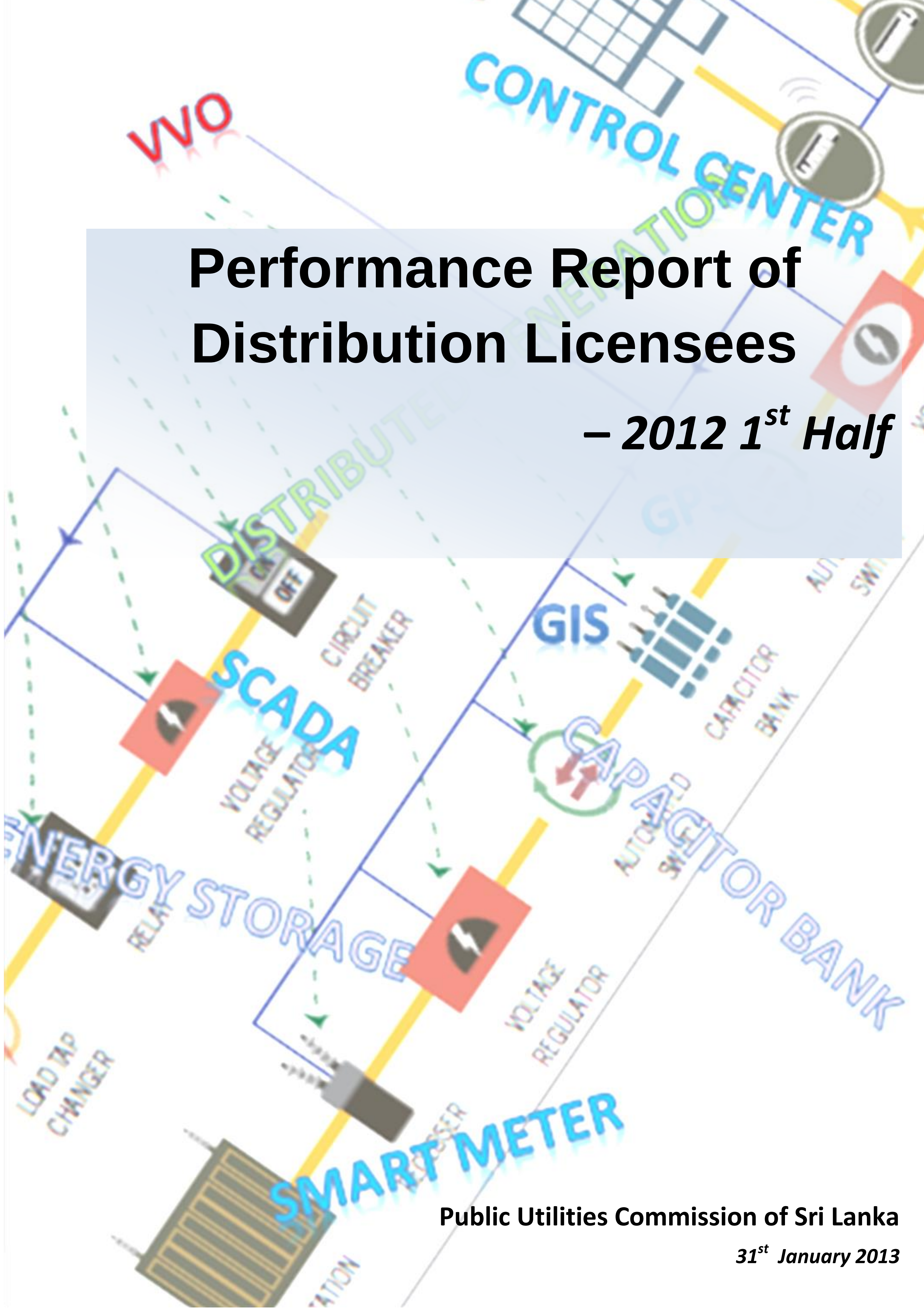

Performance Report of Distribution Licensees

– 2012 1st Half

Public Utilities Commission of Sri Lanka

31st January 2013

Nomenclature

BSOB	-	Bulk Supply Operation Business
CEB	-	Ceylon Electricity Board
DL	-	Distribution Licensee
DL1	-	Distribution Licensee CEB Region 1
DL2	-	Distribution Licensee CEB Region 2
DL3	-	Distribution Licensee CEB Region 3
DL4	-	Distribution Licensee CEB Region 4
FAC	-	Fuel Adjustment Charge
G.P.	-	General Purpose
GWh	-	Giga Watt hour
kVA	-	kilovolt ampere
kWh	-	kilowatt hour
LECO	-	Lanka Electricity Company Private Limited
LISS	-	Licensee Information Submission System
LKR	-	Sri Lankan Rupee
Mil.	-	Million
MVA	-	Mega Volt Ampere
PUCSL	-	Public Utilities Commission of Sri Lanka
TL	-	Transmission Licensee
w.r.t.	-	with respect to

1 Table of Contents

List of Tables

List of Figures

1 Introduction

During the 1st half of the year 2012 electricity sales by five distribution licensees namely, CEB Region 1, CEB Region 2, CEB Region 3, CEB Region 4 and LECO to consumers amount to **five billion units**. Performance of each distribution licensee for the year 2012 1st half was analyzed with the aid of data submitted by each licensee.

DLs have purchased electricity from Transmission licensee spending about **51 billion Rupees**[*], and distributed to consumers consist of five main categories namely Domestic, Religious, Industrial, Hotel and General Purpose. Revenue obtained from distribution business amounts to **71 billion Rupees** for the 2012 first half.

About **40%** of the electrical energy has been consumed by domestic consumers and 33% has been consumed by Industrial consumers, where the consumer mix is about **88%** and 1% for Domestic and Industrial consumer categories respectively.

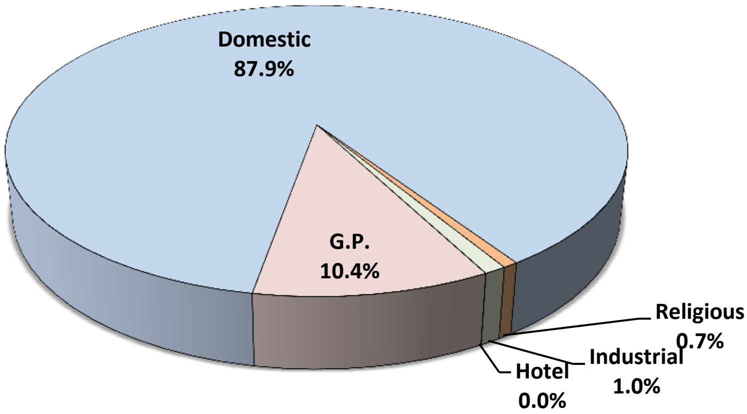

Figure 1: Category Wise Consumer Base

National electrical energy loss (technical and non-technical) in distribution network marked as **7.4%**[**] for the 2012 first half.

This report produces comparative illustration of all five DLs on their purchases, sales, revenue, consumer base and energy losses for the period starting from January 2012 to end of June 2012. Facts and figure given in this report based on the data submissions by each DL through Licensee Information Submission System.

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* Energy and Capacity cost

** when Estimated energy consumption (not invoiced) of street lights has taken as sales.

2 Energy Purchased

Each DL purchases their electricity from the Transmission Licensee who is doing the bulk supply operation business. We can see a reduction of 142 GWh in electrical energy demanded by the DLs compared with the 2011- 2nd half.

Distribution Licensee	Energy Purchased (GWh)		% Increase*
	2012 1st Half	2011 2nd Half	
CEB Reg 1	1,544	1,571	-1.73
CEB Reg 2	1,641	1,604	2.29
CEB Reg 3	1,041	1,175	-11.43
CEB Reg 4	705	719	-1.91
LECO	652	656	-0.57
Total	5,583	5,726	-2.48
* w.r.t 2011 2nd half		*Increase (GWh)*	*-142.26*

Table 2.1: Electricity Purchased from TL

	Day	Peak	Off-Peak	Tot	%
CEB Reg 1	879	345	320	1,544	27.7
CEB Reg 2	920	359	362	1,641	29.4
CEB Reg 3	583	248	210	1,041	18.6
CEB Reg 4	398	160	147	705	12.6
LECO	374	132	146	652	11.7
Tot	3,154	1,244	1,185	**5,583**	100.0

Table 2.2: DL Wise Energy Purchases According to Time of Use (GWh)

"Day", "Peak "and "Off-Peak" periods span for 13 hours, 4 hours and 7 hours respectively. Following table provides the energy demanded per hour (or average demand in MW) by TL from DLs during the 2012 – 1st half. It can be seen that highest average demands for all three time periods are from DL2 and lowest values are from LECO.

	Day	Peak	Off-Peak
CEB Reg 1	371	474	251
CEB Reg 2	389	493	284
CEB Reg 3	246	341	165
CEB Reg 4	168	219	116
LECO	158	182	114
Tot	1,333	1,709	930

Table 2.3 : Average Demand by DLs (MW)

3 Cost of Purchases

TL sells energy to all DLs. DLs have to pay the cost of kWh units according to the time of use, i.e Day (0530 to 1830 hrs), Peak (1830 to 2230 hrs) and Off peak (2230 to 0530 hrs). Further DLs have to pay a coincident maximum demand charge, which is the demand (MW) by DL coincide with national peak demand.

Prices of energy and coincident maximum demand have been set by PUCSL for each DL as given in the document published by PUCSL, *DECISION ON TRANSMISSION AND BULK SUPPLY TARIFFS (Effective from 1st January 2012)*.

3.1 Cost of Energy Purchased

	Day	Peak	Off-Peak	Tot	%
CEB Reg 1	7,186	3,537	1,963	12,686	35.6
CEB Reg 2	4,301	2,100	1,273	7,674	21.5
CEB Reg 3	3,261	1,740	882	5,883	16.5
CEB Reg 4	2,186	1,098	607	3,892	10.9
LECO	3,189	1,411	931	5,531	15.5
Tot	20,123	9,887	5,656	**35,666**	100.0

Table 3.1: DL Wise Cost of Energy Purchased according to Time of Use (LKR Mil.)

3.2 Cost of Coincident Maximum Demand

	Jan	Feb	Mar	Apr	May	Jun	Total
CEB Reg 1	693	670	679	672	680	676	4,069
CEB Reg 2	707	705	761	737	766	737	4,413
CEB Reg 3	490	540	507	485	482	510	3,014
CEB Reg 4	330	347	356	321	352	361	2,068
LECO	281	277	287	281	294	270	1,689
Total	2,501	2,541	2,589	2,496	2,574	2,554	**15,254**

Table 3.2: DL Wise Cost of Coincident Maximum Demand (LKR Mil.)

3.3 Total Costs of Energy and Capacity Purchased

	Energy Cost	Capacity Cost	Tot
CEB Reg 1	12,686	4,069	16,756
CEB Reg 2	7,674	4,413	12,087
CEB Reg 3	5,883	3,014	8,897
CEB Reg 4	3,892	2,068	5,959
LECO	5,531	1,689	7,221
Tot	35,666	15,254	50,920

Table 3.3: Total Costs of Energy and Capacity Purchased by each DL (LKR Mil.)

From Table 3.3, it can be seen that DL1 has paid the highest amount for distribution business to TL, while DL4 has paid the lowest to TL during 2012 – 1st half.

4 Energy Sales

Total energy consumed by each consumer category is given below. Domestic and Industrial components carry a share of 40% and 34% of the electricity consumption of consumer categories, respectively. Energy sales depend on consumer mix and the number of consumers, where these parameters vary among DLs. Therefore it is worthwhile to look at the distribution business with respect to consumer mix.

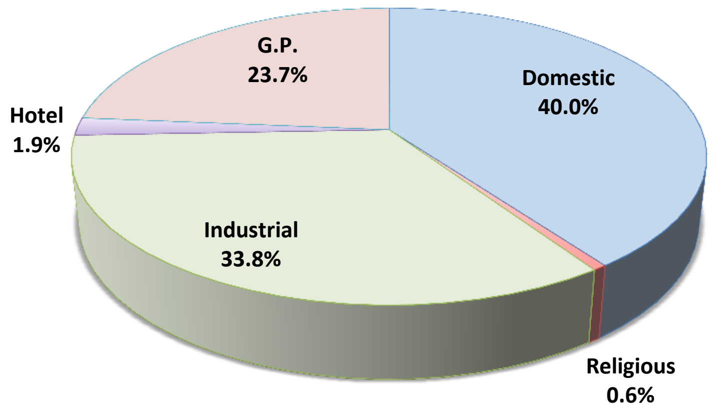

Figure 4.1 Total Electricity Consumed by each Consumer Category

4.1 Consumer Category wise Sales

	Domestic	Religious	Industrial	Hotel	G.P.	Total	Increase*
CEB Reg 1	507	10.4	341	40.7	518	1,418	0.3
CEB Reg 2	561	7.8	654	17.3	228	1,468	0.3
CEB Reg 3	382	4.8	413	3.2	148	952	0.0
CEB Reg 4	317	4.1	197	18.4	123	660	1.6
LECO	267	4.1	118	18.6	187	595	-2.5
Total	2,034	31	1,723	98	1,205	5,092	0.1

w.r.t. 2011 second half

Table 4.1: Consumer Category wise Electricity Consumption (GWh)

From the table 4.1, following information can be extracted.

Consumer Category	Highest consumption (GWh)	Lowest Consumption (GWh)
Domestic	CEB Reg 2 (561)	LECO (267)
Religious	CEB Reg 1 (10.4)	CEB Reg 4 (4.075)
Industrial	CEB Reg 2 (654)	LECO (118)
Hotel	CEB Reg 1 (40.7)	CEB Reg 3 (3.2)
General Purpose	CEB Reg 1 (518)	CEB Reg 4 (123)

Table 4.2: Highest and Lowest Energy Demand from each Category

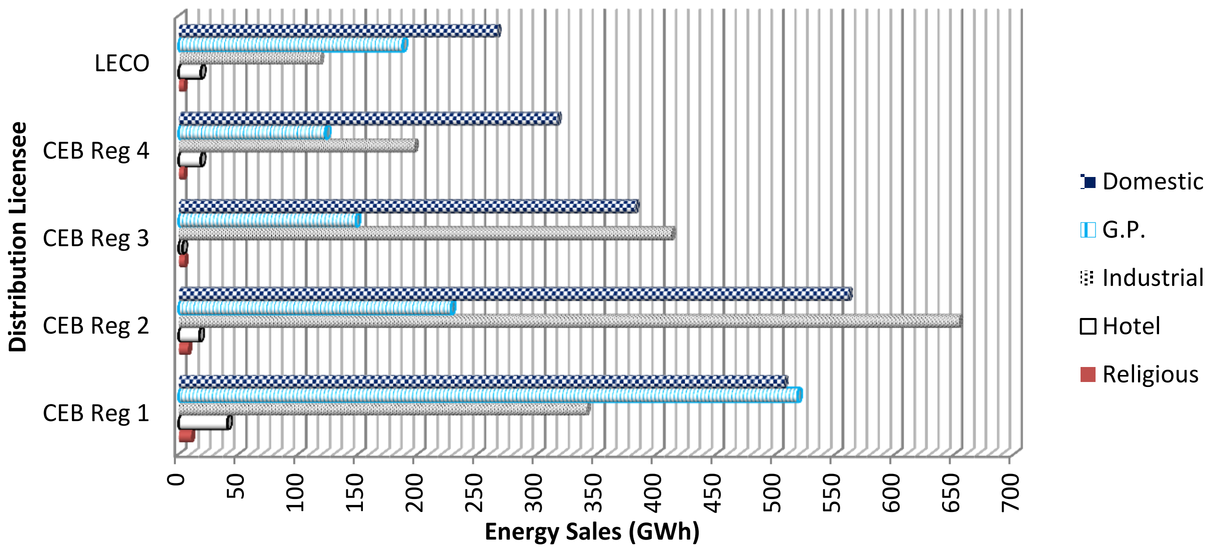

Figure 4.2 Consumer Category wise Electricity Sales

4.2 Electrical Energy Demand per Consumer Account

Following table shows that average LECO consumer is the highest energy consumer of all DLs, while DL4 is having the average consumer with lowest consumption.

	Domestic	Religious	Industrial	Hotel	G.P.	All
CEB Reg 1	76	177	2,571	40,266	580	183
CEB Reg 2	70	152	8,474	28,073	244	162
CEB Reg 3	63	111	8,674	6,546	236	140
CEB Reg 4	68	165	5,862	27,639	268	128
LECO	109	295	6,317	73,322	488	195
National Average	73	163	5,562	32,364	366	160

Table 4.3: Average Units (kWh) Consumed per Month per Consumer Account

5 Revenue

Revenue from electricity distribution business mainly consists of following components.

Energy (kWh) charge

Maximum demand charge

Fixed charge

Amount collected as Fuel Adjustment Charge is passed on to the TL, hence do not considered as revenue to DLs.

5.1 Revenue from Electrical Energy Sales

Following table depicts the energy charge distributed among each category. CEB Region1 had the highest share of revenue from all DLs amounting to 32 %. CEB Region 4 had the highest increase in of revenue compared to 2011 2nd half (about 2.3%).

	Domestic	Religious	Industrial	Hotel	G.P.	Tot	Increase* %
CEB Reg 1	4,944	68	3,476	513	10,082	19,083	0.2
CEB Reg 2	4,110	47	6,607	224	4,440	15,428	0.3
CEB Reg 3	2,749	27	4,173	42	2,933	9,923	-0.4
CEB Reg 4	2,516	25	2,008	238	2,408	7,196	2.3
LECO	3,223	30	1,217	238	3,673	8,382	0.4
Tot	17,543	196	17,482	1,255	23,536	60,012	**0.4**

w.r.t. 2011 2nd half

Table 5.1: Revenue from Energy Charge (LKR Mil.)

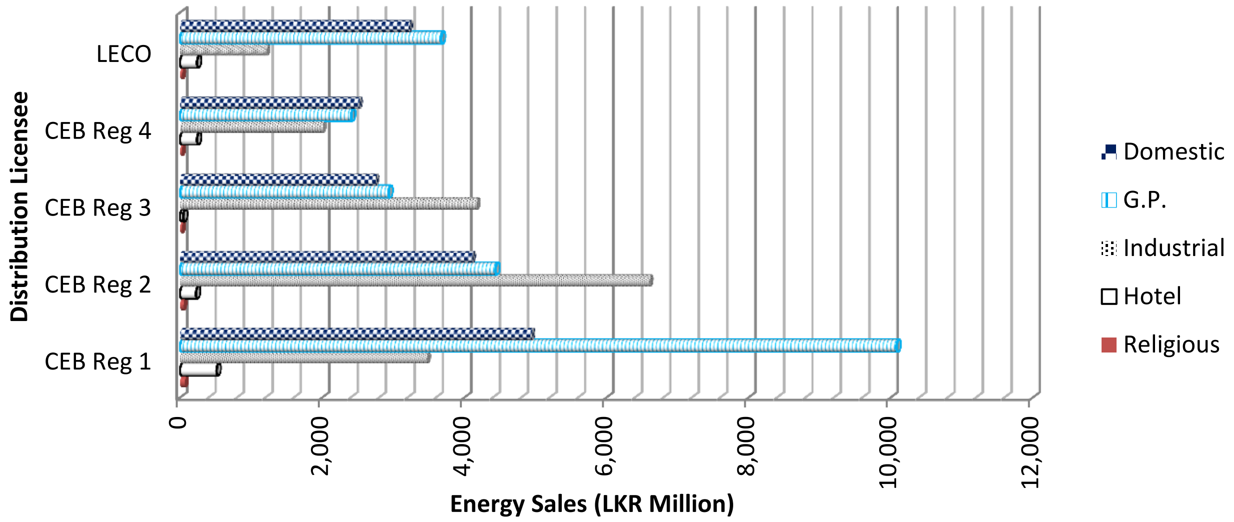

Figure 5.1 Revenue from Energy Charge

As it can be seen clearly rom figure 5.1, the General Purpose consumers dominate the revenue of DL1 , for DL 2 it is the revenue from Industrial consumers and for DL4 it is the revenue from Domestic consumers.

5.2 Revenue from Maximum Demand Charge

In present tariff structure, maximum demand charge is applicable for following categories only.

Industrial ; in I-2 and I-3 sub categories
Hotel ; in H-2 and H-3 sub categories
General Purpose; in GP-2 and GP-3 sub categories

	Industrial	Hotel	G.P.	Tot	Increase* %
CEB Reg 1	826	74	988	1,888	2.9
CEB Reg 2	1,652	43	235	1,930	3.1
CEB Reg 3	1,045	8	173	1,226	-1.5
CEB Reg 4	660	47	152	858	20.3
LECO	302	35	244	581	-11.2
Tot	4,485	207	1,792	6,483	2.6

w.r.t. 2011 2nd half

Table 5.2: Revenue from Maximum Demand Charge

For DL3 and LECO, revenue from maximum demand charge has been reduced when compared with the 2011-2nd half.

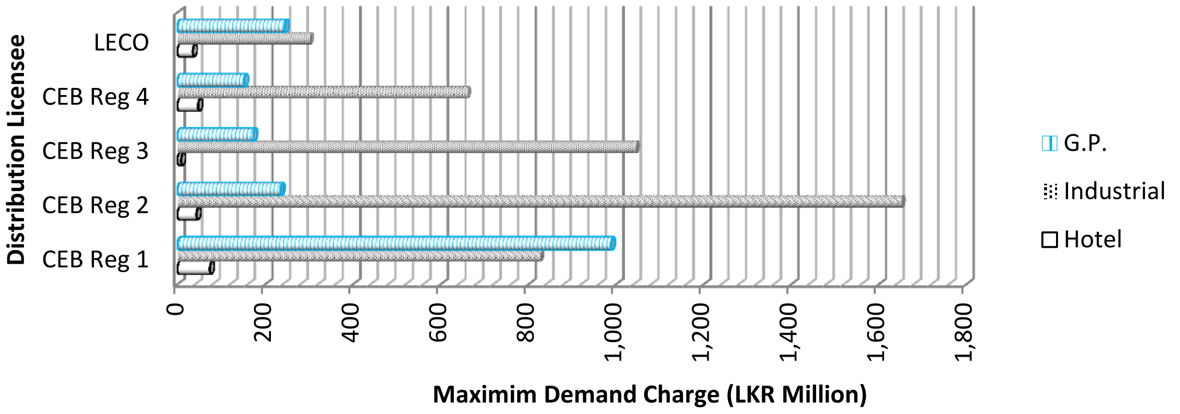

Figure 5.2 Category wise Revenue from Maximum Demand charge (LKR Mil.)

5.3 Revenue from Fixed Charge

	Domestic	Religious	Industrial	Hotel	G.P.	Tot	Increase* %
CEB Reg 1	823	7	48	1.0	246	1,125	8.0
CEB Reg 2	994	235	1.1	40	6	1,277	6.9
CEB Reg 3	645	158	0.4	30	6	840	10.6
CEB Reg 4	540	116	1.1	21	3	681	6.0
LECO	489	2	13	0.7	106	611	7.7
Tot	3,492	519	63	93	367	4,535	7.8

***** w.r.t. 2011 2nd half***

Table 5.3: Revenue from Fixed Charge (LKR Mil.)

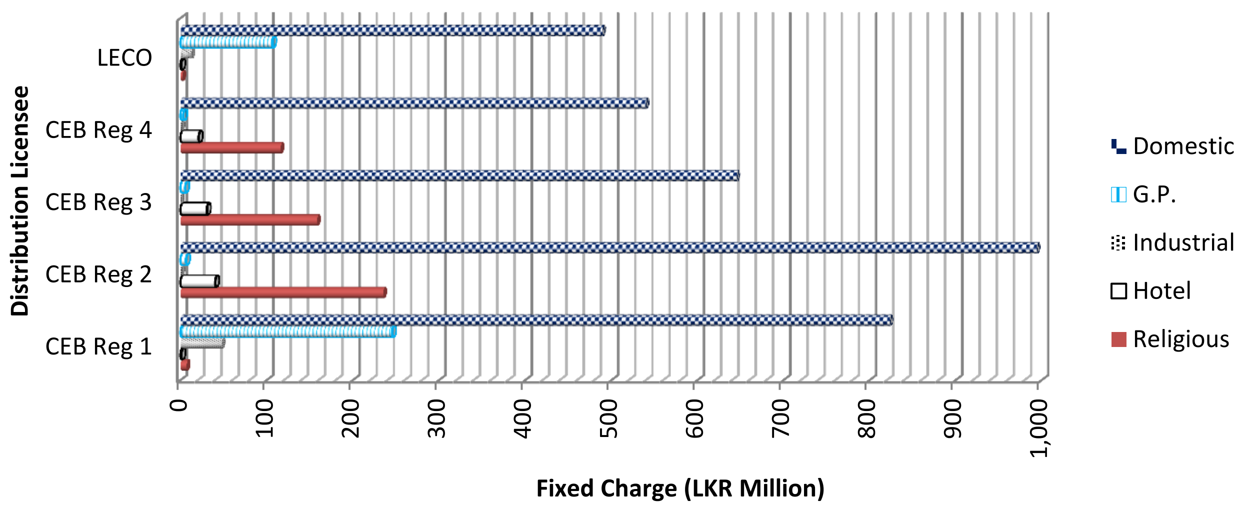

Figure 5.3 Revenue from Fixed Charge

5.4 Revenue per Unit of Energy Sold

	Domestic	Religious	Industrial	Hotel	G.P.	Avg.	Increase* %
CEB Reg 1	9.75	6.57	10.19	12.61	19.45	13.46	0.4
CEB Reg 2	7.32	5.97	10.11	12.96	19.49	10.51	0.5
CEB Reg 3	7.19	5.55	10.11	13.23	19.77	10.43	0.8
CEB Reg 4	7.94	6.10	10.17	12.92	19.56	10.90	10.4
LECO	12.09	7.34	10.28	12.84	19.60	14.09	3.3
National Avg.	8.6	6.3	10.1	12.8	19.5		
Increase* %	2.0	0.6	0.6	-0.7	2.4		

** w.r.t. 2011 average*

Note: Excluding revenue from fixed charge, maximum demand charge and FAC

Table 5.4: Category wise Revenue per Unit of Energy Sold

5.5 Total Revenue

	Domestic	Religious	Industrial	Hotel	G.P.	Tot
CEB Reg 1	5,767	75	4,350	587	11,316	22,096
CEB Reg 2	5,104	282	8,260	307	4,681	18,635
CEB Reg 3	3,394	185	5,218	81	3,111	11,989
CEB Reg 4	3,056	141	2,669	306	2,563	8,735
LECO	3,713	32	1,531	274	4,024	9,574
Tot	21,034	716	22,029	1,555	25,694	**71,029**

Note: Excluding FAC

Table 5.5: Total Revenue from Distribution Business (LKR Mil.)

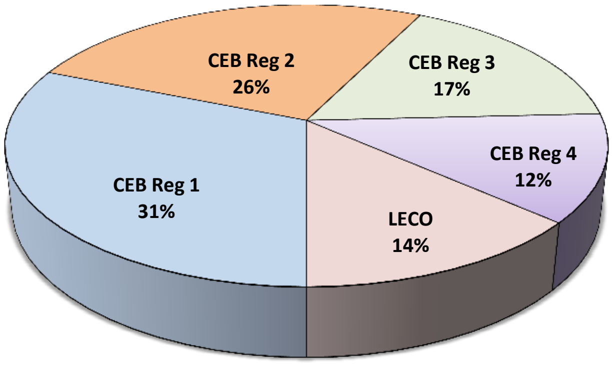

Figure 4: DL wise Share of Revenue (excluding FAC)

5.6 Fuel Adjustment Charge

Fuel Adjustment charge as a percentage of energy charge was imposed with effect from 16th February 2012. Religious category, Street lighting, Government schools and Government hospitals have been exempted from FAC.

	Category			
Licensee	**Domestic**	**Industrial**	**Hotel**	**G.P.**
CEB Reg 1	1,263	347	52	1,613
CEB Reg 2	1,036	659	23	684
CEB Reg 3	680	415	4	452
CEB Reg 4	642	198	23	369
LECO	911	135	27	670
Tot	4,532	1,754	129	3,789

Table 5.6: Fuel Adjustment Charge (LKR Mil.)

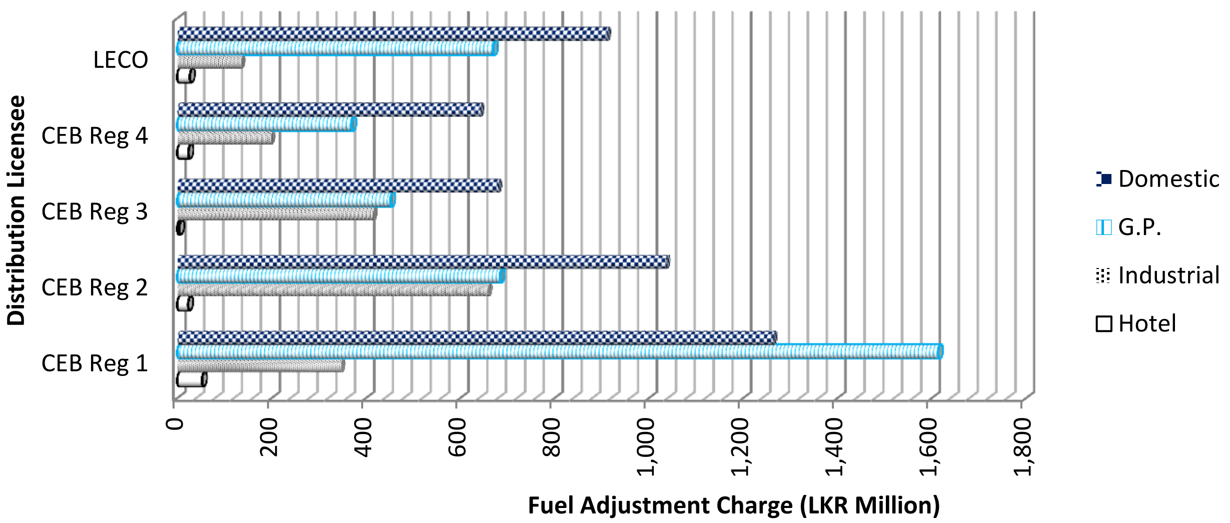

Figure 5.5 Fuel Adjustment Charge

6 Energy Loss

According to the invoiced sales during 2012-1st half, National electrical energy loss occurred in distribution network amounts to 476 GWh or 8.5% of energy purchased from TL. Energy consumption of street lights that has not been invoiced is included in this loss amount. If estimated energy consumption of street lights are taken into account, then the loss figure reduce to 414 GWh or 7.4% of the energy purchased from TL. Table 6.1 shows the monthly average distribution loss figures for each DL.

Distribution Licensee	Loss (%)				Loss (GWh)		
	2012 1st Half	2011	Reduction	Allowed* for 2012	2012-1st Half (Per Month)	2011 (Per Month)	Reduction
CEB Reg 1	**6.7**	7.5	0.8	8.9	17.1	18.9	1.8
CEB Reg 2	**9.6**	9.0	-0.6	11.8	26.2	22.7	-3.5
CEB Reg 3	**8.2**	17.0	8.8	8.9	14.2	31.5	17.3
CEB Reg 4	**5.6**	10.8	5.2	10.1	6.6	12.5	5.9
LECO	**4.5**	6.3	1.8	5.6	4.9	6.7	1.8

***Decision on Transmission and Bulk Supply Tariffs, Publishd by PUCSL**

Table 6.1: Energy Loss in Distribution System

All DLs have maintained average loss percentage below the figure imposed by PUCSL for the year 2012.

7 Consumer Accounts

Numbers of consumer accounts are increasing by 0.45% per month, i.e. by 24,000 new connections. In average 133 new connections are providing daily by DLs. National consumer mix dominated by Domestic and General Purpose categories as shown in figure 7.1.

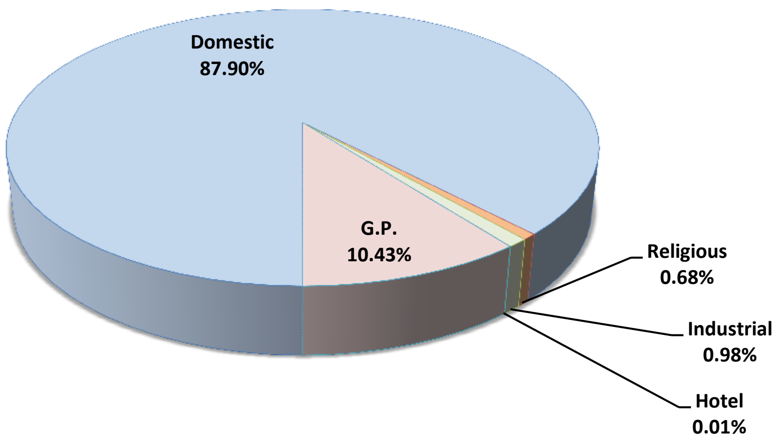

Figure 7.1 National Consumer Base

7.1 Consumer Mix

Distribution business involve about 5.3 million consumer accounts nationally. CEB Region 2 accounts for the highest percentage of consumer accounts and also having the second largest area of operation among all DLs. Further , CEB Reg 1 has the highest increase in consumer accounts w.r.t. 2011 2nd half. Figure 11 and table 7.1 provides the category wise beakedown of consumer accounts.

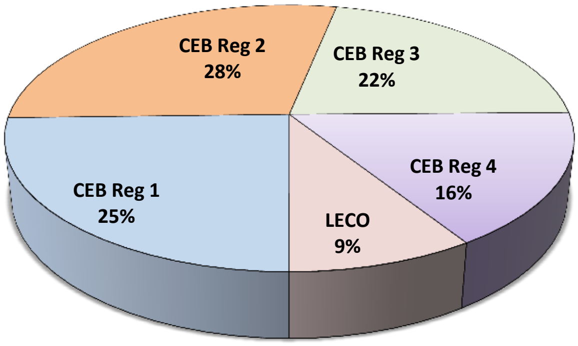

Figure 2 : DL wise Consumer Mix

	Domestic	Religious	Industrial	Hotel	G.P.	Total	% Increase*
CEB Reg 1	1,128,078	9,857	22,609	155	151,427	1,312,126	3.7
CEB Reg 2	1,346,355	8,669	12,952	101	157,281	1,525,358	2.5
CEB Reg 3	1,026,825	11,350	8,033	78	105,755	1,152,041	3.2
CEB Reg 4	778,252	4,159	5,668	93	77,488	865,660	2.2
LECO	411,576	2,321	3,124	43	64,731	481,795	1.5
Total	4,691,086	36,356	52,386	470	556,682	**5,336,980**	2.8

***w.r.t. 2011-December**

Table 7.1: Category wise Consumer Mix as at June 2012

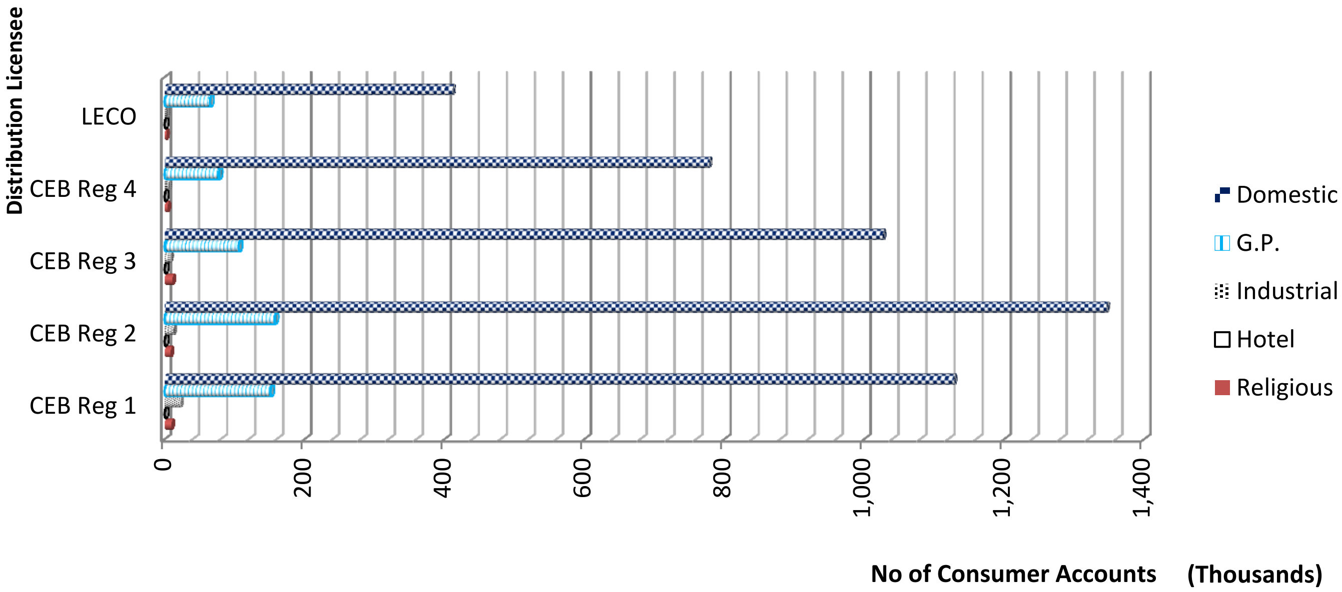

Figure 3: Category Wise Consumer Mix as at June 2012

8 Conclusion

During the period of 2012-1st half, all DLs have managed to keep their network losses below the allowed losses stipulated by PUCSL. LECO has recorded the lowest network loss amounting to 4.5% and DL2 has exhibited the highest (9.6%). National distribution network loss has amounted to 8.5%, which is of 476 GWh (considering the invoiced sales). Results obtained on network losses depend on the accuracy of the energy meters installed.

Considering the consumer base of each DL, the LECO has to deal with the most energy intensive average consumer, consuming 195 units per month while DL4 has the lowest energy intensive average consumer consuming 128 units per month.

Analysis has revealed that DL2 had the highest sales margin per energy unit they sold, amounting to LKR 3.99 and DL3 in the lowest side with a figure of LKR 2.97. Reader must note that this figure is influenced by consumer mix, and the authorized area of operation which are not in the control of licensees.

DL1 has provided the highest number of new connections per day (Averaged), while LECO is the lowest. In this case one must note that DL1 is the owner of largest area of operation and also it contains large area that was previously affected from war activities by terrorists.

Following table summarizes some important aspects from each DL.

Licensee	Network Loss	Sales Margin per kWh Purchased	Average Units Consumed per Month per Consumer Account	Average Number of New Connections Provided per Day	Authorized Area of Operation*
	(%)	(LKR/kWh)	(kWh/Account/Month)		% of Total
CEB Reg 1	6.7	3.46	183	***43***	42.0
CEB Reg 2	***9.6***	***3.99***	162	34	*24.5*
CEB Reg 3	8.2	***2.97***	140	33	22.6
CEB Reg 4	5.6	3.93	***128***	17	10.4
LECO	**4.5**	3.68	***195***	***6***	0.6
National	7.4	3.61	160	133	

Table 8.1: Important Aspects

Note:
Network Losses = {[Energy Purchased from TL] - [Sales of DL]} / [Energy Purchased from TL]
Sales Margin = {[Energy Charge] + [Maximum Demand Charge] + [Fixed Charge]} – {[Cost of energy Purchased] - [Cost of Coincident Demand]}
Average number of new connections is an approximate value calculated using the number of accounts increased during the period 2012- 1st half.
*** Approximate**