



Sri Lanka



The state owned institution, Ceylon Electricity Board (CEB) is the national power utility responsible for generation, transmission and major distribution in the country. Although in recent times private sector participation in power generation was promoted the CEB still remains the major generation contributor. CEB supplies power directly to consumers and also sells in bulk to Lanka electricity Company (Private) Limited (LECO), a franchise for retail distribution.

In the recent past, the Government has taken a policy decision to introduce power sector reforms in a bid to improve operational efficiency of the power sector. The implementation of reforms would be in the form of regulatory reforms first and structural reforms in the second stage.

The Multi-sector regulator to regulate utility services has been already established and the regulator is expected to take over control of Power industry once the necessary legislations are enacted. At present, the necessary legislations for regulating the power sector have been drafted and awaiting the approval of the parliament.

Generation

Hydropower is the main indigenous energy source for Electricity. Other than the main hydro-power developments, many mini-hydros have also been developed. Few fire-wood fired power stations of about 1 MW capacity and a wind plant of 3 MW are operating under experimental



Photo: Bloomberg

stage. However, thermal generation is used to fill the short-fall of generation.

There are four hydro power stations (Upper Kotmale – 150 MW, Broadlands – 35 MW, Moragolla – 27 MW, and UmaOya – 100 MW) under construction. With the completion of these hydro stations, Sri Lanka completes tapping all major hydro potentials in the

PROFILE

Capital	Sri Jayawardanapura	Installed Capacity	2,444MW
Area	65,610 km ²	Population Electrified	80%
Population	20 million	Main Voltages (kV)	220, 132
GDP	SL Rs. 3,578 Billion	Natural Resources	Hydro-power
Currency	Sri Lankan Rupee (SLRs.)		

2008 Key Electricity data of Sri Lanka	
Maximum Electrical Demand	1,842 MW
Energy Demand	9,814 GW
System Load Factor	60.8%
Load Growth	8% per annum
Per Capita Electrical Consumption	414 KWh per person
Total Energy Consumption in Sri Lanka	10,610 KTOE
Per Capita Energy Consumption in Sri Lanka	0.53 TOE
Share of Electricity to Total Energy Supply	1892.5
Current Hydro-Power Stations in Operation	Output
Upper Kotmale	150 MW
Broadlands	35 MW
Moragolla	27 MW
UmaOya	100 MW
Percentage of Household Electrified	80%

country. There is one coal fired plant with 300 MW (stage-I) under construction at Norochchole (commissioned in 2011) and another 300 MW plant is being considered at Sampur. Also another combined cycle power plant of 200 MW is under construction and is scheduled to complete its 1st stage by end of 2008.

Transmission

The transmission network of Sri Lanka consists of 220 kV and 132 kV lines. However, a 400kV line with a 400/220/132 receiving Station is planned to come with the completion of stage-II of Norochchole Coal power station.

Central dispatch Center (System Control Center) control the dispatch of energy from

hydro and thermal power station. Since most of the hydro-power stations are built around multi-purpose (irrigation and power generation) and cascaded reservoirs, dispatch of power is controlled by water requirement in irrigation also.

Distribution

Distribution voltages in CEB are 33kV, 11kV and 400V. LECO distributes power through its 11kV and LV distribution networks. While LECO is distributing in about 1% of the geographical area (in west & south costs) of the country. The Distribution Network of the CEB consists of about 23,000 km of Medium Voltage (33kV and 11kV) lines, 90,000 km of Low Voltage Lines

and feeding about 3.9 million customers.

Demand

In the past decade the consumer growth had been about 12% per annum on an average with an average demand growth rate of about 7%. The number of consumers in CEB has grown from 0.74 million in 1990 to 3.9 million at the end of 2007. The total system demand in Sri Lanka, as at end of 2007 was 9,814 GWh with a maximum demand of 1842 MW. However, the maximum demand so far recorded was 1,922 MW in May 2008. a typical daily load curve in Sri Lanka is given in the figure. The consumption figures Sri Lanka (CEB & LECO) as at end of year 2007 reveals that about 50% of sales is for the bulk supply consumers (commercial and industrial consumers whose contract demand is over 43 kVA) which are about 1% of the total consumers where as 88% of consumers who are domestic consumes 34% of total electricity.

System Losses

System losses in CEB have been brought down gradually from 21% in year 2001 to reach 15.7% of gross generation in 2007. This is through the exercises carried out on technical loss reduction programs and commercial (non-technical) loss reduction programs. This 15.7% comprises of 0.8% of generation losses, 3.5% of transmission losses and 11.4% of distribution losses. Out of this 11.4% of distribution losses, it is estimated that 8.3% is technical losses in low voltage network and 3.1% is non-technical or commercial losses in LV network. Programs are being implemented to reduce these commercial losses and technical losses further.

Rural Electrification

As a result of past projects, over 80% of the households have been connected to the National Grid. Our objective is to reach 85% of electrification by year 2010 and then we hope to achieve 90% by year 2015, off the National Grid. Balance need to be electrified by off-grid alternatives such as solar electricity, wind

generation and micro-hydro power projects. On the request of the Government in 1977 the Asian Development Bank (ADB) provided technical assistance for rural electrification. Since 1980, schemes under the project and Government's De-centralized Budget were implemented in parallel resulting in over 5,000 schemes reaching a level of electrification of households of about 24% by 1987. This was a major step in accelerating rural electrification. Subsequent accelerated RE projects such as RE-2 to RE-7 financed by ADB and other funding institutions brought electrification level of the country to 80% by 2007. Under the proposed Power sector restructuring, it is proposed that a special fund will be created for the purpose of funding the Rural Electrification (RE) programs.

All donor funds, government contributions and contributions from the future electricity distribution utilities, (as would be decided by the Public Utilities commission of Sri Lanka) will be the main sources of funds. The practice hitherto followed in RE programmes will be closely examined. In this context, the government will study the policies/programs adopted by other developing countries.

The government will also seriously consider entrusting the management of RE schemes to consumer co-operatives, a policy successfully implemented by some developing countries.

Tariff

In tariff determinations, estimated revenue requirements, projected sales and expenditure, estimated project costs, etc. are taken into consideration. When tariff is computed on different tariff categories, following factors are taken into consideration.

Social and political considerations that require deviations from a cost-based tariff structure, determined by the Government

Any subsidy arising from the above considerations to be recovered through cross subsidies. At present, low end domestic and religious tariff blocks are highly subsidized where as those coming under General purpose category pay for the subsidy. High end blocks of

domestic tariff are charged at higher rates thus there is some cross subsidy within the domestic category itself. As per the present statutory regulations, with the Government approval, public shall be notified the proposed tariff structure one month prior to proposed effective date. Any representations made by public shall be taken into consideration and tariff shall be finalized and published for implementation. A fuel adjustment charge of 30% for the total monthly bill is added to the monthly bill except for the Domestic/Religious premises that consume less than 90 units per month.



Photo: Bloomberg

Environment

According to the National Environmental Act (NEA), there exists a mandatory requirement to obtain the environmental clearance from the Central Environmental Authority or a Project Approving Agency (PAA) which authorized under the NEA for any kind of power plants and Transmission lines over 33 kV. There are two classifications where Thermal Power Plants exceeding 25 MW and Hydro Power Plants exceeding 50 MW. The Environmental

Impact Assessments (EIA) is a comprehensive study about the environmental impacts of the proposed project. Public comments are welcome at EIA stage for evaluation. Initial Environmental Examination (IEE) is not as comprehensive as EIA and is not entertained public for comments.

The Ministry of Environment designates the Ministry of Power & Energy as PAA as per the NEA. Therefore, the Ministry of Power & Energy has established an environment cell in the Planning Division to implement the requirements of NEA.

List of Power Stations, Capacity and Electricity

Power Stations	Installed Capacity in MW	Gross Generation in GWh
CEB - Hydro Power Stations	1,207	3,603
CEB - Thermal Power Stations	548	2,336
CEB - Wind Power	3	2
IPP - Thermal	567	3,529
Private - Mini-hydro and Renewables	119	345
Grand Total	2,444	9,815

C.E.B. TARIFF RATES - EFFECTIVE FROM 15-03-2008

	DOMESTIC :			Fixed Charge
Block 1	First 30 units	@ Rs 3.00	per unit	Rs. 60.00
Block 2	31 - 60 units	@ Rs 4.00	per unit	Rs. 90.00
Block 3	61 - 90 units	@ Rs 5.50	per unit	Rs. 90.00
Block 4	91 - 120 units	@ Rs 10.00	per unit	Rs. 90.00
Block 5	121 - 180 units	@ Rs 11.00	per unit	Rs.90.00
Block 6	181 - 240 units	@ Rs 15.00	per unit	Rs.90.00
Block 7	241 - 360 units	@ Rs. 18.00	per unit	Rs.90.00
Block 8	361 - 600 units	@ Rs. 21.00	per unit	Rs.90.00
Block 9	Above 600 units	@ Rs. 25.00	per unit	Rs.3000.00

RELIGIOUS & CHARITABLE INSTITUTIONS:

Block 1	First 30 units	@ Rs 2.50	per unit	Rs. 60.00
Block 2	31- 60 units	@ Rs 3.00	per unit	Rs.90.00
Block 3	61 - 90 units	@ Rs 4.50	per unit	Rs.90.00
Block 4	91 - 120 units	@ Rs 9.00	per unit	Rs.90.00
Block 5	121 - 180 units	@ Rs 10.00	per unit	Rs.90.00
Block 6	181 - 240 units	@ Rs 14.00	per unit	Rs.90.00
Block 7	241 - 360 units	@ Rs 15.00	per unit	Rs.90.00
Block 8	361 - 600 units	@ Rs 20.00	per unit	Rs.90.00
Block 9	Above 600 units	@ Rs 22.00	per unit	Rs. 300.00