

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**PBS INSTRUCTION 100-18**

**POWER INTERRUPTION RECORDING  
AND  
REPORTING PROCEDURE**

**BANGLADESH RURAL ELECTRIFICATION BOARD**  
**PBS INSTRUCTION NO. 100-18**

Approval Date: 07/03/1979  
Revision Date : 19/02/2020

**SUBJECT: POWER INTERRUPTION RECORDING AND REPORTING  
PROCEDURE**

**I. PURPOSE AND SCOPE**

This instruction provides procedures on recording and reporting service interruptions (outage) and on the use of interruption records in the operation and maintenance of PBS.

**II. GENERAL**

**A. Purpose of Interruption (outage) Records**

The quality of electric service depends greatly on reliability. Reliability depends to a large degree on interruption. Therefore, knowledge is required to reduce the number and extent of interruptions, their causes, and the steps to be taken for speedy restoration of service.

Well-planned procedures for interruption reporting and analysis will improve efficiency in handling complaint calls and responding to them so that the work can be done promptly and with a minimum of wastage of time.

The main purpose of interruption reporting and follow up are:

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1. To make certain when a complaint is received that all of the information needed for responding to the trouble call will be available.
2. To identify multiple reports from the same line outage in order to expedite work and minimize duplication and confusion.
3. To provide a record of causes and extent of interruptions, for determining adequacy of maintenance and for planning system improvement to increase service reliability.
4. To aid in informing consumers and in responding to consumer complaints.
5. To provide information required by BREB, PGCB, DPDC, DESCO, BPDB or any other public sector regulatory bodies.

#### B. Description of Units and Terms

1. The terms interruption and outage are interchangeable for much of this instruction. The term interruption is used when referring to loss of service to consumers. The term outage is used when referring to component failure of a system.
2. For discussing the quality of service, or service reliability, other terms are needed to define the extent of interruptions.
  - a) Annual service interruption hours per Consumer is the interruption index specified by BREB to indicate the average length of time each year that a consumer of the PBS is without service. The unit for measuring this interruption is the consumer-hour, i.e., the product of the number of affected consumers multiplied by duration of the interruption in hours.

The annual service interruption hours per consumer is calculated by adding consumer hours for all interruptions during the year and dividing the sum by the average number of consumers receiving service during that period. The

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index may be maintained separately for parts of the system such as substations wise or zonal offices wise or by causes, but the index for the entire system should always, be calculated.

- b) Service interruption hours per consumers, "year-to-date" is used in compiling a monthly or quarterly report for comparing with like months of previous years.
- c) The number of interruptions experienced during a month, quarter, or year helps to indicate the amount of employee time required for service and maintenance because of outages from particular causes. Some PBS's can maintain records for the cost of restoring service.

### III. INTERRUPTION REPORTING

BERC (Bangladesh Energy Regulation Commission) requires different indices to calculate performance of an electrical utility to ensure quality service of their customers. Some of those indices are as follows-

- System Average Interruption Frequency Index (SAIFI)
- System Average Interruption Duration Index (SAIDI)
- Customer Average Interruption Duration Index (CAIDI)
- System Customer Average Interruption Frequency Index (CAIFI)
- Average Service Availability Index (ASAI)
- Momentary Average Interruption Frequency Index (MAIFI)
- Supply Variation Measured Outside Limits
- Supply Voltage Dips
- Supply Voltage Unbalance
- Supply Voltage Flicker

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## Reliability Reporting Form QS1 of BERC

There are six lines and 11 columns in the reporting form. The following explanation gives in detail.-

- Line-1: The name of the Reporting Company/ PBS;  
Line-2: Principal circuit number. Say Circuit (Feeder) 2B of Substation number 1003,  
then it can be written as 1003-2B;  
Line-3: Branch number (if any) of main circuit number 1003-2B;  
Line-4: Location of sub-station;  
Line 5: Operating voltage in kV;  
Line 6: Reporting month and year;

- Column-1: Reporting Date;  
Column-2: Event number;  
Column-3: Time Off i.e. when power supply is turned off;  
Column-4: Time On i.e. when power supply is turned on;  
Column-5: Total Duration of interruption i.e. (Column-4) – (Column-3);  
Column-6: Total number customers served by the affected circuit;  
Column-7: Total number of customers experienced sustained interruption;  
Column-8: Total number of customers experienced momentary interruption;  
Column-9: Total KVA connected in the affected circuit;  
Column-10: Total KVA interrupted;  
Column-11: Total number interrupted Device Operated.

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Reliability Matrix								
Data Collecting Requirements								
Item	Total time Customers are without Supply	Total number of Customers are without Supply	Total number of Customer Interruption	Total number of Customers Served	Total Customer Interruption Durations	The sum of the number Of customers in all interruption events	Total no. of customers interrupted	Connected kVA interrupted
SAIFI			X	X				
SAIDI				X	X			
CAIDI					X	X		
CTAIDI					X		X	
CAIFI			X				X	
ASAI	X	X						
ASIFI								X
MAIFI				X				

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### Calculation of Indices

Table shows an extract from one utility's customer information system (CIS) database for feeder 7075, which serves 2,000 customers with a total load of 4 MW

Date	Time Off	Time On	Circuit	Event Code	No. of Customer	Load KVA	Interruption Type
17/03	12:12:20	12:20:30	7075	107	200	800	S
15/04	18:23:56	18:24:26	7075	256	400	1600	M
05/05	00:23:10	01:34:29	7075	435	600	1800	S
12/06	23:17:00	23:47:14	7075	567	25	75	S
06/07	09:30:10	09:31:10	7075	678	2000	4000	M
20/08	15:45:39	20:12:50	7075	832	90	500	S
31/08	08:20:00	10:20:00	7075	1003	100	2100	S
03/09	17:10:00	17:20:00	7075	1100	1500	3000	S
07/10	10:15:00	10:55:00	7075	1356	100	200	S

**Interruption type:** Total Customers served = 2,000 Nos.  
**S = Sustained, M = Momentary**

$$SAIFI = (200 + 600 + 25 + 90 + 700 + 1500 + 100) \div 2000 = 1.6075$$

$$= (\text{Total number of Customers interrupted}) \div (\text{Total number of Customers Served})$$

$$SAIDI = (8.17 \times 200) + (71.3 \times 600) + (30.3 \times 25) + (267.2 \times 90) + (120 \times 700) + (100 \times 1500) + (40 \times 100) \div 2000 = 86.11$$

$$= (\text{Total Customer-Hours of Interruptions}) \div (\text{Total Customers Served})$$

$$CAIDI = SAIDI \div SAIFI = 86.11 \div 1.6075 = 53.57$$

$$= (\text{Total Customer-Hours of Interruptions}) \div (\text{Total Consumer Interruptions})$$

$$ASAI = 8760 \times 2000 - (8.17 \times 200 + 71.3 \times 600 + 30.3 \times 25 + 267.2 \times 90 + 120 \times 700 + 100 \times 1500 + 40 \times 100) \div 8760 \times 2000 = 0.999836, (8760 = \text{Total hour in a year})$$

$$= \text{Customer Hour Service Availability} \div \text{Customer Hour Service Demand}$$

$$ASIFI = 800 + 1800 + 75 + 500 + 2100 + 3000 + 200 \div 4000 = 2.12$$

$$= \text{Total Connected KVA of Load Interrupted} \div \text{Total Connected KVA Served.}$$

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- The distribution system makes the greatest individual contribution to the availability of supply to a customer.
- The calculated performance statistics aid in the planning, operating and maintaining the distribution systems.

**A. Interruption Report Form (BREB Form No. 100-18-01)**

The following explanation gives these in detail. The first line provides space to record a Report Serial No. Numbers can be assigned separately for these reports, but if a register is kept for interruptions, the report serial number recorded in the register should also be recorded in this space. Sample-1 is attached with this instruction.

Line 1: The name of the PBS and the reporting unit (area office, Zonal Office, HQ office, etc.) and the Reports Serial number are to be recorded.

Line 2: Here is to be recorded the time the outage was reported to the PBS and the person reporting the outage.

Line 3: The employee receiving the report and to whom the report has been given to take action will be recorded.

Line 4: The person receiving the report will record the time the power went off. Later the person assigned the report will enter the time the power was restored. Total time may be calculated by the AJE/JE who is in charge of the outage reports.

Line 5: This is for the address of the consumer suffering the outage or the location of the fault. The information should tell the lineman how to find the place.

Line 6: From the BREB Form No. 100-18-02 the number of members affected may be determined in the case of a distribution line fault or if the outage

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involves a single transformer, then the person assigned the report may record the number of affected consumers. The consumer Hours OFF is calculated by multiplying Total Time by Number of Member Affected. This calculation should be done by the AJE/ JE.

Line 7: The lineman assigned the report will record what work was done to restore power to the affected consumers.

Line 8: The lineman will write date and put sign the Interruption report once the job has been completed.

Line 9: The Assistant Junior Engineer or Junior Engineer will record the proper codes, using BREB Form No. 100-18-03B and BREB Form No. 100-18-04B as guides, to indicate the Material Responsible for the outage and the cause of the outage.

Line 10: Space is provided for the signatures for the Assistant Junior Engineer or Junior Engineer and AGM(O&M) who will review the reports when making monthly summaries.

Codes for Causes and Material should be used to facilitate data evaluation. The codes for causes and material failure are shown in BREB Form No. 100-18-03B and BREB Form No. 100-18-04B respectively.

Whenever an outage occurs on a feeder, it will be necessary to enter the number of affected consumers on the report form. This will require a record of the number of consumers beyond each Feeder Outgoing/ Sectionalizing point. BREB Form No. 100-18-02, Record of Operations at Feeder Outgoing/ Sectionalizing point has a provision to keep this information up-to-date.

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**B. Filing for Future Reference.** The completed interruption reports are filed in simple chronological order, if the number is small. However, a file according to substation, feeder and feeder outgoing/ sectionalizing point should be considered for average or large size PBS's. It may also be desirable to file individual consumer interruptions of large power consumers separately from line outage.

The filing arrangement should be carefully selected in the light of detailed uses that may be made of the interruption information. Even though the number of reports per year or quarter may be large, many kinds of special evaluations can be made very effectively from the original reports. The burden of detail in summaries and in the data routinely may thus be reduced.

#### IV. CAUSES OF THE INTERRUPTIONS (Categories and Codes):

##### A. Reports to BREB:

The PBS's are to report monthly on BREB Form No. 100-18-03 (100-18-03A & 100-18-03B), the interruptions by causes in a summarized manner.

##### B. Standard Codes for Interruption Analysis

The detailed categories for service interruptions, BREB Form No. 100-18-03B and BREB Form No. 100-18-04B have been carefully selected so that the important ones may be clearly seen when the interruption data are summarized. Numerical codes are assigned. These are recommended for use as standard codes for data processing.

To avoid excessive detail, the number of individual reasons (codes) has been kept to a minimum. In addition, they are arranged in groups. The two codes for

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equipment or material and cause are designed so that together they will provide the needed information about reasons for the interruptions.

The importance of keeping detail to minimum can hardly be overemphasized. When additional detail is needed for a special study, it is generally best to go back to original reports for more information.

Additional detail codes or even group codes may be assigned to allow for circumstances that are particularly important in a geographic area or in a particular PBS. Users are urged to keep such codes to the absolute minimum.

### C. Special Studies

Interruption reports may be a valuable source of information about performance of transformers or other equipment, or about soil or terrain conditions that have important effects on maintenance costs or quality of service. Such details may be summarized from the original reports as needed.

## V. RECORD OF OPERATIONS AT FEEDER OUTGOING/ SECTIONALIZING POINTS (BREB FORM NO. 100-18-02)

A. Experience has shown that a record of operation of feeder outgoing/sectionalizing equipment can reveal valuable information about the condition of the lines or about the suitability of the equipment for use at a given location. Excessive operations of a sectionalizing device indicate that the lines beyond the sectionalizing point are not in a good operating condition.

It is, therefore, advisable to have a card record system whereby the PBS may record the performance of its sectionalizing equipment at the various

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sectionalizing points. BREB Form No. 100-18-02 is recommended for this purpose. This is illustrated in the attached Sample-2. It is suggested that a 8½" × 11" card be used and also be recorded in ERC (Equipment Record Card) in electronic format.

**B.** A card should be made for each sectionalizing point on the system. The locations of the sectionalizing points as designated in the system study should be entered on the card, along with the circuit number, phase number and pole number.

The name of the substation area should also be shown so that all cards for the sectionalizing points in a substation area may be filed in a group.

**C.** The circuit voltage should be shown as the voltage between phases or as the voltage from phase to ground for single-phase lines. The figures for maximum short circuit current obtained from the sectionalizing study as source and the value of maximum load current obtained from field checks as source should be shown and brought up-to-date as the system changes. These data are of special importance in determining the suitability of the equipment for use at a particular location. The name and type of the sectionalizing device should be entered in the spaces indicated. The owner's number, size of the device in amperes with time setting and date installed should be entered each time when device is changed or its characteristics changed.

**D.** The body of the card provides spaces for recording the results of readings or checking of the device. The headings showing the dates of counter readings and operation and days since last counter readings are primarily designed for reading of re-closers. In case of a sectionalizing switch, the number of

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operations will be 1 (one). No. counter reading information be entered.

E. The effectiveness of this card and ERC (Equipment Record Card) record system will depend upon the accurate recording of all data each time during inspection or each time when equipment or circuits are changed. PBS's wishing to realize the maximum benefits from these records should, therefore, make sure that the cards are maintained accurately and on a regular basis.

F. A space is provided to put in the number of consumers beyond the load side of this sectionalizing point. This information should be up dated every six months.

G. Sample-2 illustrates a card properly filled in.

H. If there is no ACR/ OCR/ VCB/ Breaker installed in between sub-station and last end of feeder, data can then be taken from feeder ACR/ OCR/ VCB/ Breaker at the starting of feeder at sub-station.

## VI. MAP RECORDS OF OUTAGE

A. To provide a criterion of service continuity with respect to location affected, it is desirable to indicate each outage on a system map. If the map is mounted on a wall board, outage locations can be indicated by inserting a color pin or other marker in the general area of the outage. Code marking of pins or markers might be found desirable. Examples of uses of code marking are:

1. Use color coding of pins to indicate cause of outage for a few principal causes.
2. If interruption reports have been serially numbered, use numbered pins or markers to indicate interruption report number.

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3. The activities mentioned in above serial number-1 and 2 can also be done using electronic database in MS Access or ArcGIS program or any other suitable computer program, from where can easily be taken necessary report using query and macro.
- B. If an outage record map using coded pins or other marking devices is maintained, it will be necessary to clear the map periodically. A permanent record for each period can be preserved by transferring outage information from the record map to a copy of the system key map, which would then constitute the permanent record. For efficient outcome, it is highly encouraged to perform these types of activities using suitable computer program.
- C. One of the principal advantages of maintaining a map record of service interruptions is that such a record provides a convenient method of indicating visually where outage are occurring. By observing a tendency for a particular type of outage to recur in an area, steps can be taken to correct the situation before quality of service is seriously impaired. After system changes have been made to improve service, the map will provide a visual indication of the effectiveness of the changes.


**VII. INTERRUPTION EXPERIENCE  
Reports and Summaries**


- A. Periodic reports summarizing outage information will provide management with a yardstick for measuring accomplishments in improving system operation. The information included in such reports is also suitable for inclusion in annual reports to inform Boards of Directors and consumers


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concerning the job being done.

- B. Monthly reports summarizing outage information are recommended, such reports may take many forms. One form suitable for summarizing outage reports is illustrated in BREB Form No. 100-18-03A and 100-18-04A. The space for remarks at the bottom of the forms can be used to point out the effects on service continuity of unusual conditions such as unusually severe storms.
- C. Regardless of the form chosen for summarizing outage information, it is especially desirable that the summary include data on average outage hours per consumer per year. The average referred to in this case is the average for the year calculated by dividing the total consumer-hours outage for the year by the weighted average number of consumers served during the year. If data on outage (Interruption Index) is deduced to this basis, the data for any year is directly comparable with that for other years regardless of the differences in number of consumers served in the various years. The changes in outage hours per consumer per year directly reflect overall performance of the system with respect to service continuity.
- D. Outage Summary Report by Causes BREB Form No. 100-18-03A shows comparisons of experience in terms of the number of Interruptions and summations of consumer-hours (the number of consumers multiplied by hours) representing the time that consumers were without electric service. This information is given separately for each major cause shown in Sample-3 illustrates a monthly summary using BREB Form No. 100-18-03A & 100-18-

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03B filled out in a proper manner.

E. Outage Summary Report by Equipment and Material BREB Form No. 100-18-04A & 100-18-04B.

1. This Summary report, BREB Form No. 100-18-04A & 100-18-04B is similar in form to BREB Form No. 100-18-03A & 100-18-03B except that the information is summarized according to Equipment and Material affected.

2. This summary should be prepared monthly. Sample-3 gives details about the material or equipment items that were responsible for interruptions, using the same items that are shown on the code lists, BREB Form No. 100-18-03A & 100-18-03B. For each item, the consumer-hours may be shown separately for each major cause of interruption as shown in columns across the page.

F. The information for these summaries are taken from BREB Form No. 100-18-01 and tallied on a work sheet, similar to sample-3. The consumer-hours are calculated by multiplying the number of consumers affected by the length of time the electrical service was off. The related codes used for the different categories of summation are also retrieved from the interruption report. Historical data, such as data of last year is to be retrieved from stored records and the previous months summary will suffice to calculate year-to-date information in the two right most columns.

### VIII. SERVICE CONTINUITY OBJECTIVES

Every PBS should be providing the best service available. To do this, standards or goals are needed to establish the level of service reliability necessary to meet

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consumers needs. Systems that are well engineered and have experienced favorable weather during the year should expect less than ten (10) consumer hours per consumer during year.

The significance of a high interruption hours figure will depend upon circumstances. For example, long interruptions may result from cyclone damage, or excessive interruptions may be due to trees, lightning, power supply or scheduled outage showing the need for corrective measures or different work procedures. When the satisfactory level is exceeded, management should examine the causes, consider the ways available to prevent the excessive interruption and develop time, work, and cost schedules for future corrective action.

## IX. MEASURES FOR IMPROVING SERVICE CONTINUITY

### A. Material Planning for O&M

In order to improve Service Continuity and to minimize interruption period, it is necessary to minimize unscheduled maintenance. Accurate budget provision are required to support the maintenance program for the current planning period. Required Materials are also to be procured ahead to minimize time and maintain stock in the PBS store specifically for O&M purpose to a specified level on the basis of material activity report.

Minimum requirement of materials are to be maintained always so that due to shortage of materials power restoration is not delayed.

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## B. Planned Maintenance Program

1. The success of the maintenance program is specifically dependent on effective planning. The planning procedure begins with the establishment of priorities for electrical network system, taking into account the age of electrical system, maintenance of equipment, right of way clearing. Maintenance plan should also consider, maintenance program on sub-station basis and feeder wise. Maintenance program to be such that, all the outstanding works/ maintenance job on a particular feeder or line section will be taken up at a time.
2. Walking the line and using binoculars, the PBS lineman will survey the line and record on the inspection sheet the work required at each pole. Upon receipt of the inspection report, AGM(O&M) will make routine maintenance program. It should be done once in every four years for a particular feeder/ line section.
3. PBS lineman with one or two tree trimmer will walk through the line and clean the right of way problem if any. It should be done at least twice in a year for a particular feeder/ line section.
4. Periodic maintenance of re-closers/ breakers are also a definite need. This will ensure the correct operation of the equipment as well as reduce interruption period, improve service reliability, reduce purchases and increased level of safety for line personnel during operation.

## C. Hot Line Method

Abiding by the rules, regulations and procedure, Hot Line method of maintenance can be introduced in PBS electric system for conducting their maintenance works without interruption of electricity under the guide line

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PBS instruction 100-49 and 100-50.

This will provide uninterrupted and better service facilities to the consumers and bring down interruption period. Introduction of this technology will increase not only the system reliability but also revenue sales. Hot Line maintenance work is the alternative of providing a consumer multiple source of electricity. As a result it reduces more investment also.

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BANGLADESH RURAL ELECTRIFICATION BOARD

BREB Form No. 100-18-01 (Version-1)

INTERRUPTION REPORT

1. PBS \_\_\_\_\_ Reporting Unit \_\_\_\_\_ Report Serial No. \_\_\_\_\_
2. Time Reported \_\_\_\_\_ Reported by \_\_\_\_\_
3. Report Received by \_\_\_\_\_ Assigned to \_\_\_\_\_
4. Time Off \_\_\_\_\_ Time On \_\_\_\_\_ Total Time \_\_\_\_\_
5. Location or Area Affected \_\_\_\_\_
6. No. of Consumers Affected \_\_\_\_\_ Consumer-Hours Off \_\_\_\_\_
7. Action Taken \_\_\_\_\_
8. Date \_\_\_\_\_ Signature of Lineman \_\_\_\_\_

9.

Cause of interruption, Material or equipment	Codes	
	Material	Causes

10. Received by:

  
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(Md. Duhidul Islam)  
Consultant, TAPP, BREB

AJE/JE  
  
(Md. Mozammel Haq)  
Consultant, TAPP, BREB

AGM (O&M)  
  
(Md. Abdul Khaleque)  
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**BANGLADESH RURAL ELECTRIFICATION BOARD**

BREB Form No. 100-18-02 (Version-1)

RECORD OF OPERATIONS AT FEEDER OUTGOING /SECTIONALIZING POINTS

No. Consumers: ----- Date: -----

Substation:				Power Source		PBS		
Device Location				Circuit No.		Blue - Yellow - Red		
Device Data				Circuit Data				
Device		Type		Max <sup>m</sup> Short Ckt. Load	Date	Max <sup>m</sup> Load Amps.	Date	No. of Consumers
Owner's No.	Amps.	Time Setting	Date					

Date	Blue Phase		Yellow Phase		Red Phase		No. Days since Last Reading
	Counter Reading	No. of Operations	Counter Reading	No. of Operations	Counter Reading	No. of Operations	

-----  
AJE/ Junior Engineer

-----  
AGM(O&M)

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**BANGLADESH RURAL ELECTRIFICATION BOARD**

BREB Form No. 100-18-04A (Version-1)

Page 1 of 2

**INTERRUPTIONS DUE TO MATERIAL ITEMS**

PBS: -----

Reporting Unit: ----- Month & Year: -----

Causes	This month		Same month in last year		This year to date	
	No.	Consumer Hrs.	No.	Consumer Hrs.	No.	Consumer Hrs.
00 Power Supplier						
10 Distribution Substation						
20 Poles and Fixtures						
30 Overhead Conductor and Devices						
40 Underground Conductor or Devices						
50 Line Transformer						
60 Secondary and Services						
70 Unknown						
80 Unknown						
90 Unknown						
Total for Unit (10-90)						
Total for Unit (00-90)						

- Consumer served, Average this month : -----
- Average hours Interrupted per consumer:-
  - This month : -----
  - Same month last year : -----
  - This year, year-to-date : -----
  - Last year, to corresponding upto : -----
- Remarks: -----

-----  
AJE/ Junior Engineer

-----  
AGM(O&M)

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# BANGLADESH RURAL ELECTRIFICATION BOARD

BREB Form No. 100-18-01(Version-1)

## INTERRUPTION REPORT

(Sample-1)

1. PBS: **Sirajgonj PBS-1** Reporting Unit: **Sahjadpur Zonal Office**, Report Serial No.: **672**
2. Time Reported: **4.00 PM, 21/12/2018** Reported by: **Sirajul Haque**
3. Report Received by: **Abdur Rahman** Assigned To: **Abdul Latif/ Abdul Karim**
4. Time Off: **3.30 PM** Time On: **9.30 PM** Total Time: **6 hrs.**
5. Location or Area Affected: **Shahzahpur Bazar Next to Cinema Hall**
6. Reason: **Pole Broken by Bus**
7. No. of Consumers Affected: **450** Consumer-Hours Off: **2700**
8. Action Taken: **Pole Replaced**
9. Date: **22/21/2018** Signature of Lineman: -----

10.

Cause of interruption, Material or Equipment	Codes	
	Material	Causes
<b>Pole Broken</b>	<b>21</b>	<b>71</b>

11. Received by: -----

AJE/ JE

AGM(O&M)

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**BANGLADESH RURAL ELECTRIFICATION BOARD**

BREB Form No. 100-18-02(Version-1)

**RECORD OF OPERATIONS AT FEEDER OUTGOING/ SECTIONALIZING POINTS**

(Sample-2)

No. Consumers: 450

Date: March '83

Substation: Manirampur	Power Source: BPDB Jashore	PBS: Jashore PBS-2
Device Location - Pole 97	Circuit No. Blue - Yellow - Red	

Device Data				Circulate Data				
Device OCR		Type 4H		Max <sup>m</sup> Short Ckt. Load	Date	Max <sup>m</sup> Load Amps.	Date	No. of Consumers
Owner's No.	Amps.	Time Setting	Date	3000	3-83	40	3-83	1000
	50	2A-2C	3.5.81					

Date	Blue Phase		Yellow Phase		Red Phase		No. Days since Last Reading
	Counter Reading	No. Operations	Counter Reading	No. Operation.	Counter Reading	No. Operation.	
21.02.81	007	7					0
21.03.81	008	1					30
20.04.81	011	3					29
22.05.81	014	3					32
21.08.81	021	7					90
20.11.81	025	4					90
20.02.82	029	4					90
21.03.82	031	2					30
20.07.82	041	10					120
21.09.82	046	5					60
22.11.82	052	14					60
23.02.83	068	16					120

AJE/ JE

AGM(O&M)

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**BANGLADESH RURAL ELECTRIFICATION BOARD**

BREB Form No. 100-18-03A (Version-1)

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**INTERRUPTIONS BY CAUSES**

*(Sample-3)*

PBS: -----

Reporting Unit: ----- Month & Year: -----

Causes	This month		Same month in last year		This year to date	
	Number	Consumer Hrs.	Number	Consumer Hrs.	Number	Consumer Hrs.
00 Power Supplier	4	20000	5	30000	52	260000
10 Scheduled	5	300	3	2000	21	58000
20 Major Storm	0	0	0	0	0	0
30 Equipment or Installation	1	400	4	1000	30	12000
40 Age or Deterioration	3	150	1	200	21	300
50 Weather	7	400	2	3000	46	42000
60 Birds and Animals	0	0	2	500	7	6000
70 General Public	3	10	0	0	23	12500
80 Employee Error	0	0	1	4000	4	6000
90 Unknown	0	0	12	3300	19	4500
Total for Unit (10-90)	19	1260	25	14000	171	141300
Total for Unit (00-90)	23	21260	30	44000	223	401300

- Consumer served, Average this month : 12010
- Average hours Interrupted per consumer:
  - This month :  $1.77 \times (21260 \div 12010)$
  - Same month last year :  $4.89 \times (44000 \div 9000)$
  - This year, year-to-date :  $36.72 \times (401300 \div 11000)$   
( $9000 =$  Consumers last year,  $11000 =$  Average no. of consumer to date)
  - Last year, to corresponding up to: 61.42 (From last year report)
- Remarks:

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৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০





**BANGLADESH RURAL ELECTRIFICATION BOARD**

BREB Form No. 100-18-03B (Version-1)

**Codes  
For  
Cause of Interruption**

Code No.	Description	Code No.	Description
00	<b>Power Supplier: BPDB</b>	60	<b>Birds or Animals:</b>
01	33 KV Transmission failure	61	Snakes, birds, small animals
02	Load Shedding	62	Large animals (affecting pole)
03	Emergency		Other
04	PBS Trouble	69	
05	Scheduled, other		<b>General Public:</b>
09	Other	70	Vehicle or Machinery
10	<b>Scheduled:</b>	71	Aircraft
11	Construction	72	Public Accidents, other
12	Maintenance	73	Vandalism
19	Other	74	Fire
30	Major Storm Disaster:	75	Theft
	<b>Equipment or Installation:</b>	76	Other
31	Faulty Material or Equipment	79	
32	Improper Installation		<b>Employee Error:</b>
33	In-adequate clearance	80	
39	Other	90	<b>Unknown:</b>
40	<b>Age or Deterioration:</b>		
41	Decay		
42	Corrosion		
43	Moisture		
44	Contamination		
45	Electric Overload		
49	Other		
50	<b>Weather:</b>		
51	Lightning		
52	Wind, not trees		
53	Flood		
54	Trees, bamboo		
59	Other		

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BANGLADESH RURAL ELECTRIFICATION BOARD				
PBS Instruction 100-18: POWER INTERRUPTION RECORDING AND REPORTING PROCEDURE				
Date of Origin	Revised by	Approved by	Page No.	Revision No.
07/03/1979	BREB	BREB Board	Page 30 of 31	4
Revision Date: 26/12/1984, 14/11/1996, 01/09/2013 & 19/02/2020				

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Consultant, TAPP, BREB

(Md. Duniaul Islam)  
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(Md. Mozammel Haq)  
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(Md. Abdul Khaleque)  
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(Debasish Chakraborty)  
PD, TAPP, BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB.

**BANGLADESH RURAL ELECTRIFICATION BOARD**

BREB Form No. 100-18-04B (Version-1)

**Codes  
For  
Equipment or Material Responsible for outage**

Code No.	Description	Code No.	Description
00	<b>Power Supplier: BPDB</b>	40	<b>Underground Conductor, Device:</b>
01	33 KV Grid	41	HT Cable
10	Distribution Substation:	42	Splice
11	Power Transformer	43	Switch
12	Voltage Regulator	44	Lightning Arrester for UG
13	O.C.R.	45	Secondary Cable or fittings
14	Lightning Arrester or switch	49	Other
15	Source fuse	50	<b>Line Transformer:</b>
19	Other	51	Transformer bad, replaced
20	<b>Poles and Fixtures:</b>	52	Transformer fuse or broker refused or reset.
21	Pole	53	Transformer Lightning arrester.
22	Crossarm or Crossarm Brace	60	<b>Secondaries or Services:</b>
23	Anchor or guy	61	Secondary or Service Conductor.
29	Other	62	Jumpers
30	<b>Overhead Line Conductors, Devices:</b>	63	Meter or Meter Loop
31	Line Conductor	64	Customer pole
32	Connector or Clamp	65	Street Light
33	Splice or Deadened	69	<b>No equipment failure:</b>
34	Splice or Deadened	70	<b>Unknown:</b>
35	Insulator	90	
36	Jumper		
37	Fuse Cutout (malfunction)		
38	Lightning Arrester, Line		
39	OCR or Sectionalizing (Malfunction).		
	Other.		

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BANGLADESH RURAL ELECTRIFICATION BOARD				
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৬২১ তম বোর্ড সভার অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

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