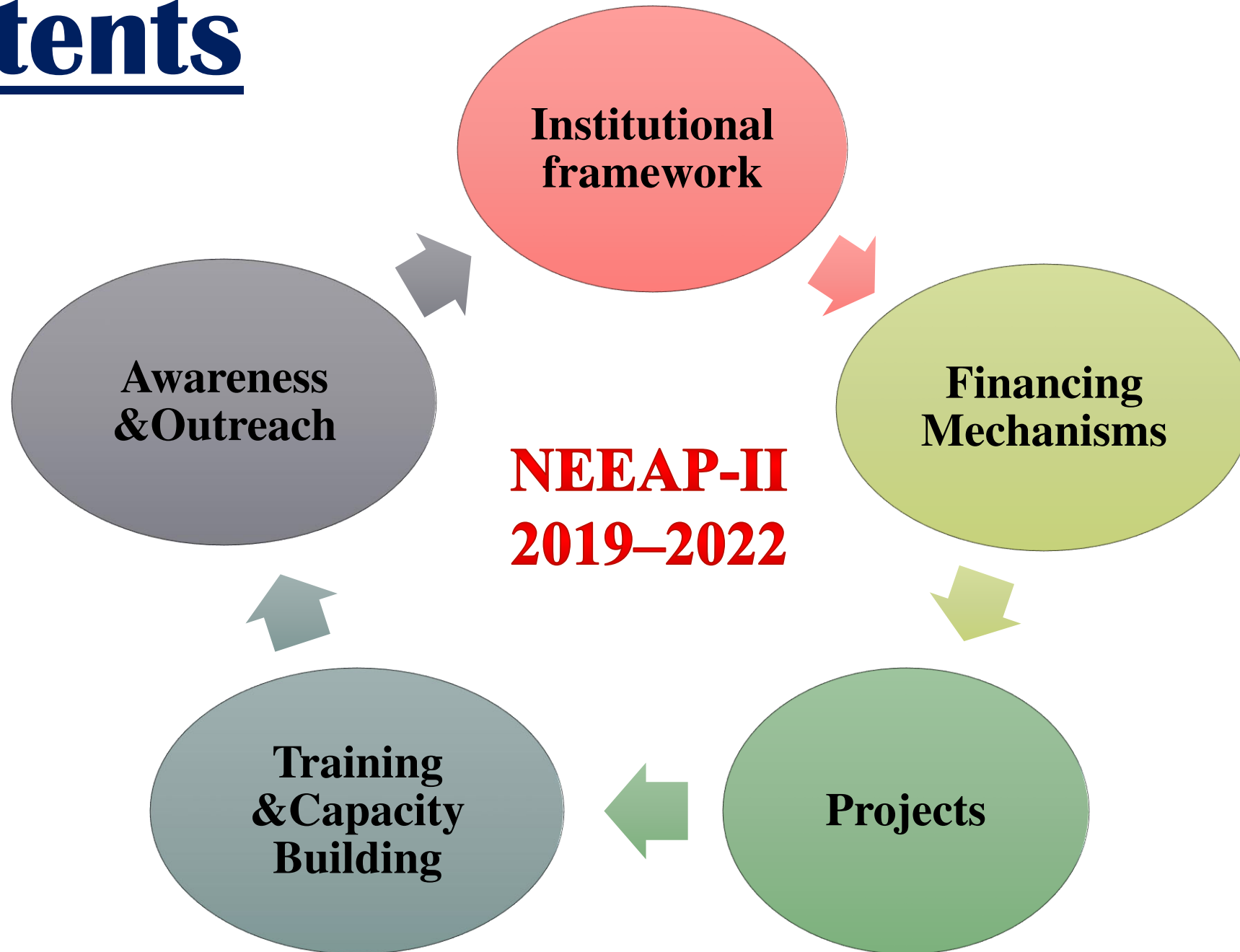
**It also committed to Egypt's Integrated and Sustainable Energy strategy for 2035, which aims to diversify energy mix in addition to saving in energy by about 18%.**

**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.**

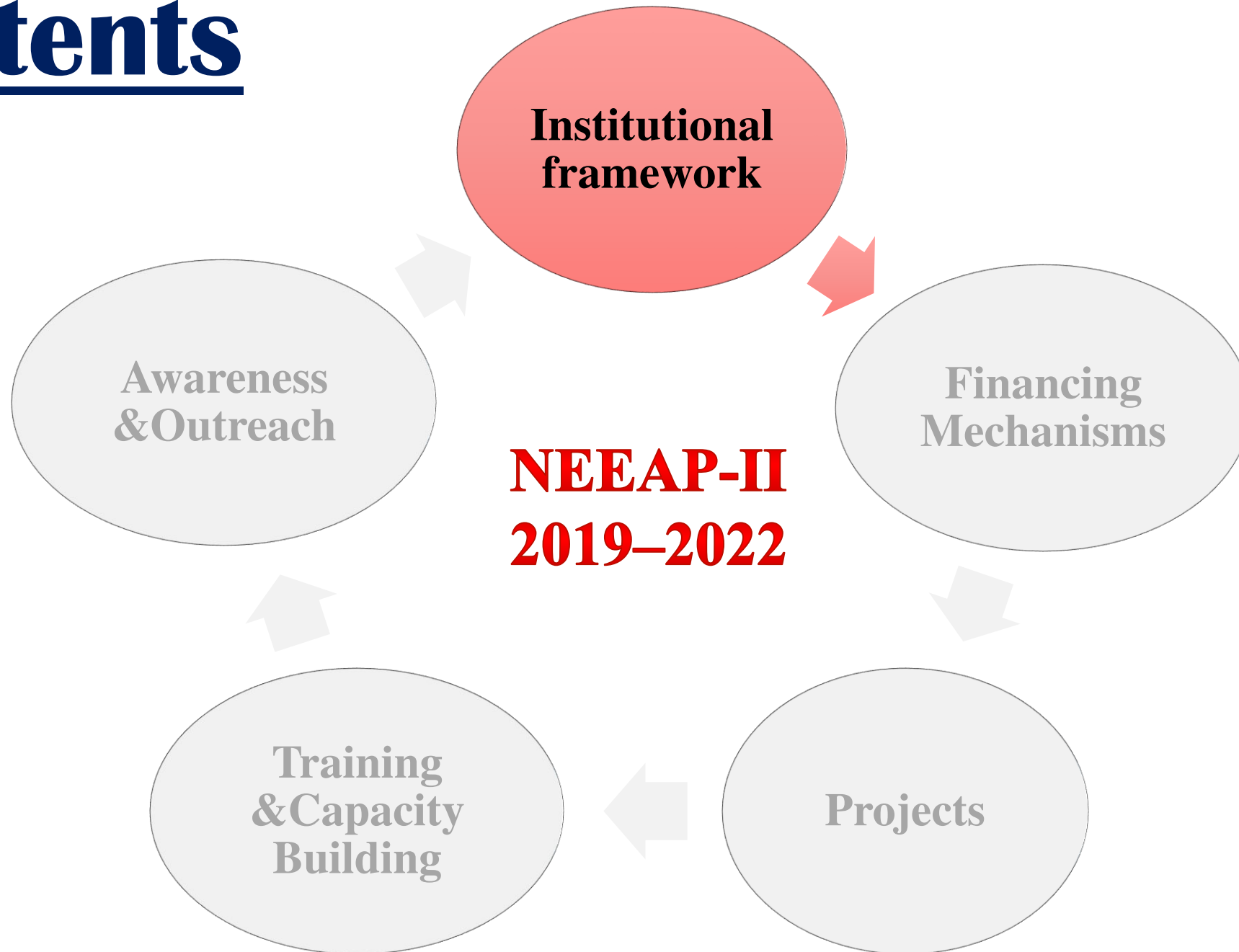
**Decree of a Prime Minister for year 2019 to form the Steering Committee for Sustainable Electrical Energy headed by the First Undersecretary of the MOERE and membership of the First Undersecretaries in another ministers whom concerned with sustainable energy**

**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.**

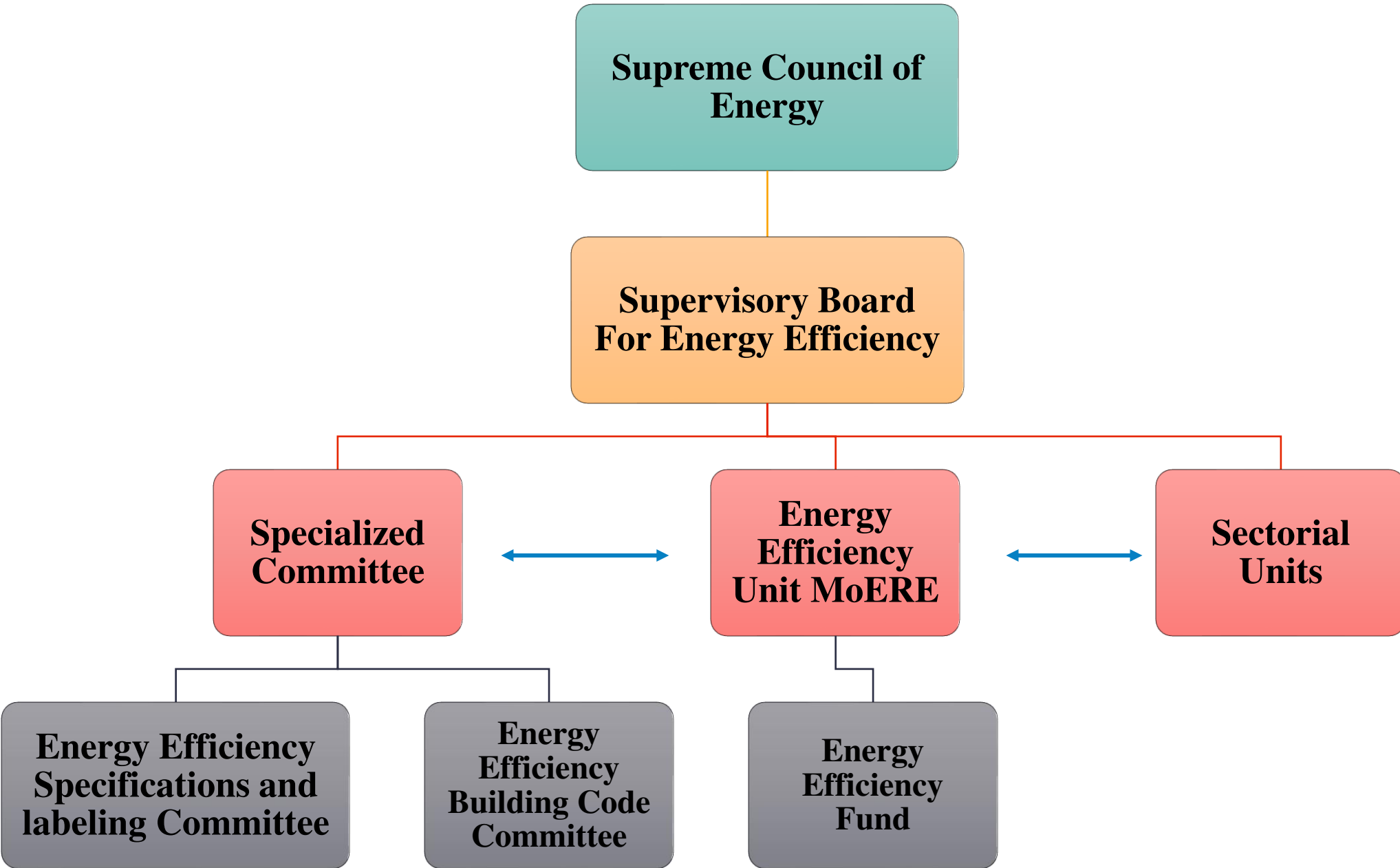
# Contents



# Contents



# Institutional Framework of Energy Efficiency



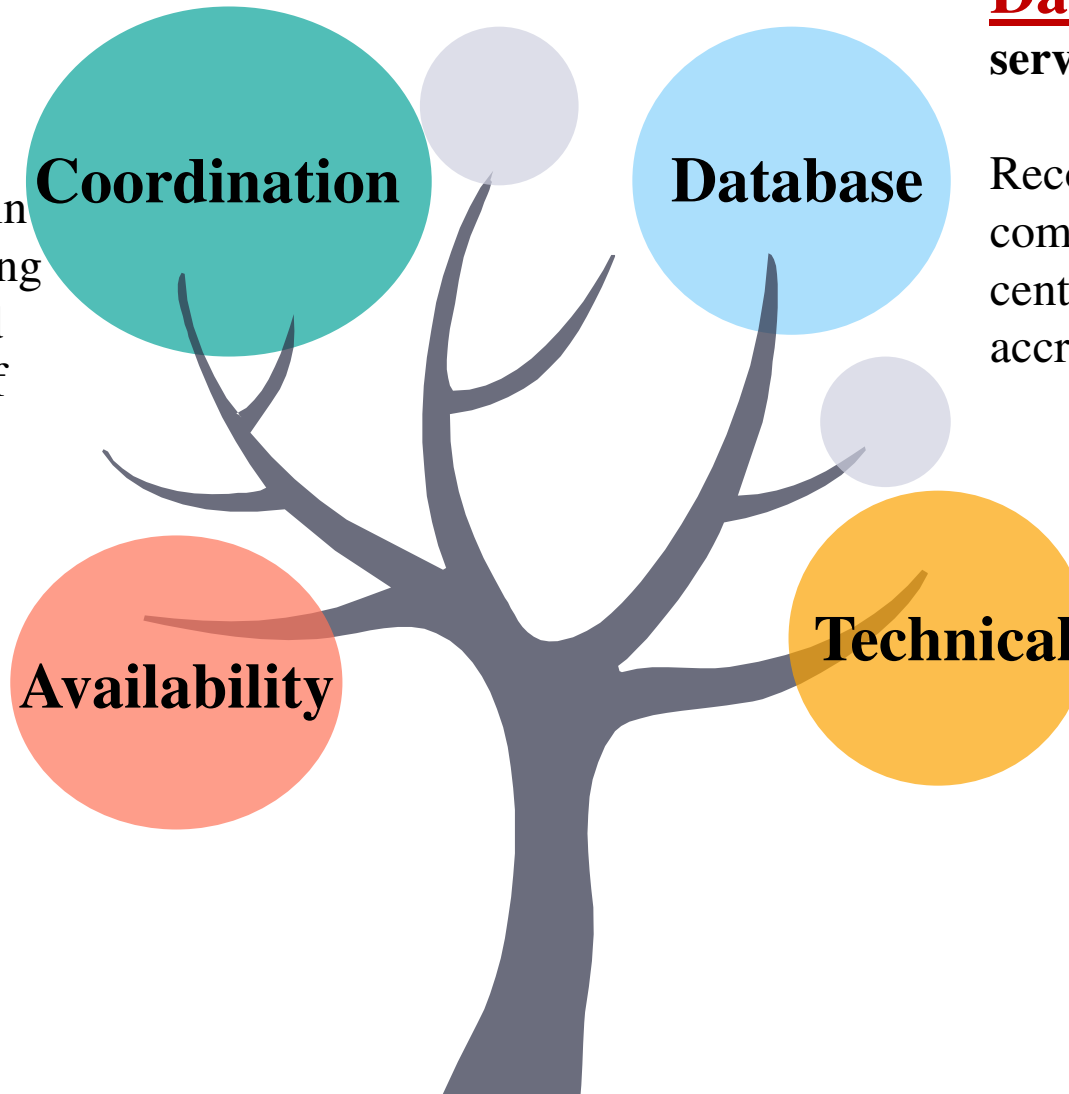
# Energy Efficiency Unit MoERE

**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

**Availability** EE activities of financing :

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

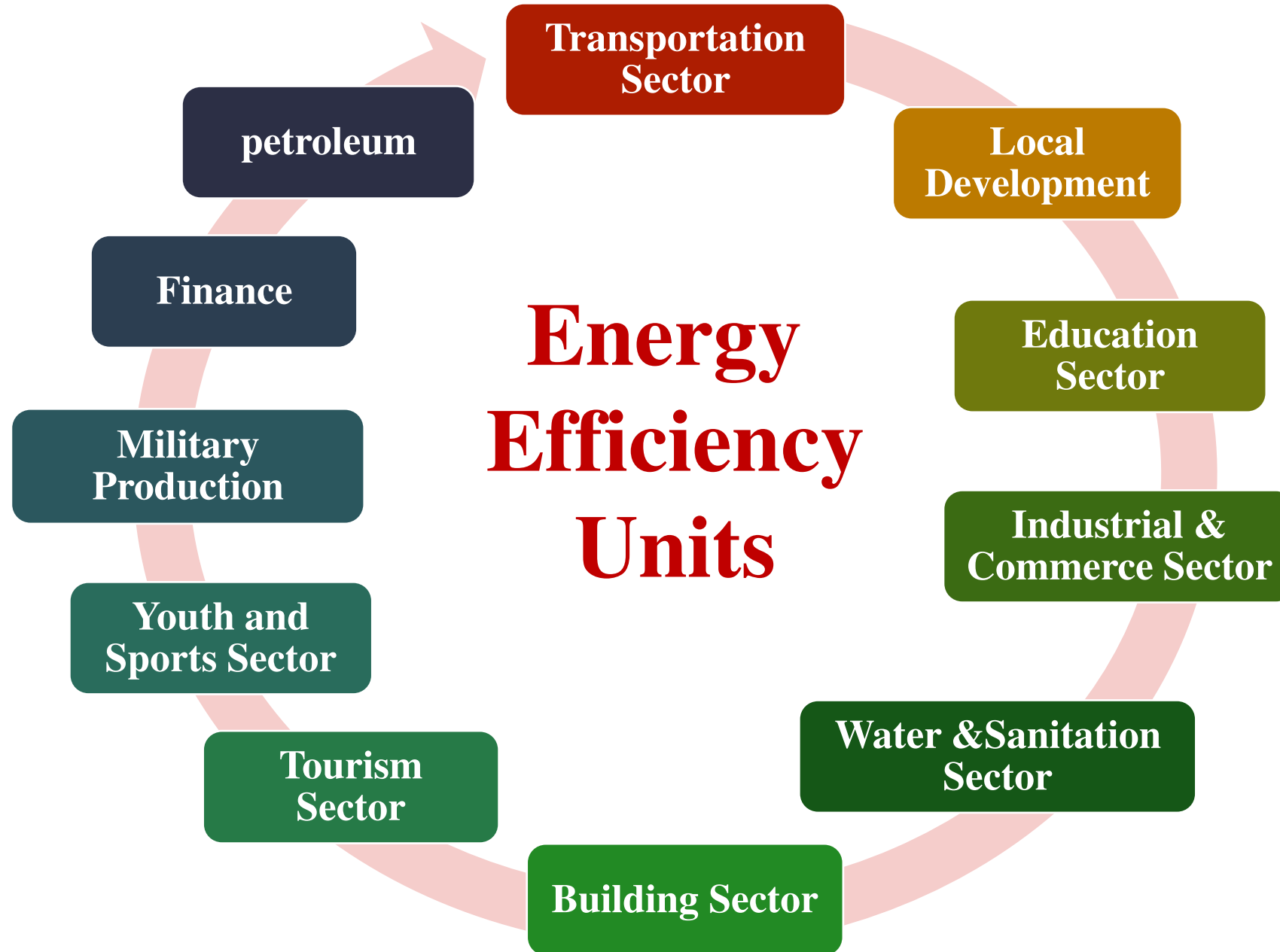


**Database** of EE record and energy service companies registry;

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

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

# Sectorial Units



# Sectoral Units

- Achievements:

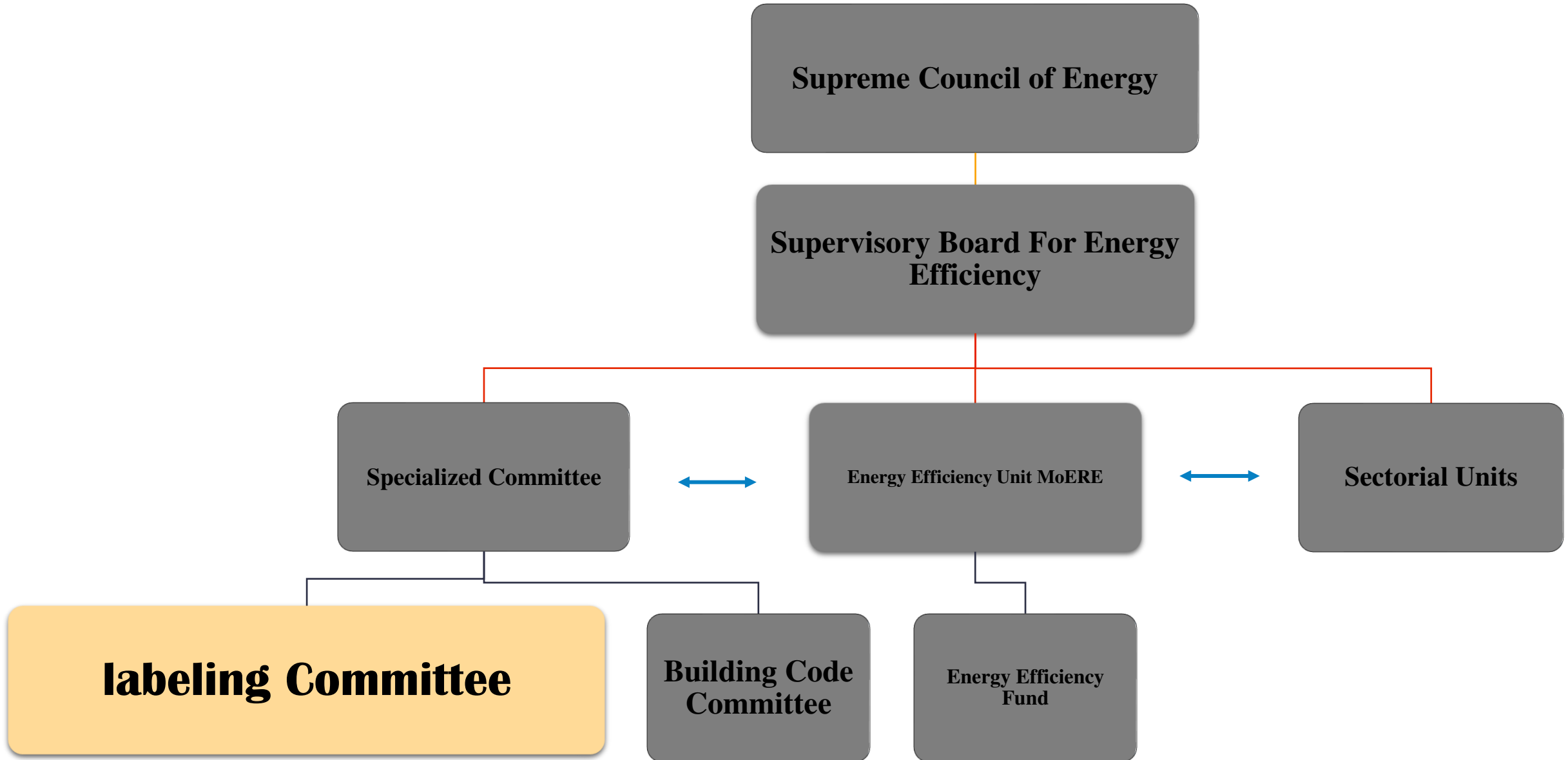
- The institutional framework is based on **central planning**, coordination and follow up and **decentralized implementation** of procedures through specialized sectoral units in different ministries.
- So far **10** sectoral units have been established with decree, and **4** units are in the process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



# Energy Efficiency Unit MoERE



# **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.**

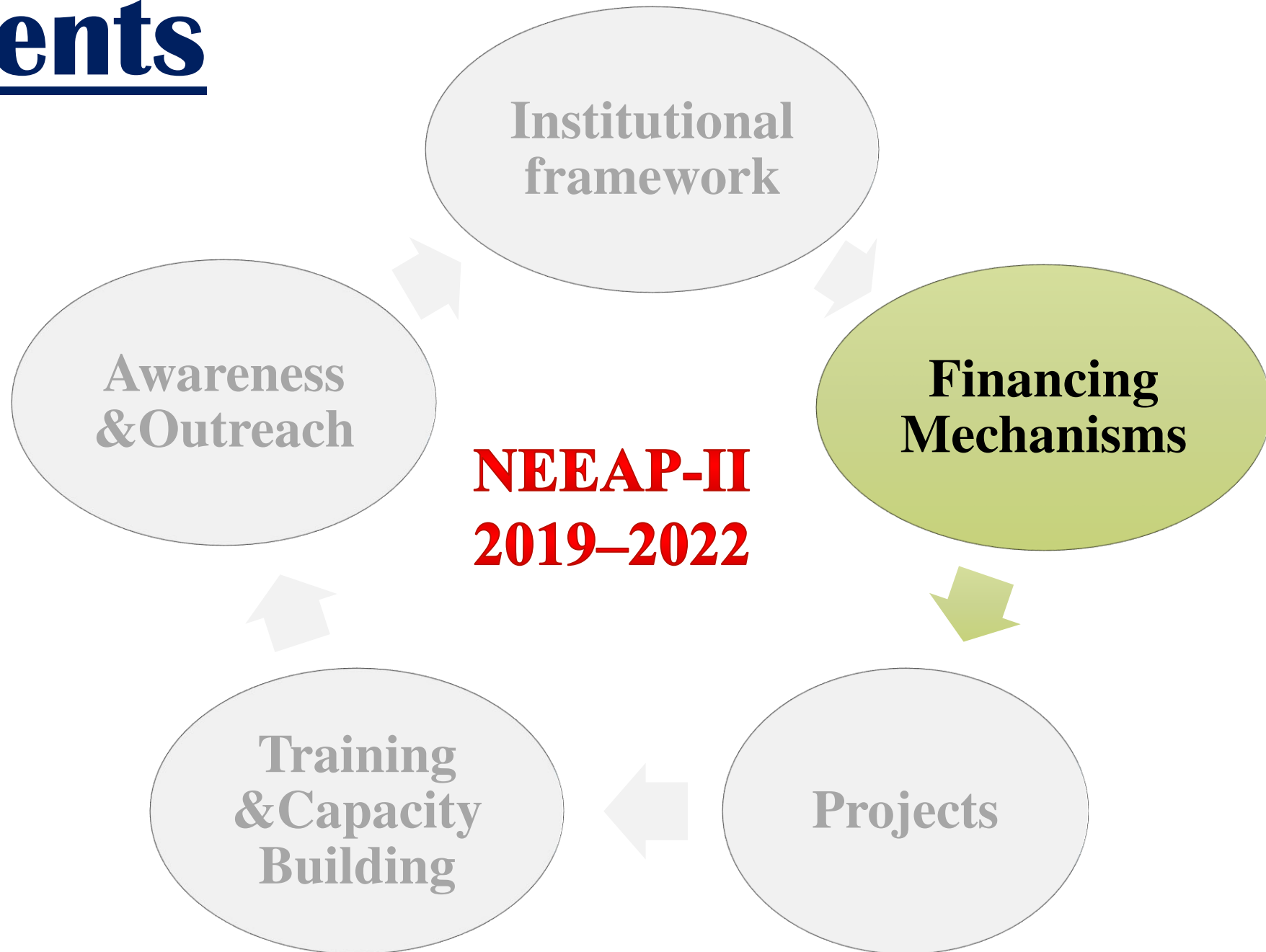
- Guidebook will be developed to clearly define each stakeholder's role and activities.
- If there is a need for support, concept note requesting for further cooperation will be developed
- Some MEPS will be reviewed. Support will be provided for Egyptian Organization for Standardization & Quality (EOS) 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.

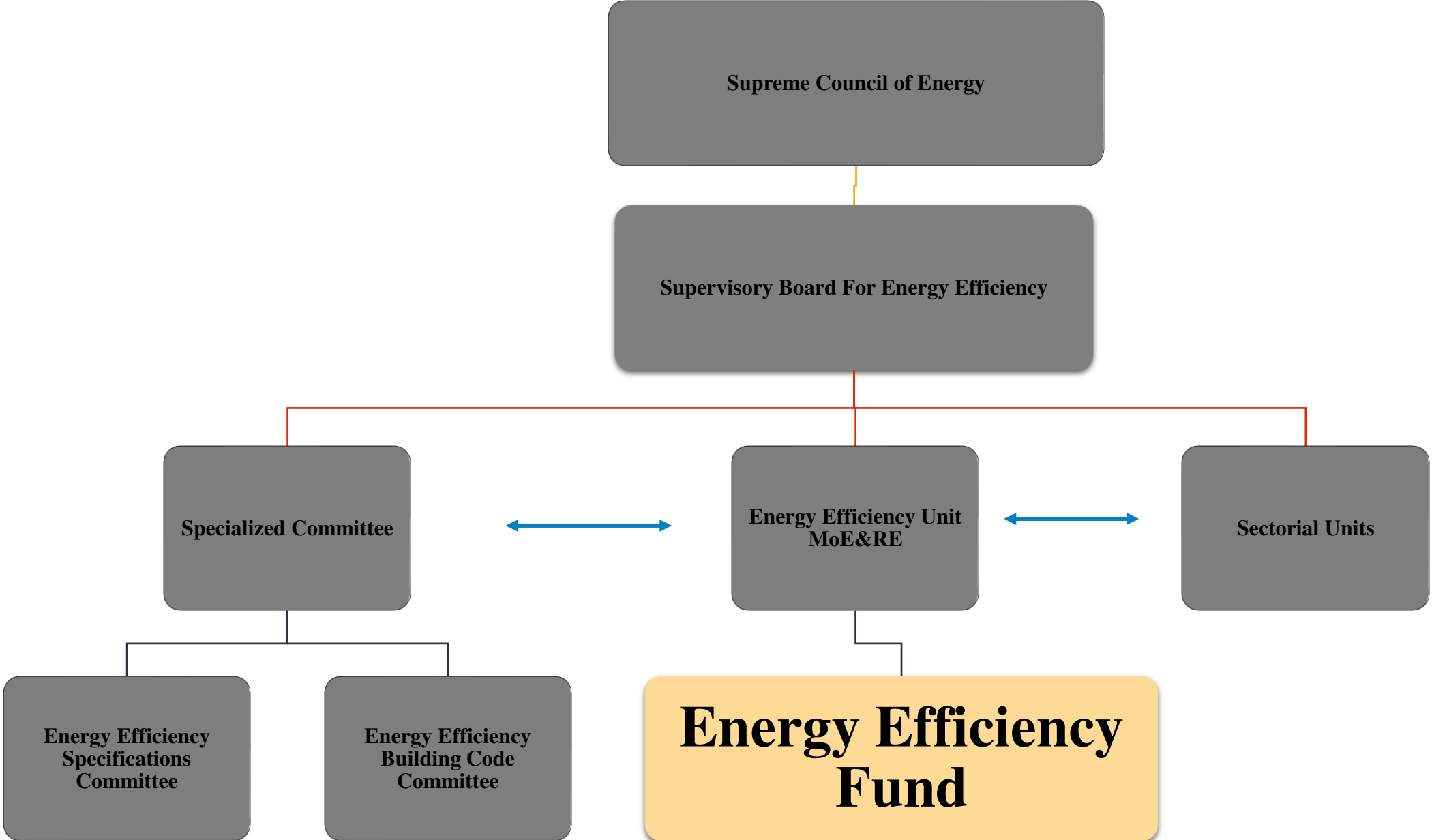
**The NEEAP- Energy Efficiency Specifications Committee will be activated and will manage the program from the following perspectives:**

- Coordinate stakeholder roles & responsibilities,
- Conduct market analysis & set targets
- Monitor & evaluate the program impacts
- Information sharing among the stakeholders should be enhanced.

# Contents

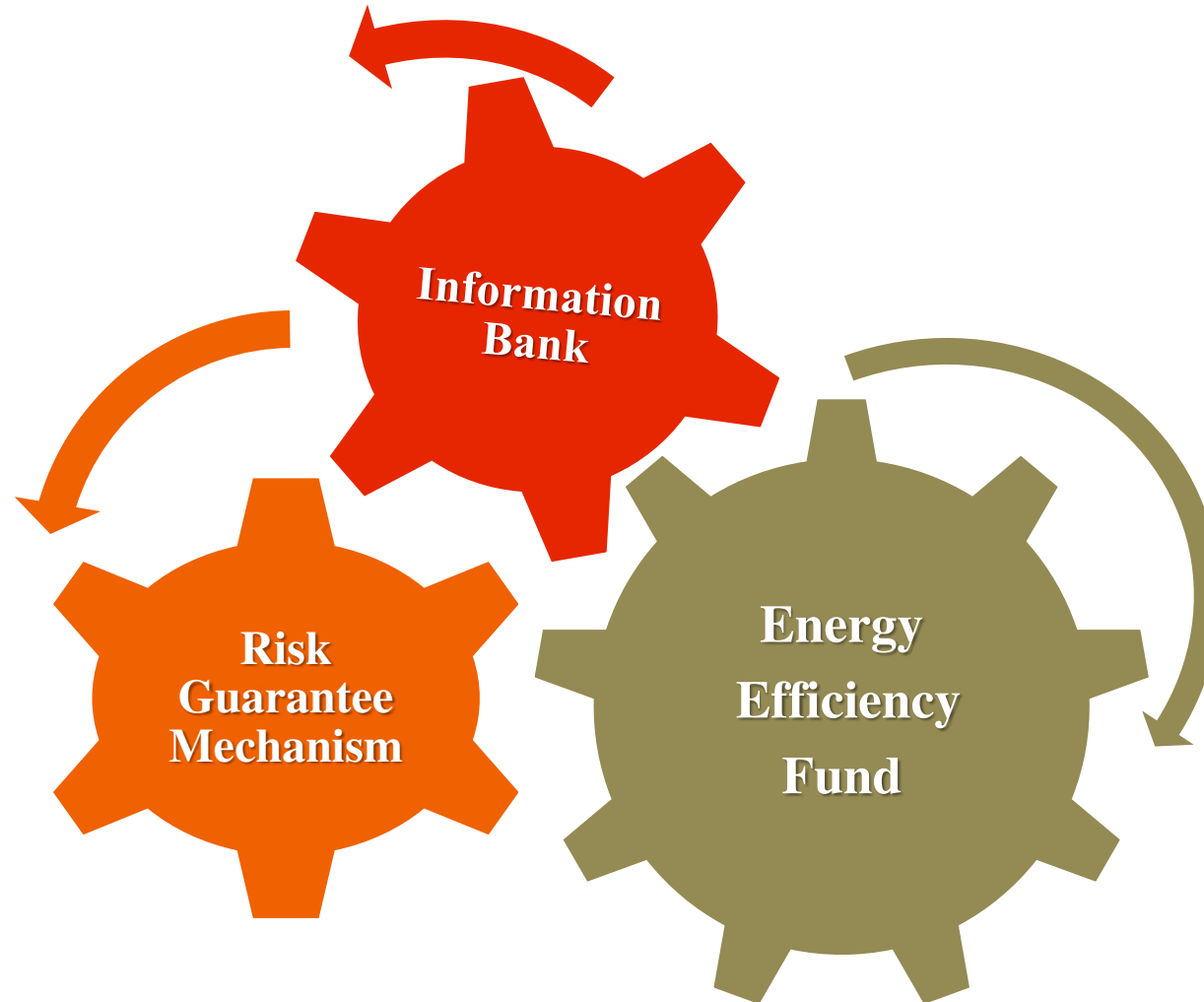


# Energy Efficiency Fund



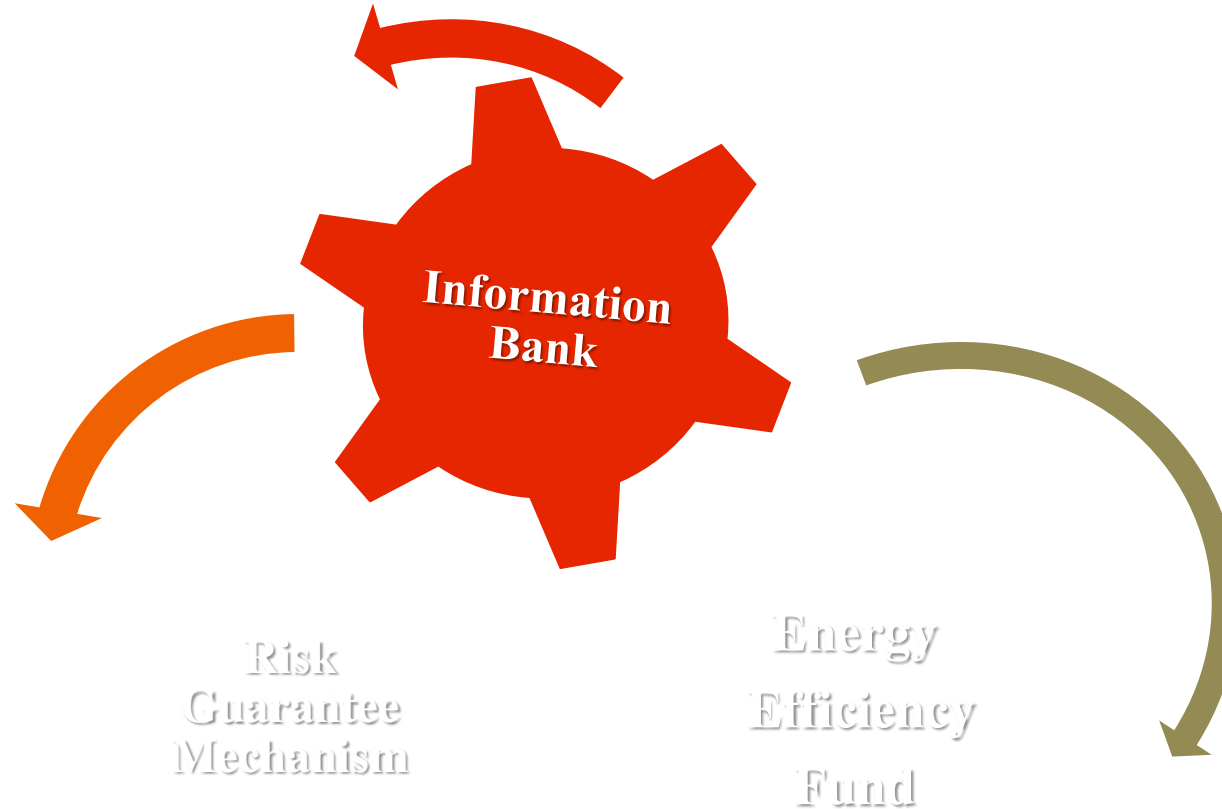
# Mechanism for financing energy efficiency activities

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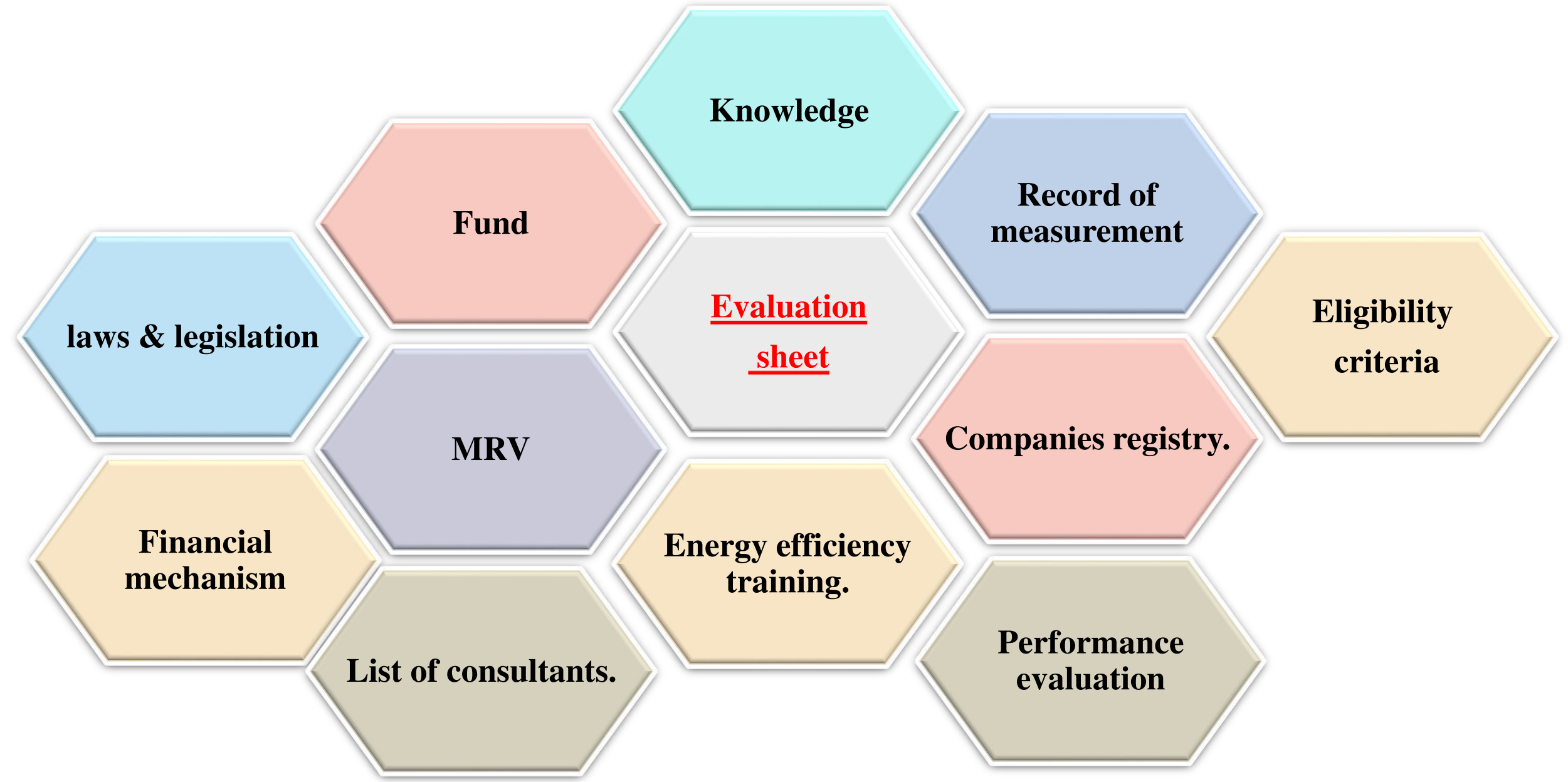


# Mechanism for financing energy efficiency activities

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





# 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

Energy Flow Chart of Egypt based on National Energy Balance Table (FY2020-21)

Unit: ktOE

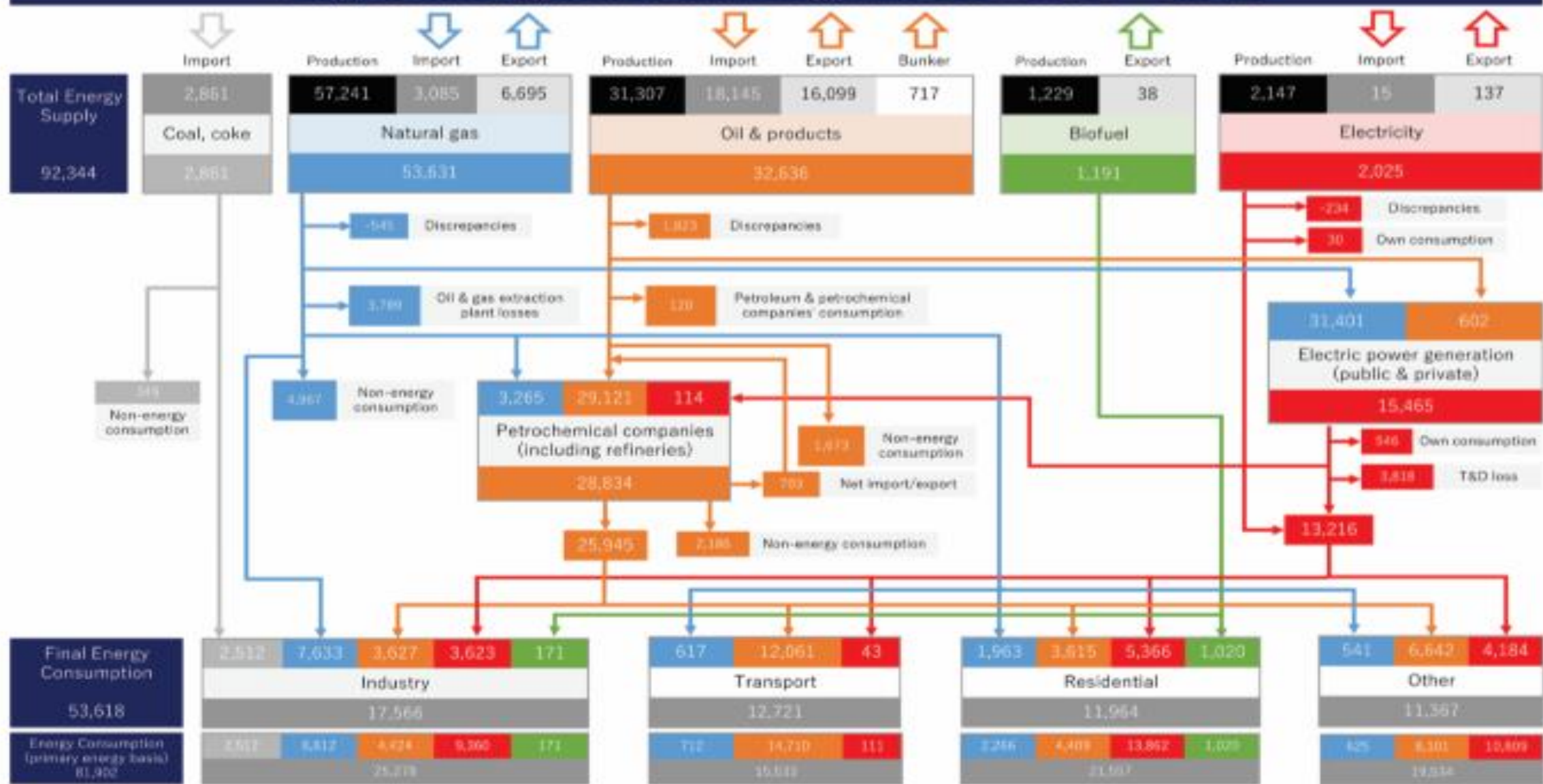
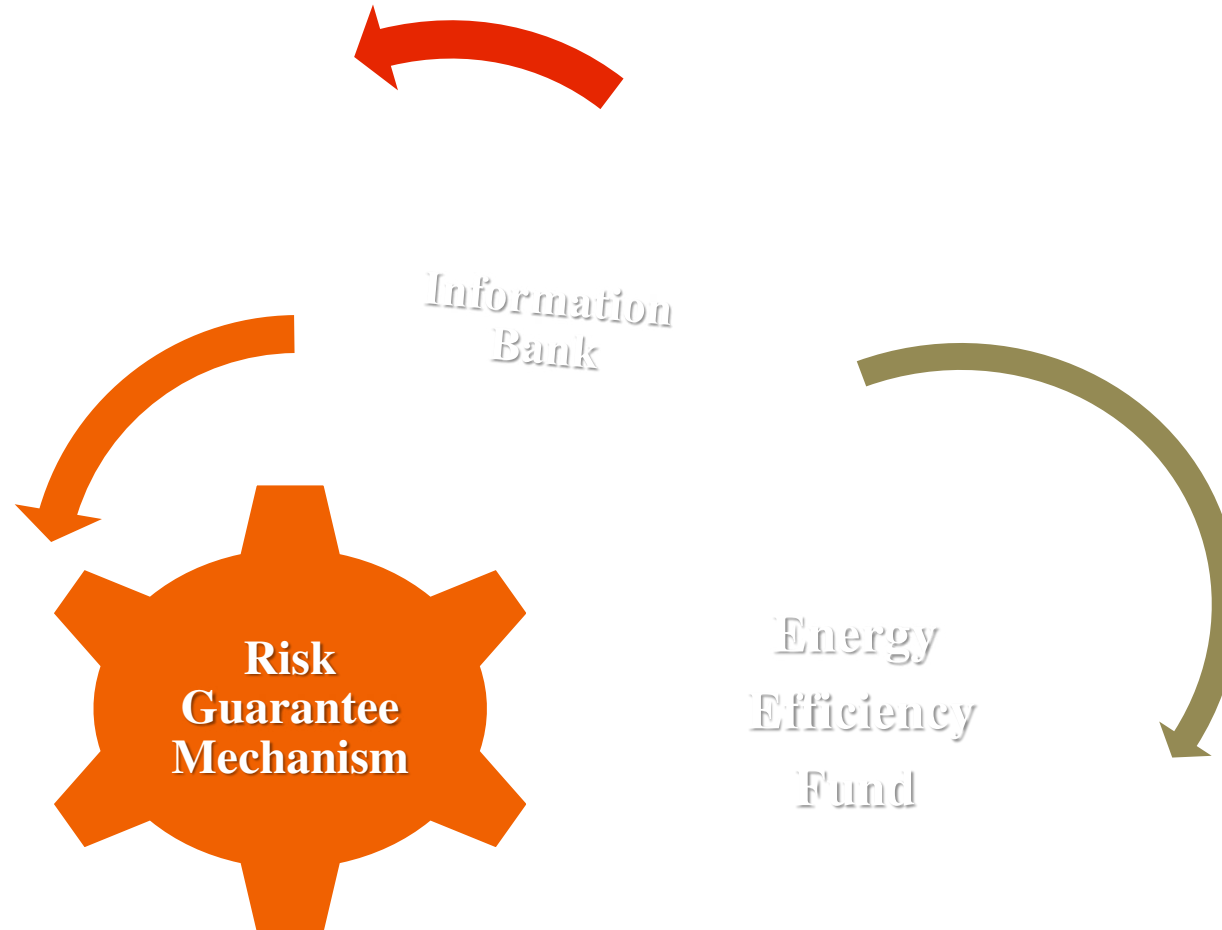


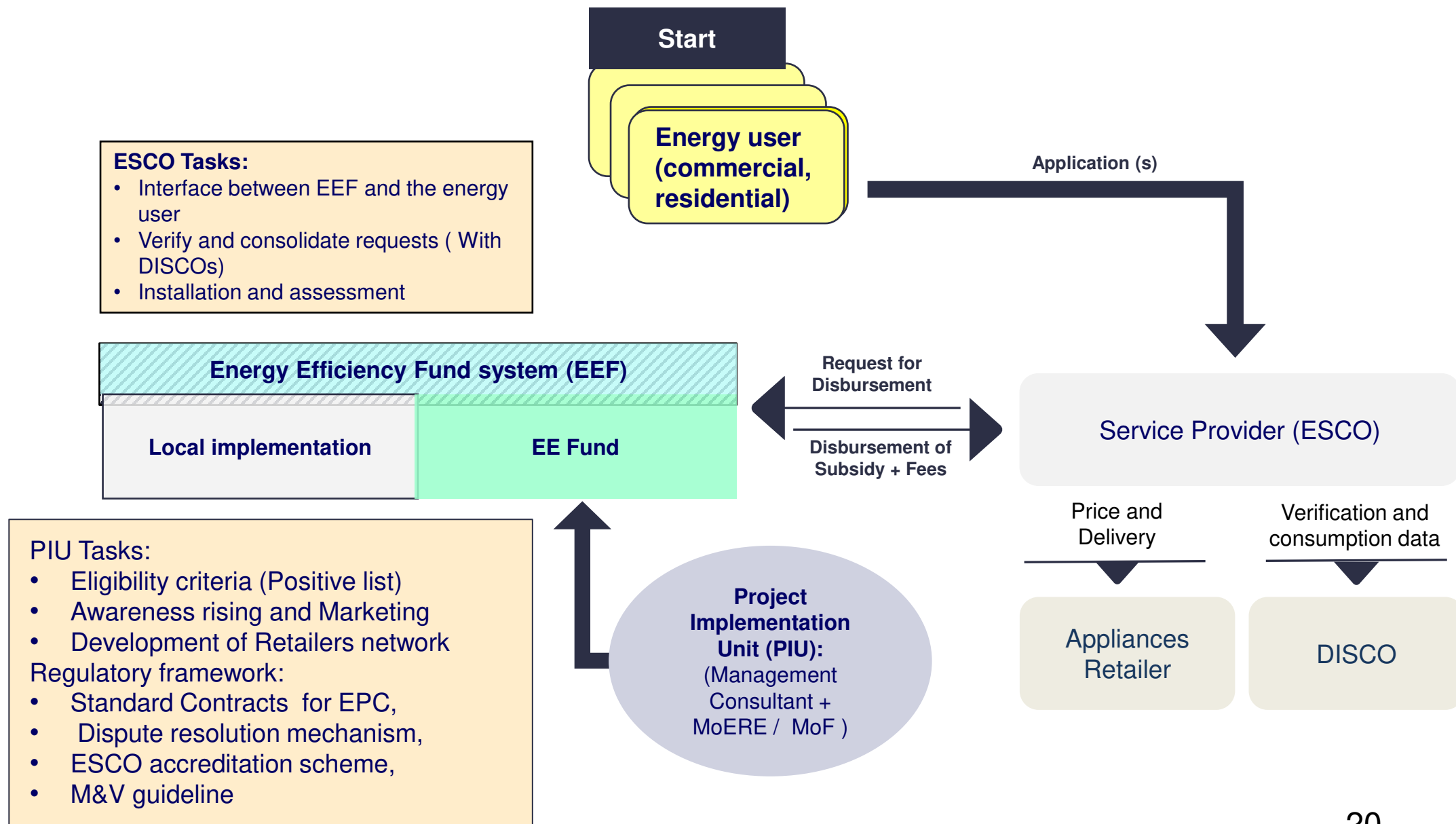
Figure 2-8 Energy flow chart based on energy balance table (2020/21)

# Mechanism for financing energy efficiency activities

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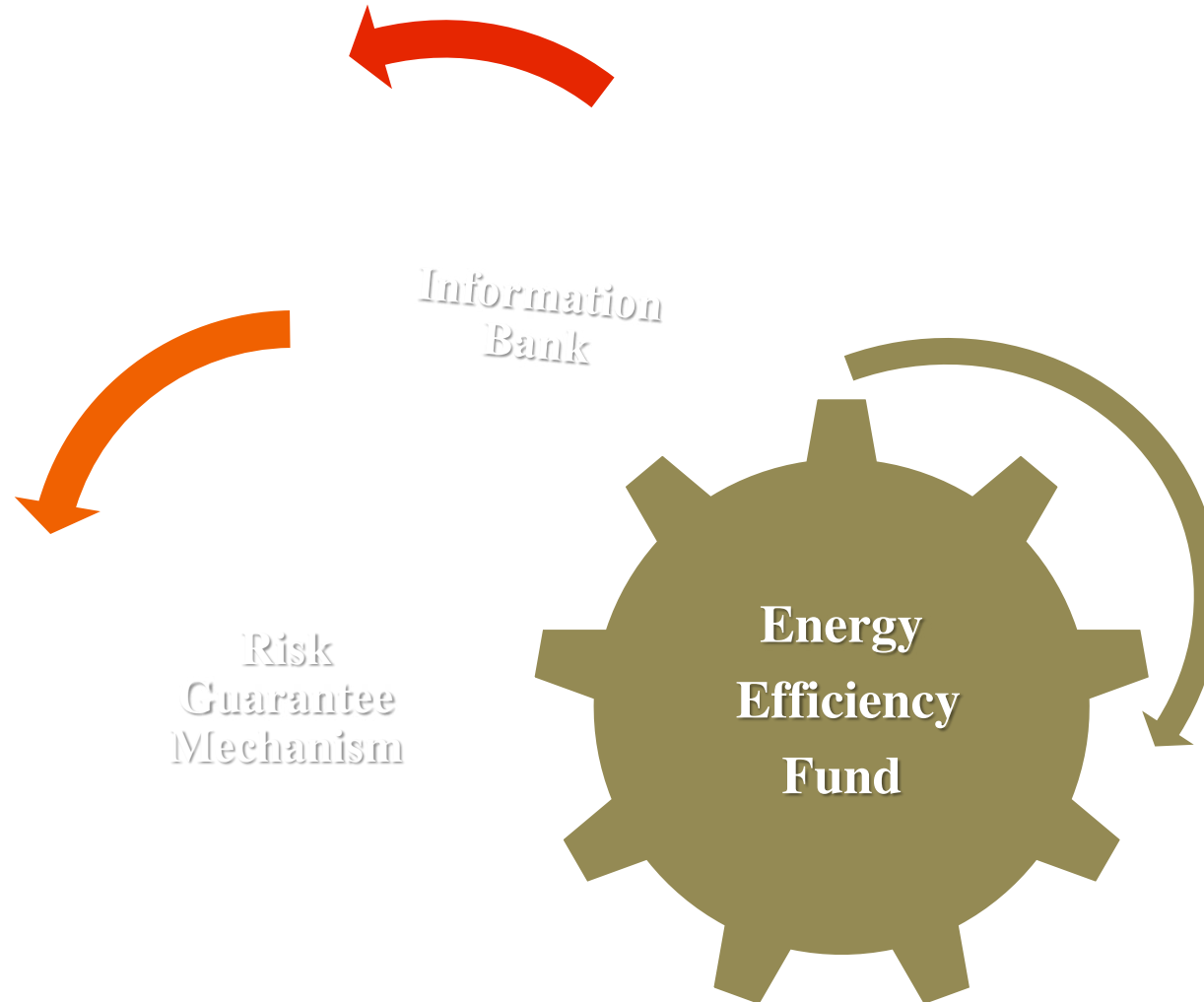


# EE Fund Operational model



# Mechanism for financing energy efficiency activities

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# Grant for EE Services

## Examples of eligible EE - Measures

### Appliances

- EE Fridges
- Freezers
- Cooking technologies

### Building shell

- **Shading**
- **Window film**

### Lighting

- Lighting retrofit (e.g. LED)
- Lighting controls

## EE - Measures

### Cooling

- Energy efficient air conditioning (AC)
- Energy management system for AC

### Solar

- PV roof top system
- Solar water heating system

### workshops

- Energy efficient motors
- Heat exchangers
- Compressed air systems

# **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





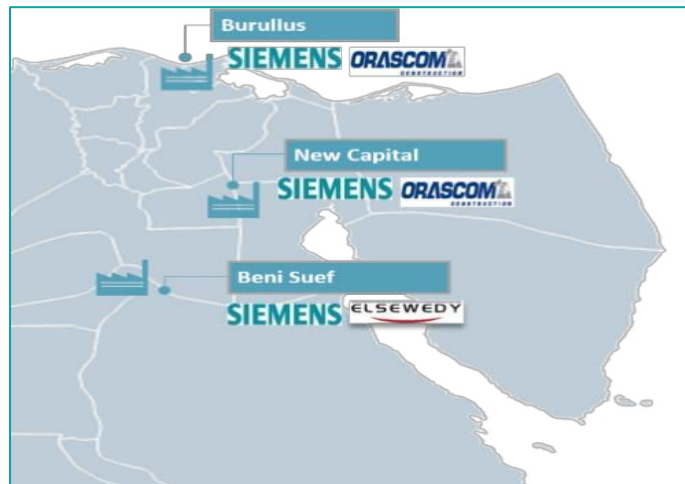
# Mega Project Power Plants

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).**



**New Capital P.P**

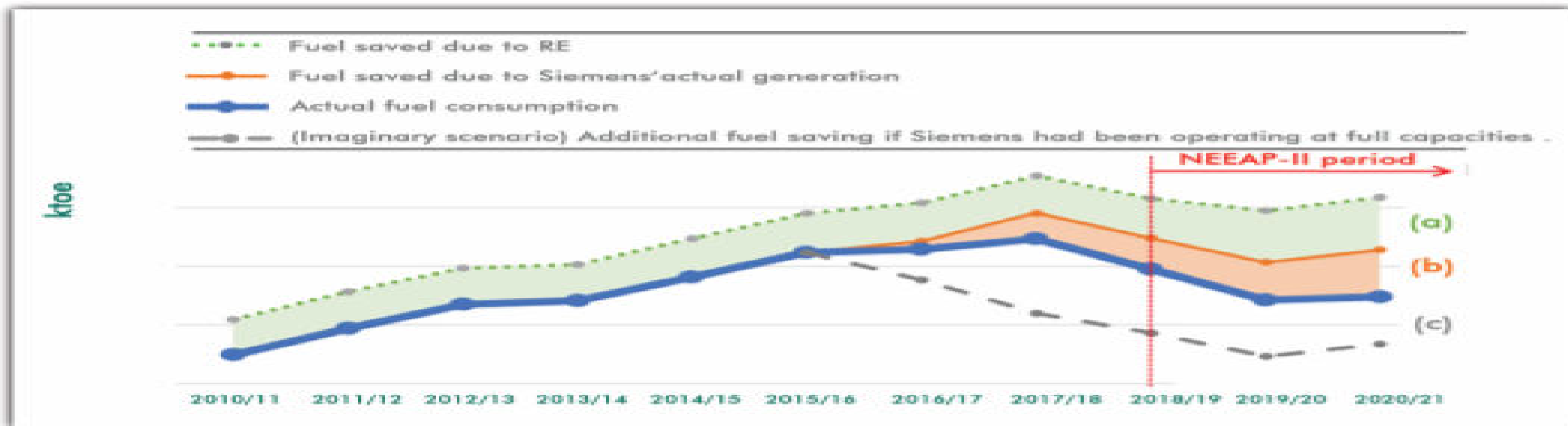


**Burullus P.P**



**Beni- Suef P.P**

**EPC + Finance Cost of 6 Billion Euro.**



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>

**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>

# JICA Study for EE

**Please visit:**

**<http://egypt-energysaving.com/publications>**

*Thank You*