

TARIFF METHODOLOGY

Bulk Supply Consumers Directly Connected to the Transmission System

Public Utilities Commission of Sri Lanka

October 2016

1 Introduction

In exercising the powers and functions vested with the Public Utilities Commission of Sri Lanka (Commission) under section 3 (d) of the Sri Lanka Electricity Act, No. 20 of 2009 (SLEA) to regulate tariffs and other charges levied by licensees and other electricity undertakings, in order to ensure that the most economical and efficient service possible is provided to consumers, and in accordance with section 30 (2) (a) of SLEA, the Commission has approved a Tariff Methodology.

Distribution Licensees are charged at the Bulk Supply Tariff determined according to the approved Tariff Methodology. Condition 32 of Electricity Transmission and Bulk Supply License indicate the requirement of differentiating between the charges for Distribution Licensees and Bulk Supply Consumers who are connected to the transmission system at 220kV/132kV levels in addition to the five Distribution Licensees.

Accordingly the following methodology, which is in par with the approved Tariff Methodology, is proposed.

The Commission reviewed the proposed Tariff Methodology applicable for Bulk Supply Consumers directly connected to the transmission system, hereby approved and requested the transmission licensee to implement the Tariff Methodology effective from 1st October 2016.

2 Proposed Methodology

As per the Condition 32(2-e) of the Electricity Transmission and Bulk Supply License, Cost components are separately identified for the calculation.

Cost components are;

- a) the component related to electricity generation
- b) the component related to the use of transmission system and
- c) the component related to supply of electricity

2.1 Generation Cost

As per the Section 2.2 of the approved Tariff Methodology

2.2 Transmission Allowed Revenues

Allowed Revenue for Transmission Business and Bulk Supply and Operations Business are calculated as per the Sections 2.3 & 2.4 of the approved Tariff Methodology.

2.3 Cost allocation

The cost supply is calculated according to the voltage level at which the supply is metered.

2.4 Energy Cost

Energy Cost will be passed on to each consumer taking into consideration the transmission loss applicable to voltage level of connection and as per the time of their consumption.

2.5 Capacity Cost

Generation Capacity Cost is allocated at each voltage level considering the power loss along the transmission system.

Transmission allowed revenues are allocated for each voltage level based on the share of fixed assets at each level.

2.6 Tariff Determination

Considering the type of business, consumers connected to the transmission system can be categorized into two groups as Independent Power Producers (IPP) and other consumers.

The proposed tariff is of two parts;

- a) Capacity Charge
- b) Energy Charge – in three time intervals as per the approved Tariff Methodology

2.6.1 Energy Charge (Rs/kWh)

Energy charge can be calculated by using the one of the below mentioned formulas.

- Energy Charge = $(1 + \text{TLF}) \times \text{Generation Energy Charge}$

TLF - Transmission loss (%) up to the point of connection of the transmission consumers

- Energy Charge = $(1 - \text{TLF}) \times \text{Bulk Supply Tariff charge for the specified time interval}$

TLF - Transmission loss (%) from the point of connection up to the distribution level

2.6.2 Capacity Charge (Rs/KVA)

The capacity cost allocations as per 2.3.2, derive a capacity charge per kW of the demand coincident on system peak demand.

In the case of transmission consumers, the transmission system should have reserved capacity to cater for their maximum demand which can be occurred at any time.

Accordingly, in consideration with the load patterns and the reactive power usage of transmission consumers, Capacity Charge will be charged on their maximum demand in kVA.

- Capacity Charge (Rs/kVA) = $\text{Capacity Charge (Rs/kW)} / \text{Av. Power Factor}$

In addition to Capacity and Energy charges, monthly Fixed Charge has to be charged to recover metering, billing and other consumer related costs.

2.6.3 Bulk Supply Tariff for Distribution Licensees

When determining the BST applicable for Distribution Licensees, revenue to be collected by the transmission consumers will have to be deducted from the Transmission Allowed Revenue.

2.7 The model calculation

The model calculation is based on the BST filing for October 2015- March 2016.

2.7.1 Energy Charge

	BST for Oct 2015- March 2016 (LKR/kWh)	Proposed Tariff at 220kV /132kV	
		(LKR/kWh)	Loss *
Day	9.93	9.83	1.00%
Peak	12.80	12.68	1.00%
Offpeak	6.53	6.46	1.00%

* Losses – assumed

2.7.2 Capacity Charge (Rs/KW)

It is assumed that 40% of the fixed assets are assigned to supply power to the transmission consumers.

2.7.2.1 Generation cost

Month	Generation Cost (Rs.)	Generation Capacity (MW)	2% Loss (MW)	At the point of connection of transmission consumers		Consumption of Tr consumers (MW)	1% Loss (MW)	At the Distribution level	
				Capacity (MW)	Generation cost per MW for Tr Consumers (Rs./MW)			Capacity (MW)	Generation cost per MW for DL (Rs./MW)
Oct-15	4,268,638,106.31	1981.20	39.62	1941.58	2,198,541.66	8.87	19.33	1913.38	2,220,749.16
Nov-15	4,247,983,153.82	1923.41	38.47	1884.94	2,253,637.88	8.35	18.77	1857.83	2,276,401.89
Dec-15	4,273,678,106.31	1911.72	38.23	1873.48	2,281,140.07	10.72	18.63	1844.14	2,304,181.88
Jan-16	4,719,536,202.38	2101.40	42.03	2059.37	2,291,738.71	6.23	20.53	2032.61	2,314,887.59
Feb-16	4,661,452,366.12	2119.41	42.39	2077.02	2,244,299.19	8.71	20.68	2047.63	2,266,968.88
Mar-16	4,712,101,881.24	2314.84	46.30	2268.55	2,077,147.15	11.53	22.57	2234.44	2,098,128.43

2.7.2.2 Transmission cost

Month	40 % of Transmission Cost (Rs.)	Generation Capacity (MW)	2% Loss (MW)	At the point of connection of transmission consumers		Consumption of Tr consumers (MW)	1% Loss (MW)	Distribution level		
				Capacity (MW)	Transmission cost per MW for Tr Consumers (Rs./MW)			Capacity (MW)	60 % of Transmission Cost (Rs.)	Transmission cost per MW for DL (Rs./MW)
Oct-15	292,026,489.72	1981.20	39.62	1941.58	150,406.85	8.87	19.33	1913.38	438,039,734.58	380,861.51
Nov-15	292,026,489.72	1923.41	38.47	1884.94	154,925.75	8.35	18.77	1857.83	438,039,734.58	392,271.16
Dec-15	292,026,489.72	1911.72	38.23	1873.48	155,873.54	10.72	18.63	1844.14	438,039,734.58	394,978.55
Jan-16	399,105,699.97	2101.40	42.03	2059.37	193,799.97	6.23	20.53	2032.61	598,658,549.95	490,284.44
Feb-16	399,105,699.97	2119.41	42.39	2077.02	192,153.12	8.71	20.68	2047.63	598,658,549.95	486,461.09
Mar-16	399,105,699.97	2314.84	46.30	2268.55	175,930.25	11.53	22.57	2234.44	598,658,549.95	445,630.09

2.7.2.3 BSOB cost

Month	40 % of BSOB cost (Rs.)	Generation Capacity (MW)	2% Loss (MW)	At the point of connection of transmission consumers		Consumption of Tr consumers (MW)	1% Loss (MW)	Distribution level		
				Capacity (MW)	BSOB cost per MW for Tr Consumers (Rs./MW)			Capacity (MW)	60 % of BSOB Cost(Rs.)	BSOB cost per MW for DL (Rs./MW)
Oct-15	579,621,739.13	1981.20	39.62	1941.58	298,531.41	8.87	19.33	1913.38	869,432,608.70	755,943.78
Nov-15	579,621,739.13	1923.41	38.47	1884.94	307,500.63	8.35	18.77	1857.83	869,432,608.70	778,589.96
Dec-15	579,621,739.13	1911.72	38.23	1873.48	309,381.83	10.72	18.63	1844.14	869,432,608.70	783,963.66
Jan-16	358,079,875.22	2101.40	42.03	2059.37	173,878.42	6.23	20.53	2032.61	537,119,812.83	439,885.95
Feb-16	358,079,875.22	2119.41	42.39	2077.02	172,400.85	8.71	20.68	2047.63	537,119,812.83	436,455.62
Mar-16	358,079,875.22	2314.84	46.30	2268.55	157,845.61	11.53	22.57	2234.44	537,119,812.83	399,821.82

2.7.2.4 Total capacity cost per MW for Transmission customers

Total capacity cost per MW for Transmission customers = Generation cost per MW + Transmission cost per MW + BSOB cost per MW

Month	Total capacity cost per MW for Transmission customers (Rs./MW)
Oct-15	2,647,479.92
Nov-15	2,716,064.25
Dec-15	2,746,395.44
Jan-16	2,659,417.11
Feb-16	2,608,853.16
Mar-16	2,410,923.01