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مركز الإقليمى للمصادر المتجددة والكفاءة فى الطاقة



Mitigation Enabling Energy Transition in the MEDiterranean region

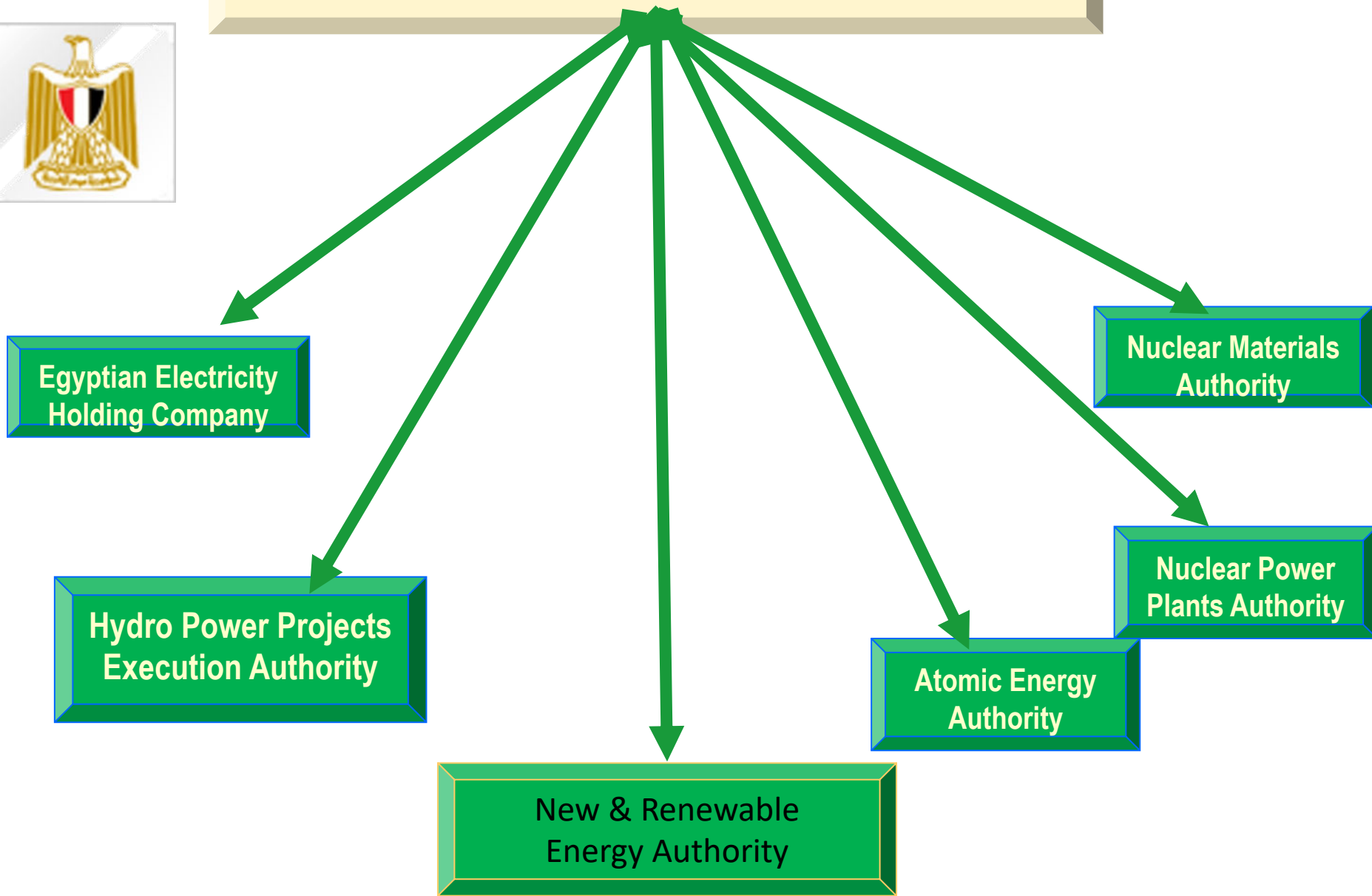
Appliances Landscapes in Egypt: Identifying Significant Policy Gaps

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ORGANIZATION CHART OF MINISTRY OF ELECTRICITY & RENEWABLE ENERGY



New and Renewable Energy Authority, (NREA)

Established in 1986



The national focal point to develop and introduce renewable energy technologies to Egypt on a commercial scale together with implementation of related energy conservation programs

Main Electricity Indicators (2021/2022)

Installed Capacity (GW)

59.9

Electricity Generation (TWh)

214

Peak Load (GW)

33.8

RE Capacity (Hydro, Solar & Wind), (GW)

6.1

Electricity Share per Capita (kwh)

2028

Electricity Access Rate

99.7%

RE Policies and Targets

Vision

- increase the share of renewable energy in the energy mix

Strategy

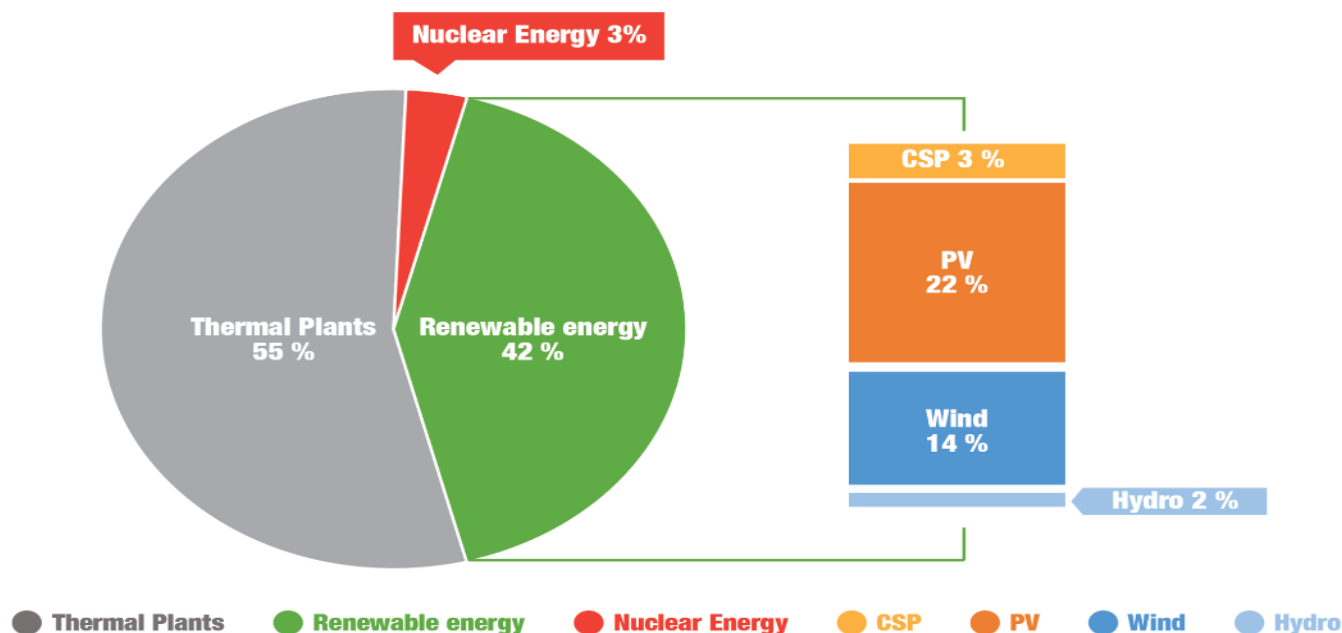
- satisfy 20% & 42% of the installed capacity from renewable energies by 2022 & 2035 respectively.

Policies

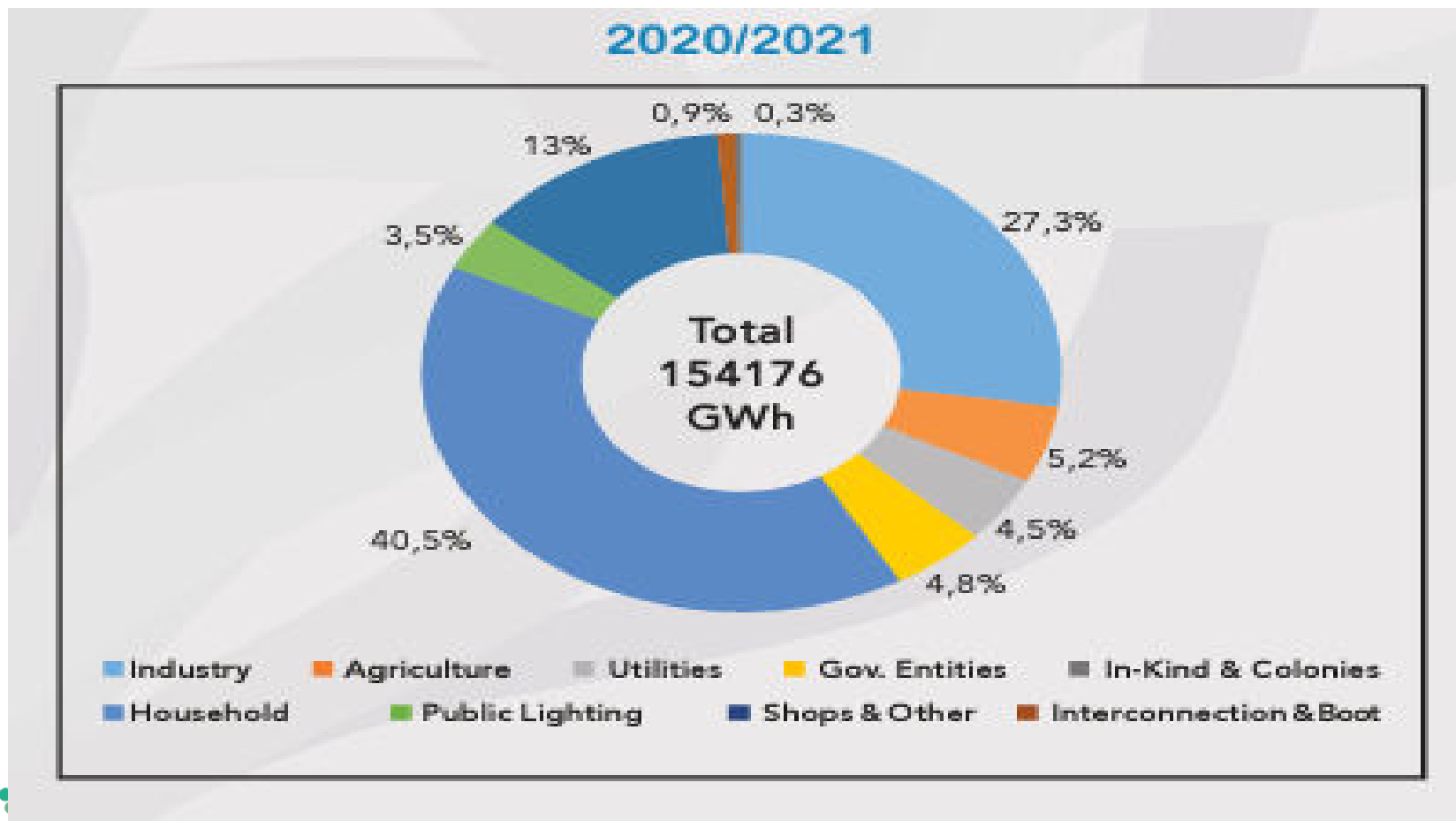
- Competitive Bidding (EPC, BOO)
- Merchant Scheme
- Feed-In Tariff
- Net-metering

RE Strategy

- The strategy developed in 2014 envisages a total share of, 37.7% for natural gas, **16% for coal**, 3.3% for nuclear energy and 42% for renewable energy in the installed capacity mix by 2035

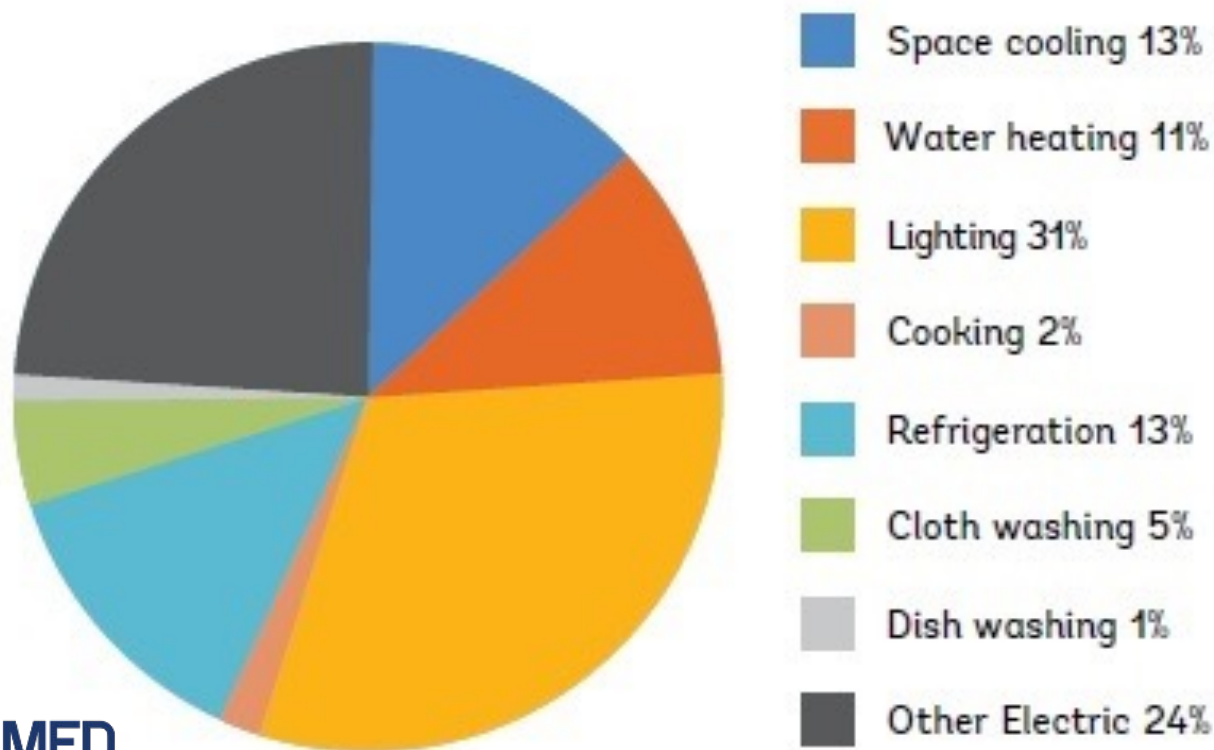


Electricity consumption Patterns



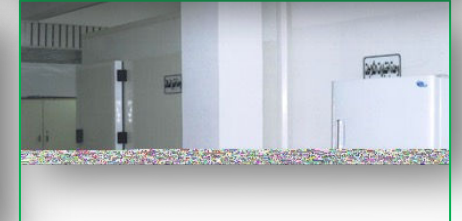
Residential Energy Use in Egypt 2017

Residential energy use in Egypt 2017



RE & EE Testing and Research Center

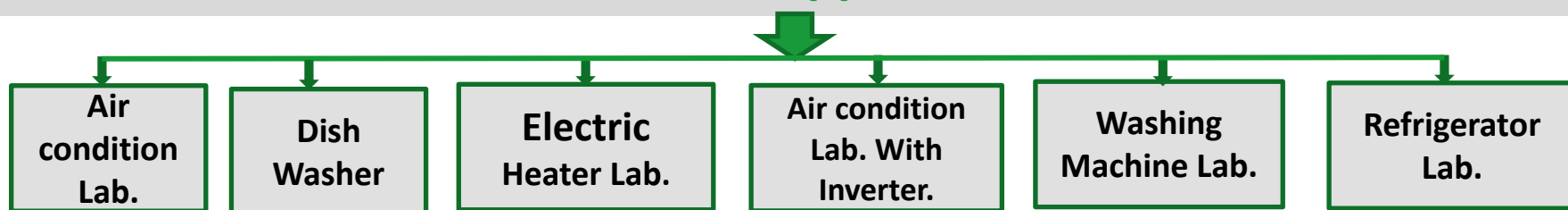
- The center includes a range of internal and external Laboratories,
- It was established to complete the studies and researches necessary for the development of equipment, systems and testing the standard for performance, quality and environmental impact hence issue licensing certificates.



Energy Efficiency Laboratories for Home Appliances

- ❑ It plays an important role through the cooperation with **Egyptian Organization for Standards and Quality (EOS)** and **General Organization for Export & Import Control (GOEIC)**,
to ensure the Egyptian standard specification commitment to paste the energy efficiency label on household electrical appliances before posed in the Egyptian Market to the consumers.

Energy Efficiency Laboratories for home Appliances



- ☐ More than 10000 local and imported products of home appliances were tested as follows:

- | | |
|-------------------------------|-------------------------------------|
| • Refrigerators Lab. | 4200 local and imported production |
| • Washing Machine Lab. | 2600 local and imported production. |
| • Electric heater Lab. | 950 local and imported production. |
| • Air Condition Lab. | 2000 local and imported production |
| • Air Condition with Inverter | 200 local and imported production |
| • Dish Washer Lab | 270 local and imported production |

Refrigerators Testing Facility

Established in 2005

It performs energy consumption tests with capacity up to:

- 1100 liters for refrigerators
 - 850 liters for freezers.
- Locally manufactured or imported refrigerators and freezers can be tested according to :

International Standards

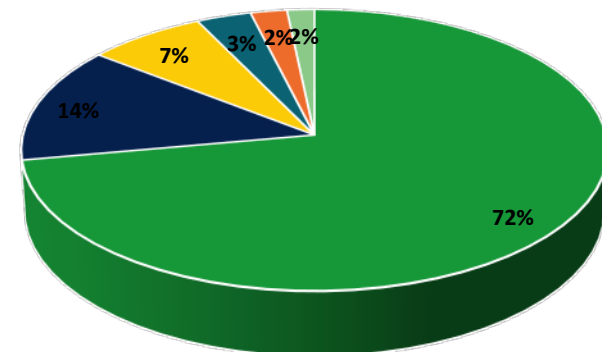
[IEC 62552-1:2015](#) Household refrigerating appliances - Characteristics and test methods - Part 1: General requirements

[IEC 62552-2:2015](#) Household refrigerating appliances - Characteristics and test methods - Part 2: Performance requirements

[IEC 62552-3:2015](#) Household refrigerating appliances - Characteristics and test methods - Part 3: Energy consumption and volume

Egyptian Standards

[\(ES 6000/2018 -ES 3794 ENERGY EFFICIENCY TEST\)](#)



■ A ■ B ■ C ■ D ■ E ■ Out of range

Washing Machines Testing Facility

Established 2005

It performs energy consumption tests to automatic with drier washing machines with capacity up to 10 kg.

Locally manufactured or imported washing machines can be tested according to:

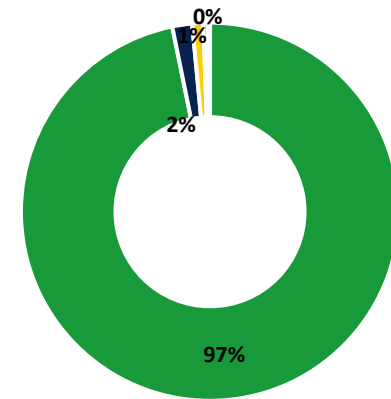
international standards

IEC 60456 Clothes washing machines for household use - Methods for measuring the performance

Egyptian Standards

ES 4100/2006 ENERGY EFFICIENCY TEST which complies since 2005 with international standards.

It is sufficient for testing two Units Under Test (UUT) simultaneously.



■ A ■ B ■ C ■ D ■ E ■ Out of range

Dishwashers Testing Facility

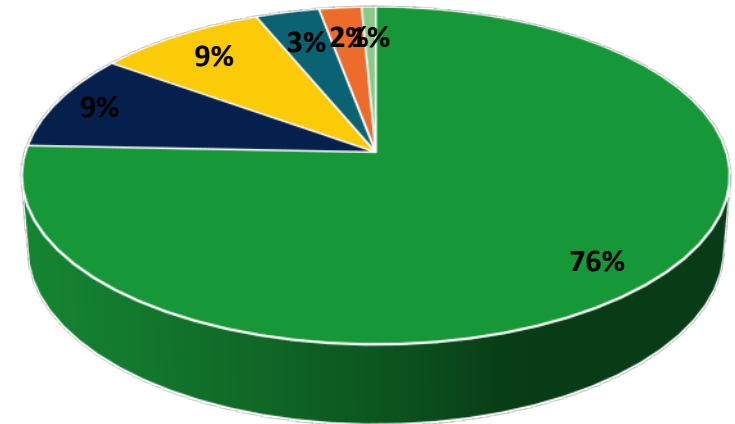
Established 2017

It performs energy consumption tests to automatic with drier washing machines.

Locally manufactured or imported washing machines can be tested according to:

- Egyptian Standards (ES 7820/2014)

It is sufficient for testing two Units Under Test (UUT) simultaneously.



■ A ■ B ■ C ■ D ■ E ■ Out of range

Electric Water Heaters Testing Facility

Established in 2008

It performs energy consumption tests with capacity up to 1500 lit.

Locally manufactured or imported Electric Water Heaters can be tested according to:

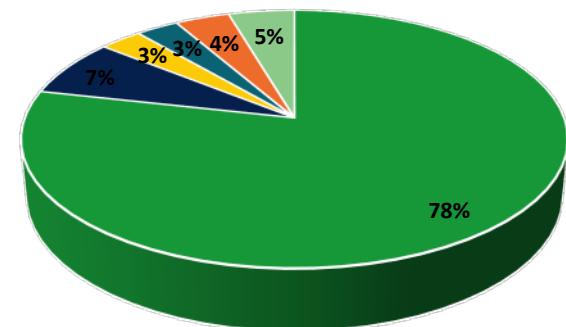
International standards

IEC 60379 Methods for measuring the performance of electric storage water-heaters for household purposes)

Egyptian Standards

ES 5806/2007 ENERGY EFFICIENCY TEST which complies since 2005 with international standards

It is sufficient for testing two Units Under Test (UUT) simultaneously



■ A ■ B ■ C ■ D ■ E ■ Out of range

Air Conditioners Testing Facility

AC Fixed Speed Established in 2008

AC with Inverter Technology Established 2020

It performs Cooling Capacity Test and determination of Energy Efficiency Ratio with capacity up to :

- 36000 BTU/hr for window types
- 65000 BTU/hr for split types

All tests according to:

International Standards




ISO 5151 Non-ducted air conditioners and heat pumps -
Testing and rating for performance

Egyptian Standards


ES3795-1/2016 ENERGY efficiency TEST .

ES3795-2/2017 ENERGY efficiency TEST .

بطاقة كفاءة الطاقة لجهاز تكييف هواء الغرفة (ض.م.س)

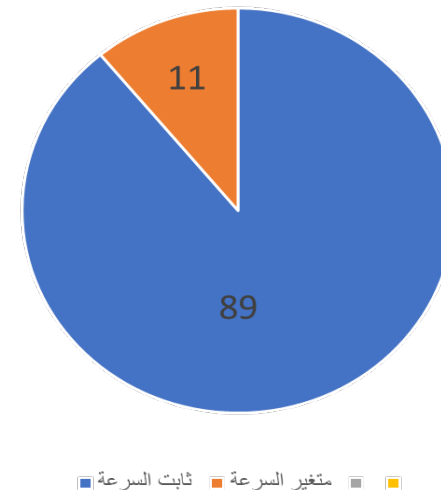
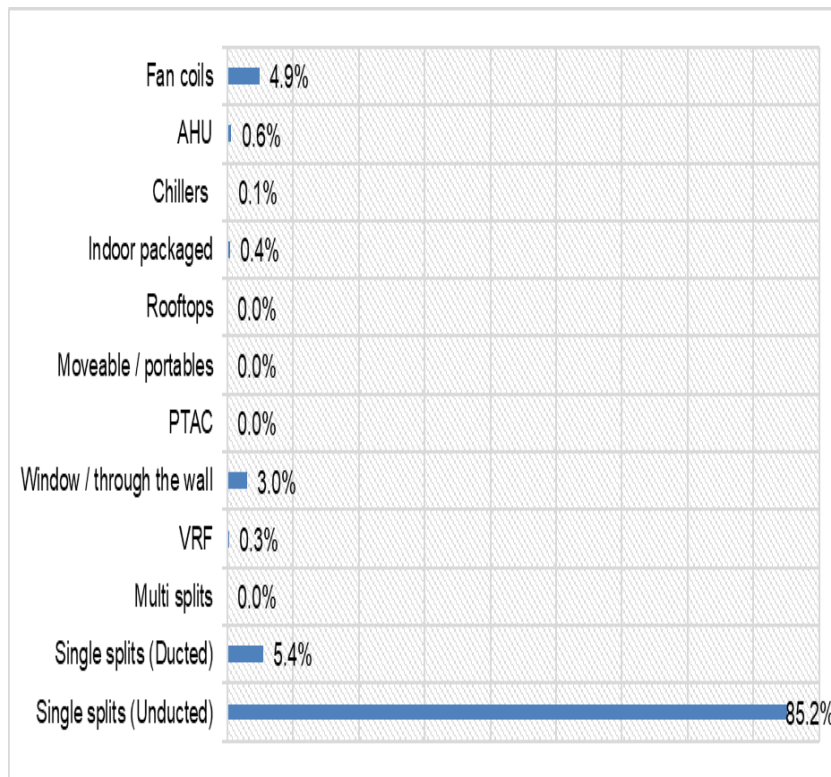
النصائح				
38QHAET12DN-708	موديل الوحدة الخارجية			
42QHAET12DN-708F	موديل الوحدة الداخلية			
أكثر كفاءة				
				
أقل كفاءة				
١٦٦	الاستهلاك الشهري لهذا الموديل في وضع التبريد (كيلوواط ساعة) / (ساعة تشغيل)			
٥٥٣	القدرة الكهربائية المقبولة (واط)			
١٢٠٠٠	٣,٥٢	و.ح.ب/س	كيلو واط	سعة التبريد الكلية المقبولة
١٨,٣٥	٥,٣٨	و.ح.ب/واطس	واط / واط	نسبة كفاءة الطاقة المقبولة
تبريد فقط		تبريد + تدفئة		نظام التشغيل
<p>طوبى للمصنعة الوطنية المصرية حتى م ٢٠١٧ / ٢٠٣٧٩٥ لا يتم تزجج هذه البطاقة من على طرف الهواء بل أن يتم تثبيته لتعمل تعمل سويًا لتوفير الطاقة والحفاظ على البيئة</p>				
				P/N : 0350

Egyptian standard update for ACs

- **EN 3795-1/2016 -
---- Non ducted
fixed A/Cs**
 - **EN 3795-2/2017 -
---- Non ducted
inverter A/Cs**
 - **EN 3795-5/2018 -
---- ducted fixed
A/Cs**
- EN 3795/2023**
- 

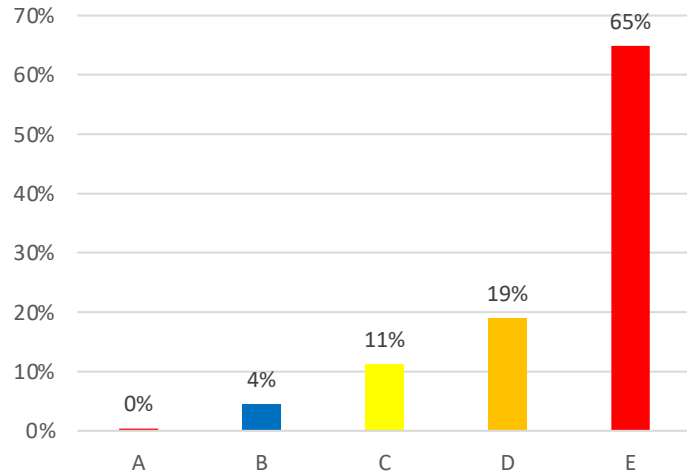
Some indicators for Acs

- **Split ACs present 85% of the total market**

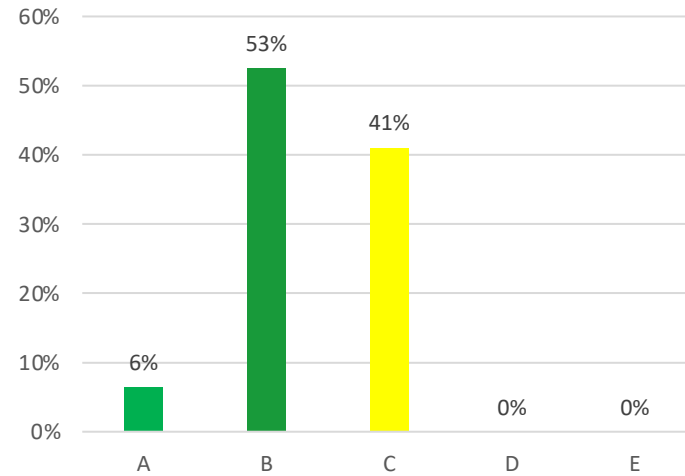


The variable speed ACs in Egypt was increased from 5% in 2017 & 11% in 2019

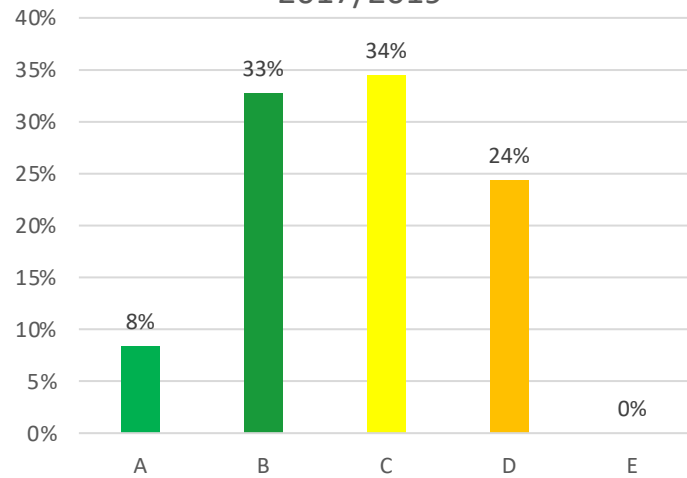
2008/2017



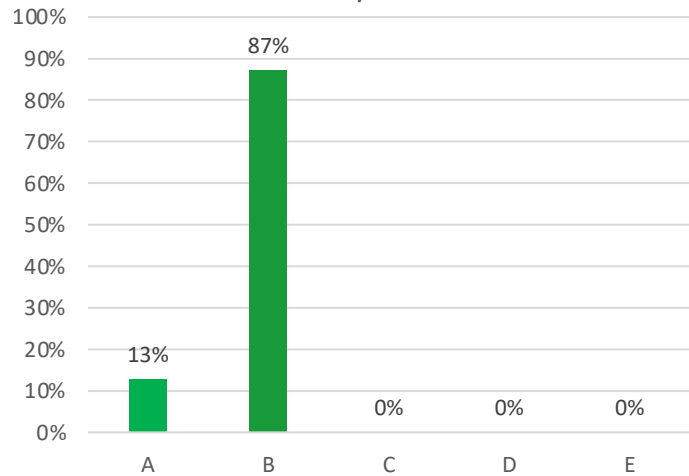
2019/2021



2017/2019

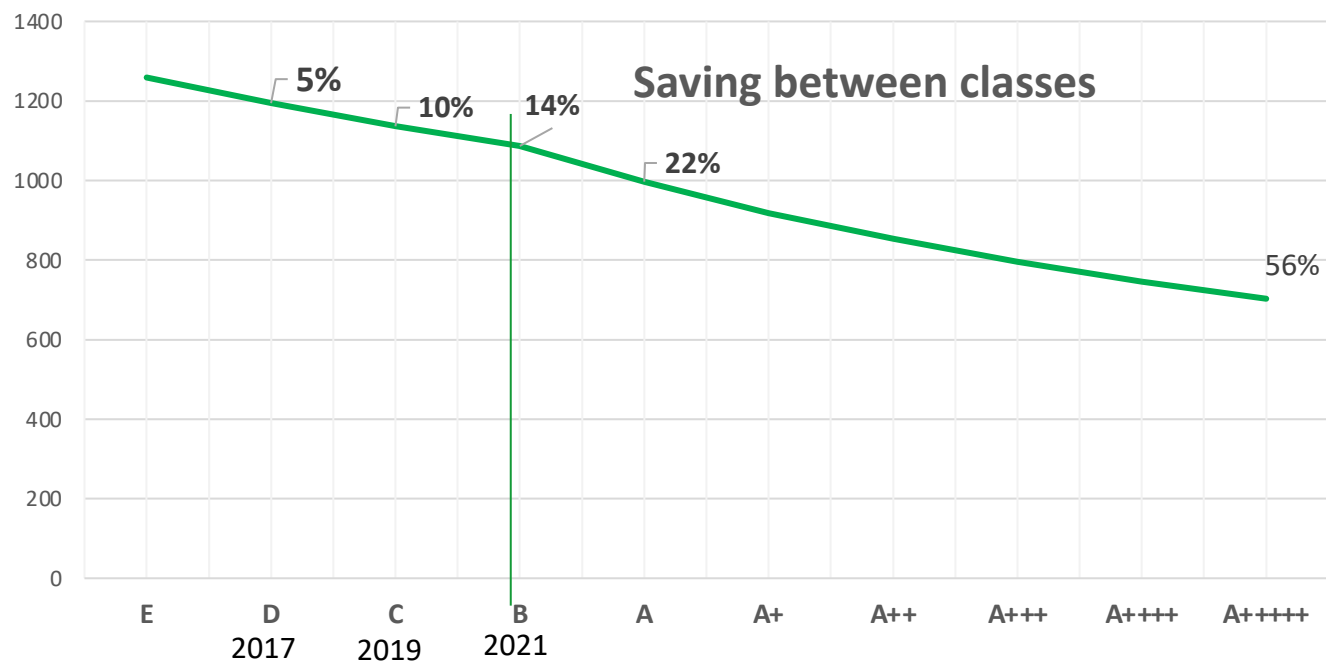


2021/2023



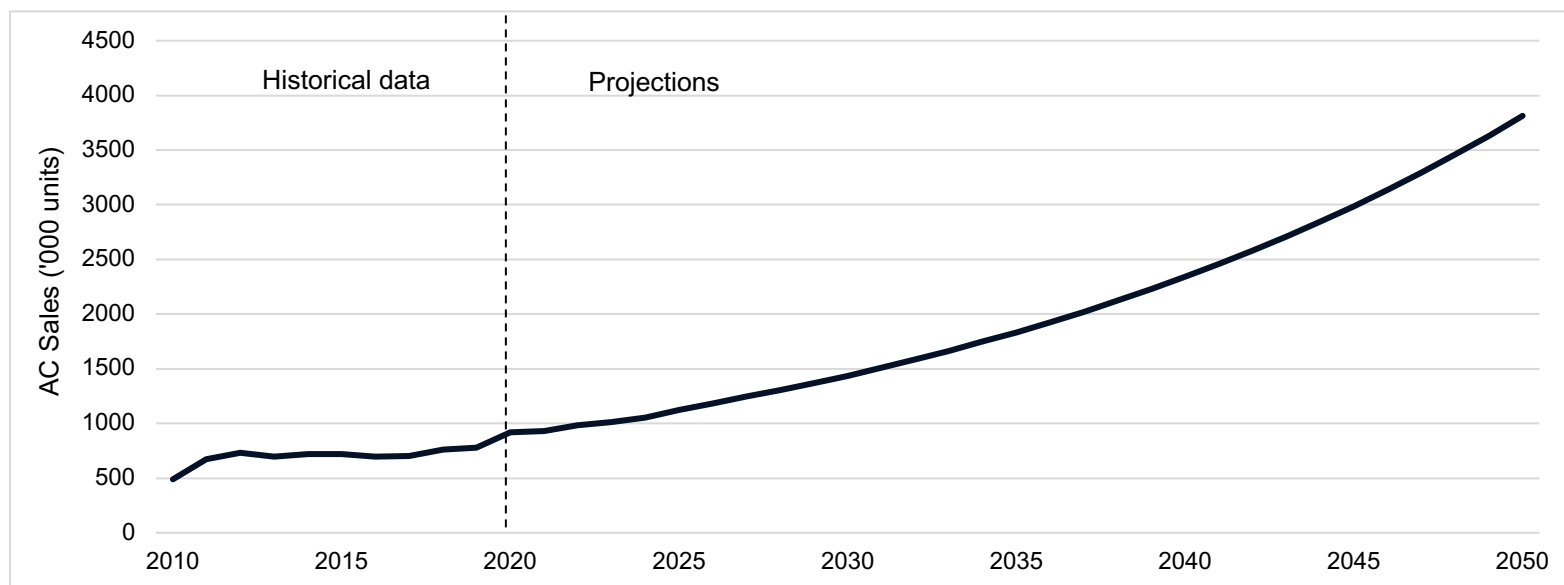
Energy saving between classes

Energy saving due to updating the MEPs reached 14% for each unit



Air conditioners market in Egypt

- sales in 2018 0.79 million unit
- Expected in 2030 1.43 million unit
- Expected in 2050 3.81 million unit

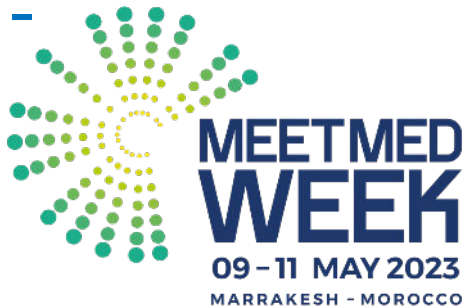


Historical (2010–2018) and projected (2019–2050) annual Egyptian RAC sales

Source : Cost and benefits of room air conditioner efficiency improvement in Egypt-Lawrence Berkeley National Laboratory

Egyptian standard update

- Current Egyptian standards are updated and merged in one standard for different types.
- The new standard measure the seasonal energy efficiency ratio SEER.
- The energy label is unified in the new standard for all Acs
- The new standard will be issued this year and will be implemented 2024



Conclusions

A- The Challenges

- The replication of establishing Home Appliances Testing Labs each in NREA, Egyptian Organization for Standards and Quality (EOS) and General Organization for Export & Import Control (GOEIC).
- The high-efficiency appliances are most costly than conventional ones (30-50% for the variable speed ACs against fixed) and the economic benefits are not fully understood by end users
- The needed for further Development/integration of government policy and instruments for further EE promotion
- Financing:
 - Grants, loans (interest rate, repayment period
 - Guarantees and the need for a financial executing agency with with MOERE as technical executing agency
 - The ability of local entities (especially local banks)to deal with the international financing institutions to benefit from these funds.
- The responsible entities for availing the fund to the end-users.
- The awareness among end-users, financial institutions, government officers and other experts

Conclusions (Cont.)

B- The Opportunities

- 1) There is a huge potential for EE in Egypt after reforming the electricity tariff.
- 2) The Governance of EE activities.
- 3) The periodical Updating of the EE Egyptian standard,
- 4) Financing (Grants or soft loans) and revolving funds,
- 5) Increasing the Penetration of inverter equipment (refrigerators, AC).



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Together We Switch to Clean Energy

We are looking forward to further cooperation, technical support and Information dissemination/education for public and feedback on information gathered .



Contact us!



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For any inquires or comments, please don't hesitate to
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