

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

‘Vidyut Niyamak Bhawan’, Near I.S.B.T., P.O.-Majra, Dehradun-248171
Uttarakhand Electricity Regulatory Commission (Distribution Code) Regulations, 2018

Statement of Objects and Reasons (SOR)

In order to ensure development and maintenance of the distribution system in an efficient, coordinated & economical manner and compliance of obligations as specified in The Electricity Act, 2003 by the Distribution Licensee and all distribution system Users, the Commission in exercise of the powers conferred on it under Section 181 of The Electricity Act 2003 and Clause 18 of Distribution and Retail Supply Licence had issued UERC (Distribution Code) Regulations, 2007 on 05.04.2007 (published in the Official Gazette on 14.04.2007).

Since then many Technical & Regulatory changes have taken place in the power distribution system/sector. Moreover, CEA has also issued its various Regulations pertaining to construction, safety, connectivity, metering etc. from time to time, which makes it imperative to revise and update the prevailing Distribution Code to make it in accordance with the latest Technical & Regulatory changes.

Therefore, in exercise of the powers conferred under Section 181 of The Electricity Act 2003, read with Clause (c), (e) and (i) of sub-section 1 of Section 86 of the said Act and clause 18 of Distribution and Retail Supply Licence issued to the Distribution Licensee under Section 14 of the Act and all powers enabling it in that behalf, the Uttarakhand Electricity Regulatory Commission has issued draft UERC (Distribution Code) Regulations, 2017 replacing the prevailing UERC (Distribution Code) Regulations, 2007 and invited comments/objections/suggestions on the same from the stakeholders. Last date of submission of comments/objections/suggestions was 20.10.2017, which was further extended to 24.11.2017.

The Commission held a public hearing on 12.12.2017 at 11:30 AM in the Commission’s office to facilitate oral submission of the stakeholders and other interested persons. The comments/objections/suggestions of the stakeholders have also been considered. List of stakeholders who submitted comments on Draft Regulations is at **Annexure-I** enclosed. List of participants who attended the hearing is at **Annexure-II** enclosed.

2. The Statement of Objects and Reasons (SOR) is being issued with the intent of explaining the rationale which went into finalisation of UERC (Distribution Code) Regulations, 2018. However, in case of any deviation/discrepancy in the SOR with respect to UERC (Distribution Code) Regulations, 2018 the provisions of UERC (Distribution Code) Regulations, 2018 shall be applicable. The relevant comments/suggestions/objections received from the Stakeholders and public and the views of the Commission on the same are discussed in subsequent paragraphs.

3. **Suggestions and Objections of Stakeholders and the Commission's views thereon:**

3.1 Sub-regulation (2) of the Regulation 1.1 of the Draft Distribution Code Regulations.

The Draft Regulation states that:-

"1.1 Short Title, Commencement and Interpretation

(2) This Regulation shall be applicable to all Distribution System participants including:

- (a) Distribution Licensee(s) {including deemed licensee(s)};*
- (b) Open Access Customers connected to Distribution Systems;*
- (c) Other Distribution Licensee connected to Distribution Systems;*
- (d) Institutions covered under proviso 8 of section 14 of the Act;*
- (e) Embedded Generators; and*
- (f) Large Consumers."*

Stakeholders Comments/Suggestions (IAU):-

Industries Association of Uttarakhand (IAU) has proposed to expand the applicability of Draft Framework beyond large consumers.

Commission's View:-

In this regard, it is observed that small consumers have not been specifically included in the applicability of Draft Regulations, whereas, from the intent of the word consumers provided in the Draft Regulations at several places propounds the applicability of small consumers as well, therefore, as suggested the large consumers in the Clause (f) of sub-regulation (2) of Regulation 1.1 has been replaced as 'Consumers'.

3.2 Regulation 1.2 of the Draft Distribution Code Regulations i.e. Definitions.

Stakeholders Comments/Suggestions (IAU):-

Industries Association of Uttarakhand (IAU) has proposed inclusion of definitions of Consumer, Applicant, Area of Supply, Billing Cycle, Check Meter, Connection Point & Contracted Load.

Commission's View:-

In this regard, it has been observed that in the Draft Regulations, the word 'Applicant', 'Billing Cycle', 'Check Meter' and 'Contracted Load' are not appearing in the Draft Regulations.

With regard to inclusion of definitions of 'Consumers', 'Area of Supply' and 'Connection Point' is concerned. Clause (z) of sub-regulation (1) of Regulation 1.2 of Draft Regulations provides that *"All Words and expressions used and not defined in these regulations but defined in The Electricity Act, 2003 shall have the meanings as assigned to them in the said Act."* Therefore, as the word consumer has been defined in the Electricity Act, 2003 at Section 2 (15), hence, by virtue of the aforesaid provision in Clause (z), the specific inclusion of the definition of 'Consumer' is not required.

As far as the definition of 'Area of Supply' is concerned, the same is defined in UERC (The Electricity Supply Code) Regulations, 2007 and therefore, the same has been included at 1.2 (1) in the draft UERC (Distribution Code) Regulations, 2017 which reads as:-

"Area of Supply" means the geographic area within which Licensee is for the time being authorized by his licence to supply electrical energy;

As far as the word 'Connection Point' is concerned, as the word 'Interface Point' is already defined at Clause (s) of sub-regulation (1) of Regulation 1.2 in the draft Regulation, therefore, for more clarity following revision has been done in the definition of 'Interface Point' in the Draft Regulation *"'Interface Point'/'Connection Point'/'Boundary Point' means point at which a User's electrical system is connected to the Licensee's Distribution System."*

3.3 Sub-regulation (3) of the Regulation 2.3 of the Draft Distribution Code Regulations.

The Draft Regulation states that:-

"2.3 Distribution Code Review Panel

- (3) *The Distribution Code Review Panel shall be composed of the following members, who shall be notified by the Commission.*
 - (a) *Director (Technical/Operation) of Concerned Distribution Licensee(s);*
 - (b) *Chief Engineer/General Manager level officer from other Distribution Licensee(s) in the State;*
 - (c) *Chief Engineer/General Manager Level officer from STU;*
 - (d) *One member not below the rank of Superintending Engineer/D.G.M. to be nominated by the SLDC;*

- (e) One member not below the rank of Chief Engineer/G.M. representing State owned Generating Company;
- (f) One member not below the rank of Chief Engineer/G.M. representing other Generating Companies in the state;
- (g) One member not below the rank of Chief Project Officer representing State Renewable Energy Agency ;
- (h) One member representing open access customers;
- (i) One member representing Industrial Consumers;
- (j) One member representing Domestic / Commercial consumers;
- (k) One member representing Agriculture Consumers;
- (l) One member representing RE generators in the State;"

Stakeholders Comments/Suggestions (IAU):-

Industries Association of Uttarakhand (IAU) has welcomed constitution of Distribution Code review panel in 2.3 (3) and has requested that one member from UERC Advisory Committee may also be co-opted.

Commission's View:-

The suggestion of the stakeholder is appropriate, therefore, inclusion of one member from the State Advisory Committee has been accepted. Therefore, clause (m) has been added at Regulation 2.3 (3).

3.4 Sub-regulation (6) of the Regulation 3.2 of the Draft Distribution Code Regulations.

The Draft Regulation states that:-

“3.2 Objectives

- (6) *The items mentioned at Regulation 3.2 (1) are discussed in the following paragraphs of this chapter.”*

Stakeholders Comments/Suggestions:- (UPCL)

That in sub regulation 3.2 (6), there appears to be a typographical error in mentioning Regulation 3.2 (1) in place of Regulation 3.1 (1).

Commission's View:-

The typographical error pointed out by UPCL is correct, the same has been corrected.

3.5 Sub-regulation (1) of the Regulation 3.5 of the Draft Distribution Code Regulations.

The Draft Regulation states that:-

- “3.5 Power System Studies and Network expansion Plan***

- (1) *Based on the projected load, the Distribution Licensee shall carry out the power system studies (load flow analysis) before undertaking major distribution expansion plan on long term time scale."*

Stakeholders Comments/Suggestions:- (PTCUL)

It is humbly submitted that the power system studies (load flow analysis) and Network expansion plan carried out by Distribution Licensee needs to be shared with STU on regular interval.

Commission's View:-

The comment of PTCUL is convincing as for coordinated power system studies for transmission and distribution system of the State, the exchange of information amongst the transmission & distribution licensee should be done on regular intervals. Therefore, the sub-regulation (1) of the Regulation 3.5 of draft Regulation has been replaced as:-

"3.5 Power System Studies and Network expansion Plan

- (1) Based on the projected load, the Distribution Licensee shall carry out the power system studies (load flow analysis) before undertaking major distribution expansion plan on long-term time scale. The distribution licensee shall share its findings of the power system studies with the State Transmission Utility on regular basis for better coordinated power system planning."

3.6 Sub-regulation (3) of the Regulation 3.6 of the Draft Distribution Code Regulations.

The Draft Regulation states that:-

"3.6 System Adequacy and Redundancy

- (3) *There shall be at least two numbers of transformers of similar rating in every 33/11 kV Sub-Station."*

Stakeholders Comments/Suggestions:- (UPCL)

That in regard to sub regulation 3.6 (3), it is requested that provision of at least two number of transformers of similar rating in every 33/11 kV substation should not be made mandatory considering the location/site constraints.

Commission's View:-

This particular provision has been introduced in the draft Distribution Code Regulations inline with the provisions made in the Regulation 48 (6) of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 which provides that: *"Each 33/11 kV or 33/22 kV or 22/11 kV sub-*

station shall normally have two or more transformers.” Further, the intent of placing two transformers of similar rating in every 33/11 kV S/s is to fulfil the conditions of T-1 contingency i.e. in an eventuality of failure of a transformer another transformer is available for taking care of the load requirements. Therefore, for ensuring the reliability of power supply for the consumers of the State and as per above mentioned provisions of CEA Regulations, no change in draft Regulation is required.

3.7 Sub-regulation (4) of the Regulation 3.6 of the Draft Distribution Code Regulations.

The Draft Regulation states that:-

“3.6 System Adequacy and Redundancy

(4) In every Sub-Station of capacity 10 MVA and above there shall be a provision for obtaining alternate 33 kV supply to the Sub-Station in case of a failure in the incoming supply.”

Stakeholders Comments/Suggestions: - (UPCL)

That in regard to sub regulation 3.6 (4), it is requested, that the provision should not be made mandatory for obtaining alternate 33 KV supply to the substation of capacity 10 MVA and above, considering the fact that there are some places/areas where second supply of 33 KV is not available and also it would be very difficult to bring the supply to the required point.

Commission’s View:-

This particular provision has been introduced in the draft Distribution Code Regulations inline with the provisions made in the Regulation 48 (6) of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 which provides that: “...Each 33/11 kV or 33/22 kV or 22/11 kV sub-station shall have at least two incoming feeders preferably from two different sources.” Further, the intent of providing alternate 33 kV supply in every sub-station of capacity 10 MVA and above is to take care of the conditions of N-1 contingency i.e. in an eventuality of failure of a one source, availability of alternate source can be ensured. The provision has been deliberately kept for 10 MVA and above capacity 33 kV S/s considering the geographical & field constraints. Hence, diluting the provision will result in setback to the creation of a robust electrical system for the consumers of the State. Accordingly, no change is required.

3.8 Sub-regulation (1) of the Regulation 3.9 of the Draft Distribution Code Regulations.

“3.9 Standardization of sub-station layouts

(1) 11 KV / 433 V – 3 Phase Distribution Transformer Centers.

(a) The Distribution transformers up to 250 KVA capacity other than those meant for indoor application shall normally be pole mounted.

(d) The distribution transformers above 250 KVA capacity shall be plinth mounted.”

Stakeholders Comments/Suggestions:- (UPCL)

That in regard to sub regulation 3.9 (1) (a) and (d), it is requested, that the provision should be made applicable to transformers upto 160 KVA capacity instead of 250 KVA , as the general practice in UPCL has been to install the transformers with capacity 250 KVA and above as plinth mounted considering the fact that natural terrain and weather conditions require the same for safety purpose as the transformer of 250 KVA carry huge weight and installing them over pole should be avoided.

Commission’s View:-

Based on the field experiences of the distribution licensee, the suggestion is appropriate therefore, the Regulation 3.9 (1) of the Draft Distribution Code Regulations has been revised as:-

“3.9 Standardization of sub-station layouts

(1) 11 KV / 433 V – 3 Phase Distribution Transformer Centers.

(a) The Distribution transformers up to 160 KVA capacity other than those meant for indoor application shall normally be pole mounted.

...

(d) The distribution transformers above 160 KVA capacity shall be plinth mounted.”

3.9 Sub-regulation (2) of the Regulation 3.9 of the Draft Distribution Code Regulations.

“3.9 Standardization of sub-station layouts

(2) All the 33 KV, and 11 KV feeders and secondary side of Distribution Transformers shall be provided with electronic energy meters having a memory of 15/30 minutes load survey & billing parameters for 65 days with a provision of RS-232 Port to download data from the electronic energy meters.”

Stakeholders Comments/Suggestions:- (UPCL)

That in regard to sub regulation 3.9 (2), it is requested that the provisions regarding mandatory metering of 33 KV and 11 KV feeders may be kept so however the provisions regarding metering of secondary side of distribution transformers shall be restricted only to the Town areas where the same have already been installed under

R-APDRP scheme. It is therefore requested to kindly not to consider the said provision for Rural areas as the same will not only demand to incur the hefty amount but also does not serve any great advantage considering that the calculation of feeder losses in these areas will serve the same purpose.

Commission's View:-

The Commission from time to time through its directions issued in tariff orders has been directing the distribution licensee to provide/maintain the metering system at each feeder, 'T' points, DTs and consumers in its distribution network for effective energy auditing and accounting. In this regard, it is observed that the DT metering is essential for energy auditing and accounting which is in very interest of the distribution licensee for controlling the AT&C losses in the distribution system. Moreover, the need of the hour is to focus on the pockets where theft/pilferage of electricity is taking place resulting in increased technical & commercial losses. Thus, it is important to do metering at DT level also. However, considering the request of the distribution licensee the timelines for completion of DT metering for Urban areas has been set as 1 year and for Rural areas has been set as 2 years.

Following proviso has been added in the regulation 3.9 (2) of the draft Distribution Code Regulations:-

"3.9

(2) All the 33 KV, and 11 KV feeders and secondary side of Distribution Transformers shall be provided with electronic energy meters having a memory of 15/30 minutes load survey & billing parameters for 65 days with a provision of RS-232 Port to download data from the electronic energy meters.

Provided that electronic energy meters on all the secondary sides of Distribution Transformers shall be provided in Urban areas within 1 year and in Rural areas within 2 years from the date of notification of these Regulations."

3.10 Sub-regulation (1) of the Regulation 3.10 of the Draft Distribution Code Regulations.

"3.10 Standardisation of design of distribution transformers

(1) The size / capacity of distribution transformers shall be as per the relevant Bureau of Indian Standards. While selecting the transformer, due regard should be given to the star ratings issued by the BEE depending upon the field conditions. As an initial step, the various technical parameters required for the design shall be incorporated in the specifications based on the experience gained regarding the

performance among the various designs so far adopted. Later, standard designs of the transformers and their detailed construction drawings shall be evolved based on the performance of these transformers. These shall be adopted for future procurement. This also ensures the interchangeability of components of similar transformers manufactured by different manufacturers."

Stakeholders Comments/Suggestions:- (UPCL)

That in regard to sub regulation 3.10 (1) wherein it has been provided to evolve and adopt for future use the standard designs and detailed construction drawings of the transformers of various ratings, it is to inform that UPCL procures transformers under the losses defined as per BIS and mandates the manufacturer to submit the Type Test report of not more than five years old and the manufacturer needs to supply the transformer of the same drawing as that of the transformer type tested which is then incorporated as the qualifying criterion to participate in the tender. Having a particular design criterion will require the manufacturers to get the type test done for that particular design so as to enable them to participate in the tender and if every utility will require a particular design then the manufacturer will have to get type test done for all such designs, it is pertinent to mention here that type test is a costly affair therefore it will have huge financial implication upon the manufacturers which he may be reluctant to incur as there is always an uncertainty in obtaining the contract even otherwise the manufacturer will certainly burden the cost on the cost of the transformer hence ultimate effect would only be to make the deal more expensive, less competitive and without much benefit. Further, in the transformers there are few parts which can be used interchangeably, hence it is requested that this provision be kindly dropped from the Regulation.

Commission's View:-

The distribution licensee has not interpreted the provisions of the draft regulations correctly as the same talks about evolution of the standard design for the transformers as per the experience gained by it and also mentions regarding interchangeability of components of similar transformers manufactured by different manufacturers. Moreover, the intent of the draft Regulation is to make the procurement of transformers licensee friendly by giving due consideration to the actual field requirements as well as availability of superior quality transformers for a robust & reliable distribution system of licensee. Therefore, no change is required.

3.11 Sub-regulation (3) (c) of the Regulation 3.10 of the Draft Distribution Code Regulations.

“3.10 Standardisation of design of distribution transformers

(3) *Manufacturing Quality Plan*

(c) *A good Quality Assurance Plan (QAP) shall be aimed at the following:*

(v) *Test on one transformer in a lot selected at random. The transformer should be completely dismantled. The quality of core, coil, insulation etc., physically inspected and samples of insulation and other components etc., used shall be tested and the whole lot rejected, if the sample transformer does not comply with any of the provisions of specifications.”*

Stakeholders Comments/Suggestions:- (UPCL)

That in regard to sub regulation 3.10 (3)(c)(v) wherein it has been provided that one transformer in a lot be selected at random and the same should be completely dismantled for quality inspection of core, coil, insulation etc., it is to point out that no maximum rating is mentioned in the Regulation and transformers beyond certain capacity are hard to dismantle at UPCL works and moreover it needs attention that power transformers are quite costly. Further, UPCL likes to apprise Hon'ble Commission that all the transformers procured are doubly inspected i.e. not only the final inspection is done the same are inspected at stage level to check the quality of material and to verify the physical parameters of material used in it, in light of which it appears that the present provision will only add up to cost and not serve any useful purpose, the emphasis of Hon'ble Commission upon testing the quality can be ensured by proposing certain additional criteria in the already existing mechanism, hence it is requested that this provision be kindly either dropped from the Regulation or may be suitably modified.

Commission's View:-

It has been observed that the rate of failure of distribution transformers in UPCL's network for FY 2016-17 was 8.14% which is on a higher side and the Commission has directed UPCL to reduce the same to 5% level. The same can be implemented with the regular periodic maintenance and stringent quality norms for equipment procurement. Hence, it is in the interest of distribution licensee to have stringent quality norms so that the transformer damage rate can be reduced. However, as submitted by the distribution licensee that final inspection alongwith stage level inspection is carried out by it for transformers, the provision as mentioned at Regulation 3.10 (3) (v) has been deleted as suggested by distribution licensee.

3.12 Sub-Regulation 3.11 of the Draft Distribution Code Regulations.

“3.11 Basic Insulation Level (BIL) and Basic Switching Insulation Level (BSL):

(1) *All the equipment in the Sub-Stations shall be designed to withstand the BIL/BSL values:*

<i>Parameter</i>	<i>33kV</i>	<i>11 kV</i>	<i>0.415 kV</i>
<i>Nominal System Voltage (kV)</i>	33	11	0.415
<i>Highest System Voltage (kV)</i>	36	12	0.450
<i>System Earthing</i>	<i>Solidly earthed system</i>	<i>Solidly earthed system</i>	<i>Solidly earthed system</i>
<i>Lightning Impulse withstand Voltage (KV Peak) (BIL)</i>	170	75	-----
<i>Power Frequency withstand Voltage (KV rms) in dry condition (BSL)</i>	90	28	3

- (2) *The Basic Insulation Level (BIL)/Basic Switching Impulse Insulation Level (BSL) of the equipment to be installed in the distribution system shall be adequate to withstand the lightning/switching surges respectively. Lightning Arresters shall be provided for all the Transformers (33/11 kV and distribution Transformers 11/0.4 KV) and 33 kV and 11 kV lines. The lightning protection system to other equipment in the Sub-Station by shield wires or lightning masts shall be provided.*
- (3) *Besides the voltage levels mentioned above the Commission may specify other voltage levels to be a part of the Distribution System under extraordinary conditions.”*

Stakeholders Comments/Suggestions:- (UPCL)

That in regard to sub regulation 3.11, it is requested that BIL and BSL values given may kindly be verified with prevalent Regulations of CEA or relevant authority as it appears that these values are altitude dependent and Uttarakhand having its unique topography comprising of both hilly and plain areas has vast variations in altitudes.

Commission’s View:-

As commented by UPCL regarding the BIL and BSL values, it has been observed that CEA (Technical Standards for Construction of Electric Plants and Electric Lines) Regulations, 2010 specifies that for altitudes higher than 1000 m above MSL, BIL/BSL requirements shall be kept higher as per relevant standards and practices. Hence, as suggested by UPCL, following note has been added after table at Regulation 3.11:-

<i>Parameter</i>	<i>33kV</i>	<i>11 kV</i>	<i>0.415 kV</i>
<i>Nominal System Voltage (kV)</i>	33	11	0.415

Parameter	33kV	11 kV	0.415 kV
Highest System Voltage (kV)	36	12	0.450
System Earthing	Solidly earthed system	Solidly earthed system	Solidly earthed system
Lightning Impulse withstand Voltage (KV Peak) (BIL)	170	75	-----
Power Frequency withstand Voltage (KV rms) in dry condition (BSL)	75	28	3

Note:- The values of BIL/BSL given in the table above are for altitude upto 1000 m above MSL. However, for altitudes higher than 1000 m above MSL, BIL/BSL requirements shall be kept higher as per relevant standards and practices.

3.13 Sub Regulation (7) of Regulation 3.12 of the Draft Distribution Code Regulations

“3.12 Reactive compensation and Harmonics

...

- (7) *The measurement of harmonics and analysis should generally be in accordance with IEEE 519 guidelines or the regulations specified by the CEA.”*

Stakeholders Comments/Suggestions:- (IAU)

In the Draft Regulations mostly IEEE version has been referred to which are more widely adopted in the US region. However, BIS is considering changes to IS12360-1998 based on IEC Standards. India being a signatory to WTO, it may be advisable to look into the IEC standards also.

In the Draft Regulations we have talked of IEEE 519-1992 standards only where as we should look at IEEE 519-1992 & 2014 also.

Measurement and monitoring of harmonics is a largely ignored area. Therefore, specific provisions need to be created by the Regulators to limit harmonics injection by consumers and utilities.

On detailed study of Draft Regulations, we find that more clarity in monitoring and implementation Methodology for voltage and harmonics is required.

Commission’s View:-

Since, Regulations on Technical Standards for Connectivity to the Grid are being framed by CEA which is the apex body for specifying the Technical requirements in the Country for the Power Sector and the aforesaid Regulations refers to IEEE Standards w.r.t. harmonics, therefore, inline with the CEA Regulations for framing

these Regulations, IEEE Standards have been referred in the draft Regulations. As and when the CEA revises the same, the UERC (Distribution Code) Regulations may be amended accordingly. Therefore, no change is required.

3.14 Regulation 3.16 of the Draft Distribution Code Regulations

“3.16 Energy Audit

- (1) *The Distribution Licensee shall create responsibility centres for energy audit. Distribution sub-Division and Division in charge shall be made as responsibility centres and accountable for the energy input and sales in their respective areas. They shall also compute month / year wise distribution losses and prepare energy balance sheets of their respective areas.*
- (2) *The Distribution Licensee shall establish and maintain a system for segregation of technical and commercial losses through energy audits. Interface meters capable of data retaining capacity of at least 65 days shall be installed for all the incoming/outgoing feeders for each such unit.*
- (3) *The energy audit for total system shall be carried out by compiling the data and analysis carried out in each responsibility centre. The energy received from each substation shall be measured at the 11 kV / 33kV terminal switchgear of all the outgoing feeders installed with appropriate energy meters such that the energy supplied to the each feeder is accurately available. It shall be compared with the corresponding figures of monthly energy sales and the distribution loss for each feeder shall be worked out. In case the Distribution Licensee has adopted ring main system at 11 kV and 33 kV and there is difficulty in determining the distribution losses for each feeder, then the Distribution Licensee shall work out distribution losses for the overall Area of Supply.*
- (4) *An action plan for reduction of the losses with adequate investments and suitable improvements in governance should be drawn up and shall be submitted to the Commission annually along with Annual Revenue Requirement Filing. “*

Stakeholders Comments/Suggestions:- (IAU/Sh. Diwas Joshi)

In the Regulation we have discussed Energy Audit but it is also important to discuss technical Audit so as to provide sustained quality and reliable power.

Technical audit to be made in provision in addition to energy Audit and mandatory Energy Audit for contract demand of 200 kVA and above as done in Gujarat.

Commission's View:-

The suggestion of the stakeholders is appropriate and therefore, following has been added as sub-Regulation 4 of the Regulation 5.15 under the heading 'Preventive Maintenance Schedule and Technical Audit':-

- "4. In addition to the preventive maintenance, the Distribution Licensee shall also be required to conduct Technical Audit of atleast one 33/11 kV S/s in each Electricity Distribution Circle (EDC) in a Financial Year. The Technical Audit shall be conducted through competent Independent Agency(ies) appointed by the Distribution Licensee from time to time for verifying proper functioning of the Distribution Protection System & adequacy check of various elements/assets installed at 33/11 kV S/s and its outgoing feeders upto the secondary side of Distribution Transformers (DTs) as per Schedule given below.

Schedule of Activities for Technical Audit

Description of Activities	Financial Year wise Schedule	Responsibility
Preparation of Terms of Reference (ToR) for conducting Annual Technical Audit and Publication of Notice Inviting Tender for conducting Technical Audit of the identified 33/11 kV Substations under the Distribution Code Regulations	By 30 th day of April	Distribution Licensee
Selection of Technical Auditor(s) and issuance of Work Order(s)	By 30 th day of June	Distribution Licensee
Submission of Report(s) including Action Points by the Technical Auditor(s) to Distribution Licensee.	By 30 th day of September	Technical Auditor(s)
Action Taken report(s) of Distribution Licensee on the recommendations made by the Technical Auditor(s) to be submitted before the Commission every year.	By 31 st day of March	Distribution Licensee

"

3.15 Sub-regulation (3) of the Regulation 4.3 of the Draft Distribution Code Regulations.

4.3 Interface Point

- (3) *EHT/HT Consumers: The supply voltage may be 220kV/ 132kV/ 66kV/33kV/ 11 kV or voltage as agreed by the Distribution Licensee. In respect of the substation/switchyard owned by the Users, the boundary shall be the Distribution Licensee's cut off point/isolators in the said substation/switchyard. When any*

EHT/HT consumer is fed from a dedicated feeder the boundary point shall be the line isolator at the Sub-Station of the Distribution Licensee."

Stakeholders Comments/Suggestions:- (PTCUL)

It is humbly submitted that boundary point is to be defined, as there is no definition of boundary point in Draft Regulation & CEA Regulation also. It is also submitted that mentioning of Distribution Licensee in this line "When any EHT/HT consumer is fed from a dedicated feeder the boundary point shall be the line isolator at the Sub-Station of the Distribution Licensee." seems to be contradictory as EHT voltage remains at Transmission Level also.

Commission's View:-

As far as the word 'Boundary Point' is concerned, the revision has already been done as mentioned at point No. 3.2 above wherein the word boundary point, connection point have been included in the definition of 'Interface Point'.

With regard to the PTCUL's comment that "...mentioning of Distribution Licensee in this line "When any EHT/HT consumer is fed from a dedicated feeder the boundary point shall be the line isolator at the Sub-Station of the Distribution Licensee." seems to be contradictory as EHT voltage remains at Transmission Level also". For bringing clarity in the aforesaid Regulation following revision at sub-Regulation 3 of Regulation 4.3 of Draft Distribution Code Regulations has been done:-

"4.3 Interface Point

- (3) EHT/HT Consumers: The supply voltage may be 220kV/132kV/66kV/33kV/11 kV or voltage as agreed by the Distribution Licensee. The interface point for the HT/EHT consumer shall be the Distribution Licensee's cut off point/isolator in the consumer's switchyard at consumer's end. However, in case EHT/HT consumer is being fed from a dedicated feeder emanating from Transmission/Distribution Licensee's substation, the interface point shall be the line isolator at the said Sub-Station of the Transmission/Distribution Licensee as the case may be."

3.16 Sub-Regulation 4.7 of the Draft Distribution Code Regulations.

"4.7 Connection Agreement

A Connection Agreement between User and the Distribution Licensee shall be executed both for sale and/or purchase including Independent Power Producer (IPP). For LT consumers, an undertaking is required to be furnished as per UERC (Release of new LT Connections, Enhancement & reduction of Loads) regulations, 2013 as amended from time to time."

Stakeholders Comments/Suggestions:- (PTCUL)

The cost for switchyard equipment and time limit for procurement and erection may kindly be looked into, to streamline with the process of Connectivity & subsequently Connection Agreement by Distribution Licensee.

Commission's View:-

Since the cost and time limit for procurement and erection of switchyard equipments is governed by UERC (Release of New HT & EHT Connections, Enhancement and Reduction of Loads) Regulations, 2008 amended from time to time. The same may be reviewed at the time of amendment of the aforesaid Regulations. Accordingly, no change is required.

3.17 Sub-regulation (b) of the Regulation 5.7 of the Draft Distribution Code Regulations.

“5.7 Interface with Generating Units including Captive Power Plant (CPP)

(b) If the generator is an induction generator, the owner shall take adequate precautions to limit the system disturbances, when the induction generator is synchronised in consent with the Distribution Licensee. Generating Company having induction generators shall install adequate capacitors to compensate the reactive power drawl. Also whenever the power factor is found very low during starting period and causes voltage dip in the Distribution Licensee's system the Distribution Licensee may advise the owner to install capacitors and the generating company shall comply. Failure to comply entails penalty and/or disconnection from the system as per provision of Act/Rules/Regulations.”

Stakeholders Comments/Suggestions:- (UPCL)

That in regard to sub regulation 5.7 (b), it is requested for kindly incorporating the provisions for installing the reactor also together with provisions for capacitor, if required, as in certain situations wherein the line length is long the voltage at the receiving end may increase and to curtail the same the reactors would be required to be installed.

Commission's View:-

It is observed that in draft regulation 5.7 (b), the reference is of induction generator which generally consumes reactive power from the grid for maintaining its operation in synchronism with the grid, hence, in this particular case question of reactor for absorbing the excessive reactive energy at the generator end would not be specifically required. Moreover, for that matter of fact AVR is provided at the generating station end for controlling the reactive power flow from/to the generators.

Furthermore, the installation of reactor is generally required at transmission substation where the line-length is very high and as the transmission sub-stations comes under the purview of State Grid Code wherein the provision for reactor has already been provided. Accordingly, no change is required.

3.18 Sub-Regulation 5.12 of the Draft Distribution Code Regulations.

“5.12 Mobile Breakdown Vans

The Distribution Licensee shall provide Mobile Breakdown Vans in towns and cities for attending line and transformer faults and consumers' complaints without any delay. The Mobile Breakdown Vans will be equipped with all necessary Tools such as cable jointing kits and consumable at all times on duty. The Breakdown Vans shall be fitted with wireless phone, telescoping ladder. All spares necessary for maintenance work shall be provided in such breakdown van and inventory of spares shall be replenished from time to time. ”

Stakeholders Comments/Suggestions:- (UPCL)

That in regard to sub regulation 5.12, it is requested that the provisions may kindly be not incorporated. It would be proper that some time may be given for deliberating upon the utility and constraints of the mobile breakdown vans in conjunction with the existing system of UPCL to ascertain the advantage of mobile breakdown vans. That the noble purpose for mobile breakdown vans seems to be efficient catering to the complaints which can be done in various other ways as well, hence emphasis upon the vans only may not turn out to be very useful and effective and hence provisions in this regard need not be kept.

Commission's View:-

The Commission had issued UERC (Standards of Performance) Regulations, 2007 in which guaranteed standards have been specified and in case of default by the distribution licensee it is required to compensate the consumer as per the Regulations. In this regard, the Commission through various submissions of distribution licensee i.e. SOP reports and Complaint Handling Procedure has observed that the situation of maintenance of distribution assets and its rectification within the time-frames specified in the aforesaid Regulations is not happening. Hence, considering the above, it is observed that the field staff of distribution licensee should be equipped with adequate equipments and infrastructure so that the time-lines specified in the SOP Regulations may be adhered. Accordingly, no change is required.

3.19 Sub-Regulation 5.15 of the Draft Distribution Code Regulations.

“5.15 Preventive Maintenance Schedules

- (1) *The Distribution Licensee shall prepare a Preventive Maintenance Schedule for various line and sub-station equipment installed in distribution system. The Preventive Maintenance Schedule shall include the following important equipment:*
 - (a) *Power Transformers and Distribution Transformers installed outdoor/indoor ;*
 - (b) *11 kV & 33 kV Circuit Breakers and associated equipments;*
 - (c) *11 kV & 33 kV Overhead lines including Gang Operated (G.O.) Switches & Drop Out Fuses;*
 - (d) *11 kV & 33 kV Cable & Cable Boxes;*
 - (e) *LT Lines & circuit breakers; and*
 - (f) *Equipments related to Service Connection.*
- (2) *The Preventive Maintenance Schedule shall have sections covering the following:*
 - (a) *Recommended Schedule for inspection;*
 - (b) *Recommended Schedule for preventive maintenance; and*
 - (c) *Recommended Schedule for overhaul.*
- (3) *The inspection schedule and preventive maintenance schedule shall have daily, weekly, monthly quarterly and annual periodic activity to be carried out for various equipments.”*

Stakeholders Comments/Suggestions:- (Diwas Joshi)

The stakeholder has acknowledged the provision 5.13 of UERC (Distribution Code) Regulations, 2007 (Regulation 5.15 of Draft Distribution Code Regulation) of preventive maintenance of the lines and equipments at sub-stations of the licensee and the provision 5.14 of UERC (Distribution Code) Regulations, 2007 (Regulation 5.16 of Draft Distribution Code Regulation) of maintaining the maintenance record, however, questions the monitoring of the licensee whether the above provisions are being complied by the licensee and suggested for provision of technical audit in the upcoming distribution code Regulations.

Commission’s View:-

The provisions for Technical Audit have been included, the same are mentioned at Point No. 3.14 above.

3.20 Sub-Regulation 5.19 of the Draft Distribution Code Regulations.

“5.19 Tools and Spares

- (1) *The Distribution Licensee shall ensure availability of proper tools and tackles at all work places for carrying out the maintenance. The tools and tackles shall be checked from time to time and their serviceability shall be ensured.*
- (2) *The Distribution Licensee shall maintain an inventory of spares required for maintenance and replacement purposes at suitable locations according to a clear policy to be laid down by the Distribution Licensee."*

Stakeholders Comments/Suggestions:- (IAU/Sh. Diwas Joshi)

The stakeholder has pointed out the issue of non availability of basic equipments namely megger, earth tester, tong tester etc with the licensee and suggested provision of the same in sub section 5.19 of draft distribution code Regulations.

Commission's View:-

The suggestion of the stakeholder is appropriate, therefore, sub-Regulation (1) of Regulation 5.19 of draft Distribution Code Regulation has been revised as:-

"5.19 Tools/Equipments and Spares

- (1) *The Distribution Licensee shall ensure availability of proper tools and tackles, Equipments viz. Megger, tong-tester, earth tester etc at all work places for carrying out the maintenance. The tools and tackles shall be checked from time to time and their serviceability shall be ensured."*

3.21 Sub-regulation (2) of the Regulation 6.7 of the Draft Distribution Code Regulations.

"6.7 Transformer Protection

- (2) *The transformers shall conform to the following specific parameters:*

Sl. No.	Item	11 kV Distribution Transformers	33 kV Distribution Transformers
1	<i>System voltage (max.)</i>	12kV	36kV
2	<i>Rated voltage HV</i>	11kV	33kV
3	<i>Rated voltage LV</i>	433 - 250 V*	433 - 250 V*
4	<i>Frequency</i>	50 Hz +/- 5%*	50 Hz +/- 5%
5	<i>No. of Phases</i>	Three	Three
6	<i>Connection HV</i>	Delta	Delta
7	<i>Connection LV</i>	Star (Neutral brought out)	Star (Neutral brought out)
8	<i>Vector group</i>	Dyn-11	Dyn-11
9	<i>Type of cooling</i>	ONAN	ONAN

"

Stakeholders Comments/Suggestions:- (UPCL)

That in regard to sub regulation 6.7 (2), it is requested that the specific parameters provided should be made more flexible so as to incorporate the single phase transformers and also the parameter regarding type of cooling be made more flexible as there is a possibility of cooling in the transformer may not be ONAN only like in Dry Type Transformers.

Commission's View:-

As commented by the distribution licensee, the Commission has decided to revise following in the table of draft Regulation 6.7 (2):-

<i>Sl. No.</i>	<i>Item</i>	<i>11 kV Distribution Transformers</i>	<i>33 kV Distribution Transformers</i>
1	<i>System voltage (max.)</i>	<i>12kV</i>	<i>36kV</i>
2	<i>Rated voltage HV</i>	<i>11kV</i>	<i>33kV</i>
3	<i>Rated voltage LV</i>	<i>433 - 250 V*</i>	<i>433 - 250 V*</i>
4	<i>Frequency</i>	<i>50 Hz +/- 5%*</i>	<i>50 Hz +/- 5%</i>
5	<i>No. of Phases</i>	<i>Three/Single</i>	<i>Three/Single</i>
6	<i>Connection HV</i>	<i>Delta</i>	<i>Delta</i>
7	<i>Connection LV</i>	<i>Star (Neutral brought out)</i>	<i>Star (Neutral brought out)</i>
8	<i>Vector group</i>	<i>Dyn-11</i>	<i>Dyn-11</i>
9	<i>Type of cooling</i>	<i>ONAN/Dry</i>	<i>ONAN/ONAF/Dry</i>

General Comments/Suggestions

Besides above, following General Comments/Suggestions have also been raised by the various Stakeholders:-

1. Industries Association of Uttarakhand (IAU) has raised following general Comments/Suggestions:-

- a) No Compensation on account of failure to maintain voltage imbalances and harmonics within prescribed limits is proposed.
- b) No Compensation on account of failure to maintain voltage variation within prescribed limits has been proposed.
- c) Consumer is liable to pay compensation at 15% of the respective tariff when it exceeds harmonics injections limits specified by CEA. However, the compensation is not levied with respect to the intensity of harmonics injected to the grid.
- d) DISCOMs need to monitor the voltage, frequency and power factor at peak and off peak hours and take reasonable measures for improvement of the same in co-ordination with users. No monitoring provision for other power quality parameters.
- e) Introducing penalties and disciplinary actions in regulations if utilities and consumers fail to comply with regulatory requirements. Introduction of incentive and penalty mechanism for consumers to maintain and comply with power quality norms.
- f) Increasing the existing penalty applicable for DISCOM for not complying with voltage and harmonics limit at the points of supply. Penalties should be such that it creates sufficient deterrent for the offenders of Regulations.
- g) Though there is provision for penalizing the utilities for not adhering to the voltage variation and harmonics limit, majority of the consumers are not using the provisions for following reasons.
 - Absence of awareness among end users;
 - Very low penalty or compensation by utilities to consumers;
 - Absence of measurement and monitoring system at user end to track deviations and abnormal events.

- h) Mandatory smart systems for network, which communicates the real time information and power quality deviations existing in upstream and downstream to all stakeholders.

Commission's View:-

With regard to the general comments suggestions raised by IAU as mentioned at point a), b), c), e), f) and g) above, it is observed that as far as compensation for imbalance in voltage and failure to maintain voltage variation within prescribed limit is concerned the same is dealt in UERC (Standards of Performance) Regulations, 2007. However, with regard to compensation on account of harmonics, as of now the same has not been included in UERC (Standards of Performance) Regulations, 2007 and the same may be included in upcoming amendments after detailed study.

With regard to the general comments suggestions raised by IAU as mentioned at point d) above, the Commission is of the view that the Standards with respect to supply voltage, frequency and power factor are already specified by the authority/Commission and minimum /maximum values of these parameters are also specified under various system conditions. Therefore, no change is required.

With regard to the above general comment at point h) above, it is observed that the meter and its communication systems are basically governed by CEA (Installation & Operation of Meters) Regulations, 2006 and amendments issued from time to time. Hence, with the amendments in the aforesaid Regulations the other linked Regulations/documents would also be amended. However, any technological up-gradation is always welcomed and made mandatory by the Commission based on ground realities/capability of the licensee for adapting the same. Accordingly, no change is required.

List of stakeholders who submitted comments on draft Regulations.

1. Uttarakhand Power Corporation Limited (UPCL)
2. Power Transmission Corporation of Uttarakhand Limited (PTCUL).
3. Sh. Pankaj Gupta, President Industries Association of Uttarakhand (IAU).
4. Sh. Diwas Joshi, consumer of UPCL.

List of participants who attended the Public Hearing.

1. Sh. S.K. Tamta, C.E. (Commercial) Level-1, UPCL.
2. Sh. Gaurav Sharma, E.E (RM), UPCL
3. Sh. Anurag Sharma, Advocate, UPCL
4. Sh. S.P. Arya, S.E (C&R), PTCUL
5. Sh. Manoj Kumar, E.E (C&R), PTCUL
6. Sh. Rajiv Agarwal, Sr. Vice President, Industries Association of Uttarakhand.
7. Sh. Diwas Joshi, consumer of UPCL.
8. Sh. Khursheed Ahmed Siddique, 37, Preeti Enclave, Majra, Dehradun.