Arab Republic of Egypt
Ministry of Electricity and Energy

Egyptian Electricity Holding Company

Annual Report
2007/2008

CONTENTS

Organizational structure

Minister of Electricity and Energy
Chairman of General Assembly for
Egyptian Electricity Holding Company
Dr.Hassan A.Younes

Chairman of Board of Directors
Chairman of General Assembly for Affiliated Companies
Dr. Mohamed M. Awad
EEHC Board Member for Production, Transmission &
Distribution companies Affairs
Eng: Fawzia Abou Nema
EEHC Board Member for Planning, Research &
Electric service Companies Affairs
Dr. Kamel Yassin
EEHC Board Member for Financial & Administration Affairs
Acc: Salah Elden Awad Mansour

Distribution Companies

North Cairo
Eng.Mohamed Hussein Ashour

South Cairo
Eng. Mahmoud Sami Sultan

Alexandria
Eng. Ibrahim Khalil Madi

North Delta
Eng. Mohamed Ali Bakr

South Delta
Eng. Fawzy Ahmed Elserdy

Canal
Eng. Momdouh El Nahas

El- Behera
Eng. Ahmed Elsaid Khalil

Middle Egypt
Eng. Abd Elsatar abo Ras

Upper Egypt
Eng. Mohamed ElBakry Helal

Egyptian Electricity Transmission Co.

Eng. Hassan Gaber Negm

Production Companies

Cairo
Eng.Ahmed Mustafa Emam

East Delta
Eng. Tarek Yossif Ibrahim

Middle Delta
Eng. Awad Mohmed Soliman

West Delta
Eng. Mahmoud Soliman Balba

Upper Egypt
Eng. Shaban Khalaf Ahmed

Hydro Plants
Eng. Mohmed Mohmed Farag Allah

Introduction

The Egyptian Electricity Holding Company (EEHC) mission towards the society is to supply electricity to all types of consumers according to international performance standards taking into consideration all the environmental, social and economic determinants and also the terms and conditions set by the Regulatory Agency For Electric Utilities and Consumer Protection.

In order EEHC achieves its mission, it always does its best endeavors to improve the performance and develop the human resources capabilities of its affiliated companies.

EEHC main role is to coordinate, supervise, monitor and follow-up its affiliated companies activities in the fields of generation, transmission and distribution of electric energy in order to improve and develop the technical, operational and financial performance of the companies to achieve the main goal of optimizing the use of all resources and maximizing the profit.

Since July 2001, a series of restructuring steps took place for the affiliated companies, it started by unbundling of the generation, transmission and distribution activities and form thirteen companies (five generation, one transmission and seven distribution) and due to the high growth rate of the number of consumers and demand and the associated increase in the number of power plants, network expansion and customer service centers, further unbundling took place .

Now EEHC has sixteen affiliated companies (six generation, nine distributions and the Egyptian Electricity Transmission Company).

EEHC coordinates between the companies as an Integrated Economic Unit that can afford to provide a self financing portion for its future plans.

During the last Fiscal Year 2007/2008, It was a challenge for EEHC to meet the high growth rate of electricity demand; the peak demand reached 19738 MW and energy generated 125 TWh with 8.4% growth rate and in the same time maintained system reliability and efficiency of supply– the availability rate of power plants reached 89% in line with the international norms and standards.

EEHC prepared the 6th, five year plan (2007/2008-2011/2012) to meet the expected average annual growth of demand of 6.35%. This entails adding a generation capacity of 7750MW with maximizing the use of Combined Cycle to reach 37% of the total installed capacity in 2011/2012.

In the meantime EEHC and its affiliated companies continuously develop, improve and modernize the services to its customers (the number of customers increased from million 4.5 in early eighties to million 23.8 in FY2007/2008) to speed and facilitate the processes of the required services.

In order to achieve such goals, EEHC gives great emphasis that the affiliated companies achieve the targeted technical, operational, procedural and financial indicators which were set according to international standards and In order the companies achieve the targeted performance indicators; they set up all necessary mechanisms and provide all technical and human resources capabilities necessary for the continuous development of generation, transmission and distribution techniques.

EEHC also cooperate and coordinate with all local Egyptian firms and entities. In order to maximize the local contribution in different planned electricity projects.

EEHC aims to create a wider market for its services in the Arab and African countries through the establishment of joint consulting companies or marketing the Egyptian experience in the field of electricity -As an example of such cooperation - the electrical interconnection projects and the establishment of the joint consulting companies with Syria and Libya.

In order to acquire, benefit and transfer latest and diversified international experience to its dear customers, EEHC cooperates with international companies and firms and participate in international conferences, workshops and seminars.

Acknowledging the importance of data documentation, Egyptian Electricity Holding Company issues this annual report to document its activities and achievements over the Fiscal Year 2007/2008 to be as a reference to those who are interested in the field of electrical energy.

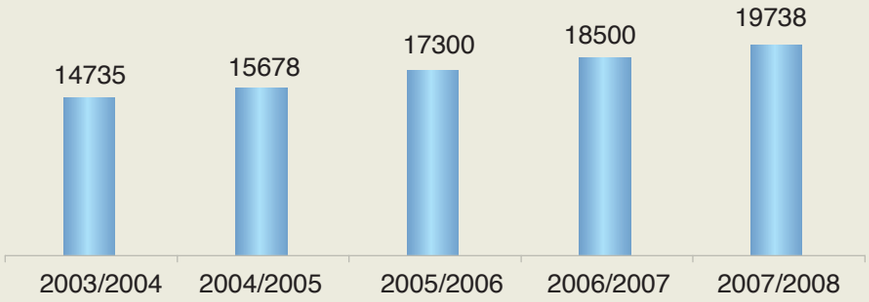
Electricity for 2007/2008

Description		2007/2008	2006/2007	Variance%
Peak load	**MW**	**19738**	**18500**	**6.7**
Total power generated	Gwh	125129	115407	8.4
Hydro	Gwh	15510	12925	20
Thermal[1]	Gwh	95782	88862	7.8
Power generated from Wind (Zafarana)[2]	Gwh	831	616	34.9
Power Purchased from (IPP's)[3]	Gwh	14	32.2	(56.3)
Power generated from Private Sector (BOOT)	Gwh	12642	12625	0.1
Power generated from Isolated Plants	Gwh	350	347	0.9
Net Exported Power	Gwh	563	349	61.3
Sent energy from connected power plants	Gwh	107808	98475	9.5
Total Fuel Consumption	k toe	23562	22286	5.7
• Production Companies	k toe	20969	19689	6.5
H.F.O	k toe	4561	4246	7.4
N.G	k toe	16300	15389	5.9
L.F.O	k toe	108	54	100
• Fuel consumption for (Private sector BOOT)	k toe	2593	2597	(0.2)
Averag Production Companies fuel consumption rate	Gm/KWh gen	218.9	221.6	(1.2)
Fuel consumption rate (Include Private Sector BOOT)	Gm/KWh gen	217.3	219.6	(1)
Thermal efficiency (Without Private Sector BOOT)	%	40	39.8	0.5
N.G ratio to total fuel Include Private Sector BOOT	%	79.3	80.3	(1.2)
N G ratio for power plants connected to gas grid Include Private Sector BOOT	%	82	83.8	(2.1)
Installed capacity [4]	MW	22583	21944	2.9
Hydro		2842	2783	2.1
Thermal		17389	16889	2.9
Wind		305	225	35.6
Private Sector BOOT		2047	2047	_
Transmission Lines & Cables	km			
500 kv		2479	2262	9.6
400 kv		33	33	_
220 kv		14912	14315	4.2
132 kv		2429	2467	(1.5)
66 kv		16986	16695	1.7
33 kv		2713	2724	(0.4)
Transformers Capacitees	MVA			
500 kv		7765	7765	_
220 kv		28850	27060	6.6
132 kv		3427	3541	(3.2)
66 kv		35223	33904	3.9
33 kv		1769	1784	(0.8)

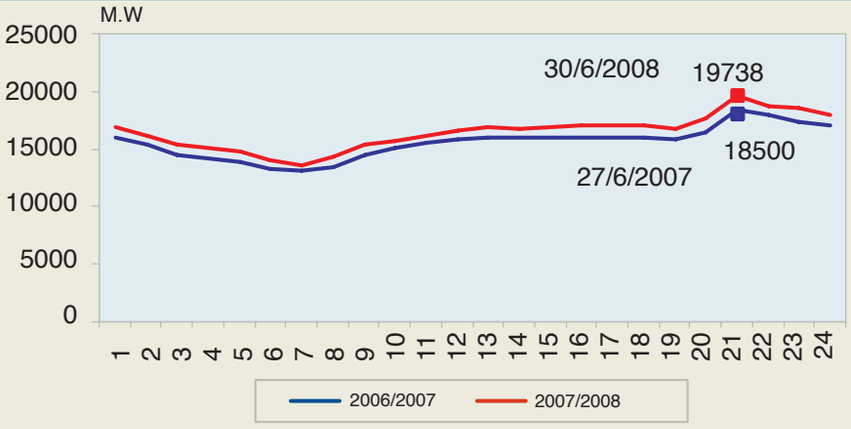
Toe : Ton oil equivalent
(1) Includes Comissioning tests (2)Connected to national Grid
(3) Power purchased from IPP's as the following: Petrochemical (2.3 GWh), Carbon Black (2.3GWh), and Ghazl El-Mahaala& Medallek (.6 GWh) & Talkha Fertilizer (8.8 GWh).
(4) There are 265 M.W installed Capacity for Isolated Plants.

Load Development

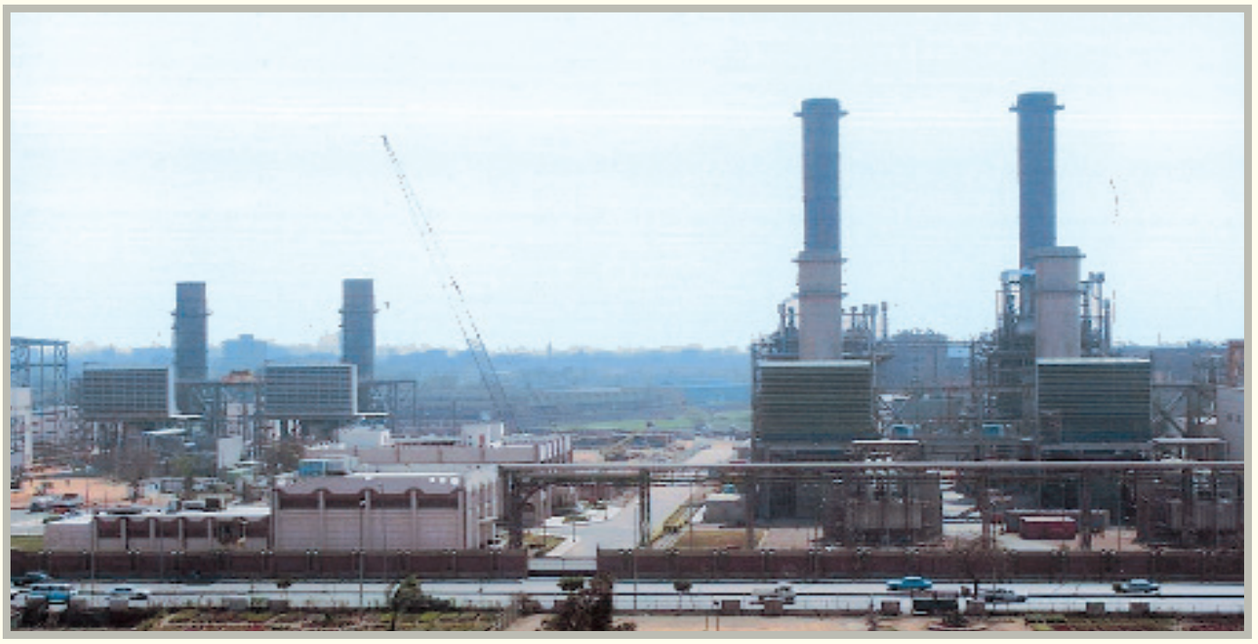
Yearly Peak Load Development (MW)



Peak load curve 2006/2007-2007/2008



Electrical Power Production



Electricity Production companies:

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

Objectives

1. Production of electric energy from the annexed power plants.
2. Management, operation and maintenance of the annexed power plants, and implementing the necessary rehabilitation and overhauling for these plants, in full compliance with the instructions of the National Dispatch Control Center of the national Grid; specialy the loading and maintenance of the generation units, to be in accordance with economic operation requirements so as to ensure optimum technical and economic operation.
3. Sale of the electric power produced from their power plants to the Egyptian Electricity Transmission Company, and to the Distribution Companies (power delivered on medium voltages).
4. Implementation of the power plants projects upon the approval of EEHC's Board of Directors, and in accordance with the planned time schedules.
5. Conducting researches and studies within the company's activities..
6. Carrying out any activities or works related to the company's objectives, in addition to any other work to be entrusted thereto by EEHC.
7. Carrying out any work entrusted thereto by third parties as long as it is within the company's scope of work and realizes economic benefit to the company

Information about Production Companies

Company	Geographical zone	Headquarter	No. of Shares	Capital (million EGP)	Address	Tel.
Cairo	Great Cairo	Cairo	3273199	327.319	22 Shanan St. Sabteia	02-25793054 02-25740550
East Delta	Domeat, Ismailia, Port Said, Suez, South Sinai, North Sinai & Red Sea Governorates	Ismailia	3879662	387.966	Sheben elkom St. Ismailia	064-3204590 064-3204651
Middle Delta	Mahmodea City , kom Hamada Center at El-Behera Governorate and Talkha City at El-Dakahlya Governorate	Talkha	3884754	388.475	Electricity & Compost road Talkha , El-Dakahlya Governorate	050-2524149 045-3473804
West Delta	Alexandria, Matrouh & El Behera Governorates (Except for Mahmodea City & kom Hamada center)	Alexandria	3879049	387.904	7 Riad St., Behind Yehia Mosque-Glym	03-5761375
Upper Egypt	Giza (Except for extension of Great Cairo) Fayoum, Beni-Suef, El-Minia, Assiut, New Valley, Sohag, Qena & Aswan Governorates	El-Giza	6413615	641.361	El Kuriemat power plant Atfih Center	02-38462555 088-2321951
Hydro Power Plants	Affiliated Hydro Plants All Over the Country	Aswan	3243694	324.369	High Dam West Sahara	097-3480412 097-3481974

Status of Power Plants Projects (Plan 2002-2007)

Cairo North Combined Cycle Project (1500 MW):

First Module

- The commercial operation for the two gas units (2x250 MW) started in July, and August 2004 respectively
- Commercial operation of the steam unit (1x250 MW) started in January 2006.

second Module

- Commercial operation of the two gas units (2x250 MW) started in April 2006
- Commissioning tests of the steam unit (1x250 MW) completed in June 2008.

Nubaria Combined Cycle Project 1& 2 (1500 MW):

- Commercial operation of the first and second gas units (2x250 MW) started in July and August 2005 respectively.
- Commercial operation of the third and fourth gas units (2x250 MW) started in September 2005.
- Commercial operation of the two steam units (2x250 MW) started in August and September 2006 respectively.

Talkha Combined Cycle Project (750 MW):

- Commercial operation of the two gas units (2x250 MW) started in July and August 2006 respectively.
- Commissioning tests of the steam unit (1 x 250 MW) started in April 2008.

El-Kuriemat Combined Cycle Project (750 MW):

- Commercial operation of the two gas units (2x250 MW) started in Febreuary and March 2007 respectively.
- Commissioning tests of the steam unit (1 x 250 MW) started in July 2008.

General Power Stations Statistics (30/ 6/ 2008)

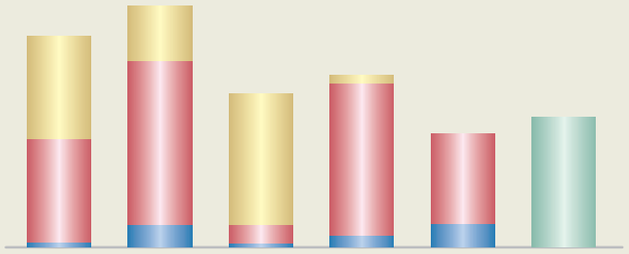
Comp	Station		No. of Units	Installed Capac. (MW)	Fuel	Commissioning Date
Cairo	Shoubra El-kheima	(ST)	4×315	1260	N.G-H.F.O	84 - 85 - 1988
	Cairo West	(ST)	4× 87.5	350	N.G-H.F.O	66-1979
	Cairo West Ext.	(ST)	2× 330	660	N.G-H.F.O	1995
	Cairo South 1	(CC)	3×110+4×60	570	N.G-H.F.O	57-65-1989
	Cairo South II	(CC)	1×165	165	N.G	1995
	Cairo North	(CC)	4×250+2×250	1500	N.G-L.F.O	2005-2008
	Wadi Hof	(G)	3×33.3	100	N.G-L.F.O	1985
East Delta	Damietta	(CC)	6×132+3×136	1200	N.G-L.F.O	1989 – 1993
	Ataka	(ST)	2×150+2×300	900	N.G-H.F.O	85-86-1987
	Abu Sultan	(ST)	4×150	600	N.G-H.F.O	83-84-1986
	Shabab	(G)	3×33.5	100	N.G-L.F.O	1982
	Port Said	(G)	2×23.96+1×24.6	73	N.G-L.F.O	77-1984
	Arish	(ST)	2×33	66	H.F.O	2000
	Oyoun Mousa	(ST)	2×320	640	N.G-H.F.O	2000
	Sharm El-Sheikh	(G)	2×23.7 + 4×24.27 +4×5.8 + 2×5	178	L.F.O	-
	Hurghada	(G)	3×23.5 + 3×24.3	143	L.F.O	-
	Zafarana(wind)[1]		100×0.6+127×0.66 +190×0.85	305	Wind	2000-2003-2004 2006-2007-2008
	Boot					
	Suez Gulf	(ST)	2×341.25	682.5	N.G-H.F.O	2002
	Port Said East	(ST)	2×341.25	682.5	N.G-H.F.O	2003
Middle Delta	Talkha	(CC)	8×24.72+2×45.95	290	N.G-L.F.O	79-80-1989
	Talkha 210	(ST)	2×210	420	N.G-H.F.O	93-1995
	Talkha 750*	(CC)	2×250+1×250	750	N.G-L.F.O	2006-2008
	Nubaria*	(CC)	4×250+2×250	1500	N.G-L.F.O	2005-2006
	Mahmoudia	(CC)	8×25+2×58.7	316	N.G-L.F.O	83-1995
	Mahmoudia**	(ST)	1×50+1×25	75	N.G-L.F.O	81-1982
West Delta	Kafr El-Dawar	(ST)	4×110	440	N.G-H.F.O	80-84-1986
	Damanhour Ext	(ST)	1×300	300	N.G-H.F.O	1991
	Damanhour (Old)	(ST)	3×65	195	N.G-H.F.O	68-1969
	Damanhour	(CC)	4×24.62+1×58	156.5	N.G-L.F.O	1985-1995
	El-Seiuf	(G)	6×33.3	200	N.G-L.F.O	81-82-83-1984
	El-Seiuf	(ST)	2×26.6+2×30	113	H.F.O	61-1969
	Karmouz	(G)	1×11.37 + 1×11.68	23.1	L.F.O	1980
	Abu Kir	(ST)	4×150+1×311	911	N.G-H.F.O	83-84-1991
	Abu Kir	(G)	1×24.27	24.3	N.G-L.F.O	1983
	Sidi Krir 1.2	(ST)	2 ×320	640	N.G-H.F.O	99-2000
	Matrouh	(ST)	2×30	60	N.G-H.F.O	1990
	Boot					
	Sidi Krir 3,4	(ST)	2 × 341.25	682.5	N.G-H.F.O	2002
Upper Egypt	Walidia	(ST)	2×312	624	H.F.O	92-1997
	Kuriemat 1	(ST)	2×627	1254	N.G-H.F.O	1998-1999
	Kuriemat 2[2]	(CC)	2*250+1*250	500	N.G-L.F.O	2007
	Assiut	(ST)	3×30	90	H.F.O	1966 - 1967
Hydro Plants	High Dam		12×175	2100	Hydro	1967
	Aswan Dam I		7×46	322	Hydro	1960
	Aswan Dam II		4×67.5	270	Hydro	85-1986
	Esna		6×14.28	86	Hydro	1993
	New Naga Hamadi[3]		4×16	64	Hydro	2008

(1) wind farm had entered with 80 MW (2) Steam part dess not Operated yet
(3) Naga Hamadi has been retired in on 9/2007 with 5.4 MW and new Naga Hamadi entered with 4*16 MW (Three units) from 7/2/2008 and the fourth 22/3/2008.

Development of Installed Capacities*

The Total Generation Installed Capacity reached 22583 MW in 30/6/2008, with an increase of 2.9% compared to the previous year.

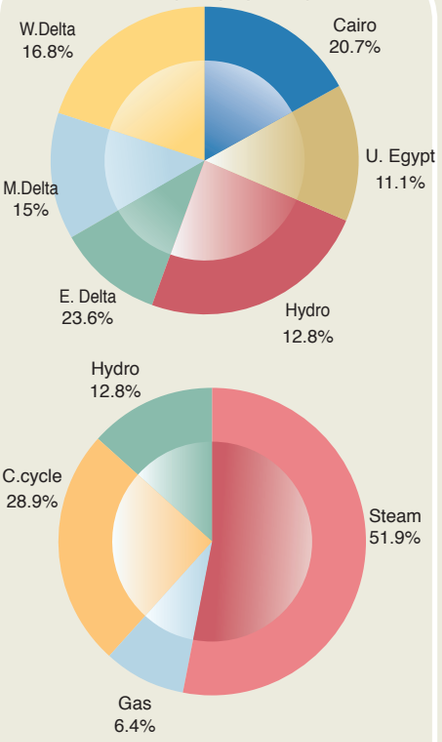
Installed Capacity by Type (MW*)



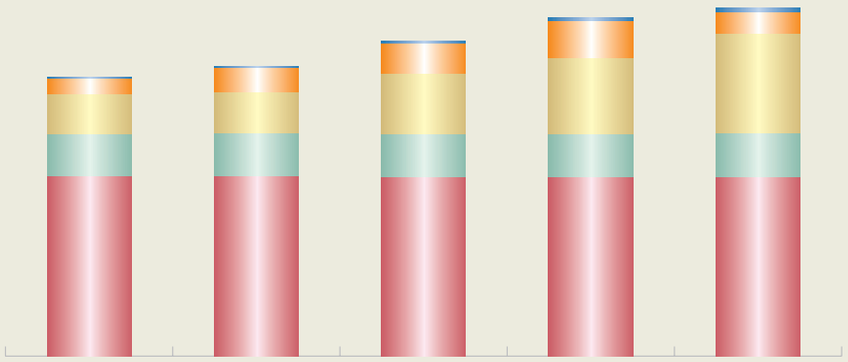
	Cairo	E. Delta	M. Delta	W. Delta	U. Egypt	Hydro. Plants
Hydro	0	0	0	0	0	2842
C.cycle	2235	1200	2857	157	0	0
Steam	2270	3571	420	3342	1968	0
Gas	100	494	75	247	500	0
Total	**4605**	**5265**	**3352**	**3746**	**2468**	**2842**

- Without wind farm (305MW)
- Private sector units have been added to the respective company.

Installed Capacity by Companies



Installed Capacity Development by type of Generation (MW)



	03/04	04/05	05/06	06/07	07/08
Wind	140	140	183	225	305
Gas	1019	1537	1966	2416	1416
C.cycle	2605	2699	3949	4949	6449
Hydro	2745	2783	2783	2783	2842
Steam	11610	11616	11571	11571	11571

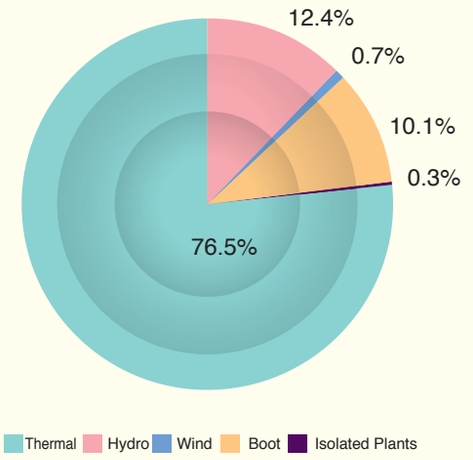
* There is isolated plants with 265 (MW)

Electrical Energy Generated and Purchased

1) By Technology Type : (GWh)

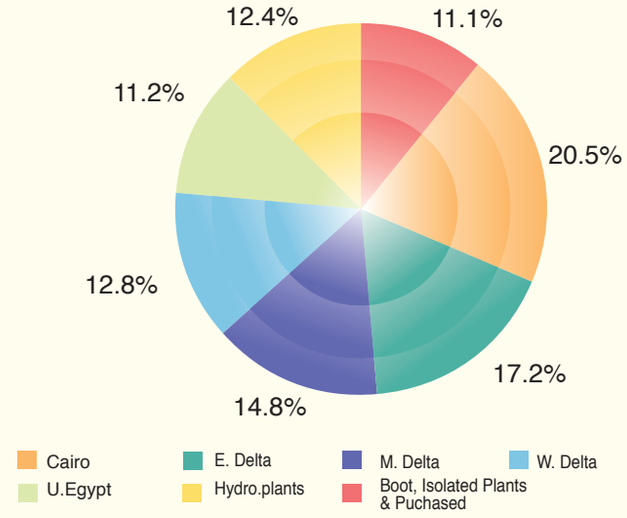
	2007/2008	2006/2007	Variance %
Steam	53076	52082	1.9
Gas	9361	6888	35.9
Comb. Cycle	33345	29892	11.6
Total Thermal*	**95782**	**88862**	**7.8**
Hydro	15510	12925	20
Wind (Zafrana)	831	616	34.9
Total Grid	**112123**	**102403**	**9.5**
Isolated Plants	350	347	0.86
Purchased from (IPPs)	14	32.2	(56.5)
Generated from Boot	12642	12625	0.1
Grand Total	**125129**	**115407**	**8.4**

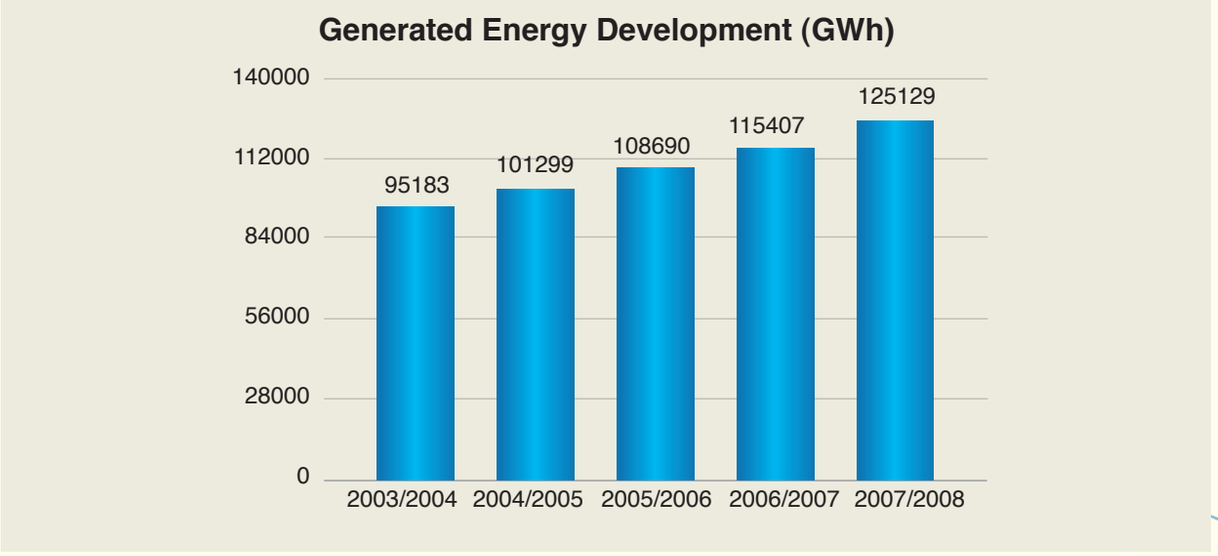
*** The energy produced includes commissioning tests**



2) By Production Company :

Company	Generated energy GWh
Cairo	25679
East Delta	21498
Middle Delta	18562
West Delta	16051
Upper Egypt	13992
Hydro plants	15510
Total Production C.	**111292**
Generated from Boot, Isolated Plants & Purchased	13837
Total	**125129**





Performance Statistics for Power Plants

Comp.	Station	Gross Gen. GWh	Net Gen. GWh	Net/ Gross %	Fuel Consump gm/ kWh	Peak Load MW	Load Factor %	Cap. Factor %	Eff. %	Avail. Factor %
Cairo	Shoubra El-Kheima	7395	7027	95	232.6	1295	65	67.0	37.7	84.6
	Cairo West	1828	1731	95	269.1	320	65	59.0	32.6	91
	Cairo West Ext.	3092	2977	96	224.7	660	53	53	39	76
	Wadi Hof	158	156	99	423.2	79	23	18.0	20.7	94.4
	Cairo South 1	3456	3405	99	226.3	498	79	69.0	38.8	89
	Cairo South II	1239	1223	99	186.7	185	76	85	47	97
	Cairo North**	8511	8337	98	185.3	1280	76	65.0	47.3	93.2
East Delta	Ataka	4543	4293	94	236.9	855	60	57	37	78.6
	Abu Sultan	3264	3013	92	264.5	600	62	62.0	33.2	90.7
	Arish	521	489	94	236.9	66	89	89	37	90.8
	Oyoun Mousa	4402	4243	96	214.6	675	74	78.0	40.9	97
	Shabab	104	102	99	367.8	89	13	12.0	23.8	95.4
	Port Said	51	50	99	364.6	49	12	8.0	23.4	97.6
	Damietta	8377	8194	98	191.2	1136	84	80.0	45.9	97
	Sharm El-Sheikh	115	112	-	-	-	-	-	-	-
	El-Huraghda	121	120	-	-	-	-	-	-	-
Middle Delta	Talkha Steam	2354	2178	92	245.7	420	64	64.0	35.7	90
	Mahmoudia gas	8	7	99	384.9	39	3	1.0	22.8	91.3
	Talkha	1743	1715	98	240.6	270	73	86.68	36.5	96
	Talkha (750)**	2823	2785	99	241.8	598	54	64.0	36.3	89
	Nubaria	9636	9490	98	164.2	1440	76	73.0	53.4	92
	Mahmoudia	1998	1975	99	218.8	306	74	72.0	40.8	94.5
West Delta	Kafr El-Dawar	2621	2410	92	276	430	69	68.0	31.8	90
	Damanhour Ext.	1925	1875	97	231.6	300	73	73.0	37.9	88
	Damanhour steam	1034	961	93	275.8	175	67	62.0	31.8	85
	Abu Kir 300	1525	1436	94	220.7	295	59	56.0	39.7	86.5
	Abu Kir 150	3218	3008	93	251.5	575	64	59.0	34.9	86.5
	El-Seiuf steam	125	109	87	466.2	46	30	12.0	18.8	82.6
	Sidi Krir 1,2	4166	4016	96	208.9	660	72	74.0	42.0	98.7
	Matrouh	273	250	92	306.4	60	52	52.0	28.6	88.5
	El-Seiuf gas	94	90	96	411.2	121	9	6.0	21.3	78.4
	Karmouz	6	5.9	98	390.3	18	6	6.0	22.5	93
	Damanhour	1059	1045	99	215.7	155	78	78.0	40.7	97
Upper Egypt	Walidia	1898	1813	95	238.3	480	45	35	36.8	58.3
	Assiut	556	512	92	298.4	81	78	70	29.4	89.2
	Kuriemat steam	8336	8094	97	210.5	1312	72	76	41.7	92.3
	Kuriemat2	3202	3177	99	234.2	560	65	72	37.5	97.5
Hydro Plants	High Dam	11371	11277	99	-	2160	60	62	90.1	86.6
	Aswan Dam I	1598	1575	99	-	268	68	57	83.5	89
	Aswan Dam II	1998	1987	99	-	270	84	84	90.1	94
	Esna	419	414	99	-	85	56	56	83.5	90.5
	Naga Hamadi	3.2	3.1	98	-	64	22	22	78.6	-
	New Naga Hamadi	121	119	98	-	-	-	-	-	-
Total	Total-Hydro	15510	15375	99	-	2825	63	62	89.1	88.3
	Total-Thermal**	95782	92433	97	218.9	-	65	65	40	-
	Total-Wind	831	828	99	-	280	34	31	-	-
	Purchased IPP,s	14.2	14.2	-	-	-	-	-	-	-
	Private Sector BOOT	12642	11918	-	-	-	-	-	-	-
	Grand Total	124779	120568	97	217.3	19738	73	70	43.3	88.6
	Total for isolated	350	340							
	total	125129	120908							

* The private sector BOOT, IPP's and wind plants are delt with on the basis of the purchased energy (Net generation).

**The energy Generated includes Comissioning tests

Development of Gross Generated Energy (GWh)

Comp	Station		00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08
Cairo	Shoubra El-Kheima	(St)	6980	7433	7797	7433	8610	8099	7543	7395
	Cairo West	(St)	1725	1660	1657	1765	1963	1918	1837	1828
	Cairo West Ext.	(St)	3737	3615	3841	3684	3893	3941	3829	3092
	Cairo South 1	(CC)	3604	3302	3623	3696	3619	3753	3673	3456
	Cairo South II	(CC)	1193	1034	1208	1282	904	1131	1177	1239
	Cairo North	(CC)	-	-	-	214	2635	4475	7325	8511
	Wadi Hof	(G)	51	21	76	23	64	107	101	158
	Tebbin	(St)	232	111	257	121	202	-	-	-
	Tebbin	(G)	10	7	34	8	37	42	-	-
	Ataka	(St)	5315	4977	4643	5079	4139	4455	3715	4543
East Delta	Abu Sultan	(St)	3192	3110	2901	2947	3041	2110	2952	3264
	Suez	(St)	94		26	-	-	-	-	-
	Shabab	(G)	98	74	219	104	122	147	75	104
	Port Said	(G)	24	25	59	22	53	69	25	51
	Arish	(St)	360	385	443	471	555	533	534	521
	Oyoun Mousa	(St)	1874	3829	3847	4159	4319	4192	4074	4402
	Damietta	(CC)	7871	6926	8036	7026	7387	8137	7876	8377
	Sharm El-Sheikh	(G)	-	-	65	65	84	74	59	115
	El-Huraghda	(G)	-	-	40	29	50	66	41	121
Middle Delta	Talkha	(CC)	1713	1435	1611	1647	1828	1834	1570	1743
	Talkha steam210	(St)	2183	2054	2212	2208	2678	2601	2187	2354
	Talkha 750	(CC)	-	-	-	-	-	1784	2488	2823
	Nubaria	(CC)	-	-	-	134	5203	5884	8022	9636
	Mahmoudia	(CC)	1969	1920	1858	1925	2049	2068	2046	1998
	Mahmoudia	(G)	88	51	109	57	76	28	4	8
West Delta	Kafr El-Dawar	(St)	1473	1516	1584	1624	1696	2174	2383	2661
	Damanhour Ext. 300	(St)	1753	980	1823	1797	1468	1787	1797	1925
	Damanhour	(St)	663	794	999	985	1054	982	982	1034
	Damanhour	(CC)	993	936	921	1028	1112	1040	909	1059
	Abu Kir	(St)	4711	4148	3415	3695	4872	5026	4682	4743
	El-Seiuf	(St)	546	393	440	361	409	296	278	125
	El-Seiuf	(G)	69	39	67	37	97	91	36	94
	Karmouz	(G)	1	-	1	0.06	4.3	5	1	6
	Sidi Krir	(St)	3363	3820	3742	3872	3974	3548	3758	4166
	Matroh	(St)	100	162	276	291	324	107	282	273
Upper Egypt	Walidia	(St)	2618	2953	3435	2563	2477	2253	2663	1898
	Kuriemat	(St)	4789	6910	6335	7179	8077	8540	8041	8336
	Kuriemat	(CC)	-	-	-	-	-	-	1350	3202
	Assiut	(St)	506	517	525	543	549	531	542	556
Total	Total-Thermal		64006	65137	68208	67948	74560	81565	88862	95782
	Total-Hydro		13697	15130	12859	13019	12644	12644	12925	15510
	Total-Wind (Zafarana)		137	221	204	368	523	552	616	831
Private Sector (BOOT)	Sidi Krir 3&4		-	2441	4469	4821	4749	4847	4574	4582
	Suez Gulf North West	(St)	-	-	2637	4427	4301	4415	4061	4127
	Port Said East	(St)	-	-	501	4253	4150	4309	3990	3933
	Total BOOT		-	2441	7607	13501	13200	13571	12625	12642
	Purchased IPP's		-	74	77	77.4	69	36	32	14
	Grand Total		77840	83003	88955	94913	100996	108368	115060	124779
	Isolated plant units		303	287	239	270	303	322	347	350
	Total		78143	83290	89194	95183	101299	108690	115407	125129

Note : (St) Steam (G) Gas, (CC) combined cycle

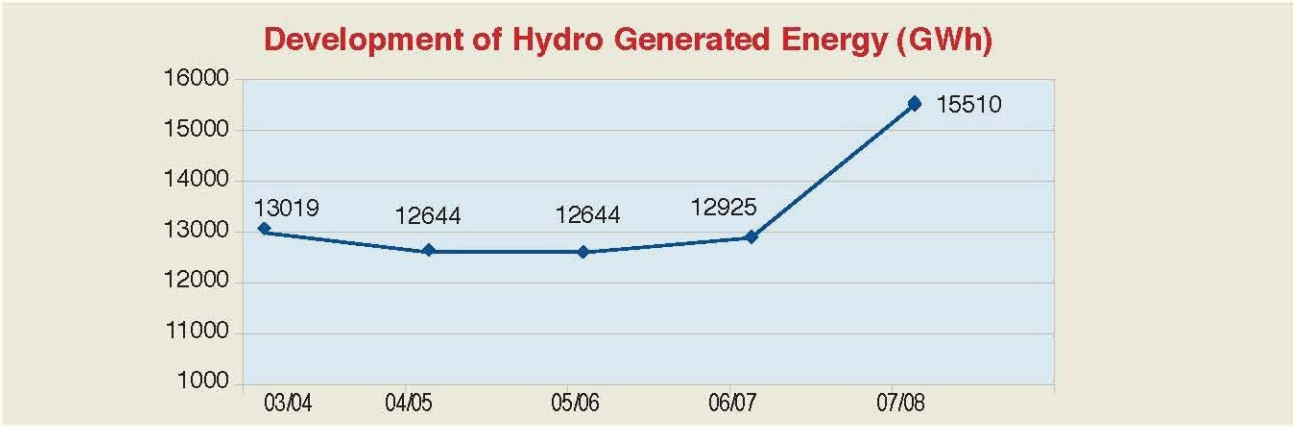
* The energy Generated includes Comissioning tests

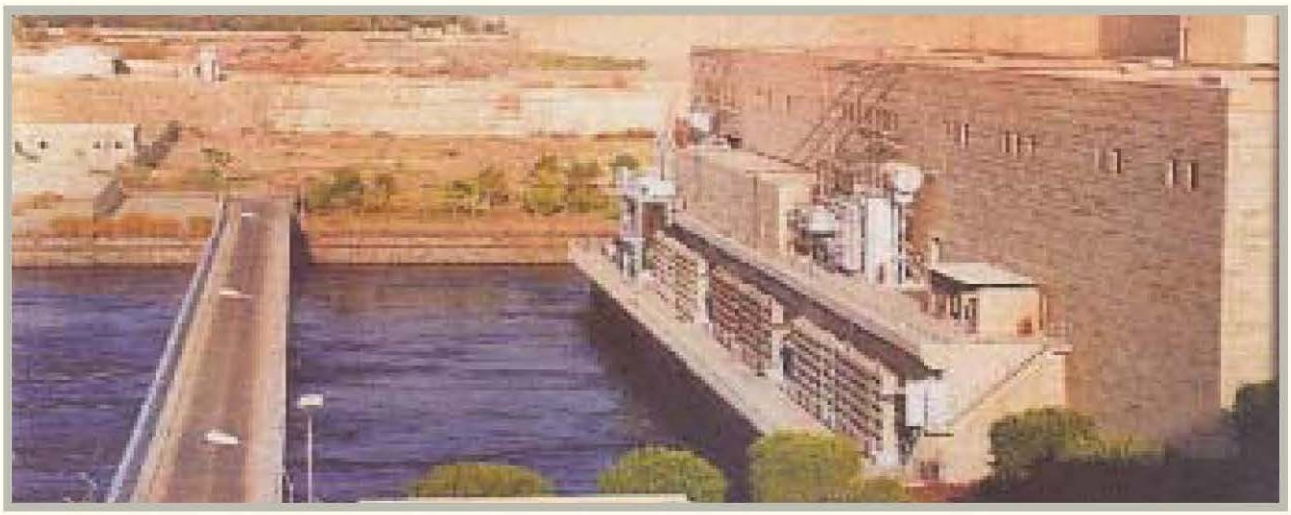
Hydro Power

Generated Energy (GWh)

Plant	07/08	06/07	Variance %
High Dam	11371	9289	22.4
Aswan Dam1	1598	1441	10.9
Aswan Dam2	1998	1771	12.8
Esna	419	409	2.4
Naga Hamady	3	15	(80)
New Naga Hamady	121	-	-
Total	**15510**	**12925**	**20**

Hydro power is considered one of the cheapest and cleanest sources of power generation. In Egypt, the power generation from hydro resources started in 1960, with the construction of Aswan Dam to control the Nile water discharge for irrigation. In 1967 the 2.1 GW High Dam hydro power plants was commissioned, followed by the commissioning of Aswan 2 power plant in 1985 and in cooperation with the Ministry of Water Resources and Public Works; Isna hydropower plant was commissioned in 1993 and Naga-Hamadi in year 2008. The share of hydro generation to the total generation represents about 12.4% in 2007/2008.


Development of Hydro Generated Energy (GWh)
16000
15000
14000
13000
12000
11000
1000
13019
12644
12644
12925
15510
03/04
04/05
05/06
06/07
07/08



Historical Background Of High Dam Power Plant

The High Dam power plant with a total installed capacity of 2100 MW (12*175MW) , is considered one of the biggest Hydropower plants in Africa.

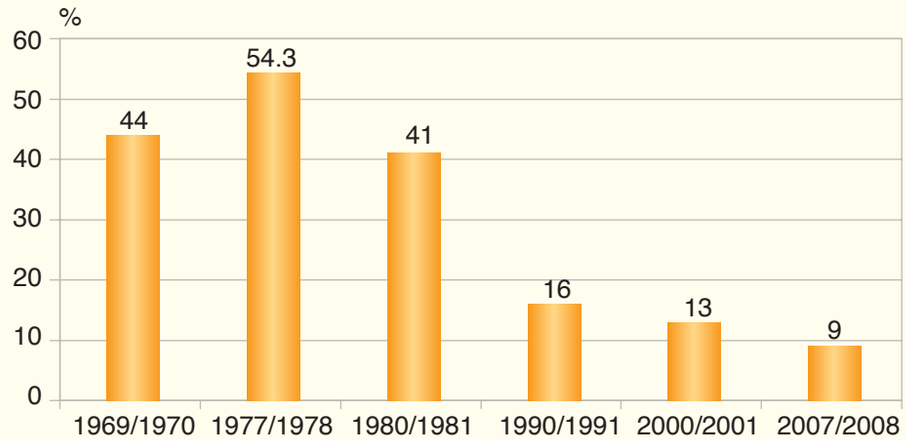
The plant units was commissioned during the period 1967-1970 and electricity generated from the power plant is transmitted to Lower Egypt and to load centers on 500,220 and 132,KV voltage levels.

The total energy generated from the high dam has increased to 11.3 TWh in 2007/2008 representing 9% of total energy generated .

High lights on the High Dam Power Plant

- It produced clean and cheap energy which covered most of the countries demand in the first years of operation (The energy generated from the high dam accounted for more than 50%of total demand in the seventies)
- It encouraged the establishment of strategic industries like Kima Fertilizer, Naga Hamady Aluminum Smelters, Ferrosilicon, Iron and steel…..etc.
- The total energy generated from the high dam from the date of its commercial operation till June 2008 reached about 295.3 TWh with total fuel saving of 68 million Ton of Heavy Fuel Oil .
- It encouraged the expansion of rural electrification especially in Upper Egypt.

The High Dam Contribution in The Generated Power in The Unified Grid



The rehabilitation and renovation achievements

In order to protect the machinery from derating, extend its life time and follow the technological advances, the power plant has passed through several rehabilitation and renovation processes since 1982 as follows:

1. Renovation and development of power plant machinery (from1982-1995) with total cost of Milion140US$ & Million 40 EGP, it includes the following:
   - Replacement of the twelve turbine blades and speed governors during 1982-1991;
   - Rehabilitation and renovation of the 500KV protection systems from1987-1991;
   - Rehabilitation and renovation of the 500KV circuit breakers and current transformers from 1990-1993;
   - Rehabilitation and renovation of the inlet and outlet gates of the plant tunnels from 1992-1995;
   - Rehabilitation and renovation of the 15.75KV circuit breakers from1993-1994.

2. Renovation and development of power plant control and protection systems by the end of year 2003 with total cost of Milion19US$ & Million 11 EGP.

3. Renovation and development of the generators with total cost of Milion79Euros & Million 6EGP:
   The project aims to extend the generators life time for another40 years as well as increase the efficiency and the availability of the generators by decreasing the electrical losses, the project started in 2004, and the rehabilitation work was completed for the following six units:
   - Units 9, 10 (tunnel 5) in June and July 2005 respectively.
   - Units 3, 4 (tunnel 2) in June 2007 respectively.
   - Units 7,8 (tunnel 4) in May 2008 respectively.

4. Upgrade of the 132KV Network to 220 KV :
   - The project aims to secure the electricity supply to Toshki Project directly from the High Dam by constructing double circuit 220 KV transmission line ,and to interconnect the Khasan Aswan 220KV substation to High Dam 220 KV substation by double circuit 220 KV transmission line ,in addition to increasing the capacity of the Khasan substation by third 220KV transformer,
   - The total project cost is Million 32.7EGP , the Second circuit of High Dam –Toshki and the first circuit Khasan- High Dam were energized during September 2008.

5. Replacement of the two auto- transformers 500/132/15.75KV (T 13,T 14) by500/220/11KV with a larger capacity of 500 MVA each :

   The Transformer T14 was energized during September 2008

Expansion Plan for Execution of Hydro Power Plants

The Hydro Power Plants Execution Authority and The Egyptian Electricity Holding Company are coordinating in planning, feasibility studies preparation and follow up execution of hydro power plants projects:

Projects Completed

- In year 1985, Aswan 2 power plant started operation with installed capacity of 4*67.5 MW.
- In year 1991, EL-Ezab , Fayoum was rehabilitated consisting of two units with a total capacity of 680K.W.
- In year 1994, Isna Barrage power plant started operation with installed capacity of 6*14.5 MW.
- In year 1997, Naga Hammadi hydro power plant 3*1.5M.W was rehabilitated(the power plant was retired after the commissioning of New Naga Hammadi , the plant equipment will be used for constructing another Mini-Hydro on Zefta Barrage, feasibility study for the project is on-going)
- In year 2003, a mini-hydro power plant started operation at EL Lahoun, Fayoum consisting of two units with a total capacity of 800K.W.
- In year 2008, New Naga Hammadi hydro power plant started operation with installed capacity of 4x16 MW.

Projects Under Construction

Project	Statue	Installed capacity (MW)	Expected Commissioning date
New Assuit Barrage Hydropower Plant	the hydraulic modeling, technical specifications and tender documents are under preparation.	32	Year 2015
Hydraulic power plant at Zefta Barrage.	Feasibitity study for the project is ongoing.	5.5	-
Total		37.5	

Fuel

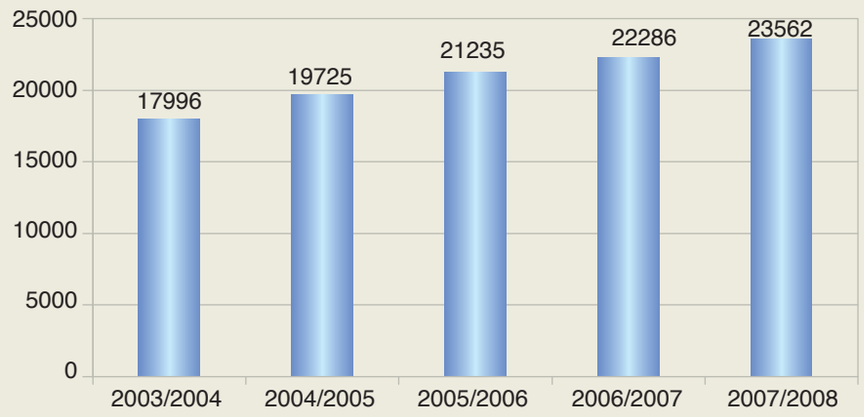
- With the increase in the Egyptian reserve of N. G, policy has been adopted to replace of liquid fuel (H.F.O & L.F.O) by N.G due to its distinction apparent in the economical and environmental aspects.
- Usage of N.G in thermal Power plants Including Private sector connected to the gas grid reached (82%) in 2007/2008 representing (79.3%) of total fuel consumption in the power plants.

Fuel Consumption (by type)*

Item		2007/2008	2006/2007	Variance %
H.F.O	Thousand tons	4774	4348	9.8
N.G	Million m^3	21907	21008	4.3
L.F.O	Thousend tons	2.7	3.7	(27)
Special L.F.O	Thousend tons	102	49	108.2
Total	Thousand toe	**23562**	**22286**	**5.7**

* Including Commissioning tests , Private Sector & without Isolated Plants.

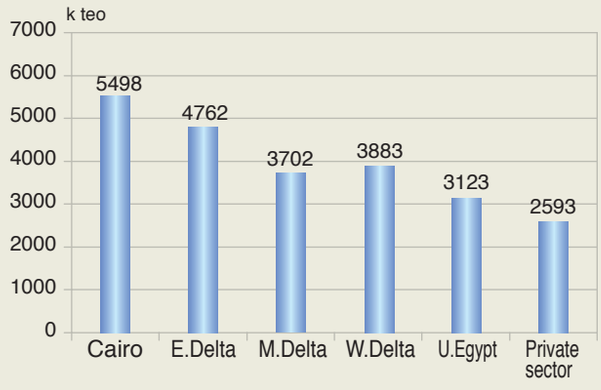
Fuel consumption Development* (Kteo)



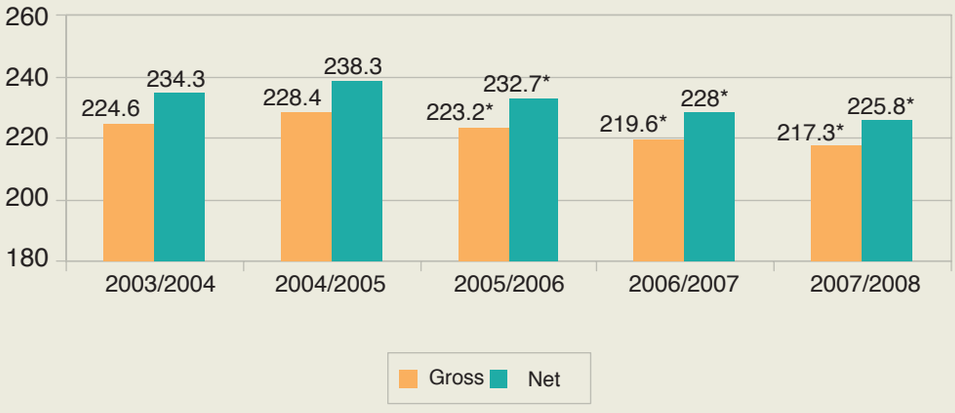
*Including fuel for commissioning tests, BOOT and without Isolated Plants.

Fuel Consumption

Company	N.G million m3	Special L.F.O (K TONS)	L.F.O (K Tons)	H.F.O (K ton)	Total (K toe)
Cairo	5641	-	0.4	727	5498
East Delta	4092	97	1.3	1110	4762
Middle Delta	4302	-	-	64	3702
West Delta	3246	5	0.3	1136	3883
Upper Egypt	1855	-	0.7	1536	3123
Total of Pro-duction Comp	19136	102	2.7	4573	20969
Private Sector	2771	-	-	201	2593
Total	**21907**	**102**	**2.7**	**4774**	**23562**



Fuel Consumption Rate (gm/kwh)



* Including Commissioning tests , Private Sector & without Isolated Plants.

Development of Fuel Consumption In Power Plants (ktoe)

Comp	Station		99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08
Cairo	Shoubra El-Kheima	(St)	1673.4	1575	1686	1753	1673	1936	1849	1779	1700
	Cairo West	(St)	434.1	438	426	431	449	507	492	481	484
	Cairo West Ext.	(St)	714.0	827	791	845	806	862	869	854	687
	Cairo South 1	(CC)	712.2	794	711	792	807	808	830	811	773
	Cairo South II	(CC)	212.7	217	186	219	231	218	233	216	229
	Cairo North	(CC)	-	-	-	-	520	650	880	1443	1561
	Wadi Hof	(G)	40.9	20	8	31	9	25	41	41	65
	Tebbin	(St)	91.2	87	43	101	47	79	-	-	-
	Tebbin	(G)	19.1	4	3	13	3	13	16	-	-
East Delta	Ataka	(St)	1186.5	1155	1053	1028	1136	977	1073	896	1076
	Abu Sultan	(St)	733.2	850	824	762	771	797	571	765	859
	Suez	(St)	141.0	40	-	12	-	-	-	-	-
	Suez	(G)	-	1	0.1	0.1	0.1	-	-	-	-
	Shabab	(G)	41.4	33	25	75	35	42	56	29	38
	Port Said	(G)	13.0	9	9	22	35	19	25	9	19
	Arish	(St)	75.3	101	108	115	117	137	133	129	123
	Oyoun Mousa	(St)	-	423	823	814	874	914	893	876	944
	Damietta	(CC)	1355.0	1442	1294	1476	1333	1422	1539	1507	1602
	Sharm El-Sheikh	(G)	-	-	-	25	26	32	30	27	50
	El-Huraghda	(G)	-	-	-	17	12	20	26	17	51
Middle Delta	Talkha	(CC)	328.9	414	346	381	389	427	433	368	419
	Talkha steam	(St)	541.2	525	487	525	521	632	616	525	577
	Talkha 750	(CC)	-	-	-	-	-	-	-	639	682
	Nubaria	(CC)	-	-	-	-	-	31	1258	1366	1583
	Mahmoudia	(CC)	326.0	405	386	389	410	428	440	436	437
	Mahmoudia	(G)	32.3	32	19	41	23	29	11	2	3
West Delta	Kafr El-Dawar	(St)	470.3	366	376	427	456	478	606	668	724
	Damanhour Ext. 300	(St)	350.3	380	211	412	405	333	411	417	446
	Damanhour	(St)	178.9	172	195	263	267	294	273	270	284
	Damanhour	(CC)	164.0	189	177	186	215	230	217	192	229
	Abu Kir	(St)	976.9	1065	925	797	882	1097	1108	1133	1148
	El-Seiuf	(St)	159.8	181	131	151	143	173	124	170	58
	El-Seiuf	(G)	95.2	25	14	28	16	41	38	16	39
	Karmouz	(G)	0.4	1	0.1	0.3	0.3	1.6	2	0.44	2
	Sidi Krir	(St)	273.0	680	765	757	815	831	730	809	871
	Matroh	(St)	-	25	41	68	88	102	100	87	84
Upper Egypt	Walidia	(St)	605.1	611	674	781	602	588	556	640	452
	Assiut	(St)	156.4	148	152	155	160	163	160	163	166
	Kuriemat	(St)	1108.1	1050	1489	1335	1480	1689	1806	1688	1755
	Kuriemat2	(CC)	-	-	-	-	-	-	-	323.1	750
	Total		13225	14304	14377	15267	15261	17028	18448	19689	20969
Private Sector (BOOT)	Sidi krir 3 ,4	(St)	-	-	417	946	936	926	943	786	886
	Suez Gulf North West.	(St)	-	-	-	361	903	905	931	859	873
	Port Said East	(St)	-	-	-	92	896	866	913	862	834
	Total Boot		-	-	417	1399	2735	2697	2787	2597	2593
	Total		13225	14304	14794	16666	17996	19725	21235	22286	23562

Isolated Power Plants

There are 35 power plants (mostly are diesel Units) located in remote areas, which are not connected to the national grid to supply the demand of tourism projects or any other purposes in addition to wind farm with installed capacity of 5 MW in Hurgeda and connected to Canal distrution network

Installed Capacity and Energy Generated from Isolated Power Plants 2007/2008

Company	Number of plants	Installed capacity (MW)	Energy(GWh)	
			Gross	Net
East Delta	2	25.7	0.14	0.03
Canal	20	165.3	199.4	195.3
El-Behera	5	18.7	34.4	32.9
Middle Egypt	7	47.4	116	112
Upper Egypt	1	2.7	-	-
Total	**35**	**259.84**	**349.6**	**340.23**

- There is wind farm with installed capacity 5 MW connected to Canal distrution network

Fuel Consumption Rate

Company	Fuel Consumption				Fuel Consumption Rate (gm/kwh)Gen.
	H.F.O (k.ton)	Special L.F.O(k.ton)	L.F.O (k.ton)	N.G M.m3	
Canal	-	20.9	23.4	29.7	364
El-Behera	-	-	8.9	-	263.5
Middle Egypt	-	4.3	24.5	-	259.2
Upper Egypt	-	-	-	-	-
Total	**-**	**25.2**	**56.8**	**29.7**	**319.9**

Disseminating the Use of New & Renewable Energy

Within the framework of the Energy Strategy of Egypt, the strategy of the power sector has focused on the diversification of the use of fuel resources, promoting the use of renewable energy and rational use of conventional energy resources.

Egypt is endowed with abundance of wind energy resources especially in Suez Gulf area which considered one of the best sites in the world due to high and stable wind speeds.

The West of Suez Gulf Zone is the most promising sites to construct large wind farms due to high wind speeds which ranges between 8-10 meter/second in average and also due to the availability of large un- inhabitant desert area.

There are also other promising sites having wind speed of 7-8 meters/second in the East and West of River Nile near Beni Sweif and Menia Governorates and El-Kharga 0asis in New Valley Governorate.

Ministry of Electricity and Energy started by implementing several experimental wind farm projects which concluded the setting up of ambitious program for the construction of large wind farm power plants connected to the national grid with total installed capacity reaching 965MW in 2011/2012.

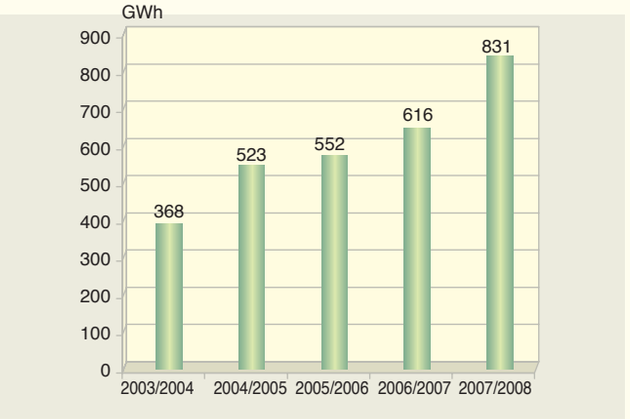
It is noteworthy to mention that, in 30/6/2008, the installed capacity of the largest wind farm in the Middle East region and Africa is located at El Zaafarana on Gulf of Suez reached 305 M.W and is connected to the national grid.

EEHC cooperates with the New and Renewable Energy Authority, responsible of disseminating the use of new and renewable energy resources in Egypt, through the following:

- Generation planning taking into consideration the contribution of the renewable energy.
- Network planning to ensure the capability of power transfer from the renewable projects.
- Purchase energy generated from the wind farms at reasonable price to encourage the use of renewable energy.
- Prepare the power purchase agreements from the wind farms with a reasonable price to encourage the use of renewable energy.

Item	03/04	04/05	05/06	06/07	07/08
Installed Capacity (M.W)	140	140	183	225	305
Generated Energy (GWh)	368	523	552	616	831

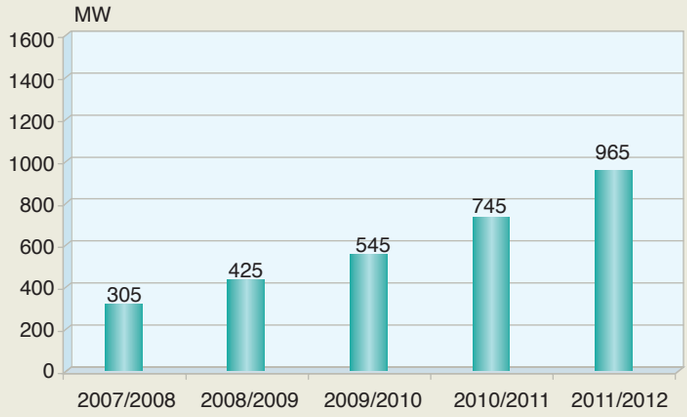
Generated Energy



Renewable Energy Expansion Plan
Up to Year 2011/2012

First: Wind Farms

	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Added capacity	120	120	120	200	220
Total power M.W	305	425	545	745	965



- In April 10, 2007, The Supreme Energy Council in Egypt adopted a resolution on an ambitious plan aiming at increasing the contribution of renewable energy to reach 20% of total energy generated in 2020(8%hydro&12% wind).This could be achieved by private sector participation in financing, building, owning and operating wind farms in Egypt.

Second: Solar Energy

- total installed capacity of 140MW of which 20MW is the capacity of solar component and using hybrid solar, combined cycle technology. The power plant is financed from the Global Environmental Facility and the Japan Bank for International Development.
- Commercial operation of the project is scheduled to be mid 2010 with estimated total energy generated of 852GWh/year.

Electric Power Transmission

Egyptian Electricity Transmission Company (EETC)

Objectives:

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

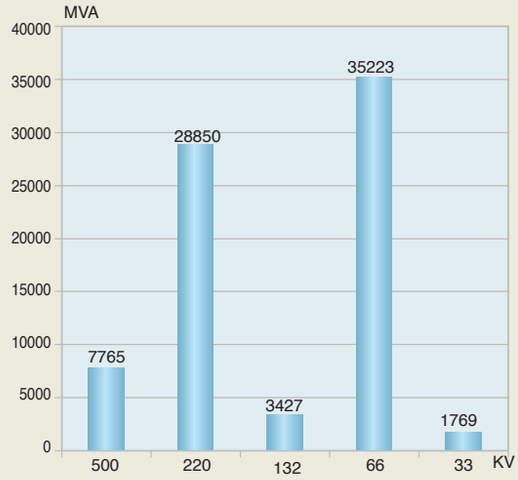
Company	Geographical zone	Headquarter	Address	Tel
Egyptian Electricity Transmission Company	Electricity Transmission Grids on Extra and High Voltage all over the Country	Cairo	Abbassia - Nasr City P.Code 11517	02 - 22618 579 02 - 26843 824

Total number of shares : 2990587 share
Capital : 2990,587 million EGP

Transmission Network Statistics (30/06/2008)

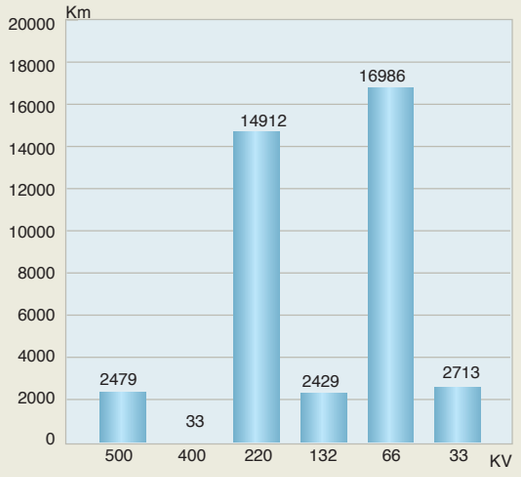
Total Transformers Capacities (MVA)

Zone	500 k.v	220 k.v	132 k.v	66 k.v	33 k.v
Cairo	1500	8690	-	12368	-
Canal	1750	6335	-	5673	-
Delta	-	3425	-	5306	-
Alexandria & West Delta	-	5085	-	6397	-
Middle Egypt	2910	2450	861	2712	816
Upper Egypt	1605	2865	2566	2767	953
Total	**7765**	**28850**	**3427**	**35223**	**1769**



Total Transmission lines(Lines & Cables) (km)

Zone	500 k.v	400 k.v	220 k.v	132 k.v	66 k.v	33 k.v
Cairo	212	-	991	-	2679	-
Canal	409	33	4771	-	3212	-
Delta	-	-	1546	-	3238	-
Alexandria & West Delta	217	-	3373	-	3577	-
Middle Egypt	885	-	2096	1097	2246	1168
Upper Egypt	756	-	2135	1332	2034	1545
Total	**2479**	**33**	**14912**	**2429**	**16986**	**2713**



International Electrical Interconnection

The Egyptian power sector since more than twenty five years was keen to improve its performance through diversification of electrical energy resources and adopting new policies for energy trade at regional and international levels through the electrical interconnection with neighboring countries ;

1. Arab Electrical Interconnection

This has been achieved through technical and commercial agreements with Arab Mashrek countries The seven countries interconnection including Egypt, Jordan Syria, Lebanon, Libya, Iraq and Turkey, and Arab Maghreb extending from Libya to Morocco then to Europe through Spain, in addition to the cooperation with the Arab Union for production, transport and distribution of electricity comprising of members from nineteen Arab countries.

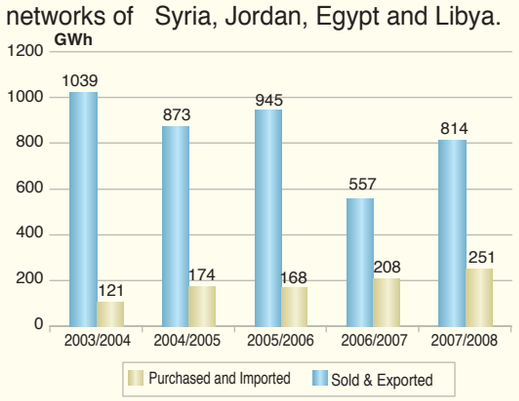
The following interconnections have been implemented:

Electrical Interconnection Egypt-Libya	28/5/1998
Electrical Interconnection Egypt-Jordan	21/10/1998
Electrical Interconnection Syria-Jordan	8/3/2000

This has lead to the interconnection between the transmission networks of Syria, Jordan, Egypt and Libya.

Description	Libya	Jordan	Sorya
Interconnection voltage K.v	220	400	400
Sold and Exported energy (GWh)	64	446	304
Purchased and Imported energy (GWh)	108	134	9

• Includes in-kind exchange



2. African Electrical Interconnection:

This is achieved through Egypt-represented by MOEE- participation in the Nile basin initiative and the study for energy trade between the Nile basin countries signed June 2006, within the Eastern Nile basin initiative (Egypt, Ethiopia, and Sudan). Moreover, Egypt is a member of the East Africa Energy Forum comprising nine countries (Egypt, Ethiopia, Sudan, Kenya, Rwanda, Burundi, Tanzania, Uganda, Democratic republic of Congo) in addition to its effective participation in the committees and meetings of the African Union for Production and Distribution of Electrical Energy(UPDEA) comprising more than fifty African countries.

3. Electrical Interconnection with Europe:

Through Egypt participation in the Observatoire Mediterranean de l'Energie (OME) and the Study Committee for the study of the electrical interconnection of the Mediterranean countries, aiming at achieving the interconnection with the European network through Turkey from East and Spain from West.

Future Vision for Regional Electrical Interconnection

- Study for upgrading the interconnection with Arab Maghreb Countries through Libya to 500/400 kV has been finalized in April, 2004.

The study final report was presented to the concerned countries (ELTAM) , and it was agreed to implement the recommended projects for repowering the national networks(500/400KV) of Egypt and Arab Maghreb Countries according to the following time schedule as presented in the study .

1. Lybia will finalize the construction of the 400KV lines before year 2010.
2. Egypt will finalize the construction of the 500KV Sidi Krir / El Saloom line and El Saloom 500 KV substation by year 2012.

- The feasibility study for the interconnection between the Kingdom Of Saudi Arabia and Egypt,:
  this project if implemented will result in interconnecting Maghreb Arab Countries & Mashreq Arab Countries with countries of Gulf Cooperation Council, this results in integrated interconnected systems of 98% of total generation capacities of the Arab Countries.

Control Centers

In order to achieve the Egyptian Electricity Holding Company (EEHC) main objective of ensuring availability and stability of electricity supply to all consumers, industrial, commercial, irrigation and residential, a fast recovery of power interruptions and reduction of the rate of interruptible power supply is required.

To achieve this objective, EEHC has realized the importance of introducing the most up-to-date automatic control systems applied in developed countries to control the operation of its national power grid by designing a pyramidal control systems headed by National Control Center(NCC) responsible of generating units dispatch and operational control of VHV (500KV,22OKV) networks, followed by Regional Control Centers(RCC) responsible of operational control of HV (up to 66KV)transmission networks and then the Distribution Control Centers responsible of the operation of medium voltage network.

1. National Control Center (NCC):

National Control Center (NCC) has been established since April 1983- several upgrades and renovations had been implemented since that date using the most up to date technology -to moitor, control, operate and dispatch the generating units and the VHV (500KV, 220KV) transmission network to ensure security of supply with optimum economic efficiency and safety.

In 1999, the NCC has been upgraded and modernized to cope with the international best practice and a backup control center to operate in case of emergencies had also been established.

2. Regional Control Centers (RCC):

The Regional Control Centers(RCC) moitor,operate and control the HV networks, information required for security of supply computer package and to ensure the safety operation of the VHV and HV networks are communicated through communication channels coordinating between the NCC and the RCC`S.

The following Regional Control Centers have been established:

- Alexandria Regional Control Center to control the 66KV network in Alexandria , started operation in November 2001.
- Cairo Regional Control Center to control the 66KV network in Cairo , started operation in September 2002
- Naga-Hamadi Regional Control Center to control 132KV substations in Upper Egypt , started operation in 1988.
- Canal Regional Control Center to control the 66KV network in Canal Zone , started operation in January 2002.
- West of Delta Regional Control Center to control the 66KV network in West of Delta, started operation in July 2007.

3. Distribution Control Centers (DCC)

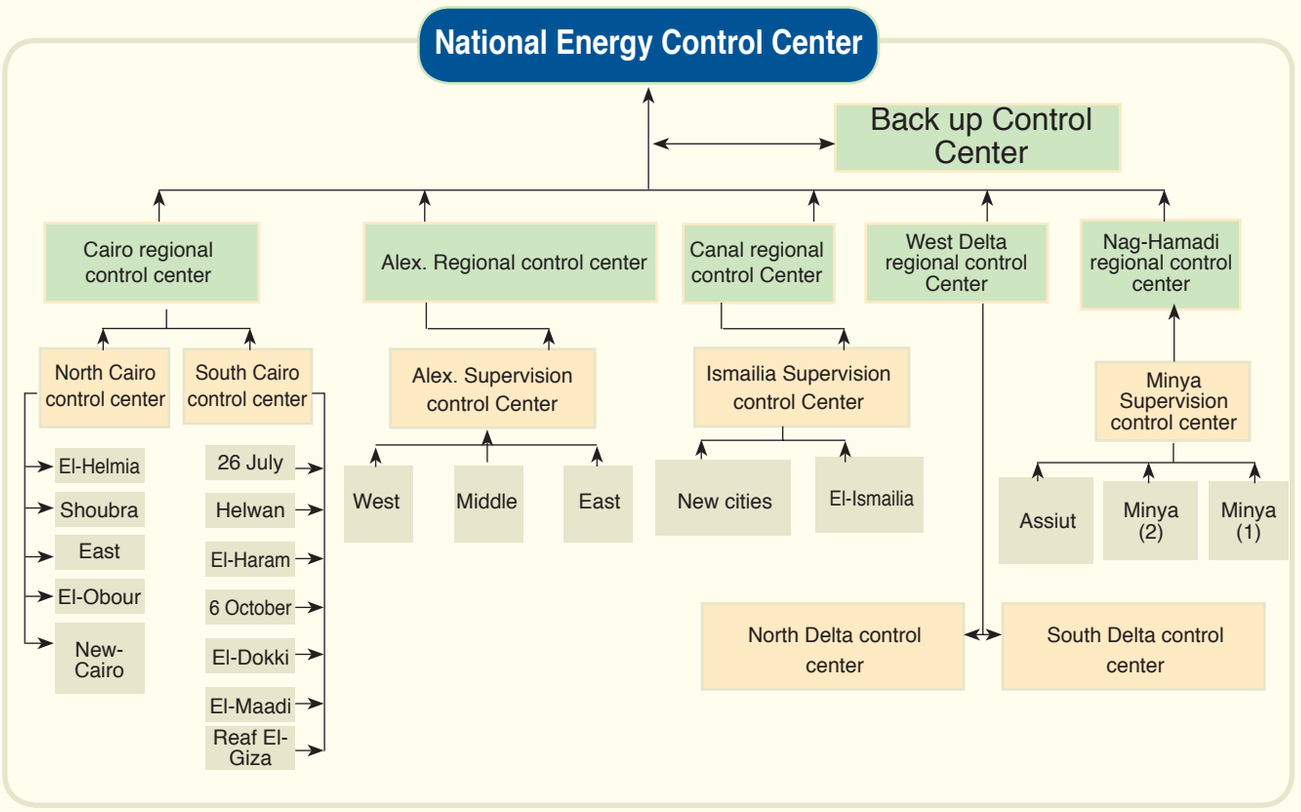
Also the following Distribution (Medium Voltage) Control Centers annexed to the distribution companies have been established:

- Cairo North and Cairo South Distribution Control Centers.

- Alexandria Distribution Control Center.
- Canal Distribution Control Center.
- Middle Egypt Distribution Control Center.
- North and South of Delta Distribution Control Centers.

The main responsibilities of the Distribution Control Centers

1. Quickly locate the place and reason of any interruption in the network which results in reduction of outage time.
2. Frequently monitor the loading of the distribution equipment and the status of the connection and disconnection equipment.
3. Record the sequence of restoration of any network interruption and give notice of any faced problems.
4. Programming of the regular maintenance schedules.
5. Monitor and Control the external distribution systems(distributors and kiosks)and main substations by using the most up to date computer software and hardware for example(fault analysis, load forecast, system losses analysis,…..etc) .
6. Redistribution of loads on medium voltage feeders.



Electrical Power Distribution

Distribution Companies

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

Objectives:

1- Distributing and selling to customers on medium and low voltages, electric power purchased from the Egyptian Electricity Transmission Company and from the Egyptian Electricity Production Companies on medium voltage, and also electric power purchased from industrial and other IPP's exceeding their needs, provided that the approval of EEHC Board is obtained.

2- Managing, operating and maintaining medium and low voltage grids in the company, in compliance with the dispatch centers instructions as to fit for economic operation requisites.

3- Preparing forecast studies on loads and energy for customers of the company and economic and financial forecasts for the company.

4- Conducting studies, research, design, and implementing electric projects for different purposes on the medium and low voltages, and carrying out all associated works.

5- Managing, operating and maintaining isolated units.

6- Carrying out any other work or activities related to or fulfilling the company's objectives, in addition to any other work that may be entrusted to the company by EEHC, within its scope of work.

7- Carrying out other works entrusted to the Company by other party, within its scope of work, so as to realize an economic benefit for the company.

Information about Disrtibution Companies

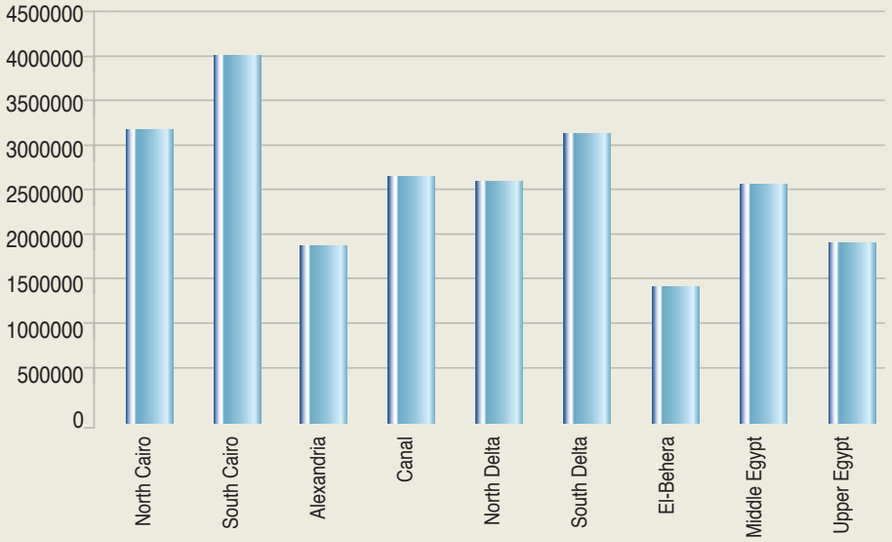
Company	Geographical zone	Headquarter	No. of Shares	Capital (Million EGP)	Address	Tel.
North Cairo	North and East Cairo Sectors-Cairo	Cairo	5292200	52.922	4 Nasr Road Cairo	02 22724409 02 22725095
South Cairo	South and West Cairo Sectors-Giza	Cairo	5967800	59.678	53 - 26 July St., Cairo	02 25759121 02 25766612
Alexandria	Alexandria Governorate, to Kilo 66 Alex- Matrouh Road	Alexandria	19544316	195.443	9 Metwalli St., Attarien	03 3911967 03 3933223
Canal	Helwan, Ismaillia, Port Said, Suez, Sharkia, North Sinai, South Sinai, Red Sea Governorates	Ismailia	15287087	152.870	Osman Ahmed Osman Square, Sheikh Zayed, Ismailia	064 3209600 064 3208240
North Delta	Dekahlia, Damietta & Kafr El-Sheikh Governorates	El Mansoura	21359723	213.597	Abd El Salam Aref St., adjacent to Stadium, Mansoura	050 2304186 050 2304187
South Delta	Kalubia, Monofia & Gharbia Governorates	Tanta	22274638	222.746	Tanta- Kafr El Sheikh Road	040 3455516 040 3455519
El Behera	El Behera, Matrouh, Beyond K66, Alex.Road, Sadat City & its Villages & Khatatba Distriet in Menoufia	Damnhor	9775073	97.750	1 Gomhorya St., Thanawi Zone, Behera	045 3318030 045 3324399
Middle Egypt	Beni Suif, Fayoum, Minia, Assiut & New Vally Governorates	Minia	17688702	176.887	78 Horrya St., Minia	086 2353527 086 2346733
Upper Egypt	Sohag, Qena & Aswan Governorates & Luxor City	Aswan	10153900	101.539	High Dam – West Aswan	097 3480416 097 3480317

Medium and Low Voltage Grids on 30/06/2008

Comp. / Item		North Cairo	South Cairo	Alex.	Canal	North Delta	South Delta	El Behera	Middle Egypt	Upper Egypt	Total
No. of Medium Voltage Distributors (No.)		327	295	177	1007	138	102	225	103	93	2467
Length of Medium Voltage Grid (km)	Lines	515	2820	576	13589	9218	7318	12200	14619	9921	70776
	Cables	12865	16158	8761	14411	4543	2947	3635	4141	4746	72207
	Total	13380	18978	9337	28000	13761	10265	15835	18760	14667	142983
Length of low Voltage Grid (km)	Lines	2761	4298	2549	26863	21347	17177	13959	30749	27797	147500
	Cables	28163	29136	5392	12285	2528	716	1966	1106	1395	82687
	Total	30924	33434	7941	39148	23875	17893	15925	31855	29192	230187
Total Number of Line & Cables (Km)		44304	52413	17278	67149	37636	28158	31760	50615	43859	373170
Total Number of Distributors Transformers		13550	16708	6608	24502	13976	13273	16800	18533	17144	141094
Distribution Transformers capacities (MVA)		10255	10269	3861	9131	3637	3147	3559	3608	3597	51064
Number of low Voltage Boxes and Boards		34920	49807	6608	18351	15496	13359	19252	12014	18327	188134

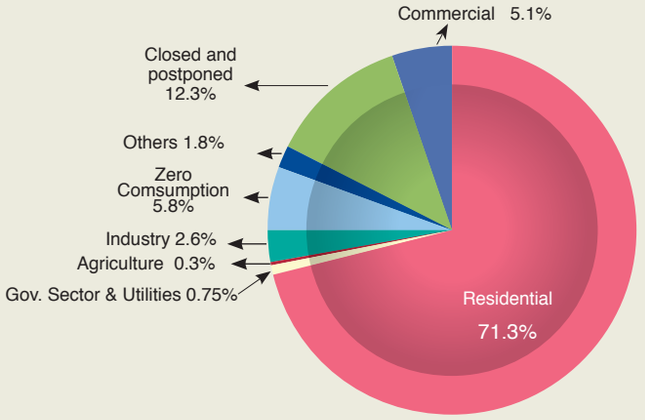
Number of Customers in Distribution Companies

Item	No. of Customers
North Cairo	3240201
South Cairo	4066723
Alexandria	1952913
Canal	2719509
North Delta	2669062
South Delta	3016718
El-Behera	1499097
Middle Egypt	2636356
Upper Egypt	1981632
Total	**23782211**



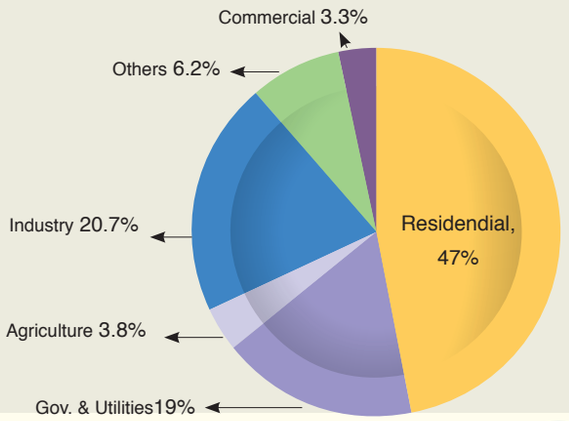
Number of Customers according to Activity

Item	No. of Customers
Industry	621103
Agriculture	73841
Gov. sector	177618
Residential	16968095
Commercial	1217253
Closed and postponed	2925410
Others	428608
Zero reading	1370283
Total	**23782211**



Energy sold from Distribution Companies According to Purposes (Medium and low Voltage)

Item	Quantity	
	M.KWh	%
Industry	17762	20.7
Agriculture	3359	3.8
Governmental	16272	19
Residential	40271	47
Commercial	2860	3.3
Public Lights	5323	6.2
Other		
Total	**85847**	**100**



Development of Customers' Services

Development of customer service centers:

- Distribution companies set a plan for the development, renovation and automation of customers' technical and commercial service centers in order to facilitate, improve and modernize the services provided to their customers, the development included the following:

  - Renovation of customer service centers buildings (painting, lighting, furniture and customer reception halls).
  - Simple forms for (new supply contracts, temporary connections, changing address, changing place of boxes….etc) including list of all required approvals from other entities are on the internet.
  - Explanatory instructions are placed everywhere inside all commercial centers.
  - Automation of the services by computerizing all the processes of providing the services.
  - Customer deals with one window.

The number of customer service centers reached about 390 in the cities and 872 branches in the villages in 2007/2008 compared to 389 centers and 863 branches in 2006/2007 .

Management reform of the centers:

In order to facilitate procedures for connecting customers, Ministry of Electricity And Energy prepared the following:

1. five forms for public services;

   - Request for connecting electricity to buildings (all types of usages).
   - Request for meter testing and calibration.
   - Request for disconnecting the meter.
   - Request for obtaining information about customer consumption.
   - Request for the installation of power factor correction devices.

These Forms are on the internet site (www.edara.gov.eg).

2. Directory for connecting electricity to investment projects was issued; it includes all steps, procedures, documents, fees and approvals needed , also an official representative of the Ministry of Electricity and liaison officers for the transmission and distribution companies were assigned to the complex of investment authority in Cairo , in order to finalize all required procedures for investors. The Directory is on the Web Site (www.egyptera.org).

3. Directory for connecting electricity to housing buildings in urban and rural areas including rules for defining the total area of the house and the design capacity according to the building houses living standard in rural, urban and districts .It also included all procedures ,documents, and approvals needed for connecting electricity to any house and the bases for calculating the connection fees ,the time schedule for connection and the conditions for the availability and specifications of a room for the installation of a distribution transformer. The Directory is on the Web Site (www.egyptera.org).

The use of insulated conductors instead of un-insulated conductors:

Great care has been given to change un-insulated conductors by insulated conductors in low voltage, for new and rehabilitated low voltage networks without any additional cost on customers in order to protect the customers from fire dangers .The total length of the insulated conductors installed in the distribution network reached about 300 thousand Km in 30/6/2008 representing 53% of the total network of low voltage in distribution companies .

Guarantee certain level of quality of supply in electricity companies through the improvement of the level of continuity of supply to customers.

The following procedures have been taken to improve continuity of supply indices in the distribution company.

- Analysis of the causes in case of increased un-planned interruptions and relate it to network renovation and rehabilitation plans.
- Follow-up the implementation of maintenance programs to insure optimizations of interruption of supply time and at the same time implementation of the maintenance procedures with high quality.
- Insure high quality of the services provided by the call centers in case of interruptions.
- Intensive field inspections and data about interruptions collected, these data are compared with the recorded data to check for accuracy.
- The use of automatic restoration devices for overhead lines with high interruption rates, this system enable dquick restoration for minor faults which result in reducing interruption rates also they help in locating the place of major fault resulting in reducing restoration time.
- Setting annual plan for the rehabilitation and extension of system components in order to meet the growth of demand and reduce interruption rates. In addition to the implementation of the most up-to-date maintenance and rehabilitation procedures for power plants and transmission and distribution networks.

Supply of electricity to slum areas and building constructed illegally:

Upon the guidance of H.E the President of the republic, and the approval of the cabinet dated 26/10/2005 for supplying electricity to slum areas, and the Council of Governors approval for supplying electricity to illegally constructed buildings on November first,2005.

Ministry of Electricity and Energy set a plan starting from 1/1/2006 to supply the slums and illegally constructed buildings in stages.

Status of electricity supply to slum areas and illegally constructed buildings tell the first of November 2008 :

a) Slum areas:

- Electricity were supplied to 377 thousand households representing 99.5% of the number who paid the supply cost in the first stage (connecting the households near the source of supply)
- Electricity were supplied to 28 thousand households (connecting the households far from the source of supply) representing 95.4% of the number who paid the supply cost in the second stage.

b) Illegally constructed buildings:

- 530 thousand requests were received from the owners of the buildings, approval for connecting electricity to 426 thousand requests was received from the Gvernorates, 309 thousands were connected representing 94.7% of the number paid the supply cost.

Trace- passes on transmission lines right of way:

- Due to continuous habitat extensions and the construction of buildings in the safety distances of the right of way of overhead transmission lines, and in order to secure the structures and personnel, electricity companies periodically register the routs of transmission lines with trace passes on the safety distances in their right of way to be included in the companies` plans to change the overhead lines to cables or change the line routs.
- Governorates were requested to finance these changes.
- Some of the over head transmission lines with trace-passes already replaced by underground cables or their right of way changed to be out side the inhabitant area, coordination with governorate is going on to complete the changes required in the network to cure the rest of the trace-passes.

Human Resources

The Egyptian Electricity Holding Company (EEHC) and its affiliated Companies depend on the human resources as a main driver for the development of the production, distribution and utilization of electrical power. The company is profoundly keen on developing basic skills and upgrading capabilities of human resources to cope with the technological progress. In this context, the following has been achieved:

1- Human resources

Total number of EEHC employees for the year 2007/2008:

item	Number in 30/6/2008
Head Quarter	1887
Electricity Hospital*	1091
Total	**2978**

* including shifts totaling to 376 workers

Production Companies

Cairo	5662
East delta	5774
Middle delta	5533
West delta	7400
Upper Egypt	3150
Hydro planets	3420
Total	**30939**

Egyptian electricity transmission company	**30879**

Distribution Companies

North Cairo	10529
South Cairo	12995
Alexandria	13061
Canal	16651
North Delta	7989
South Delta	9010
El-Behera	7123
Middle Egypt	9020
Upper Egypt	7157
Total	**93535**

Total number of employees of EEHC and its affiliated companies	158331

2-Health Care:

EEHC is focusing its efforts on improving the performance of the electricity hospital, overcoming work obstacles and achieving its economic operation. Efforts exerted are represented in rationalizing expenses and improving service quality.

3-Training:

No.	Report	Total No. of Trainees
1	Trainees Working At The Holding Company, The affiliated companies and the Ministry of Electricity and Energy	55455
2	Trainees from the Arab and African companies	841
3	Summer training for college and High Institutes students	2191
4	Co-Classes in cooperation with the Ministry of Education: (No. of graduates).	
	A) 3 years System	184
	B) 5 years System	20
	C) Mubarak- kol System	135
5	**Cooperation with Cairo University**	
	1- Number of power station Deploma	10
	2- Number of Protection & Control Deploma	41

Electricity Hospital

The Egyptian Electricity Holding Company is keen to provide health care to all its employees and has therefore constructed the electricity hospital which has gained a high medical reputation due to its competence and high expertise.

Continuous efforts are exerted to improve the quality of medical services and develop the existing facilities such as the Intensive Care Unit, the Dialysis unit, the Bronchoscope, the Endoscopy, and introduce new ones such as the MRI, thus achieving an excellent medical service available to patients from the power sector as well as outside patients where a 24 hours service is available through consultants and specialists.

The hospital is keen to ensure a good quality of services with a quick response to the requirements of its patients to achieve their satisfaction.

Number of beds 260	Number of surgical and Endoscopy operation rooms 8	External Clinics 30

Hospital Address: El Thawra Street- Almaza, Km4.5 Cairo/Suez Road
Tel. : 02-22687843 Emergency : 02-24149845

Commercial activities

Electricity Energy Pricing:

The electrical energy tariff structure is set in accordance with the same unified basis on which prices of electrical energy are set all over the world, taking the following into consideration:

- Voltage levels: where prices are calculated based on the UHV, getting higher as voltages decrease to add costs of the installation and operation of corresponding transmission and distribution networks, and the loss of energy in this network.
- Purpose of consumption: according to the different usages, tariff of the residential, commercial and public lighting uses are set differently from the other usages (industry, agriculture, public Utilities, and governmental entities....)

Many factors are affecting the increase of the cost of service, mainly:

- High growth rate of demand which reached an average of 7% during the past five years.
- High increase in investments costs for the construction of new power plants and associated networks due to the international increase in the equipment cost as a result of the increase of copper, aluminum and Cement Prices.
- The change in the exchange rate from L.E 3.4 to 5.3 for the dollar and to 7 L.E for the Euro.
- The increase in the share of thermal generation from 30% in 1975 to 88% against a constant hydro power production and the increase of fuel price.
- Wages Increase at an average rate of about 12% annually.

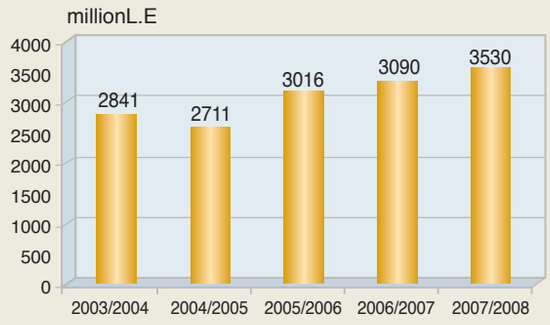
Although all these factors, the social concern has always been taken into consideration when setting the electricity tariff especially for vulnerable residential consumers.

where the tariff applied to the first segment of residential consumption (up to 50 KWh) is 5 Pilasters/KWh (represents about 23% of total number of residential consumers) and has been constant since 1993,compared to cost of service equal to 18.62 Pt/kWh in 2007/2008 .

Also it is to be noted that not only the first segment is subsidized but also the first three segments (up to 350 kWh/Month) where about 20 million consumers are benefiting from this subsidy representing 98.5% of the total residential consumers. The subsidy of the residential sector has reached L.E 2.9 billion in year 2007/2008.

Year	Subsidy ML.E
2003/2004	2841
2004/2005	2711
2005/2006	3016
2006/2007	3090
2007/2008	3530

Total Subsidy



Tariff Structure

1) Power Service on Very High Voltage (Pt/KWh)	
Kima	**4.7**
Metro- Ramsis	**6.8**
Somed	**27.3**
Other Consumers	**12.9**
2) Power Service on High Voltage (Pt/KWh)	
Metro - Toura	**11.34**
Other Consumers	**15.7**
3) Power Service on Medium & Low Voltage	
3/1- More than 500 KW	
* Demand Charge (LE/kw-month)	**9.5**
* Energy Rates (pt/kWh)	**21.4**
3/2- Up to 500 KW	
a- Agriculture (Pt/KWh)	**11.2**
Annual Charge per fedan for Irrigation by groups (LE)	**135.2**
b-Other purposes(Pt/KWh)	**25.0**
4- Residential :-	Price**(Pt/KWh)**
1) First 50 kWh monthly	**5.0**
2) 51 - 200 kWh «	**11.0**
3) 201 - 350 kWh «	**16.0**
4) 351 - 650 kWh «	**24.0**
5) 651 - 1000 kWh «	**39.0**
6) More Than 1000 kWh «	**48.0**
5 - Commercial:-	Price **(Pt/KWh)**
1) First 100 kWh monthly	**24.0**
2) 101 - 250 kWh «	**36.0**
3) 251 - 600 kWh «	**46.0**
4) 601 - 1000 kWh «	**58.0**
5) More Than 1000 kWh «	**60.0**
6 - Public Lighting	**41.2**

• The prices are based on Power Factor 0.9

Electricity Prices applied to industries
Subjected to Prime Minster Decree No 1795 for year 2008 - 1/7/2008

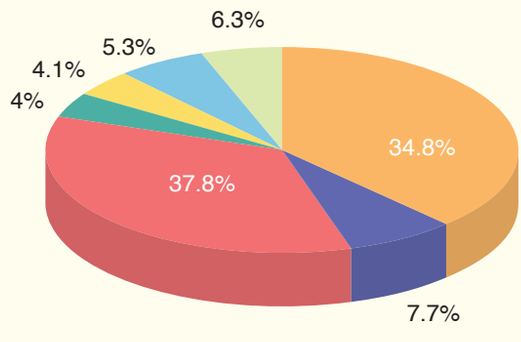
1) Power Service on Very High Voltage	**Pt/KWh**
A- Energy intensive industries (Glass - Ciramic - Chemicals - Iron - Cement - Fertlizers - Aluminum - Cupper - Petrochemicals).	**20.2**
B- Other Industries (food - Textaile - Pharmaceutical Industries - Engineering - .....)	**13.9**
2) Power Service on High Voltage	
A- Energy intensive industries (Glass - Ciramic - Chemicals - Iron - Cement - Fertlizers - Aluminum - Cupper - Petrochemicals).	**24.5**
B- Other Industries (food - Textaile - Pharmaceutical Industries - Engineering - .....)	**16.8**
3) Power Service on Medium	
A- Energy intensive industries (Glass - Ciramic - Chemicals - Iron - Cement - Fertlizers - Aluminum - Cupper - Petrochemicals).	-
* Demand Charge (LE/kw-month)	**10.4**
* Energy Rates (pt/kWh)	**33.4**
B- Other Industries (food - Textaile - Pharmaceutical Industries - Engineering - ....)	-
* Demand Charge (LE/kw-month)	**9.5**
* Energy Rates (pt/kWh)	**23**

• The prices are based on Power Factor 0.9

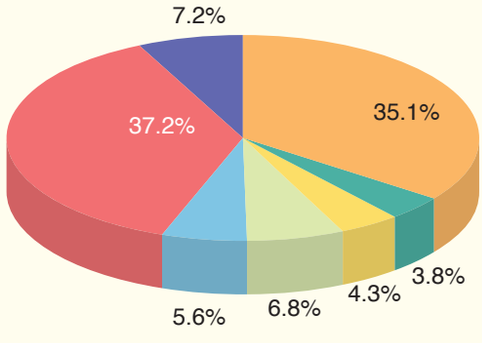
Energy sold by Purpose (Gwh)

Description	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Industries	28386	30284	32701	34569	37045
Agriculture	3280	3460	3719	3789	4209
Utilities	3719	4011	4206	4228	4380
Public lighting	5302	5919	6489	6653	6759
Governmental Entities	4331	4710	5054	5562	5691
Residential	29823	31311	33900	36596	40271
Commerical&Others	4801	5393	6016	7046	8240
Total	79642	85088	92055	98443	106595
Interconnection& Boot	918	693	774	369	631
Grand total	80655	85781	92829	98812	107226

2007/2008



2006/2007



Residendial Industy Commerical&Other Governmental Entities Agriculture Utilities Pubic Lights

Sales Development

On may notice the considerable growth in household loads in comparison with industry and other utilizations as a result of the widespread use of domestic appliances especially air conditioners