



Census of Electricity Establishments (CEE) 2005-06



**Government of Pakistan
Statistics Division
Federal Bureau of Statistics
September 2007**

Foreword

Federal Bureau of Statistics (FBS) has been conducting Census of Electricity Establishments (CEE) on annual basis since 1962-63. The last report released in the series relates to the year 2004-05 is available on the FBS website.

2. This report presents results of the CEE conducted during the year 2005-06 and includes data on installed capacity, electricity generation, electricity consumption, number of consumers and fuel consumption etc at national and provincial levels. All the electricity establishments both in public and private sectors, independent power producers (IPPs) and captive units have been covered in this Census.

3. The compilation of this document has been possible only with the cooperation of data source agencies (Annexure-I), which provided the requisite information. FBS is thankful to the Management of Water & Power Development Authority (WAPDA), Karachi Electric Supply Corporation (KESC), Pakistan Atomic Energy Commission, Independent Power Producers and Captive Units for furnishing the requisite information.

4. I hope that this publication will be of use as a reference document for researchers and policy makers on power sector in Pakistan. Suggestions for improvement of contents and presentation for future issues of this publication would be welcome.

(ASAD ELAHI)
Secretary

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Chapter-I

Introduction, Objectives and Data Collection

Introduction

This report is the twenty-eighth in the series compiled by Federal Bureau of Statistics (FBS). The first census report was brought out for the year 1962-63. This report presents data for the year 2005-06 (July-June) at national and provincial levels. The CEE covered all public and private sector electricity establishments engaged in generation, transmission and distribution of electricity whether Hydel, Thermal or Nuclear during the year under report (2005-06).

Objectives & Coverage

The National Accounts Committee decided in its meeting on 27th February 2004 that national accounts should be regularly rebased every five years and the next rebasing should be carried out in 2005-06. FBS (National Accounts), therefore, initiated preparatory work for rebasing of National Accounts. Fresh Censuses/Surveys/Studies needed for the purpose were identified. Census of Electricity Establishments (CEE), 2005-06 is one of them.

The main objective of the CEE is to derive various indicators of electricity sub-sector in the national economy. The census aims at collecting information on installed capacity by type of plants, electricity generated by type of fuel used, electricity consumption and number of consumers by branches and electricity consumed in auxiliaries and system losses.

The CEE, 2005-06 covered all the electricity establishments engaged in generation and distribution of electricity both in Public and Private Sectors in all the Provinces and Federal Capital Islamabad (FCI). The data of electricity consumption in FCI is included in Punjab. The data for the years 2000-01 to 2002-03 have not been given in this Report as no census was conducted for these years.

Data Collection

The census of electricity establishments is conducted through mail. Census questionnaires were dispatched to all the electricity establishments (public & private) (Annexure-I). The frame of electricity establishments was obtained from Ministry of Water and Power (Private Power & Infrastructure Board (PPIB) and National Electric Power Regulatory Authority (NEPRA), Islamabad. As a result of hectic efforts and vigorous follow up, response from all functioning electricity establishments was obtained.

Chapter-II

Concepts and Definitions

Electricity Establishments

Any public/private utility establishment, which is engaged in generation, transmission and distribution of electricity.

Watt

Watt is a unit of power. A watt is defined as the rate of doing one joule (J) of work in one second. Common units of power are multiple of the watt. These are as under:

- One Watt (W) = 01 J/S
- One kilowatt (KW) = 10^3 J/S
- One Megawatt (MW) = 10^6 J/S
- One Giga watt (GW) = 10^9 J/S

Kilowatt Hours

Kilowatt hour is a precise measure of energy and work. It is the work equivalent to 1000 watts (Joules per second) over one hour time.

- Work = Power x Time
- One Kilowatt hour (Kwh) = 3.6×10^3 Joules
- One Megawatt hour (Mwh) = 3.6×10^6 Joules
- One Giga watt hour (Gwh) = 3.6×10^9 Joules

Auxiliaries Consumption

Electricity consumed in the power stations during electricity generation.

System Losses

Electricity lost in the process of transmission and distribution of electricity.

Fuel

A fuel is defined as any substance burned as a source of heat or power.

Fuel Cost

It consists of cost of fuel, lubricants and spare parts.

Domestic Supply

It includes power supply to residences, places of worships, approved charitable institutions, Government approved educational institutions, hospitals etc.

Commercial Supply

It includes power supply to offices and establishments such as shops, hotels, restaurants, petrol pumps, private hospitals, cinemas, offices of associations and consultants etc.

Industrial Supply

It means power supply for bona fide industrial purposes in factories including the supply required for the offices and for normal working of the industry and also for water pumps and tube wells other than those meant for irrigation or reclamation of agriculture land.

Agricultural Supply

“Agricultural Supply” means a supply for lift Irrigation Pumps and/or Tube wells intended solely for irrigation or reclamation of agricultural land or forests, and includes supply for lighting of tube well chamber.

Public Lighting

“Public Lighting Supply” means a supply for the purpose of illuminating public lamps.

Bulk Supply

“Bulk Supply” for the purpose of this tariff means a supply given in a bulk at one point to consumers having their own distribution facilities, i.e. own grid station, H.T/L.T lines and distribution transformers etc., for the purpose of further distribution within their respective jurisdiction.

Energy Charges

“Energy Charges” means the charges for the units actually consumed by the consumer in kilowatt-hours.

Maximum Demand

“Maximum Demand” means the highest demand obtained in any month measured over successive periods each of 30 minutes duration.

Restructuring of WAPDA (Thermal Power Plants)

The utility part of WAPDA has been corporatised into independent companies as a result of restructuring of power wing in recent years. The shift from convergence to divergence has given birth to 13 entities to operate in different zones. These are National Transmissions and Dispatch Company (NTDC), four thermal power generation companies (GENCOs) and eight distribution companies (DISCOs).

Chapter-III

Findings

Installed Capacity

At present, the total installed capacity from all the establishments (Thermal, Hydel and Nuclear) stands at 20,495 MW as compared to 20,456 MW in the year 2004-05 showing an increase of 1.9%. Year-wise installed capacity of electricity and percent change since 1990-91 is given in Table-1.

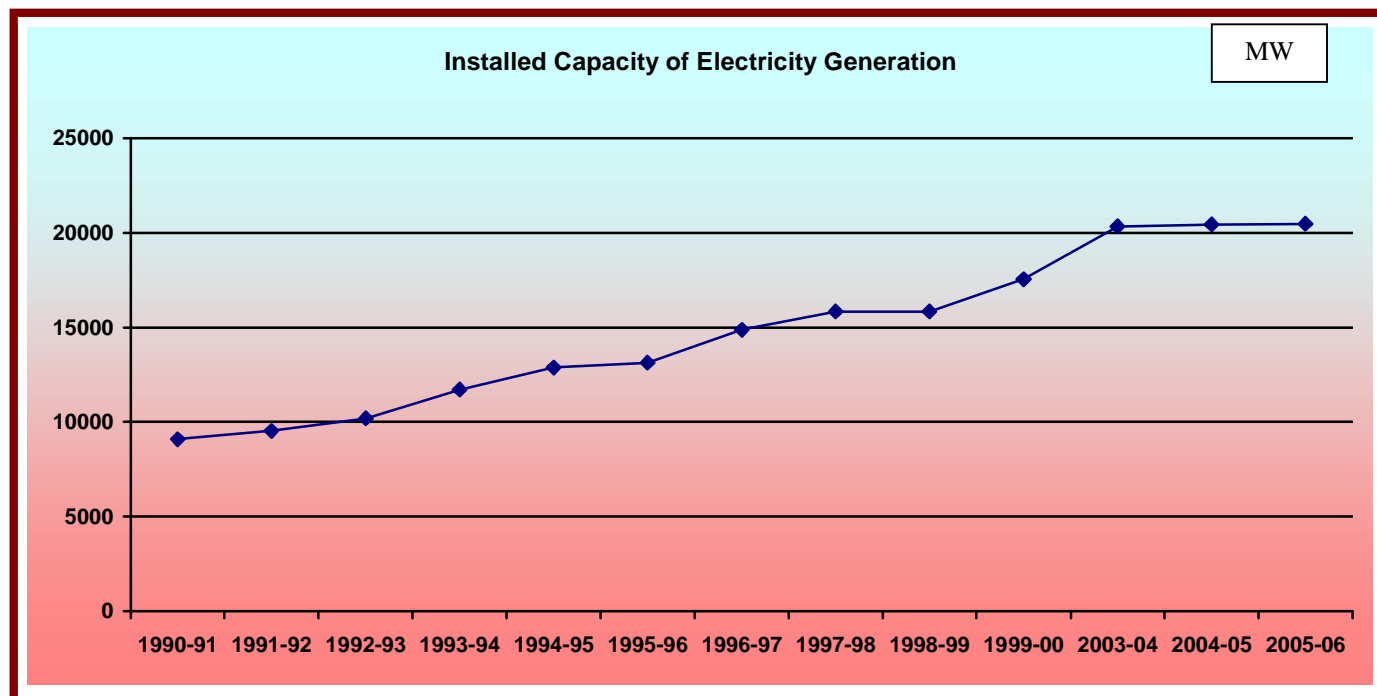
Table-1

Installed Capacity of Electricity Generation

(MW)

Year	Installed Capacity	Percent Change	Year	Installed Capacity	Percent Change
1	2	3	4	5	6
1990-91	9,094	-	1997-98	15,860	6.5
1991-92	9,533	4.8	1998-99	15,860	-
1992-93	10192	6.9	1999-00	17,564	10.7
1993-94	11,721	15.0	2003-04	20,360	3.75
1994-95	12,894	10.0	2004-05	20,456	0.5
1995-96	13,154	2.0	2005-06	20,495	1.9
1996-97	14,893	13.2			

Figure-1



Electricity Generation

The power generation performance of all the electricity establishments witnessed improvement during the report year. The total generation of electricity during the year 2005-06 stood at 96,478 Million KWH as against 88,379 Million KWH in the year 2004-05 showing an increase of 9.2% as compared to the year 2004-05. Year-wise electricity generation and annual percent change since 1990-91 is given below.

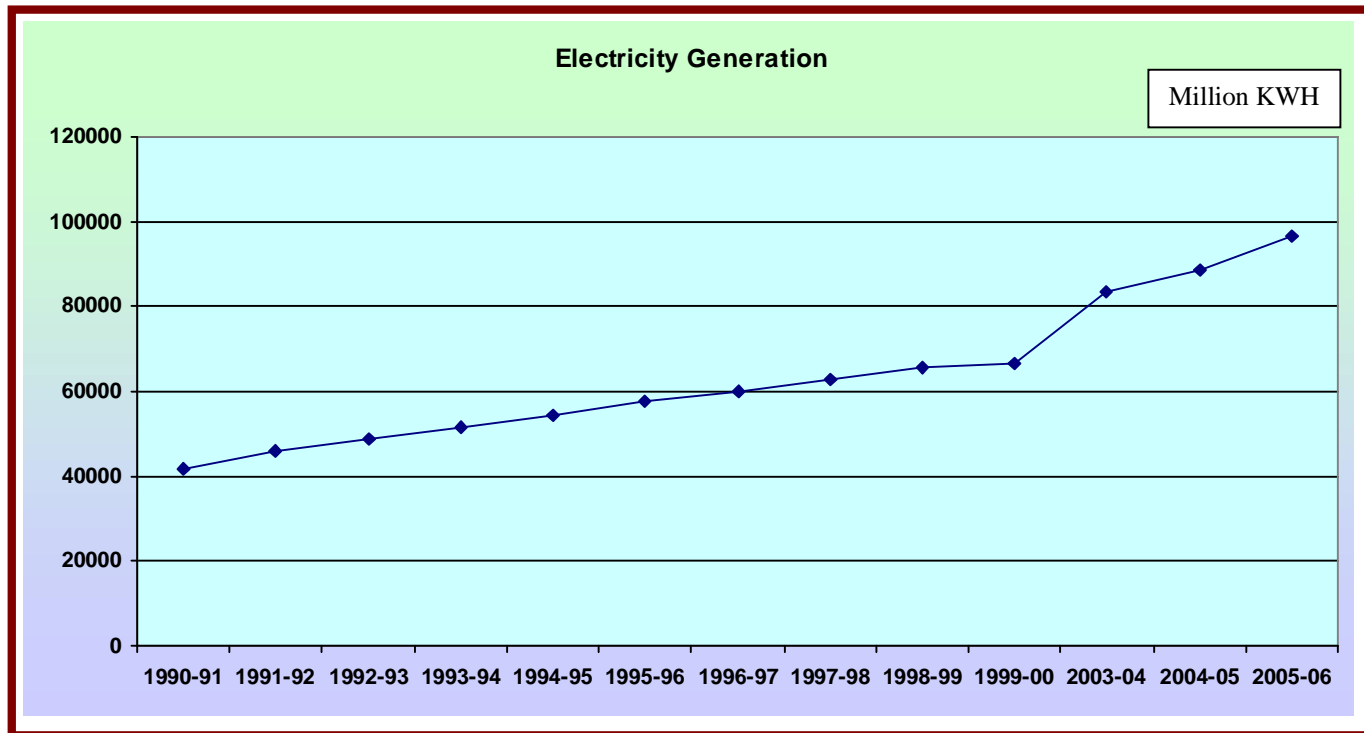
Table-2

Electricity Generation

(Million KWH)

Year	Electricity Generation	Percent Change	Year	Electricity Generation	Percent Change
1	2	3	4	5	6
1990-91	41,918	-	1997-98	62,915	5.0
1991-92	45,876	9.4	1998-99	65,402	4.0
1992-93	48,912	6.6	1999-00	66,562	1.0
1993-94	51,474	5.2	2003-04	83,607	5.9
1994-95	54,530	5.9	2004-05	88,379	5.7
1995-96	57,732	5.9	2005-06	96,478	9.2
1996-97	59,894	3.7			

Figure-2



Installed Capacity by type of Plant

Installed capacity by type of plant i.e. Hydel, Thermal and Nuclear for the years 1990-91 to 2005-06 is given in Table-3. During the year under report the total installed capacity was 20,495 MW. The share of Thermal was 66% whereas the Hydel and Nuclear stood at 32% and 2% respectively.

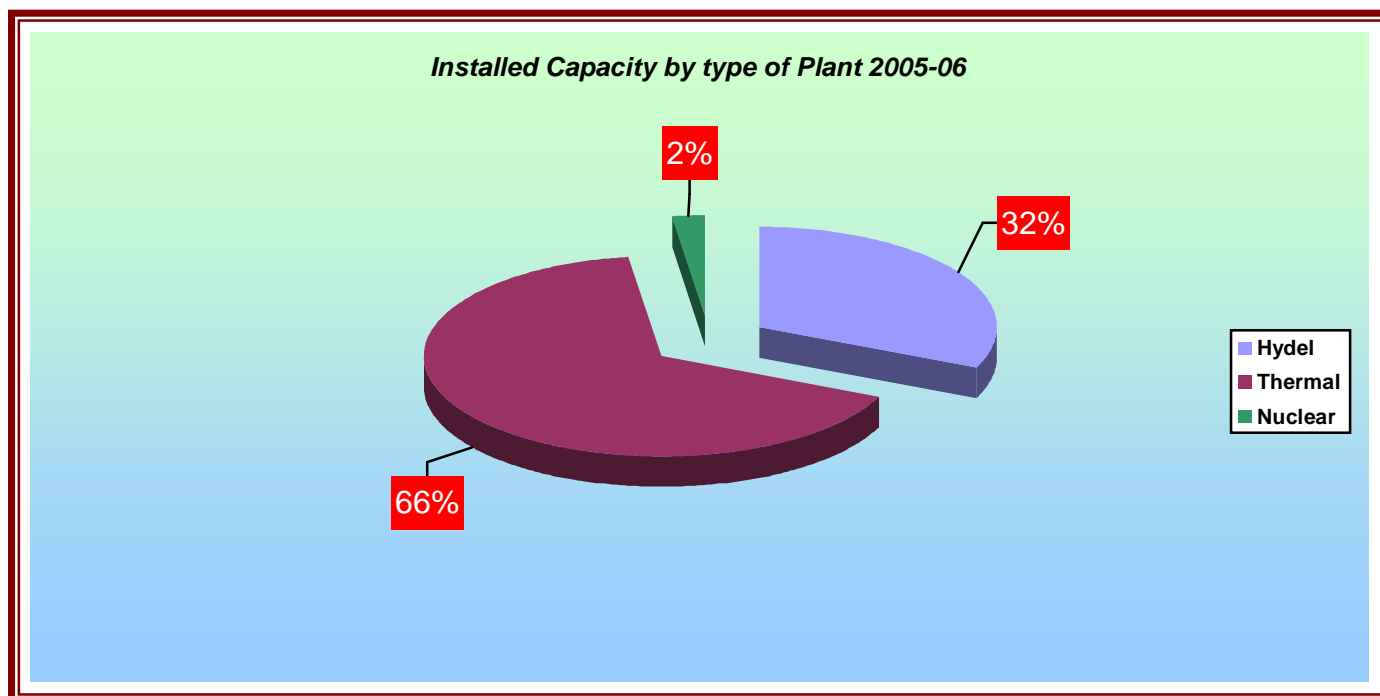
Table-3

Installed Capacity by type of Plant

(MW)

Year	Total	Hydel	Thermal	Nuclear
1	2	3	4	5
1990-91	9,094	2,898	6,059	137
1991-92	9,534	3,330	6,067	137
1992-93	10,192	3,761	6,294	137
1993-94	11,721	4,725	6,859	137
1994-95	12,894	4,826	7,931	137
1995-96	13,154	4,826	8,191	137
1996-97	14,983	4,826	10,020	137
1997-98	15,860	4,826	10,897	137
1998-99	15,860	4,826	10,897	137
1990-00	17,564	4,826	12,601	137
2003-04	20,360	6,464	13,434	462
2004-05	20,456	6,464	13,530	462
2005-06	20,495	6,499	13,534	462

Figure-3



Electricity Generation by type of Plant

The electricity generation by type of plant i.e. Hydel, Thermal and Nuclear for the years 1990-91 to 2005-06 is given in Table-4. During the year under report, the electricity generated from all sources was 96,478 Million KWH. This includes generation from WAPDA, KESC, IPPs and Captive units showing an increase of 9.2% over the previous year. The share of Thermal was 65% while the share of Hydel and Nuclear stood at 32% and 3% respectively. WAPDA Hydro Power Stations generated 30,862 million KWH during the year under report shows increase of 20% against the gross generation of 25,588 Million KWH in the financial year 2004-05 (Table-4)

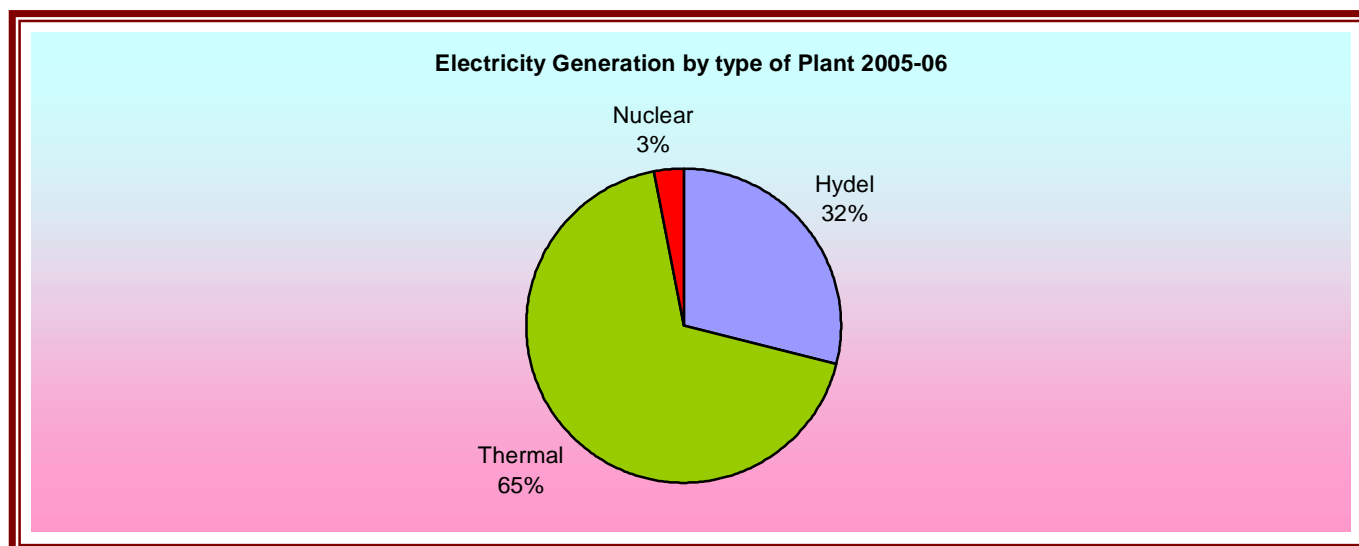
Table-4

Electricity Generation by type of Plant

(Million KWH)

Year	Total	Hydel	Thermal	Nuclear
1	2	3	4	5
1990-91	41,918	18,298	23,235	385
1991-92	45,876	18,647	26,811	418
1992-93	48,912	21,112	27,218	582
1993-94	51,474	19,436	31,541	497
1994-95	54,530	22,858	31,161	511
1995-96	57,732	23,206	34,043	483
1996-97	59,894	20,858	38,690	346
1997-98	62,915	22,060	40,480	375
1998-99	65,402	22,449	42,669	284
1999-00	66,562	19,288	46,875	399
2003-04	83,607	27,372	54,475	1,760
2004-05	88,379	25,588	59,996	2,795
2005-06	96,478	30,862	63,132	2,484

Figure-4



Electricity Consumption by Branch

The total electricity consumption during the year 2005-06 stood at 70,241 Million KWH as compared to 63,298 Million KWH in the year 2004-05 showing an increase of 11%. The pattern of consumption in the domestic sector for 2005-06 figured 44 percent of total electric consumption. While consumption of commercial, industrial, agriculture and other sectors stood at 7%, 32%, 11% and 6% respectively as given in Table-5

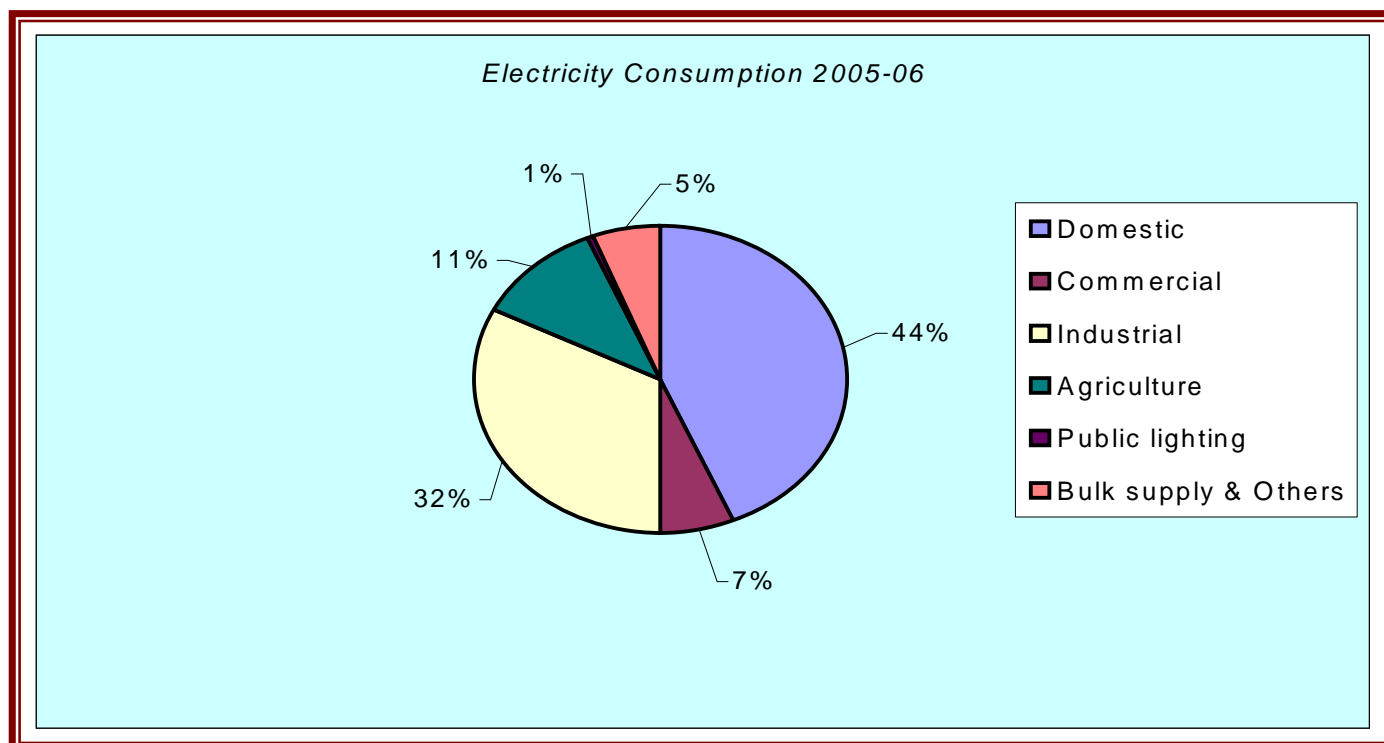
Table-5

Electricity Consumption by Branch

(Million KWH)

Branch	1998-99		1999-00		2003-04		2004-05		2005-06	
	Units	%	Units	%	Units	%	Units	%	Units	%
1	2		4	5	6	7	8	9	10	11
Total	45,756	100.0	46,358	100.0	59,316	100.0	63,298	100.0	70,241	100.0
Domestic	19,268	42.1	21,485	46.4	25,394	42.8	27,601	43.6	30,720	43.7
Commercial	2,381	5.2	2,544	5.5	3,586	6.0	4,080	6.4	4,730	6.7
Industrial	12,924	28.3	13,972	30.1	19,738	33.3	20,561	32.5	22,441	32.0
Agriculture	5,620	12.3	4,542	9.8	6,669	11.2	6,988	11.1	7,949	11.3
Public Lighting	225	0.5	239	0.5	271	0.5	306	0.5	353	0.5
Bulk Supply & others	5,338	11.6	3,576	7.7	3,658	6.2	3,762	5.9	4,048	5.8

Figure-5



Number of Consumers / Connections

The total number of consumers / connections during the year 2005-06 was recorded as 17,795 thousand as compared to 16,718 thousand in the year 2004-05 showing an increase of 6.4%. Branch-wise numbers of consumers are given in Table-6

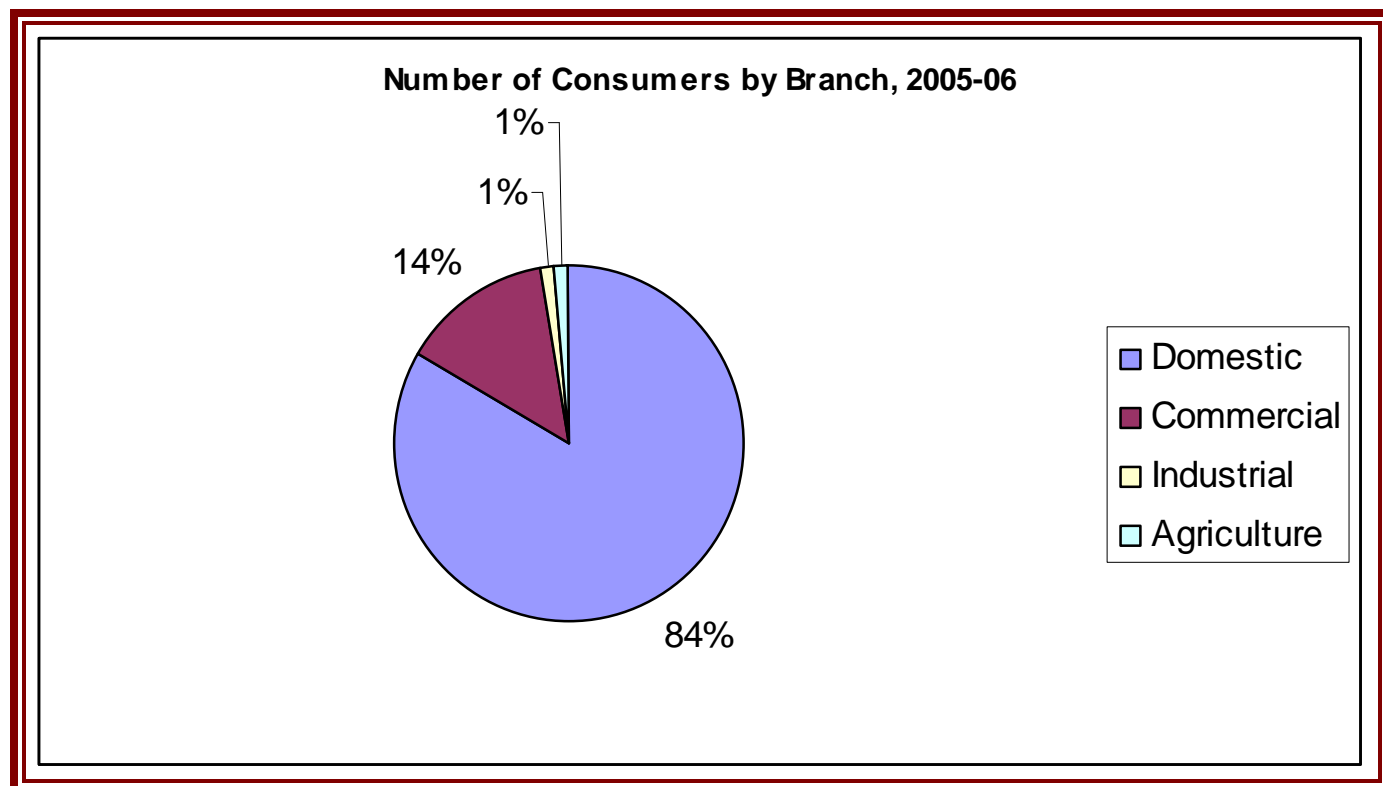
Table-6

Number of Consumers by Branch

(000 Nos.)

Branch 1	1998-99 2		1999-00 3		2003-04 4		2004-05 5		2005-06 6 7	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Total	12,248	100.0	13,192	100.0	15,841	100.0	16,718	100.0	17,795	100.0
Domestic	10,005	81.7	10,783	81.7	13,086	82.6	13,888	83.1	14,838	83.4
Commercial	1,840	15.0	2,001	15.2	2,313	14.6	2,379	14.2	2,476	13.9
Industrial	220	1.8	224	1.7	230	1.5	234	1.4	245	1.4
Agriculture	174	1.4	175	1.3	201	1.3	204	1.2	223	1.2
Others	09	0.1	09	0.1	11	0.1	13	0.1	13	0.1

Figure-6



Electricity Consumed in Auxiliaries and System Losses

The electricity consumed in auxiliaries of power stations was 3,716 Million KWH in 2005-06 as compared to 3,478 Million KWH in 2004-05. The electricity losses in the transmission and distribution process was 22,521 Million KWH in the year 2005-06 as against 21,603 Million KWH in the year 2004-05.

Data on electricity consumed in auxiliaries of power stations and system losses (transmission & distribution losses) is given in Table-7.

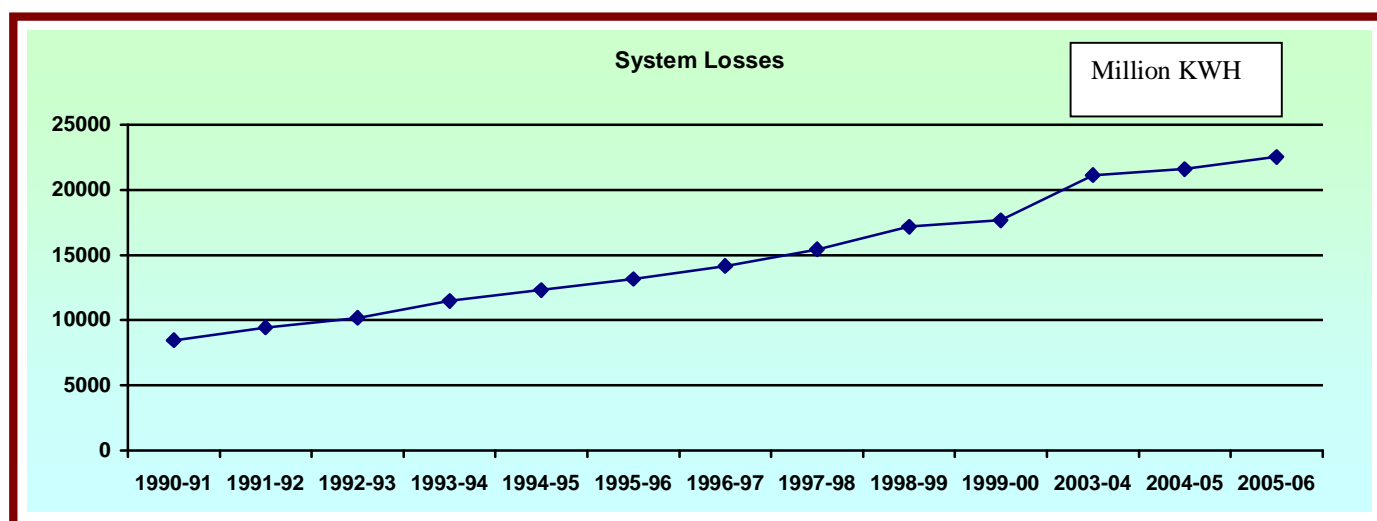
Table-7

Electricity Consumed in Auxiliaries and System Losses

(Million KWH)

Year	Units Generated	Auxiliaries Consumption		System Losses	
		Units	%	Units	%
1	2	3	4	5	6
1990-91	41,918	1,345	3.2	8,445	20.8
1991-92	45,876	1,480	3.2	9,434	21.2
1992-93	48,912	1,564	3.2	10,168	21.5
1993-94	51,474	1,768	3.4	11,460	23.0
1994-95	54,530	1,829	3.4	12,316	23.4
1995-96	57,732	2,094	3.6	13,159	23.7
1996-97	59,894	2,236	3.7	14,172	24.6
1997-98	62,915	2,350	3.7	15,453	25.5
1998-99	65,402	2,467	3.8	17,179	27.3
1999-00	66,562	2,540	3.8	17,664	27.6
2003-04	83,607	3,174	3.8	21,117	25.3
2004-05	88,379	3,478	3.9	21,603	25.4
2005-06	96,478	3,716	3.9	22,521	24.3

Figure-7



Value of Electricity Sold

The value of electricity sold i.e. energy charges billed (Revenue from sale of power and other charges) during the year 2005-06 stood at 303.46 billion rupees as against 275.87 billion rupees during the year 2004-05 showing an increase of 10% over the year 2004-05 (Table-8)

Fuel Cost

The fuel cost incurred during the year 2005-06 was 193.42 billion rupees as compared to 137.2 billion rupees during the year 2004-05. It showed an increase of 41% over the previous year. Data on value of electricity sold, fuel cost and net production value for the years 1990-91 to 2005-06 is given in Table-8.

Table-8

Value of Electricity Sold, Fuel Cost and Net Production Value

(Million Rs)

Year	Value of Electricity Sold	Fuel Cost	Net Production Value
1	2	3	4
1990-91	38,928	12,750	26,178
1991-92	44,896	15,934	28,962
1992-93	49,345	18,761	30,584
1993-94	56,986	22,738	34,248
1994-95	68,654	27,862	40,792
1995-96	99,687	36,742	62,945
1996-97	113,746	48,315	65,431
1997-98	134,592	58,140	76,452
1998-99	148,620	61,534	87,086
1999-00	164,895	69,548	95,347
2003-04	243,606	108,601	135,005
2004-05	275,867	137,227	138,640
2005-06	303,458	193,416	110,042

Statistical Tables

Table-1**Energy Statistics at a glance**

S. No.	Description	Unit	1997-98	1998-99	1999-00	2003-04 *	2004-05 *	2005-06 *
1.	INSTALLED GENERATING CAPACITY	MW	15,860	15,860	17,564	20,360	20,456	20,495
	i) Thermal	"	10,897	10,897	12,601	13,434	13,530	13,534
	ii) Hydel	"	4,826	4,826	4,826	6,464	6,464	6,499
	iii) Nuclear	"	137	137	137	462	462	462
2.	MAXIMUM LOAD DEMAND	"	10,554	10,922	11,145	13,151	14,582	15,289
3.	ELECTRICITY GENERATION	Mn. Kwh	62,915	65,402	66,562	83,607	88,379	96,478
	i) Thermal	"	40,480	42,669	46,875	54,475	59,996	63,132
	ii) Hydel	"	22,060	22,449	19,288	27,372	25,588	30,862
	iii) Nuclear	"	375	284	399	1,760	2,795	2,484
4.	UNITS CONSUMED	"	45,112	45,756	46,358	59,316	63,298	70,241
5.	VALUE OF UNITS CONSUMED	Mn Rs	134,592	148,620	164,895	243,606	275,867	303,458
6.	Fuel COST	"	58,140	61,534	69,548	108,601	137,227	193,416
7.	NUMBER OF CONSUMERS	000	11,605	12,248	13,192	15,841	16,718	17,795
8.	AUXILIARIES CONSUMPTION	%	3.7	3.8	3.8	3.8	3.9	3.8
9.	SYSTEM LOSSES	%	25.5	27.3	27.6	25.3	25.4	24.3

Note

* Captive units generate power for own consumption. These units were not covered in earlier CEE reports but have been accounted for in 2003-04 and onwards CEE reports.

Table-2**Summary Statistics by Province (2005-06)**

S. No.	Description	Unit	Pakistan	Punjab	Sindh	NWFP	Balochistan	AJK
1	2	3	4	5	6	7	8	9
1.	INSTALLED-GENERATING CAPACITY	(MW)	20,495	7,933	5,564	3,768	2,195	1035
	i) Thermal	(")	13,534	5,913	5,427	-	2,195	-
	ii) Hydel	(")	6,499	1,696	-	3,768	-	1035
	iii) Nuclear	(")	462	325	137	-	-	-
2.	ELECTRICITY GENERATION	(GWH)	96,478	37,320	27,213	17,151	9,240	5,554
	i) Thermal	(")	63,132	26,822	27,070	-	9,240	-
	ii) Hydel	(")	30,862	8,157	-	17,151	-	5,554
	iii) Nuclear	(")	2,484	2,341	143	-	-	-
3.	ELECTRICITY CONSUMPTION	(")	70,241	43,618	14,448	8,256	3,919	N.A
4.	POPULATION*	Mill Nos.	155.36	87.36	35.73	24.56	7.71	N.A
5.	PER CAPITA CONSUMPTION	(KWH)	452	499	404	336	508	N.A
6.	NO OF CONSUMERS	(000)	17,795	11,696	3,246	2,429	424	N.A

*Source: Pakistan Statistical Year Book 2006

Table-3**Installed Capacity by Province and type of Plant (2005-06)**

(MW)

Province	Installed Capacity			
	Total	Thermal	Hydel	Nuclear
1	2	3	4	5
Pakistan	20,495	13,534	6,499	462
Punjab	7,933	5,912	1,696	325
Sindh	5,564	5,427	-	137
NWFP	3,768	-	3,768	-
Balochistan	2,195	2,195	-	-
AJK	1,035	-	1,035	-

Table-4**Electricity Generation by Province and type of Plant (2005-06)**

(Million KWH)

Province	Electricity Generation			
	Total	Thermal	Hydel	Nuclear
1	2	3	4	5
Pakistan	96,478	63,132	30,862	2,484
Punjab	37,320	26,822	8,157	2,341
Sindh	27,213	27,070	-	143
NWFP	17,151	-	17,151	-
Balochistan	9,240	9,240	-	-
AJK	5,554	-	5,554	-

Table-5**Installed Capacity by Province and Agency (2005-06)**

(MW)

Province	Installed Capacity					
	Total	WAPDA	KESC	IPPs	Captive Units	Others
1	2	3	4	5	6	7
Pakistan	20,495	11,298	1,756	5,832	1,112	497
Punjab	7,933	3,611	-	3,328	669	325
Sindh	5,564	2,829	1,756	497	345	137
NWFP	3,768	3,768	-	-	-	-
Balochistan	2,195	90	-	2,007	98	-
AJK	1,035	1,000	-	-	-	35

Table-6**Electricity Generation by Province and Agency (2005-06)**

(Million KWH)

Province	Electricity-Generation					
	Total	WAPDA	KESC	IPPs	Captive Units	Others
1	2	3	4	5	6	7
Pakistan	96,478	53,267	9,130	28,645	2,841	2595
Punjab	37,320	16,452	-	16,816	1,711	2,341
Sindh	27,213	14,090	9,130	2,816	1,034	143
NWFP	17,151	17,151	-	-	-	-
Balochistan	9,240	131	-	9,013	96	-
AJK	5,554	5,443	-	-	-	111

Table-7**Thermal Electricity Generation by type of Fuel and Agency (2005-06)**

(Million KWH)

Type of Fuel	Total	WAPDA	KESC	IPPs	Captive Units
1	2	3	4	5	6
Coal	214	129	-	-	85
Gas	42,310	17,461	7,213	16,620	1,016
Furnace Oil	19,931	4,924	1,902	11,985	1,120
Diesel Oil	297	02	15	40	240
Others	380	-	-	-	380
Total	63,132	22,516	9,130	28,645	2,841

Table-8**Year-wise Electricity Generated, Sold and System Losses**

(Million KWH)

Year	Units Generated	Consumption In Auxiliaries		Units Sent Out	Units Sold	System Losses		System Losses And Auxiliaries Consumption	
		Units	%			Units	%	Units	%
1	2	3	4	5	6	7	8	9	10
1990-91	41,918	1,345	3.2	40,573	32,128	8,445	20.8	9,790	23.4
1991-92	45,876	1,480	3.2	44,396	34,962	9,434	21.2	10,914	23.8
1992-93	48,912	1,564	3.2	47,348	37,180	10,168	21.5	11,732	24.0
1993-94	51,474	1,768	3.4	49,706	38,246	11,460	23.0	13,228	25.7
1994-95	54,530	1,829	3.4	52,701	40,385	12,316	23.4	14,145	25.9
1995-96	57,732	2,094	3.6	55,638	42,479	13,159	23.7	15,253	26.4
1996-97	59,894	2,236	3.7	57,658	43,486	14,172	24.6	16,408	27.4
1997-98	62,915	2,350	3.7	60,565	45,112	15,453	25.5	17,803	28.3
1998-99	65,402	2,467	3.8	62,935	45,756	17,179	27.3	19,646	30.0
1999-00	66,562	2,540	3.8	64,022	46,358	17,664	27.6	20,204	30.4
2003-04	83,607	3,174	3.8	80,433	59,316	21,117	25.3	24,291	29.0
2004-05	88,379	3,478	3.9	84,901	63,298	21,603	25.4	25,081	28.4
2005-06	96,478	3,716	3.9	92,762	70,241	22,521	24.3	26,237	27.2

Table-9**Electricity Consumption by Province and Branch (2005-06)**

(Million KWH)

Branch	Pakistan	Punjab	Sindh	NWFP	Balochistan
1	2	3	4	5	6
Total	70,241	43,618	14,448	8,256	3,919
Domestic	30,720	18,884	5,873	5,562	401
Commercial	4,730	2,953	1,276	411	90
Industrial	22,441	15,599	5,252	1,383	207
Agricultural	7,949	3,668	698	451	3,132
Public lighting	353	170	162	18	3
Bulk supply and Others	4,048	2,344	1,187	431	86

Table-10**Year-wise Electricity Consumption by Province**

(Million KWH)

Year	Pakistan	Punjab	Sindh	NWFP	Balochistan
1	2	3	4	5	6
1990-91	32,128	18,476	8,682	3,847	1,123
1991-92	34,962	20,372	9,137	4,156	1,297
1992-93	37,180	21,879	9,248	4,688	1,365
1993-94	38,246	21,947	9,919	4,976	1,404
1994-95	40,385	23,635	9,653	5,625	1,472
1995-96	42,479	24,556	10,070	6,267	1,586
1996-97	43,486	25,121	10,062	6,638	1,665
1997-98	45,112	25,638	10,976	6,794	1,704
1998-99	45,756	25,245	12,581	6,243	1,687
1999-00	46,358	27,033	10,975	6,528	1,822
2003-04	59,316	36,246	12,573	7,230	3,267
2004-05	63,298	38,591	13,480	7,645	3,582
2005-06	70,241	43,618	14,448	8,256	3,919

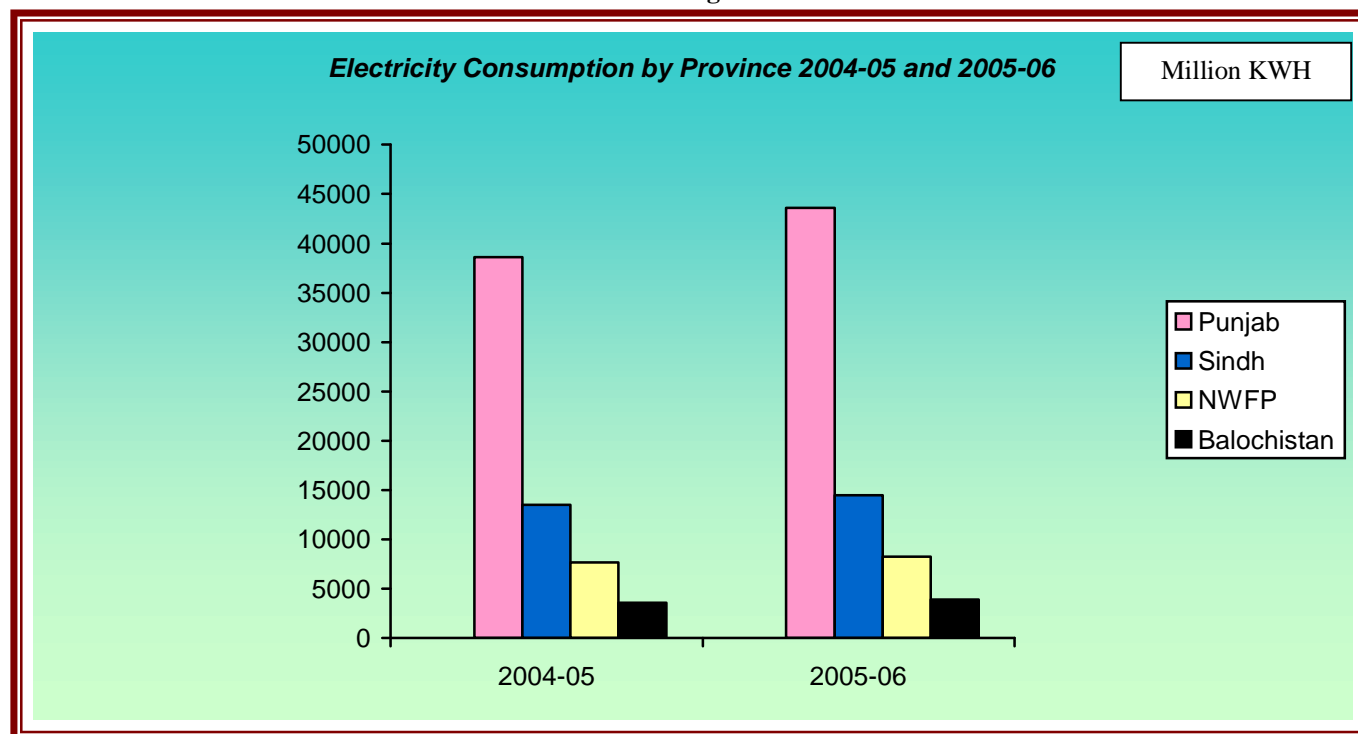
Figure-8

Table-11**Year-wise Electricity Consumption by Branch**

(Million KWH)

Year	Total	Domestic	Commercial	Industrial	Agriculture	Public Lighting	Bulk Supply & Others
1	2	3	4	5	6	7	8
1990-91	32,128	10,400	2,066	11,690	5,619	262	2,091
1991-92	34,962	11,458	2,144	12,824	5,848	310	2,378
1992-93	37,180	13,205	1,726	13,658	5,620	287	2,684
1993-94	38,246	14,134	1,786	13,392	5,772	298	2,864
1994-95	40,385	15,583	1,941	13,306	6,252	325	2,978
1995-96	42,479	17,116	2,174	12,885	6,696	378	3,230
1996-97	43,486	17,684	2,241	12,754	7,086	390	3,331
1997-98	45,112	18,670	2,334	13,042	6,937	387	3,742
1998-99	45,756	19,268	2,381	12,924	5,620	225	5,338
1999-00	46,358	21,485	2,544	13,972	4,542	239	3,576
2003-04	59,316	25,394	3,586	19,738	6,669	271	3,658
2004-05	63,298	27,601	4,080	20,561	6,988	306	3,762
2005-06	70,241	30,720	4,730	22,441	7,949	353	4,048

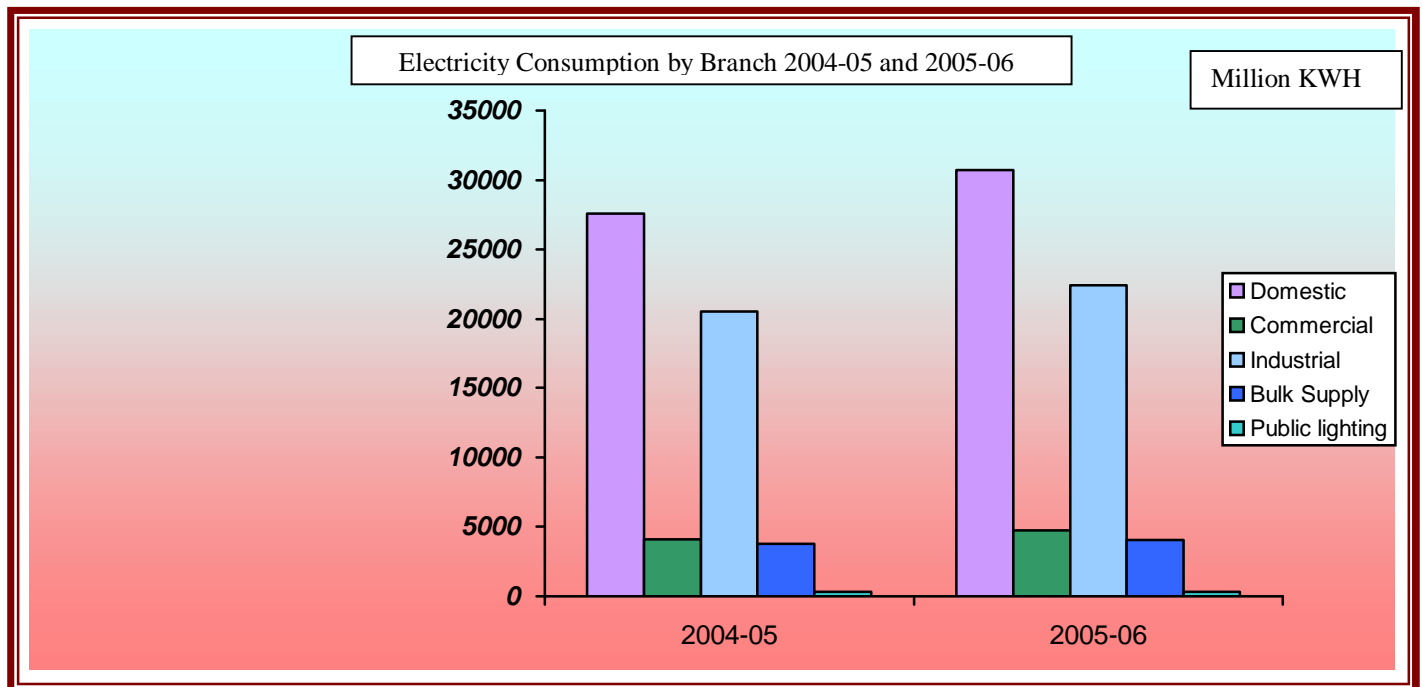
Figure-9

Table-12**Year-wise Pattern of Electricity Consumption**

(%)

Year	Total	Domestic	Commercial	Industrial	Agriculture	Public Lighting	Bulk Supply & Others
1	2	3	4	5	6	7	8
1990-91	100.00	32.37	6.43	36.38	17.49	0.82	6.51
1991-92	100.00	32.77	6.13	36.68	16.73	0.89	6.80
1992-93	100.00	35.52	4.64	36.73	15.12	0.77	7.22
1993-94	100.00	36.95	4.67	35.02	15.09	0.78	7.49
1994-95	100.00	38.59	4.81	32.95	15.48	0.80	7.37
1995-96	100.00	40.29	5.12	30.34	15.76	0.89	7.60
1996-97	100.00	40.67	5.15	29.33	16.29	0.90	7.66
1997-98	100.00	41.38	5.17	28.92	15.38	0.86	8.29
1998-99	100.00	42.11	5.20	28.25	12.28	0.49	11.67
1999-00	100.00	46.35	5.49	30.14	9.80	0.52	7.70
2003-04	100.00	42.81	6.05	33.27	11.24	0.46	6.17
2004-05	100.00	43.61	6.45	32.48	11.04	0.48	5.94
2005-06	100.00	43.74	6.73	31.95	11.32	0.50	5.76

Table-13**Number of Consumers by Province and Branch (2005-06)**

(000)

Branch	Pakistan	Punjab	Sindh	NWFP	Balochistan
1	2	3	4	5	6
Total	17,795	11,696	3,246	2,429	424
Domestic	14,838	9,876	2,534	2,106	322
Commercial	2,476	1,493	640	263	80
Industrial	245	173	43	26	03
Agricultural	223	147	25	32	19
Bulk supply and Others	13	07	04	02	-

Table-14**Year-wise Number of Consumers by Province****(000) Numbers**

Year	Pakistan	Punjab	Sindh	NWFP	Balochistan
1	2	3	4	5	6
1990-91	8,316	5,268	1,718	1,159	171
1991-92	8,845	5,649	1,788	1,224	184
1992-93	9,342	5,984	1,864	1,301	193
1993-94	9,815	6,290	1,959	1,362	204
1994-95	10,326	6,661	2,028	1,415	222
1995-96	10,768	6,954	2,096	1,483	235
1996-97	11,206	7,241	2,184	1,534	247
1997-98	11,605	7,502	2,255	1,592	256
1998-99	12,248	7,884	2,425	1,652	287
1999-00	13,192	8,443	2,680	1,751	318
2003-04	15,841	10,281	2,962	2,212	386
2004-05	16,718	10,903	3,084	2,325	406
2005-06	17,795	11,696	3,246	2,429	424

Table-15**Year-wise Number of Consumers by Branch****(000) Numbers**

Year	Total	Domestic	Commercial	Industrial	Agriculture	Others
1	2	3	4	5	6	7
1990-91	8,316	6,601	1,371	185	153	06
1991-92	8,845	7,054	1,436	192	156	07
1992-93	9,342	7,499	1,486	196	154	07
1993-94	9,815	7,914	1,535	200	159	07
1994-95	10,326	8,324	1,626	205	163	08
1995-96	10,768	8,756	1,631	207	166	08
1996-97	11,206	9,165	1,652	212	169	08
1997-98	11,605	9,502	1,708	214	172	09
1998-99	12,248	10,005	1,840	220	174	09
1999-00	13,192	10,783	2,001	224	175	09
2003-04	15,841	13,086	2,313	230	201	11
2004-05	16,718	13,888	2,379	234	204	13
2005-06	17,795	14,838	2,476	245	223	13

Table-16**Fuel Consumption and Fuel Cost (2005-06)**

(Million Rs)

Fuel Items	Unit	Fuel Consumed	Fuel Cost
1	2	3	4
Natural Gas	MMCF	428,619	87,546
Furnace Oil	000 M. Ton	4,765	98,435
Diesel Oil	000 Litre	31,758	1,296
Coaltar	000 M. Ton	96	10
Coal	000 M. Ton	149	285
Blast Furnace Gas	TCM	422,501	276
Coke Oven Gas	TCM	22,736	71
Others	-	-	5,497
Total:	-	-	193,416

Table-17**Power Energy in Pakistan**

Year	Installed Capacity (MW)	Electricity Generation (Million KWH)	Electricity Consumption (Million KWH)	Number of Consumers (000)
1	2	3	4	5
1990-91	9,094	41,918	32,128	8,316
1991-92	9,533	45,876	34,962	8,845
1992-93	10,192	48,912	37,180	9,342
1993-94	11,721	51,474	38,246	9,815
1994-95	12,894	54,530	40,385	10,326
1995-96	13,154	57,732	42,479	10,768
1996-97	14,983	59,894	43,486	11,206
1997-98	15,860	62,915	45,112	11,605
1998-99	15,860	65,402	45,756	12,248
1999-00	17,564	66,562	46,358	13,192
2003-04	20,360	83,607	59,316	15,841
2004-05	20,456	88,379	63,298	16,718
2005-06	20,495	96,478	70,241	17,795

Table-18**Power Energy in Punjab**

Year	Installed Capacity (MW)	Electricity Generation (Million KWH)	Electricity Consumption (Million KWH)	Number of Consumers (000)
1	2	3	4	5
1990-91	2,370	10,562	18,476	5,268
1991-92	2,585	12,063	20,732	5,649
1992-93	2,585	12,045	21,879	5,984
1993-94	3,104	12,943	21,947	6,290
1994-95	4,133	15,844	23,635	6,661
1995-96	4,343	19,116	24,556	6,954
1996-97	4,754	16,928	25,121	7,241
1997-98	5,498	18,829	25,638	7,502
1998-99	5,498	22,056	25,245	7,884
1999-00	6,042	18,993	27,033	8,443
2003-04	8,478	31,970	36,246	10,281
2004-05	8,929	39,750	38,591	10,903
2005-06	7,933	37,320	43,618	11,696

Table-19**Power Energy in Sindh**

Year	Installed Capacity (MW)	Electricity Generation (Million KWH)	Electricity Consumption (Million KWH)	Number of Consumers (000)
1	2	3	4	5
1990-91	4,607	18,695	8,682	1,718
1991-92	4,383	20,860	9,137	1,788
1992-93	4,610	21,261	9,248	1,864
1993-94	4,755	23,887	9,919	1,959
1994-95	4,899	22,463	9,653	2,028
1995-96	4,949	22,210	10,070	2,096
1996-97	5,075	21,,289	10,062	2,184
1997-98	5,208	21,923	10,976	2,255
1998-99	4,998	20,230	12,581	2,425
1999-00	5,642	23,766	10,975	2,180
2003-04	6,005	2,8776	12,573	2,962
2004-05	5,564	27,447	13,480	3,084
2005-06	5,564	27,213	14,448	3,246

Table-20**Power Energy in NWFP**

Year	Installed Capacity (MW)	Electricity Generation (Million KWH)	Electricity Consumption (Million KWH)	Number of Consumers (000)
1	2	3	4	5
1990-91	2,034	12,354	3,847	1,159
1991-92	2,465	12,512	4,156	1,224
1992-93	2,897	15,141	4,688	1,301
1993-94	3,762	14,210	4,976	1,362
1994-95	3,762	15,847	5,625	1,415
1995-96	3,762	16,029	6,267	1,483
1996-97	3,762	14,996	6,638	1,534
1997-98	3,762	15,742	6,794	1,592
1998-99	3,762	17,468	6,243	1,652
1999-00	3,762	15,927	6,528	1,751
2003-04	3,762	16,210	7,230	2,212
2004-05	3,768	13,706	7,645	2,325
2005-06	3,768	17,151	8,256	2,429

Table-21**Power Energy in Balochistan**

Year	Installed Capacity (MW)	Electricity Generation (Million KWH)	Electricity Consumption (Million KWH)	Number of Consumers (000)
1	2	3	4	5
1990-91	83	307	1,123	171
1991-92	100	441	1,297	184
1992-93	100	465	1,365	193
1993-94	100	434	1,404	204
1994-95	100	376	1,472	222
1995-96	100	377	1,586	235
1996-97	1,392	6,681	1,665	247
1997-98	1,392	6,421	1,704	256
1998-99	1,404	5,648	1,687	287
1999-00	2,118	6,636	1,822	318
2003-04	2,115	6,651	3,267	386
2004-05	2,195	7,476	3,582	406
2005-06	2,195	9,240	3,919	424

Annexure-I**LIST OF DATA SOURCE AGENCIES FOR CEE, 2005-06 (PUBLIC SECTOR)**

<p>1. Jamshoro Power Generation Co Ltd GENCO-I, TPS, Moharo Jabal, Dadu Road Jamshoro Tel 0221-61877 Fax 0221-61085</p> <p>2. Central Power Generation Company GENCO-II, TPS, Guddu Tel 071-9310323 Fax 071-9310322</p> <p>3. Northern Power Generation Co Ltd GENCO-III, NPGCL, TPS Muzaffargarh Tel 061-547176 Fax 061-515325</p> <p>4. Lakhra Power Generation Co Ltd GENCO-IV 172 Wapda House, Lahore Tel 042-9202525 Fax 042-9202529</p> <p>5. The General Manager Hydel, WAPDA Wapda House, Shahrah-e-Quaid-e-Azam Lahore Tel 042-9202189 Fax 042-0202159</p>	<p>6. Mr. Abdul Rouf Yousuf Chief Controller Finance Karachi Electric Supply Corporation Aimai House, Abdullah Haroon Road, Karachi. Tel 021-9206568 Fax 021-02-5792</p> <p>7. Karachi Nuclear Power Complex P.O.Box.3183,Karachi-75400 Tel 021-9202222 Fax 021-9202340</p> <p>8. Chasma Nuclear Power Plant District Mianwali Tel 0459-241730--35 Fax 0459-241505</p> <p>9. Mr. Wasif Mehmood Corporate Secretary Pakistan Steel Bin Qasim, Karachi, 75000 Tel 021-4750271-72 Fax 021-4750156</p>
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Annexure-I**LIST OF DATA SOURCE AGENCIES FOR CEE, 2005-06(INDEPENDENT POWER PRODUCERS)**

1. Mr. Waheed Sohail Performance Engineer Kot Addu Power Company Limited Kot Addu GTPS.Kot Addu, Distt.Muzaffargarh Tel 0697-42975 - 061-544192-93 Fax 0697-41817	8. Mr. Sohail H Hydari General Manager Gul Ahmad Energy Ltd 35-B, Block 6, PECHS Society, Karachi Tel 021-4540270 Fax: 021-4540274
2. Syed Khalid Masood Finance Controller The Hub Power Company Limited Islamic Chamber Building Block-9,Clifton P.O.Box 13841, Karachi. Tel 021-5874677-86 Fax 021-5870397	9. Mr. Muhammad Hassan Accounts Department AES Lal Pir Company Ltd, H. # 17, Street # 15, F-6/3 Islamabad Tel 0661-422967-9 Fax 0661-422993
3. Mr. Mustafa Lakdawala Manager Accounts Tapal Energy Limited 155-A, Street # 37, Sector F-10/1 Islamabad Tel: 051-2291999 Fax: 2214888	10. AES Pak Generation Company Ltd, H. # 17, Street # 15, F-6/3 Islamabad Tel 0661-422967-9 Fax 0661-422993
4. Mr. Atiq-ur-Rehman, Manager Finance Fauji Kabirwalla Power Company Ltd. 14-Harlay Street Rawalpindi Cantt. Tel 051-9272156 Fax 051-9272158	11. Mr. Nasir Mehmood Manager Finance & Accounts Southern Electric Co,Ltd 90- West, Jinnah Avenue Razia Sharif Plaza 6 th Floor Blue Area, Islamabad Tel 051-2279230-1 Fax 051-2825465
5. Mr.Tauqeer Abid Rizvi Manager Finance SABA Power Co (Private) Limited 3 rd Floor, G.D. Arcade, 73-E, Fazal-ul-Haq Road, Islamabad Tel 051-2206578 Fax 051-2206585	12. Mr.Abdul Rashid Manager Finance Japan Power Genertion Limited, Jia Bagga, Raiwind Road, Lahore Tel 042-5835864 Fax 042-5835860
6. Mr. Naseem Akhtar Chief Operating Officer Rousch (Pakistan) Power Ltd, 39-C/ IV,Block-6 PECHS Society, Karachi Tel 021-4530641-2 Fax 021-4535484	13. Mr.Jamel Ibrahim Chief Financial Officer TNB Liberty Power Ltd, 92-Razia Sharif Plaza 4 th Floor, G-7/F-7, Blue Area, Islamabad Tel 051-2276344 Fax 051-2276348
7. Mr. Moazzam-ur-Rehman Manager Accounts UCH Power Company Ltd, 107- First Floor, Evacuee Trust Complex Sector F-5/1, Islamabad Tel 051-2828001-2 Fax 051-2828010	14. Saeedullah Khan Paracha Managing Director Habibullah Coastal Power Company (Pvt) Ltd. 3 rd floor GD Arcade, 73-E, Fazal ul Haaq Road Islamabad Tel 051-2206578 Fax 051-2206584 Fax 042-5883802

Annexure-I**LIST OF DATA SOURCE AGENCIES FOR CEE, 2005-06 (INDEPENDENT POWER PRODUCERS)**

<p>15. Mr. Habib-R Khan Director Altern Energy Limited, 73-K Model Town Lahore Tel 042-5869900</p> <p>16. Kohinoor Energy Ltd Unit No. 4, 17 Aziz Avenue Lahore Tel : 042-5717861-2 Fax: 042-5715090</p> <p>17. DHA Cogen Ltd D-35, Block-5, Clifton, Karachi Tel: 021-5869787-8 Fax: 021-5869789</p> <p>18. Orient Power Company (Pvt.) Ltd 106, Siddiqi Trade Centre 72- Main Bolvard Gulberg-II, Lahore Tel: 042-5781970-73 Fax: 042-5781968</p>	<p>19. Attock Gen Limited Refinery P. O. Morgah Rawalpindi Tel: 051-5487041-5 Fax: 051-548</p> <p>20. Warda Power Gen (Pvt.) Ltd 113-A Sindhi Muslim Society Shahrah-e-Faisal Karachi Tel: 021-4553063 Fax: 021-4555154</p> <p>21. SAVARI (Pvt.) Ltd 70-C-1, Gulberg-III Lahore Tel: 042-5763019 Fax: 042-5713606</p> <p>22. Sapphire Electric Company Ltd 7-A/K, Main Boulevard, Gulberg-II, Lahore Tel: 042-5750410-11 Fax: 042-5713753</p>
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Annexure-ILIST OF DATA SOURCE AGENCIES FOR CEE, 2005-06 (*CAPTIVE UNITS*)

1.	Haji Muhammad Saeed Chief Accountant Ibrahim Fibers Ltd, Ibrahim Centre, 15-Club Road, Faisalabad. Tel 041-111-333-777 Fax 041-617842	8.	Mr. Danish Javed Chief Financial Officer Quetta Textile Mills Ltd, Nadir House G/F-L, I.I.Chundrigarh Road, .Karachi Tel 021-2414334-6 Fax 021-2419593 - 2415887
2.	Mr. Nouman Qaseem Sulehri Dy.Manager Finance Crescent Bahuman Energy Limited 40-A, Off Zafar Ali Road, Gulberg-V, Lahore Tel 042-111-245-245 Fax 042-111-222-245	9.	Sapphire Energy Ltd 149- Cotton Exchange Building I. I. Chundrigar Road, Karachi Tel 021-111-000-100 Fax 021-2417418
3.	General Manager Finance Sitara Energy Limited, 4 th Floor Sitara Tower, Bilal Chowk, New Civil Lines, Faisalabad. Tel 041-2644069-2444070 Fax 041-8712399	10.	Mr. Ghulam Mohayuddin Company Secretary Mehmood Textile Mills Limited Mehar Manzil, P. O. Box No. 28 Lohari Gate Multan Tel 061-111-181-181 Fax 061-4517811
4.	Mr. Abdul Sattar Awan Manager Finance ICI Pakistan Power Generation Limited ICI House, 63-Mozang Road, P.o.Box 198, Lahore Tel 042- Fax 042-6368805	11.	Mr. Javed Abbas Naqvi, Company Secretary Ideal Energy Limited 1088/2, Jail Road, Faisalabad Tel 041-619598 Fax 041-624877
5.	Sapphire Textile Mills Limited (Unit # 2) D/15, Site Kotri District Jamshoro Tel: 022-3870005 - 3870121 Fax: 022-3870519	12.	Mr. Amir Mushtaq Butt Chief Financial Officer Genertech Pakistan, M/s GPL 31/C-1 Ghalib Road, Gulberg-III Lahore Tel 042-5710216-20 Fax 042-5712881
6.	Crescent Powertec Limited 7-B-3, Aziz Avenue, Gulberg-V, Lahore Tel: 042-111-726-786 Fax: 042-5760376	13.	Bhanero Energy Ltd Umer Chambers 10/2 Bilmoria Sreet Chundrigar Road, Karachi Tel 021-2635916-7 Fax 021-2637826
7.	Zaman Energy Limited 26 KM, Lahore Sheikhpura Road Sheikhpura Tel: - Fax: -	14.	Sapphire Power Generation Ltd 7-A/K, Main Boulevard Gulberg-II, Lahore Tel: 042-111-000-100 Fax: 042-5713753

Annexure-I**LIST OF DATA SOURCES AGENCIES FOR CEE, 2005-06 (CAPTIVE UNITS)**

15.	Monnoo Energy Ltd Monnoo House, 3-Montgomery Road Lahore Tel 042-6376086 Fax 042-6364431	23.	Kohinoor Textile Mills Ltd Peshawar Road Rawalpindi Tel 051-5473940-44 Fax 051-5311690
16.	Nimir Industrial Chemicals Ltd 51-N, Industrial Area, Gulberg-II Lahore Tel 042-5718001-9 Fax 042-5718013	24.	Engro Asahi Polymer & Chemicals Ltd First Floor, Beharia Complex 1, 24- MT Khan Road Karachi Tel 021-5610610 Fax 021-5611690
17.	Ellcot Spinning Mills Ltd Nigina House, 91-B-1, MM Alam Road, Gulberg-III Lahore Tel 042-5756270-77 Fax 042-5711856	25.	Olympia Power Generation Ltd E-3, Farzana Building, 1 st Floor, Block 7 & 8 Shaheed-e-Millat Road Karachi Tel 021-4536235 Fax 021-4546263
18.	Kohinoor Power Co Ltd 6-Egereton Road, Lahore Tel 042-6306135 Fax 042-6362144	26.	Anoud Power Generation Ltd 603-604, 6 th floor, Lakson Building No. 3 Sarwar Shaheed Road Karachi Tel 021-5681084-5 Fax 021-5682967
19.	D. S. Power Ltd 20-K, Gulberg-II, Lahore Tel 042-5875303 Fax 042-5710312	27.	Lucky Energy Ltd L-A 2/B, Block No. 21, Federal B Area, Rashid Minhas Road Karachi Tel 021-6322048 Fax 021-6313372
20.	Kohinoor Weaving Mills Ltd 42- Lawrence Road, Lahore Tel 042-6302261-62 Fax 042-6368721	28.	Jubilee Energy Ltd B-28, Mangohpir Road Site, Karachi Tel: 021-2579162 - 2564496 Fax: 042-2579116
21.	Ghazi Power Ltd 8-C, E-III, Gulberg-III, Lahore Tel 042-5764026 Fax 042-5764032	29.	Nadeem Power Generation (Pvt.) Ltd A-801-804, 4 th Floor, Lakson Square Bldg # 3 Karachi Tel 021-5220481-88 Fax 021-5220495-96
22.	Gulistan Power Gen. Ltd 58- Main Gulberg Lahore Tel 042-5714920 Fax 042-5711916		

Annexure-I

LIST OF NON FUNCTIONING DATA SOURCES AGENCIES 2005-06

<p>1. 17 Star Power Generation Limited 2nd Floor, 90-W, Razia Sharif Plaza Blue Area, Islamabad Tel: 051-2802130-31 Fax: 0512802132</p> <p>2. Saif Power Limited 3rd Floor, Kalsum Plaza 2020, Blue Area Islamabad Tel: 051-2823922 Fax: 051-2278537</p> <p>3. Eastern Power Company (Pvt.) Limited Office No. 4, 2nd Floor, Al-Babar Centre I-8 Markaz, Islamabad Tel: 2261079 Fax: -</p>	<p>4. Zeshan Energy Limited 16-C, People's Colony Faisalabad Tel: 041-111-25-26-27 Fax: 8712399</p> <p>5. Halthmore Power Gen Limited 3-13 ATS Centre 30 West Blue Area Islamabad Tel: 051-2273759 Fax: 051-2273759</p>
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Annexure-II**Compilers of Census of Electricity Establishments (CEE) Report 2005-06**

This report was designed and managed by Syed Mazhar Hussain Hashmi, DDG. Compliments are due to the following personnel of FBS for invaluable efforts and contribution for preparation of Census of Electricity Establishments (CEE), 2005-06 report, under the guidance of their Director Mr. M. Ajmal.

<u>S. No.</u>	<u>Name</u>	<u>Designation</u>
1.	Mr. Mushtaq Ahmed	Chief Statistical Officer
2.	Mr. Muhammad Rashid Ch.	Statistical Officer
3.	Mr. Shams-ul-Haq	Statistical Assistant
4.	Ms. Shabnam A. Khaliq	Statistical Assistant

Typing expertise of Mr. Tahir Hussain Qadri, Stenographer helped a lot in producing this report in prescribed format.
