
**Arab Republic of Egypt**
**Ministry of Electricity and Renewable Energy**

# Egyptian Electricity Holding Company

# Annual Report
# 2014 / 2015

# CONTENTS

## Vision

World class leadership and excellece of
sustainable electrical energy.

## Mission

Provide sustainable electrical energy for all customers through available resources according to international standards at competitive prices by corporate effort adapting quality standards, resources utilization and environment conservation based on highly- efficient human potentials and technologies. Performing work in an ethically responsible manner for the benefit of our customers, employees and society.

# Eqyptian Eectricity holding Company's Organizational Structure

Minister of Electricity and Renewable Energy
Chairman of General Assembly for
Egyptian Electricity Holding Company
**Dr.Eng. Mohamed Shaker Al Markaby**

Chairman of Board of Directors
Chairman Of General Assembly For Affiliated Companies
**Eng. Gaber Dessouki Moustafa**
EEHC Board Member For Planning, Research &
Electric Service Companies Affairs
**Eng. Mohamed Abd El menaam El Tablawy**
EEHC Board Member For financial & commercial Affairs
**Acc. Nadia Abd El- Aziz Katary**
EEHC Board Member For Distribution Companies Affairs
**Eng. El Hussieny El Far**
EEHC Board Member For Production Companies Affairs
**Eng. Mahmoud Mohamed El Nakib**
EEHC Board Member For HR , Training & Administration Affairs
**Acc. Abd ElMohsen Khalef Ahmed**

## Production Companies

Cairo
**Eng. Mohamed Mokhtar Raghib**

East Delta
**Eng. Ahmed Alhusseiny Alsiry**

Middle Delta
**Eng. Mohamed Alsaid El Abd**

West Delta
**Eng. Mohamed Abd Albaky Abo sinna**

Upper Egypt
**Eng. Ibrahim Alshahat Ibrahim**

Hydro Plants
**Eng. Mohamed Amr Ali**

## Egyptian Electricity Transmission Company

**Eng. Gamal Abd Elrihim Yassin**

## Distribution Companies

North Cairo
**Eng. Nagi Aref Mina**

South Cairo
**Eng. Hossam AL Din Hassan Afifi**

Alex.
**Eng. Hamdy Mahros Okasha**

Canal
**Eng. Mohamed Ahmad El Sayed**

North Delta
**Eng. Ebtihal Ali Al Shafeey**

South Delta
**Eng. Mohamed Ahmed Assal**

El- Behera
**Eng. Mohamed Abd Al-Alim Alstohy**

Middle Egypt
**Eng. Medhat Eweis Khalaf**

Upper Egypt
**Eng. Raafat Hussien Shamaa**

# Introduction

**Energy in general, and electrical energy in particular is considered as the main pillar for achievement of sustainable development, it is strongly affected by all economic, political and security issues faced by the country.**
**To meet the fast growing electricity demand, the Egyptian Electricity Holding Company (EEHC) and its affiliated companies exert all their efforts to add annual achievements translated by energy projects including production ,transmission and distribution of electricity taking into consideration the optimum operation of different electrical system components (power Plants transmission and distribution networks) where the following are the main achievement for the year 2014/2015:**

- The peak load reached 28015 MW compared to the level of 26140 MW reached in year 2013/2014 with a percentage increase rate of 7.2%.
- Addition of new generating capacities bringing the total nominal capacity to 35220 MW by 30/06/2015 with a percentage increase rate of 10% compared to 2013/2014(excluding capacities of isolated units amounting to 246 MW) .
- Increase the transformers capacity of transmission and distribution substations to reach a total of 171685 MVA in 30/6/2015 with a percentage increase rate of 3.8%.
- Increase the length of transmission and distribution lines and cables to reach a total of 488932 Kms in 30/6/2015 with a percentage increase rate of 1.9%.
- The total investments for generation, transmission and distribution for the year 2014/2015 reached about 22.4 Billion L.E. including part of the fast track plan.
- The rate of fuel consumption reached 214.1 gm/KWh generated Compared to 209.7gm/KWh generated in previous year (excluding isolated units).
- The average availability of power generation from production companies reached 83.3% Compared 86.8% for the previous year.
- The number of customers has increased from 30.6 million customer in 30/6/2014 to reach 31.4 million customer by 30/06/2015, with a percentage increase rate of 2.6%.
- Mounting 10240 MVAR capacitors on the medium and low voltage networks and 800 MVAR on the extra-high voltage (220KV network) for reactive power compensation and power factor correction.
- The share of natural gas has reached 73.6% including private sector power plants connected to the gas network (remaining needs of fuel are relying on mazout and sollar).
- Starting conversion of the gas units to operate as combined cycle units to increase the power generation without need to additional fuel.
- Encourage installation of Photo Voltaic (PV) projects on the top roof of administrative buildings and connect them to the electricity network.

- Implementation of energy efficiency programs in the residential and governmental sectors to achieve gradual market transformation towards the use of LED technology in these two sectors where a public tender was issued to supply 13 million LED lamps for distribution to residential customers by the electricity distribution companies and through installments to be settled with the monthly electricity bill and it is expected to save 580 MW from this initiative.
- Mounting of 600 thousand high pressure sodium efficient lamps (HPS) for street lighting purposes through a contract between the Ministry of Finance, Ministry of Electricity & Renewable Energy and Arab Organization of Industrialization in coordination with the Ministry of Local Development achieving 90 MW saving.
- Taking effective steps towards installation of 3 million smart meters starting by customers of Cairo North, Cairo South and Canal Electricity Distribution Companies.

- The Egyptian Electricity Holding Company has set five years dynamic plans to add generating capacities to face the fast growing increase of energy demand in addition to the reinforcement of the existing transmission lines, cables and substations and expansion of transmission and distribution networks to evacuate the generated power expected to be added through the five year expansion plan, the fast track plan and Siemens company projects where it is expected that the needed investments to cover generation, transmission and distribution projects will reach 123 Billion L.E during the five year investment plan (2012-2017).
- These high needed investments are covered through loans either from international Finance institutions or local banks and are imposing a financial burden on the electricity companies, meanwhile the current electricity tariff is not sufficient to cover these needs, therefor the power sector within its strategy is encouraging the private sector participation in the implementation of power plants through competitive BOO biddings to alleviate the financing burden.
- The power sector is also diversifying the share of different fuels in the generation mix following the decision of the cabinet taken 14/04/2014 to consider and approve the use of coal as a source of fuel for power generation, the power sector has considered the addition of 7160 MW coal fired power plants in the under preparation plan (2017-2022) to be implemented with the participation of the private sector through the BOO scheme.
- EEHC is also keen to achieve electrical interconnection projects with Arab and African countries to be complemented by the interconnection with the European network , and in Complementing of the interconnection with neighboring countries, steps are being taken to implement the Egyptian / Saudi interconnection project for the exchange of 3000 MW during peak hours. It is expected to start trial operation for exchanging 1500 MW by the end of 2018.
- Efforts are also exerted by EEHC and its affiliated companies to improve the human resources through local and international training and capacity building in technical, economic and commercial fields.
- Moreover EEHC is continuously interacting with the International organizations to benefit from international advanced and diversified experience and is participating in international forums and conferences to learn about all new technological advancements in the field of production, transmission, distribution and energy conservation.
- **Acknowledging the importance of data documentation, the Egyptian Electricity Holding Company issues this annual report for the fiscal year 2014/2015 to document its activities, achievements and future plans to achieve its goal in ensuring sustainability of power supply.**

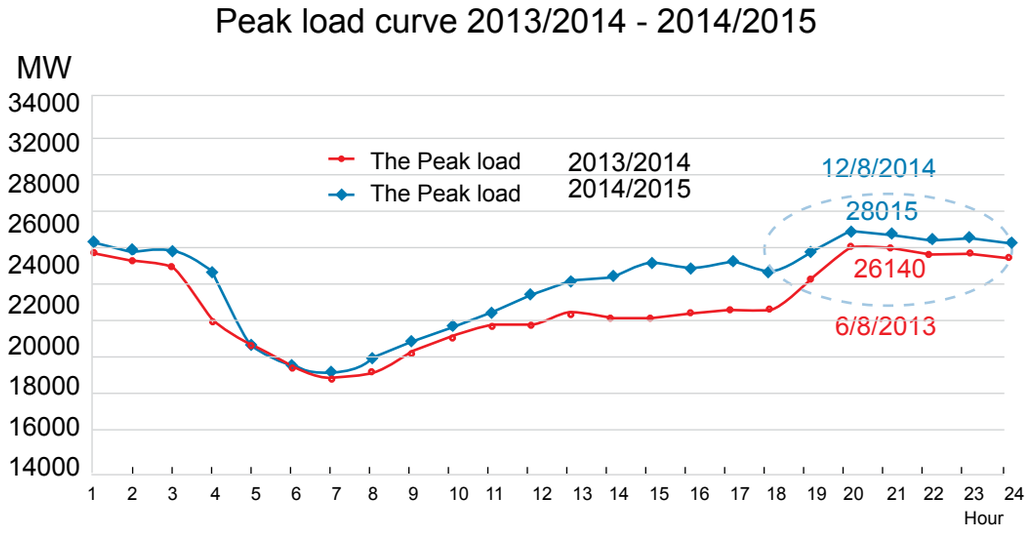
# Electricity for 2014/2015

| Description | | 2013/2014 | 2014/2015 | Variation% |
|---|---|---|---|---|
| Peak load | MW | 26140 | 28015 | 7,2 |
| Total power generated | GWh | 168050 | 174875 | 4.1 |
| • Hydro | GWh | 13352 | 13822 | 3.5 |
| • Thermal(1) | GWh | 138795 | 144995 | 4.5 |
| • New and Renewable Energy(2) | GWh | 1446 | 1444 | (0.1) |
| • Energy Purchased from (IPPs)(3) | GWh | 62 | 32 | (48.4) |
| • Power generated from private sector (BOOT) | GWh | 14154 | 14338 | 1.3 |
| • Power generated from Isolated Plants | GWh | 241 | 244 | 1.2 |
| Net Energy Exchange with interconnected countries (sent) | GWh | 399 | 679 | 70.2 |
| Sent energy from production companies(without Boot) | GWh | 147526 | 154054 | 4.4 |
| Total fuel consumption | K toe | 32079 | 34110 | 6.3 |
| • Production companies | K toe | 29158 | 31142 | 6.8 |
| H.F.O | K toe | 7760 | 8528 | 9.9 |
| N.G | K toe | 21215 | 22137 | 4.3 |
| L.F.O | K toe | 183 | 478 | 161.2 |
| • Private sector BOOT's | K toe | 2921 | 2968 | 1.6 |
| Fuel consumption rate for Production company | gm/kwh gen | 210.1 | 214.8 | 2.2 |
| Fuel consumption rate Including BOOT's | gm/kwh gen | 209.7 | 214.1 | 2.1 |
| Thermal efficiency (including private sector BOOT's) | % | 41.8 | 41 | (1.9) |
| N.G ratio to total fuel Including BOOT's | % | 75.2 | 73.6 | (2.1) |
| N. G ratio for power plants connected to gas grid Including BOOT's | % | 77.8 | 75.5 | (3) |
| Total Installed capacity(4) | MW | 32015 | 35220 | 10 |
| • Hydro | MW | 2800 | 2800 | - |
| • Thermal (Affiliated companies) | MW | 26480 | 29685 | 12.1 |
| • New and Renewable energy (Wind & Solar)(5) | MW | 687 | 687 | - |
| • Private sector BOOT's (Thermal) | MW | 2048 | 2048 | - |
| Total Length of EHV & HV lines and Cables. | Km | 44213 | 44409 | 0.4 |
| Total Capacity for EHV & HV transformers. | MVA | 99635 | 103975 | 4.4 |
| Total length of distribution MV&LV Lines & Cables | Km | 435550 | 444523 | 2.1 |
| Total capacity for distribution transformers MV&LV | MVA | 65790 | 67710 | 2.9 |
| Total % losses in (distribution –transmission) | % | 11.71 | 12.88 | 10 |

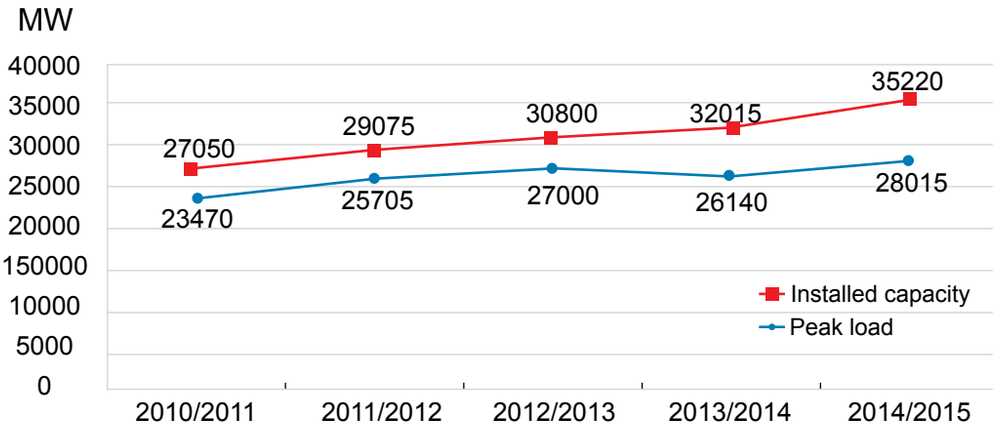
(1) Includes commissioning tests
(2) Connected to The National Unified Grid (Wind & Solar energy)
(3) Power purchased from industrial companies self-generation (IPPs) year 2014/2015 as follows:
Petrochemicals (18 GWh), Talkha Fertilizer and Ghazl El-Mahala (14 GWh).
(4) There are Isolated and reserved Plants with total capacity of 246 M.W
(5) The Solar Component of Solar kuriamat station is 20 MW.

# Peak load and installed capacity

The Peak Load reached 28015 MW in 2014/2015 compared to 26140 MW in 2013/2014 with a percentage rate of increase of about 7.2%.




- In 30/6/2015, the installed capacity reached 35220 MW compared to 32015 MW in 30/6/2014 with an increase percentage rate of 10%.



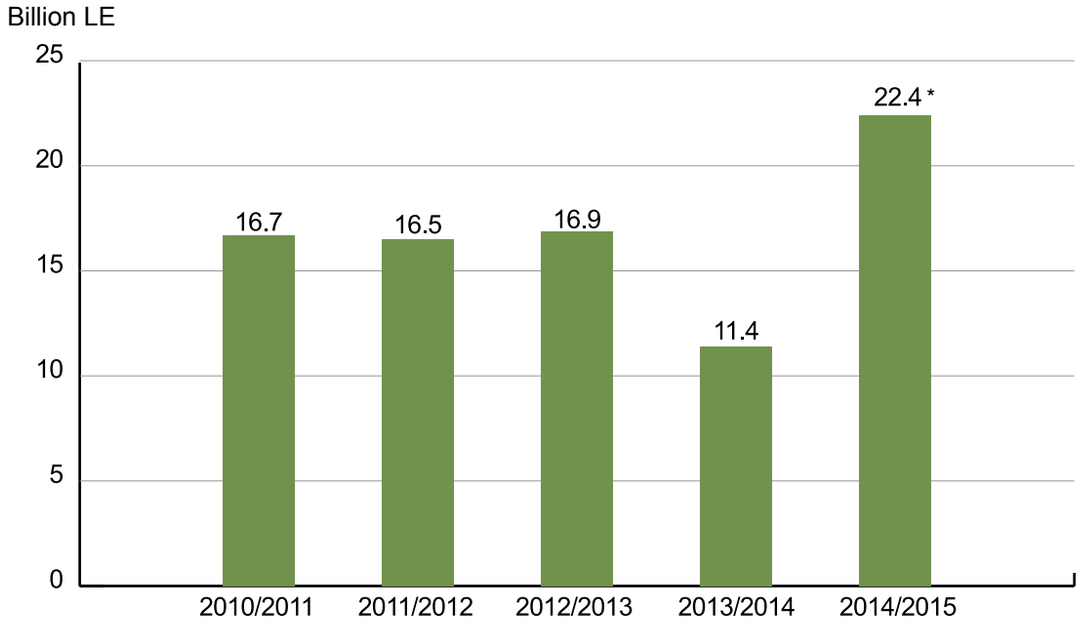

- The average yearly growth rate of the peak load is 4.5% & installed capacity is 6.8% during the period from 2010/2011 to 2014/2015.

It is to be noted that one cannot benefit from the total installed capacity due to the aging of some generating units, quality of used fuel, impact of high temperature in summer on some gas and Combined generating units, dependence of hydro power plants on amount of water defined by the Ministry of Irrigation and Water Resources in addition to the impact of non-uniformity of wind speed and solar irradiance on renewable energy.

# Financial Situation of (EEHC) and its affiliated Companies

| Company | | 2013/2014 | 2014/2015 | Variation % |
|---|---|---|---|---|
| Net Fixed Assets | Billion L.E | 112.5 | 127.9 | 13.7 |
| Inventory | Billion L.E | 9.9 | 13.1 | 32.3 |
| Cash and Banks | Billion L.E | 3.4 | 8.6 | 152.9 |
| Net Working Capital | Billion L.E | (51.9) | (52.7) | 1.5 |
| Equity | Billion L.E | 8.9 | 12.3 | 38.2 |
| Total Revenues (excluding revenues from exchanged energy) | Billion L.E | 61.3 | 79.8 | 30.2 |
| Total Cost and expenditures (excluding expenditures of exchanged energy) | Billion L.E | 64.5 | 77.8 | 20.6 |
| Net Profit (Loss) | Million L.E | (3281) | 2020 | - |
| Investment | Billion L.E | 11.4 | 22.4* | 96.5 |
| The burden of Funding (installments & Interests) | Billion L.E | 15.3 | 16 | 4.6 |
| Loans | Billion L.E | 82.3 | 98 | 19.1 |
| No. of Employees | Thousand | 179.3 | 174.9 | (2.5) |
| No. of Customers | Million | 30.6 | 31.4 | 2.6 |

# Implemented Investments for (EEHC) and its affiliated Companies




- The average rate for Implemented investments is 7.6% yearly during the period from 2010/2011 to 2014/2015.

*Including part of the fast track plan projects for summer 2015.

# Power Projects Deals from Sharm El Sheikh Economic Conference 2015 (Production-Transmission –Distribution)

**First: Power Generation:**

## A-Generation Power Projects from combined cycle plants:

- During the Conference, Siemens German Company offered a deal for the construction of combined cycle power plants with a total installed capacity of 14400 MW and 6 Billion Euros investments through (EPC+Finance). where a preliminary agreement has been signed during the Sharm El Sheikh Conference, where the following has been achieved:
  - A contract dated 1/6/2015 has been signed with Siemens Company and its local partners to execute three combined cycle power plants 4800 MW each at Borollos-Beni Suef- The new Administrative Capital in addition to contracts for sites preparation amounting 128 Million Euro.
  - It is planned to implement 800 MW in November 2016 to reach 4400 MW in December 2016 and the whole project in May 2018.
- During the Conference a conditional contract has been signed for purchasing power from Benchmark company proposed to implement the combined cycle power plant at Metobas Kafr El Sheikh 2 x1100 MW over two phases.

## B-Production Coal Fired Power Projects:

- The plan is to add up to year 2022 coal fired power plants with total capacities of 7160 MW where the following has been achieved:
  - Signing memorandum of understanding with Egyptian, Arab and Foreign companies for the construction of coal fired power plants.
  - Currently cooperation is undergoing with one of the Arab investments Companies to execute the first coal fired power plant over two phases 1320 MW each, through BOOT scheme, the feasibility study and agreements are reviewed with the assistance of an international consultant to reach the final agreements.
  - Another agreement has been signed with a Chinese company to execute coal fired power plants through (EPC+Finance) scheme.

## C-Ataqa mountain Pumped Storage Power Plant:

- The power sector is targeting the execution of the first pumped storage in Egypt as a stand by power plant to secure system stability and power production during the system peak load through water storage in a high level tank during the off peak hours than pumping this water to generating turbines to generate power during peak load, in this regard a memorandum of understanding has been signed with a Chinese company to construct the pumped storage power plant at Ataqa (Suez) with a total installed capacity of 2100 MW and estimated investments of 2.3 Billion US $, an international consultant will be recruited to review the technical, financial and environmental studies and supervise project implementation.

**Second: Power transmission:**

- A Memorandum of understanding has been signed between the Egyptian Electricity Transmission Company, Siemens company and State Grid Company during the Sharm El Sheikh Conference to develop and reinforce the transmission network to evacuate the large amount of added capacities:
  - The contract with State Grid Company consists of constructing 1210 Km of extra high Voltage transmission lines.
  - The contract with Siemens consists of execution of 6 extra high voltage substations interconnected to the Unified Power System with total capacities of 6000 MVA.

**Third: Power Distribution:**

- The Egyptian Electricity Holding Company, within its plan to apply the smart networks and development of power systems measurement took the decision to start a project implementation for installation of 10 million smart meters at the customers of electricity distribution companies as follows:
  - Contracting an International consultant at 13/6/2015 to provide consultancy services for delivery, installation and operation of 10 million smart meters in coordination with the electricity distribution companies.
  - A work plan has been prepared by the consultant to implement this project through phases, the first phase consists of issuing a tender for delivering, installating and operating of 3 Million smart meters starting by Cairo North, Cairo South and Canal Distribution companies where the Consultant has prepared the tender documents and technical specifications.
  - A working group has been established from representatives from the Electricity Holding Company, Distribution Companies and Ministry of Communications and Information Technology, to review the tender documents and specification prepared by the consultant.
  - Tender documents has been issued in August 2015 by the EEHC, and technical envelopes opened on 16/11/2015, studying and analyzing is now under Process.

# Electric Power Production

## Electricity Production companies:

- Cairo Electricity Production Company.
- East Delta Electricity Production Company.
- Middle Delta Electricity Production Company.
- West Delta Electricity Production Company.
- Upper Egypt Electricity Production Company.
- Hydro-Power Plants Electricity Production Company.

## Objectives :

1. Production of electric energy from the affiliated power plants.
2. Management, operation, maintenance, Rehabilitation and overhauling maintenance of the affiliated power plants, to be executed in full compliance with the instructions of the National Control Center, to ensure optimum technical and economic operation of the system.
3. Sale of the electric power produced from the power plants to the Egyptian Electricty Transmission Company and to the Distribution Companies (in case power delivered on medium voltages).
4. Implementing power plant projects upon the approval of EEHC's Board of Directors, according to thier planned time schedules.
5. Conducting researches and studies within the scope of companies activities.
6. Carrying out any activities or works related to the company's objectives, in addition to any other work to be entrusted to them by EEHC.
7. Carrying out any work entrusted thereto by other parties as long as it is within the company's scope of work and realizes economic benefit to the company.

# Informations about Production Companies

| Company | Geographical zone | Headquarter | Equity Capital (Million EGP) | No. of Shares | Address | Tel. |
|---|---|---|---|---|---|---|
| Cairo | Great Cairo | Cairo | 671.835 | 6718350 | 22 Shanan St. Sabteia | 02-25793054<br>02-25740550 |
| East Delta | Damietta, Ismailia, Port Said, Suez, South Sinai, North Sinai & Red Sea Governorates | Ismailia | 666.980 | 6669800 | Sheben Elkom street | 064-3201492<br>064-3204590 |
| Middle Delta | Qalyobea Governorate (Except for Great Cairo Extension), Mhmodeya City, Kom Hamada from Behera Governorate, Dakahlya Governorate. | Dakahlya | 791.375 | 7913750 | Fertilizer Factory Road Talkha | 050-2524149<br>050-2524369 |
| West Delta | Alexandria, Matrouh & El Behera Governorates (Except for Mahmodeya city & kom Hamada) | Alexandria | 742.945 | 7429450 | 7 Riad street Gleem | 03-5761375<br>03-5756722 |
| Upper Egypt | Giza (Except for extension of Great Cairo) , Fayoum, Beni-Suef, El-Minia, Assiut, New Valley, Sohag, Qena , Aswan,& Luxor Governorates | Giza | 925.875 | 9258750 | Near the Zoo - Giza | 082-9210733<br>088-2321915<br>02-37610578 |
| Hydro Power Plants | Affiliated Hydro Plants All over the Country | Aswan | 391.660 | 3916600 | High Dam – West Sahara | 097-3480412<br>097-3481974 |

# Thermal power plants projects

**The five- year plan is set to ensure the availability of electric power to different purposes based on the following:**

1. The expected annual growth rate of demand & the peak load.
2. Adequate reserve to meet programmed outages, forced outages and derating of existing generation units.
3. Diversification of Power Plants Technologies (steam, combined cycle).

## The seventh five-year plan (2012-2017) :

- The seventh five year plan (2012-2017) included the addition of 13200 MW capacity units, however during the implementation, the power sector faced some challenges mainly the increase of load demand, the shortage of natural gas supply which necessitated introducing some modifications to the plan as follows:
- Include the conversion of 6 October gas power plant to combined cycle adding 340 MW to the plan projects.
- Increase the capacity of power plants to be operated as combined cycle in line with the most up to date units available in the international market thus to benefit from the high efficiency units and optimum use of available sites where the following has been decided:
- Increase the capacity of Damanhour combined cycle power plant from 1500 MW to 1800 MW.
- Increase the capacity of El Siuf combined cycle power plant from 750 MW to 900 MW.
- Increase the capacity of Mahmoudia combined cycle power plant from 450 MW to 480 MW (where the 320 MW gas units have been executed within the fast track 2015 summer plan).
- Due to the difficulties faced during the implementation of Dairut 2250 MW power plant through BOO scheme, it was decided to postpone implementation of this project within the plan (2017-2022).

- All these actions brought the total capacities that were supposed to be added through the seventh five year plan to 11770 MW instead of 13200 MW with expected investments of around 71.3 Billion Egyptian Pounds and will be implemented by the power sector through soft loans from Arab and International funds in addition to (EPC+Finance)
- The (combined cycle Benha power plant, Giza North simple cycle power plant, 6th October gas power plant) with a total capacity of 2700 MW that were included in the plan have been commercially operated by 30/06/2015, and will reach 3600 MW by the end of December 2015.

**Fast track plan to face 2015 summer :**

- Due to the increase of load demand by 7.2% in 2014/2015 compared to 2013/2014, and to face the expected 2015 summer load, a fast track plan has been implemented including the addition of 52 gas units with total capacity of 3632 MW and total investments equivalent to 20.8 Billion L.E out of them 20 units have been mounted- based on the study recommendation - near to the load centers at Cairo, middle Egypt and Upper Egypt and intercnnected to the 11.22 KV substations to decrease the network losses.
- The plan power projects have been successfully iplemented and interconnected to the network in a record time which voided power cuts and load shedding during the 2015 summer.

# General Power Plants Statistics (30/6/2015)[1]

| Comp. | Station | | No. of Units | Installed Capacity (MW) | Actual capacity | Fuel | Commissioning Date |
|---|---|---|---|---|---|---|---|
| Cairo | Shoubra El-Kheima | (St) | 4 x 315 | 1260 | 1260 | N.G-H.F.O | 84-85-1988 |
| | Shoubra El-Kheima | (G) | 1 x 35 | 35 | 35 | N.G-L.F.O | 1986 |
| | Cairo West Ext | (St) | 2 x 330 + 2 x 350 | 1360 | 1360 | N.G-H.F.O | 1995-2011 |
| | Cairo South 1 [2] | (CC) | 3 x 110 | 330 | 300 | N.G | 1989 |
| | Cairo South II | (CC) | 1 x 110 + 1 x 55 | 165 | 150 | N.G | 1995 |
| | Cairo North | (CC) | 4x 250 +2 x 250 | 1500 | 1500 | N.G-L.F.O | 2005-2006-2007-2008 |
| | El-Tebeen | (St) | 2 x 350 | 700 | 700 | N.G-H.F.O | 2010 |
| | Wadi Hof | (G) | 3 x 33.3 | 100 | 75 | N.G-L.F.O | 1985 |
| | 6 October | (G) | 4 x 150 | 600 | 600 | N.G-L.F.O | 2012 |
| | North Giza[3] | (CC) | 4x 250 +2 x 250 | 1500 | 1500 | N.G-L.F.O | 2015-2014 |
| | 6 October Ext [4] | (G) | 3 x 150 | 450 | 450 | N.G-L.F.O | 2015 |
| East Delta | Damietta | (CC) | 6 x 132 + 3 x 136 | 1200 | 1164 | N.G-L.F.O | 89-1993 |
| | Ataka | (St) | 2 x 150 + 2 x 300 | 900 | 900 | N.G-H.F.O | 85-86-1987 |
| | Abu Sultan | (St) | 4 x 150 | 600 | 600 | N.G-H.F.O | 83-84-1986 |
| | Shabab | (G) | 3 x 23.5 | 100 | 91.5 | N.G-L.F.O | 1982 |
| | New Gas Shabab | (G) | 8 x 125 | 1000 | 1000 | N.G-L.F.O | 2011 |
| | New Gas Damietta | (G) | 4 x 125 | 500 | 500 | N.G-L.F.O | 2011 |
| | Damietta West | (G) | 4 x 125 | 500 | 500 | N.G-L.F.O | 2012-2013 |
| | Port Said [5] | (G) | 1 x 24 | 24 | 22 | N.G-L.F.O | 1977 |
| | Arish | (St) | 2 x 33 | 66 | 66 | N.G-H.F.O | 1995-1996 |
| | Oyoun Mousa | (St) | 2 x 320 | 640 | 640 | N.G-H.F.O | 2001 |
| | Sharm El-Sheikh | (G) | 1 x 23.7 + 4 x 24. 27 | 120.5 | 109 | L.F.O | 1997-1979-1975 |
| | Hurghada | (G) | 6 x 24.2 | 145 | 131 | N.G - L.F.O | 1977-1979 |
| | Ain-Sokhha [6] | (St) | 2 x 650 | 1300 | 1300 | N.G-H.F.O | 2015 |
| | Zafarana(Wind) | (W) | 105 x 0.6 + 117 x 0.66 + 478 x 0.85 | 547 | 120 | Wind | 2007-2008-2009-2010 |
| | Suez Gulf (BOOT) | (St) | 2 x 341.25 | 682.5 | 682.5 | N.G-H.F.O | 2002-2003 |
| | PortSaid East(BOOT) | (St) | 2 x 341.25 | 682.5 | 682.5 | N.G-H.F.O | 2002-2003 |
| Middle Delta | Talkha [7] | (CC) | 8 x 19.0 + 2 x 40 | 236 | 236 | N.G-L.F.O | 79-80-1989 |
| | Talkha 210 | (St) | 2 x 210 | 420 | 420 | N.G-H.F.O | 1993-1995 |
| | Talkha 750 | (CC) | 2 x 250 +1 x 250 | 750 | 750 | N.G-L.F.O | 2006-2010 |
| | Nubaria 1,2 | (CC) | 4 x 250 + 2 x 250 | 1500 | 1500 | N.G-L.F.O | 2005-2006 |
| | Nubaria 3 | (CC) | 2 x 250 +1 x 250 | 750 | 750 | N.G-L.F.O | 2009-2010 |
| | Mahmoudia [8] | CC) | 8 x 21+ 2 x 50 | 268 | 268 | N.G-L.F.O | 1983-1995 |
| | El-Atf | (CC) | 2 x 250 + 1 x 250 | 750 | 750 | N.G-L.F.O | 2009- 2010 |
| | Banha[9] | (CC) | 2 x 250+ 1 x 250 | 750 | 750 | N.G-L.F.O | 2014 |
| West Delta | Kafr El-Dawar | (St) | 4 x 110 | 440 | 440 | N.G-H.F.O | 1980-1984-1986 |
| | Damanhour Ext | (St) | 1 x 300 | 300 | 300 | N.G-H.F.O | 1991 |
| | Damanhour (Old) | (St) | 3 x 65 | 195 | 105 | N.G-H.F.O | 1968-1969 |
| | Damanhour | (CC) | 4 x 25 + 1 x 58 | 158 | 154 | N.G-L.F.O | 1985-1995 |
| | El-Seiuf | (G) | 6 x 33.3 | 200 | 141 | N.G-L.F.O | 1981-1982-1983-1984 |
| | Karmouz | (G) | 1 x 11.37 + 1 x 11.68 | 23 | 18 | L.F.O | 1980 |
| | Abu Kir | (St) | 4 x 150 + 1 x 310 | 910 | 900 | N.G-H.F.O | 1983-1984-1991 |
| | Abu Kir | (G) | 1 x 24.27 | 24 | 23 | N.G.-L.F.O | 1983 |
| | Abu Kir New | (St) | 2 x 650 | 1300 | 1300 | N.G-H.F.O | 2012-2013 |
| | Sidi Krir 1,2 | (St) | 2 x 320 | 640 | 640 | N.G-H.F.O | 1999-2000 |
| | Sidi Krir | (CC) | 2 x 250 + 1 x 250 | 750 | 750 | N.G-L.F.O | 2009-2010 |
| | Matrouh | (St) | 2 x 30 | 60 | 60 | N.G-H.F.O | 1990 |
| | Sidi Krir 3,4 (BOOT) | (St) | 2 x 341.25 | 682.5 | 682.5 | N.G-H.F.O | 2001-2002 |
| Upper Egypt | Walidia | (St) | 2 x 300 | 600 | 600 | H.F.O | 1997 |
| | Kuriemat 1 | (St) | 2 x 627 | 1254 | 1254 | N.G-H.F.O | 1997-1998 |
| | Kuriemat 2 | (CC) | 2x250+1x250 | 750 | 750 | N.G.-L.F.O | 2007-2009 |
| | Kuriemat 3 | (CC) | 2x250+1x250 | 750 | 750 | N.G-L.F.O | 2009-2011 |
| | Assiut | (St) | 3 x 30 | 90 | 60 | H.F.O | 1966-1967 |
| | Assiut West[10] | (G) | 3 x 125 | 375 | 375 | L.F.O -H.F.O | 2015 |
| | mobile units [11] | (G) | 14 x 25 | 350 | 350 | L.F.O | 2015 |
| | Kuriemat Solar / Thermal | (S/G) | 1 x 70 + 1 x 50 + 1 x 20 | 140 | 140 | Solar/ N.G | 2011 |
| Hydro Plants | High Dam | | 12 x 175 | 2100 | 2100 | Hydro | 1967 |
| | Aswan Dam I | | 7 x 40 | 280 | 280 | Hydro | 1960 |
| | Aswan Dam II | | 4 x 67.5 | 270 | 270 | Hydro | 1985-1986 |
| | Esna | | 6 x 14.28 | 86 | 86 | Hydro | 1993 |
| | Naga Hamadi | | 4 x16 | 64 | 64 | Hydro | 2008 |
| | Total | | | 35220 | 34455 | | |

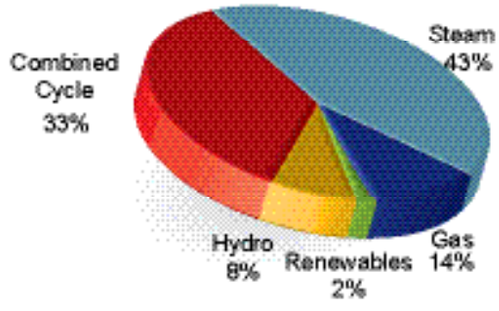
1-In addition to 246MW units not connected to the grid (like EL Salam P.P (Diesel) affiliated to East Delta Company capacity (22.4 MW)).
2- Demolition the units 5, 6 with capacity (2 x 60 MW) on April 2015 in Cairo South CC.
3- Commercial operation for units (2, 5, 6) in North Giza CC capacity (3 x 250 MW) January and june 2015.
4- Commercial operation for units (5, 6, 7) 6 October Ext capacity (3 x 150 MW) on August 2014, February and May 2015 respectively.
5- Demolition Gas unit with capacity (24 Mw) on june 2015 in port said.
6- Commercial operation for two units in Ain-Sokhha with capacity (2 x 650 MW) on march, june 2015.
7-Minimize the installed capacity for Talkha CC from capacity 290 MW to 236 MW because of outdate.
8- Minimize the installed capacity for Mahmoudia CC from capacity 316 MW to 268 MW because of outdate.
9- Commercial operation for steam unit in Banha P.P capacity 250 MW on August 2014.
10- Commercial operation for gas units (1, 2, 3) in Assiut West CC capacity 3 x 125 on May 2015.
11- Commercial operation for mobile units in Upper Egypt p.c capacity (14 x 25 MW) on June 2015.

# Total Installed Capacities*

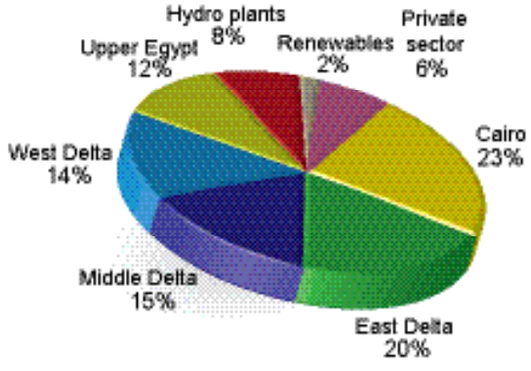
The total installed capacity for the year 2014/2015 reached 35220 MW compared to 32015 MW in 2013/2014 with a percentage rate of increase of about 10% and distributed as follows:

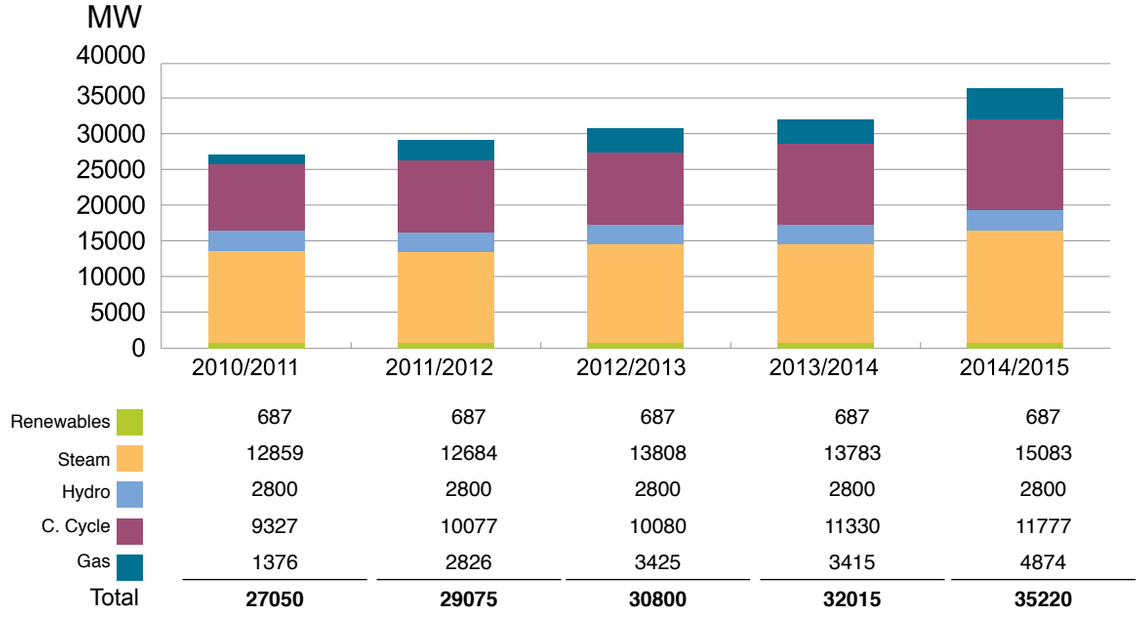
| Company list | Cairo | East Delta | Middle Delta | West Delta | Upper Egypt | Hydro | Private Sector | Renewable | Total |
|---|---|---|---|---|---|---|---|---|---|
| Gas | 1515 | 2386 | 0 | 247 | 725 | 0 | 0 | 0 | 4874 |
| Steam | 3320 | 3506 | 420 | 3845 | 1944 | 0 | 2048 | 0 | 15083 |
| Combined Cycle | 3165 | 1200 | 5004 | 908 | 1500 | 0 | 0 | 0 | 11777 |
| Hydro | 0 | 0 | 0 | 0 | 0 | 2800 | 0 | 0 | 2800 |
| Renewables | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 687 | 687 |
| Total | 8000 | 7092 | 5424 | 5000 | 4169 | 2800 | 2048 | 687 | 35220 |

Installed Capacity by Type%




Installed Capacity by Companies%



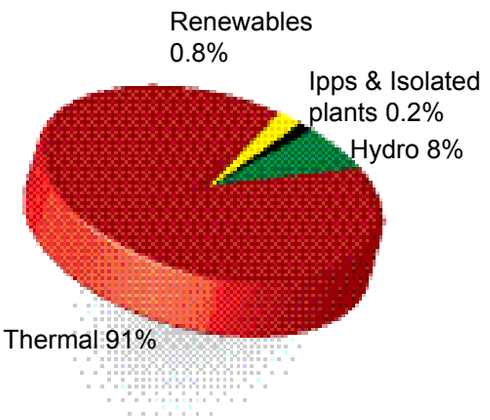

| | 2010/2011 | 2011/2012 | 2012/2013 | 2013/2014 | 2014/2015 |
|---|---|---|---|---|---|
| Renewables | 687 | 687 | 687 | 687 | 687 |
| Steam | 12859 | 12684 | 13808 | 13783 | 15083 |
| Hydro | 2800 | 2800 | 2800 | 2800 | 2800 |
| C. Cycle | 9327 | 10077 | 10080 | 11330 | 11777 |
| Gas | 1376 | 2826 | 3425 | 3415 | 4874 |
| Total | **27050** | **29075** | **30800** | **32015** | **35220** |

- The average growth rate of the instaled capacity is 6.8% per year (during the perios from 2010/2011 till 2014/2015.
- New & Renewable include wind farms capacity (547 MW), Solar / Thermal Korymat pawar palnt capacity (140 MW) & the solar component of it reach (20 MW)
- In addition there are Isolated Plants with total capacity of (246 MW)

# Energy Generated and Purchased (GWh)*

## By Type and Technology (GWh):

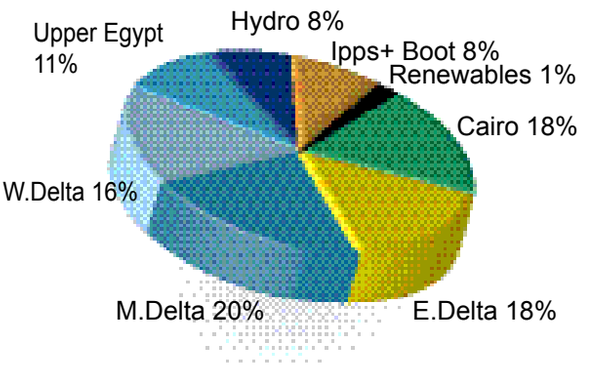
| Type | | 2013/2014 | 2014/2015 | Variation % |
|---|---|---|---|---|
| Steam | Affiliated Companies | 62971 | 63924 | 1.5 |
| | Private Sector | 14154 | 14338 | 1.3 |
| Gas Turbine | | 10790 | 15446 | 43.2 |
| Combined Cycle | | 65034 | 65625 | 0.9 |
| Total of theThermal* | | 152949 | 159333 | 4.2 |
| Hydro | | 13352 | 13822 | 3.5 |
| Renewables | Wind | 1332 | 1444 | 8.4 |
| | Solar/Thermal | 114 | 0 | (100) |
| Total Grid | | 167747 | 174599 | 4.1 |
| Isolated Plants and reserve | | 241 | 244 | 1.2 |
| Purchased from (IPP›s) | | 62 | 32 | (48.4) |
| Grand Total | | 168050 | 174875 | 4.1 |




* Includes commissioning tests

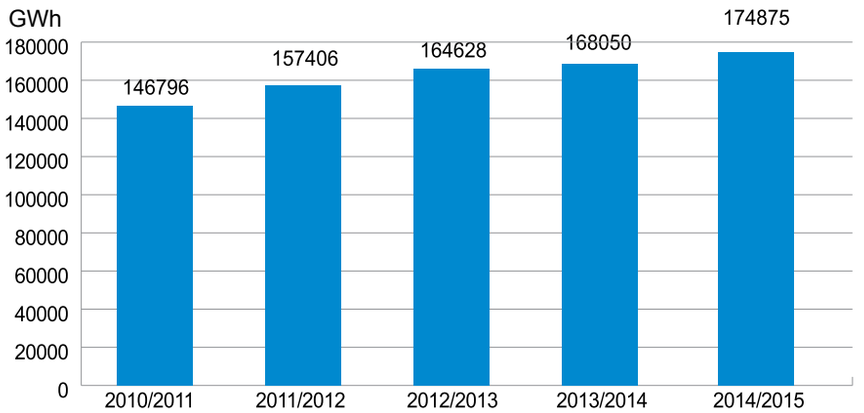
## By Production Company*:

| Company | 2013/2014 | 2014/2015 | Variation % |
|---|---|---|---|
| Cairo | 28301 | 30634 | 8.1 |
| East Delta | 27340 | 31918 | 16.7 |
| Middle Delta | 33125 | 35664 | 7.7 |
| West Delta | 27774 | 27657 | (0.4) |
| Upper Egypt | 22255 | 19122 | (14.1) |
| Hydro plants | 13352 | 13822 | 3.5 |
| Total Affiliated Production Companies | 152147 | 158817 | 4.4 |
| Renewables | 1446 | 1444 | (0.1) |
| Generated from BOOT's, Isolated Plants and Purchased from IPP's | 14457 | 14614 | 1.1 |
| Total | 168050 | 174875 | 4.1 |




* Includes commissioning tests

## Development of Gross Generted Energy (GWh)*:




•The average growth rate of the generated energy is 4.5% per year during the period from 2010/2011 till 2014/2015

*The Generated Energy includes commissioning tests.

# Development of Gross Energy Generation (GWh)*

| .Comp | Station | | 10/11 | 11/12 | 12/13 | 13/14 | 14/15 |
|---|---|---|---|---|---|---|---|
| Cairo | Shoubra El-Kheima | (St) | 7730 | 5473 | 6041 | 5841 | 6973.2 |
| | Cairo West | (St) | 1560 | 682 | 431 | - | - |
| | Cairo West Ext. | (St) | 51510 | 7181 | 7428 | 7957 | 7497.09 |
| | Cairo South 1 | (CC) | 3008 | 2681 | 1668 | 1658 | 1471.82 |
| | Cairo South II | (CC) | 1103 | 719 | 795 | 538 | 221.59 |
| | Cairo North | (CC) | 9915 | 10432 | 9047 | 7569 | 6861.21 |
| | Wadi Hof | (G) | 131 | 127 | 155 | 126 | 180.71 |
| | Tebbin | (St) | 4250 | 4276 | 3014 | 2947 | 2734.35 |
| | 6 October | (G) | - | 628 | 2630 | 1534 | 2969 |
| | Giza North | (CC) | - | - | - | 133 | 1727.59 |
| East Delta | Ataka | (St) | 3291 | 4260 | 3028 | 1852 | 1093.07 |
| | New Ataka | (G) | - | - | - | - | 146.6 |
| | Abu Sultan | (St) | 3222 | 3674 | 3678 | 3090 | 3366.73 |
| | Shabab | (G) | 249 | 106 | 224 | 251 | 345.81 |
| | New Gas Shabab | (G) | - | 6013 | 4913 | 1932 | 4306.25 |
| | Port Said | (G) | 69 | 62 | 100 | 111 | 84.37 |
| | Arish | (St) | 504 | 367 | 506 | 545 | 523.6 |
| | Oyoun Mousa | (St) | 4907 | 5188 | 4578 | 4943 | 3886.9 |
| | New Damietta | (G) | - | 2989 | 2940 | 3159 | 3148.9 |
| | West Damietta | (G) | - | - | 2602 | 3042 | 3275 |
| | Damietta | (CC) | 7603 | 7522 | 8281 | 8238 | 7334 |
| | Sharm El-Sheikh | (G) | 75 | 43 | 58 | 48 | 59.42 |
| | El-Huraghda | (G) | 92 | 44 | 104 | 129 | 386.12 |
| | Ein-Sokhna | (St) | - | - | - | - | 3961.73 |
| Middle Delta | Talkha | (CC) | 1984 | 1698 | 1761 | 2034 | 1748.22 |
| | Talkha steam 210 | (St) | 1242 | 2197 | 1862 | 2339 | 2003.56 |
| | Talkha 750 | (CC) | 5575 | 3462 | 5163 | 5012 | 5688.23 |
| | Nubaria | (CC) | 12650 | 11169 | 10555 | 15127 | 14694.72 |
| | Mahmoudia | (CC) | 2161 | 2053 | 2234 | 2190 | 2275.79 |
| | El-Atf | (CC) | 4926 | 5652 | 5648 | 5938 | 4739.53 |
| | Banha | (CC) | - | - | - | 485 | 4514.16 |
| West Delta | Kafr El-Dawar | (St) | 2109 | 2116 | 2928 | 3061 | 2754.62 |
| | Damanhour Ext. 300 | (St) | 1658 | 539 | 40 | 686 | 1764.49 |
| | Damanhour | (St) | 886 | 1050 | 1007 | 995 | 751.04 |
| | New Abu Kir | (St) | - | - | 5106 | 7423 | 7064.44 |
| | Damanhour | (CC) | 1045 | 1049 | 1045 | 1089 | 1082.13 |
| | Abu Kir | (St) | 4149 | 5179 | 5185 | 4852 | 5480.84 |
| | El-Seiuf | (G) | 171 | 214 | 275 | 302 | 409.33 |
| | Karmouz | (G) | 7 | 6 | 10 | 7 | 7.85 |
| | Sidi Krir | (St) | 4139 | 4004 | 4101 | 3713 | 3386.05 |
| | Sidi Krir | (CC) | 4673 | 5461 | 4782 | 5296 | 4612.2 |
| | Matroh | (St) | 389 | 366 | 378 | 349 | 343.81 |
| Upper Egypt | Walidia | (St) | 1850 | 3166 | 3540 | 3510 | 2226.45 |
| | Kuriemat | (St) | 902 | 7602 | 8784 | 8542 | 7921.2 |
| | Kuriemat 1 | (CC) | 5047 | 5072 | 3991 | 4726 | 5081.47 |
| | Kuriemat 2 | (CC) | 3118 | 4435 | 4396 | 5112 | 3572.8 |
| | Assiut | (St) | 431 | 406 | 461 | 364 | 198.27 |
| | Assiut West | (G) | - | - | - | - | 100.88 |
| | Mobile units | (G) | - | - | - | - | 20.8 |
| Total | Total-Thermal | | 118500 | 129361 | 135474 | 138795 | 144995 |
| | Total-Hydro | | 13046 | 12934 | 13121 | 13352 | 13822 |
| | Total-Wind (Zafarana) | | 1485 | 1525 | 1260 | 1332 | 1444 |
| | Kuriemat Solar / Thermal | | 219 | 479 | 237 | 114 | - |
| Private Sector BOOT | Sidi Krir 3&4 | (St) | 4564 | 4614 | 4705 | 4387 | 4318.5 |
| | Suez Gulf North West | (St) | 4274 | 3994 | 4576 | 4678 | 4311 |
| | Port Said East | (St) | 4471 | 4247 | 4983 | 5089 | 5708.5 |
| | Total BOOT | (St) | 13309 | 12855 | 14264 | 14154 | 14338 |
| Total | Purchased from IPP's | | 27 | 29 | 33 | 62 | 32 |
| | Total* | | 146587 | 157183 | 164388 | 167809 | 174631 |
| | Isolated plant units | | 209 | 223 | 240 | 241 | 244 |
| | Grand Total* | | 146796 | 157406 | 164628 | 168050 | 174875 |

* includes commissioning tests.

# Performance Statistics of Power Plants (2014/2015) (GWh)*

| Comp. | Station | Gross Gen. GWh | Net Gen. GWh | Net/ Gross % | Fuel Consump. .gm/ kWh gen | Thermal Eff. % | Peak Load MW | Load Factor % | Cap. Factor % | Av. Factor % |
|---|---|---|---|---|---|---|---|---|---|---|
| Cairo | Shoubra El-Kheima | 6973.2 | 6571.74 | 94.2 | 242.21 | 36.2 | 1235 | 64.46 | 61.5 | 80.4 |
| | Cairo West Ext | 7494.09 | 7113.57 | 94.9 | 226.45 | 38.8 | 325 | 77.86 | 62.9 | 87.8 |
| | Tebbin | 2734.35 | 2548.22 | 93.2 | 210.65 | 41.6 | 700 | 44.59 | 44.6 | 45.2 |
| | Wadi Hof | 180.71 | 179.48 | 99.3 | 398.43 | 22.1 | 72 | 28.65 | 20.6 | 94.4 |
| | Cairo South 1 | 1471.82 | 1445.77 | 98.2 | 247.4 | 35.5 | 363 | 46.29 | 37.3 | 89.2 |
| | Cairo South II | 221.59 | 219.97 | 99.3 | 264.9 | 33.1 | 142 | 17.8 | 15.3 | 48.3 |
| | Cairo North | 6861.21 | 6708.85 | 97.8 | 179.41 | 48.9 | 1414 | 55.39 | 52.2 | 79.4 |
| | 6 October | 2969 | 2910 | 98 | 270.8 | 32.4 | 893 | 31 | 26 | 91.4 |
| | Giza North | 1727.6 | 1669.92 | 96.7 | 295.48 | 29.7 | 1019 | 18.25 | 12.4 | 76.15 |
| East Delta | Ataka | 1093.07 | 986.49 | 90.3 | 258 | 34.1 | 245 | 50.9 | 13.9 | 24.1 |
| | New Gas Ataka | 146.59 | 145.66 | 99.4 | 274.4 | 32.0 | 600 | - | - | - |
| | Abu Sultan | 3366.73 | 3113.17 | 92.5 | 261.1 | 33.6 | 560 | 68.6 | 64.1 | 85.6 |
| | Arish | 523.57 | 491.19 | 93.8 | 248.3 | 35.4 | 66 | 90.6 | 90.6 | 94.3 |
| | Oyoun Mousa | 3886.93 | 3739.41 | 96.2 | 218.49 | 40.2 | 615 | 72.1 | 69.3 | 80.7 |
| | Shabab | 345.81 | 343.70 | 99.4 | 338.3 | 25.9 | 79 | 50 | 39.3 | 98.6 |
| | New Gas Shabab | 4306.25 | 4275.42 | 99.3 | 275.2 | 31.9 | 964 | 51 | 49.2 | 97.1 |
| | Port Said | 84.37 | 84.13 | 79.7 | 378.06 | 23.2 | 33 | 29.2 | 20.1 | 58 |
| | New Gas Damietta | 3148.90 | 3120.58 | 99.1 | 272.12 | 32.2 | 515 | 69.8 | 71.9 | 92.7 |
| | West Damietta | 3274.96 | 3257.39 | 99.5 | 266.3 | 33 | 505 | 74 | 74.8 | 93.7 |
| | Damietta | 7333.93 | 7170.78 | 97.8 | 197.6 | 44.4 | 1071 | 78.2 | 69.8 | 86.5 |
| | Sharm El-Shikh | 59.42 | 57.93 | 97.5 | 377.73 | 23.2 | 86 | 7.9 | 4.7 | 86.7 |
| | El-Huraghda | 386.12 | 384.95 | 99.7 | 400.24 | 21.9 | 88 | 50.1 | 30.8 | 95.3 |
| | Ein-Sokhna | 3961.73 | 3829.31 | 96.7 | 214.8 | 40.9 | 1290 | 42.9 | 42.5 | 73.6 |
| Middle Delta | Talkha steam (210) | 2003.6 | 1857.7 | 92.7 | 260.6 | 33.7 | 360 | 63.5 | 54.5 | 73.6 |
| | Talkha | 1748.2 | 1727.5 | 98.8 | 273.5 | 32.1 | 246 | 81 | 84.6 | 82.2 |
| | Talkha (750) | 5688.2 | 5587.9 | 98.2 | 152.9 | 57.4 | 768 | 84.5 | 86.6 | 94.8 |
| | Nubaria (1,2,3) | 14694.7 | 14457.9 | 98.3 | 162.9 | 53.9 | 2236 | 75 | 75 | 92.8 |
| | Mahmoudia | 2275.8 | 2251.1 | 98.9 | 222.2 | 39.5 | 305 | 85.2 | 96.9 | 97.6 |
| | Banha* | 4514.2 | 4427.6 | 98.1 | 170.4 | 51.5 | 802 | 69.8 | 74.7 | 90.3 |
| | El-Atf | 4739.5 | 4651.4 | 98.1 | 168.1 | 52.2 | 811 | 66.7 | 72.1 | 80.6 |
| West Delta | Kafr El-Dawar | 2754.6 | 2541.9 | 92.3 | 287.4 | 30.5 | 440 | 71 | 71 | 87.2 |
| | Damanhour Ext 300* | 1764.5 | 1708.1 | 96.8 | 240.9 | 36.4 | 300 | 67 | 67 | 90.4 |
| | Damanhour steam | 751.04 | 688.7 | 91.7 | 316.3 | 27.7 | 140 | 61 | 44 | 86.3 |
| | Abu Kir | 5480.8 | 5159.4 | 94.1 | 258.3 | 34 | 868 | 72 | 67 | 89 |
| | New Abu Kir | 7064.4 | 6790.7 | 96.1 | 217.1 | 40.4 | 1250 | 64.5 | 62 | 79.4 |
| | Sidi Krir 1,2 | 3386.1 | 3249.7 | 96 | 215 | 40.8 | 611 | 63.3 | 60 | 78.6 |
| | Matrouh | 343.81 | 317.86 | 92.4 | 287.7 | 30.5 | 57 | 69 | 65 | 93.3 |
| | El-Seiuf gas | 409.3 | 405 | 99 | 389 | 22.6 | 147 | 31.8 | 23.4 | 74.9 |
| | Karmouz | 7.85 | 7.74 | 98.6 | 376.9 | 23.3 | 18 | 5 | 4 | 53.1 |
| | Damanhour | 1082.13 | 1068.07 | 98.7 | 217.1 | 40.4 | 144 | 85.8 | 79 | 96.2 |
| | Sidi Krir (C.C) | 4612.2 | 4493.14 | 97.4 | 164.3 | 53.4 | 750 | 70.2 | 70.2 | 82.9 |
| Upper Egypt | Walidia | 2226.4 | 2126.69 | 95.5 | 255.7 | 34.3 | 465 | 54.66 | 42.4 | 61.3 |
| | Assiut | 198.3 | 173.49 | 87.5 | 317.3 | 27.7 | 64 | 35.4 | 25.2 | 38 |
| | Assiut West* | 100.9 | 99.83 | 98.9 | 293.7 | 29.9 | - | - | - | - |
| | Kuriemat steam | 7921.2 | 7684.2 | 97 | 211.9 | 41.4 | 1243 | 72.75 | 72.1 | 94.6 |
| | Kuriemat 1 | 5081.5 | 4988.42 | 98.2 | 152.6 | 57.5 | 733 | 79.14 | 77.3 | 93.2 |
| | Kuriemat 2 | 3572.8 | 3498 | 97.9 | 161.8 | 54.2 | 764 | 53.38 | 54.8 | 68 |
| | Mobile units | 20.8 | 20.6 | 99 | 266.9 | 285 | 1 | 1 | 32.3 | - |
| Hydro Plants | High Dam | 9805.2 | 9728.7 | 99.2 | - | 86.6 | 2220 | 50.42 | 53.3 | 92 |
| | Aswan Dam I | 1543.3 | 1523.7 | 98.7 | - | 90.1 | 275 | 64.06 | 62.92 | 95.9 |
| | Aswan Dam II | 1567.6 | 1558.6 | 99.4 | - | 94 | 270 | 66.28 | 66.28 | 87.4 |
| | Esna | 458.54 | 450.53 | 98.3 | - | 92.8 | 82.7 | 63.3 | 61.09 | 84.5 |
| | Naga Hamadi | 448.32 | 442.01 | 98.6 | - | 89.7 | 67.2 | 76.16 | 79.97 | 96.6 |
| Total | Total-Hydro | 13822 | 13704 | 99.2 | - | 88.1 | 2824 | 55.88 | 56.36 | 91.8 |
| | Total-Thermal* | 144995 | 140350 | 96.5 | 214.8 | 40.9 | - | 68 | 65 | - |
| | Total-Wind | 1444 | 1391 | 96.31 | - | - | 420 | 39 | 22 | - |
| | Kuriemat Solar / Thermal | - | - | - | - | - | - | - | - | - |
| | Private Sector BOOT | 14338 | 13479 | 94 | 207 | 42.4 | - | - | - | |
| | Total | 174599 | 168924 | 97 | 214.1 | 41 | - | - | - | - |
| | Purchased from IPPs | 32 | 32 | 100 | - | - | - | - | - | - |
| | Isolated Plants | 244 | 239 | 98 | - | - | - | - | - | - |
| | *** Grand Total** | **174875** | **169195** | **96.5** | **-** | **-** | **28015** | **-** | **-** | **-** |

*includes commissioning tests.

# Hydro Power

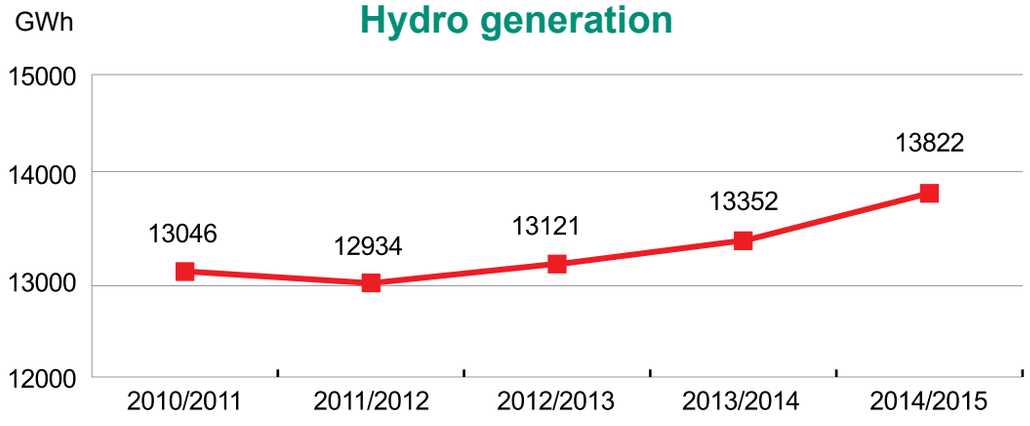
**Energy Generated from Hydro Power Plants (GWh):**

| Plant | 13/14 | 14/15 | Variation % |
|---|---|---|---|
| High Dam | 9304 | 9805 | 5.4 |
| Aswan Dam 1 | 1559 | 1543 | (1) |
| Aswan Dam 2 | 1503 | 1567 | 4.3 |
| Esna | 535 | 459 | (14.2) |
| Naga Hamady | 451 | 448 | (0.7) |
| **Total** | 13352 | 13822 | 3.5 |

# Indicators of Hydro generation

| Description | | High Dam | Aswan1 | Aswan2 | Esna | Naga Hammady |
|---|---|---|---|---|---|---|
| Peak Load | (MW) | 2220 | 275 | 270 | 87 | 67 |
| Max. daily generated energy | (GWh) | 44.14 | 6.4 | 6.35 | 2 | 1.68 |
| Min. daily generated energy | (GWh) | 10.1 | 1.79 | 2.5 | 0.5 | 0.67 |
| Efficiency | (%) | 86.6 | 90.1 | 94 | 84.1 | 89.7 |

## Hydro generation




- The average growth rate of energy generated from Hydro Power Plants is 1.5% per year during the period from 2010/2011 to 2014/2015.

The Hydro Power Plants Execution Authority and the Egyptian Electricity Holding Company are coordinating for the execution of New Assiut Barrage Hydro Power Plant with total installed capacity of 32 MW which is expected to be commissioned by September 2017.

# Fuel

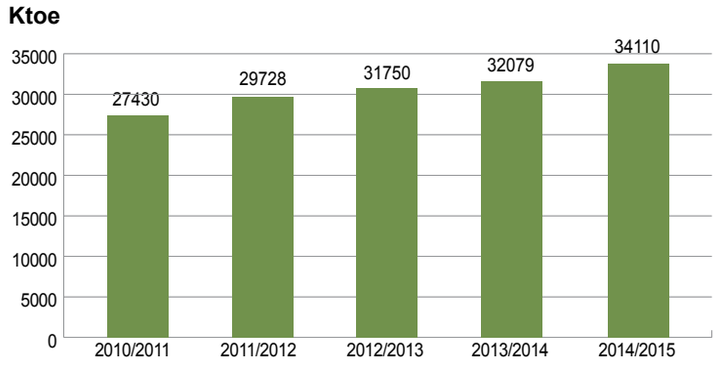
- The operation policy of the existing thermal power plants depends on the maximum utilization of natural gas in thermal power generation due to its economic and environmental benefits.
- Usage of N.G (Including BOOT P.P) by power plants connected to the gas grid reached 75.5% in 2014/2015 representing 73.6% of total fuel consumption in power generation.

## Fuel Consumption by Type*

| Item | | 13/14 | 14/15 | Variation % |
|---|---|---|---|---|
| H.F.O | Ktons | 7809 | 8627 | 10.5 |
| N.G | Million m³ | 28263 | 29332 | 3.8 |
| L.F.O | Ktons | 56.6 | 355.6 | 528.3 |
| Special L.F.O | Ktons | 76.8 | 128.4 | 67.2 |
| **Total** | **Ktoe** | **32079** | **34110** | **6.3** |

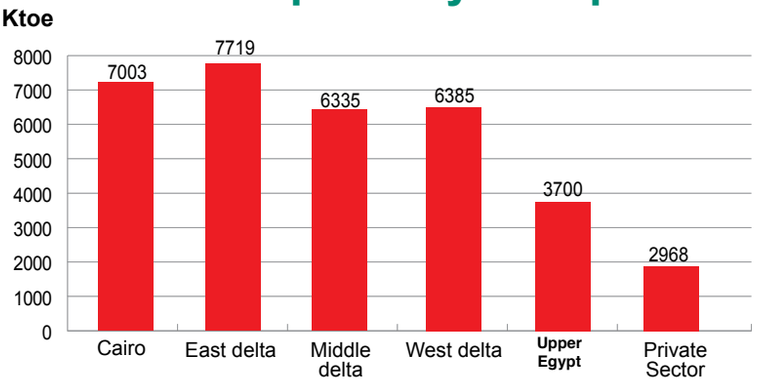
* Fuel consumption Includes the fuel for commissioning tests & BOOTs power plants.
* Not including consumed fuel in isolated plants amounting to 78 Ktoe.
*The consumed fuel in BOOT power plants was 3482 Million m3 of N.G., 4.1 Thousand tons of Mazout with a total of 2968 Ktoe.

# Fuel Consumption Development:



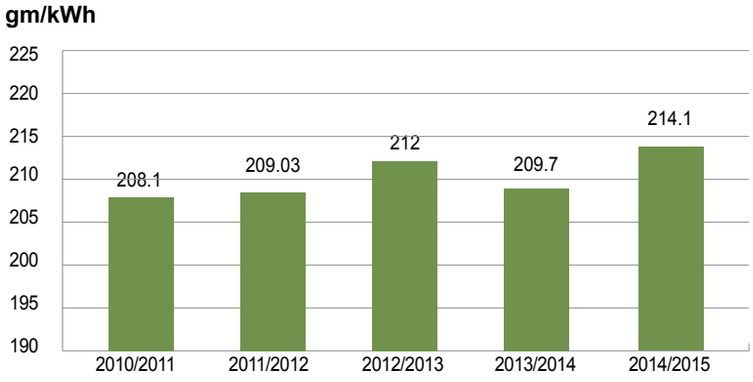

- Includes BOOTs power plants, excludes isolated power plants and reserve units.
- The average growth rate of Fuel Consumption is 5.6 % per year during the period from 2010/2011 till 2014/2015.

# Fuel Consumption by Companies 2014/2015:




Including fuel for commissioning tests, BOOTs and excluding Isolated power Plants and reserve units.

# Fuel Consumption Rate Development (gen):




- The average growth rate of Fuel Consumption (generated) including Boot Power Plants is 0.7% per year during the period from 2010/2011 till 2014/2015.
- One of the most important reasons behind the increase of average rate of fuel consumption for year 2014/2015 compared to year 2013/2014 is the increase of the simple cycle gas units in the fast track plan 2014/2015 in addition to the decrease of natural gas share (main fuel used in generation) in the total fuel consumption leading to an increase in the use of HFO and LFO.

# Development of Fuel Consumption by Power Plants (ktoe)*

| Comp. | Station | | 10/11 | 11/12 | 12/13 | 13/14 | 14/15 |
|---|---|---|---|---|---|---|---|
| Cairo | Shoubra El-Kheima | (St) | 1853 | 1331 | 1445 | 1406 | 1689 |
| | Cairo West | (St) | 429 | 228 | 157 | - | - |
| | Cairo West Ext. | (St) | 1176 | 1541 | 1624 | 1776 | 1697 |
| | Tebbin | (St) | 838 | 848 | 614 | 603 | 576 |
| | Cairo South 1 | (CC) | 668 | 619 | 409 | 402 | 364 |
| | Cairo South II | (CC) | 224 | 188 | 166 | 108 | 59 |
| | Cairo North | (CC) | 1614 | 1677 | 1482 | 1257 | 1231 |
| | Wadi Hof | (G) | 51 | 49 | 61 | 49 | 72 |
| | 6 October * | (G) | - | 148 | 699 | 423 | 804 |
| | Giza North | (CC) | - | - | - | 37 | 510 |
| East Delta | Ataka | (St) | 854 | 1089 | 819 | 478 | 282 |
| | New Ataka | (G) | - | - | - | - | 40 |
| | Abu Sultan | (St) | 840 | 955 | 954 | 806 | 879 |
| | Shabab | (G) | 79 | 39 | 76 | 85 | 117 |
| | Port Said | (G) | 25 | 23 | 37 | 41 | 32 |
| | Arish | (St) | 132 | 94 | 124 | 134 | 130 |
| | Oyoun Mousa | (St) | 1056 | 1112 | 991 | 1072 | 849 |
| | Damietta | (CC) | 1478 | 1453 | 1575 | 1594 | 1449 |
| | Sharm El-Sheikh | (G) | 31 | 17 | 23 | 19 | 22 |
| | El-Huraghda | (G) | 40 | 19 | 44 | 52 | 155 |
| | New Gas Damietta | (G) | - | 766 | 773 | 860 | 857 |
| | New Gas Shabab | (G) | - | 1655 | 1373 | 540 | 1185 |
| | Damietta West* | (G) | - | - | 688 | 813 | 872 |
| | Ein-Sokhna | (St) | - | - | - | - | 851 |
| Middle Delta | Talkha | (CC) | 463 | 402 | 413 | 476 | 478 |
| | Talkha steam 210 | (St) | 317 | 535 | 468 | 581 | 522 |
| | Talkha 750 | (CC) | 870 | 575 | 790 | 842 | 870 |
| | Nubaria | (CC) | 1944 | 1831 | 1723 | 2522 | 2393 |
| | Mahmoudia | (CC) | 466 | 483 | 490 | 484 | 506 |
| | El-Atf | (CC) | 811 | 909 | 921 | 955 | 797 |
| | Bnha | (CC) | - | - | - | 130 | 769 |
| West Delta | Kafr El-Dawar | (St) | 600 | 585 | 831 | 860 | 792 |
| | Damanhour Ext (300) | (st) | 409 | 136 | 16 | 169 | 425 |
| | Damanhour | (St) | 261 | 308 | 303 | 299 | 238 |
| | Damanhour (CC) | (CC) | 233 | 226 | 220 | 230 | 235 |
| | Abu Kir | (St) | 1037 | 1279 | 1296 | 1245 | 1416 |
| | New Abu Kir* | (St) | - | - | 1095 | 1586 | 1534 |
| | El-Seiuf | (G) | 70 | 83 | 106 | 115 | 159 |
| | Karmouz | (G) | 3 | 3 | 4 | 3 | 3 |
| | Sidi Krir | (St) | 879 | 848 | 869 | 827 | 728 |
| | Sidi Krir (CC) | (CC) | 782 | 868 | 764 | 845 | 758 |
| | Matroh | (St) | 124 | 106 | 102 | 98 | 99 |
| Upper Egypt | Walidia | (St) | 431 | 743 | 845 | 850 | 569 |
| | Assiut | (St) | 132 | 124 | 142 | 113 | 63 |
| | Assiut West | (G) | - | - | - | - | 30 |
| | Kuriemat | (St) | 1912 | 1625 | 1888 | 1830 | 1678 |
| | Kuriemat 1 | (CC) | 780 | 791 | 641 | 726 | 776 |
| | Kuriemat 2 | (CC) | 787 | 771 | 751 | 811 | 578 |
| | Mobile units | (G) | - | - | - | - | 6 |
| | Total | | **24968** | **27083** | **28811** | **29158** | **31143** |
| Private Sector (BOOT) | Sidi krir 3 , 4 | (St) | 897 | 915 | 938 | 908 | 870 |
| | Suez Gulf North | (St) | 925 | 847 | 972 | 1001 | 920 |
| | Port Said East | (St) | 910 | 883 | 1029 | 1012 | 1178 |
| | Total BOOT | (St) | **2732** | **2645** | **2939** | **2921** | **2968** |
| | **Grand Total** | | **27430** | **29728** | **31750** | **32079** | **34110** |

*Include commissioning tests, excluding isolated units.

# Isolated Power Plants and Reserve Units

Isolated power plants which are not connected to the unified power system are mainly providing electricity to remote areas and touristic projects, with a total of 29 power plants and an installed capacity of 246 MW in addition to one 5 MW Wind farm in Hurghada.

## Installed Capacity and Energy Generated from Isolated Power Plants 2014/2015

| Company | Number of Plants | Installed Capacity (MW) | Energy Generated(GWh) | |
|---|---|---|---|---|
| | | | Gross | Net |
| East Delta P.C. | 1 | 22 | 0 | 0 |
| Canal D.C. * | 17 | 145 | 180.4 | 178 |
| El-Behera D.C.** | 5 | 29 | 36.3 | 34.5 |
| Middle Egypt D.C. | 5 | 41 | 27.3 | 26 |
| Upper Egypt D.C. | 1 | 3 | 0.01 | 0.005 |
| **Total** | 29 | 246 | 244 | 238.5 |

* Generated Energy includes Marsa Alam, Halaib & Shalateen, Alhasna, and Nakhl which are owned by the Local Council of Red Sea Governorate and operated by Canal Distribution Company.
** The 10 MW solar station in Siwa offered by the United Arab Emirates has been deliverd to El-Behera Distribution Company in 29/4/2015.
*** Total consumed fuel is 78 Ktoe.

# Disseminating the Use of New & Renewable Energy

Within Egypt power Strategic plan, the power sector strategy is depending on the diversification and expansion of energy resources, and rational use of conventional energy resources.

Egypt is endowed with abundant wind energy resources especially in the Suez gulf area which is considered as one of the best sites in the world due to its high and stable wind speeds,The west of Suez gulf area is considered as one of the most promising sites for construction of large wind farms projects due to the high wind speeds ranging between 8-10 meter/second and also due to the availability of large inhabitant desert area, there are also other promising sites with wind speeds varying between 7-8 meters/second in the east and west of River Nile near Beni Suef and Menya governorates.

Moreover Egypt is one of the countries lying in the solar belt region the most convenient for the solar energy application, solar Atlas reveals that the average of vertical solar radiation varies between 2000-32000 kWh/m2 /year and the rate of solar rise is between 9-11 hours/ day offering opportunities of investing in different solar energy projects.

- the approved strategy aiming to increase the share of generated energy from renewable energy to 20% out of the total generated energy in Egypt by 2022, out of which 6% from hydro resources, 12 % from wind energy and 2%from other renewable energy sources especially the solar energy. The strategy includes the construction of wind projects with the participation of the private sector to bring the total installed capacity to 7200 MW by 2022.

**The Egyptian Electricity Holding Company is coordinating with the new and renewable energy authority in the following fields:**

- Generation plan considering the share of renewable energy in the generation mix.
- Network planning needed for the evacuation of the generated power from renewables.
- The Egyptian Electricity Transmission Company is issuing competitive biddings for the construction of renewable energy projects to pre defined locations through BOO scheme.

**The Egyptian Electricity Transmission Company is taking effective steps for implementation of renweable energy power projects with a total capacity of 950 MW through BOO scheme as follows:**

1- Wind energy power project 250 MW at the gulf of Suez where the following has been achieved:

- Tenders have been issued requesting investors prequalifications, offers have been evaluated and a short list has been selected.
- A contract has been signed with Fichner German Company for the consultancy services of the project.
- Tender documents have been sent to the selected short list, technical and financial offers have been evaluated and presented to the high level decision committee ,Negotiations are ongoing with the selected consortium.

2- Solar power plant 200 MW project at Kom Ombo where the following has been achieved:

- Tenders have been issued requesting investors prequalifications.
- 35 consortium submitted their offers and a short list of 15 investors has been selected.
- A framework agreement has been signed between the short listed investors and the EETC, and irradiance intensty measurements have been sent to the investors.
- Members of the short list selected the consultant assigned for the topographic studies of the site and the soil studies taking into consideration available measurements of the solar radiation provided by the New and Renewable Authority.

3- Renewable Energy Projects at west of the Nile:

In 11/8/2015 Prequalification have been requested for execution of three renewable energy projects:

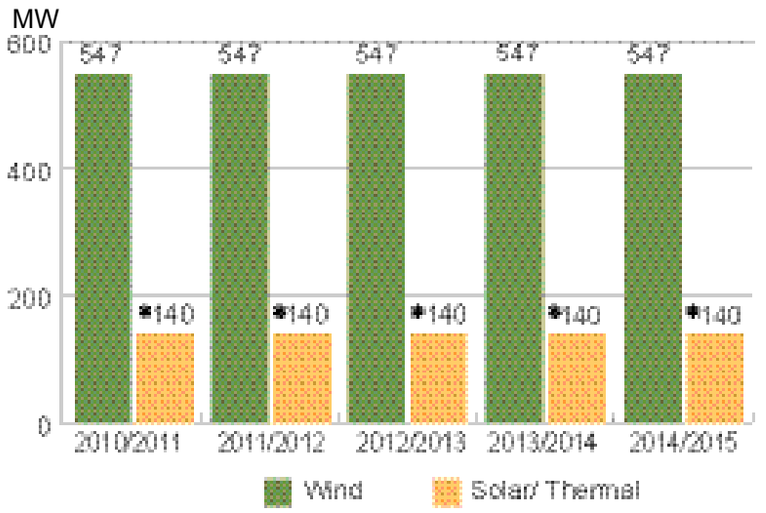
- 250 MW wind energy.
- 200 MW Photo Voltaic.
- 100 MW from concentrated solar thermal

The Egyptian Electricity Holding Company and its affiliated companies have taken the initiative to install solar photo voltaic (PV) systems on the top roof of their administrative buildings after selecting the suitable locations for installation where the following has been achieved:

- 39 solar PV systems have been mounted with a total capacity of 1135KW on the top roof of the Egyptian Electricity Holding Company and its affiliated companies buildings, 48 solar photo voltaic (PV) systems are under implementation with a total capacity of 1457KW.
- Some of the customers have implemented 37 photo voltaic plants totaling 1407 KW interconnected to the unified grid benefiting from the feed in tariff, other 41 plants with a total of 3700 KW are expected to be implemented.

## Statistics of Installed Capacity and Generated Energy (Wind, Solar/ Thermal)

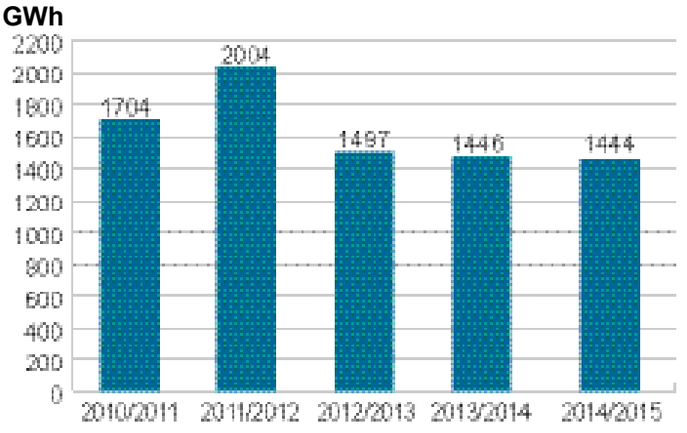
**The Installed Capacity in 30/6/2015**




- Excluding 5 MW Wind farm at Hurghada connected to Canal Distribution Network.

* The first solar thermal power station for electricity generation has been put into commercial operation since 30/6/2011 in Kuriemat with capacity of 140 MW out of which 20 MW from the solar component, based on concentrated solar power through parabolic troughs integrated with combined cycle power plant using natural gas as a fuel.

**Generated Energy form Renewables (Wind, Solar/ Thermal)**




- The average Decrease rate of generated energy is 4.1% per year during the period from 2010/2011 till 2014/2015.

* The energy generated from Renewable energies mainly depends on wind speed & solar irradiance.

## Feed In Tariff for Renewable Energy Resources

- The Egyptian Government is paying great attention to all activities related to production, transmission, distribution and consumption of electrical energy aiming to secure availability and sustainability of electricity supply to all sectors of consumption with affordable price and environmental protection. In this context, the Cabinet has approved in 17/9/2014 the feed in tariff to encourage electricity generation from renewable energy resources, producers will sell this generation to the electricity companies: transmission company and electricity distribution companies with a tariff providing an attractive return on investments, through long term purchase agreement up to the end of life project(20 years for wind projects, 25 years for solar projects).

- It is planned to limit the contracted purchased power from these projects with the set up tariff and as a first stage during the period from (2015 – 2017) to about 4300 MW (2300 MW from solar energy projects and 2000 MW from wind energy projects) after which the contracted purchased tariff will be reconsidered.

- All these actions came as the result of efforts exerted by concerned parties through the following actions:

    - A law no 203 has been issued in 2014 to allocate lands owned by the state to renewable energy power projects and oblige the electricity distribution companies to buy and transmit energy produced from these projects through long term power purchase agreement, in addition, an attractive mechanism has been developed to encourage buying energy produced from renewable sources through defining some of the consumers to buy this energy. Moreover the applied customs on components and spare parts of renewable energy components have been decreased to 2%.

    - The New and Renewable Energy Authority prepared the preliminary studies required for the construction of the power projects at the allocated sites, these included environmental studies, birds migration, soil studies, and has been allowed to conduct long term concession agreement with investors interested in investing in such type of projects.

    - The Egyptian Electricity Transmission Company has approved the transmission code for the interconnection of the wind projects to the grid which has been endorsed by the Egyptian Regulatory Agency.

    - The regulatory rules for interconnecting Solar PV systems with low and meduim distribution networks have been issued by the Regulatory Agency.

The following table shows the feed in tariff from solar systems and wind power plants that has been approved by the Cabinet in 17/9/2014, which will be applied for projects implemented during the period (2015-2017).

## A-Feed In Tariff For Electric Power Produced From Solar PV Systems:

| Item | Energy purchase price (Piaster/ KWh ) |
|---|---|
| Residential up to 10 KW | 84.4 (Piaster/ KWh) |
| Less than 200 KW | 90.1 (Piaster/ KWh) |
| From 200 KW to less than 500 KW | 97.3 (Piaster/ KWh) |
| From 500 KW to less than 20 MW | 13.6 cent ($)/KWh (or equals 97.3 Piaster/ KWh) |
| From 20 MW to less than 50 MW | 14.34 cent ($)/KWh (or equals 102.5 Piaster/ KWh) |

## B-Feed In Tariff For Electric Power Produced From Wind Farms:

| No. of operating hours | Energy purchase price for the first 5 years period | | Energy purchase price for the second 15 years period | |
|---|---|---|---|---|
| | Cent ($)/KWh | Piaster/KWh | Cent ($)/KWh | Piaster/KWh |
| 2500 | 11.48 | 82.08 | 11.48 | 82.08 |
| 2600 | | | 10.56 | 75.53 |
| 2700 | | | 9.71 | 69.46 |
| 2800 | | | 8.93 | 63.83 |
| 2900 | | | 8.19 | 58.58 |
| 3000 | | | 7.51 | 53.68 |
| 3100 | 9.57 | 68.4 | 8.93 | 63.82 |
| 3200 | | | 8.33 | 59.53 |
| 3300 | | | 7.76 | 55.49 |
| 3400 | | | 7.23 | 51.7 |
| 3500 | | | 6.73 | 48.12 |
| 3600 | | | 6.26 | 44.73 |
| 3700 | | | 5.81 | 41.54 |
| 3800 | | | 5.39 | 38.51 |
| 4000 | | | 4.6 | 32.9 |

**In order to implement this mechanism and according to the approved schedule, the following actions have been taken:**

- An announcement has been issued in the newspapers requesting submission of companies prequalification interested in implementing renewable power projects as similar projects announced in October 2014, qualified investors have been announced in January 2015.
- February 2015, a German consultant has been contracted to prepare the project document agreements.
- April 2015, the draft agreement including (energy purchase, interconnection to the grid, land utilization, sharing cost, and government guarantee) has been announced to investors and international financing agencies.
- November 2015, the final agreement has been announced after being legally reviewed.
- The agreement is currently translated for final approval by the state of country.
- In October 2015, a contract has been issued for the implementation of 4 substations (220/22KV) to connect the Solar stations at Benban to the electrical grid .

For more information kindly visit the New and Renewable Energy Authority web site www.nrea.gov.eg and the Egyptian Regulatory and Consumer Protection Agency web site www.egyptera.org.

# Electric Power Transmission

Egyptian Electricity Transmission Company (EETC) Objectives:

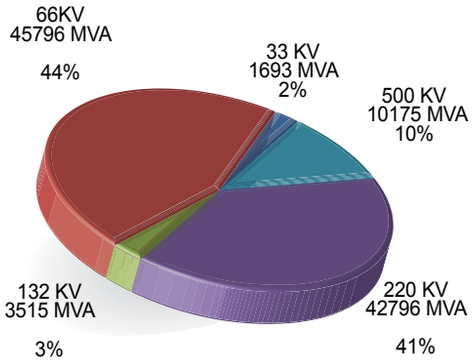
1. Management, operation and maintenance of electric power transmission grids on extra and high voltages all over the country, with the optimal economic usage of those grids.
2. Organization of the energy transmission on extra and high voltage grids all over the country through the National Dispatch Center and the Regional Control Centers.
3. Purchase of electric power produced from the power plants according to the needs and selling it to the consumers on the extra and high voltages and to the electricity distribution companies.
4. Co-ordination with the production and distribution companies for providing electric energy on the various voltages for all uses with high efficiency.
5. Co-operation with Egyptian Electricity Holding Company in preparing technical and economical studies to meet the demand on electricity and its stability.
6. Implementation of electric power transmission projects on extra and high voltages approved by EEHC management and according to the time schedules.
7. Implementation of the interconnection projects approved by EEHC Board of Directors, exchange of electric power grids interconnected to the Egyptian Grid.
8. Carry out demand forecast for its direct customers as well as financial and economic forecasts for the company.
9. Carry out all other works or activities related to fulfilling the company's objectives as well as any work that may be entrusted to it within its scope of work.
10. Carry out any work that may be entrusted to it by other party, within its scope of work, so as to realize economical benefit to the company.

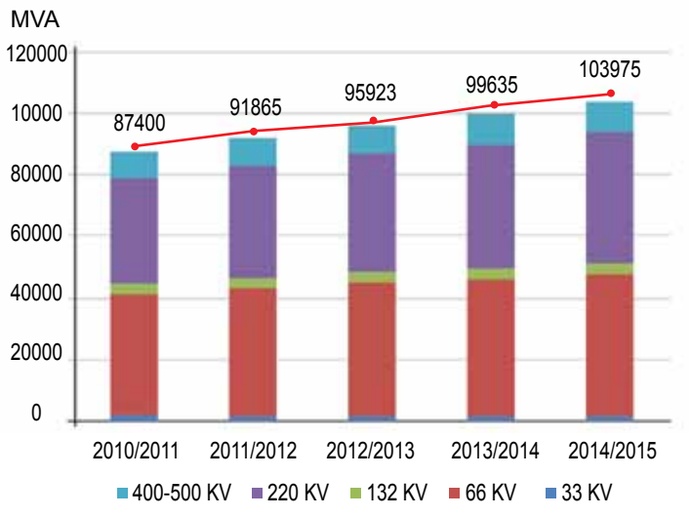
| Company | Geographical zone | Headquarter | Equity Capital (Billion EGP) | No. of Shares | Address | Tel |
|---|---|---|---|---|---|---|
| Egyptian Electricity Transmission Company | Electricity Transmission Grids on extra and high voltages all over the country | Cairo | 6.612 | 6612083 | Abbassia – Nasr City P.Code 11517 | 02/22618579<br>02/26843824 |

# Transmission Network Statistics
# (30/06/2015)

## Total Substations Capacities:

- The total transformers capacity reached 103975 MVA in 30/6/2015 compared to 99635 MVA in 30/6/2014 with a percentage rate increase of 4.4%.

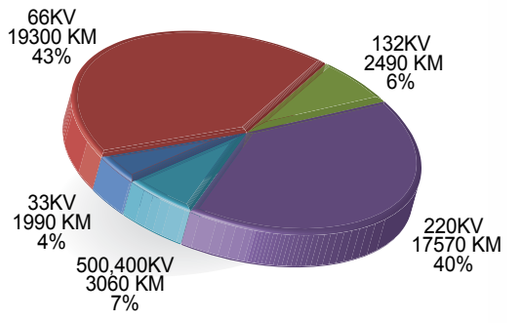


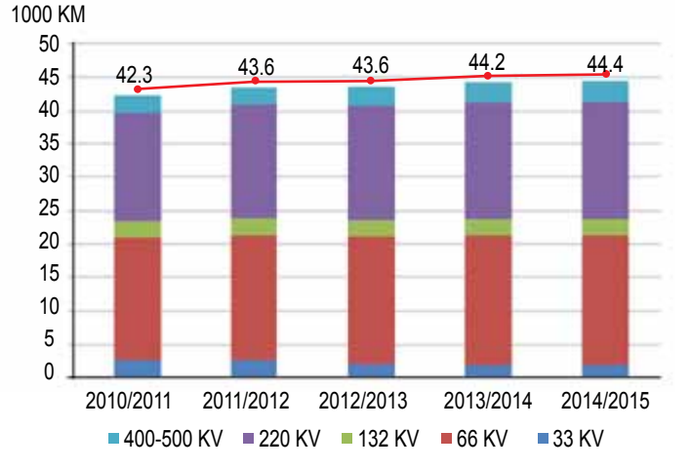




- The average growth rate of transformers Capacities is 4.4% per year during the period from 2010/2011 till 2014/2015.

## Total Length of Transmission Lines and Cables :

- The total length of transmission lines and cables reached 44.4 thousand Km in 30/6/2015 compared to 44.2 thousand Km in 30/6/2014 with a percentage rate increase of 0.4%.

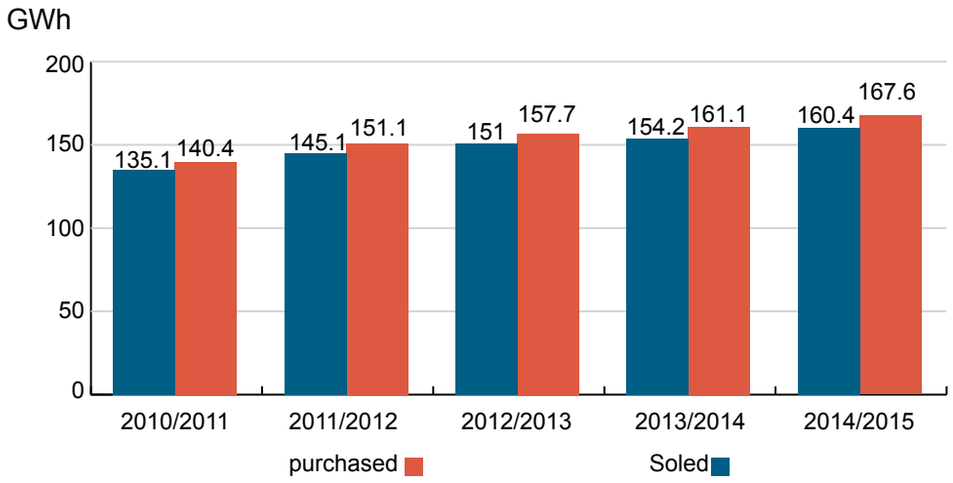



- The average yearly growth rate of the total transmission lines and cables length is 1.3% during the period from 2010/2011 up to 2014/2015.

## The Total Purchased and Sold Power

● The total purchased power by the Egyptian Electricity Transmission Company reached 167.6 GWh during 2014/2015 while the total sold power over the voltage levels reached 160.4 GWh.

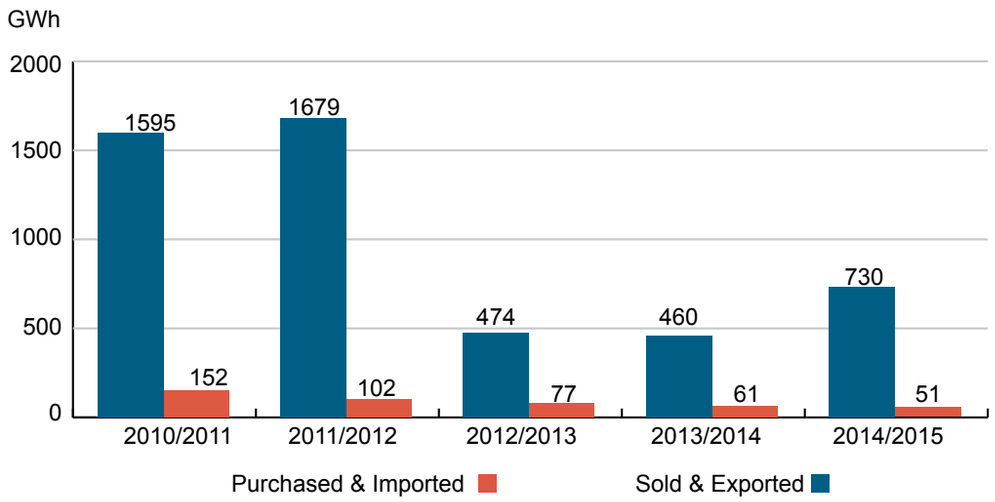



● The average growth rate of purchased power is 4.5% while the average growth rate of sold power over voltage levels is 4.4% during the period from 2010/2011 till 2014/2015.

# International Electrical Interconnection

| Description | Egypt/Libya | Egypt/Jordan | | |
|---|---|---|---|---|
| Interconnection date | May 1998 | Oct 1998 | | |
| Interconnection voltage (KV) | 220 | 400 | | |
| Interconnected Countries | Libya | Jordan | Syria | Lebanon |
| Sold & Exported Energy (GWh) | 46.7 | 683.3 | - | - |
| Purchased & Imported Energy (GWh) | 4 | 47 | - | - |

**Total electric energy exchanged**




- The annual average rate of the total exported and sold energy has decreased by about 18%, and the annual average rate of the total imported and purchased energy has decreased by about 24% during the period from 2010 / 2011 till 2014 / 2015.

- **Electrical Interconnection Egypt/Saudi Arabia:**
  - As a continuation of the electrical interconnection between Egypt and its neighboring countries, an interconnection project is currently under implementation for the interconnection between Egypt and Saudi Arabia. This project aims at facing the increased demand of electrical energy in Egypt and Saudi Arabia through the electrical interconnection between the electrical networks of the two countries for the exchange of 3000 MW and benefit from the differences in the peak load timing of the two countries where the following has been achieved.
    - The Egyptian side has issued the tender for the execution of the transmission line Badr / Aquaba Gulf in November 2014 for an implementation duration of two years from the assigning date, the finance is secured from the Arab fund for Economic Development, the tender will be reissued again.
    - The Saudi side has issued the tender of the converter stations (Badr, Madina Monawara, Tabouk) in January 2015, finance is from the Islamic Development Bank.
    - The Egyptian Side has issued the tender of the sub marine cables, fiber optics and underground cables in February 2015 and the Egyptian part will be financed from the Kuwait fund for the Economic Development.

***It is expected for the project to be partly operated by end of 2018 for the exchange of 1500 MW.***

# The Electricity Law

The Electricity Law No. 87 of 2015 has been issued on 7 July, 2015 within the context for continuous upgrading of electricity service development to meet the growing electric power demand, and to ensure fulfillment of the social and economic development plans of the government, and considering the importance of consumers interests and service providers aiming to achieve the following objectives:

1. Set the rules to raise the performance efficiency and the quality of services provided by the companies operating in the field of production, transmission, distribution and sale of electricity through legitimate competition.
2. Create appropriate atmosphere that attracts investments to the electricity sector in order to cope with the increasing demand for electric power and to confirm the principles of transparency, antimonopoly and anti-favoritism.
3. Approve the role of the electricity regulatory and consumer protection agency as the entity responsible of securing a balanced relation between the consumers rights and the different electricity utilities stakeholders.
4. Separate between the activities of production, transmission and distribution of electricity to ensure free legitimate competition.
5. Cope with the new legislations applied in the International Regulatory Agencies to allow liaison between the Egyptian Regulatory Agency and the Regional Regulatory Agencies through electrical interconnection projects.
6. Undertake actions to improve energy efficiency and load management in order to preserve the natural resources and provide service with economical price.

The main articles of the Electricity Law can be summarized as follows:

## Regarding Electricity Production, Transmission and Distribution Activities:

1. Define the responsibilities of licensed Companies for electricity production.
2. Regulate the activity of electricity transmission and network operation, and assign to the Egyptian Electricity Transmission Company the role of Transmission System Operator (TSO) with defined regulations that will secure its independence from other sector stakeholderes and ensure operation of electricity transmission system in compliance with economic and environmental standards, thus ensuring transparency and equal opportunities while maintaining the interest of both electricity producers and consumers. The law has assigned the Egyptian Electricity Transmission Company to set the rules for electricity transmission, electricity trade in coordination with the other sector stakeholderes and that will be approved by the Regulatory Agency.
3. The Law has authorized the Transmission Company to permit others to transmit electricity through its network against utilization fees approved by the Regulatory Agency, and take necessary actions to ensure equality and confidentiality of commercial information of this third party.
4. Implement the financial restructuring of the Egyptian Electricity Transmission Company being a State owned company and set ambitious investment plans that will allow the Company fulfilling the role assigned through this law by providing the needed funds for this purpose, where the Law has committed the State to provide the required funds.

5. The law defined the obligations of licensed electricity distributor towards allowing others using its networks against fees approved by the Regulator Agency, the law also allowed purchase and selling electricity through a licensed distributor to be approved by the Regulatory Agency
6. Classification of electricity consumers to qualified subscribers allowed to select the electricity supplier and unqualified subscribe's with no liberty to select the electricity supplier, moreover, the law allowed the subscribers the right of receiving a higher quality of provided services against special service agreements.
7 The law cancelled the previous Presidential decree 299 issued in year 2000 concerning the re-organization of the Regulatory Agency and has defined the new organization in chapter (2) of the law, the law has also cancelled the previous law 63 for year 1974 regarding the power sector facilities.

**Regarding Energy Efficiency:**

The Electricity law addresses mechanisms of improving energy efficiency, and obligations of licensed transmitter or distributer to purchase energy from distributed generation units.

**Regarding Electricity Installations:**

Amending and modifying the rules and regulations of the previous cancelled law 63 for year 1974 concerning power sector establishments to cope with the new status of the power sector operated on economical basis and define the safe permissible distances for transmission lines and cables.

It also obliged building owners to use the developed code for the electrical indoor installations ( building Code) and in case of non – compliance, the building will not be entitled to electricity supply from the electricity distribution company until complying with the code.

**With regard to the competitive electricity market:**

It has been agreed during the transitional period, that the regulated market will work in parallel with the competitive market, to gradually open the competitive market according to the decision of the Cabinet.

**The law has also defined the Egyptian Electricity Holding company's terms of reference as follows:**

The Egyptian Electricity Holding Company will undertake its activities and its ownership of a number of production and distribution companies addressed through this law according to the view and State requirement with a transitional period of (8) years to accommodate its statutes as well as those of its affiliated companies to cope with this law.

Regarding to the transfer of some of The Egyptian Electricity Holding Company assignments to the Egyptian Electricity Transmission Company , a transitional period of 3 years will be given to coordinate between the two companies for the complete transfer of assignments to the Egyptian Electricity Transmission Company.

# Electrical Power Distribution

## Distribution Companies:

- North Cairo Electricity Distribution Company
- South Cairo Electricity Distribution Company
- Alexandria Electricity Distribution Company
- Canal Electricity Distribution Company
- North Delta Electricity Distribution Company
- South Delta Electricity Distribution Company
- El-Behera Electricity Distribution Company
- Middle Egypt Electricity Distribution Company
- Upper Egypt Electricity Distribution Company

## Objectives :

1. Distributing and selling the electric energy to the customers on medium and low voltages, which is purchased from the Egyptian Electricity Transmission Company and from the Egyptian Electricity Production Companies on medium voltage, and also electric power purchased from industrial sector and other IPP's in case exceeding their needs, provided the approval of EEHC Board of Directors.
2. Managing, operating and maintaining the medium and low voltage grids, according to the dispatch centers instructions and in consistency with the requirement of economic operation.
3. Preparing forecast studies on load and energy for company's customers and economic and financial forecast for the company itself.
4. Conducting studies, researches, designs and implementing power projects for supplying electrical power to different purposes on the medium and low voltages and carrying out all associated works.
5. Managing, operating and maintaining the isolated units, which isn't connected to the unified grid.
6. Carrying out any other works or activities related to or fulfilling the company's objectives, in addition to any other work that may be entrusted to the company by EEHC, within its scope of work.
7. Carrying out other works entrusted to the company by other party, within its scope of work, so as to realize an economic benefit for the company.

# Informations about Distribution Companies

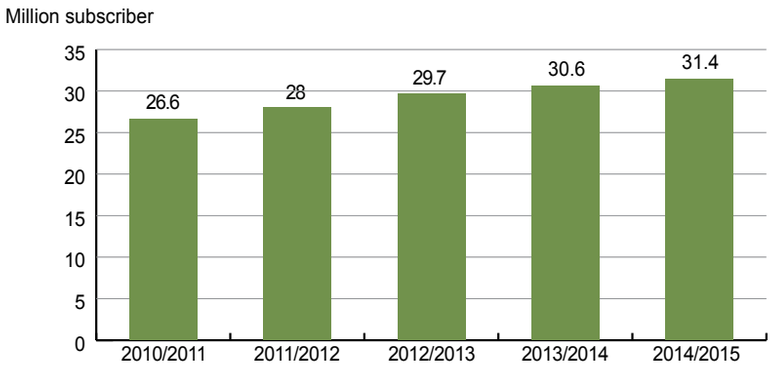
| Distribution Company | Geographical zone | Headquarter | Equity Capital (Million EGP) | No. of Shares | Address | Tel. |
|---|---|---|---|---|---|---|
| North Cairo | North and East Cairo sectors, New Cairo, El-Obour and El-Salam city in Cairo Governorate, Khanka, Shoubra Elkhima and Elkanater in Kalupya Governorate | Cairo Governorate | 306.685 | 30668500 | 2 Nasr Road Nasr city Cairo | 02/22725095 02/22724409 |
| South Cairo | South and West Cairo Sectors in Cairo Governorate & Giza Governorate | Cairo Governorate | 437.444 | 43744400 | 53,26th July St., Cairo | 02/25766612 02/25766400 |
| Alexandria | Alexandria Governorate, to Kilo 66 Alex- Matrouh Road | Alexandria Governorate | 195.444 | 19544350 | 9 Sedi El-Metwalli St., Attarien | 03/3933223 03/4948107 |
| Canal | Ismailia , PortSaid , Suez, Sharkia, North Sinai, South Sinai, Red Sea Governorates & New Cities | Ismailia Governorate | 497.337 | 49733750 | Osman Ahmed Osman Square, El-Sheikh Zayed, Ismailia | 064/3209600 064/32082240 |
| North Delta | Dekahlia, Damietta & Kafr El-Sheikh Governorates | Dakahlya Governorate | 449.246 | 44924600 | Gomhorya St., Dekahlia | 050/2304186 050/2304187 |
| South Delta | Qalubya (Exept Great Cairo extension), Menoufia (Exept El Sadat city, Elkhatatba) & Gharbia Governorates | Gharbia Governorate | 357.439 | 35743900 | Tanta- Kafr El Sheikh Road | 040/3455516 040/3455519 |
| El Behera | El Behera, Matrouh, (Beyond K66 Alex/Matroh Road), Governorates, Sadat City & Khatatba Distriet in Menoufia Governorates | El Behera Governorate | 342.537 | 34253700 | 1 Gomhorya St., Thanawi Zone, Damanhour | 045/3318030 045/3221426 |
| Middle Egypt | Beni Suif, Fayoum, Minia, Assiut & New Vally Governorates | Minia Governorate | 474.843 | 47484350 | 78 Horrya St., Minia | 086/2346733 086/2353527 |
| Upper Egypt | Sohag, Qena, Aswan and Luxor Governorates | Aswan Governorate | 435.766 | 43576600 | High Dam – West Aswan | 097/3480416 097/3480317 |

# Distribution Networks Statistics in 30/06/2015

| Item \ Comp. | | North Cairo | South Cairo | Alex. | Canal | North Delta | South Delta | El Behera | Middle Egypt | Upper Egypt | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of Customers (Million) | | 4.1 | 5.1 | 2.5 | 3.7 | 3.7 | 4.2 | 2 | 3.3 | 2.8 | 31.4 |
| No. of Switchboards | | 376 | 359 | 230 | 1198 | 189 | 194 | 261 | 137 | 103 | 3047 |
| Percentage (%) | | 12.3 | 11.8 | 7.5 | 39.3 | 6.2 | 6.4 | 8.6 | 4.5 | 3.4 | 100 |
| Length of MV Network (km) | Lines | 195 | 2974 | 577 | 14574 | 9880 | 7781 | 13931 | 17621 | 10871 | 78404 |
| | Cables | 21502 | 21619 | 11339 | 18887 | 6147 | 3779 | 4930 | 6202 | 6769 | 101174 |
| | Total | 21697 | 24593 | 11916 | 33461 | 16027 | 11560 | 18861 | 23823 | 17640 | 179578 |
| Length of LV Network (km) | Lines | 3146 | 4558 | 3588 | 31054 | 22846 | 17986 | 16492 | 34715 | 30975 | 165360 |
| | Cables | 35949 | 31460 | 6120 | 15093 | 2943 | 865 | 2769 | 2594 | 1792 | 99585 |
| | Total | 39095 | 36018 | 9708 | 46147 | 25789 | 18851 | 19261 | 37310 | 32767 | 264945 |
| Total Length of MV&LV Lines & Cables (Km) | | 60792 | 60610 | 21624 | 79608 | 41816 | 30411 | 38122 | 61133 | 50407 | 444523 |
| Percentage (%) | | 14 | 14 | 5 | 18 | 9 | 7 | 8 | 14 | 11 | 100 |
| Distribution Transformers | (NO) | 16074 | 19394 | 8020 | 30832 | 16606 | 15822 | 20710 | 23341 | 20737 | 171536 |
| | MVA | 13822 | 10024 | 5058 | 12310 | 4938 | 4469 | 4522 | 5620 | 4967 | 67710 |
| Percentage | (%) | 9 | 11 | 5 | 18 | 10 | 9 | 12 | 14 | 12 | 100 |
| Number of LV Pillars and Panels | | 55664 | 54748 | 8020 | 43843 | 18401 | 15925 | 24383 | 13524 | 22001 | 256509 |
| Percentage (%) | | 22 | 21 | 3 | 17 | 7 | 6 | 10 | 5 | 9 | 100 |

## Total Number of Distribution Companies Subscribers

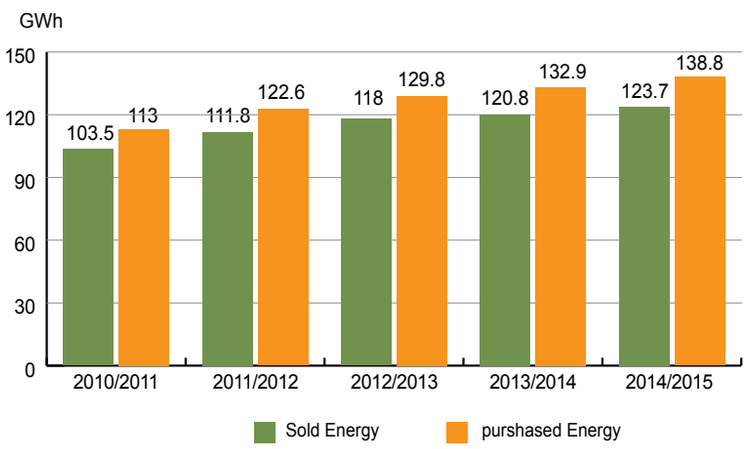
In 30/06/2015 the total number of distribution companies subscribers reached about 31.4 Million subscriber. compared to 30.6 Million subscriber in 30/6/2014 with a percentage rate of increase about 2.6%.




● The yearly average growth rate of subscribers is 4.2% during the period from 2010/2011 till 2014/2015.

## Total Amount of Purchased and Sold Energy

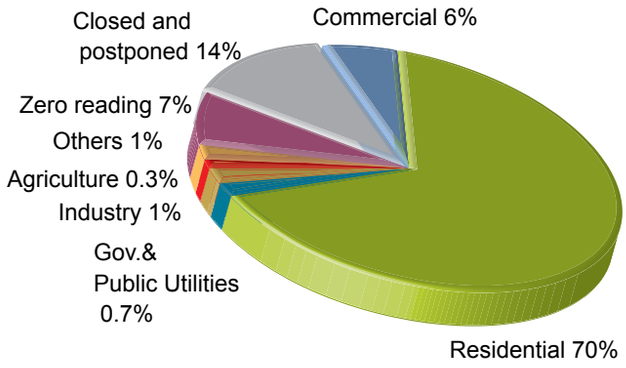
In 30/6/2015 the total purchased energy reached 138.8 GWh and the total sold energy reached 123.7 GWh on medium and low voltages .




● The average growth rate of purchased energy is 5.3%, while the average growth rate for the sold energy over medium and low voltage levels is 4.6% per year during the period from 2010/2011 up to 2014/2015.

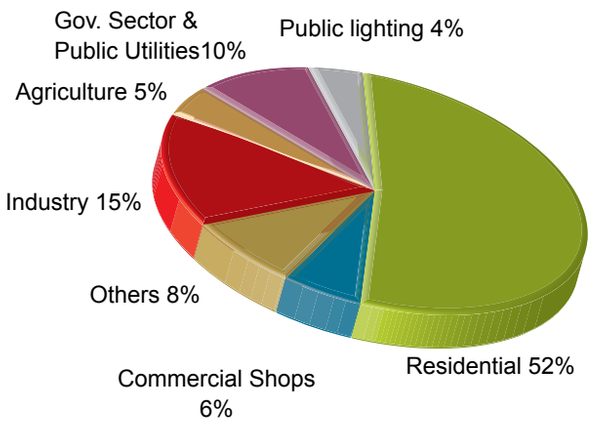
## Number of Distribution Companies Customers According to Purpose of Usage

| Purpose of Usage | No. of Customers |
|---|---|
| Industry | 407 |
| Agriculture | 107 |
| Gov.& Public Utilities | 214 |
| Residential | 22050 |
| Commercial | 1912 |
| Closed and postponed | 4480 |
| Zero reading | 2090 |
| Others* | 160 |
| **Total** | **31420** |




## Energy Sold from Distribution Companies According to Purpose of Usage

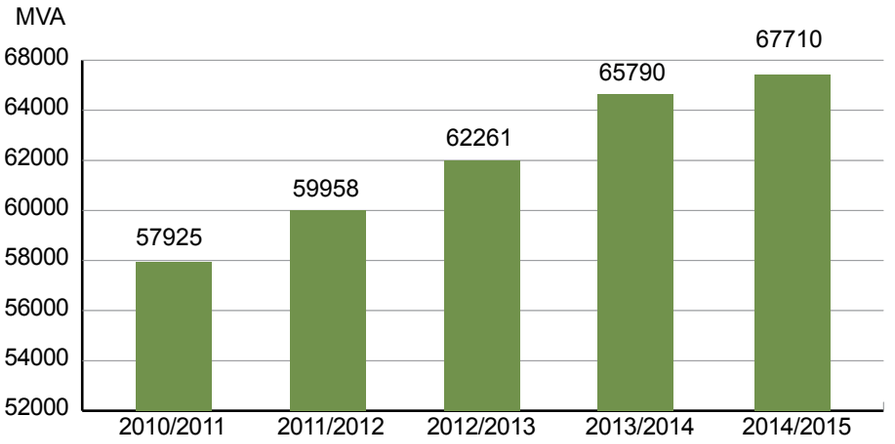
| Purpose of Usage | Sold Energy GWh |
|---|---|
| Industry | 18249 |
| Agriculture | 5747 |
| Gov. Sector & Public Utilities | 11705 |
| Residential | 64546 |
| Commercial Shops | 7716 |
| Public lighting | 5353 |
| Others* | 10340 |
| **Total** | **123656** |




* Others: Power theft, Youth Centers, ……

## Distribution Transformers Capacities

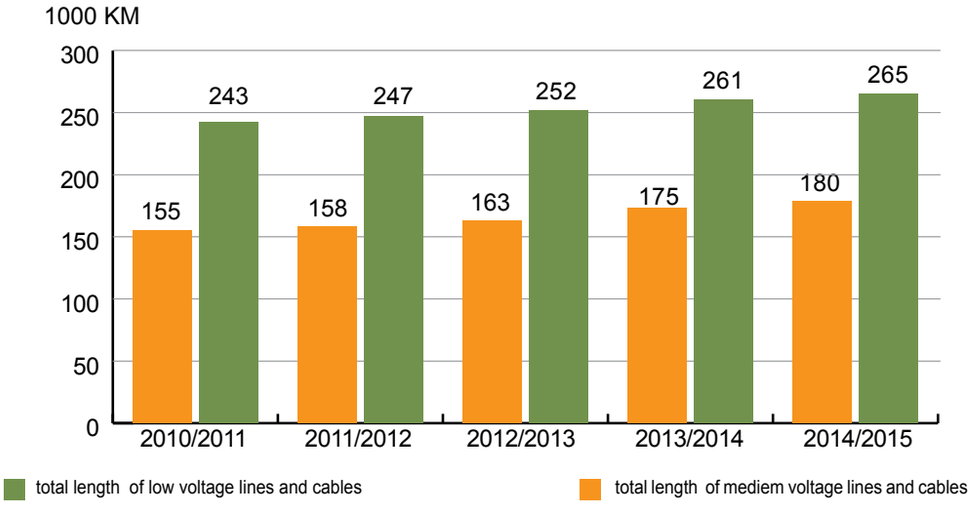
The total capacities of distribution transformers reached 67710 MVA in 30/6/2015 compared to 65790 MVA in 30/6/2014 with a percentage rate of increase of about 2.9%.




- The yearly average growth rate of distribution transformers capacities is 3.9% during the period from 2010/2011 up to 2014/2015.

## Total Length of Overhead Lines and Cables

The total length of medium voltage overhead lines and cables reached about 180 thousand km in 30/6/2015, compared to 175 thousand km in 30/6/2014, with a percentage rate of increase 2.8% while the total length of low voltage lines and cables reached about 265 thousand kms compared to 261 thousand kms in 30/06/2014 with a percentage rate of increase of about 1.6%.




- The average growth rate of the total length of medium voltage overhead lines and cables is 3.8%,while the average growth rate of the total lengths of low voltage overhead lines and cables is 2.2% per year during the period from 2010/2011 to 2014/2015.

# Development of Customers Services

## ■ Development of customers service centers:

- Distribution companies are continuously developing their customers services to improve quality of provided services, the development included the following:
  - Renovation of customers service centers buildings (including outdoor and indoor building renovation, lighting system, furniture, customers reception halls, ventilation).
  - Explanatory instructions are placed everywhere on the walls of reception halls in commercial centers indicating the procedures and documents needed for each type of services.

## ■ Improving Technical and Commercial Services:

- Automation of the provided services using computerized systems..
- Simplifying commercial services for different types of contracts eg, (new supply contracts, reinforcement or modification of contract, main and temporary connections, changing place of boxes or meters).Automation of meters readings and use of electronic meters.
- Provide complete services through one window.

- The total number of customers service centers reached about 413 centers in the cities and 711 branches in the villages for year 2014/2015, in order to facilitate the reporting of damages and ensure speedy repair.

## ■ Adminstrative reform of the centers:

- The Ministry of Electricity and Renewable Energy in order to facilitate customers service and simplify needed procedures for electricity connection, has achieved the following :

1. Preparation of five forms for public services as follows:
   - Request for connecting electricity to buildings (all purposes of consumption).
   - Request for meter testing and calibration.
   - Request for meter disconnection.
   - Request for obtaining information about customer consumption.
   - Request for the installation of power factor correction devices (capacitors) upon customer request.
2. Issuing a directory for connecting electricity to the projects including all required steps, procedures, documents, connection charges and approvals needed as well as payment, methods, also an official representative from the Ministry of Electricity and liaison officers from the transmission and distribution companies are assigned to the Investment pool Building in Cairo, in order to finalize all required procedures for investors.
3. Issuing a directory for connecting electricity to residential buildings in urban and rural areas including rules for defining the total area of the house and the design capacity according to the living standard in urban, rural and districts. It also includes all procedures, documents, and approvals needed for connecting electricity to any house, the bases for calculating the connection charges, the time schedule for connection and the conditions for the availability and specifications of the room for the installation of distribution transformers.

## ■ The use of insulated conductors instead of non-insulated conductors:

- Use of insulated conductors instead of non- insulated conductors in the low voltage network, without any additional cost borne by the customers, in order to protect them from fire dangers due to the falling down of non- insulated conductors. The total length of the insulated conductors installed in the distribution network reached about 541 thousand Kms in 30/6/2015 representing 85% of the total low voltage network of electricity distribution companies.

# Energy Efficiency Improvement and Conservation

- The national strategy for the Ministry of Electricity and Renewable Energy included among others the Energy Efficiency Improvement and Conservation. Lighting is considered as the largest electricity user in different sectors of consumption; it accounts for nearly 20% of the total energy consumed in the country and one of the responsibles for the system peak time; resulting in loading the electricity sector with large investments to secure availability and reliability of electricity supply.
- Therefor the Egyptian Electricity Holding Company and its affiliated companies has cooperated with the " Improving Energy Efficiency of Lighting and Building Appliances" Project to achieve market transformation towards the use of efficient lighting systems through making energy efficient lighting products first choice for residential, commercial and administrative buildings, as well as street lighting. In this regard the following initiatives have been taken:

## ■ Street Lighting:

- A contract, dated 8/4/2015, has been signed between the Ministry of Local Development, the Arab Organization for Industrialization and the Ministry of Electricity and Renewable Energy to supply 3.9 million high efficient street lighting sodium 100,150 watt and 100 watt and LED luminaires to be mounted all over the country with a total cost of 2.1 Billion L.E to be disbursed through the Ministry of Finance.700 thousand luminaires have been supplied and 600 thousand have been installed up to 31/12/2015. This initiative will achieve fuel savings of nearly 606 thousand ToE / year.

## ■ Residential Sector:

- On February 2015, a contract has been issued for the supply of 13 million LED lamps with different wattages to be sold all over the country where 12 million have been delivered and 6 million lamps have been sold through the electricity distribution companies up to 31/12/2015 after passing the technical tests achieving an energy saving of 1124 Million KWh and fuel saving of 276 Ktoe/year.

## ■ Governmental sector:

- The Improving Energy Efficiency Project is providing technical assistance and partial finance for implementation of energy efficiency lighting pilot projects in different types of buildings for replication in a larger scale, this have been implemented through protocols signed between the Ministry of Electricity and Renewable Energy and the Project on one side and different Ministries as beneficiaries on the other side.
- This initiative has been implemented in governmental buildings, banks, hotels, administrative buildings…… for replacing the existing lighting systems in these buildings by efficient ones using LED technology and mounting capacitor banks for improving power factor. Energy efficiency measures are undertaken for spreading this initiative through seminars and awareness activities in the different governorates.
  - The Electricity Sector and the Improving Energy Efficiency Project are cooperating to increase awareness of customers on the benefits of energy efficiency and conservation through media, seminars as follows:
    - Sharing in seminars and events in Cairo and other Governorates.
    - Disseminate awareness through brochures and energy efficiency tips.
    - Organizing promotional campaigns through trained universities youth volunteers for increasing public awareness on energy efficiency. The campaign has reached the public in gatherings such as social and sporting clubs, shopping malls, supermarkets, mosques, etc. The volunteers motivated the public to implement energy efficiency measures, and energy efficiency flyers were distributed.
    - Digital campaigns through face book. Twitter. Youtube and "Waty EL Watt" slogan.
  - In coordination with the Egyptian Organization for Standards, and energy efficiency specifications have been developed for electric fans, dishwashers, and the ministerial decrees for their enforcement were issued,also energy efficiency specifications have been developed for water pumps and televisions and they are waiting for revision through the ministerial decrees. The energy efficiency specifications for compressors and vacuum cleaners are under preparation. A monitoring mechanism has been developed to monitor the Standards and Labeling Program through bar codes system.

# Human Resources and Training

The Egyptian Electricity Holding Company (EEHC) and its affiliated Companies depend on the human resources as a main support to achieve its strategic goals EEHC aims at achieving competitive advantage through the development of its human resources and raising their capabilities in dealing with rapid technological develapments. the following are the main indicators of the human resources at the Egyptian Electricity Holding Company (EEHC) and its affiliated Companies.

## First: Man Power:

The total number of employees working at EEHC and its affiliated companies in 30/6/2015 reached 174876 employee against 179314 employees in 30/6/2014 this decrease is due to the retirement age of some employees, some death cases.

| EEHC | |
|---|---|
| EEHC headquarter Employees<br>Electricity Hospital | 2175<br>743 |
| Total | 2918 |

- The total number of employees in The affliated companies:

| Production Companies | |
|---|---|
| Cairo | 5621 |
| East Delta | 7288 |
| Middle Delta | 6729 |
| West Delta | 8389 |
| Upper Egypt | 3508 |
| Hydro power plants | 3471 |
| Total | 35006 |

| Distribution Companies | |
|---|---|
| North Cairo | 13104 |
| South Cairo | 17778 |
| Alexandria | 12855 |
| Canal | 16413 |
| North Delta | 8758 |
| South Delta | 10233 |
| El-Behera | 8464 |
| Middle Egypt | 9563 |
| Upper Egypt | 7849 |
| Total | 105017 |

| | |
|---|---|
| Egyptian Electricity Transmission Company | 31935 |

| | |
|---|---|
| Total No. of Employees of EEHC and Its Affiliated Companies | 174876 |


- The yearly average decrease rate of the total number of employees at EEHC & its affiliated companies reached 0.2 % during the period from 2010/2011 till 2014/2015.

**Second: Improvement and development of Human Resources:**

- Believing of the impact of human resources on the Company productivity, the officials of the Egyptian Electricity Holding Company (EEHC) are continuously improving the capabilities of its human resources to cope with the new technological development, in this regard a strategy has been set to achieve this development through the following four actions:
  1. Establishing a new administrative culture.
  2. Development of work procedures to provide services according to high standards of quality and efficiency.
  3. Coordinate between the management plan of human resources and EEHC strategic plan.
  4. Development and improvement of human element to increase competitiveness capabilities.

The year 2014 /2015 has witnessed great progress towards achieving these strategic goals as follows

- Set a unified vision for the Egyptian Electricity Holding Company and its affiliated companies towards achievement of this vision and define the mission and goals to face the current challenges.
- Planning for workforce by identifying future expectations of jobs and skills to ensure the company's performance of its duties considering of the short, medium and long -term goals.
- Follow up preparation of the Planning budget for wages and manpower based on methodological basis, thus achieving savings in the affiliated companies palnning budget evaluated at about 203 million L.E for the fiscal year 2015/2016.
- Set a time line plan to apply a governance system in order to achieve justice, transparency and respect the benefits of the society and labors in compliance with international agreements and the current trends towards fighting corruption.
- Achieve cooperation and integration between the human resources department and the other departments.

**Third : Health Care:**

- The Egyptian Electricity Holding Company is providing health care to all its employees through the electricity hospital and other contracted medical centers with reasonable prices. .
- The hospital includes outpatient clinics equipped with all specialized and medical departments such as (X-Rays, Medical laboratories, Physiotherapy ...etc), Intensive Care Unit, the Dialysis unit, the Bronchoscope, Endoscopy, Emergency department, Dental clinic, Ophthalmology and Cardiac clinics. All clinics are equipped with the most up to date medical equipment and instruments.
- In addition, new services have been introduced such as the Magnetic Resonance (MRI) and Cardiac Angiograph /Angioplasty, thus attracting an increased number of patients from the sector as well as from outside the sector.
- Within the framework of improving the services provided by the hospital to all its patients specialized companies have been invited to submit offers for the renovation and improvement of the hospital through the (EPC + Finance) where the offers are under evaluation.
- Medical regulations applied at the Egyptian Electricity Holding Company and its affiliated companies have been amended to improve the provided services to cover more diseases that were not included in the previous regulations.

**Fourth: Training :**

– The main strategic goal of training is to share in the company success by setting the appropriate training plan that keep a high level of skills and competiveness capabilities of its employees, their outstanding performance, and continuous improvement through their skilling to enable them performing their role in achieving the company goals and total effectiveness.

– In light of the new strategy adopted by the Egyptian Electricity Holding Company to develop and improve training systems efficiency, the following has been achieved:

– Introduce new training courses that cope with recent developments.

– Set basis and criteria for training programs that will achieve the desired objectives and apply the latest procedures for the assessment of training courses.
– Linking between passing the training courses and evaluation of employees for their promotion and receiving bonus and incentives.
– Development and modernization of training centers..
– Interacting of the training centers with the foreign market and considering each training center as an economic unit and establishing marketing department in each center to operate on an optimum utilization for the possibilities available to achieve returns for companies.

The total number of trainees from the Holding Company and its affiliated companies for the year 2014/2015 including local and foreign training reached 42518 trainee against 39369 trainee for the year 2013/2014 with a rate of increase of 8% as shown in the following table:

| No. | Report | no. of trainees 2013/2014 | no. of trainees 2014/2015 |
|---|---|---|---|
| 1 | Total number of trainees from EEHC,affiliated companies and Ministry of Electricity and Energy | 35527 | 38395 |
| 2 | Conferences and seminars in various fields from EEHC,affiliated companies and Ministry of Electricity and Energy | 3768 | 3970 |
| 3 | Cooperation with Faculty of Engineering, Cairo Univesity:<br>1- Number of power Plants Diploma<br>2- Number of Protection & Automatic Control Diploma | <br>21<br>25 | <br>20<br>25 |
| 4 | Enrolled for post graduate studies of the holding company and the affiliated companies | 28 | 108 |
| | Total | 39369 | 42518 |

Within the cooperation with Arab and African countries in the field of training, cooperation agreements have been signed between the Egyptian Electricity Holding Company and several foreign parties as shown in the following table:

| No. | Country | Contracted Parties | Total of Trainees 2014/2015 |
|---|---|---|---|
| 1 | Iraq | Japan International Cooperation Agency - JICA | 29 |
| 2 | Nile Basin countries | the African Union Commission<br>the Ministry of Electricity and Energy<br>Japan International Cooperation Agency - JICA | 25<br>132<br>23 |
| 3 | Sudan | Merowe Dam Electricity Company<br>Dams Implementation Unit Company<br>Sudanese Company to the Limited Hydro Generation<br>Sudanese Company to the Limited Thermal Generation<br>Sudanese Company to the Limited Electricity Distribution<br>Sudanese Company to the Limited Electricity Transmission | 17<br>21<br>16<br>25<br>41<br>68 |
| | Total | | 397 |

### Fifth: Power Sector Leadership Development Center:


Believing of the importance of early discovery of eligible elements for leadership and prepare for the new second leadership generation, the leadership training center has been established in 1996 to achieve a mission through "create a new generation of leaders capable through their knowledge, behavior and experience to achieve the power sector mission", where the following has been achieved up to 2014/2015:

- Obtaining ISO 9001/2008 in 13/12/2014 , also the center is currently preparing 2 technical training centers from the sector to obtain ISO.
- Accreditation of the Center from the Central Agency for Organization and Administration in 5/4/2015 after including its activities within the commercial record of the Holding Company in 5/2/2015.
- Activating the role of public relation and marketing department for disseminating of the training Center courses in the different governmental entities.
- The total number of the Center training courses has reached 134 training course and 2006 trainee for the fiscal year 2014/2015 against 121 training course and 1850 trainee for the fiscal year 2013/2014.
- Graduation of the 20th graduation for 28 trainees bringing the total number of graduated trainees from the leadership development center to a total of 524 trainees.
- Specialized working groups have been formed from the graduated trainees from the leadership development center to formulate set of tasks and duties to provide suitable solutions for problems facing each company.

### Sixth: Improving Regulations of the Egyptian Electricity Holding Company and its affiliated Companies and its Organizational Structure:

Within the attention given by the Egyptian Electricity Holding Company to keep up of all developments in the working system and human resources policy, current regulations have been amended in order to create a motivation working environment :

- Issuing and adoption of the professional behavior code of the Egyptian Electricity Holding Company and affiliated companies consistent with the issued code for the State administrative system, the issued behavior code includes a set of principles related to work organization and discusses behaviors and values of work.
- Coordinate with the Affiliated Companies to prepare the shifting for automating a large number of systems and services of human resources to intelligent applications.
- Starting implementation of a project for financial and administrative restructuring and governance and capacity building at the Egyptian Electricity Holding Company and affiliated companies in coordination with the World Bank and under the supervision of the Ministry of Electricity and Renewable Energy. The project aims at improving transparency, accountability, increasing management efficiency and development of human capabilities to achieve an institutional outstanding performance.
- Introduce a new department to provide services to investors in each of the Electricity distribution companies and the Egyptian electricity Transmission Company through one window.

Activate the role of the Egyptian Electricity Holding Company and affiliated companies board of directors through establishing audit committee from the board members of each of Egyptian Electricity Holding Company and affiliated companies.

# Extra High Voltage Research Center

The Extra High Voltage Research Center started its activities in 1969, where several studies and researches have been conducted with the aim of developing the usage of electrical equipment, improving its performance and providing optimum solutions to problems facing the operation of the Unified Power System.

More than 120 papers have been published in international conferences such as Cigre, Cired, IEEE, Mepcon, ISH.

The Center is also conducting type and routine tests for different components of the Unified Power System and different voltage levels inside and outside the plants in addition to the acceptance tests.

The role of the Center is not focusing only on researches and tests concerning the power sector but extends its activities to other sectors such as the sector of electrical industries and for that is conducting all type tests of local manufactured equipment and share in developing their design to compete with the international market through a high level of guaranteed design and performance.


**Address: Kilo 27, Alex Desert road – Egypt**
**Tel: 0020 (2) 35390926 – 35390731**

# Commercial Activities

## Electricity Tariff Price Reform:

The international recognized policy of tariff design aims to achieve the following:

- Tariff is to cover the financial and economic situation of the electricity sector.
- Tariff is covering the cost according to on the voltage level of supply.
- It reflects the right indicator of electricity use, takes into consideration the social consideration with affordable price to customer, with transparency, simplicity and equality.

- Any tariff reform and price adjustment has to be ratified by the Cabinet, the electricity tariff in Egypt has been constant without any increase for 10 years from 1994 to 2003, after which slight increases have been applied to some categories of consumption during the period 2004-2008 followed by increase in the tariff of the industrial sector which has been divided into three groups based on the different prices of natural gas.

- The constant applied tariff for a long time, resulted in a distortion of the tariff structure, a drop of the indicators of economic and financial performance , a deficit in the cash flow of the electricity companies, in addition to the increasing subsidy for residential customers, all these factors led to a gap between the cost of energy supply and the selling prices.

- In face of this situation, the power sector prepared a study that has been raised to the Cabinet for the electricity tariff reform and price adjustment based on the following:

  - Protect poor and low income families.
  - The tariff is to cover the full cost of generation, transmission and distribution of electricity within five years based on a natural gas price of 3$/ MBTU.
  - The tariff is to achieve a financial balance for the electricity companies to ensure their capability in achieving their duties continously.
  - Promote the justice and equality between customers by unifying selling prices for customers fed at the same voltage level.
  - Gradual phase out of the subsidized fuel price provided to the power sector.
  - Transparency in the assumptions of tariff calculation applied to customers.
  - Promote energy efficiency through issuing an indicator of the real cost and apply the demand charge and time of use (ToU) tariff for the customers fed from the extra high, high and medium voltage levels.

- The Prime Minister issued the decree 1257 for year 2014 dated 17 July 2014, to gradually increase the electricity tariff for five years 1/7/2014, 1/7/2015, 1/7/2016, 1/7/2017. 1/7/2018 but could be re considered by the Cabinet in case of a change in the assumptions and basis used during the study preparation such as ( fuel price- share of the natural gaz out of the total fuel….).

- The first tariff increase was applied in year 2014/2015, and before applying the second increase in year 2015/2016, the President gave instructions to exempt the first three categories of the residential consumers from the tariff increase to alleviate the impact of tariff reform on the most vulnerable groups of the population.

- Accordingly, the power sector presented a redesigned tariff taking this instruction into consideration and the modified tariff was approved by the Prime Minister through the issued decree number 2259 approving the modified tariff to be applied for the year 2015/2016.

The following table shows the electricity tariff for the different purposes of consumption to be applied from 1/7/2015 to 30/6/2016:

| Purpose of usage | Demand Charge (2) Pound/ KW/m | Energy Average (3) Price Piaster/ KWh | Off Peak (4) Piaster/ KWh | On Peak (4) Piaster/ KWh | customer service Charge Pound/cust/m |
|---|---|---|---|---|---|
| **Extra High Voltage (220,132) KV** | | | | | |
| **Kima** | - | - | 4.7 | | 25 |
| **under ground metro** | - | - | 18 | | |
| **Intensive industries (1)** | 15 | 39.6 | 36.6 | 54.8 | |
| **Other Consumers** | 15 | 26.9 | 24.8 | 37.2 | |
| **High Voltage (66,33) KV** | | | | | |
| **under ground metro** | - | - | 20.5 | | 25 |
| **Heavy industries (1)** | 26 | 41.4 | 37.9 | 56.9 | |
| **Other Consumers** | 26 | 29.1 | 26.9 | 40.3 | |
| **Medium Voltage(22,11) KV** | | | | | |
| **all Consumers** | 30 | 43.5 | 40.2 | 60.2 | 25 |
| **Low Voltage(380 V )** | | | | | |
| **Irrigation** | - | - | 22 | | 3 |
| **Other Consumers** | - | - | 46 | | 7 |
| **Public Lighting** | - | - | 58 | | |

**Residential Purposes**

| Sliced consumption (KWh/m) | Piaster/KWh | customer service Charge Pound/cust/m |
|---|---|---|
| 0-50 | 7.5 | 1 |
| 51-100 | 14.5 | 1.5 |
| 101-200 | 16 | 3 |
| 201-350 | 30.5 | 6 |
| 351-650 | 40.5 | 8 |
| 651-1000 | 71 | 20 |
| More than 1000 | 84 | 20 |
| Zero Read | - | 6 |

**Commercial Purposes**

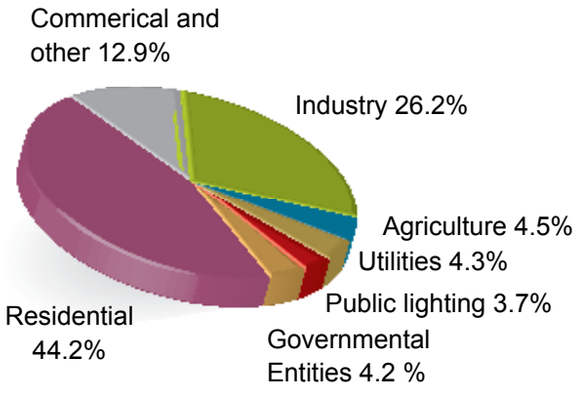
| Sliced consumption (KWh/m) | Piaster/KWh | customer service Charge Pound/cust/m |
|---|---|---|
| 0-100 | 32 | 3 |
| 0-250 | 50 | 10 |
| 251-600 | 61 | 10 |
| 601-1000 | 81 | 20 |
| More than 1000 | 86 | 20 |
| Zero Read | - | 6 |

1. Heavy duty industries: iron-cement- fertilizers- aluminum-petrochemicals in addition to somid company.
2. The demand charge is applied based on the maximum demand recorded over the year.
3. In case there are no smart meters, the applied tariff is the average energy price.
4. The ToU tariff is applied in case smart meters are installed and the peak hours duration is 4 hours to be defined by the Ministry of Electricity and Renewable Energy.

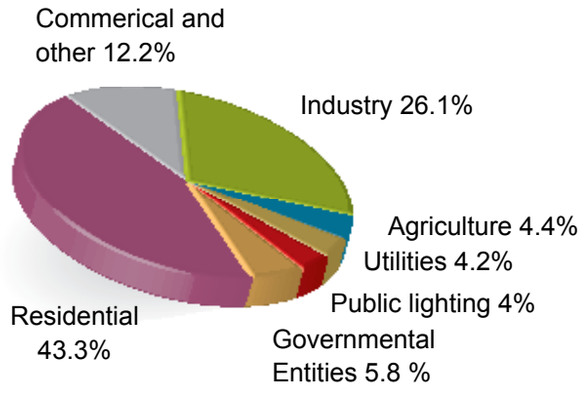
## Total Sold Energy by Purpose (GWh)

| Type of Usage | 2010/2011 | 2011/2012 | 2012/2013 | 2013/2014 | 2014/2015 |
|---|---|---|---|---|---|
| Industry | 40702 | 42098 | 39887 | 37320 | 38242 |
| Agriculture | 4927 | 5560 | 6230 | 6310 | 6555 |
| Utilities | 5759 | 6010 | 5904 | 5962 | 6338 |
| Public lighting | 6186 | 6537 | 6210 | 5692 | 5353 |
| Governmental Entities | 5977 | 6385 | 7664 | 8297 | 6062 |
| Residential | 51370 | 56664 | 59757 | 61962 | 64546 |
| Commerical and others | 10238 | 10715 | 14605 | 17392 | 18850 |
| total | 125159 | 133969 | 140257 | 142935 | 145946 |
| **Interconnection& BOOT** | **1775** | **1869** | **661** | **650** | **699** |
| **Total Grand** | **126934** | **135838** | **140918** | **143585** | **146645** |

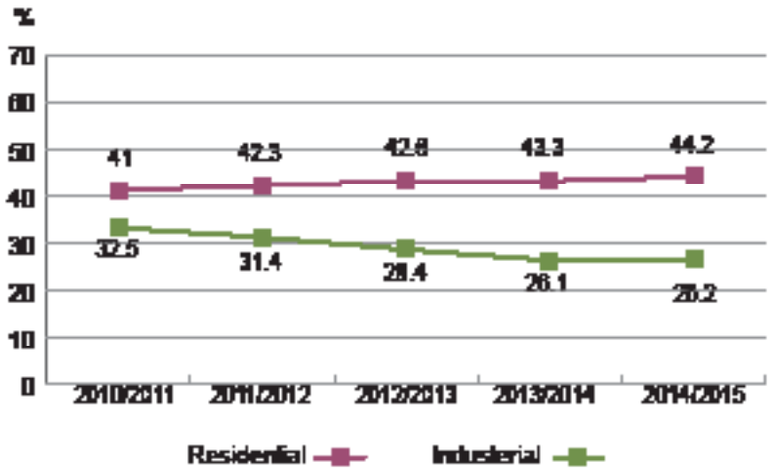
**2014/2015**




**2013/2014**




The considerable growth in household loads in comparison with industry and other purposes was due to the expansion of residential compounds and new communities in addition to the wide spread use of domestic appliances especially the air conditioners in the summer.



# Related Websites

| | |
|---|---|
| http://www.moee.gov.eg/ | The Ministry of Electricity and Renewable Energy |
| http://www.eehc.gov.eg/ | the Egyptian Electricity Holding Company |
| http://www.eetc.net.eg/ | Egyptian Electriciy Transmission Company |
| http://www.cairoepc.com/ | Cairo Electricity Production Company |
| http://www.edepco.com.eg/ | East Delta Electricity Production Company. |
| http://www.mdepc.gov.eg | Middle Delta Electricity Production Company. |
| http://www.wdpc-alex.com/ | West Delta Electricity Production Company. |
| http://www.ueepc.com/ | Upper Egypt Electricity Production Company. |
| http://www.hpgc-highdam.com/ | Hydro- Power Plants Electricity Production Company |
| http://www.ncedc.gov.eg/ | North Cairo Electricity Distribution Company |
| http://www.scedc.com.eg/ | South Cairo Electricity Distribution Company |
| http://www.alex-elect.net/ | Alexandria Electricity Distribution Company |
| http://www.cced.gov.eg/ | Canal Electricity Distribution Company |
| http://www.ndedco.org/ | North Delta Electricity Distribution Company |
| http://www.sdedco.org/ | South Delta Electricity Distribution Company |
| http://www.bedc.gov.eg/ | El-Behera Electricity Distribution Company |
| http://www.meedco.gov.eg/ | Middle Egypt Electricity Distribution Company |
| http://www.hppea.gov.eg/ | Hydro Power Plants Executive Authority |
| http://www.nrea.gov.eg/ | New and Renewable Energy Authority |
| http://www.egyptera.org/ | Egyptian Electric Utility and Consumer Protection Regulatory Agency |