

accumulated over a period of one week, as specified above. The measured values shall be compared with the values specified in Regulation 13.7.2, as may be applicable. With effect from 1st April 2024 or as may be opted by the consumer as per 1st proviso to Regulation 13.8 above, in case the measured TDD value exceeds the limits specified above during any measurement period of 7 continuous days completed during a billing month then the consumer shall be liable to compensate the distribution licensee in the manner as specified in Regulation 13.11 of these regulations.

13.11 The highest excess TDD value over and above the specified limits from amongst the weekly 99th percentile short time (10 min.) and weekly 95th percentile short time (10 min.) current harmonic values during 7 continuous days measurement period completed during a billing month shall be considered for calculating the compensation.

13.11.1 In case of designated consumers other than Full Open Access consumer and deemed licensee using transmission &/or distribution system of other licensee for sourcing power through open access, a compensation of a maximum of 10 % of the monthly consumption charges (fixed plus energy charges but without levies) shall be payable by the designated consumer to the distribution licensee in steps as specified in table 11 below

Table 11: Compensation by designated Consumer (Other than Full Open Access consumer and deemed licensee using transmission &/or distribution system of other licensee for sourcing power through open access) for exceeding TDD Limit

TDD excess over and above the limit	Compensation on the monthly consumption charges (fixed + energy charges)(in %age)
Upto 2%	1%
Above 2% but upto 4%	2%
Above 4% but upto 6%	3%
Above 6% but upto 8%	4%
Above 8% but upto 10%	5%
Above 10% but upto 15%	6%
Above 15% but upto 20%	7%
Above 20% but upto 25%	8%
Above 25% but upto 30%	9%
Above 30%	10%

13.11.2 In case of Full Open Access consumer or deemed licensee using transmission &/or distribution system of other licensee for sourcing power through open access, a compensation of a maximum of 75 paise per unit of energy consumed through open access shall be payable to distribution licensee in steps as specified in table 12 below;

Table 12: Compensation by designated Consumer (Full Open Access consumer and deemed licensee using transmission &/or distribution system of other licensee for sourcing power through open access) **for exceeding TDD Limit**

TDD excess over and above the limit	Compensation on the monthly energy consumed through open access (Paise/kWh)
Upto 2%	10
Above 2% but upto 4%	15
Above 4% but upto 6%	22
Above 6% but upto 8%	30
Above 8% but upto 10%	37
Above 10% but upto 15%	45
Above 15% but upto 20%	52
Above 20% but upto 25%	60
Above 25% but upto 30%	67
Above 30%	75

Provided that in case the TDD values during any subsequent billing month during the financial year exceeds the limits specified in Regulation 13.7.2, the consumer shall also be issued a notice by the distribution licensee to take necessary remedial measures to bring the TDD values within the specified limits. After the expiry of 12 months, in case the default still continues, the connection/connectivity of such designated consumer shall be liable to be disconnected. The connection shall be reconnected after the designated consumer gives an undertaking that necessary remedial measures have been taken and the current harmonics injection is within specified limits.

- 13.12 In case the voltage harmonics in the distribution system exceeds the limits specified in regulation 13.7.1 above, the distribution licensee shall be liable to compensate the affected consumers of the feeder(s), after the stipulated date, at the rate and in the manner as approved by the Commission from time to time.

14 Short Supply Voltage Interruptions

- (1) Short voltage interruptions shall comply with Table given below and are specified with reference to:
- i. Number of events per year
 - ii. Event duration (t)
 - iii. Declared voltage (Uc)

Table 13: Short Supply Voltage Interruptions Limits (number of events per year) for LV and MV Networks.

Residual Voltage (%)	Duration t (ms)				
	$10 \leq t \leq 200$	$200 < t \leq 500$	$500 < t \leq 1000$	$1000 < t \leq 5000$	$5000 < t \leq 60000$
$5 > u$	5	20	30	10	10

Provided that Short Voltage Interruptions Limits for HV network shall be as may be specified by BIS;

Provided further that the short voltage interruptions shall be measured in accordance with IEC 61000-4-30 and shall not fall outside the duration from 10 ms up to and including 1 min;

15 Long or Sustained Supply Voltage Interruptions

- (1) The Distribution Licensee shall calculate the reliability of its distribution system on the basis of number and duration of sustained or long supply voltage interruptions (longer than 3 min) in a reporting period, using the following indices:
 - i. System Average Interruption Frequency Index (SAIFI);
 - ii. System Average Interruption Duration Index (SAIDI);
- (2) The Indices shall be computed for the distribution licensees for each month for all the 11kV and 66/33kV feeders in the supply area, and then aggregating the number and duration of all interruptions in that month for each feeder. The Indices shall be computed using the following formulae:

$$SAIFI = \frac{\sum_{i=1}^n A_i * N_i}{N_t}$$

$$SAIDI = \frac{\sum_{i=1}^n B_i * N_i}{N_t}$$

Where

A_i = Total number of sustained interruptions (each longer than 3 min) on i^{th} feeder for the month;

B_i = Total duration in minutes of all sustained interruptions (longer than 3 min) on i^{th} feeder for the month;

N_i = Number of Customers on i^{th} feeder affected due to each sustained interruption;

N_t = Total number of customers served by the Distribution Licensee in the supply area;

n = number of 11kV and 66/33kV feeders in the licensed area of supply;

- (3) The distribution licensee shall maintain the reliability on monthly basis within the limits specified in table below:

Table 14: Limits for Reliability indices

Reliability Indices	Limits					
	Urban			RURAL		
SAIDI	600	Minutes	per	900	Minutes	per
	customer			customer		
SAIFI	15	interruptions	per	25	interruptions	per
	customer			customer		

Provided that:

The feeders must be segregated into rural and urban and the value of the indices must be reported separately for each month.

While calculating the given reliability indices, the following types of interruptions shall not be taken into account:

- i. Momentary outages of duration less than three minutes.
- ii. Outages due to Force Majeure events such as cyclone, floods, storms, war, mutiny, civil commotion, riots, lightning, earthquake, lockout, grid failure, fire affecting licensee's installations and activities;
- iii. Outages that are initiated by the National Load Despatch Centre/ Regional Load Despatch Centre/State Load Despatch Centre during the occurrence of failure of their facilities;

While calculating the given reliability indices, the interruptions due to scheduled or planned outages shall be taken into account.

The distribution licensee shall capture reliability indices data directly from the feeder monitoring system and there should not be any manual interventions as far as possible.

The Distribution Licensee shall maintain data on the reliability indices specified above for each zone/circle/division/sub-division on a monthly basis.

The Distribution Licensee shall put up, at the end of each month, such monthly information on reliability indices, on website of the Distribution Licensee and shall submit such report quarterly to the Commission.

CHAPTER – 4**MONITORING AND REPORTING OF THE POWER QUALITY****16 Monitoring of Power Quality**

- (1) The distribution licensee for the purpose of requirements for the quality of electricity supplied shall identify the locations of 66kV/33kV/11kV feeders, and designated consumers to ensure the measurement of the power quality parameters at sufficient locations in their electrical networks to adequately characterize and report performance in terms of these Regulations. The feeders shall be identified for PQ monitoring based on type of load connected with the approval of the Commission.
- (2) PQ measurement shall be implemented by the distribution licensee in a phased manner so as to complete the task of installation of PQ meters at all identified locations within the timelines approved by the Commission. In the first phase, the distribution licensee shall install Power Quality meters on 20% of the identified locations on 11/33/66 kV feeders. All designated consumers shall install the PQ meters as specified in Regulation 13.4 of these regulations at point of common coupling (PCC).
- (3) The distribution licensee shall enforce the continuous monitoring of power quality standards at the inter-connection point of identified locations at or below 66 kV voltage level for development of profile of power quality measurement in the area of supply;
- (4) The measurements undertaken to determine compliance shall be carried out in accordance with the requirements as specified in IEC 61000-4-7 and IEC 61000-4-30. There shall be continuous metering of harmonics with permanent Power Quality meters complying with the IEC 61000-4-30 Class-A meters.
- (5) In the event when the distribution licensee receives a customer complaint concerning Power Quality, the distribution licensee shall, after due verification, deploy power quality meter for a particular period for the purpose of capturing the power quality data. Distribution licensee can also measure the level of harmonics generation at PCC of any consumer(s) on receipt of complaint(s) from other affected consumer(s).
- (6) These Regulations specifies the minimum requirements for Power Quality meters for measurement at sites directly affecting the quality of the power supplied to the consumer(s). The distribution licensee may require the additional PQ meters to establish the power quality at other bulk supply points and at other major network nodes and to investigate consumer(s) complaints, for which these additional PQ meters may be installed temporarily.
- (7) The distribution licensee may opt to integrate the smart grid meters compatible for measurement of the PQ parameters for economic and operational optimization.

17 Compliance of the Power Quality and Reliability Standards

- (1) The distribution licensee shall submit the quarterly report of information collected on PQ parameters extracted from power quality meters and machine based reliability data in standard formats (as specified separately) to the Commission.
- (2) The designated consumer shall install power quality meter and shall be responsible to control the current harmonic injection in the transmission/distribution system within the limits specified in these regulations. Although the compensation shall be payable in case TDD value exceeds the limits but the designated consumer shall also be responsible to ensure that individual harmonic injection values also remains within the limits specified in these regulations. The distribution licensee shall capture the data from PQ meters each billing month or as may be decided by the Commission.
- (3) It shall be the prime responsibility of the distribution licensee to comply with these Regulations and submit the compliance report every 3 months in standard formats (as specified separately), including transparent data disclosure regarding electrical system, to the Commission. Commission may direct designated agencies to be notified separately, to carry out PQ audit on the basis of compliance reports filed by distribution licensee for verification. The distribution company shall carry out 100% audit by itself once a year and 5% random audit by the independent agency and shall file the audit report along with ARR truing up petition.
- (4) The distribution licensee shall publish the reports indicating the compliance with the standards under these Regulations and post all the reports on its website. The distribution licensee shall also seek comments, if any, on the same from the customers availing supply from the distribution licensee.
- (5) The Commission from time to time may seek reports on PQ improvements from distribution licensee.
- (6) The distribution licensee shall make efforts to improve power quality in their supply area by deploying devices to mitigate power quality issues such as filters or controllers etc. The expenses incurred towards deploying these devices by the distribution licensee shall be considered in the ARR.
- (7) The distribution companies shall ensure the data security and the data should only be used for identified purpose and should not be transferred to any other person without the consent of the specific consumer.

CHAPTER – 5**COMPENSATION MECHANISM FOR POWER QUALITY****18 Compensation mechanism for Power Quality**

- (1) During the first year after notification of Power Quality Regulations, there shall be monitoring and reporting of power quality parameters by distribution licensee in prescribed standard formats at regular intervals. The incentive/dis-incentive for the stakeholders shall come in to force from the date as may be specified by the Commission.
- (2) The expenses incurred towards implementation and monitoring of power quality parameters by the distribution licensee shall be considered in the ARR.
- (3) The Distribution Licensee shall compensate the affected person(s) in second-next billing cycle. In case the Distribution Licensee fails to pay the compensation or if the affected person is aggrieved by non-redressal of his grievances, he may make a representation for the redressal of his grievance to the Appropriate Forum.

Provided that such compensation shall be based on the classification of such failure as determined by the Commission and the payment of such compensation shall be paid or adjusted in the consumer's future bills (issued subsequent to the award of compensation) within thirty (30) days of a direction issued by the Appropriate Forum or by the Ombudsman, as the case may be.

- (4) The Distribution Licensee shall not be excused from failure to maintain the power quality parameters under these Regulations, where such failure can be attributed to negligence or deficiency or lack of preventive maintenance of the distribution system or failure to take reasonable precaution on the part of the Distribution Licensee.
- (5) In case the designated consumer fails to install power quality meter within the stipulated time, as specified in regulation 13.4 of these regulations, such consumer shall be liable for penalty as specified in Regulation 13.5 of these regulations. In case the designated consumer fails to limit the injection of current harmonics within limits specified in Regulation 13.7.2 within the time specified in regulation 13.8 of these regulations, such consumers shall be liable to compensate the distribution licensee in the manner as specified in Regulation 13.11. The compensation shall be without prejudice to the right of the distribution licensee to disconnect the connection as per the provisions of CEA (Technical Standards for connectivity to the Grid) Regulations, 2007, as amended from time to time and CEA (Technical Standards for connectivity below 33 kV) (Amendment) Regulations, 2019, as may be applicable
- (6) Level of compensation payable by the distribution licensee for failure to meet power quality standards are given in table below:

Table 15: Level of compensation

PQ Parameter	Standard	Compensation Payable	Compensation Payable by
Voltage Variation	As per Table-1,2,3 and 4	Rs.100/- per week for which voltage variation was beyond the specified limits. Part of the week shall be treated as one week for this purpose.	Distribution Licensee to each consumer connected on the feeder. These compensations shall be cumulative for each violation.
Voltage unbalance	$V_{\text{unbalance}} \leq 2\%$	Rs.100/- per week for which voltage unbalance was beyond the specified limits. Part of the week shall be treated as one week for this purpose.	
Voltage dips or swells	Number of events per year as per Table- 6	Rs.50/- per event for which voltage dips or swell was beyond the specified limits	
Voltage Harmonics	As per Table - 7	Rs.100/- per week for which voltage harmonics was beyond the specified limits. Part of the week shall be treated as one week for this purpose.	
Short Supply Voltage Interruptions	Number of events per year as per Table- 13	Rs.50/- per instance for which short supply voltage interruptions was beyond the specified limits	
Long Supply Voltage Interruptions	SAIDI in Minutes per Consumer as per Table- 14	5 paisa/min/kW or kVA, as applicable, for which SAIDI was beyond the specified limits	
Long Supply Voltage Interruptions	SAIFI in interruption per customer as per Table- 14	Rs.50/- per interruption for which SAIFI was beyond the specified limits	

Provided that such compensation as given in above Table-15 shall not be claimed in ARR by distribution licensee.

CHAPTER – 6**MISCELLANEOUS PROVISIONS**

- 19 **Power to Relax.** The Commission, for reasons to be recorded in writing, may relax any of the provisions of these regulations on its own motion or on an application made before it by an interested person.
20. **Power to Remove Difficulty:** If any difficulty arises in giving effect to the provisions of these regulations, the Commission may, by order, make such provision not inconsistent with the provisions of the Act or provisions of other regulations specified by the Commission, as may appear to be necessary for removing the difficulty in giving effect to the objectives of these regulations.
21. **Issue of orders and practice directions:-**
Subject to the provisions of the Act and these Regulations, the Commission may, from time to time, issue orders and practice directions in regard to the implementation of the Regulations and procedure to be followed on various matters which the Commission has been empowered by these Regulations to lay down.

Sd/-

Secretary to the Commission