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# ENERGY ESTIMATION CODE FOR EXEMPTED PARTIES

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Public Utilities Commission of Sri Lanka

## Contents

1. APPLICABILITY .....	3
2. OBJECTIVES .....	3
3. SCOPE.....	3
4. DEFINITIONS.....	4
5. GENERAL INTERPRETATION .....	5
6. APPLICATION OF THE METHODOLOGY .....	5
6.1 Electricity supply with the absence of a Meter .....	5
6.1.1 Estimation of Energy consumption .....	5
6.1.2 Correction of estimated Energy consumption.....	5
6.1.3 Adjustment of charges.....	6
6.1.3.1 Adjustment of charges, where the period of estimation is less than six Billing Periods ....	6
6.1.3.2 Adjustment of charges, where the period of estimation exceeds six Billing Periods.....	6
6.2 A Meter is proved to registering incorrectly.....	7
6.2.1 Calculation of the Error.....	7
6.2.2 Consumer’s Acknowledgement .....	7
6.2.3 Estimation of Energy consumption.....	7
6.2.4 Under-Registering Energy consumption.....	8
6.2.4.1 Correction of Energy consumption where Consumer has reported the Error .....	8
6.2.4.2 Correction of Energy consumption where Exempted Party has detected the Error .....	8
6.2.4.3 Adjustment of charges.....	8
6.2.5 Over-Registering Energy consumption .....	8
6.2.5.1 Correction of Energy consumption where Consumer has reported and period can be ascertained.....	8
6.2.5.2 Correction of Energy consumption where Consumer reported and period cannot be ascertained.....	9
6.2.5.3 Correction of Energy consumption where Exempted Party has detected that the Meter is registering incorrectly.....	9
6.2.5.4 Adjustment of charges.....	9
6.2.6 Estimation of Maximum Demand .....	9
6.2.7 Replacement of Meter .....	9
6.3 The Malfunctioning of any Meter (Meter stopped registering) .....	10
6.3.1 Correction of Energy consumption where the period of malfunctioning can be ascertained ...	10
6.3.2 Correction of Energy consumption where the period cannot be ascertained .....	10

6.3.3	Estimation of Energy consumption where past Energy consumption data is available .....	10
6.3.4	Estimation of Energy consumption where past Energy consumption data is not available .....	10
6.3.5	Adjustment of charges .....	11
6.3.6	Replacement of Meter .....	11
6.4	Any person altering the register of any Meter used for measuring the quantity of electricity supplied to any premises or preventing any Meter from duly registering the quantity of electricity supplied through the Meter .....	11
6.4.1	Correction of Energy consumption where the period can be ascertained.....	11
6.4.2	Determination of period for estimating in case of period cannot be ascertained .....	11
6.4.3	Estimation of Energy consumption.....	12
6.4.4	Adjustment of charges .....	12
6.4.5	Disposing of Meters .....	12
7.	ESTIMATION OF ENERGY CONSUMPTION IN THE ABSENCE OF AN AGREEMENT .....	12

## **1. APPLICABILITY**

This methodology is applicable to Exempted Parties as well as Customers and Consumers of Exempted Parties.

## **2. OBJECTIVES**

The primary objective of this methodology is to define the method and procedure to be followed when estimating the consumption of Energy under specified events. It intends to encourage Exempted Parties to ascertain the quantity of electricity supplied to Consumers by a Meter or Meters and to discourage Exempted Parties from supplying electricity without Meters as well as supplying electricity through reported incorrectly registering Meters or reported malfunctioning (stopped registering) Meters. It also intends to encourage Consumers to take proper care of electricity Meters and inform the respective Exempted Party of any failure or abnormal Meter reading.

## **3. SCOPE**

The methodology is to be applied in the event of

- a) electricity supply with the absence of a meter
- b) a meter is proved to registering incorrectly;
- c) the malfunction of any meter;
- d) a person who uses or extracts any electricity otherwise than in pursuance of a contract made with an Exempted Party (item 1 (b) of the Section 49 of SLEA)
- e) a person intentionally or negligently alters the quantity of electricity as registered on any electricity meter provided by an Exempted Party or prevents any meter from duly registering the quantity of electricity supplied through that meter.

## 4. DEFINITIONS

Act	Sri Lanka Electricity Act, No. 20 of 2009 as Amended.
Agreement	Tariff agreement between the Exempted Party and the Customer to supply electricity
Allowed Creeping Condition	When no load is connected at Customer premises, the disc of an analog Meter may rotate slowly up to one rotation
Billing Period	Period of time between two consecutive Meter readings
Certificate of Exemption	A Certificate issued by the Commission with a Gazette notification, exempting any person or category of persons from the requirement of obtaining a license for the distribution of electricity, in Accordance with the Section 10(2) of the Act.
Commission	Public Utilities Commission of Sri Lanka
Customer	Means a Tariff Customer
Declared Voltage	A voltage or voltages declared by an Exempted Party for the supply of electricity to a Customer
Energy	Quantity of electrical Energy measured in units equal to one kilowatt hour (kWh) or multiples thereof such as: 1000 Wh = 1 kWh 1000 kWh = 1 MWh 1000 MWh = 1 GWh
Error	percentage Error calculated according to below formula $e = \frac{\left( \frac{\text{Recorded Energy consumption of the reported incorrectly registering Meter} -}{\text{Recorded Energy consumption of the series Test Meter}} \right) \times 100\%}{\text{Recorded Energy consumption of the series Test Meter}}$
Exempted Party	Any person or category of persons who has been exempted from the requirement of obtaining a license for the distribution of electricity, in Accordance with the Section 10(2) of the Act.
Maximum Demand	The greatest of all Demands of the load that has occurred within a specified period of time
Meter	Equipment used to measure electricity consumption and Maximum Demand during a particular period, including the current transformers, voltage transformers, power transformer, connection wires and Meter mounting
Meter Malfunctioning	Meter has stopped registering the Energy consumption
Over-Registering	The Meter registering the Customer's Energy consumption more than the correct value
Service Connection Amperage	Maximum current (A) agreed to be supplied by the Exempted Party as stated in the tariff agreement
Tariff	Tariffs approved by the Commission under the provisions of the Certificate of Exemption.
Test Meter	A Test Meter or instrument connected in series and is calibrated to measure the electricity supplied through the Meter/ equipment
Under-Registering	The Meter registering the Customers Energy consumption less than the correct value

## **5. GENERAL INTERPRETATION**

1. When a word or a phrase that is defined in the “Definitions and Abbreviations” is more particularly defined in the Certificate of Exemption from the requirement of obtaining license for distributing and supply electricity and if there is any inconsistency between the two definitions, the latter or that particular definition shall prevail.
2. Any reference to a gender shall include all genders.
3. Any reference to a person or entity shall include an individual, partnership, company, corporation, association, organization, institution, or other similar groups.
4. Unless otherwise specified, singular shall include the plural and vice-versa.
5. The word “including” or a grammatical variation thereof means “including but not limited to”
6. A reference to a standard shall include any revision, update or a replacement of that standard.

## **6. APPLICATION OF THE METHODOLOGY**

Where a Consumer of electricity supplied by an Exempted Party is to be charged for supply, wholly or partly by reference to the quantity of electricity supplied, then, unless otherwise agreed between the Consumer and the Exempted Party, the supply shall be given through, and the quantity of electricity shall be ascertained by an appropriate Meter or Meters as the case may be.

### **6.1 Electricity supply with the absence of a Meter**

#### **6.1.1 Estimation of Energy consumption**

In the event, a Consumer and an Exempted Party has agreed that the supply of electricity shall be given with the absence of a Meter or Meters, as the case may be, the Exempted Party shall in the normal course of business estimate the amount of electricity consumed by the Consumer on the basis of the average Energy consumption of Customers belong to the same Tariff category identified in Appendix 1 and recover charges in accordance with the Tariffs and Charges applicable for the relevant period.

The Exempted Party shall determine the charges accordingly until the estimates are confirmed by a Meter reading within a reasonable period of time. However, the said reasonable period of time shall not be more than six (6) Billing Periods.

#### **6.1.2 Correction of estimated Energy consumption**

Once the Meter or Meters, as the case may be, are fixed, the Customer’s Energy consumption measured and recorded over the first three (3) Billing Periods shall be prorated and applied for the period of estimation.

### **6.1.3 Adjustment of charges**

The correct charges for the period of estimation shall be determined in accordance with the Tariffs and Charges applicable for the relevant period as indicated below.

#### **6.1.3.1 Adjustment of charges, where the period of estimation is less than six Billing Periods**

Where the period of estimation is less than six Billing Periods the charges shall be determined in accordance with the approved Tariffs and Charges applicable for the relevant period.

#### **6.1.3.2 Adjustment of charges, where the period of estimation exceeds six Billing Periods**

Where the period of estimation exceeds six Billing Periods, the charges in respect of the first six (6) Billing Periods shall be determined in accordance with the approved Tariffs and Charges applicable during such period, and the charges in respect of the period in excess of the six (6) Billing Periods shall be determined in accordance with the approved fixed charge applicable during such period (considering as zero energy consumption) i. e. The Tariff in respect of the Energy consumed during the period in excess of the first six (6) Billing Periods shall not be charged.

The Customer's account shall be adjusted accordingly, and where the Customer has been over charged, the adjusted amount shall be credited to the Customer's account within three (3) Billing Periods

Where the Customer has been undercharged, the Customer shall be given a minimum of 06 Billing Periods for settlement of the correct charges from the appearance of the adjustment in the bill, without any penalty being imposed.

## 6.2 A Meter is proved to registering incorrectly

### 6.2.1 Calculation of the Error

Where a Meter is suspected to be registering incorrectly, the Error, if any, will be ascertained by an instrument or a Meter calibrated for this purpose (referred to herein as a Test Meter), connected in series. The Error (e) will be calculated according to the formula below:

$$e = \frac{(\text{Recorded Energy Consumption of the reported incorrectly registering Meter} - \text{Recorded Energy consumption of the series Test Meter}) \times 100\%}{\text{Recorded Energy consumption of the series Test Meter}}$$

### 6.2.2 Consumer's Acknowledgement

Prior to ascertaining the Energy, if any, the Exempted Party shall explain to the Consumer the procedure to be followed and the formula to be used in doing so. In addition, the Exempted Party shall display the readings of both the series Test Meter and the reported incorrectly registering Meter and obtain the Consumer's acknowledgement of same. Further, the Exempted Party shall also explain to the Consumer his or her right to lodge a complaint if he or she is not satisfied that the Exempted Party followed the procedure as acknowledged by the Consumer and/ or the conclusion arrived through the procedure.

### 6.2.3 Estimation of Energy consumption

If the magnitude of the Error so determined is greater than 2.5% ( $|e| > 2.5\%$ ), except under Allowed Creeping Condition (under no load condition i.e. the current though the current coil of an analog Meter is zero, the disc of the Meter may rotate slowly up to one rotation, before getting stopped), the Meter will be proved to be registering incorrectly. The Error shall then be used to correct the recorded Energy consumption of the Customer for the relevant Billing Period according to the formula given below:

$$\begin{aligned} & \text{Estimated Energy consumption for the relevant Billing Period} \\ & = \frac{\text{Recorded Energy Consumption for the relevant Billing Period} \times 100}{100 + e} \end{aligned}$$



## **6.2.4 Under-Registering Energy consumption**

### **6.2.4.1 Correction of Energy consumption where Consumer has reported the Error**

Where the Consumer has reported that the Meter is registering incorrectly and the Meter is proven to have been under-registering the Energy consumption, the recorded Energy consumption shall be corrected only in respect of the current Billing Period and recorded Energy consumption of the Customer in respect of previous Billing Periods shall not be corrected.

### **6.2.4.2 Correction of Energy consumption where Exempted Party has detected the Error**

Where the Exempted Party has detected that the Meter is registering incorrectly and the Meter is proven to have been Under-Registering the Energy consumption, the recorded Energy consumption shall be corrected in respect of the period commencing the date of the detection, which shall not exceed three (3) Billing Periods.

A summary of the correction periods identified in 6.2.4.1 and 6.2.4.2 is given in Appendix II (A).

### **6.2.4.3 Adjustment of charges**

The correct charges for the period of incorrect Meter registering shall be determined in accordance with the Tariffs and Charges applicable for the relevant period.

Where the Customer has been undercharged, he/she shall be given a period commencing from the appearance of the adjustment in the bill and equal to that in respect of which his/her recorded Energy consumption was corrected, for settlement of related charges, without any penalty being imposed.

## **6.2.5 Over-Registering Energy consumption**

### **6.2.5.1 Correction of Energy consumption where Consumer has reported and period can be ascertained**

Where the Consumer has reported that the Meter is registering incorrectly and the Meter is proven to have been over-registering the Energy consumption, and the period of such incorrect Meter registering can be ascertained, the recorded Energy consumption of the Customer shall be corrected in respect of the corresponding Billing Period(s).

#### **6.2.5.2 Correction of Energy consumption where Consumer reported and period cannot be ascertained**

Where the Consumer has reported that the Meter is registering incorrectly and the Meter is proven to have been Over- Registering the Energy consumption, but the period of such incorrect Meter registering cannot be ascertained, the recorded Energy consumption of the Customer shall be corrected from the date of reporting. Notwithstanding the date of reporting, the correction shall not be less than 12 Billing Periods.

#### **6.2.5.3 Correction of Energy consumption where Exempted Party has detected that the Meter is registering incorrectly**

Where the Exempted Party has detected that the Meter is registering incorrectly and the Meter is proven to have been Over-Registering the Energy consumption, the recorded Energy consumption of the Customer shall be corrected in respect of corresponding Billing Period(s), which shall not be less than three (3) Billing Periods.

A summary of the correction periods identified in 6.2.5.1, 6.2.5.2 and 6.2.5.3, is given in Appendix II (B).

#### **6.2.5.4 Adjustment of charges**

The correct charges for the period of incorrect Meter registering shall be determined in accordance with the Tariffs and Charges applicable for the relevant period, and the Customer's account shall be adjusted accordingly within three (03) Billing Periods.

#### **6.2.6 Estimation of Maximum Demand**

Where applicable, the Maximum Demand of the Customer shall be estimated by the Exempted Party on a case by case basis and determine the charges in accordance with the Tariff and Charges applicable for the relevant period.

#### **6.2.7 Replacement of Meter**

The Meter(s) shall be replaced within one Billing Period.

## **6.3 The Malfunctioning of any Meter (Meter stopped registering)**

### **6.3.1 Correction of Energy consumption where the period of malfunctioning can be ascertained**

Where any Meter is reported by the Consumer or is detected by the Exempted Party to be malfunctioning, i.e. the Meter has stopped registering altogether, and where the period of such malfunctioning can be ascertained by inspection of the Meter reading record(s) or by other means, such period shall be used to determine the Energy consumption of the Consumer and related charges shall be corrected in respect of such period.

### **6.3.2 Correction of Energy consumption where the period cannot be ascertained**

Where any Meter is reported by the Consumer or is detected by the Exempted Party to be malfunctioning, i.e. the Meter has stopped registering altogether, but where the period of such malfunctioning of the Meter cannot be ascertained by inspection of the Meter reading record(s) or by other means, the Energy consumption of the Consumer and related charges shall be corrected in respect of the period commencing the date of reporting or the date of detection, as the case may be. Notwithstanding the date of reporting or the date of detection, the correction period shall not exceed 12 billing periods.

### **6.3.3 Estimation of Energy consumption where past Energy consumption data is available**

The Energy consumption shall be estimated based on the average Energy consumption of the immediately preceding consecutive three (03) Billing Periods (or such other 3 Billing Periods as mutually agreed by the Customer and the Exempted Party) prorated for the period of such malfunctioning.

### **6.3.4 Estimation of Energy consumption where past Energy consumption data is not available**

Where past Energy consumption data is not available or the past Energy consumption is nil, once the Meter or Meters, as the case may be, are replaced, the Customer's Energy consumption measured and recorded over the first three (3) Billing Periods shall be prorated and applied for the period of estimation.

### **6.3.5 Adjustment of charges**

The correct charges for the period of Meter Malfunctioning shall be determined in accordance with the Tariffs and Charges applicable for the relevant period, and the Customer account shall be adjusted accordingly.

Where the Customer has been undercharged, the Customer shall be given not less than a corresponding period as the period of Malfunctioning Meter for settlement of related charges from the appearance of the adjustment in the bill, without any penalty being imposed.

### **6.3.6 Replacement of Meter**

The Meter(s) shall be replaced within one Billing Period.

## **6.4 Any person altering the register of any Meter used for measuring the quantity of electricity supplied to any premises or preventing any Meter from duly registering the quantity of electricity supplied through the Meter**

### **6.4.1 Correction of Energy consumption where the period can be ascertained**

Where any person is convicted altering the register of any Meter used for measuring the quantity of electricity supplied to any premises or preventing any Meter from duly registering the quantity of electricity supplied through the Meter, and the period of altering the register can be determined by inspection of the Meter reading record(s) or by other means, the recorded Energy consumption shall be corrected in respect of such period. However, the correction period shall not exceed 12 Billing Periods.

### **6.4.2 Determination of period for estimating in case of period cannot be ascertained**

Where any person is convicted altering the register of any Meter used for measuring the quantity of electricity supplied to any premises or preventing any Meter from duly registering the quantity of electricity supplied through the Meter, but the period of altering the register of the Meter cannot be determined by inspection of the Meter reading record(s) or by other means, the recorded Energy consumption shall be corrected in respect of the preceding three (3) Billing Periods.

### **6.4.3 Estimation of Energy consumption**

The Exempted Party may estimate and charge for the Energy on case by case basis.

### **6.4.4 Adjustment of charges**

The correct charges for the period of altering the register of the Meter or preventing it from duly registering the quantity of electricity supplied shall be determined in accordance with the Tariffs and Charges applicable for the relevant period.

### **6.4.5 Disposing of Meters**

Where any person is proved of a case related to 6.4 of this Methodology, and the Meter(s) in respect of the case is removed, the Exempted Party shall keep the Meter(s) in safe custody until the Commission authorizes the Exempted Party to destroy or otherwise dispose of it.

## **7. ESTIMATION OF ENERGY CONSUMPTION IN THE ABSENCE OF AN AGREEMENT**

Where

1. any person is proved altering the register of any Meter used for measuring the quantity of electricity supplied to any premises or preventing any Meter from duly registering the quantity of electricity supplied through the Meter; or
2. any person is convicted under Sections 49(1) of the Act, No 20 of 2009 as amended

a certificate issued by the Exempted Party shall be received as proof of the value of the loss or damage caused to the Exempted Party as a result of the act or default constituting such case, in the absence of evidence to the contrary. In the absence of any Agreement, an Exempted Party may estimate and charge for the Energy on case by case basis.

**Appendix 1 – Estimated daily Energy consumption where the Consumer has been given a supply of electricity in the absence of a Meter**

Service Connection Amperage (A)	Average Consumption (kWh per day of billing)	
	Single phase	Three phase
15	1	N/A
30	2	6
60	N/A	12

If the Service Connection Amperage is different from the values given in the above table, the Exempted Party shall calculate the relevant Energy consumption in case by case basis, however the calculation should be based on the figures given in the above table.

**Appendix II (A): Determination of correction period of Under-registering**

Customer Reported	Exempted Party detected
No back- charge	Back- charge up to date of detection but not more than 3 billing periods

**Appendix II (B): Determination of correction period of Over-registering**

		Customer Reported	Exempted Party detected
Exact period of incorrect registering can be ascertained	Yes	Refund for the ascertained period of incorrect registering	Back- charge up to date of detection but not less than 3 billing periods
	No	Back- charge up to date of reporting but not less than 12 billing periods	