

# ARAB REPUBLIC OF EGYPT

## MINISTRY OF ELECTRICITY & RENEWABLE ENERGY



EGYPTIAN ELECTRICITY  
HOLDING COMPANY

2019/2020  
ANNUAL REPORT



**Dr. Mohamed Shaker Al-Marqaby**  
**Minister of Electricity and Renewable Energy**



**Eng. Gaber Dessouki Mustafa**  
**Chairman of the Egyptian Electricity Holding Company**



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## Egyptian Electricity Holding Company (EEHC)

- The Egyptian Electricity Holding Company (EEHC) is an Egyptian joint-stock company subject to the provisions of Law no. 159 of 1981 and its amendments and Executive Regulation while not inconsistent with Law no. 164 of 2000 on the transformation of the former Egyptian Electricity Authority to an Egyptian joint-stock company and the Electricity Law no. 87 of 2015 and its amendments and Executive Regulation.

Headquarter	Issued Capital (Billion EGP)	Authorized Capital (Billion EGP)	Address	Phone Numbers
Cairo	36.308	50.000	Abbaseya, Cairo	02/22616487 02/22616306 Fax: 02/22612239 Website: <a href="http://www.eehc.gov.eg">www.eehc.gov.eg</a>

## Vision:

- “World Class Leadership and Excellence for Sustainable Electrical Energy”

## Mission

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



## Foreword by the Chairman

The years go by, and EEHC together with its affiliated companies continue successfully to fulfill their strategic commitment to meet the needs of electric power and achieve tangible achievements in energy production, transmission, and distribution while adopting best practices in the use and preservation of assets within the regulated frameworks and working to raise their efficiency. The most important features of these achievements through the financial year 2019/2020 are represented in the following:



- The aggregate nominal capacity reached about 59'530 MW which is adequate for meeting the needs of electric power by the various State sectors and ensuring a safe reserve for technical requirements.
- The availability of power plants reached 92% which is comparable to global rates.
- Stability of electricity feeding to about 37.1 million subscribers, where the peak load reached 32'000 MW with a generated energy of 197'201 billion Kwh.
- Achieving an unprecedented rate of fuel consumption as it reached 185.2 gm/Kwh, leading to a fuel saving of about EGP 9.2 billion.
- Continuous coordination with the Oil & Gas Sector to provide the current and future needs of power plants, where the percentage of NG usage in the power plants linked to the NG grid amounted to 95.9% with its positive impact on environment preservation.
- Paying special attention to training activities to raise professional competency of the employees in all spheres.

We look forward to the future in an attentive manner and open and comprehensive planning to keep the electrical network in high dependability through the following:

- The current nominal capacity is sufficient for the needs of the unified national grid up to 2022 without the addition of new generation units.
- Developing a methodology for operating power plants economically, thus achieving a reduction in the cost of energy unit, so as to keep pace with the expected growth of loads in light of the economic, social, and development conditions associated with the coronavirus pandemic and beyond.
- Implementing the strategy of the Ministry of Electricity & Renewable Energy aiming to bring the renewable energy up to 20% of the peak load by 2022 and 42% by 2035 of the aggregate generated energies with the participation of the private sector and the execution of the transmission network projects to evacuate the generated capacity.
- Working on reducing technical and commercial loss in networks to reach global rates.
- Supporting the current regional interconnection projects as well as the intended interconnection projects with Saudi Arabia, Cyprus and Gulf Interconnection Authority to make Egypt a regional energy exchange hub.
- Upgrading control centers using state-of-the-art systems in monitoring, control, and communication systems.
- Maximizing the utilization of IT applications, using them in facilitation for citizens, and upgrading the quality of rendered services.

Thus, EEHC and its affiliated companies participate in economic and social development nationwide to provide infrastructure for local and international investment projects leading to a more prosperous future for the country. EEHC is delighted to see its achievements commended by nationals, officials, and mass media both locally and globally which reflects their full satisfaction with the level of achievements.

Out of its belief in the importance of documenting information and data, EEHC is privileged to issue this Statistical Report on its activities and accomplishments in 2019/2020, hoping it would serve as a useful reference for specialists and those interested in energy affairs.

In a final word, it gives me much pleasure to express my thanks and appreciation to all employees of EEHC and its affiliated companies who participated in all the achievements referred to in this Report.

Eng. Gaber Dessouky Mustafa  
Chairman

## Organizational Structure of EEHC 30 - 6 - 2020



● On 1/7/2019 The Medical Services Company was established .

## Board of Directors

(30-06-2020)



**Eng. Gaber Dessouki Mustafa**  
President of the General Assembly of the Affiliated Companies  
Chairman of EEHC



**Eng. Mohamed Abdel-Moneim El-Tablawy**  
Executive Director  
for Planning, Research & Power  
Projects



**Acc. Nadia Abdel-Aziz Qatry**  
Executive Director  
for Financial, Commercial & Finance  
Affairs



**Acc. Abdel-Mohsen Khalaf Ahmed Sifein**  
Executive Director  
for HR, Training & Administrative  
Affairs



**Eng. Mahmoud Mohamed El-Naquist**  
Executive Director  
for Generation Companies' Affairs



**Dr. Khaled Mohamed El-Destawy**  
Executive Director  
for Distribution Companies' Affairs



**Eng. Hassan Mahmoud Hassanein Taha**  
First Undersecretary  
Ministry of Electricity and  
Renewable Energy



**Mr. Mohamed Gamal El-Deen El-Sobky**  
Head of the Final Accounts Sector, Ministry  
of Finance



**Mr. Hamed Abul-Magd Mahran**  
Assistant Undersecretary for  
External Relations, the Central  
Bank of Egypt



**Mr. Mohamed Farid Abdel Fattah**  
Head of the Infrastructure,  
Production Activities and Services  
Sector- Ministry of Planning



**Mr. Walid Eid Mahmoud Al-Haddad**  
Head of the Central Department for  
Cooperation with East Asian  
Countries, Ministry of International  
Cooperation



**Eng. Osama Ahmed Wafik El-Baqli**  
Chairman of the Board of Directors of  
the Natural Gas Holding Company  
"EGAS"



**Eng. Mohamed Mohamed Abdel-Aty**  
Head of the Mechanics and Electricity  
authority



**Mr. Adel Nazmy Ali Hassan,**  
Member of the Board of  
Representing the Employees

- On 22/12/2019, Ministerial Decree No. 393 was issued, for the appointment of Mr. Mohamed Gamal El-Deen El-Sobky in place of Mr. Abdel-Nabi Abdel-Aziz Mansour for the remaining term of the Board .
- On 17/5/2020 Ministerial Decree No. 84 was issued, for the appointment of Dr. Hassan Mahmoud Hassanein Taha, in place of Dr. Mohamed Mousa Omran, for the remaining term of the Board .

## Objectives

- 1-Working to provide electrical energy on the various voltages for all uses with high efficiency at affordable prices.
- 2-Carrying out planning, studies and designs in the field of competence of the Company and its affiliated companies.
- 3-Managing the Company's securities portfolio and investing its funds through the affiliated companies and other entities in the fields of production, transmission and distribution of electrical energy and other complementary and associated works.
- 4-Purchasing the electrical energy produced in power plants constructed by authorized local and foreign investors and selling it on the ultra-high voltage networks.
- 5-Working on rectifying the financing structures and economic path of the affiliated companies, maximizing their profitability and rationalizing costs.
- 6-Conducting researches and tests of electrical equipment of different voltages.
- 7-Implementing projects for producing electrical energy from different sources (other than nuclear power) in accordance with global technologies, and the associated projects for the construction and management of desalination plants and selling desalinated water.
- 8-Carrying out consultancy and service works in the field of electrical energy production, transmission and distribution locally and internationally.
- 9-Implementing electrical interconnection projects and exchange of electrical energy with other countries, and selling and buying it according to needs to and from the electrical networks connected to the Egyptian grid.
- 10-Providing medical services.
- 11-Providing training services at the highest global level.

**The Company exercises its powers on its own or through its affiliated companies or the joint-stock companies that EEHC establishes on its own or in association with others.**

## Electricity in 2019/2020

Description		2018 / 2019	2019 / 2020	Variation %
<b>Total Installed Capacity <sup>(1)</sup> :</b>	<b>MW</b>	<b>58353</b>	<b>59530</b>	<b>2</b>
• Hydro	MW	2832	2832	0
• Thermal (Affiliated Companies & EEHC Plants) <sup>(2)</sup>	MW	51226	51634	0.8
• New and Renewable Energy (Wind & Solar) <sup>(3)</sup>	MW	2247	3016	34.2
• Private Sector BOOT (Thermal)	MW	2048	2048	0
<b>Peak Load</b>	<b>MW</b>	<b>31400</b>	<b>32000</b>	<b>2</b>
<b>Total Power Generated (on country level)*:</b>	<b>GWh</b>	<b>199843</b>	<b>197357</b>	<b>(1.2)</b>
• Hydro	GWh	13121	15038	14.6
• Thermal <sup>(4)</sup>	GWh	170440	162092	(4.9)
• New and Renewable Energy <sup>(5)</sup>	GWh	4543	8663	90.7
• Private Sector (BOOT)	GWh	11554	11408	(1.3)
• Power Generated from Isolated Plants	GWh	142	136.4	(3.9)
• Energy Purchased from (IPPs)	GWh	43	19.5	(54.7)
<b>Total Fuel Consumption <sup>(6)</sup></b>	<b>K toe</b>	<b>34778</b>	<b>32133</b>	<b>(7.6)</b>
• Production Companies (including Siemens)	K toe	32309	29688	(8.1)
• Private Sector (BOOT)	K toe	2469	2445	(0.9)
<b>Fuel Consumption Rate at Production Companies</b>	<b>gm/kwh gen.</b>	<b>189.6</b>	<b>183.2</b>	<b>(3.4)</b>
<b>Fuel Consumption Rate, including BOOT</b>	<b>gm/kwh gen.</b>	<b>191.1</b>	<b>185.2</b>	<b>(3.1)</b>
<b>Thermal Efficiency (including Private Sector BOOT)</b>	<b>%</b>	<b>45.9</b>	<b>47.4</b>	<b>3.3</b>
<b>N.G ratio to total fuel including BOOT</b>	<b>%</b>	<b>92.8</b>	<b>94.1</b>	<b>1.4</b>
<b>N.G ratio for P.P connected to gas grid Including BOOT</b>	<b>%</b>	<b>94.7</b>	<b>95.9</b>	<b>1.3</b>
<b>T. Length of Transmission Lines &amp; Cables on HV &amp; Extra HV</b>	<b>Km</b>	<b>48832</b>	<b>51956</b>	<b>6.4</b>
<b>T. Substation Capacities on HV and Extra HV</b>	<b>MVA</b>	<b>145840</b>	<b>157848</b>	<b>8.2</b>
<b>T. Length of Distribution MV&amp;LV Lines and Cables</b>	<b>Km</b>	<b>522606</b>	<b>539865</b>	<b>3.3</b>
<b>T. Capacity for distribution transformers MV&amp;LV</b>	<b>MVA</b>	<b>86224</b>	<b>90163</b>	<b>4.6</b>
<b>No. of Customers at Distribution Companies</b>	<b>M. Customer</b>	<b>36.4</b>	<b>37.1</b>	<b>2</b>
<b>No. of Customers at EETC</b>	<b>Customer</b>	<b>139</b>	<b>149</b>	<b>7.2</b>
<b>No. of Employees at EEHC and Subsidiaries</b>	<b>K. Employee</b>	<b>156.8</b>	<b>152.7</b>	<b>(2.6)</b>

(1) There are isolated units with a total Installed capacity of 209.3 MW.

(2) EEHC power plants (Beni-Suef, Burrullus and New Capital) constructed in cooperation with Siemens AG.

(3) The solar component of kuraimat Solar/Thermal Plant is 20 MW.

(4) Including operation tests and EEHC plants.

(5) Connected to the national unified grid.

(6) In addition to the total consumed fuel at the isolated plants amounting to 26.2 K toe



# Generation of Electrical Energy

## The Electricity Production Companies are:

- 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 of the Production Companies:

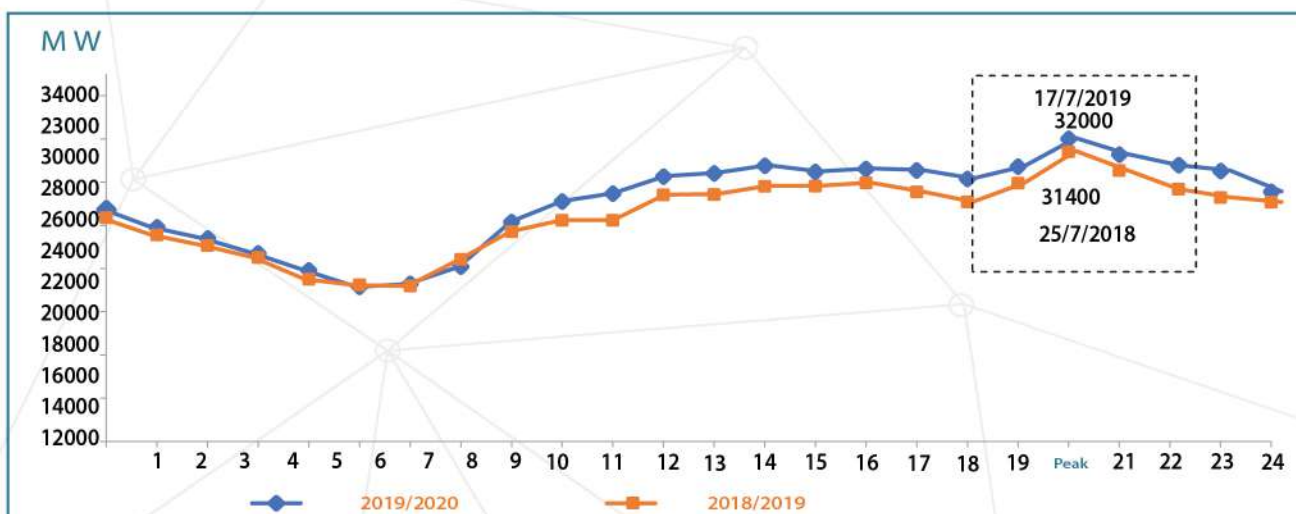
- Production of electrical energy at the affiliated power plants.
- Management, operation and maintenance of the affiliated power plants, and execution of rehabilitation and replacement operations as necessary, all in full compliance with the directives of the National Control Center of the Unified Grid, particularly in relation to loads and maintenance of the generation units, and in accordance with the economical operation requirements to ensure optimum operation of the system technically and economically.
- Selling electrical energy produced at the affiliated power plants to the Egyptian Electricity Transmission Company (EETC), and to Distribution Companies where energy is sent on medium voltages.
- Implementation of power plant projects upon the approval of EEHC's Board of Directors and according to their planned time schedules.
- Conducting researches and studies within the scope of the Company's activities.
- Carrying out any activities or works related to, or complementing, the Company's objectives.



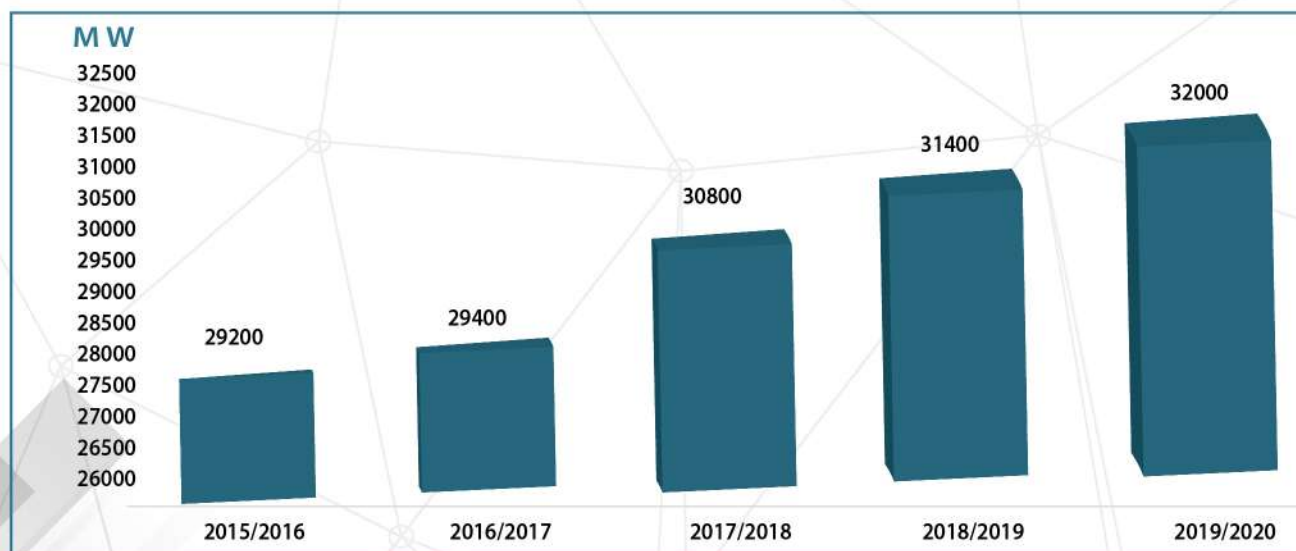
## Peak Load

Description	2018/2019	2019/2020	Variation %
Peak Load (MW)	31400	32000	2 %

## Peak Load Curve (per hour)



## Development in Peak Load

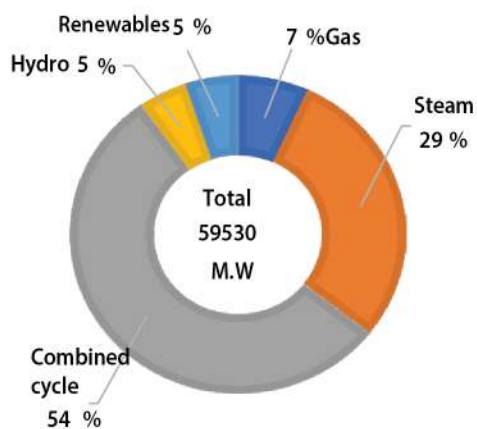


## Installed Generation Capacities 30/6/2020

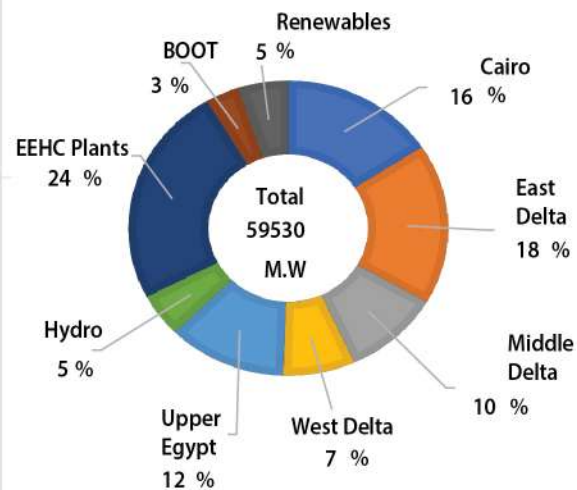
Description	2018/2019	2019/2020	Variation %
Installed Generation Capacity (MW)	58353	59530	2 %

Type Co.	Cairo	East Delta	Middle Delta	West Delta	Upper Egypt	Hydro	EEHC Plants	Private Sector	Renewables	Total
Gas	1215	2130	336	24	350	--	--	--	--	4055
Steam	3320	4156	420	3431	3804	--	--	2048	--	17179
Combined Cycle	4834	4200	5107	907	3000	--	14400	--	--	32448
Hydro	--	--	--	--	--	2832	--	--	--	2832
Renewables	--	--	--	--	--	--	--	--	3016	3016
Total	9369	10486	5863	4362	7154	2832	14400	2048	3016	59530

Installed Capacity by Generation Type (%)



Installed Capacity by Company (%)



## Development in Installed Capacities by Generation Type (MW)

Description	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
Gas	7845	13345	5745	4055	4055
Steam	14798	15449	15449	16749	17179
Combined Cycle	12630	12630	30030	32470	32448
Hydro	2800	2800	2832	2832	2832
Renewable	887	887	1157	2247	3016
Total	38960	45111	55213	58353	59530

- New & Renewable capacities 2019/2020 include 1385 MW wind farms, 140 MW Koraimat Solar/Thermal P.P. in which solar component amounts to 20 MW , 1465 MW solar (PV) in Benban region (private sector), and 26 MW (PV) in Kom-Ombo.
- In addition to isolated and reserve units with a total installed capacity of about 209.3 MW.



## Installed Capacities of Power Plants\* (30/6/2020)<sup>(1)</sup>

Co.	Station		No. of Units	Installed Capacity (MW)	Actual Capacity (MW)	Fuel	Connect to network	Commissioning Date
Cairo	Shoubra El-Kheima	(St)	4 x 315	1260	1260	N.G-H.F.O	83-84-85-1988	84-85-1988
	Shoubra El-Kheima	(G)	1 x 35	35	30	N.G	1985	1986
	Cairo West Ext.	(St)	2 x 330 + 2 x 350	1360	1360	N.G-H.F.O	94-95-2010-2011	1994-2011
	Cairo South	(G)	3 x 110	330	300	N.G-L.F.O	1989	1989
	Cairo South	(CC)	1 x 110 + 1 x 55	165	150	N.G-L.F.O	1994	1994
	Cairo North	(CC)	4x 250 + 2 x 250	1500	1500	N.G-L.F.O	04-05-06-2007	2004-2006-2008
	Wadi Houf	(G)	3 x 33.3	100	75	N.G-L.F.O	1985	1985
	El-Tibeen	(St)	2 x 350	700	700	N.G- H.F.O	2010	2010
	6 October	(G)	4 x 150	600	600	N.G-L.F.O	2012	2012
	October Ext.	(CC)	4x150+1x318.7	918.7	918.7	N.G-L.F.O	2015-2018	2015-2019
	North Giza	(CC)	6x 250 + 3 x 250	2250	2250	N.G-L.F.O	2014-2015	2014-2015
	Heliopolis	(G)	2 x 25	50	50	L.F.O	2015	2016
	East Cairo	(G)	2 x 25	50	50	L.F.O	2015	2016-2017
	El-Basateen	(G)	2 x 25	50	50	L.F.O	2015	2016
	Total			9369	9294			
East Delta	Ataqa	(St)	2 x 150 + 2 x 300	900	840	N.G-H.F.O	76-83-1986	85-88-1989
	Abu Sultan	(St)	4 x 150	600	600	N.G-H.F.O	79-81-1984	83-84-1986
	Shabab	(G)	2 x 33.5	67	36	N.G-L.F.O	1981	1982
	New Shabab	(CC)	8 x 125 + 2 x 250	1500	1500	N.G-L.F.O	2011-2017-2018	2011-2018
	Arish	(St)	2 x 33	66	66	N.G	1993	1995-1996
	Oyoun Mousa	(St)	2 x 320	640	640	N.G-H.F.O	1997	2001
	New Gas Damietta	(G)	4 x 125	500	500	N.G-L.F.O	2011	2011
	West Damietta	(CC)	4 x 125 + 1 x 250	750	750	N.G-L.F.O	2012-2013-2018	2012-2013-2018
	Damietta	(CC)	6 x 132 + 3 x 136	1200	1164	N.G-L.F.O	1989-1992	89-1993
	West Damietta Ext.	(CC)	4 x 125+1x250	750	750	N.G-L.F.O	2015-2018	2016-2018
	Sharm El-Sheikh	(G)	1 x 23.7 + 2 x 24.2	72.1	39	L.F.O	75-76-1978	75-79-1997
	EL-Masaeed	(G)	2x24.2	48.4	30	L.F.O	-	-
	Ain Sokhna	(St)	2 x 650	1300	1300	N.G-H.F.O	2014	2015
	Suez	(St)	1 x 650	650	650	N.G-H.F.O	2016	2017
	Ataqa Ext.	(G)	2 x 164 + 2 x 156	640	640	N.G-L.F.O	2015	2015
	Port Said Ext.	(G)	2 x 42	84	84	N.G-L.F.O	2015	2017
	Hurghada Ext.	(G)	6 x 48	288	288	N.G	2015	2017
	Sharm El-Sheikh Ext.	(G)	6 x 48	288	288	N.G-L.F.O	2015	2017
	Hurghada	(G)	3 x 23.45 + 3x 24.27	143.2	90	N.G-L.F.O	1976	1977-1979
	Total			10486	10255			
Middle Delta	Talkha	(CC)	8 x 24.7 + 2 x 45.9	290	236	N.G	1978-1979-1988	79-80-1989
	Talkha 210	(St)	2 x 210	420	360	N.G-H.F.O	1992-1994	1993-1995
	Talkha 750	(CC)	2 x 250 + 1 x 250	750	750	N.G	2006-2010	2006-2010
	Nubaria	(CC)	6 x 250 + 3 x 250	2250	2250	N.G-L.F.O	05-06-09-2010	2005-2006-2010
	Mahmoudeya	(CC)	8 x 25+ 2 x 58.5	317	268	N.G-L.F.O	1982-1994	1983-1995
	New Mahmoudeya	(G)	2 x 168	336	336	N.G-L.F.O	2015	2016
	El-Atf	(CC)	2 x 250 + 1 x 250	750	750	N.G-L.F.O	2009-2010	2009- 2010
	Banha	(CC)	2 x 250+ 1 x 250	750	750	N.G-L.F.O	2013-2014	2014-2015
	Total			5863	5700			
	Kafr El-Dawwar <sup>(2)</sup>	(St)	2 x 110	220	170	N.G-H.F.O	84-1985	84-1986
West Delta	Damanhour Ext 300	(St)	1 x 300	300	300	N.G-H.F.O	1990	1992
	Damanhour	(CC)	4 x 24.6 + 1 x 58	156.4	130	N.G-L.F.O	1984-1994	1985-1995
	Abu Qir New	(St)	2 x 650	1300	1300	N.G-H.F.O	2012	2012-2013
	Abu Qir	(St)	4 x 150 + 1 x 311	911	780	N.G-H.F.O	82-83-1990	83-84-1991
	Abu Qir	(G)	1 x 24.3	24.3	23	L.F.O	1982	1983
	Sidi Krir 1-2	(St)	2 x 320	640	640	N.G-H.F.O	1998-1999	1999-2000
	Sidi Krir	(CC)	2 x 250 + 1 x 250	750	750	N.G-L.F.O	2009-2010	2009-2010
	Matrouh	(St)	2 x 30	60	60	N.G	1989	1990
	Total			4362	4153			

Co.	Station		No. of Units	Installed Capacity (MW)	Actual Capacity (MW)	Fuel	Connect to network	Commissioning Date
Upper Egypt	Walideya	(St)	2 x 300	600	600	H.F.O	1992-1997	1992-1997
	Kuriemat	(St)	2 x 627	1254	1254	N.G-H.F.O	1997-1998	1997-1998
	Kuriemat 1	(CC)	2x250+1x250	750	750	N.G	2006-2007-2008	2007-2009
	Kuriemat 2	(CC)	2x250+1x250	750	750	N.G	2008-2010	2009-2011
	West Assiut	(CC)	8 x 125 + 2 x 250	1500	1500	NG - L.F.O	2015-2018	2015-2019
	South Helwan <sup>(3)</sup>	(ST)	3x650	1950	1950	N.G-H.F.O	2018-2019	2019
	New Assiut	(G)	2 x 25	50	50	L.F.O	2015	2016
	Red Assiut	(G)	4 x 25	100	100	L.F.O	2015	2016
	Samalout	(G)	2 x 25	50	50	L.F.O	2015	2016-2017
	West Malawy	(G)	2 x 25	50	50	L.F.O	2015	2017
	Gerga	(G)	2 x 25	50	50	L.F.O	2015	2016
	Bany Ghaleb	(G)	2 x 25	50	50	L.F.O	2015	2016
	Total			7154	7154			
EEHC Plants	Burullus	(CC)	8 x 400 + 4 x 400	4800	4800	N.G	2016-2017-2018	2017-2018
	Beni Suef	(CC)	8 x 400 + 4 x 400	4800	4800	N.G	2016-2017-2018	2017-2018
	New Capital	(CC)	8 x 400 + 4 x 400	4800	4800	N.G	2016-2017-2018	2017-2018
	Total			14400	14400			
Hydro Plants	High Dam		12 x 175	2100	2100	Hydro	1967	1967
	Aswan Dam I		7 x 40	280	280	Hydro	1960	1960
	Aswan Dam II		4 x 67.5	270	270	Hydro	1985	1985-1986
	Esna		6 x 14.28	86	86	Hydro	1993	1993
	Naga Hamadi		4 x 16	64	64	Hydro	2008	2008
	Assiut		4 x 8	32	32	Hydro	2018	2018
	Total			2832	2832			
New & Renewable	Zafarana		105x0.6+117x0.66+473x0.85	542.27	542.27	Wind	From 2001:2008	From 2007:2010
	Gabal El-Zeit		290x 2	580	580	Wind	2015-16-18	2016-18-19
	Ras Gharib(Shoquir) <sup>(4)</sup>		125x1.2	262.5	250	Wind	2019	2019
	Kuriemat Solar /ST		1 x 70 + 1 x 50 + 1 x 20	140	80	Solar/ N.G	2010	2011
	Benban(PV) <sup>(5)</sup>		27x50+1*30+3*20+1x25	1465	1465	Solar	2017-2018-2019	2018-2019
	Kom Ombo <sup>(6)</sup>		1 x 26	26	22	Solar	2020	2020
	Total			3016	2939			
Private Sector	Suez Gulf	(St)	2 x 341.25	682.5	682.5	N.G-H.F.O	2002	2003
	Port Said East	(St)	2 x 341.25	682.5	682.5	N.G-H.F.O	2002	2003
	Sidi Krir 3.4	(St)	2 x 341.25	682.5	682.5	N.G-H.F.O	2001	2002
	Total			2048	2048			
Grand Total				59530	58775			

(1) In addition to 209.3 MW isolated and reserve units.

(2) Units 1 & 2 of Kafr El-Dawwar Power Plant with a total nominal capacity of (2x110 MW) have been scrapped.

(3) Unit 3 of Helwan South Power Plant (1x650 MW) was put into commercial operation in October 2019.

(4) Ras-Gharib 262.5 MW Wind Power Plant (Shoquir) (Private Sector) was put into commercial operation in October 2019.

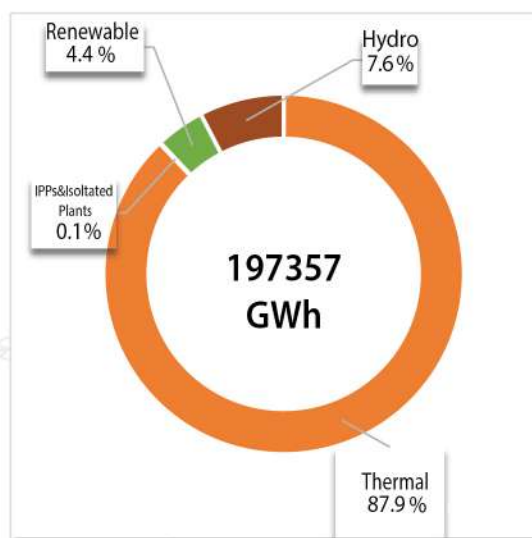
(5) Commercial operation of Benban ( PV ) 485 M W ( Private Sector ) Started in 2019/2020.

(6) Kom-Ombo (PV) Power Plant with a total capacity of 26 MW was put into commercial operation in April 2020.

## Generated and Purchased Energy

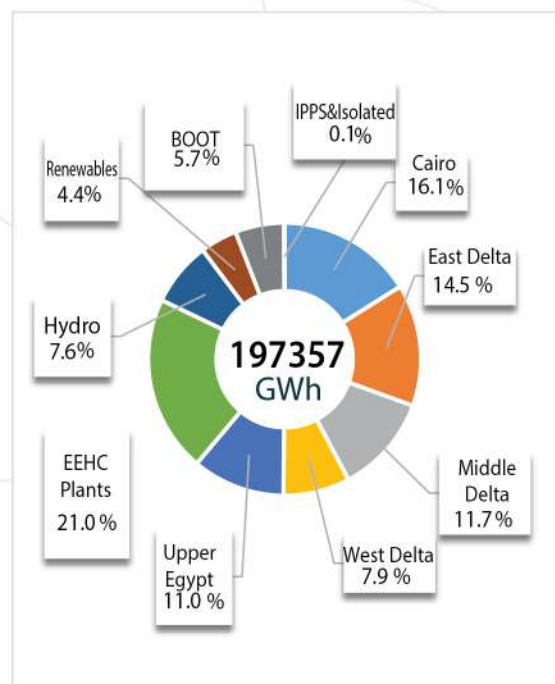
### By Generation Type (GWh)\*

Type		18/19	19/20	Variation%
Steam	Subsidiaries	48606	43839	(9.8)
	Private Sec.	11554	11408	(1.3)
Gas	Subsidiaries	6203	3464	(44.3)
Combined Cycle	Subsidiaries	83138	73367	(11.7)
	EEHC Plants	32493	41422	27.5
Total Thermal*		181994	173500	(4.7)
Hydro		13121	15038	14.6
New & Renewable	Wind	3018	4233	40.2
	Solar	1525	4430	190.5
Total Grid		199658	197201	(1.2)
Isolated Units		142	136.4	(3.9)
Purchased from (IPP's)		43	19.5	(54.7)
Grand Total		199843	197357	(1.2)

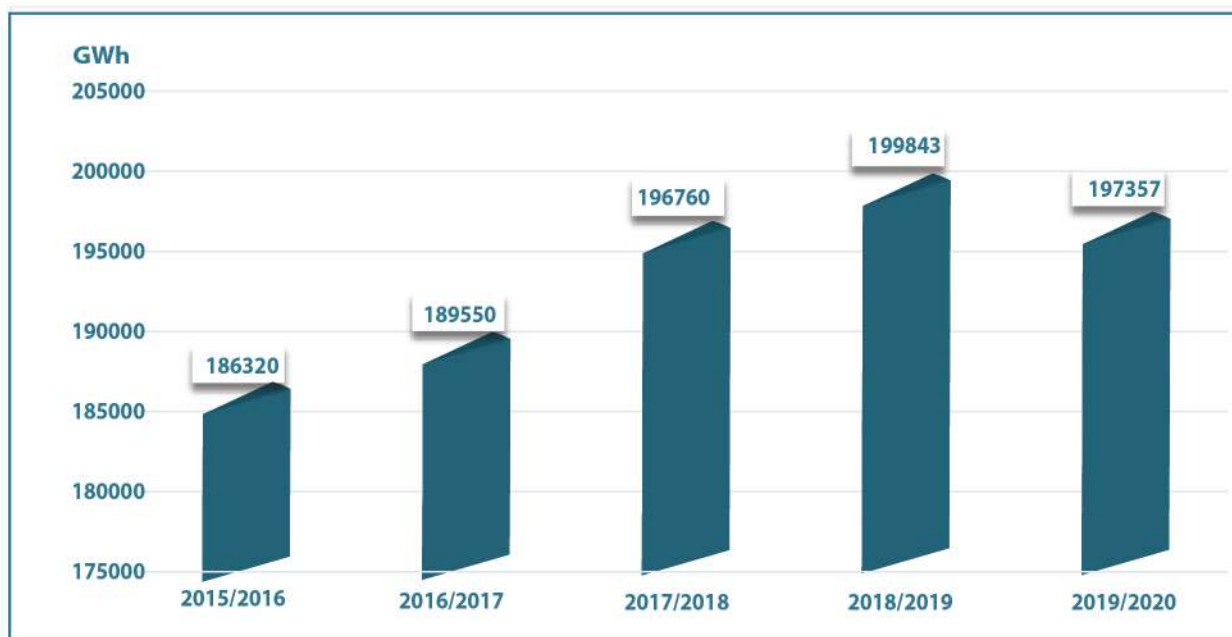


### By Production Company (GWh)

Company	18/19	19/20	Variation %
Cairo	38540	31715	(17.7)
East Delta	33540	28579	(14.8)
Middle Delta	28827	23071	(20)
West Delta	17414	15601	(10.4)
Upper Egypt	19626	21704	10.6
EEHC plants	32493	41422	27.5
Hydro plants	13121	15038	14.6
New & Renewable	4543	8663	90.7
Private Sector	11554	11408	(1.3)
Total Grid	199658	197201	(1.2)
Isolated units	142	136.4	(3.9)
Purchased	43	19.5	(54.7)
Total	199843	197357	(1.2)



## Development in Gross Energy Generated ( GWh )



## Electrical Energy Generated in Power Plants (GWh)

Co.	Station		2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
Cairo	Shoubra El-Kheima	(St)	7306	6909	7205.8	5983.4	5556.8
	Cairo West Ext.	(St)	6793	6390	5568.5	4288.1	2859.5
	Cairo South	(G)	2141	2217	1510.1	1198.6	835.9
	Cairo South	(CC)	1087	959	943	1063.4	942.9
	Cairo North	(CC)	7765	7466	7794.7	7339.7	7263.7
	Wadi Houf	(G)	105	74	106.4	7.4	1.7
	Tibeen	(St)	5195	5230	4195.3	4524.2	3579.6
	6 October	(G)	2617	2611	2374.3	730	657.1
	6 October Ext.	(CC)	-	-	-	2797.7	3086.3
	Giza North	(CC)	7714	13009	11391	10577.1	6925.7
	Heliopolis	(G)	47.8	12.6	5.2	4.5	1.1
	Cairo East	(G)	55.6	14.7	12.1	14.03	3.6
	Al-Basateen	(G)	52.6	15.4	8.2	11.6	0.64
	Total Cairo		40879	44907.7	41114.6	38540	31715
East Delta	Ataqa	(St)	1148	1842	1657.9	34.1	39
	Abu Sultan	(St)	3197	3639	3429.7	1935.3	1327.8
	Shabab	(G)	314	290	135.4	78.8	44
	New Gas Shabab	(CC)	3273	3819	6732.8	8661.1	7572.7
	Arish	(St)	548	538	534.7	399.9	394.3
	Oyoun Mousa	(St)	4110	3363	3297.7	2487.5	1889.7
	New Damietta	(G)	1916	1764	1290.5	1067.5	417
	West Damietta	(G)	1755	1629	1504.9	2700.9	2176.3
	Damietta	(CC)	6591	7369	7114.7	6196.5	4387.9
	Sharm El-Sheikh	(G)	16	12	0.9	0.013	-
	Hurghada	(G)	224	307	171.4	214.1	139.2
	Ein-Sokhna	(St)	6516	6137	5305.5	3663.2	3684.7
	Suez	(St)	-	1887	2824.4	2386.8	3585
	Ataqa	(G)	1954	1326.5	337.4	408.2	601.9
	Port Said Ext.	(CC)	18	6.3	90.3	25.9	15.7
	Hurghada Ext.	(CC)	455	437	700.7	785.3	572
	Sharm El-Sheikh Ext.	(CC)	112	5.5	87.3	91.4	105.4
	West Damietta Ext.	(CC)	1142	1033	782.8	2403.5	1625.5
	EL-Masaeed	(G)	-	-	-	0.023	0.82
	Total East Delta		33289	35404.3	35999	33540	28579
Middle Delta	Talkha	(CC)	1611	1765	1253.8	703.9	238.9
	Talkha steam 210	(St)	2134	2162	1576.2	1634.1	975.9
	Talkha 750	(CC)	5185	4558	5432.3	4744.8	5480.1
	Nubareya	(CC)	13285	13226	12990.1	11823.7	8009.5
	Mahmoudeya	(CC)	1950	1905	1305.5	459.8	82.5
	New Mahmoudeya	(CC)	475	39	23.2	3.1	3.9
	El-Atf	(CC)	5224	5171	5217.6	5272.7	5384.7
	Banha	(CC)	5108	4849	4770.8	4184.9	2895
	Total Middle Delta		34972	33675	32569.5	28827	23071
West Delta	Kafr El-Dawwar	(St)	2568	1978	1769.1	227	-
	Damanhour Ext.300	(St)	1078	1614	1855.5	1834.7	1930.2
	Damanhour	(St)	154	-	-	-	-
	Damanhour	(CC)	928	907.7	801.6	214.7	-
	New Abu Qir	(St)	8168	6006	4925.9	4400.4	4423.6
	Abu Qir	(St)	4131	4625	4352.3	3643.6	2500.5
	El-Seiuf	(G)	93	6	0.335	-	-
	Karmouz	(G)	1	0.35	0.222	-	-
	Sidi Krir (1,2)	(St)	3366	3471	3488.1	2561.4	1136.9
	Sidi Krir	(CC)	4760	3826	3842.9	4190.3	5256.5
	Matrouh	(St)	415	369	364.5	341.9	353.4
	Total West Delta		25662	22803	21400.5	17414	15601

Co.	Station		2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
Upper Egypt	Walideya	(St)	4011	2480	1912	2875.2	2594.2
	Kuriemat	(St)	6954	6293	6501.6	4188.4	750.8
	Kuriemat 1	(CC)	5274	4183	5528.1	4884.5	3379.9
	Kuriemat 2	(CC)	3771	5047	1084.6	3712.9	2963.9
	South Helwan	(St)	-	-	-	1197.9	6256.3
	Assiut	(St)	12	-	-	-	-
	West Assiut	(CC)	1928	1103.7	2606.3	2625.6	5695
	New Assiut	(G)	44.9	34.5	22.9	26.2	5.8
	Red Assiut	(G)	94.7	60.5	21.2	16.1	6.7
	Samalout	(G)	47.5	26.7	12.2	16.8	7.2
	West Malawy	(G)	42.7	25.2	25.9	9	2.08
	Gerga	(G)	37.3	25.5	38.1	49	17
	Bani Ghaleb	(G)	36.9	31.9	44.1	24.5	24.8
	Total Upper Egypt		22245	19311	17797	19626	21704
EEHC Plants	Burullus	(CC)	-	1423	5456.1	9000	17133
	Beni Suef	(CC)	-	3346	11663.3	15439.4	15283.5
	New Capital	(CC)	-	747	3380	8053.6	9005
	Total EEHC Station		-	5516	20499.4	32493	41422
Hydro Plants	High Dam		9484	8859	8747.1	8992.6	10509
	Aswan Dam I		1578	1489	1403.4	1409.7	1667
	Aswan Dam II		1523	1547	1607.6	1594.7	1834
	Essna		507	501	481.8	471	412
	Naga Hamadi		453	454	453.2	446	403
	Assiut		-	-	32.9	207	213
	Total-Hydro		13545	12850	12726	13121	15038
	Wind		2058	2200	2334	3018	4233
Renewable Energy	Kuriemat Solar/ST		168	580	484	733	470
	Benban ( PV )		-	-	53	792	3944
	Kom Ombo ( PV )		-	-	-	-	16.2
	Total Renewable		2226	2780	2871	4543	8663
Private Sector (BOOT)	Sidi Krir 3&4	(St)	4556	4311	4275	4256.8	4137
	Suez Gulf	(St)	4461	3797	4011	3617.6	3616
	Port Said East	(St)	4290	4037	3340	3679.6	3655
	Total BOOT		13307	12145	11626	11554	11408
Purchased from IPP's		(St)	42	35	42	43	19.5
Isolated Units			144	123	115	142	136.4
Total			186320	189550	196760	199843	197357

St) Steam (G) Gas (CC) Combined Cycle

\* Generated energy including Commissioning tests.

## Variant Statistics of Power Plants

Co.	Station	Gross Gen. GWh	Net Gen. GWh	Consumed power %	Total fuel k ton	Fuel Consump. gm/kwh	Thermal EFF. %	Peak load MW	load Factor %	Cap. factor%	AV. Factor%
Cairo	Shoubra El-Kheima	5556.8	5274.5	5.1	1354.6	243.8	36	1230	51.4	49	85.3
	Cairo West Ext.	2859.5	2668.9	6.7	657.2	229.8	38.2	736	44.2	23.9	68
	Cairo South 1	835.9	824.8	1.3	253.8	303.6	28.9	263	36.2	31.7	68
	Cairo South II	942.9	925.9	1.8	201.4	213.6	41.1	153	70.2	71.6	81.2
	Cairo North	7263.7	7090.4	2.4	1227.2	168.9	51.9	1207	68.5	55.10	92.7
	Wadi Houf	1.7	1.3	22.4	0.8	425	20.6	76	0.3	0.3	99.8
	Tibeen	3579.6	3328.5	7.0	775.6	216.7	40.5	680	59.9	58.2	88.5
	6 October	657.1	643.6	2.1	197.3	300.3	29.2	600	12.5	12.5	91.9
	6 October Ext.	3086.3	3003	2.7	570.7	184.9	47.5	622	56.5	38.3	96.5
	Giza North	6925.7	6773.2	2.2	1146.3	165.5	53	1755	44.9	35	97
	Heliopolis	1.1	0.9	21.2	0.4	303	29	25	0.5	0.3	74.3
	Cairo East	3.6	3.6	0	1.0	267.2	32.8	40	1	0.8	100
	Al-Basateen	0.64	0.54	15.6	0.2	375	23.4	27	0.3	0.1	100
	<b>Total</b>	<b>31715</b>	<b>30539</b>	<b>3.7</b>	<b>6387</b>	<b>201.4</b>	<b>43.6</b>	<b>5582</b>	<b>64.7</b>	<b>38.9</b>	<b>88.2</b>
East Delta	Ataqa St.	39	12	69.2	10.4	266.7	33	95	4.7	0.5	89.5
	Abu Sultan St.	1327.8	1184.1	10.8	339.3	255.5	34.3	410	36.9	25.2	69
	Gas Shabab	44	43	2.3	24.1	552.2	15.9	29	17.1	13.8	98.5
	New Combined Shabab	7572.7	7377.8	2.6	1363.2	180	48.7	1391	62	57.5	94.7
	Arish St.	394.3	362.4	8.1	107.9	273.6	32.1	57	78.8	68	96.9
	Oyoun Mousa	1889.7	1787.8	5.4	419.8	222.2	39.5	595	36.2	33.6	93.1
	New Gas Damietta	417	404.7	2.9	114.4	274.3	32	503	9.4	9.5	99.8
	West Damietta	2176.3	2117.7	2.7	393.2	180.7	48.6	697	35.5	33	96.8
	Damietta (CC)	4387.9	4287.7	2.3	836.8	190.7	46	1059	47.2	42.9	95.9
	Sharm El-Sheikh	0	0	0	0	0	-	0	-	0	100
	Hurghada St.	139.2	138.4	0.6	58.5	420.2	20.9	72	22	17.6	98.4
	Ein-Sokhna	3684.7	3564.6	3.3	764.2	207.4	42.3	829	50.6	32.3	89.3
	Suez Thermal	3585	3459.6	3.5	793.2	221.3	39.7	650	62.8	62.8	88
	Ataqa G	601.9	595.2	1.1	160.2	266.1	33	654	10.5	10.7	99.7
	Port Said Ext.	15.7	15	4.3	3.6	229.3	38.2	70	2.6	2.1	99.9
	Hurghada Ext.	572	566.1	1	142.2	248.6	35.3	225	28.9	22.6	99.7
	Sharm El-Sheikh Ext.	105.4	100.5	4.6	25.4	241	36.4	221	5.4	4.2	99.5
	West Damietta Ext	1625.5	1567.7	3.6	88.82	177.7	49.4	563	32.9	24.7	95.7
	El Masaeed	0.82	0.75	8.5	0.5	609.8	15.9	21	0.4	0.3	100
	<b>Total</b>	<b>28579</b>	<b>27585</b>	<b>3.5</b>	<b>5846</b>	<b>204.5</b>	<b>42.9</b>	<b>5848</b>	<b>55.6</b>	<b>31.7</b>	<b>93</b>

Co.	Station	Gross Gen. GWh	Net Gen. GWh	Consumed power %	Total fuel k ton	Fuel Consump. gm/kwh	Thermal EFF. %	Peak load MW	load Factor %	Cap. factor%	AV. Factor%
Middle Delta	Talkha Combined	238.9	227.4	4.8	71.3	298.5	29.4	199	13.7	11.5	98.8
	Talkha Ext. (210)	975.9	900.2	7.8	245.7	251.8	34.9	350	31.7	30.9	93.3
	Talkha (750)	5480.1	5383.1	1.8	855.7	156.1	56.2	756	82.5	83.2	97.3
	Nubareya (C.C)	8009.5	7813.4	2.4	1310.3	163.6	53.6	2194	41.6	40.5	96.2
	Mahmoudeya	82.5	56	32.1	21.1	255.8	34.3	272	3.5	3.5	99.7
	New Mahmoudeya	3.9	1.4	63.2	1.2	312	28.1	155	0.3	0.1	99.8
	El-Atf	5384.7	5278.8	2	882.1	163.8	53.6	803	76.3	81.7	97.6
	Banha	2895	2834	2.1	468.1	161.7	54.2	783	42.1	43.9	97.8
	Total	23071	22494	2.5	3856	167.1	52.5	4506	58.3	46.1	97
West Delta	Kafr El-Dawwar	0	(10.6)	-	0.3	0	0	0	0	0	100
	Damanhour Ext 300.	1930.2	1857.2	3.8	443.1	229.6	38.2	300	73.2	73.2	95.2
	Damanhour Combined	0	(3)	0	0	0	0	0	0	0	98.7
	Abu Qir	2500.5	2364.2	5.5	608.2	243.2	36.1	540	52.7	35.5	90.2
	New Abu Qir	4423.6	4240.2	4.1	957.3	216.4	40.6	970	51.9	38.7	93
	Sidi Krir 1,2	1136.9	1064.5	6.4	240.9	211.9	41.4	640	20.2	20.2	95.6
	Sidi Krir (C.C)	5256.5	5121.5	2.6	845.4	160.8	54.6	750	79.8	79.8	96.1
	Matrouh	353.4	327	7.5	103	290.3	30.2	54	74.5	67.1	92.7
	Total	15601	14961	4.1	3198	205	42.8	2633	67.5	42.8	94
Upper Egypt	Walideya	2594.2	2491	4	602	232.1	37.8	548	53.9	49.2	86
	Kuriemat	750.8	699.1	6.9	167.8	223.5	39.3	943	9.1	6.8	90.9
	Kuriemat 1	3379.9	3311.8	2	528.6	156.4	56.1	764	50.4	51.3	88.2
	Kuriemat 2	2963.9	2895.1	2.3	466.2	157.3	55.8	837	40.3	45	91.2
	South Helwan	6256.3	6035.7	3.5	1274.2	203.7	43.1	1289	58	36.5	89.4
	West Assiut	5695	5528.1	2.9	1039.3	182.5	48.1	1245	52.1	43.2	92.5
	New Assiut	5.8	5.5	5.2	1.6	274.3	32	40	1.7	1.3	100
	Red Assiut	6.7	3.2	52.2	1.9	275.5	31.8	89	0.9	0.8	100
	Bani Ghaleb	24.8	24.3	2	6.9	275.8	31.8	40	7.1	5.7	99.9
	Gerga	17	16.6	1.1	4.5	267.6	32.8	52	3.7	3.8	99.3
	West Malawy	2.08	1.7	18.3	0.6	278.8	31.5	47	0.5	0.5	99.5
	Samalout	7.2	6.7	7	2	273.3	32.1	48	1.7	1.6	100
	Total	21704	21019	3.2	4096	188.7	46.5	4144	60.4	35	90.6
EEHC Plants	Beni Suef	15283.5	14743.5	3.5	2307.9	151	58.1	2940	59.2	36.2	95.1
	Burullus	17133	16525.1	3.5	2602.5	151.9	57.8	3407	57.3	40.6	87
	New Capital	9005	8675.5	3.7	1394.9	154.9	56.7	2275	45.1	21.4	94.1
	Total	41422	39944	3.6	6305	152.2	57.6	-	-	-	-

Co.	Station	Gross Gen. GWh	Net Gen. GWh	Consumed power %	Total fuel k ton	Fuel Consump. gm/kwh	Thermal EFF. %	Peak load MW	load Factor %	Cap. factor%	AV. Factor%
Hydro Plants	High Dam	10509	10440.2	0.6	0	0	86.1	2280	52.5	57	89.8
	Aswan Dam I	1667	1635.6	1.8	0	0	85.6	280	67.8	67.8	96.2
	Aswan Dam II	1834	1822.8	0.6	0	0	90.3	270	77.3	77.3	95.4
	Essna	412	404.6	1.7	0	0	80.1	77	60.7	54.8	89.3
	Naga Hamadi	403	397.3	1.4	0	0	87.2	66	69.1	71.7	92.8
	Assiut	213	207.6	2.5	0	0	90	44	55.8	75.8	92.7
	<b>Total-Hydro</b>	<b>15038</b>	<b>14908</b>	<b>0.8</b>	<b>0</b>	<b>0</b>	<b>-</b>	<b>2899</b>	<b>59.1</b>	<b>60.5</b>	<b>91.1</b>
Private Sector	Suez Gulf	3616	3417.9	5.5	796	220.1	39.9	-	-	-	-
	Port Said East	3655	3398.7	7	792	216.7	40.5	-	-	-	-
	Sidi Krir 4&3	4137	3843.1	7.1	857	207.2	42.3	-	-	-	-
	<b>Total BOOT</b>	<b>11408</b>	<b>10660</b>	<b>6.6</b>	<b>2445</b>	<b>214.3</b>	<b>40.9</b>				
	<b>Total Thermal+BOOT</b>	<b>173500</b>	<b>167202</b>	<b>3.6</b>	<b>32133</b>	<b>185.2</b>	<b>47.4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Renewable Energy	Wind	4233	4224	0.2	-	-	-	-	-	-	-
	Kuriemat Solar/ST	470	451.8	3.9	-	-	-	-	-	-	-
	Benban PV	3944	3845	2.5	-	-	-	-	-	-	-
	Kom Ombo	16.2	16.2	0	-	-	-	-	-	-	-
	<b>Total Renewable</b>	<b>8663</b>	<b>8537</b>	<b>1.4</b>							
	Isolated Plants	136.4	133.1	2.4	-	-	-	-	-	-	-
	Purchased from IPPs	19.5	19.5	0	-	-	-	-	-	-	-
	<b>Grand Total *</b>	<b>197357</b>	<b>190800</b>	<b>3.3</b>	<b>32133</b>	<b>-</b>	<b>-</b>	<b>32000</b>	<b>-</b>	<b>-</b>	<b>-</b>

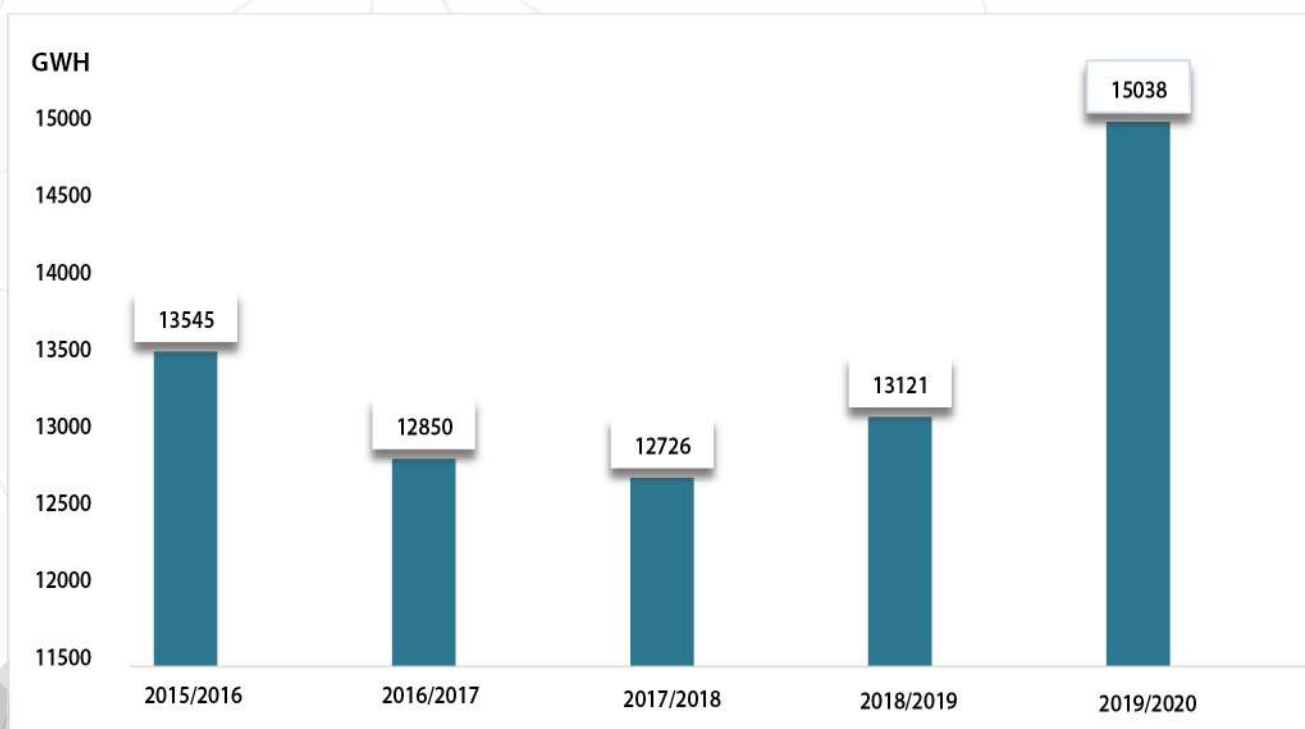
Includes commissioning tests.

- \* Fuel consumption rate gm/kwh(gen) = Equ.fuel quantity (toe) / energy generation (GWH).
- \* Thermal Eff. % =  $\{860 \times 1000 / (9800 \times \text{Av. Fuel Consumption})\} \times 100$ .
- \* Average load MW = total energy generation / total period hours.
- \* Load Factor % = average load / maximum load during the period  $\times 100$ .
- \* Capacity facto% = average load / actual capacity  $\times 100$ .
- \* Av. Factor % = (operation hours' + reserve hours') / period hours'  $\times 100$ .

## Hydroelectric Energy

Description		High Dam	Aswan 1	Aswan 2	Essna	Naga Hammady	Assiut	FY 2019/2020
Generated Energy	( GWh )	10509	1667	1834	412	403	213	15038
Peak Load	(MW)	2280	280	270	77.4	66.4	43.5	2899
Maximum daily generated energy	(GWh)	46.2	6.50	6.60	1.80	1.6	1.30	60.6
Minimum daily generated energy	(GWh)	12.2	2.40	2.40	0.3	0.50	0.02	21.5
Efficiency	(%)	86.1	85.6	90.3	80.1	87.2	90	—

## Development in Generated Hydroelectric Energy



## Fuel



- The operation policy of the existing thermal power plants is based on considering natural gas as the primary fuel due to its evident economic and environmental advantages.
- The use of natural gas at power plants (including private sector power plants connected to the gas grid) reached 95.9% in 2019/2020, representing 94.1% of the total fuel consumption.

### Fuel Consumption by Type \*

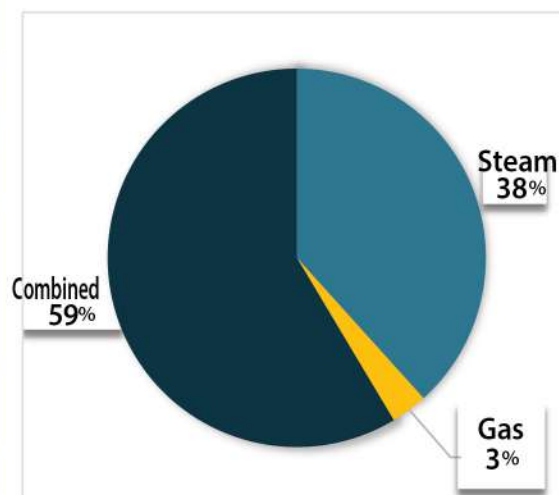
Item	H.F.O		N.G		L.F.O(Ordinary & Special)		Total K toe
	K tons	K toe	Million m <sup>3</sup>	K toe	K tons	K toe	
Total fuel 2018/2019	2457	2465	38327	32258	54.2	55.7	34778
Total Fuel 2019/2020	1858	1861	35927	30249	22.7	23.5	32133
Variation %	(24.4)	(24.5)	(6.3)	(6.3)	(58.1)	(57.8)	(7.6)

\* Ktoe = kilo tonne of oil equivalent

- Fuel consumed in the year 2019/2020 includes:
  - \* Fuel for commissioning tests, BOOT power plants and EEHC projects.
  - \* Consumed fuel in BOOT power plants amounts to 2860 million m<sup>3</sup> of natural gas with a total equivalent to about 2445 K toe.
  - \* Consumed fuel in EEHC power plants (Burullus, New capital, Beni-Suef) amounts to 7555 million m<sup>3</sup> of natural gas with a total equivalent to about 6305 K toe.
  - \* Excluding fuel consumed in isolated plants amounting to 26.2 K toe.

## Fuel Consumption by Generation Type (k toe)\*

Type		2018/2019	2019/2020	Variation %
Steam (Ktoe)	Subsidiaries	11087	9865	(11)
	Private Sec.	2469	2445	(1)
Gas (Ktoe)	Subsidiaries	1816	1002	(44.9)
Combined Cycle (Ktoe)	Subsidiaries	14278	12516	(12.3)
	EEHC Plants	5128	6305	23
Total Thermal		34778	32133	(7.6)

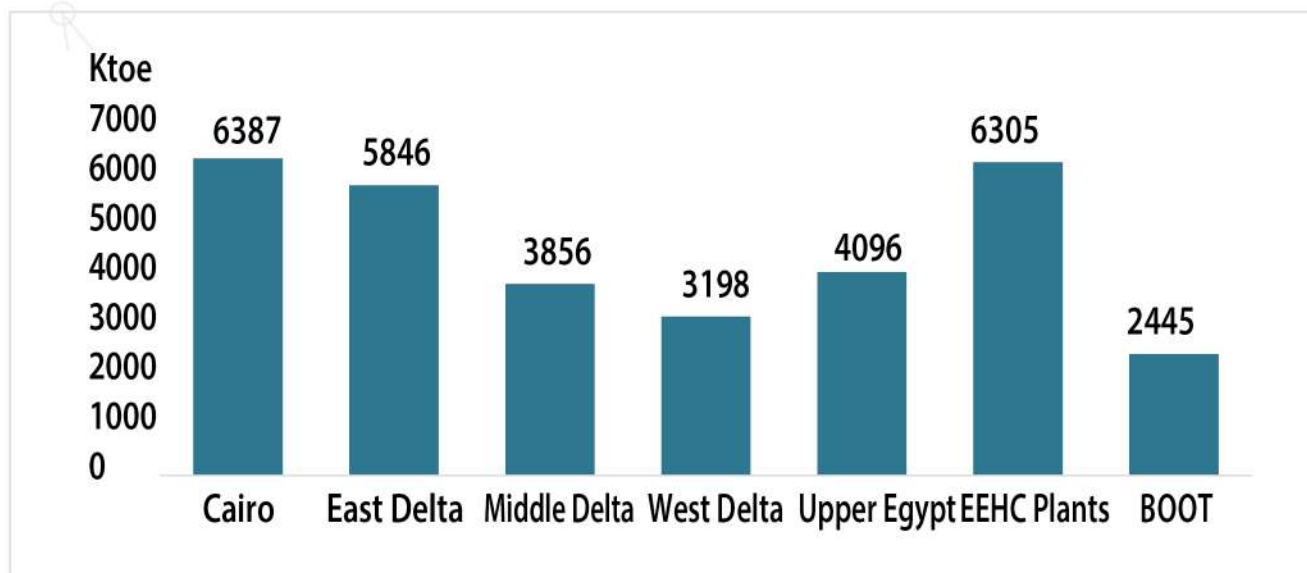


\* including fuel for Commissioning tests.

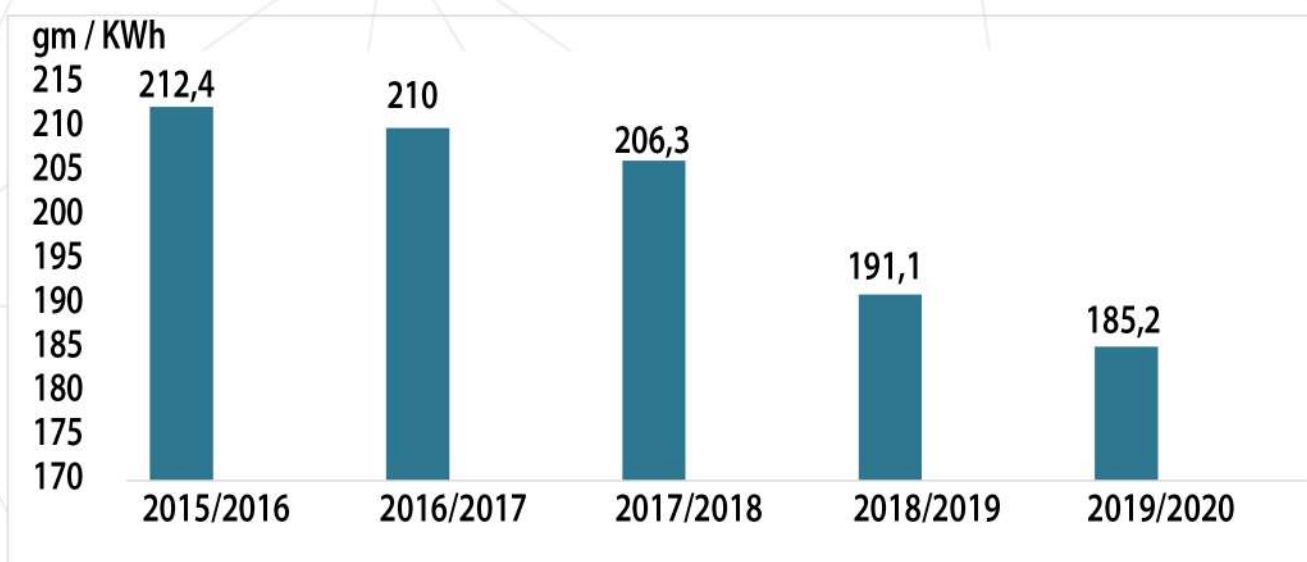
## Development in Total Fuel Consumption



## Fuel Consumption by Companies 2019/2020



## Development in Fuel Consumption Rate (Gen.)\*



\* Including private sector and EEHC power plants and commissioning tests.

## Development in Fuel Consumption by power plants (ktoe)\*

Co.	Station		2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
Cairo	Shoubra El-Kheima	(St)	1761.9	1667.6	1745.9	1444.7	1354.6
	Cairo West	(St)	1533	1462	1308.3	992.2	657.2
	Cairo South 1	(G)	613.3	649.6	444.9	358.8	253.8
	Cairo South II	(CC)	214.74	214.1	198.4	207.3	201.4
	Cairo North	(CC)	1368.5	1293.5	1298.7	1226.3	1227.2
	Wadi Hof	(G)	43.42	30.6	45.3	3.1	0.8
	Tibeen	(St)	1058	1063	867.8	948.7	775.6
	6 October	(G)	749.66	738.6	662.3	218.1	197.3
	6 October EXT	(CC)	-	-	-	622.9	570.7
	Giza North	(CC)	1583.79	2192.9	1867	1727	1146.3
	Heliopolis	(G)	12.1	3.4	1.5	1.3	0.4
	Cairo East	(G)	15	3.9	3.4	3.9	1.0
	Al-Basateen	(G)	14.1	4.2	2.5	3.5	0.2
	<b>Total</b>		<b>8967.5</b>	<b>9323.4</b>	<b>8446</b>	<b>7758</b>	<b>6387</b>
East Delta	Ataqa	(St)	331.5	508.7	447.6	10.9	10.4
	Abu Sultan	(St)	831.9	942.4	864.7	500.1	339.3
	Shabab Gas	(G)	117.1	120.9	53.9	35.1	24.1
	New Combined Shabab	(CC)	891.7	1031.7	1461.2	1538.7	1363.2
	Arish	(St)	137.1	136.1	136.3	106.3	107.9
	Oyoun Mousa	(St)	890.2	746.4	716.5	556.5	419.8
	New Damietta	(G)	516.2	484	348.5	294.1	114.4
	West Damietta	(G)	464.7	439.4	383.7	538.5	393.2
	Damietta	(CC)	1292.2	1418	1338	1177.3	836.8
	Sharm El-Sheikh	(G)	6.4	4.9	0.4	0.01	0.0
	Hurghada	(G)	89.4	124.5	66.6	87.9	58.5
	Suez	(St)	-	415.9	613.4	526.7	793.2
	Ein-Sokhna	(St)	1389.6	1304.1	1114.6	757.2	764.2
	Ataqa	(G)	491.9	351	88.6	112.6	160.2
	Port Said Ext	(CC)	4.3	1.6	21.6	6.01	3.6
	Hurghada Ext	(CC)	110.7	108	173.5	195.8	142.2
	West Damietta Ext.	(CC)	303.5	284	219.9	444.8	288.8
	Sharm El-Sheikh Ext.	(CC)	28	1.5	22	23.2	25.4
	El Masaeed	(G)	-	-	-	0.017	0.5
	<b>Total</b>		<b>7896.4</b>	<b>8423.1</b>	<b>8071</b>	<b>6912</b>	<b>5846</b>
Middle Delta	Talkha Combined	(CC)	448.78	439.1	322.72	177.1	71.3
	Talkha 210 Ext.	(St)	557.8	558.9	417.76	412	245.7
	Talkha 750	(CC)	808.57	708	833.168	742.5	855.7
	Nubareya	(CC)	2220.6	2236	2136.239	1932.6	1310.3
	Mahmoudeya	(CC)	468.44	437.3	299.12	106.6	21.1
	El-Atf	(CC)	845.99	835.3	850.82	858.4	882.1
	Bnha	(CC)	811.1	802.4	797	668.4	468.1
	New Mahmoudeya	(CC)	143.46	11.4	6.76	0.975	1.2
	<b>Total</b>	(CC)	<b>6304.7</b>	<b>6028.4</b>	<b>5663.6</b>	<b>4899</b>	<b>3856</b>

Co	Station		2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
West Delta	Kafr El-Dawar	(St)	723.6	562	508	67.4	0.3
	Damanhour Ext. <sup>300</sup>	(St)	257.34	380	419.6	424.8	443.1
	Damanhour	(St)	52.2	-	-	-	-
	Damanhour Combined	(CC)	202.9	198.2	173.8	44.1	0.0
	New Abu Qir	(St)	1762.36	1288.4	1071.4	950.5	957.3
	Abu Qir	(St)	1084.5	1146	1082.3	898.6	608.2
	El-Seiuf	(G)	36.6	3	0.156	-	-
	Karmouz	(G)	0.37	0.1	0.11	-	-
	Sidi Krir <sup>1,2</sup>	(St)	715.8	732.3	723.6	535	240.9
	Sidi Krir	(CC)	793.58	682	724.5	683.6	845.4
	Matrouh	(St)	113.97	102	102.2	98.3	103
	Total		5743.2	5094	4805.5	3702	3198
Upper Egypt	Walideya	(St)	956.2	609.5	462.2	673.9	602
	Kuriemat	(St)	1500.2	1358	1388.3	898.9	167.8
	Kuriemat 1	(CC)	829.39	685.5	837.2	759.1	528.6
	Kuriemat 2	(CC)	607.26	783	167.8	545.2	466.2
	South Helwan	(St)	-	-	-	284.8	1274.2
	Assiut	(St)	4.1	-	-	-	-
	West Assiut	(CC)	543.7	317	725.3	709.5	1039.3
	New Assiut	(G)	12.1	9.8	6.3	7.2	1.6
	Red Assiut	(G)	26.1	16.4	5.7	4.4	1.9
	Samalout	(G)	12.6	7.1	3.3	4.6	2.0
	West Malawy	(G)	11.5	6.7	7.3	2.5	0.6
	Gerga	(G)	10.1	6.6	10.7	13.6	4.5
	Bani Ghaleb	(G)	10.2	8.5	12.2	6.7	6.9
	Total		4523.5	3808.1	3626.3	3910	4096
EEHC Plants	Burullus	(CC)	-	338	1176	1389.9	2602.5
	Beni Suef	(CC)	-	796	2371	2424.4	2307.9
	New Capital	(CC)	-	167	776	1314	1394.9
	Total		-	1301	4323	5128	6305
Private Sector (BOOT)	Sidi krir 3, 4	(St)	914.19	868	863	878.4	857
	Suez Gulf	(St)	941.9	810	855	789.8	796
	Port Said East	(St)	896.46	831	682	800.5	792
	Total BOOT		2752.55	2509	2400	2469	2445
Grand Total			36189	36487	37335	34778	32133

(St) Steam

(G) Gas

(CC) Combined Cycle

\* Including commissioning tests.

\* In addition to 26.2 k toe of fuel consumed in unconnected plants.

## Isolated Power Plants and Reserve Units (2019/2020)

- In some electricity companies there are isolated power plants that are not connected to the Unified National Grid. These are mainly constructed to meet the requirements of remote areas of electricity needed for touristic projects and other purposes with a total installed capacity amounting to 209.3 MW in addition to 5 MW wind farm in Hurghada.



### Installed Capacity and Energy Generated from Isolated Plants and Reserve Units

Company	type	Installed Capacity (MW)		Energy Generated (GWh)		Energy Sent (GWh)	
		2018/2019	2019/2020	2018/2019	2019/2020	2018/2019	2019/2020
Canal D.C.	Diesel	108.6	122	56.4	51.53	55.7	50.74
	Solar	14	14	7.8	4.97	7.8	4.97
Beheira D.C.	Diesel	30.84	30.55	34.7	34.9	33.8	33.5
	Solar	10.2	10.15	10.2	11.2	10.2	11.2
Middle Egypt D.C.	Diesel	32.40	23.4	26.80	27.46	25.6	26.42
	Solar	6.0	6.24	6	6.34	6	6.3
Upper Egypt D.C.	Diesel	2.94	2.94	0	0	0	0
Total	Diesel	174.8	178.89	118	113.89	115.1	110.66
	Solar	30.2	3.29	24	22.51	24	22.47
	Diesel & Solar	205	209.28	142	136.4	139.1	133.13

\* The total consumed fuel amounted to 26.2 ktoe

## Power Plant Projects

### The 7th Five-Year Plan (2012-2017) as Amended

- The amended 7th five-year plan included the addition of 27'401 MW from thermal and hydro power plants, including the fast-track plan & EEHC plants (Burullus, New Capital and Beni-Suef), at an estimated investment cost of USD 17.2 billion.
- These projects are implemented by the Electricity Sector and funded with soft loans from Arab and international financing institutions, in addition to implementing part of the Plan through EPC + Finance system.
- In 2019 / 2020, the 3rd Steam Unit of Helwan South Power Plant with a capacity of 650 MW was commercially operated; thus, the majority of the Plan's thermal power plants were put to operation with a total capacity of 26'101 MW.
- It is scheduled to operate the last thermal power projects of the Plan (Cairo West and Assiut- Walideya Power Plants) with a total capacity of 1300 MW during the FY 2020/2021.

### The 8th Five-Year Plan (2017-2022)

- EEHC has conducted a study to identify the generation capacities required to be added in the 8th five-year plan (2017/2022) to accommodate the expected loads, in order to meet the needs of the various State sectors and provide reserve margin for scheduled maintenance operations and forced outage of any generation units, and also to address any unit problems due to ageing or poor fuel specifications.
- The study revealed that no additional thermal capacities are needed under the (2017-2022) plan.

### The 9th Five-Year Plan (2022-2027)

- Given the multiple scenarios of the growing loads and needs of energy, a methodology has been developed for future power plans corresponding to load scenarios as follows:
- Luxor 2360 MW Combined Cycle Power project to be executed by ACWA Power on BOO basis.
- Ataq Mount Pump & Storage 2400 MW Power Project under EPC + Finance system.
- The timing for executing these projects will be determined in view of the expected growth of loads which will be monitored on regular basis in light of the economic, social and development conditions associated with Covid-19 pandemic and beyond.

## Information about Production Companies

Company	Geographical Zone	Head Office	Capital (in Million EGP)	Capital to EEHC Investments Ratio	Address	Phone & Website
Cairo	Greater Cairo	Cairo	1020.420	4.3 %	22 Shanan St., Sabteya	02-25793054 02-25740550 <a href="http://www.cairoepcc.com">www.cairoepcc.com</a>
East Delta	Governorates of Damietta, Ismaileya, Port Said, Suez, South Sinai, North Sinai, and the Red Sea	Ismaileya Governorate	2811.165	11.9 %	Shebin El-koum St. next to RCC	064-3204590 064-3201492 <a href="http://www.edepco.com.eg">www.edepco.com.eg</a>
Middle Delta	Governorates of Sharqeya, Daqahleya, Qalyoubeya (to the borders of Greater Cairo), in addition to Mahmodeya City and Kom Hamada in Beheira Governorate	Daqahleya Governorate	1325.775	5.6 %	Compost road, Talkha	050-2524149 050-2524369 <a href="http://www.mdepc.gov.eg">www.mdepc.gov.eg</a>
West Delta	Governorates of Alexandria, Matrouh, and Beheira (excluding Mahmodeya City and kom Hamada)	Alexandria Governorate	751.805	3.2 %	7 Riyadh St, Gleem	03-5761375 03-5756722 <a href="http://www.wdpc-alex.com">www.wdpc-alex.com</a>
Upper Egypt	Governorates of Giza (except for the extension of Greater Cairo), Fayoum, Beni- Suef, El-Minya, Assiut, New Valley, Sohag, Qena, Aswan, and Luxor	Giza Governorate	2503.880	10.6%	Next to Giza Zoo	02-37610578 02-33357086 <a href="http://www.ueep.com">www.ueep.com</a>
Hydro Power Plants	Affiliated Hydro Plants All over the Country	Aswan Governorate	433.160	1.8 %	High Dam – West Aswan	097-3480412 097-3481974 <a href="http://www.hpgc.com.eg">www.hpgc.com.eg</a>



The background features a complex network of thin, light gray lines connecting various points, creating a web-like structure. Overlaid on this are several large, semi-transparent geometric shapes, including rectangles and parallelograms, in shades of gray and light blue. A dark blue rectangular frame is positioned in the center, enclosing the title text.

# Transmission of Electrical Energy

## Egyptian Electricity Transmission Company

- In light of the unified Electricity Law no. 87 of 2015, the Egyptian Electricity Transmission Company (EETC) has become an independent company. As a primary measure, the Prime Minister's decision no. 1959 of 2017 was issued in formation of the General Assembly of EETC and the activity of the Company has been included within the activities of the Holding Company, with incorporating the capital of EETC in the investments of the Holding Company until the separation process is completed.

Company Name	Geographical Zone	Head Office	Equity Capital (m. EGP)	Ratio of Capital to EEHC's Investments	Address	Phone & Website
Egyptian Electricity Transmission Company (EETC)	Electricity transmission networks on ultra-high & high voltages across the country	Cairo	8673.334	36.7 %	Ramses St. Extension, Abbasseya, Cairo	02/22618579 02/26843824 02/26835199 <a href="http://www.eetc.net.eg">www.eetc.net.eg</a>



## Objectives:

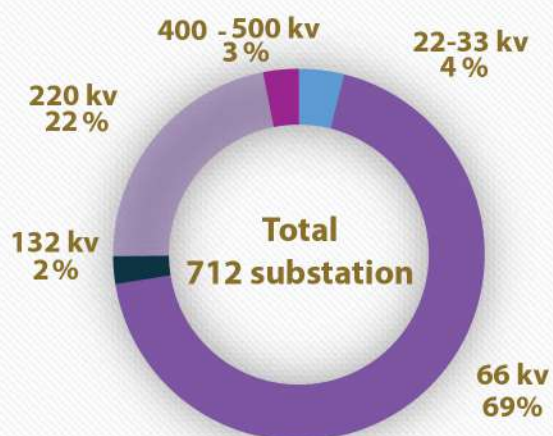
- Operating the electricity transmission system in a manner that achieves efficiency, stability, and reliability.
- Managing and maintaining the transmission network and implementing energy transmission projects on ultra-high & high voltages.
- Transmitting electricity through its networks for a charge proposed by the Company on economic bases and approved by EgyptERA (Regulator).
- Enabling connection to the transmission network for a charge proposed by the Company on economic bases and approved by Regulator.
- Allowing others, without discrimination, to use its networks for supplying electricity distributors and consumers with their needs of electricity in accordance with the transmission rules that include prices determined on the economic principles approved by Regulator.
- Providing the balance power required for safe and stable grid operation, thus ensuring equal opportunities and non-discrimination.
- Meeting the Regulated Market needs of electrical power by means of purchase from authorized producers, as well as purchase of transmission, distribution and selling services from the service licensees in favor of unqualified subscribers at prices proposed by the Company according to proper economic bases and approved by Regulator.
- Receiving the difference between the two tariffs stipulated in Article (41) of the Electricity Law and allocating it to the purpose set forth in the Executive Regulation.
- Supplying electricity to the qualified subscribers under temporary six-month term contracts, renewable for similar period(s) or part of it, with Regulator's approval at a tariff proposed by the Company and approved by Regulator.
- Announcing tenders for the construction of renewable energy power plants to investors, and purchasing the energy produced in these plants at competitive prices.
- Participating with the Ministry of Electricity & Renewable Energy and EEHC in studying expansions of electricity production and transmission to meet consumer needs.
- Organizing electricity buying and selling procedures in accordance with the Trade and Settlement Rules of the electricity market through the Market Operator.
- Implementing electrical interconnection projects approved by the Ministry and exchanging electricity with other countries in accordance with the agreements concluded in this regard, including partnership with other companies for this purpose.
- Organizing the sale, purchase and exchange of electrical energy on the interconnection network.
- Conducting studies, researches and development tasks in the field of its activity.
- Setting and amending the electricity transmission rules in coordination with the production and distribution companies and the qualified and unqualified subscribers in accordance with Article (32) of the Electricity Law and its Executive Regulation.
- Setting and amending the Trade and Settlement Rules in coordination with the production and distribution companies and the qualified and unqualified subscribers. These rules and their amendments shall only become effective upon approval of Regulator and after publication in the Egyptian Gazette in accordance with Article (33) of the Electricity Law and its Executive Regulation.
- Purchasing the electrical energy required for auxiliary services, and the Company may undertake the necessary measures in this regard with due consideration for equal opportunities and non-discrimination, and such procedures are undertaken in accordance with commercial principles declared to all parties of the electricity utility.

## Transmission Network Statistics (on 30/6/2020)

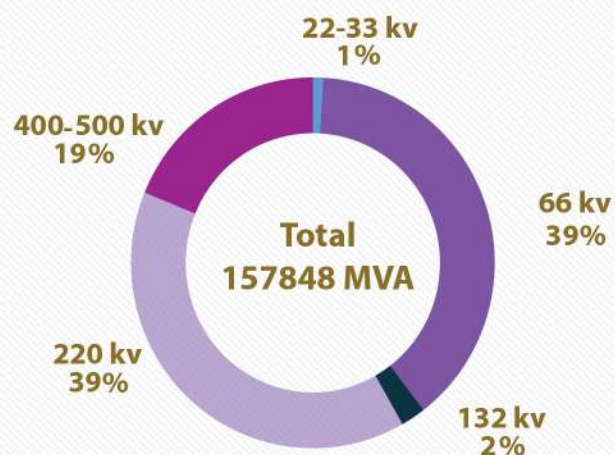
Description		2018/2019	2019/2020	Variation (%)
On Ultra High & High Voltages	Total Transformers' Capacity (MVA)	145840	157848	8.2
	Number of Substations	689	712	3.3
	Number of Transformers	2707	2778	2.6

Voltage (KV)	2018/2019			2019/2020		
	Capacity	Substations	Transformers	Capacity	Substation	Transformers
	MVA	(S.S.)	(Tr.)	MVA	(S.S.)	(Tr.)
22-33	1521	28	117	1436	28	107
66	58107	479	1973	61097	488	2018
132	3454	18	80	3437	17	78
220	57333	144	483	62203	157	512
400-500	25425	20	54	29675	22	63
Total	145840	689	2707	157848	712	2778

Percentage of Substations' Number  
on Different Voltages %



Percentage of Transformers' Capacity  
on Different Voltages %

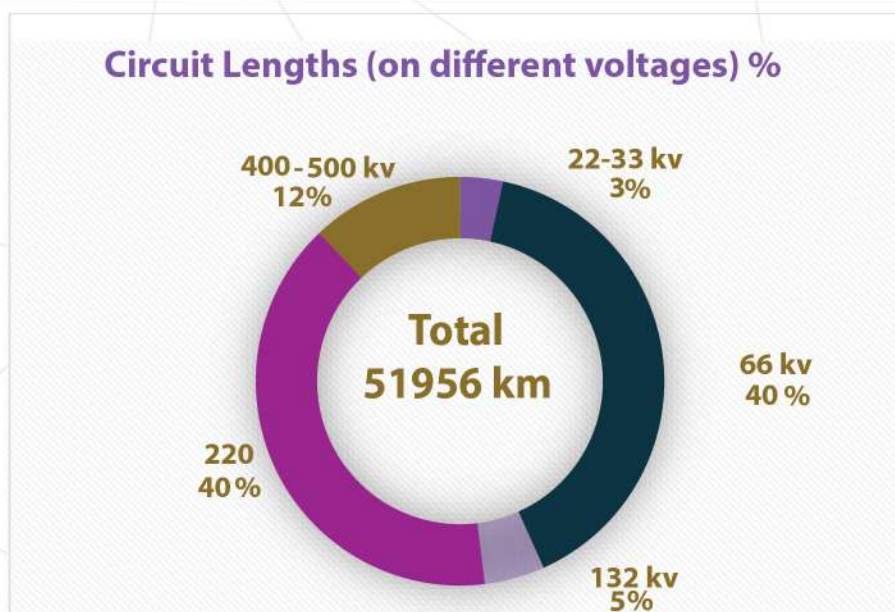


## Total Lengths of Circuits (Overhead Lines & Ground Cables) Km.

Description		2018/2019	2019/2020	Variation %
On Ultra-High & High Voltages	Total Lengths of Circuits (km.)	48832	51956	6.4%

Voltage (KV)	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
22	—	—	21	21	21
33	1870.7	1790.5	1790.4	1692.1	1746
66	19594.3	19879.1	20018.4	20466	20719
132	2485.1	2485.1	2485	2485.1	2485
220	17812.4	18180.4	18465	18589	20700
400-500	3141	3982	4110.2	5578.8	6285
Total (Km)	44903.5	46317.1	46890	48832	51956

Circuit Lengths (on different voltages) %



## Total Purchased and Sold Energy

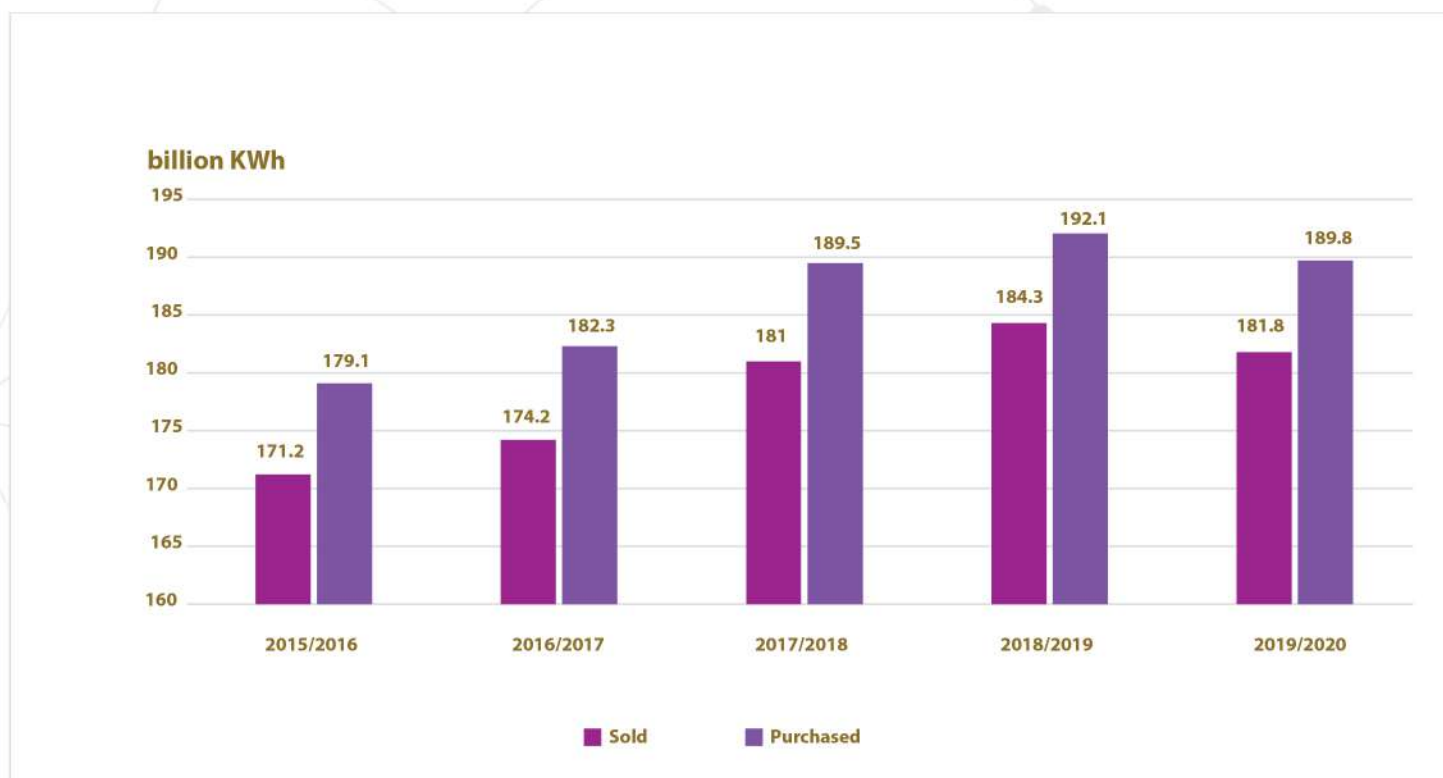
Description	2018/2019	2019/2020	Variation (%)
Purchased Energy	192.1	189.8	(1.2)%
Sold Energy	184.3	181.8	(1.4)%

\* Energy purchased includes tangible energy from DISCOMs :-

● Energy sold by EETC in 2019/2020 includes :

\* 155.7 TWh sold to affiliated DISCOMs .

\* 26.1 TWh sold to Customers, energy tangible exchange & Colonies to DISCOMs .



\* including sold energy to distribution Co. ,Customers ,energy tangible exchange & colonies to DISCOMs

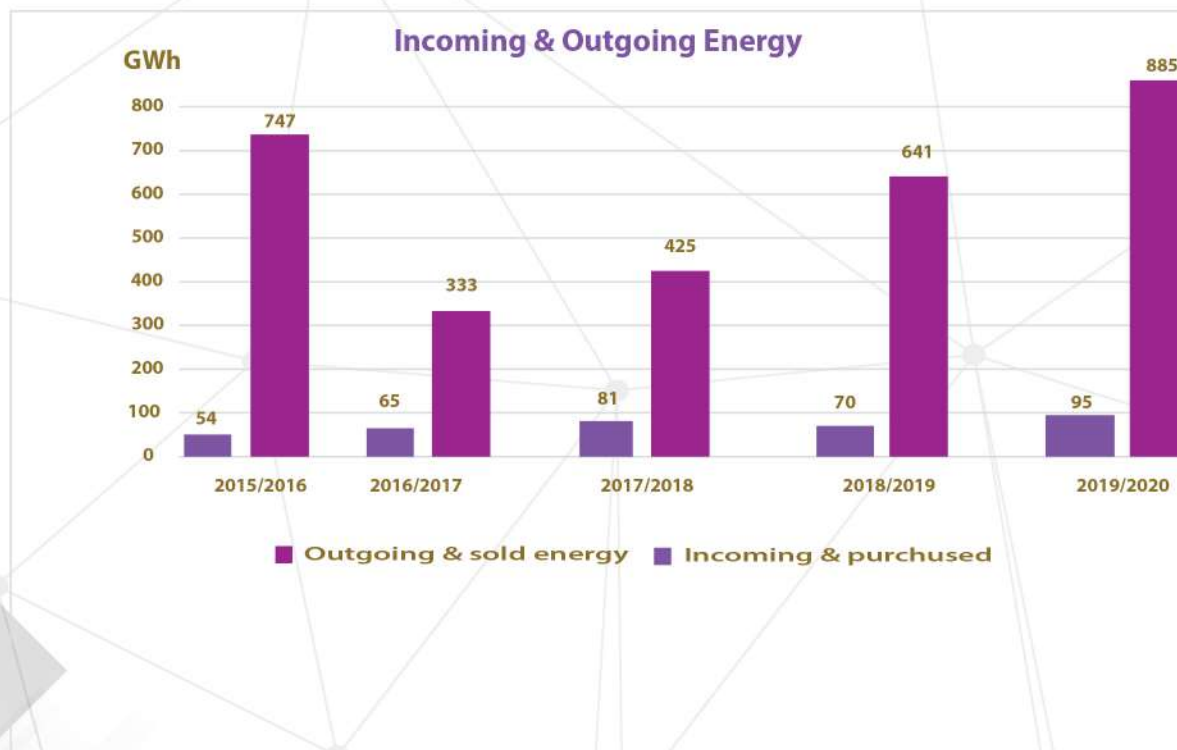
## Electricity Market and Electrical Interconnection “Egypt as Energy Hub”

- The Ministry of Electricity and Renewable Energy pays special attention to the electrical interconnection projects as first priority in implementing the Government strategy aimed to transform Egypt into a global energy hub for transmission of electricity between Egypt and all countries of the world.

### 1- Regional Interconnection with Neighboring Countries to Activate Electricity Markets at Regional Level

Description	Egypt/Libya	Egypt/Jordan			Egypt/Sudan
Interconnection date	May 1998	October 1998			March 2019
Connectivity voltage (KV)	220	400			220
Connected Countries	Libya	Jordan	Syria	Lebanon	Sudan
Outgoing & Sold Energy * (GWh)	482	278	-	-	125
Incoming & Purchased Energy * (GWh)	-	95	-	-	-

•Excluding energy tangible exchange.



## Current Electrical Interconnection Projects

The national unified grid has been developed and enhanced to support the existing regional interconnection projects with Jordan, Libya and Sudan, as well as interconnection projects to be implemented with Saudi Arabia, Cyprus and the Gulf Interconnection Authority, as follows:

### Egyptian / Sudanese Interconnection

- Since April 2020, the Sudanese network has been fed from the Egyptian grid within Phase I of the electrical feeding at a capacity of 80 MW, where the implementation of interconnection networks was completed in March 2019 with 100 km length at a voltage level of 220 KV to the Sudanese borders. A tender is being prepared for completion of Phase II of the project to increase the electrical feeding up to 240-300 MW.

### Egyptian / Saudi Interconnection

- The project aims to exchange a capacity of 3000 MW between Egypt and Saudi Arabia according to peak hours in the two countries. It is expected to sign contracts for the project by the end of the current year 2020 in preparation for starting the execution works of the interconnection line.

### Egyptian / Jordanian Interconnection

- A study is underway to increase the current exchanged capacity of the Egyptian / Jordanian interconnection line to 2000 MW instead of 450 MW, thus allowing the possibility of energy exchange between Egypt and each of Lebanon, Syria and Iraq via Jordan.

### Egyptian / Gulf Interconnection

- In November 2019 a memorandum of understanding and a non-disclosure agreement were signed between the GCC Interconnection Authority (GCCIA) on the one part and the National Electric Power Co. of Jordan (NEPCO) and EETC on the other part.
- The most appropriate technical and economic alternatives to implement this interconnection project are being considered, and the consultant CESI is currently preparing the required technical studies.

### Egyptian / Libyan Interconnection

- The construction of the 500 KV (double-circuit quad-conductor) Burj Al-Arab / Marsa Matrouh transmission line with a length of 255 km has already been completed and is currently operated at a voltage level of 220 KV, where it is used in supporting the Egyptian / Libyan interconnection and be later powered at a voltage level of 500 KV after the expansion of both Burj Al-Arab and Marsa Matrouh substations and the entry of Dhabaa nuclear substation.

### Egyptian / Cypriot / Greek Interconnection

- The project aims to make Egypt a gateway for electrical interconnection between Africa and Europe via Cyprus by means of exchanging a capacity of up to 2000 MW at a voltage level of 500 KV using HVDC transmission system in two stages of 1000 MW each.
- In May 2019 a framework agreement was signed for the Egyptian/Cypriot electrical interconnection between EETC and EuroAfrica of Cyprus which is concerned with the implementation of this project.
- Various scenarios are being considered by a consultant firm to choose the most suitable, technically and economically, to implement this interconnection.

## 2- International Interconnection to Participate in Global Electricity Markets

Egypt has formulated its approaches and goals in its Sustainable Development Strategy 2030, especially for the Egyptian electricity sector through the Sustainable Energy Strategy 2035 aiming, among its main targets, to make Egypt a pivotal energy hub, which had a major impact on EEHC's adoption of new policies based on energy trade at regional and international levels through electrical interconnection with neighboring countries.

### African Interconnection Axis and Electricity Market

- Work is currently ongoing through Egypt's active membership in the Eastern Africa Power Pool (EAPP) to create an electricity trade market for the Pool countries aiming to secure energy supplies, reduce the cost of energy production, increase energy exchange and trade among the member countries of EAPP, and improve the use of available resources of electrical energy through the investment in production, transmission and distribution sectors. This would facilitate the establishment of an integrated competitive free market for electricity trade among East African countries and from them to South African countries (SAPP) through the development of electricity trade between the two Power Pools (EAPP and SAPP), working with EAPP General Secretariat in a relevant workshops for electricity market activities through Coming period .

### Interconnection Axis and Electricity Market with Europe

- Aiming to foster its role as an energy hub for power trade in the Mediterranean, Egypt was very keen in joining many regional and international organizations such as the Association of Mediterranean Transmission System Operators (MED-TSO), the Union for the Mediterranean (UFM) and other international organizations.
- A memorandum of understanding between EEHC and Euro-Africa Interconnector of Cyprus has been signed to prepare a techno-economic feasibility study for the electrical interconnection project (Egypt-Cyprus-Greece), and a non-disclosure agreement has been concluded between the relevant parties.
- Consideration is underway for implementing the first phase of the Egyptian/Cypriot Interconnection project.

### Interconnection Axis and Electricity Market with China and the East

- The electricity sector seeks to turn Egypt into an energy hub, exploit the great opportunities for producing clean electricity from solar and wind energies, create attractive opportunities for investment in energy and take serious measures for the construction of the first facility for manufacturing solar plant and wind farm equipment. Therefore, a cooperation protocol has been signed between the Ministry of Electricity and the Global Energy Interconnection Development and Cooperation Organization (GEIDCO), headquartered in China, in the fields of training, smart meters, and technical support. EEHC also participates in the meetings, conferences, and workshops organized by GEIDCO at African and global levels in the fields of international interconnection, electricity markets, renewable energy and energy efficiency. EEHC has been admitted to the GEIDCO membership.

### 3- Establishing an Arab Electricity Common Market

- Work has been initiated for adapting the legislative and regulatory frameworks to expand trade exchanges and allow for trading and exchanging electricity at the level of the member states' markets through securing supplies and sustaining operation and trade in a stable and reliable manner.
- A study of the pan-Arab interconnection and the formation of the steering committee (chaired by Egypt) was prepared by the Arab Ministerial Council for Electricity with the assistance of the World Bank and the Arab Fund for Economic and Social Development.
- The establishment of the Arab Electricity Common Market required a set of legal and legislative frameworks to prepare governance documents, where a memorandum of understanding was signed by 16 Arab countries and entered into force in April 2017 and the World Bank participated in preparing the relevant agreements (General Agreement & Market Agreement) which have already been reviewed and are currently circulated to member states for approval and signing.
- The rules for operating Arab networks for interconnection between Arab countries are being developed.
- The formulation of the Arab Common Market required the establishment of a group of regional institutions, such as the Arab Committee for Electricity Transmission System Operators being the body entrusted with coordination and cooperation between the operators of national transmission systems, the operators of sub-regional transmission systems and the regional market mediators, while the Arab Advisory and Regulatory Committee is concerned with the review and advice on Market governance documents, their amendments and ensuring compliance therewith.
- A proposal had been prepared to envision Egypt hosting the Coordination Center for the Arab Common Market and was circulated to all Arab countries.

### 4- Egyptian Electricity Market

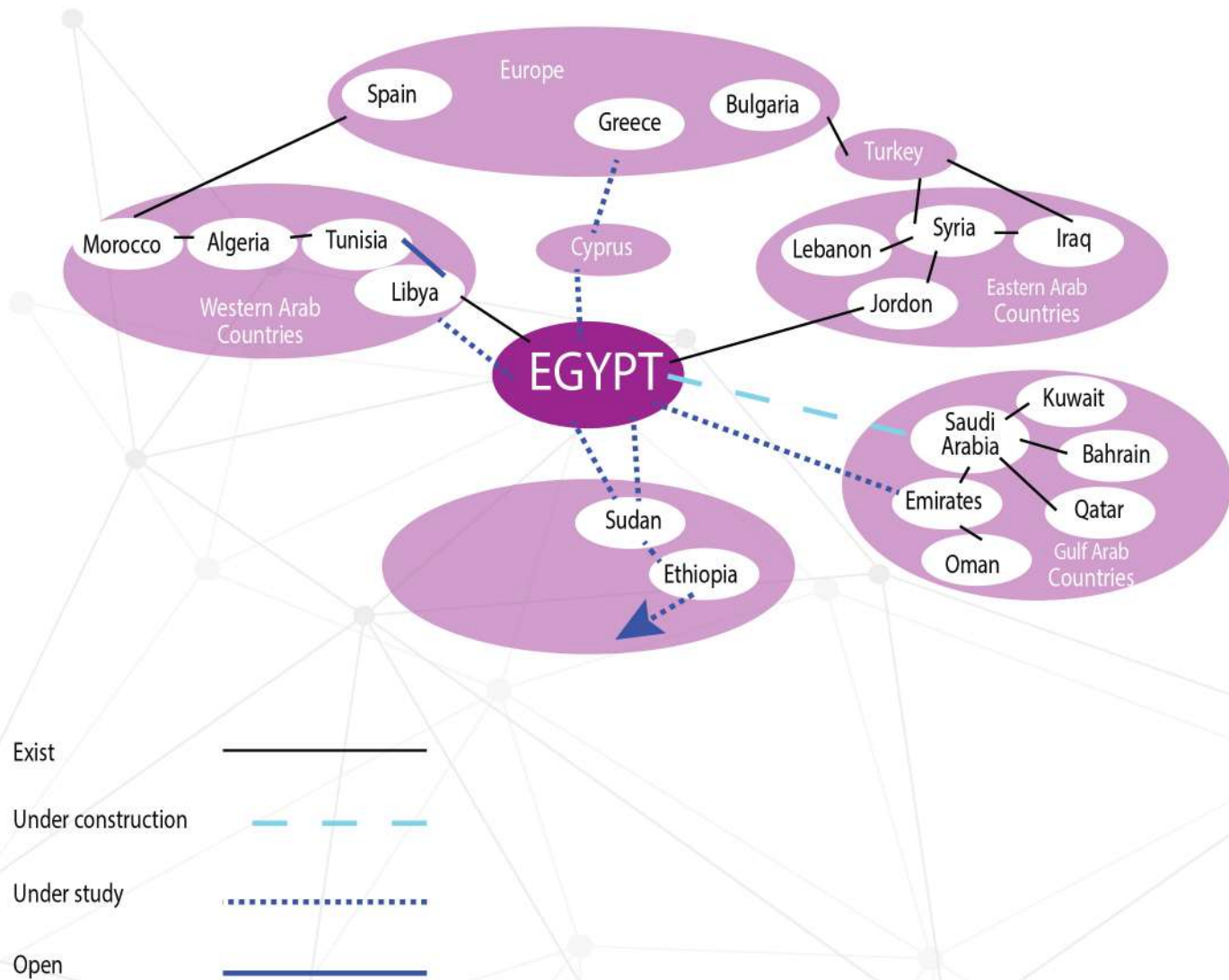
#### Legislative Environment of Electricity Sector

- Given that reforms of the Egyptian electricity sector are proceeding based on several defined policies and integrated plans and programs such as the Sustainable Development Strategy 2030 and regulatory laws and legislations, the new Electricity Law has been issued by virtue of the Presidential Decree no. 87 of 2015, followed by the Executive Regulation issued by the Decision of the Minister of Electricity no. 230 of 2016. This was meant to support the structural transformation system in the Egyptian electricity market by way of operating the electricity system according to economic and environmental standards that guarantee equal opportunities while maintaining the interests of electricity producers and consumers.

#### EEHC Internal Business Environment

- EEHC has taken effective steps in this regard by participating in a study for restructuring EETC so that the gradual transformation of the electricity market in Egypt would be a competitive market for qualified subscribers and another regulated one for unqualified subscribers. In addition, EEHC, in cooperation with an international Japanese consulting firm, started an action plan aimed at reconciling the conditions of the Holding Company in line with the requirements of the gradual opening of the Egyptian electricity market, and work has already begun to implement reform steps on two pilot models in both production and distribution companies.
- Considering the global changes that prevented the completion of the project schedule on timely manner due to COVID-19 pandemic, the advisory services have been extended for a subsequent period.

## 5- Egypt: A Pivotal Hub for Energy Trading



## New & Renewable Energy Projects

- The Ministry of Electricity & Renewable Energy aims to maximize utilizing renewable energy in Egypt to reach about 20% of the total peak load by 2022, and up to 42% of the total generated energy by 2035, by adopting policies that encourage private sector investments in electricity production projects from renewable energies (wind and solar) through EETC.

In this context, the following projects were implemented in the financial year 2019/2020:

### I: Solar Energy Projects:

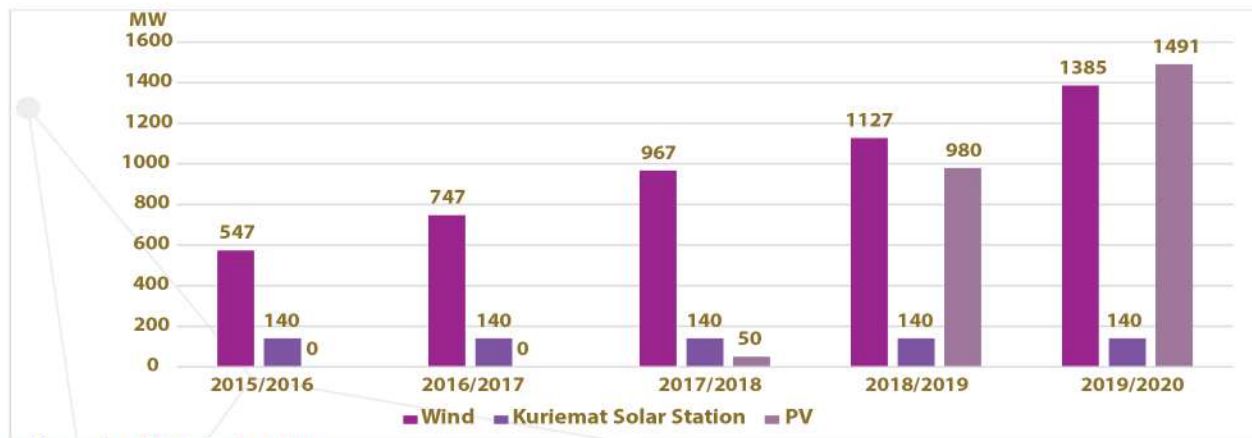
- The Commercial operation of (32) solar cell electricity production projects in Benban, Aswan governorate, has already been completed with a total capacity of 1465 MW.
- The kom ombo solar (PV) was put to commercial operation in April 2020.
- Two contracts have initially been signed for the implementation of two photovoltaic power plants in Kom Ombo, Aswan Governorate under BOO system with:
  - ACWA Power of Saudi Arabia with a capacity of 200 MW (targeted commercial operation in 2021), and
  - Al-Nowais Group of the United Arab Emirates with a capacity of 200 MW.

### II: Wind Energy Projects:

- In October 2019 the first wind power plant executed by the private sector was commercially operated with a capacity of 250 MW through the Consortium (Toyota-Orascom-Engie).
- A contract has been signed for the implementation of a 250 MW wind farm in the Gulf of Suez on BOO basis with Lekela Power of U.K. (the commercial operation is targeted by the end of 2021).
- A contract has been initially signed for the execution of a 250 MW wind farm in the Gulf of Suez on BOO basis with the Al-Nowais Group (commercial operation is expected in 2023).



## Installed Capacity of Renewable Energies



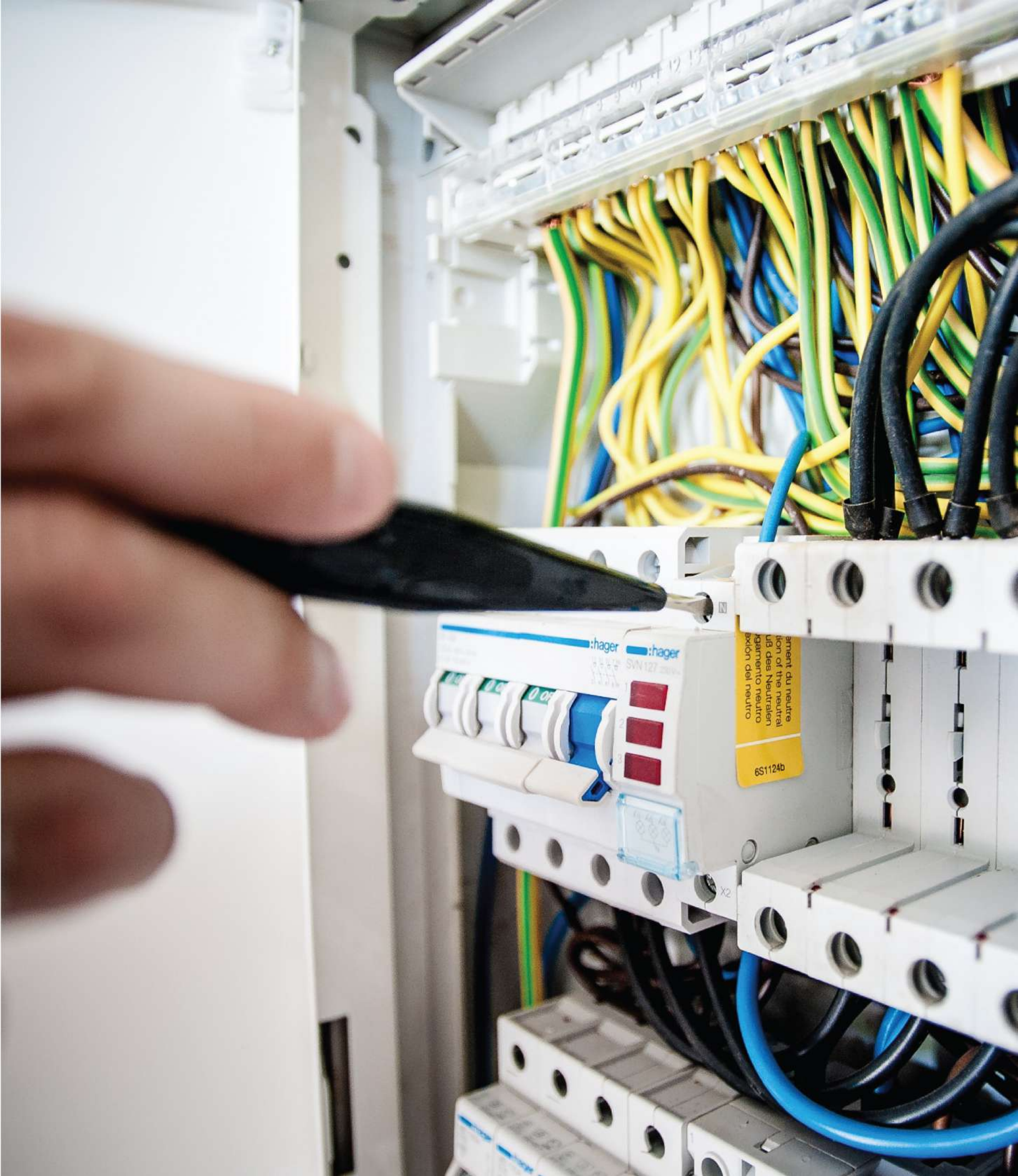
\*Excluding Hurgada 5MW wind station

- The first solar/thermal power plant for electricity production in Kuriemat was commercially operated in 2011 with 140 MW capacity, of which 20 MW is a solar component.
- During the year 2019/2020, the commercial operation started for:
  - \* The 485 MW solar energy (PV), private sector, in Benban, Aswan Governorate, within the completion of the commercial operation of (32) solar cell energy production projects in Benban region with a total capacity of 1465 MW
  - \* Ras Ghareb (Shoquir) wind farm, private sector, with a total capacity of 262.5 MW in October 2019.
  - \* Kom Ombo PV solar power plant with a total capacity of 26 MW in April 2020.

## Energy Generated from Renewables



- The generated energy from renewables mainly depends on wind speed & solar irradiance.
- in June 30,2020 The total energy generated from wind energy amounted to 4233 GWh, and from PV power stations 3960 MW, and from Kuriemat solar plant 470 MW.



# Distribution of Electrical Energy

**The electricity distribution companies are:**

- 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
- Beheira Electricity Distribution Company
- Middle Egypt Electricity Distribution Company
- Upper Egypt Electricity Distribution Company

## Objectives:

- Distributing and selling electrical power to subscribers on medium and low voltages which is purchased from Egyptian Electricity Transmission Company (EETC) and from electricity production companies on medium voltage, as well as energy purchased from industrial enterprises in case of exceeding their needs, subject to approval of EEHC Board of Directors.
- Managing, operating and maintaining the medium and low voltage networks of the Company according to instructions of control centers and in consistency with the economical operation requirements.
- Preparing forecast studies on loads and energy for the Company's subscribers and also economic and financial forecast for the Company itself.
- Conducting studies, researches and designs, and implementing power projects for supply of electrical power for different purposes on medium & low voltages and carrying out all associated and complementary works.
- Managing, operating and maintaining isolated generation units which are not connected to the unified grid.
- Carrying out any other works or activities related to or complementing the Company's objective in addition to any other work that may be entrusted to the Company by EEHC within its competence.
- Carrying out other works entrusted to the Company by other parties within its scope of activity that achieve an economic benefit for the Company.



## Electricity Distribution Network Statistics (30.6.2020)

Description	Co.	North Cairo	South Cairo	Alex.	Canal	North Delta	South Delta	Beheira	Middle Egypt	Upper Egypt	Total
No. of Customers(Thousand)		4700	6067	2810	4450	4444	4880	2483	3922	3363	37120
Sold Energy*	GWh	16215	20711	8320	22877	11045	10529	9834	13867	9045	122443
Purchased Energy	GWh	20919	28307	9983	25665	14474	13255	12491	18262	13759	157116
No. of Switchboards		452	470	263	1359	244	235	310	190	181	3704
Percentage (%)		12.2	12.7	7.1	36.7	6.6	6.3	8.3	5.1	4.9	100
Length of MV Network (km)	Lines	161	3321	566	15721	9973	7702	15998	19954	11589	84985
	Cables	25280	28068	12463	23151	8061	7301	8322	9860	10189	132695
	Total	25441	31389	13029	38872	18034	15003	24320	29814	21778	217680
Length of LV Network (km)	Lines	3490	4813	4266	33328	23417	18816	21385	37728	36737	183980
	Cables	39088	60677	6593	16720	3288	1073	3267	3741	3758	138205
	Total	42578	65490	10859	50048	26705	19889	24652	41469	40495	322185
Total Length of MV&LV Lines and Cables (Km)		68019	96879	23888	88920	44739	34892	48972	71283	62273	539865
Percentage (%)		12.6	17.9	4.4	16.5	8.3	6.5	9.1	13.2	11.5	100
No. of Customers(Th)/ Total Length (Km)		0.069	0.063	0.118	0.050	0.099	0.140	0.051	0.055	0.054	0.069
Sold Energy (GWh) /Total Length (Km)		0.24	0.21	0.35	0.26	0.25	0.30	0.20	0.20	0.15	0.23
No. of Distribution Transformers		18757	23548	9029	36195	18523	18494	27741	27541	24005	203833
Sold Energy (GWh)/ No. of Transformers		0.87	0.88	0.93	0.63	0.60	0.57	0.36	0.51	0.38	0.60
Capacity of Distribution Transformers (MVA)		16174	18980	6228	15064	6062	6365	7086	7375	6829	90163
Percentage (%)		9.2	11.6	4.4	17.8	9.1	9.1	13.6	13.5	11.8	100
Number of LV Pillars and Panels		64621	72242	9029	51637	20788	18601	30614	14284	14360	296176
Percentage (%)		21.8	24.4	3	17.4	7	6.3	10.3	4.8	4.8	100

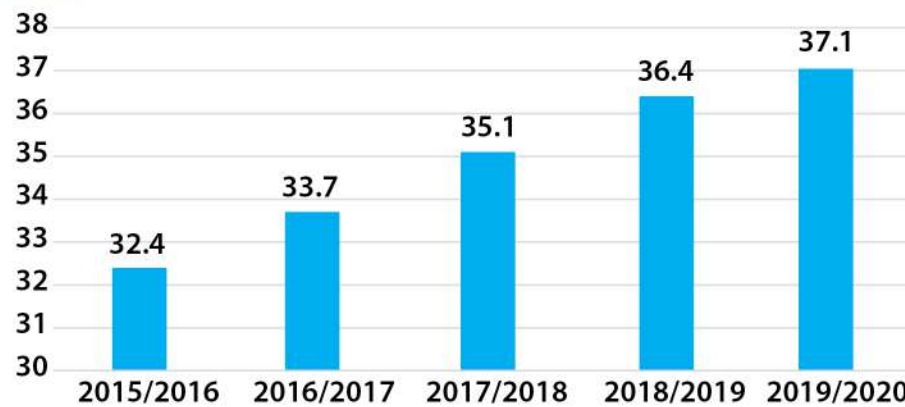
\* Sold energy does not include energy sold to DISCOMs.

## Statistics of Distribution Companies (on medium & low voltages)

### 1-Number of Subscribers:

Description	2018/2019	2019/2020	Variation Rate (%)
Total number of subscribers on medium and low voltages (million subscribers)	36.4	37.1	1.9

million



### 2-Purchased & Sold Energy in DISCOMs:

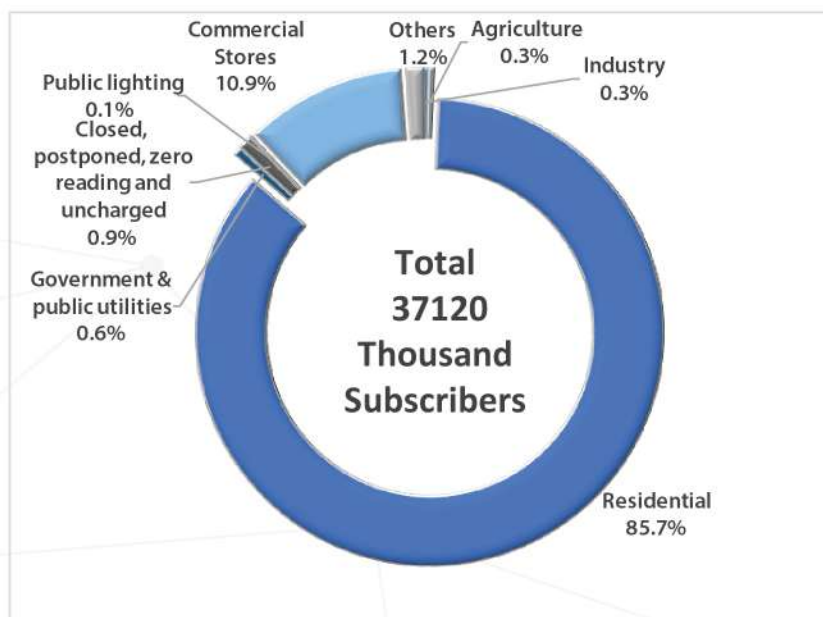
Description	2018/2019	2019/2020	Variation Rate (%)
Total Purchased Energy (GWh)	158214	157116	(0.7)
Total Sold Energy (GWh)	124371	122443	(1.6)

GWh



### 3- Number of Subscribers (on medium & low voltages) According to Purpose on 30.6.2020

Purpose of Usage	No. of Subscribers (Thousand)
Industry	118
Agriculture	111
Government & public utilities	210
Residential	31812
Commercial Stores	4065
Closed, postponed, zero reading and uncharged*	334
Public lighting	41
Others**	429
Total	37120



\* Closed, postponed, zero reading and uncharged on medium and low voltages except household and commercial stores.

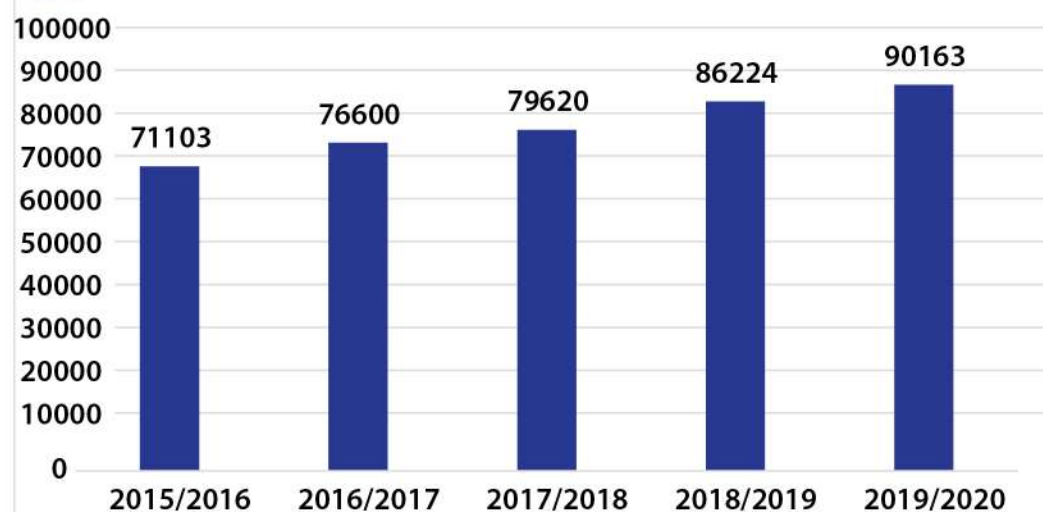
\*\* Others: power theft, youth centers, East Al-Owainat project, ...



#### 4- Total Distribution Transformers' Capacities

Description	2018/2019	2019/2020	Variation Rate (%)
Total distribution transformers' capacities on medium & low voltages (MVA)	86224	90163	4.6

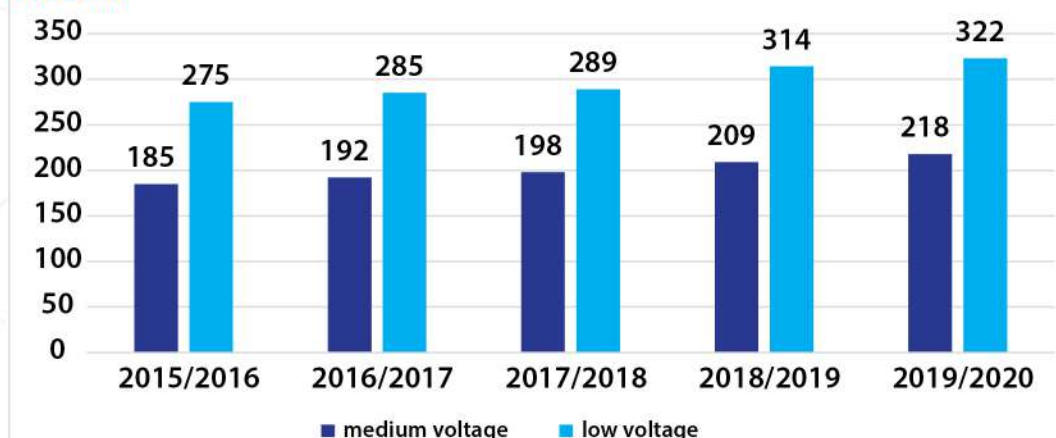
MVA



#### 5. Total Lengths of Medium & Low Voltage Lines and Cables

Description	2018/2019	2019/2020	Variation Rate (%)
Total lengths of medium voltage lines & cables (1000 km)	209	218	4.3
Total lengths of low voltage lines & cables (1000 km)	314	322	2.5

1000 km



## Smart Services

- EEHC strives hard to provide distinguished and high-quality service to citizens through constant development in all sectors of the Company using multiple channels such as the service centers, the hotline, the unified platform for smart electricity services, and the electronic application, as shown below in some details:

### Smart Services

- As from 1 July 2020, the unified platform was launched to provide electronic services, and it started with rendering the service of converting practices into coded meters.
- Up to the date of this Report, the total number of requests submitted on the platform for installing coded meters amounted to around one million requests, representing about 2.3 million housing units.
- The necessary arrangements are underway to make the rest of the electricity sector's services available through the platform.
- Through the unified platform, technical reports and commercial complaints are received, and measures have been taken to linking and integration between the platform and the unified-number service (121) for receiving reports and complaints.



### The Unified Number (121) System to Receive Complaints and Reports

- Since the date of contracting to the end of the financial year 2020, the number of incoming calls amounted to about 10 million calls and the average response rate for technical reporting reached 99.9% and for commercial reporting 99.8%.



## Wassel Application Service for People with Hearing Impairment and Speech Disorders

- In July 2020 a cooperation agreement was signed between the Ministry of Electricity & Renewable Energy (MoERE) and the Ministry of Communication and Information Technology to provide MoERE's services to people with disabilities aimed to make available EEHC's Portal through digital applications and technological tools to provide services and respond to queries and complaints in sign language for the benefit of people with hearing impairment and speech difficulties through "Wassel" application, and referring such complaints to the respective DISCOM to work on resolving them without delay.



## Mobile Application for Providing Smart Services

- In April 2020 the project was successfully launched through multiple applications for charging prepaid meter cards online by mobile with NFC technology; (Sahl, Electricity Khales and myFawry).
- The number of subscribers to this service reached about 21'000 subscribers.



## Smart Meters

- In May 2017, a contract was signed for the supply, installation, operation and maintenance of the advanced infrastructure measuring systems for a number of 250'000 smart meters as pilot project within the geographical range of six DISCOMs (namely, North Cairo, South Cairo, Alexandria, Canal, South Delta and Middle Egypt).
- About 200,000 smart meters has already been installed and the operation of the system is currently being conducted from the main Data Center and data centers of DISCOMs. Actual bills are already issued in some companies, and the project is scheduled to be completed by the end of 2020.



## Infrastructure Security

- In March 2016 a cooperation protocol was signed between EEHC and National Defense Council for the development of information systems and data security in the fields of smart meters and their applications in DISCOMs.
- On 30.7.2019 the 1st phase of the Infrastructure Security Project was completed, which included monitoring and analyzing the activities on networks, servers, computers and data bases, and detecting any activity that indicates a security breach of DISCOMs.
- In addition, the Cyber Security Operations Center (SOC) has already been implemented and operated to monitor and analyze data of DISCOMs through specialized software.

## PrePaid - Meters

- The use of this type of meters has been expanded since 2011 and was generalized in 2014, with about 9.9 million meters installed up to 31.8.2020. Using prepaid meters aims to:
  - \* Achieve financial liquidity for electricity companies resulting from prepayment of charging value.
  - \* Avoid problems with some consumers such as estimating the amount of consumption and the high value of some bills, as well as to ensure security to subscribers where no need for any person to enter a subscriber's home.
- During the year 2019/2020, nearly 1.2 million meters were installed, and it is targeted to complete installing 3 million meters by the end of 2020/2021.

## Digital Transformation

- The Electricity sector, represented in EEHC and Canal DISCOM, in collaboration with the Administrative Control Authority and the Ministry of Communication implemented a pilot project for unification of data bases of subscribers and linking them spatially with Port-Saeed Governorate and the State's data bases. Suez subscribers have also been linked and subscribers of Ismailiyah, South Sinai and Luxor are currently being linked to the system.
- The application is being prepared for linking the governorates of Aswan, Sohag, Qena, Assiut, Menia, Beni-Suif, Fayoum and Cairo; and the project is being rolled out to include the rest of governorates of the republic in coordination with the affiliated DISCOMs where it is expected to fully complete the project by 29 April 2021.

## Establishment and Development of Distribution Controls

- The Ministry of Electricity, represented in EEHC, is carrying out a development process of the DISCOMs' networks to improve the quality of electric feeding by means of establishing and developing a number of control centers with the aim to achieve the following benefits:
  - \* Operate the equipment and devices in an optimal manner.
  - \* Reduce the costs of operation and maintenance of distribution networks.
  - \* Reduce the loss rate.
  - \* Increase networks reliability and the quality of electric feeding.
- It is planned to implement (15) control centers in a period of (30) months in North Cairo, South Cairo, Alexandria, Canal, Middle Egypt and South Delta DISCOMs using the latest technology in control, monitoring and communication systems for the monitoring and control of distributors and transformers in a safe manner.
- In July 2020 a contract was signed with Schneider Electric through the Egyptian Armament Authority for the implementation of (4) control centers in North Cairo & South Cairo DISCOMs; and in October 2020 General Electric also signed a contract for the implementation of East Alexandria Control Center.
- Contracting procedures for the remaining (10) control centers is targeted to be finalized with Schneider Electric in the beginning of 2021 and completion is planned during the financial year 2023/2024.

## Improving Energy Efficiency in Distribution Networks

- On 29.2.2016 a loan agreement was signed with the Japanese International Cooperation Agency (JICA) in an amount of J¥ 24.7 billion for financing the construction of an integrated smart network in three DISCOMs aiming to reduce the loss of electric energy, lower thermal emissions and the rate of CO2 in the air, and increase performance efficiency of electrical networks, with an implementation period of about (30) months/each package in addition to two - year warranty period.

## Meter Security System

- In October 2020 a trial of electric meters supplied by a manufacturing company was conducted in South Cairo DISCOM.
- The security system is targeted to be completed by the end of 2021.

## Encouraging Deployment of Renewable Energy (Solar up to 20 MW) Across DISCOMs

- The total number of solar power plants connected to the unified grid and isolated ones reached (840) plants with a total capacity of 88.4 MW until 31.9.2020, where the following solar facilities were implemented:
  - \* A number of (149) solar stations on top of EEHC and DISCOMs' buildings with a total capacity of 9.02 MW.
  - \* A number of (67) solar stations with a total capacity of 15.6 MW on Feed-in-Tariff basis.
  - \* A number of (616) solar stations with a total capacity of 33.8 MW on Net-Metering basis.
  - \* A number of (8) solar stations with a total capacity of 30 MW in isolated areas from the unified network.

## Development of Squatter Settlements:

- In accordance with the directives of the President of the Republic to eliminate squatter settlements, a Cooperation Protocol was signed on 23.11.2016 between the Informal Settlements Development Fund (ISDF) and MoERE for the development of unsafe squatter areas located within the precinct of electricity lines, and funded by the public treasury.
- Starting since October 2017, the Project implementation proceeded according to funds approved annually by the Ministry of Finance. The executed works during the completed three phases of the Project amounted to a total cable length of about 1530 km. in addition to the equipment for connecting these cables, in a total cost of EGP 1580 million.
- On 1.11.2020, the targeted operations of Phase 4 of the Project for the year 2020/2021 were started by DISCOMs in collaboration with the governorates and local units as shown below:

Phase	Year	Lengths	Investments
1	2017/2018	1300 km	EGP 1300 million
2	2018/2019		
3	2019/2020	230 km	EGP 280 million
4	Targeted 2020/2021	180 km	EGP 200 million

for more information please visit our website:

[http:// www.eehc.gov.eg](http://www.eehc.gov.eg)

## Information about Distribution Companies

DISCOM	Geographical Zone	Headquarter	Equity Capital (million EGP)	Investments percentage with EEHC	Address	Phone & Website
<b>North Cairo</b>	North & East Cairo Districts, New Cairo, El-Salam and El-Obour Cities in Cairo Governorate; Khanka, Shoubra El-kheima. El-Qanater & Bahteem in Qalyoubeya Governorate;	Cairo Governorate	796.835	3.4 %	2 El-Nasr Road, Next to Nasr City Police Station I, Cairo	02/22725095 02/22724409 www.ncedc.gov.eg
<b>South Cairo</b>	West & South Cairo Districts in Cairo Governorate; and all districts of Giza Governorate	Cairo Governorate	470.257	2 %	53, 26 <sup>th</sup> July St., Cairo	02/25766400 02/25760686 www.scedc.com.eg
<b>Alexandria</b>	From Abu-Qir westwards to K. 66 west of Alex/Matrouh Road	Alexandria Governorate	377.008	1.6 %	9, Sedi El-Metwally St., Attareen, Alex.	03/3911967 03/4948107 www.aedc.gov.eg
<b>Canal</b>	Ismailiya, Port Said, Suez, Sharqeya, North Sinai, South Sinai & Red Sea Governorates & new cities within the Company's geo. zone	Ismailiya Governorate	1455.419	6.2 %	Osman Ahmed Osman Square, Sheikh Zayed, Ismailiya	064/3209600 064/3208240 www.cced.gov.eg
<b>North Delta</b>	Daqahleya, Damietta & Kafr El-Sheikh Governorates	Daqahleya Governorate	486.694	2.1 %	Gomhoreya St., Opposite Governorate Building, Daqahleya	050/2304186 050/2304178 www.ndedco.org
<b>South Delta</b>	Qalyoubeya (Except Greater Cairo extension); Menoufeya (Except Sadat City and its affiliated villages & El-Khatatba Center) & Gharbeya Governorates	Gharbeya Governorate	457.214	2 %	Kafr El-Sheikh Road, Tanta, Gharbeya	040/3455516 040/3455519 www.sdcdc.net
<b>Beheira</b>	Beheira & Matrouh Governorates and beyond K. 66 Alex/Matrouh Road; Sadat City and its affiliated villages & Khatatba Center in Menoufeya Governorate	Beheira Governorate	397.759	1.7%	Gomhoreya St. Damnhour, Beheira	045/3330788 045/3221424 www.bedc.gov.eg
<b>Middle Egypt</b>	Beni-Suif, Fayoum, Minia, Assiut & New Valley Governorates	Minia Governorate	1018.217	4.3 %	78, Horreya St. Minia	086/2346733 086/2353527 www.meedco.gov.eg
<b>Upper Egypt</b>	Sohag, Qena, Aswan and Luxor Governorates	Aswan Governorate	484.547	2 %	High Dam, West Aswan	097/3480416 097/3480317 www.ueedc.com



### Marketing Overview

It is a process to allow an organization to achieve its business goals and objectives by creating a competitive advantage. It involves the identification of a company's market and the development of a marketing strategy to reach its target audience.

A marketing strategy helps convey effective messages and increase your sales volume and marketing as follows:

Product Categories	Profit per Year		
	2013	2014	2015
General tools	+870.82	-13.9	+870.82
Health & Medical	-12.9	+82.94	+129.74
Art Supply	+82.94	+820.82	+82.94
Kids & Baby	+819.02	+7207.75	+659.02
Kitchen wear	-226.00	-226.00	+7207.75
Fashion	-761.75	+910.00	-13.9
Furniture	+229.74	-208.75	-229.00

### Growth Percentage

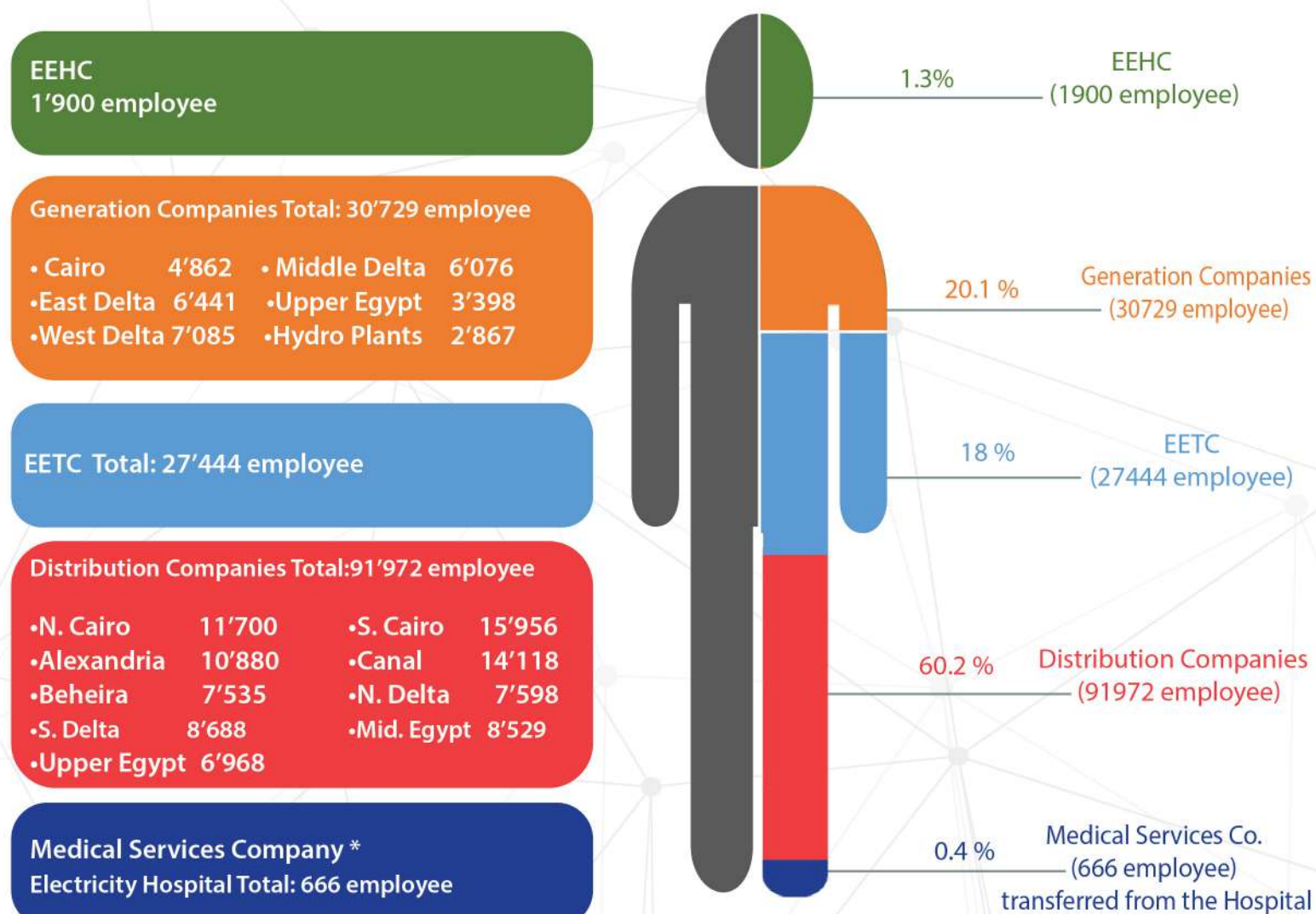


## Human Resources and Training

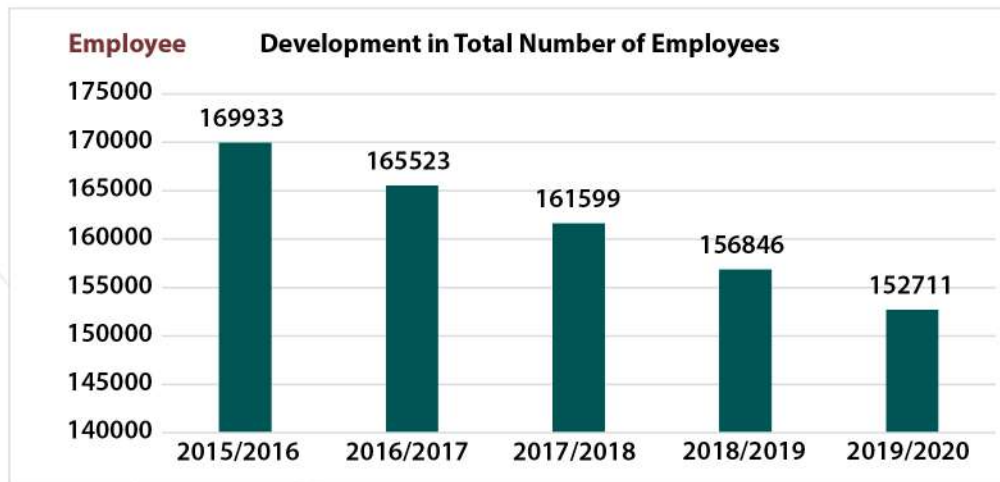
- **Out of its strong belief in the change the human asset can make, being the most important element of the production process, the Company's Administration continues its diligent effort to afford continuous development of the capabilities of human resources and raising their capacity to deal with technology advancement and innovations, more particularly in light of the unified electricity law and encouraging the private sector to invest in energy projects, which creates hard competition driving us to change our policy and strategy to be able to face challenges to ensure robust continuity.**

## Manpower

- The total workforce in EEHC and affiliated companies amounted to 152'711 employees on 30.6.2020 compared to 156'846 on 30.6.2019, at a decline rate of (2.6%) over the corresponding period, and those are distributed as follows:



\* The Total number of employees of the Medical Services Co. is 1'930 employees of which 666 employees are located at the Electricity Hospital and the other 1'264 employees belong to medical departments and East-Delta Hospital and are counted among the workforce of the affiliated companies.



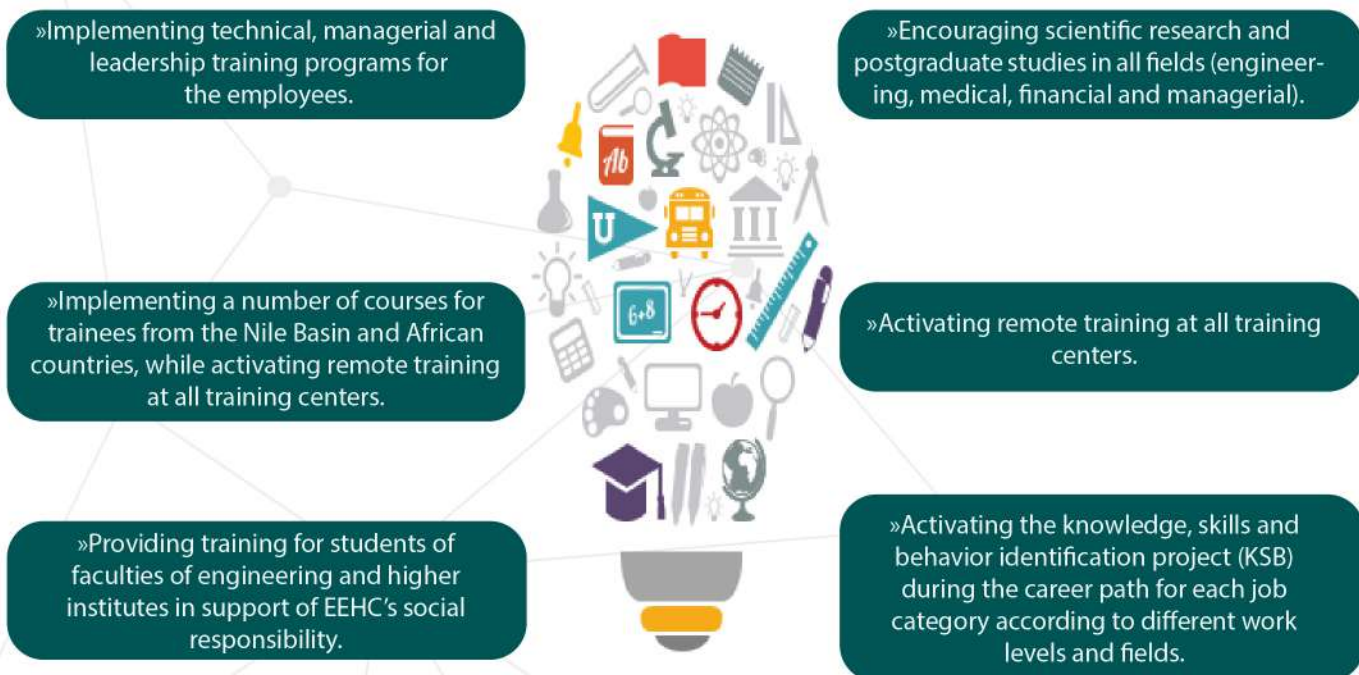
## Human Resource Development and Performance Improvement

- **Converting from traditional to strategic management of human resources that aims at attracting efficient elements to achieve the strategy, vision and mission of EEHC and affiliated companies; and on that ground the file of new recruitments in the EEHC Group is administered based on manpower planning and assessment of needs.**
- **Activating the electronic system for human resources, providing technical support to companies by completing their data through the system and conducting periodical review to verify data accuracy.**
- **Promoting teamwork spirit and raising the level of the employees' satisfaction to improve their productivity through the development of the internal system and policies that govern work schemes in a way that achieves the employees' satisfaction and the interest of the Company.**
- **Implementing the key axes of the Human Resource Development Strategy that has been prepared to upgrade the level of performance and achieve the Company's goals effectively and efficiently.**
- **Updating the strategic plan for emergencies, civil defense and fire works for the electricity complex building and all headquarter buildings of EEHC and having it approved by the General Administration of Electricity Police.**



## Training & Capacity Building

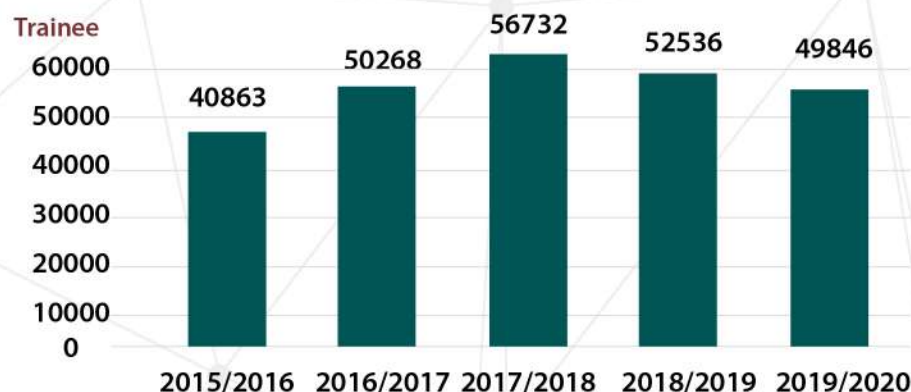
- In light of the strategy adopted by EEHC for improving the training system and raising its efficiency, the Company has prepared a package of training programs aimed at competency development through the following:



### A -Staff Training

- Technical, managerial and leadership training programs were implemented for the benefit of the employees of EEHC, affiliated companies and the Ministry of Electricity's head office through the Leadership Development Center (LDC) of the Holding Company, the training centers of affiliated companies and other outside centers. The total number of trainees amounted to 49'831 persons in addition to 15 students enrolled in postgraduate studies in 2019/2020.

Development in Total Number of Trainees and Postgraduate Stud-



## **B -Training of Others in Support of Social Responsibility:**

- Summer training program was conducted at EEHC and affiliated companies for (4905) students of faculties of engineering, higher institutes, faculty of commerce, and higher industrial education.
- With regard to co-education industrial classes under the agreement concluded with the Ministry of Education, there were (231) graduates and (170) enrolled students.
- In addition, expatriates in Egypt from outside the Electricity Sector also obtained training where:
  - \* 225 persons were trained at EEHC, and
  - \* 622 were trained at affiliated companies.
- This had a tangible impact on the optimal utilization of all human energies and material capabilities of the training centers of both EEHC and its affiliated companies.

## **C -Training of African and Arab Employees:**

- Within the framework of the Agreement in the field of training with Arab countries, Association of Power Utilities of Africa (APUA), the International Agency for Partnership for Development, and the Cooperation Project with African Countries, training courses were implemented for (192) trainees from different countries at EEHC.
- The total revenues from cooperation with Arab & African countries amounted to about EGP 7 million in the FY 2019/2020.

## **Leadership Development Center of the Electricity Sector**

- The Leadership Development Center (LDC) was established in 1995 to achieve a mission represented in "Preparing a new generation of leaders who are capable through their knowledge, behaviors and experience to achieve the Sector's mission."
- The achievements of the LDC in 2019/2020 can be defined in the following:-
  - \* Preparing a brochure and making promotional films in both English and French languages to facilitate communication with foreign visitors.
  - \* Completing the intensive leadership development program for batches (28) and (29) with a total of 60 trainees for a period of 18 weeks each, thus doubling the number of graduates per year while maintaining the quality and substance of the program content. The total number of LDC graduates since the launch of the program reached nearly 796 graduates.

- Developing and introducing multiple training courses held at LDC in all fields, where the total courses implemented at the Center in 2019/2020 amounted to (260) courses with a total of (6'438) trainees.
- In implementation of the recommendations issued by the National Anti-Corruption Committee, the Center held courses for "Disseminating Measures of Integrity & Transparency Values and Awareness of the Risks of, and Means to Prevent, Corruption" totaling (73) courses for (3471) trainees.
- The achievements of the Center were not confined to the training and qualification of leadership cadres but extended to cope with the latest quality systems and their application, where the qualification process for Fayed training center of Est Delta Production Company, Koraimat training center of Upper Egypt Production Company and the Sector of Talkha training center already been completed for ISO 9001/2015 Certification, while qualifying the training center of South Delta Distribution Company is underway .
- The total revenues to the Center amounted to EGP 5.7 million in 2019/2020.



## **Development of Regulations & Organization Structures of EEHC & Subsidiaries**

In order to keep up with all developments on work system, some existing regulations and procedures have been issued or modified to create a stimulating work environment, and these are represented in the following:

- Completing the modification, approval and application of all financial regulations of the Company to keep pace with current business requirements at EEHC and its affiliated companies.
- Finalizing the modification of some items of the Medical Regulation for employees of EEHC and affiliated companies to cope with modern medical developments.
- Introducing the “General Department for Legislative Support, Legal Studies & Researches” with the competence to study the decisions and regulations in force, compare them to practical reality and propose modifications thereto, in addition to entrusting the new Department with the legal works for the newly incorporated Medical Services Company.
- Preparing, issuing and putting in force of a unified “Violations & Penalties Regulation” for EEHC and affiliated companies in accordance with Labor Law no. 12/2003.
- Establishing a new company for medical services with the purpose of structuring the medical sector in EEHC and subsidiaries for a better medical system to the benefit of workers.
- Preparing an action plan for qualifying the technical and administrative cadres for leadership posts in order to help create a second row of leaders in a way that achieves the Company's vision and keeps up with the State's Sustainable Development Strategy 2030.

## **Governance**

Governance is considered one of the strategic pillars to enhance competitiveness and prepare electricity companies for entering the competitive market; and therefore, efforts of the Board of Directors are combined with the Company's Executive Management to abide by governance standards through the following:

- Preparing a mechanism for governance and inventory control of incoming and outgoing spare parts for Burullus, New Capital & Beni-Suef Power Plants.
- Activating the work in internal audit departments.
- Preparing a governance mechanism for contracts implemented by affiliated companies on direct order basis.
- Launching channels for providing high-quality services like the unified platform for electricity smart services.
- Preparing Governance Report showing the extent of compliance with the various roles of governance practices and the availability of a control environment.

The Governance Report includes the practices applied in EEHC and an affiliated company, represented in the following:

**Board of Directors:** A brief about the composition of the Board of Directors and the committees emanating from it, the role of the Secretary, the Chairman's competences, and how works of the Board and its committees are conducted

**Control Environment:** An overview of how the Company defines the internal control system, audit department, Compliance department, in addition to the role of the Accountability State Authority (ASA).

**Disclosure and Transparency:** A brief description of how the Company discloses substantial and non-material information.

**Charters and Policies:** An overview of the charters and policies applied in the Company.

## Compliance

Within the framework of activating the control environment and adopting a proactive approach by the Company to constantly comply with the legislations in force and reduce the risk of non-compliance, and to complete the enforcement of the compliance and reporting policy, plenty procedures have been taken including without limitation:

- Monitoring and applying the principle of disclosure and transparency in all Company's activities.
- Assessing the extent of compliance by the Procurement & Warehouses Department with the due application of the procurement & warehouses regulations, and the Compliance Auditing Report in this concern has already been approved.
- Improving and developing the general framework and principles of work at the Company by way of disseminating the rules of professional conduct and compliance policy and having them published in the official website of EEHC and affiliated companies.
- Preparing the register of inherent risks of the various sectors and departments of the Company In collaboration with the consultant PWC to ensure that a strategy is appropriately developed to deal with such risks and minimize their impacts.

## Audit Committee

The Audit Committee is the main and most important pillar for implementing corporate governance and activating the control environment within corporations, as it helps the board of directors to perform its supervisory role in respect of:

- \* Compliance with governance, laws and regulations.
- \* Independency of the external auditor.
- \* Activating the role of Internal Audit Department.
- \* Assessment of the internal control system.
- \* Financial reporting.

The Committee has discussed a manifold of subjects, including the following:

- \* Reviewing the unified Sanctions and Violations Regulations for EEHC and subsidiary companies in line with the provisions of Labor Law No. 12 of 2003 to achieve justice among all employees.
- \* Discussing and reviewing the inaugural balance sheet of the Medical Services Company.
- \* Discussing the Financial Sector's Report on the final financial statements and their complementary notes as well as the External Auditor's Report; and recommending referral to the Company's Board for approval in preparation for presentation to the General Assembly.
- \* The Committee is keen on issuing its directives to the General Information Department and the Internal Audit Department to help it study the reports of the audit committees of the affiliated companies and the recommendations issued by them, and prepare a summary statement of the results of their work, in order to:
  - \* Make certain that an effective control system is in place to protect assets;
  - \* Follow up procurement operations to ensure their compliance with the applied policies, procedures and regulations and that the approval of procurement is given by the competent approval authority;
  - \* Examine and evaluate the early warning system of the Company (performance indicators and risk assessment) and suggest the necessary improvement thereto, if any.
  - \* Consider the comments raised by the external auditor (Accountability State Authority - ASA) on the planning budget, financial statements and final accounts of each company, and the extent to which the respective company handled such comments, especially the frequent ones.

### With regard to production companies:

- Study the causes of problems related to inventory and remnants of installations, develop radical solutions for such problems, and constantly follow up inspection and control processes of inventory and the economical disposal of stagnant items.

### With regard to distribution companies:

- Follow up the projects implementation status and consider the reasons of delay beyond their time schedules.
- Follow up the extent of achieving the indicators of targeted commercial performance of each company and the reasons of deviation, if any.
- Follow up the works of the audit committee of each company in respect of actions taken to activate collection and reduce arrears.

## Social Responsibility

### Decent Life Initiative for the Most-Needy Villages

#### Goals of the Project:

- Provide inhabitants of the poorest villages with electric current while providing alternative feeding on medium voltage and renovating the dilapidated networks (medium and low).
- Upgrade voltages to subscribers in the targeted villages.
- Work on reducing faults on medium and low voltage networks and stabilizing the electric current. Implementation has already started, and completion is planned by the end of June 2024.

#### Project Indicators

Number of beneficiary villages	145 Villages
Number of DISCOMs in which implementation takes place	5 DISCOMs
Number of governorates within which implementation is carried out	11 Governorate
Targeted cost of the project in million EGP	1315 Million EGP



- Under the Project, the Medical Services Company is committed to provide preventive medical services to combat Covid-19 pandemic, whereby a number of precautionary measures have been taken, for example:
  - \* Disseminating health awareness by posting sign boards to acquaint people with precautionary and preventive means to limit spread of virus infection.
  - \* Detecting suspected and positive cases, identifying medical examinations required, directing with the precautionary measures for suspected cases and their colleagues and following them up for two weeks while following up other positive cases.

- A part of the electricity hospital has been allocated to isolate corona virus patients from employees, after the ministry of health approved the hospital's suitability for that and that it has all the necessary facilities for the health care required for corona virus patients.
- Some neighboring villages within the range of affiliated companies have been sterilized as well as mosques and churches located in these villages for protection against coronavirus.
- Supplying the nearby villages to Al-Kuriemat power plant with the necessary drinking water, free of charge, during the water cuts due to floods.





صحتک هدفنا  
و شفایک غایتنا

## Medical Services Company

- On July 1, 2019, the Medical Services Company was incorporated on the principle of providing premium, safe and high-quality medical service at affordable cost, with the commitment to development, improvement, innovation and optimal utilization of the available resources through qualified medical staff.

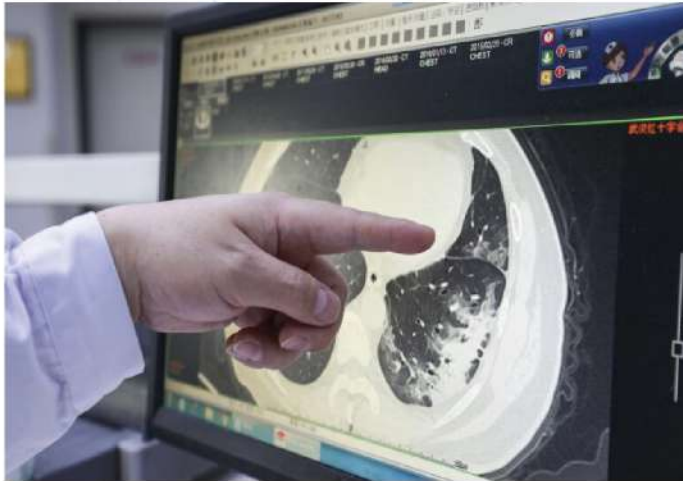
Company Name	Geographical Zone	Head Office	Capital (m. EGP)	Ratio of Capital to EEHC's Investments	Address	Phone & Website
Medical Services Company	All Governorates of Egypt	Nasr City, Cairo	185.6	0.8 %	Kilo 4.5 on Suez Road, Thawra St. Extension, Cairo	02/26789179 Hotline: 15637 <a href="http://www.eehc.gov.eg/msc">www.eehc.gov.eg/msc</a>

## Purposes of the Company:

- Make inclusive development of the health system and medical services provided, in quality and quantity, considering the economic cost and financial return on the service with facilitating the means of measurement and evaluation.
- Unify the standard of medical services for all employees at all levels.
- Sustain development and training to keep pace with the latest systems by way of raising the efficiency of all elements providing the service (human resource, equipment and infrastructure).
- Establish an R&D unit (medical - professional) to enhance the existing competences in order to ensure continual and sustainable development.
- Raise health education for all employees of the Electricity Sector and introducing new medical services (Industry medicine - mental health - preventive medicine).
- Work on equipping the Company's hospitals and qualifying them for the Egyptian quality accreditation as a first step, then qualifying them for JCI accreditation.
- Preserve the environment in line with national and global standards and community participation.
- Introduce an information system linking all medical sectors of the Company.

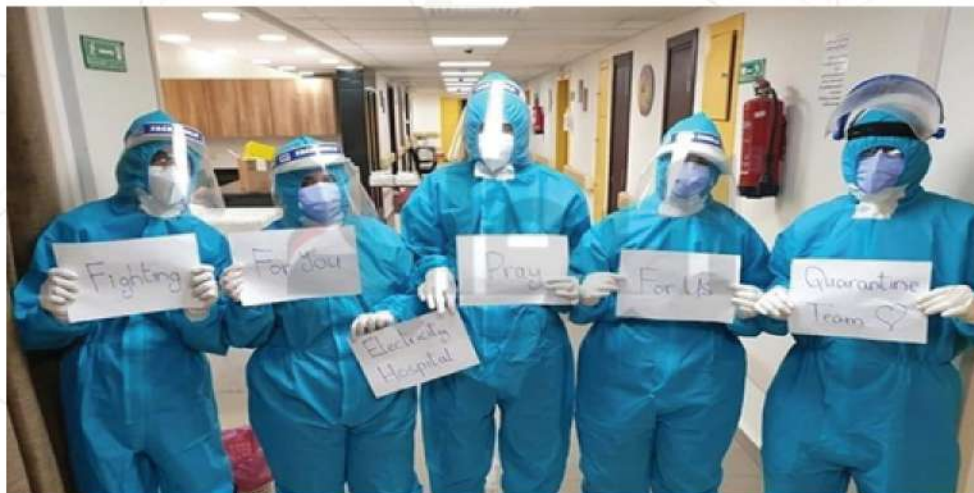
## Medical and Service Sectors of the Company

- The new Medical Services Company is composed of six medical sectors (Cairo, Giza, Ismailiyah, Assiut, Mansoura and Alex) where standards have been unified with regard to providing medical service at all companies and adding further advantages for the benefit of the employees and the interest of the companies.



### During FY 2019/2020, the Company has taken multiple actions including, for example:

- Obtaining the approval of the Ministry of Health to allocate 60 rooms at the Electricity Hospital in Cairo and 10 rooms at Ismailiyah Hospital to care for people infected with Coronavirus.
- The commitment of the medical sectors to provide preventive health services and disseminate health awareness to contain the spread of Coronavirus infection.
- Improving the level of service provided to patients attending clinics in the companies' medical centers and providing distinctive service.







## **Commercial and Financial Activity**

## Electricity Tariff Reform:

- The globally recognized pricing policies aim to achieve the following:
  - \* Prices realize financial and economic efficiency of the electricity utility.
  - \* Prices cover costs according to feeding voltage.
  - \* Prices reflect the right indicator of electricity usage, taking into consideration the social dimension (i.e. affordable price to consumer), transparency, simplicity and justice.
- According to the Electricity Law, EgyptERA (Regulator) has been mandated to review the prices approved by the Council of Ministers for electricity selling tariff, and the Prime Minister's Decision no. 1257 of 2014 was issued in regard to restructuring the selling tariff, as amended by the Decision no. 2259 of 2015.
- On 28.4.2020, a decision was issued by EgyptERA in its 9th session in FY 2019/2020 approving the electricity selling tariff for the coming 5 years as from 2020/2021.
- On 9.6.2020, the Decree of the Minister of Electricity & Renewable Energy No. 100 of 2020 was issued, which stated in Article (1) that: "The electricity tariff and customer service charge for the coming 5 years starting 1.7.2020. On wards shall be in accordance with the tariff and service change defined in the attached schedule.



- The following table illustrates the electricity tariff and customer service charge for different uses for the Financial Year 2020/2021.

Purpose of Usage	Demand Charge <sup>(1)</sup> LE / KWh / m	Energy Average Price <sup>(2)</sup> Piaster / KWh	Off Peak <sup>(3)</sup> Piaster / KWh	On Peak <sup>(3)</sup> Piaster/ KWh	Customer Service Charge LE / Cons. / m.
		Ultra-High Voltage (220 -132 K.V.)			
Kima	-	72.0			35.0
Metro	-	100.0			
Other Subscribers	40.0	105.0	96.9	145.4	
		High Voltage (66 - 33 K.V.)			
Metro	-	105.0			35.0
Other Subscribers	50.0	110.0	101.5	152.3	
		Medium Voltage (22 – 11 K.V.)			
Irrigation Purposes	60.0	99.90	92.2	138.3	35.0
Water & Sanitation Companies	-	120.0	-	-	
Other Subscribers	60.0	115.0	106.2	159.2	
		Low Voltage (380 V)			
Irrigation	-	85.0	-	-	4.0
Other Subscribers	-	125.0	-	-	15.0
Public Lighting	-	125.0	-	-	

Household Usages		
Consumption brackets (Kwh / month)	Piaster / Kwh	Customer Service Charge EGP / Kwh
0 - 50	38.0	1.0
51 - 100	48.0	2.0
Consumption from 101 to 650 Kwh		
0 - 200	65.0	6.0
201 - 350	96.0	11.0
351 - 650	118.0	15.0
Consumption more than 650 Kwh		
0 - less than 1000	118.0	25
0 - 1000 and more	145.0	40.0
Zero Reading & Closed Units	0.0	9.0

Commercial Stores		
Consumption brackets (Kwh / month)	Piaster / Kwh	Customer Service Charge EGP / Kwh
0 - 100	65.0	5.0
Consumption from 101 to 250 Kwh		
0 - 250	120.0	15.0
Consumption from 251 to 1000 Kwh		
0 - 600	140.0	20.0
601 - 1000	155.0	25.0
Consumption more than 1000 Kwh		
0 - 1000 and more	160.0	40.0
Zero Reading & Closed Units	0.0	9.0

- Prices are based on a 0.92 Power Factor.

1.The demand charge is based on the maximum demand of a consumer over 3-month period.

2.In case no meters are available, the applied tariff is the average energy price.

3.The ToU tariff is applied in accordance with the smart meter application program and the peak hour duration is 4 hours starting at a time defined by the Ministry of Electricity.

## Quantities of Sold Energy According to Purpose (2019/2020)

Type of Usage	Distribution Companies		Egyptian Electricity Transmission Company (EETC)		Grand total	
	Sold energy (GWh)	Variation %	Sold energy (GWh)	Variation %	Sold energy (GWh)	Variation %
Industries	19957	16.3	21190	81.3	41147	27.7
Agriculture	6052	4.9	1321	5.1	7373	5
Utilities	6044	4.9	443	1.7	6487	4.4
Public lighting	4731	3.9	0	0	4731	3.2
Government Entities	6737	5.5	168	0.6	6905	4.6
Residential	61542	50.3	0	0	61542	41.4
Commercial and Others	17380	14.2	1665	6.4	19045	12.8
Interconnection & BOOTs	0	0	891	3.4	891	0.6
Energy tangible exchange & Colonies	0	0	396	1.5	396	0.3
Alpha Energy Company	0	0	0.07	0	0.07	0
Grand total	122443	100	26074	100	148517	100



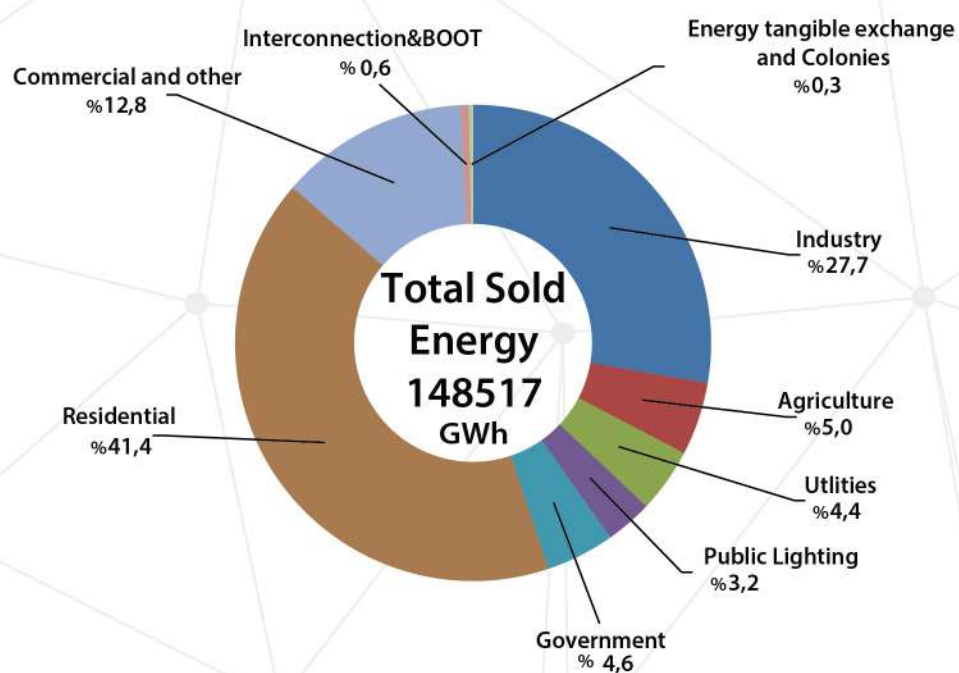
## Total Sold Energy on All Voltages Classified According to Usage (GW/h.)

Type of Usage	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
Industry	38310	41479	43623	44416	41147
Agriculture	6755	6743	7057	7211	7373
Utilities	6519	6395	6733	6578	6487
Public lighting	5293	5115	4927	5282	4731
Government	6292	8630	8562	7705	6905
Residential	73361	64125	66809	60115	61542
Commercial and other	18788	18585	19179	19651	19045

Interconnection & BOOT	510	268	228	568	891
Energy tangible exchange & Colonies	472	266	491	382	396
Alfa Company	0	0	0	0	0.07

<b>Grand total</b>	<b>156300</b>	<b>151606</b>	<b>157610</b>	<b>151908</b>	<b>148517</b>
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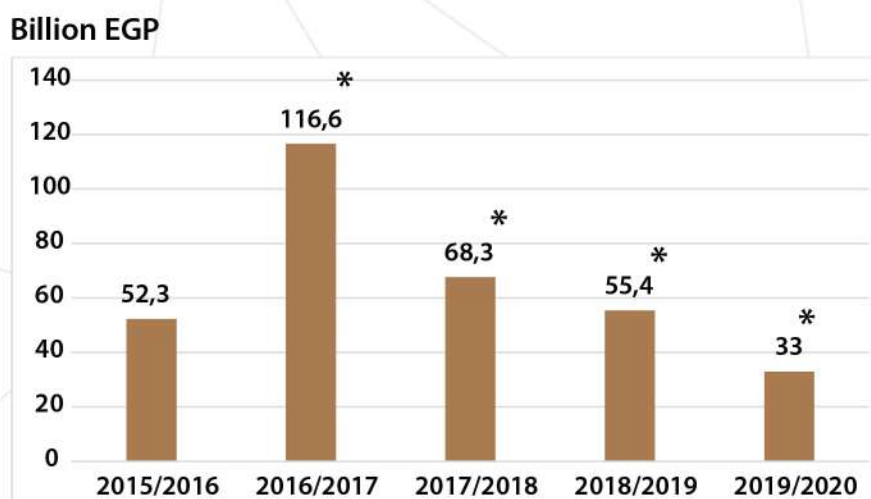
**2019/2020**



## Financial Position of EEHC and Affiliated Companies

Description		2018/2019	2019/2020	Variation %
Net Fixed Assets	Billion EGP	368.2	414.4	12.5
Inventory	Billion EGP	35.3	37.4	5.9
Cash and Banks	Billion EGP	14.6	7.8	(46.6)
Net Working Capital	Billion EGP	(108.6)	(51)	(53)
Equity	Billion EGP	29.4	45.7	55.4
Total Revenues (excluding revenues from exchanged energy)	Billion EGP	165.4	163.47	(1.17)
Total Costs & Expenses (excluding expenses of exchanged energy)	Billion EGP	162	153.8	(5.1)
Net Profit (Loss)	Million EGP	3.5	9.7	177
Total Executed Investments *	Billion EGP	55.4	33	(40.4)
Financing burdens (installments & Interests)	Billion EGP	45.4	50.6	11.5
Balances of Loans	Billion EGP	312.2	281.7	(9.8)

## Executed Investments in EEHC & Subsidiaries



\* Includes part of the fast-track plan projects for summer 2015 and EEHC's power plants. The increase in investments is due to the increase in material prices as a result of the economic decisions, the most prominent of which is the liberalization of the foreign exchange rates.

\* Comparative figure for 2018/2019 has been adjusted by the value of interest incurred by the Ministry of Finance on the fast - track plan loan .

## Companies Having Capital Shares by EEHC

Name of Company	Authorized capital	Percentage of Capital Participation
The Egyptian Company for Manufacturing Electricity Insulators	100 Million EGP	4.97 %
Electric Power System Engineering Company	5 Million EGP	40 %
Egyptian German Electric Manufacturing Company (EGEMAC)	500 Million EGP	62.48 %
Power Generation Engineering and Services Company (PGESCO)	10 Million EGP	20 %
ARABIAN Consultancy Engineering Services Company (ACESCO)	3 Million USD	49 %
Egyptian Syrian Company for Studies and Engineering Consultations *	20 Million SYP	50 %
African Company of Electrical and Mechanical Projects (Libya)*	5 Million LYD	10 %
El-Nasr Transformers &Electrical Products (ELMACO)	150 Million EGP	38.32 %

**\* Companies suspended due to current events .**

**Consolidated BALANCE SHEET  
of E.E.H.C and Affiliated Companies  
30/06/2020**

(Amounts in 1000 LE)

comparative year 2019	ITEM	Cost	Cumulative Depreciation	Net Value
	<b>ASSETS</b>			
	<b><u>Non-Current Assets</u></b>			
368227298	FIXED ASSETS	525725773	111366659	414359114
74083334	projects in progress	51205678		51205678
169441	Long-term investments	189451		189451
18027598	Long-term loans & debit balances	11576069		11576069
8493	Other Assets	103316		103316
<b>460516164</b>	<b>Total Non-Current Assets</b>	<b>588800287</b>	<b>111366659</b>	<b>477433628</b>
	<b><u>CURRENT ASSETS</u></b>			
160	Retained assets for sale	307		307
35302937	Inventory	37397015		37397015
153600358	Clients, notes receivable & debit accounts	69331915		69331915
14636598	Cash	7841048		7841048
<b>203540053</b>	<b>Total Current Assets</b>	<b>114570285</b>	<b>0</b>	<b>114570285</b>
<b>664056217</b>	<b>Total Assets</b>	<b>703370572</b>	<b>111366659</b>	<b>592003913</b>
	<b><u>Equity</u></b>			
29300670	Paid-up Capital	36308505		36308505
	<b><u>Reserves</u></b>			
2497085	Legal Reserve	5585630		5585630
749232	Capital Reserve	775878		775878
158072	Other Reserves	141345		141345
46035	Revaluation Surplus	46035		46035
-3309861	Carried Profit (Loss)	2814655		2814655
<b>29441233</b>	<b>Total Equity</b>	<b>45672048</b>	<b>0</b>	<b>45672048</b>
	<b><u>NON-CURRENT LIABILITIES</u></b>			
279131658	Long-Term Loans From Banks	248813517		248813517
33024901	Long-Term Loans From Other Entities	32880683		32880683
10310787	Other Long Term Liabilities	99022071		99022071
<b>322467346</b>	<b>Total Non-Current Liabilities</b>	<b>380716271</b>	<b>0</b>	<b>380716271</b>
	<b><u>Current Liabilities</u></b>			
5819347	Provisions	4321600		4321600
156981	Creditor Banks	341001		341001
306171310	Suppliers , Notes Payable & Credit Accounts	160952993		160952993
<b>312147638</b>	<b>TOTAL CURRENT LIABILITIES</b>	<b>165615594</b>	<b>0</b>	<b>165615594</b>
<b>664056217</b>	<b>TOTAL EQUITY &amp; LIABILITIES</b>	<b>592003913</b>	<b>0</b>	<b>592003913</b>

Chairman



Eng. Gaber Dessouki Moustafa

Board Member  
Financial , Commercial & Financing Affairs


ACC. Nadia Abdel-Aziz Katary

**Consolidated Income Statement  
of E.E.H.C. and Affiliated Companies  
for the Period from 1.7.2019 to 30.6.2020**

(Amounts in 1000 LE)

Comparative Year 1.7.2018 to 30.6.2019	Item	1.7.2019 to 30.6.2020	
	<b>Revenues of Current Activity:</b>		
112981	Net Sales of Finished Products (Other than Electricity Sales )	554081	
55113	Net Sales of Finished Products ( Energy )	51787	
126449111	Net Sales of purchased goods ( Energy )	140081717	
22613	Net Sales of purchased goods (Lamps )	4573	
2540136	Rendered Services(customer service)	2642681	
5876270	Rendered Services(Other)	5459888	
3732082	Revenues of Operation for Others	3051257	
443814	Electricity Hospital Revenues	449228	
40143	Other Revenues of Current Activity	25233	
139272263	<b>Total Revenues of Current Activity</b>		<b>152320445</b>
	<b>Less:</b>		
-144082854	Cost of Production and Purchasing Sold Units	-139735446	
	<b>Plus:</b>		
17312905	Grants and Subsidies( MOF support in gas price difference )	1238917	
0	Grants and Subsidies( Decrease in Energy prices )	811103	
0	Grants and Subsidies(MOF 's share represents 12% in the ambitious plan)	956634	
12502314	<b>Gross Profit (Loss)</b>		<b>16591653</b>
	<b>Plus:</b>		
	<b>Investment Revenues:</b>		
18286	Revenues of Other Financial Investments	14926	
	<b>Other Revenues &amp; Profits:</b>		
1086393	Provisions No Longer Required	1758936	
5642195	Miscellaneous Revenues & Profits	4906095	
	<b>Less:</b>		
	<b>Administrative Expenses:</b>		
-27176	Lump sum Salaries, Attendance & Transport Allowances for Board Members	-31196	
-6908308	Other Administrative Expenses	-6997892	
-4729810	<b>Costs of marketing</b>	-5299052	
	<b>Burdens and Losses:</b>		
-2160954	Provisions (other than Depreciation and Fall of Inventory Prices)	-1215049	
-122	Bad Debts	-4	
-2383084	Miscellaneous Burdens and Losses	-352855	
0	Fees and expenses for letters of guarantee	-47395	
	<b>Plus:</b>		
1797858	Credit Interests	1028562	
	<b>Plus (or Less) :</b>		
-1477959	Profits (Losses) of Foreign Exchange Differences	-113009	
0	Revenues ( Expenses) of Previous years	0	
72304	Capital Profits (Losses)	27310	
205864	Extraordinary Revenues and Profits (Losses)	403679	
3637801	<b>Net Profit (Loss) Before Income Taxes</b>		<b>9674909</b>
70029	Income Taxes		<b>24524</b>
3567772	<b>Net Profit (Loss)</b>		<b>9650385</b>

\* Note: Income Taxes belong to south Cairo electricity distribution company

Chairman



Eng. Gaber Dessouki Moustafa

Board Member

Financial , Commercial & Financing Affairs



ACC. Nadia Abdel-Aziz Katry