Generation Performance in Sri Lanka 2013

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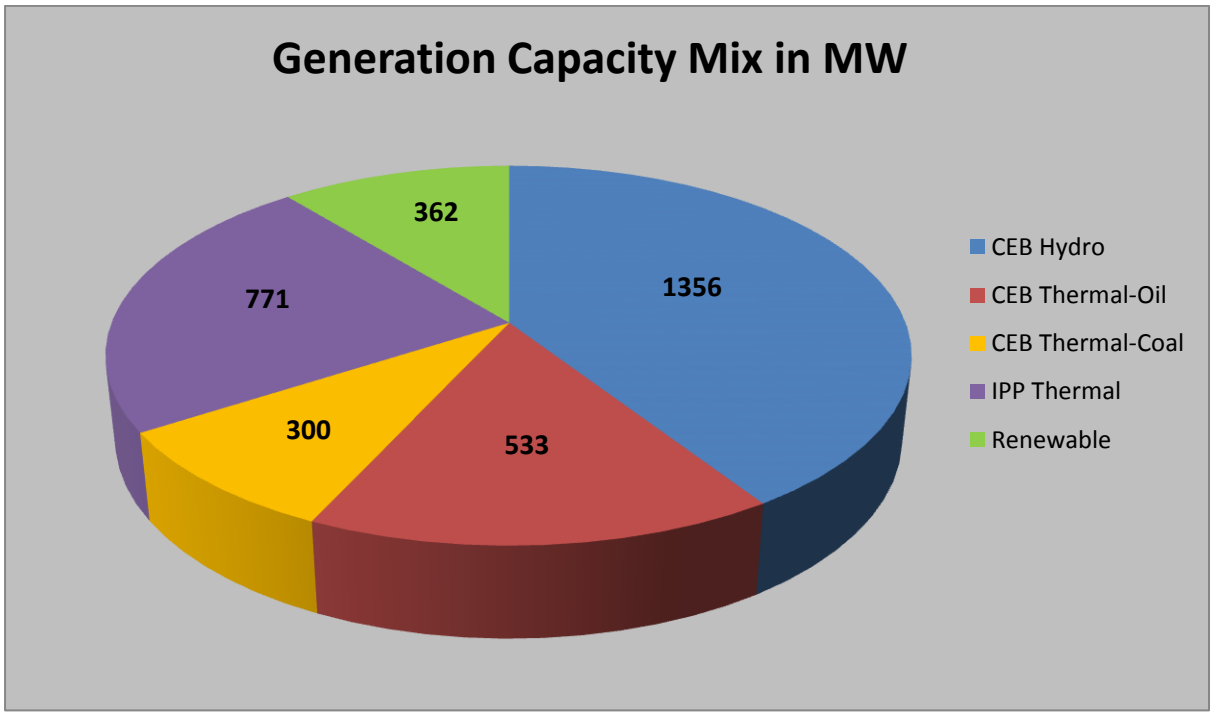
1. Introduction

Electricity has become an essential commodity in the modern world. Sri Lanka also has reached the national electrification level of 94%, which is a substantial improvement in the power sector compared with electrification level of 70% by end of 2005. During year 2013, maximum recorded electricity demand in Sri Lanka was 2164.2MW (excluding the contribution of SPP Mini Hydro, Solar and Biomass) which is a slight higher value compared to the maximum demand of 2146.4MW in year 2012. In order to attain this demand and to satisfy the electricity requirement in Sri Lanka, altogether 177 Grid connected power plants with installed capacity of 3322MW have been operated in 2013. Out of these power plants 25 have been owned and operated by Ceylon Electricity Board including 17 hydro plants, 8 thermal plants and 1 wind power plant. In addition to that, 11 thermal power plants have been operated by Independent Power Producers (IPPs) and 144 renewable power plants have been operated by Small Power Producers (SPPs) including mini hydro plants, solar power plants, wind power plants and biomass power plants. And altogether, 22 renewable power plants have been commissioned during the year 2013 to strengthen the generation capacity of the country.

The chart below shows the existed installed capacities in MW of each type of power plants by the end of the year 2013.



This Generation Performance Report contains a summary of information and performance statistics of the generation units and electricity network in Sri Lanka for the year 2013.

All the index and other calculations in this report have been done based on the data received through Licensee Information Submission System (LISS) and details obtained from CEB Monthly Operational Data Reports.

2. Energy Generation

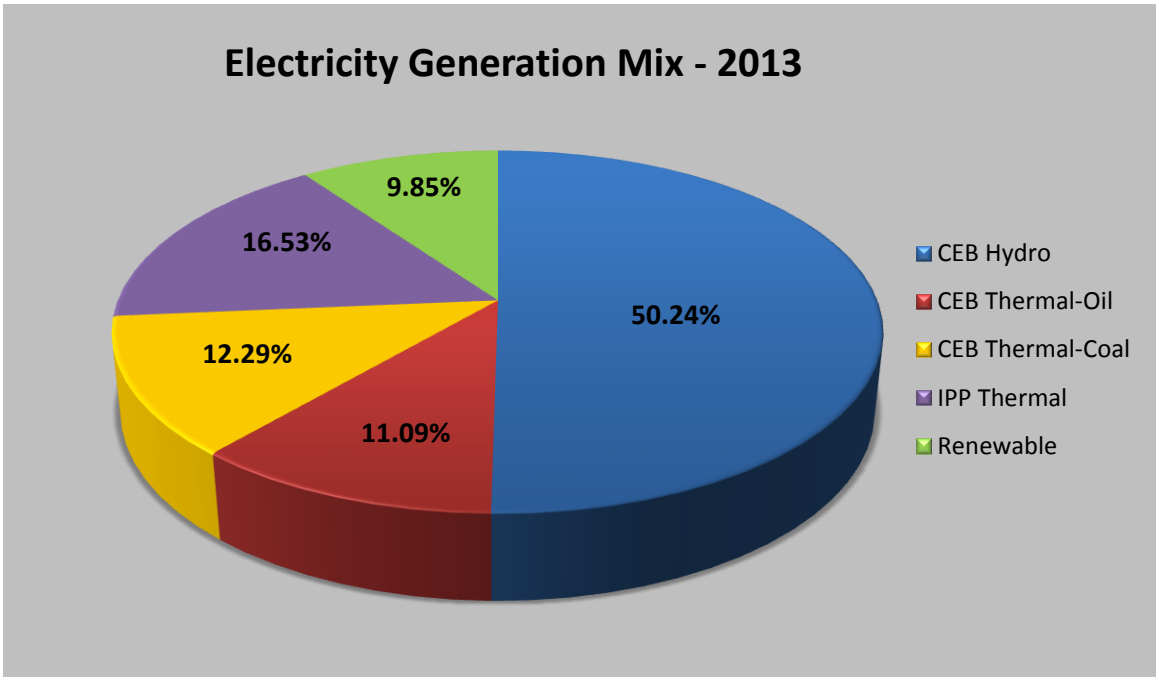
All grid connected generation plants sell their power to the only transmission licensee in Sri Lanka to deliver the power to the end consumers via distribution licensees.

The chart below shows the annual generation figures in 2013 in MWh.

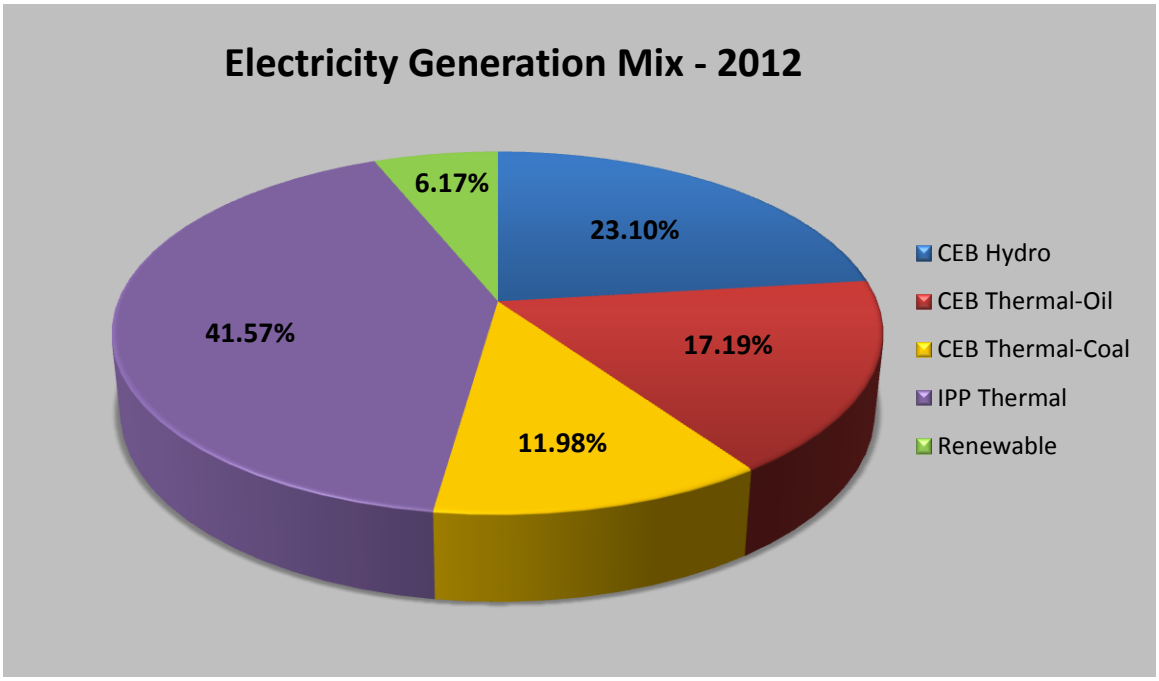
	CEB	CEB Oil	CEB Coal	IPP	Renewable	Total
Jan	539,017	83,172	150,874	139,288	76,347	**988,698**
Feb	373,812	93,162	159,516	234,893	52,646	**914,029**
Mar	351,493	160,338	180,996	309,349	54,181	**1,056,357**
Apr	371,682	150,551	149,882	270,270	56,263	**998,648**
May	416,643	136,610	175,208	178,444	117,325	**1,024,230**
Jun	578,924	41,184	144,854	44,793	156,961	**966,716**
Jul	680,109	30,639	120,666	20,860	156,283	**1,008,557**
Aug	668,150	68,450	68,820	107,940	103,834	**1,017,194**
Sep	624,640	105,790	0	113,920	127,567	**971,917**
Oct	564,780	138,560	75,080	162,450	97,956	**1,038,826**
Nov	468,830	118,290	165,260	136,020	95,529	**983,929**
Dec	370,420	199,690	78,210	259,340	83,391	**991,051**
Total	**6,008,500**	**1,326,436**	**1,469,366**	**1,977,567**	**1,178,282**	**11,960,151**

Source :LISS

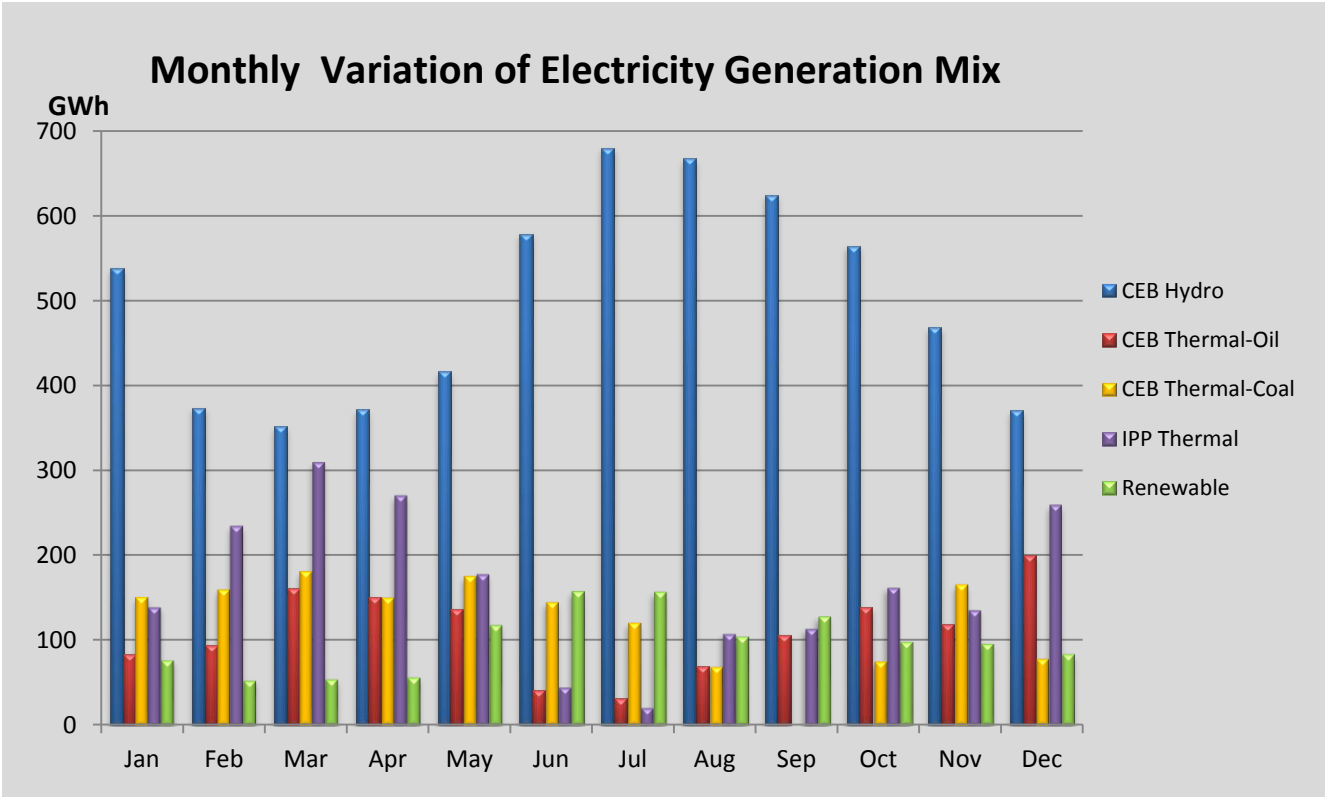
The chart below shows the generation mix in Sri Lanka in year 2013.



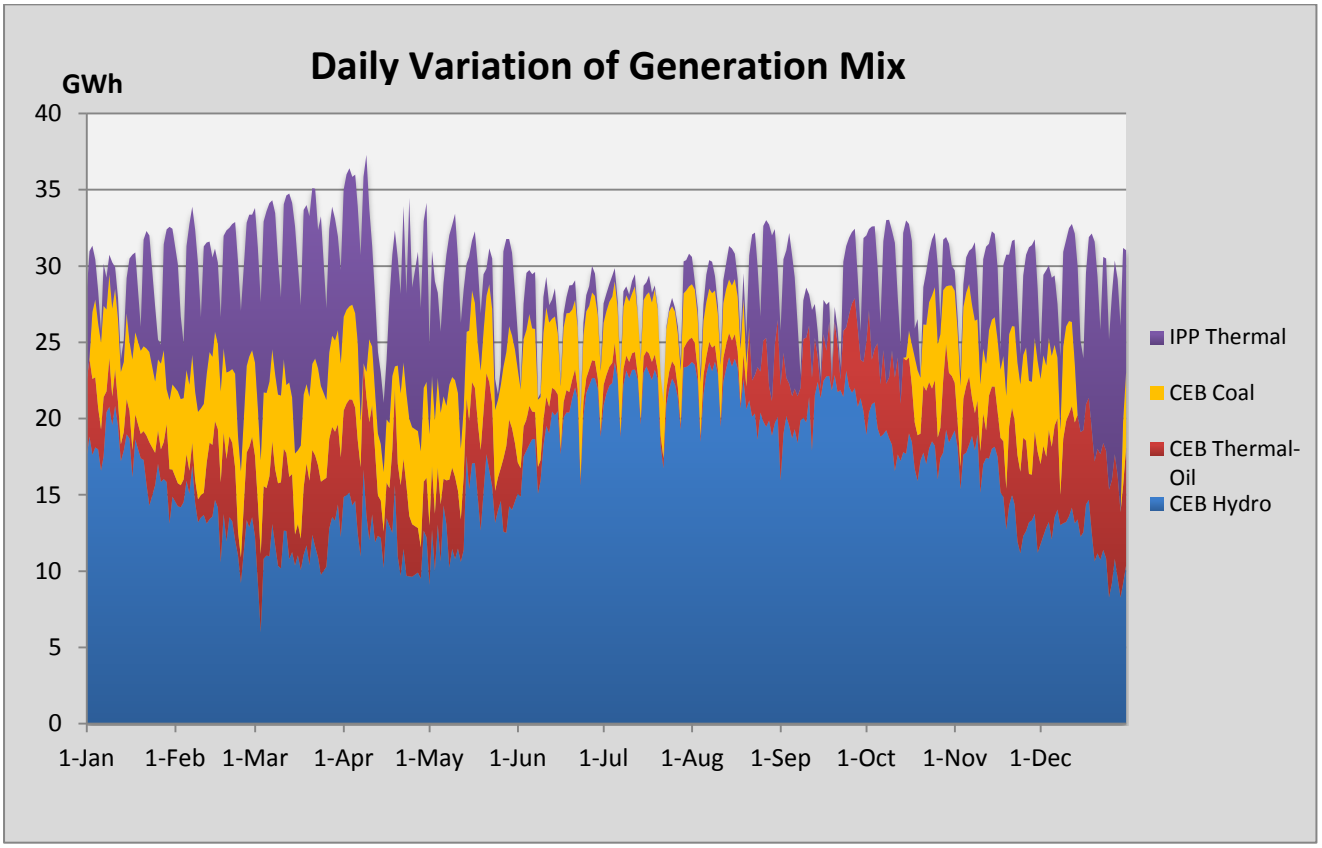
The chart below shows the generation mix in Sri Lanka for the year 2012.



The chart below shows the monthly variation of generation mix in Sri Lanka during year 2013.



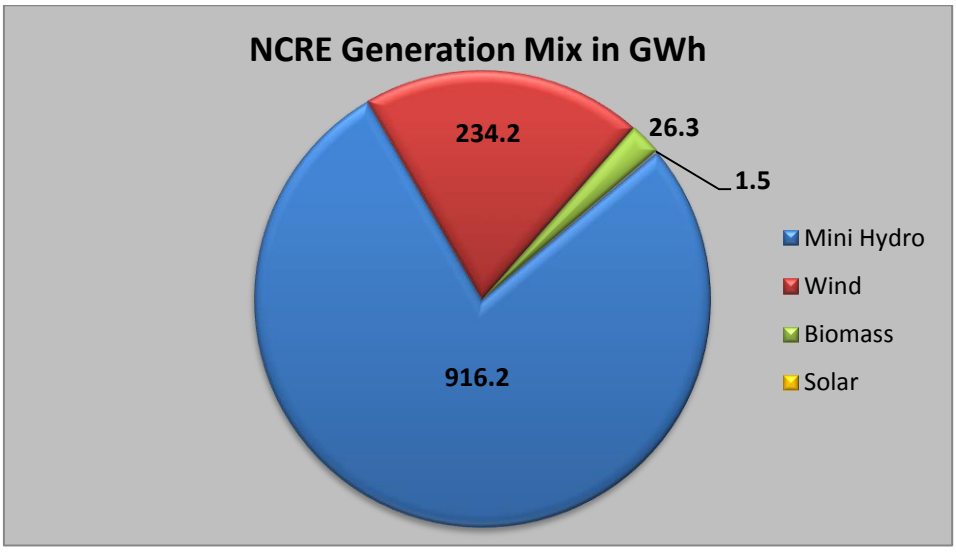
The following chart shows the daily variation of generation mix in Sri Lanka during the year 2013.



Note: *Daily generation data of renewable power plants was not available.*

Compared to the year 2012, it can be perceived that power generation through NCRE sources has improved from 6% in 2012 to 10% in 2013 out of the total electricity generation. In the Sri Lankan power sector, the grid connected installed capacity for electricity generation from NCRE sources as at the end of 2013 was 262MW including 126 mini hydro plants, 11 wind power plants, 4 solar power plants and 4 Biomass power plants.

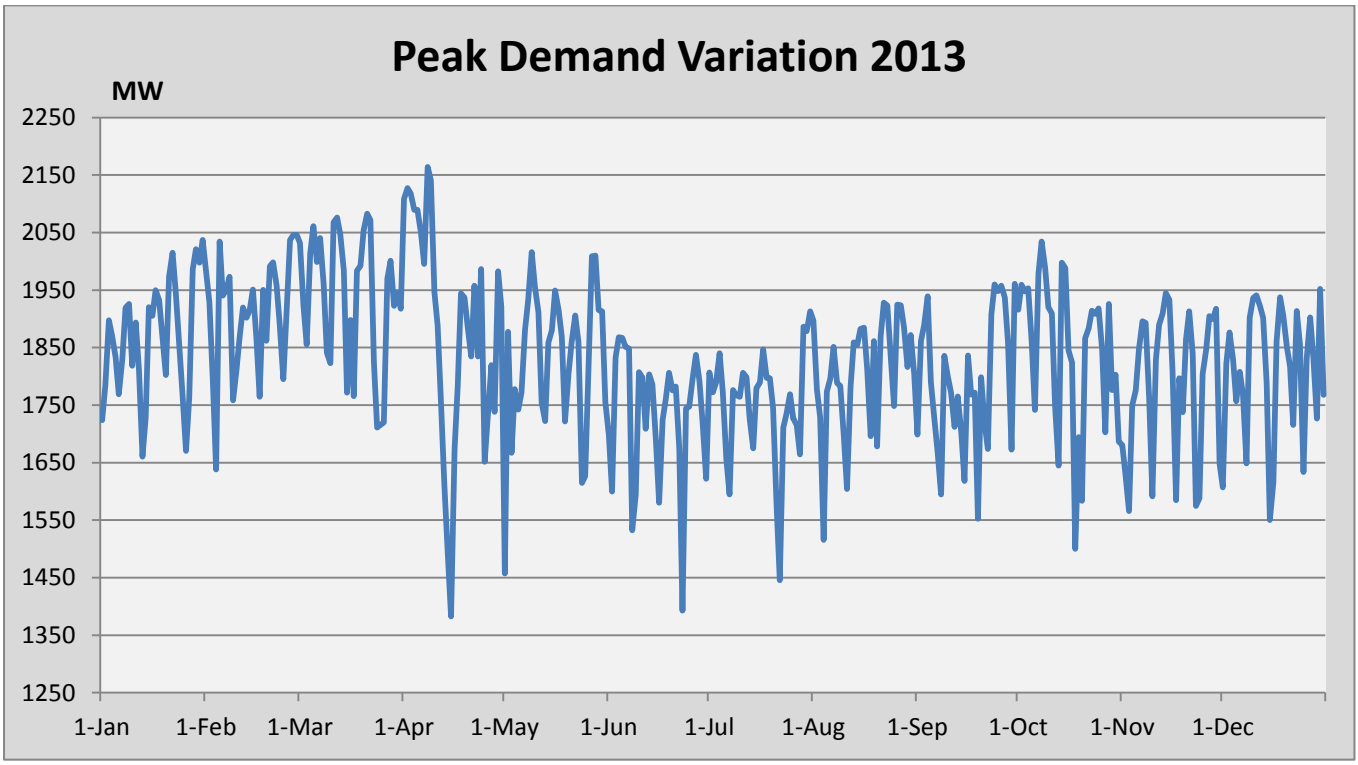
The Chart below shows the energy contribution from each type of NCRE power plants in 2013.



3. System Peak Demand

CEB System Control records the daily peak power demand of the country.

Daily variation of country's system peak demand in the year 2013 is depicted by the following graph.



Highest Peak Demand: 2164.2MW on 08th April 2013

Lowest Peak Demand: 1383MW on 15th April 2013

Note: *Contribution of SPP Mini Hydro, Solar and Biomass is not included for the peak demand.*

4. Load Factor

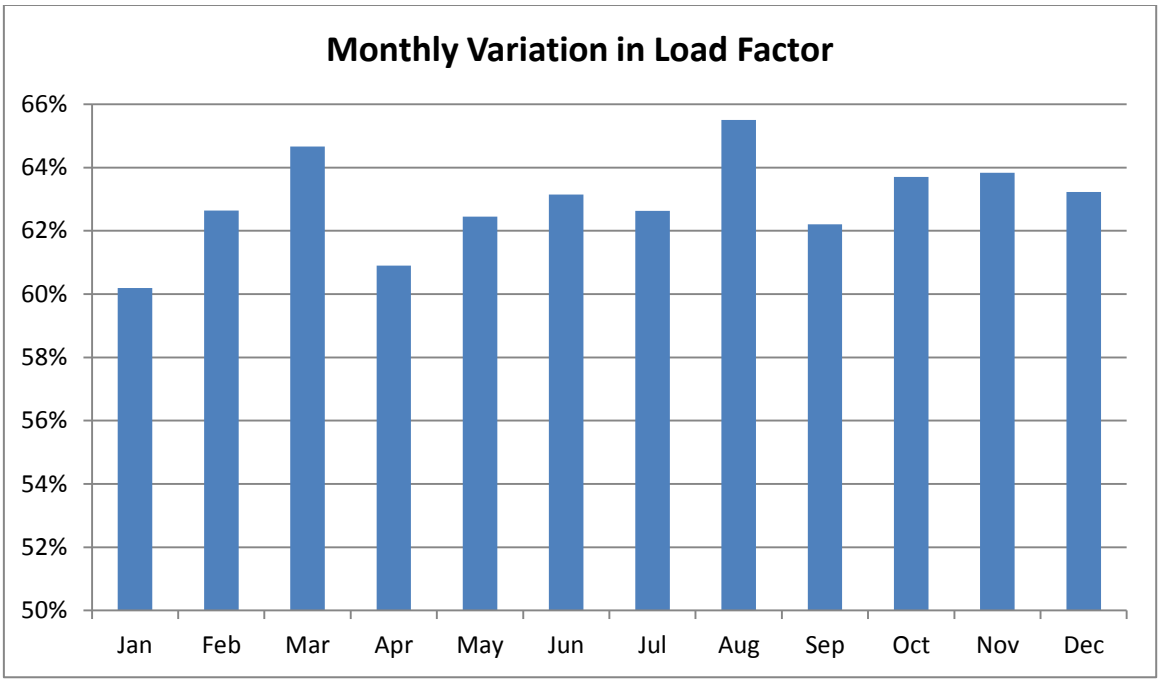
Load Factor is an indicator which shows how steady the electricity demand over time. It is simply the average load divided by the peak load in a system over a period of time. But normally load factor is calculated subjected to the produced energy according to the following formula.

$$Load\ Factor = \frac{Total\ Generation\ During\ the\ Nominal\ Period}{Maximum\ Demand\ \mathrm{x}\ No.of\ hours\ in\ the\ report\ period}$$

Calculated Load Factor for the total system for year 2013 = **58.01%**

Calculated Load Factor for the total system for year 2012 = **58.74%**

Load factor of any system must be tried to keep in its maximum by pulling down the concentrated maximum demand and shifting the loads to periods of otherwise low usage. Load factor maximization is essential in maintaining the security of supply of the countries in which, meeting the concentrated maximum demand is critical. Countries which have a flat load curve own a higher load factor.



Sri Lanka has a load curve with a steep peak in the night, where starting from about 6.00 pm, the load grows to about 2,000 MW by 7.30 pm and starts falling off after about 08.30 pm. Therefore the system must be comprised a substantial additional generation capacity only to meet that abrupt sharp night peak; hence the load factor in Sri Lanka is comparatively low. As a solution for that, CEB has introduced a three tier tariff plan for the industrial and hotel categories of electricity consumers with low off peak rates and penal peak rates to smoothen the daily peak load and push some electricity intensive activities to low demand hours, and this time-of-day tariff scheme is expected to be facilitated for the domestic consumers as well in near future.

***Note**: Load Factors were calculated excluding SPP Mini Hydro, Solar and Biomass components of the system*

5. Plant Factor

The plant factor of a power plant is the ratio of the actual energy output of the power plant over a period of time to its potential output if it had operated at full nameplate capacity the entire time.

Plant Factors vary greatly depending on the type of power plants and it is calculated according to the following formula.

$$Plant\ Factor = \frac{Actual\ Energy\ Production\ During\ the\ Nominal\ Period}{Potential\ Energy\ Production\ During\ the\ Period}$$

Calculated plant factors for all grid connected power plants in Sri Lanka during 2013 are listed below.

CEB Hydro

Old Laxapana	77.46%
New Laxapana	71.70%
Polpitiya	70.80%
Rantambe	68.49%
Victoria	64.53%
Nilambe	63.49%

Randenigala	60.09%
Upper Kotmale	43.11%
Inginiyagala	42.33%
Ukuwela	42.26%
Canyon	40.49%
Wimalasurendra	38.50%

Samanala	38.29%
Kukule	37.26%
Udawalawe	35.64%
Kotmale	33.59%
Bowatenna	17.66%

CEB & IPP Thermal

Plant Factors of thermal power plants are listed below in the order of calculated energy unit cost for the year 2013.

1	Puttalum Coal	55.91%
2	KPS CCY	42.22%
3	Sapugaskanda 2	61.98%
4	New Chunnakam	59.61%
5	Heladhanavi	53.62%
6	Colombo Power	63.13%
7	Ace Embilipitiya	45.14%
8	Sapugaskanda 1	32.46%

9	Asia Power	35.22%
10	Chunnakum	0.43%
11	West Coast	18.93%
12	AES Kelanitissa	10.66%
13	Northern Power	9.85%
14	GT 7 - Kelanitissa	1.64%
15	Small Gas Turbines	0.14%
16	Asia Power	35.22%

Renewable – Mini Hydro

Palmerston MHP	69.96%
Green Energy (Kiriweldola) MHP	69.82%
Waverly MHP	68.41%
Kirkoswald MHP	67.85%
Lenadora MHP	67.31%
Watakelle MHP	67.21%
Hapugastenna - 2 MHP	66.36%
Giddawa MHP	63.14%
Denawak Ganga MHP	62.70%
Rathganga MHP	61.05%
Hapugastenna - 1 MHP	60.89%
Somerset MHP	60.78%
Batatota MHP	59.72%
Wee Oya MHP	58.85%
Badulu Oya MHP	58.11%
Kotanakanda MHP	57.48%
Alupola MHP	57.31%
Delgoda MHP	54.59%
Kaduruwan Dola Athuraliya MHP	53.28%
Watawala B Estate MHP	53.25%
Gampola Walakada MHP	53.22%
Sheen MHP	52.71%
Belihul Oya Oya MHP	52.29%
Guruluwana MHP	51.88%
Glassaugh MHP	51.79%
Erathna (Waranagala) MHP	51.74%
Bopekanda MHP	51.17%
Sithagala MHP	50.88%
Kabaragala MHP	50.82%
Madugeta MHP	50.59%
Barcaple II MHP	50.45%
Bambarabatu Oya MHP	50.31%
Halathura Ganga MHP	50.13%
Kalupahana Oya MHP	49.98%
Gomala Oya MHP	49.95%
Magal Ganga MHP	48.74%
Lower Neluwa MHP	48.36%
Bowhill (Kadiyanlena) MHP	48.35%
Ellapita Ella MHP	48.15%
Dunsinane MHP	47.95%
Waltrim MHP	47.93%
Asupiniella MHP	47.81%
Kokawita 1 MHP	47.79%
Wembiyagoda MHP	47.76%
Mandagal Oya MHP	47.72%
Manelwala MHP	47.34%
Koladeniya MHP	47.30%
Loggal Oya MHP	47.25%
Amanawala Oya MHP	46.79%
Ritigaha Oya II MHP	46.51%
Kandadola MHP	46.40%
Mulgama MHP	45.89%
Koswatta Ganga MHP	45.76%
Henfold (Agra Oya) MHP	45.68%
Galaboda (Denawak Ganga) MHP	45.65%
Gangaweraliya MHP	45.63%
Atabage Oya MHP	45.60%
Rajjammana MHP	45.35%
Karawila Ganga MHP	44.81%
Punugala MHP	44.17%
Huluganga MHP	43.73%
Barcaple I MHP	43.02%
Kiriwan Eliya MHP	42.81%
Werapitiya MHP	42.29%
Miyanawita Oya MHP	41.17%
Minuwanella MHP	41.14%
Bogandana MHP	40.63%
Kehelgamu Oya MHP	40.45%
Labuwewa MHP	40.21%
Upper Ritigaha Oya MHP	40.20%
Kumburuteniwela MHP	40.10%
Lower Hemingford MHP	40.05%
Niriella MHP	39.83%
Delta MHP	39.30%
Galatha Oya MHP	39.23%
Kalupahana MHP	38.71%
Aggra Oya MHP	38.42%
Brunswic MHP	38.35%
Upper Hal Oya MHP	38.32%
Ganthuna Udagama MHP	38.14%
Adavikanda MHP	37.90%
Way Ganga MHP	37.87%
Upper Korawaka MHP	37.85%
Kudah Oya MHP	37.22%
Upper Magal Ganga MHP	37.00%
Kotapola (Kiruwana) MHP	36.93%
Kolonna MHP	35.54%
Pathaha MHP	34.79%
Radella MHP	34.44%
Lemastota MHP	34.37%
Lower Atabage MHP	34.33%
Maduruoya MHP	34.00%
Carolina MHP	33.97%
Nakkawita MHP	33.00%
Soranathota MHP	32.66%
Deiyanwala MHP	32.00%
Kadurugal Dola MHP	31.43%
Gurugoda Oya MHP	30.76%
Coolbawn MHP	29.86%
Bambarabotuwa III MHP	29.57%
Branford MHP	29.52%
Nandurana MHP	29.10%
Black Water MHP	28.19%
Indurana MHP	27.65%
Falcon Valley MHP	27.55%
Weddemulle MHP	27.48%
Nilambe Oya MHP	27.01%
Nugedola MHP	26.52%
Sanquahar MHP	26.27%
Watawala (Carolina ii) MHP	25.54%
Forest Hill MHP	24.87%
Kolapathana MHP	22.77%
Mille Oya MHP	22.57%
Bambarabotuwa II MHP	21.84%
Baharandha MHP	20.09%
Pathanahenagama MHP	18.93%
Wellawaya MHP	18.92%
Mul Oya MHP	14.08%
Gampola MHP	13.89%
Dunsinane Cottage MHP	13.33%
Gonagamuwa MHP	12.18%
Kalugala-Pitawala MHP	11.51%
Kadawala I MHP	11.24%
Kadawala I MHP	4.68%
Battalagala MHP	2.87%

Wind

Madurankuliya WPP	51.68%
Nirmalapura WPP	38.71%
Vidatamunai WPP	36.68%
Erumbukkudal WPP	34.97%
Seguwantivu WPP	34.27%
Kalpitiya WPP	33.82%

Mampuri WPP	32.35%
Uppudaluwa WPP	22.38%
Ambewela WPP	16.74%
Willwind WPP	10.24%
CEB Wind	8.73%

Biomass

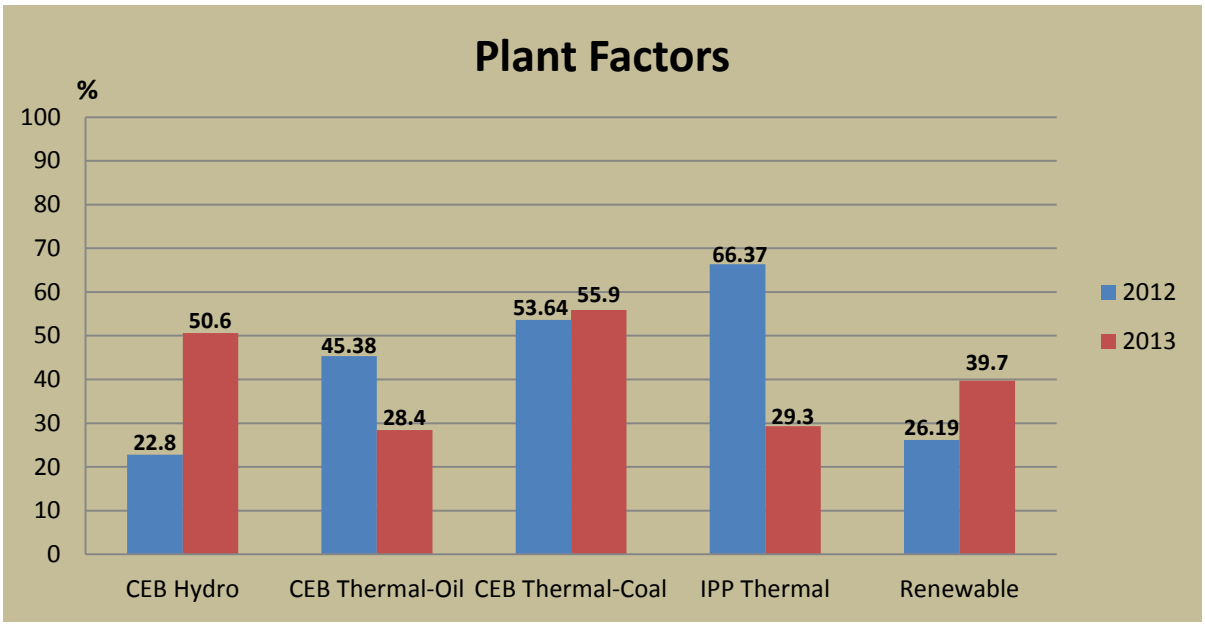
Badalgama BMP	28.86%
Tokyo BMP	25.52%
Kottamurichchana BMP	10.98%
Embilipitiya BMP	2.44%

Solar

Gonnoruwa I SPP	13.99%
Gonnoruwa II SPP	13.88%
Tirappane SPP	0.42%

Note: *Gross generation data for IPPs and SPPs were not available for Plant Factor calculation. Therefore the Net generation data were used to calculate the plant factors of these plants.*

Annual Overall Plant Factors for the major types of generation options in 2012 & 2013 are given below.



Overall plant factors of CEB hydro plants and Renewable plants have been elevated drastically due to rich rainfall, which has highly impacted towards dropping thermal dispatch.

6. Running Plant Factor

The running plant factor of a generation unit is the ratio of the actual energy output of a generation unit over a period of time to its potential output if it had operated at full nameplate capacity during the period in which it has been operated.

Running Plant Factor shows the extent to which the generation units have been operated when they are running out of their nominal capacities.

Calculated running plant factors for CEB owned generation units in year 2013 are listed below.

CEB Hydro

Kukule	Unit 1	96.49%
	Unit 2	91.70%
Rantambe	Unit 1	94.22%
	Unit 2	94.26%
Ukuwela	Unit 1	94.92%
	Unit 2	93.49%
Old Laxapana	Unit 1	91.14%
	Unit 2	80.28%
	Unit 3	93.01%
	Unit 4	80.06%
	Unit 5	85.69%
Randenigala	Unit 1	89.57%
	Unit 2	90.18%
Victoria	Unit 1	80.45%
	Unit 2	83.67%
	Unit 3	82.02%

New Laxapana	Unit 1	83.26%
	Unit 2	76.52%
Upper Kotmale	Unit 1	77.72%
	Unit 2	82.75%
Polpitiya	Unit 1	76.51%
	Unit 2	79.06%
Wimalasurendra	Unit 1	74.20%
	Unit 2	76.33%
Samanalawewa	Unit 1	68.88%
	Unit 2	68.53%
Canyon	Unit 1	66.74%
	Unit 2	65.87%
Kotmale	Unit 1	61.04%
	Unit 2	66.04%
	Unit 3	62.84%
Bowatenna	Unit 1	44.52%

CEB Thermal

Sapugaskanda 2	Unit 5	94.82%
	Unit 6	94.42%
	Unit 7	94.37%
	Unit 8	95.52%
	Unit 9	89.93%
	Unit 10	92.02%
	Unit 11	96.11%
	Unit 12	95.45%
KPS(Small) GT	Unit 1	38.46%
	Unit 2	56.25%
	Unit 3	0.00%
	Unit 4	92.27%
	Unit 5	99.01%

KPS CCY	Unit 8 (GT)	87.33%
	Unit 8 (ST)	95.29%
Uthuru Janani	Unit 1	83.34%
	Unit 2	83.43%
	Unit 3	84.48%
Sapugaskanda 1	Unit 1	79.03%
	Unit 2	80.55%
	Unit 3	79.99%
	Unit 4	82.70%
Puttalam Coal	Unit 1	71.72%
KPS GT7	Unit 7	70.05%

***Note**: Running Plant Factors for IPPs and SPPs were not calculated since the operation durations of those plants were not available*

7. Generation Cost

Power Station	Annual Generation (GWh)	Total Cost to CEB (Mn.LKR)	Average Unit Cost(Rs/kWh)
Asia Power	157	5,321	33.81
AES Kelanitissa	152	7,097	46.62
Colombo Power	332	8,045	24.25
Heladhanavi	470	11,022	23.47
ACE Embilipitiya	395	9,900	25.04
Westcoast	448	20,855	46.58
Sapugaskanda A	182	5,716	31.41
Sapugaskanda B	391	8,203	20.98
Kelanitissa Small GTs	1	452	445.50
Kelanitissa PS GT 7	17	1,190	71.81
Kelanitissa Combined	610	12,766	20.92
Puttalam Coal	1,469	10,585	7.20
Chunnakum	0.3	10	34.56
Uthura Janani	125	2,657	21.20
Northern Power	23	1,244	53.41
Victoria	1,187	2,100	1.77
Ukuwela	148	663	4.48
Kotmale	591	1,801	3.05
Upper Kotmale	566	1,519	2.68
Randenigala/Rantambe	936	1,608	1.72
Bowatenna	62	539	8.71
Nilambe	17	110	6.57
Old Laxapana/New	967	1,105	1.14
Polpitiya	465	572	1.23
Wimalasurendra	169	316	1.87
Canyon	213	661	3.11
Samanalawewa	403	1,479	3.67
Kukule	228	652	2.85
Inginiyagala	37	132	3.55
Udawalawe	19	105	5.61
Renewable	1,178	16,999	14.43
All Hydro	**6,009**	**13,361**	**2.22**
All CEB Thermal	**2,796**	**41,580**	**14.87**
ALL IPP Thermal	**1,978**	**63,483**	**32.10**
All Plants	**11,960**	**135,423**	**11.32**

Source: *LISS*

7.1 Amount Paid in Excess of Capacity and Energy Charges

CEB has paid to Independent Power Producers (IPP) in excess of capacity and energy charges according their Power Purchase Agreements (PPA). The amounts which have been paid in 2013 are summarized below.

Power Plant	Start/Stop Charge (Mn.LKR)	Reimbursement Claim (Mn.LKR)	O & M Charge (Mn.LKR)	Total (Mn.LKR)
Asia Power	0.00	96.28		**96.28**
AES - Kelanitissa	263.02	67.56		**330.59**
Colombo Power - Barge	120.92	91.95		**212.87**
Heladhanavi	85.69	640.27		**725.96**
ACE Embilipitiya	87.36	380.04		**467.40**
Westcoast	712.66	691.34		**1404.00**
Northern Power	0.00	33.49	63.82	**97.30**
Total (Mn.LKR)	**1269.66**	**2000.92**	**63.82**	**3334.40**

8. Comparison of Scheduled Dispatch and Actual Dispatch

CEB implements a generation dispatches schedule every 6 months prior operation. It contains the amount of energy to be produced by each power plant for the forthcoming months. Due to numerous reasons the actual dispatch could be deviated from this schedule. The comparison between actual and scheduled dispatches for the year 2013 is given below.

	Capacity MW	Scheduled GWh	Actual GWh	Variation GWh	Scheduled PF	Actual PF
Puttalam Coal	300	1883.1	1469.4	-413.7	71.66%	55.91%
Sapugaskanda 2	72	481.3	390.9	-90.3	76.31%	61.98%
Heladhanavi	100	737.1	469.7	-267.4	84.14%	53.62%
Sapugaskanda 1	64	388.9	182.0	-206.9	69.37%	32.46%
Colombo Power Barge	60	424.5	331.8	-92.7	80.76%	63.13%
ACE Embilipitiya	100	634.8	395.4	-239.4	72.47%	45.14%
ASIA Power	51	334.0	157.4	-176.6	74.76%	35.22%
Kerawalapitiya	270	1235.8	447.8	-788.0	52.25%	18.93%
AES Kelanitissa	163	442.3	152.2	-290.1	30.98%	10.66%
KPS GT 7	115	17.2	16.6	-0.6	1.71%	1.64%
KPS CCY	165	728.6	610.3	-118.3	50.41%	42.22%
KPS Small GT	85	3.6	1.0	-2.6	0.48%	0.14%
Northern Power	27	117.9	23.3	-94.6	49.85%	9.85%
Chunnakam	8	5.9	0.3	-5.6	8.42%	0.43%
Uthura Janani	24	178.9	125.3	-53.6	85.09%	59.61%
Total Thermal	1604	7613.9	4773.4	-2840.5	54.19%	33.97%
Renewable energy	362	704.7	1178.3	473.6	22.22%	37.16%
CEB Hydro	1356	3879.5	6008.5	2129.0	32.66%	50.58%
Total Generation	3322	12198.0	11960.2	-237.9		

9. Auxiliary Consumption

Auxiliary system facility is a major part of a power generation facility and the auxiliary consumption of a power plant depends on its configuration, age and related technical parameters. Purpose of an auxiliary system is to supply power for its own electricity requirements.

Normally 0.5% - 2% of power generated is consumed for the auxiliary system in hydro plants while the auxiliary consumption in fossil fuel power plants is 7% - 15% since there are different equipment like feed pumps, cooling water pumps, air fans, coal grinding mills, ash handling equipment etc. utilized in thermal plants.

Calculated percentages of auxiliary consumption of CEB power plants out of gross generation during 2013 are as follows.

- CEB Hydro 0.34%
- CEB Thermal Oil 1.56%
- CEB Wind 0.52%

Note: *Auxiliary power consumption data was available only for CEB power plants and consumptions for each plant separately were not available.*

10. Availability Factor

The evaluation of availability of a power plant is one of the most important tasks at any power station. To analyze plant availability performance, generation unit outages should be scrutinized to identify the causes of unplanned or forced energy losses and to reduce the planned energy losses. Reducing outages increases the number of operating hours, therefore increases the plant availability factor.

Availability Factor of a generation unit can be calculated using the formula given below.

$$Availability\ Factor = \frac{Duration\ in\ which\ the\ generation\ unit\ was\ available\ for\ opertaion}{Total\ length\ of\ the\ period}$$

Total Availability Factor for all CEB generation Units in 2013 = **79.54%**

Availability Factor for CEB hydro generation units in 2013 = **82.15%**

Availability Factor for CEB thermal generation units in 2013 = **71.28%**

Availability Factor for CEB wind generation units in 2013 = **97.75%**

Calculated availability factors for CEB owned generation plants in year 2013 are listed below.

CEB Hydro

Rantambe	98.43%
Randenigala	98.35%
Nilambe	98.33%
Victoria	96.13%
Samanalawewa	94.48%
Canyon	94.07%
Ukuwela	92.96%
New Laxapana	92.15%
Polpitiya	91.16%

Kotmale	88.49%
Wimalasurendra	84.82%
Bowatenna	84.12%
Old Laxapana	83.56%
Upper Kotmale	79.89%
Udawalawe	60.56%
Kukule	53.73%
Inginiyagala	53.38%

CEB Thermal

Uthura Janani	95.26%
KPS CCY	90.43%
Puttalam Coal	81.80%
Sapugaskanda 2	79.52%
KPS GT 7	54.77%
KPS Small GTs	54.65%
Sapugaskanda 1	49.53%

Note: *Interruption data is available only for CEB owned power plants*

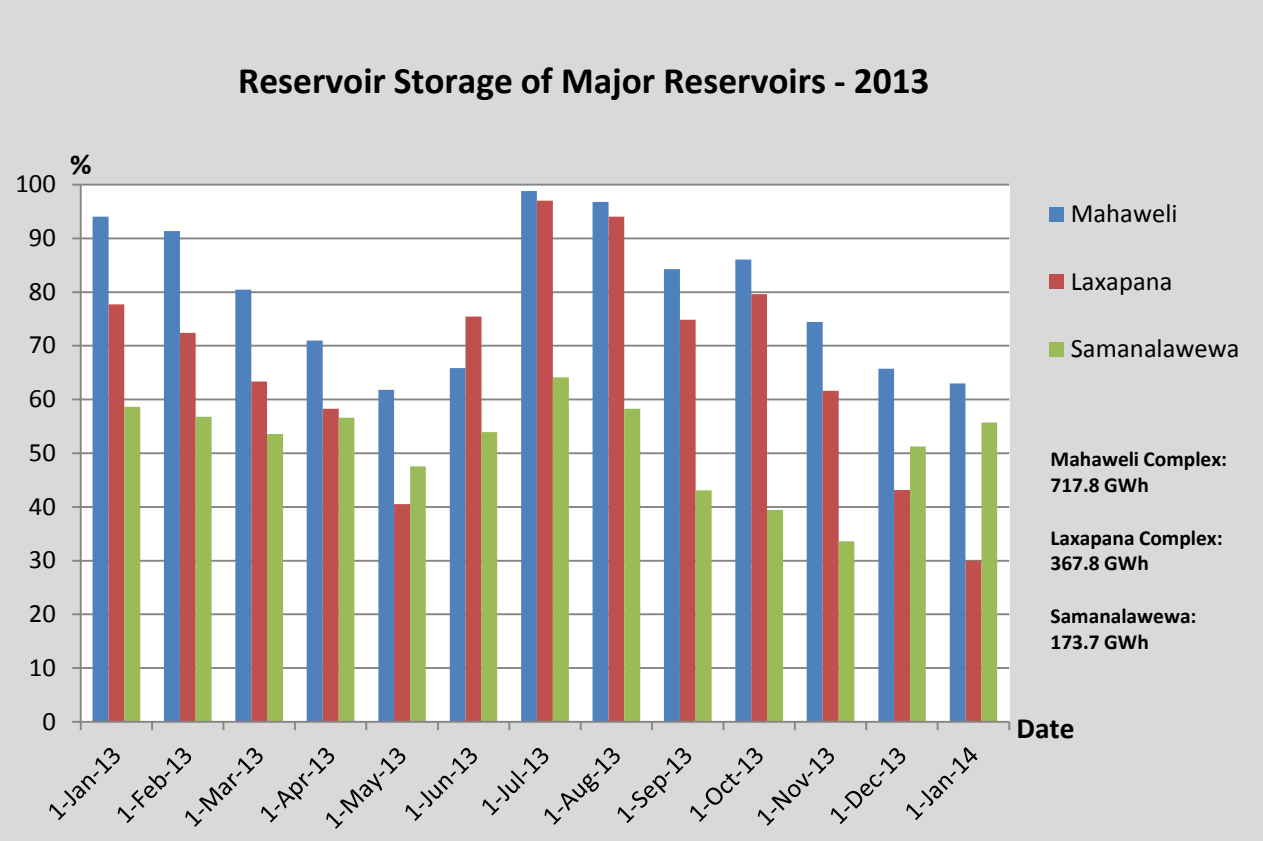
11.Reservoir Storages

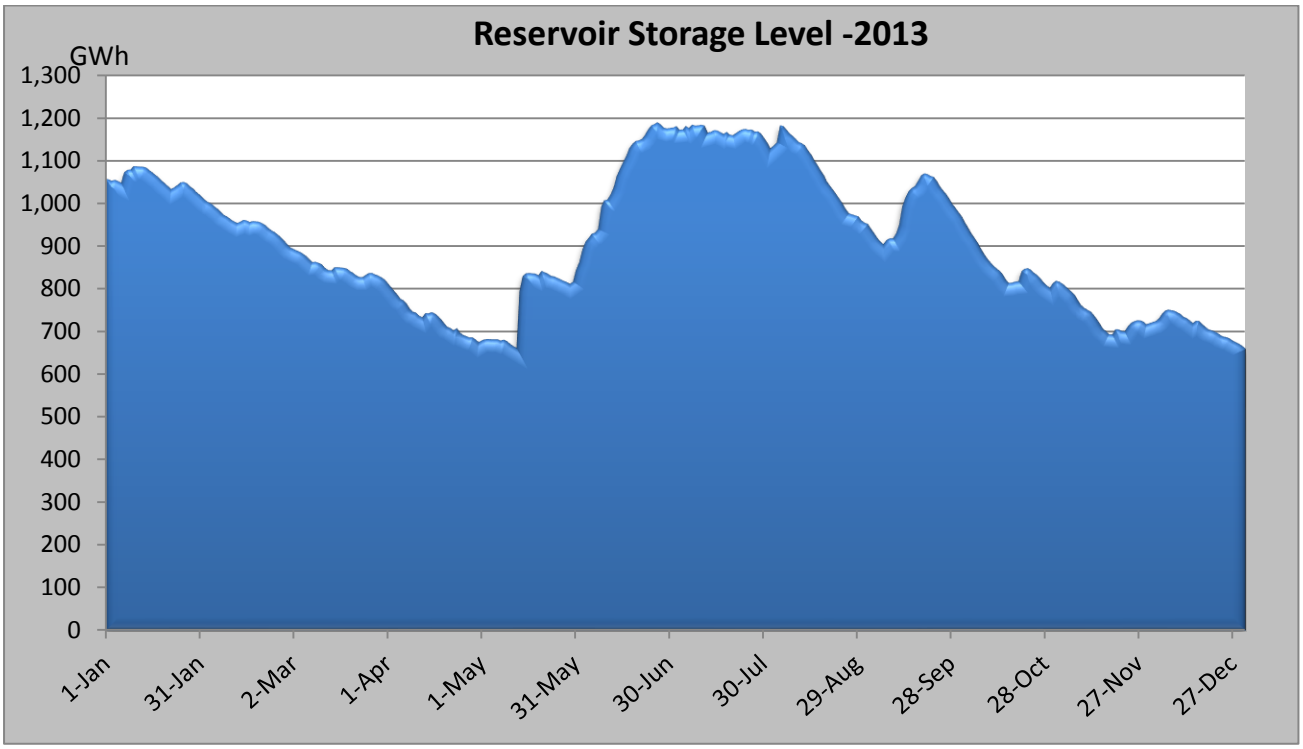
Hydro power is one of the major sources of electricity generation in the Sri Lanka and most of the large scale hydro projects have been developed by CEB. Approximately 41% of the total existed capacity by the end of 2013 has been covered by 17 CEB hydro stations and have contributed 50% out of total generation during the year 2013.

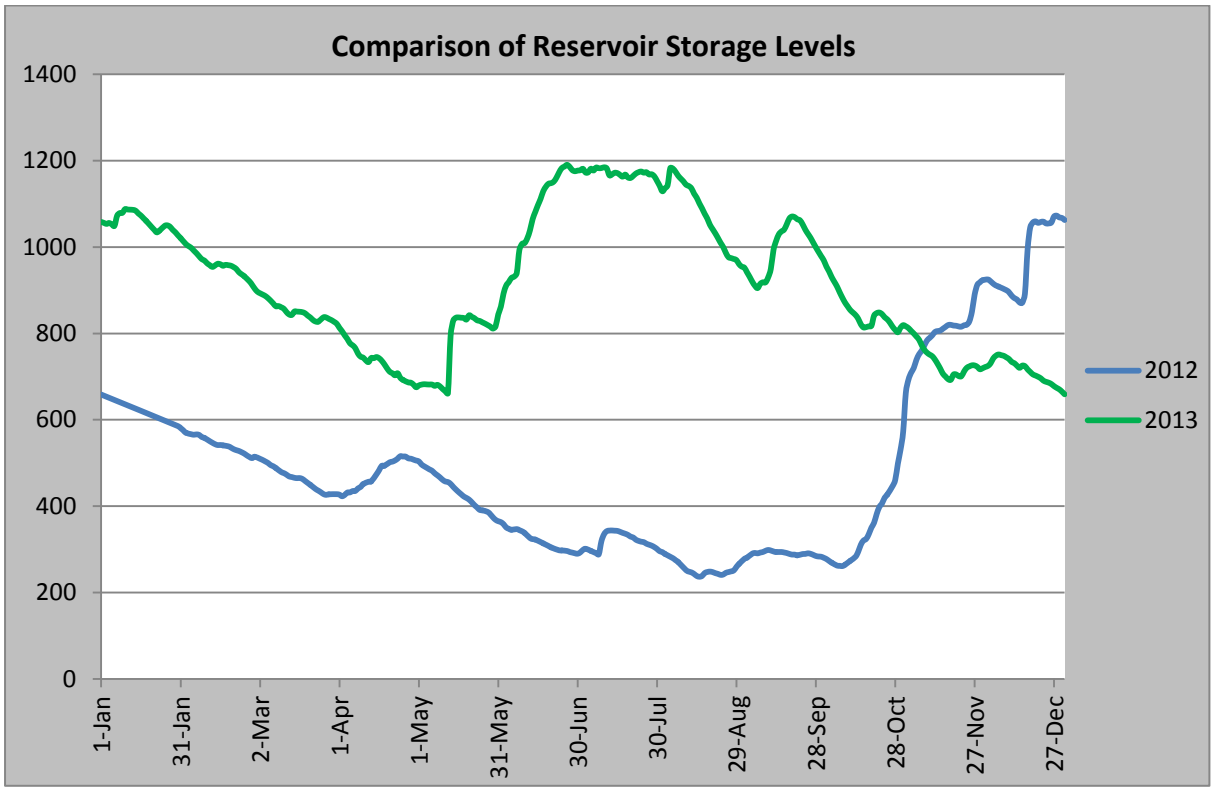
The major hydropower schemes already developed are associated with Kelani and Mahaweli river basins. Laxapana complex comprises five hydro power stations which have been built associated with the two main tributaries of Kelani River; Kehelgamu Oya and Maskeli Oya. Castlereigh and Moussakelle are the major storage reservoirs in the Laxapana complex. Mahaweli complex comprises seven hydro power stations and three major reservoirs; Kotmale, Victoria and Randenigala. In addition to above mentioned reservoirs Samanalawewa, which is on Walawe River, is also can be considered as a large reservoir. And all the other small reservoirs which contribute to power up the run-of-river type plants are considered as ponds.

Therefore having a satisfactory capacity of water in these reservoirs throughout the year is essential to dispatch the hydro power to a significant amount.

The major reservoir storage levels prevailed during the years 2013 are depicted below.







Note: Only Mahaweli, Laxapana and Samanalawewa Complexes' reservoirs are considered in total reservoir storage profile.

12.Conclusion

In the year 2013, the hydro generation contribution has been improved enormously and it has become a year which had over 50% hydro contribution after a long time, as a result of the ample rainfall received over the catchment areas all over the year. Nevertheless, Puttalam Coal power plant has not been able to perform well even in the year 2013, whereas it has failed to deliver adequate energy as scheduled (shortage of 414GWh), due to frequent plant breakdowns occurred in 2013 having achieved only a 81% of availability throughout the year.

Maximum electricity demand recorded in the year 2013 is 2164.2MW and it is expected to be risen to 2324MW in 2014 subjected to the peak demand growth rate of 7.4% as specified by the Long Term Generation Expansion Plan (2013-2032). To achieve this demand a system capacity of 3235MW (without NCRE component) is available to dispatch during the year 2014. Therefore there will be a Reserve Margin of 39% when the peak demand of year 2014 is reached, assuming that all the power plants are readily available to dispatch with their full capacities. But when it comes to the practical state it is obvious that all the plants will not be available fully at the same time, specially hydro power plants. Nevertheless, Even though the available dispatchable total capacity is dropped by 650MW the Reserve Margin can be maintained above 10%, which is the minimum allowed Reserve Margin by the Least-Cost Generation Expansion Planning Code. And it is to be noted that the phase 2 of the Puttalam Coal Power Plant has been commissioned in April 2014 to enhance the generation capacity of Sri Lankan electricity network.

Improving the performance of existing power plants is the most cost effective way to increase the energy producing capabilities of them. Performance indicators are very useful in identifying the areas where the improvements are needed. Among generation plants' performance measures plant factor, availability and auxiliary consumption are critical performance indicators, both in technical and commercial terms. Nevertheless, generator outages' details and auxiliary consumption data of IPPs are not available to assess the availability and percentage of auxiliary consumption of them. Therefore the availability details and auxiliary consumption data of all private power plants are intended to be received through LISS in order to measure their performance.

The Report has also described and calculated a number of key performance indicators for total generation system and individual generation plants operated in Sri Lanka. And it moreover gives a comparison of the generation statistics between year 2012 and 2013. The indicators for the present technical performance of the generation system are useful when planning the future developments and taking the corrective actions if necessary to improve the efficiency of generation.