UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

'Vidyut Niyamak Bhawan', Near I.S.B.T., P.O.-Majra, Dehradun-248171

Uttarakhand Electricity Regulatory Commission (State Grid Code) Regulations, 2016

Statement of Objects and Reasons (SOR)

Clause (h) of sub-section (1) of section 86 of the Electricity Act, 2003 assigns the function of specifying State Grid Code to the State Regulatory Commission in consistent with the Grid Code specified under clause (h) of sub-section (1) of section 79 i.e. consistent with the Grid Code specified by the Central Commission.

Accordingly, consistent to the CERC (Indian Electricity Grid Code) Regulations, 2006 (hereinafter referred as IEGC, 2006), Uttarakhand Electricity Regulatory Commission notified UERC (State Grid Code) Regulations, 2007 and the same came into force from 28.04.2007.

Meanwhile, repealing the IEGC, 2006, the Central Commission notified CERC (Indian Electricity Grid Code) Regulations, 2010 (hereinafter referred as IEGC, 2010) which came into force from 03.05.2010. Thereafter, 04 amendments have been made in the IEGC 2010.

Since the Act provides that the State Grid Code should be consistent with the Grid Code specified by Central Commission, therefore, in line with the same, the Commission issued Draft UERC (State Grid Code) Regulations, 2016 and invited comments/objections/suggestions on the same from the stakeholders. Last date of submission of comments/objections/suggestions was 31.08.2016 which was further extended to 31.09.2016.

The Commission also held a public hearing on 04.10.2016 to facilitate oral submission of the stakeholders and other interested persons. The comments/objections/ suggestions of the stakeholders have also been analysed and considered. List of stakeholders who submitted comments on draft Regulations is annexed as Annexure-I and List of participants who attended the hearing is annexed as Annexure-II.

2 The Statement of objects and Reasons is being issued with the intent of explaining the rationale which went into finalisation of UERC (State Grid Code) Regulations, 2016

[SGC Regulations]. The 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 Incorporation of Definitions

PTCUL/SLDC has proposed to incorporate following definitions:-

(i) **Backing Down**: SLDC instructions or NRLDC instructions conveyed through SLDC for reduction of generation from Generating Unit under abnormal conditions such as high frequency, low system demand or network constraints.

Commission's view:

The Commission is of the view that since the phrase 'Backing Down' is a general term hence incorporation of the same is not required.

(ii) **Captive Power Plant (CPP):** For the purpose of State Grid Code, the Power Station that is captive power plant as defined in Electricity Act, 2003, which meets the criteria laid out in Section 3 of the Electricity Rules, 2005 (framed under Section 176 of the Act).

Commission's view:

In SGC Regulations, 2016, Captive Generating Plant term has been used at various places. Further it is observed that Captive Generating Plant or Captive Power Plant is similar terminologies and since the definition of Captive Generating Plant already exists in the Electricity Act, 2003, therefore, no reiteration is required.

(iii) **CEA Grid Standards**: Central Electricity Authority (Grid Standards) Regulations, 2010, as amended from time to time.

Commission's view:

(a) In Draft SGC Regulations, 2016, at clause (mm) of sub-regulation (4) of Regulation 1, the term "Grid Standards" has been defined as-

"Grid Standards" means the standards specified by the CEA under clause (d) of the Section 73 of the Act;

Both the statements of the above definitions converge to the same point and covers the same aspect, however, for more clarity, following changes have been made in the definition of the term "Grid Standards":-

*"**Grid Standards**" means the Central Electricity Authority (Grid Standards) Regulations, 2010 as amended from time to time."*

(iv) **CEA Meter Regulations**: Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, as amended from time to time.

Commission's view:

This term has not been used in SGC Regulations, 2016, instead CEA (Installation and Operation of Meters) Regulations, 2006 amended from time to time has been used. Accordingly, incorporation of the same is not required.

(v) **Central Generating Station**: The generating stations owned by the companies owned or controlled by the Central Government.

Commission's view:

Since the term is used at Regulation 6.4 (2) (a) in SGC Regulations 2016, therefore, as proposed, the Commission decides to include the definition of "**Central Generating Station**" at appropriate place in the Regulations as follows:

*"**Central Generating Station**" The generating stations owned by the companies owned or controlled by the Central Government."*

(vi) **Central Transmission Utility (CTU**): The utility notified by the Government of India under subsection (1) of Section 38 of the Act.

Commission's view:

The Definition of the term has already been included at Regulation 1(l) of the SGC Regulations. .Which is in line with CERC Indian Electricity Grid Code Regulations, 2010 & amendments from time to time. Moreover, the same is also defined in the Electricity Act, 2003. Accordingly, no change is required.

(vii) **Connection Conditions**: The technical conditions to be complied with by any User having a Connection to the State Transmission System as laid down in Section 4 "Connection Conditions" of the State Grid Code.

Commission's view:

No specific definition of Connection Conditions is required as this is a general term. Moreover, in CERC Indian Electricity Grid Code Regulations, 2010, no specific definition is included. Therefore, proposed definition is not included.

(viii) **Distribution System**: The system of wires and associated facilities between the delivery points on the transmission lines or the generating station connection and the point of connection to the installation of the consumers.

Commission's view:

Since this term is already defined in section 2(19) of the Electricity Act, 2003, therefore, no reiteration is required.

(ix) **External Interconnection**: Electric lines and electrical equipment used for the transmission of electricity between the State Transmission System and the Regional Transmission System and other states' systems.

Commission's view:

This is general terminology; hence, incorporation is not required.

(x) **Generator**: A person or agency who generates electricity and who is subjected to State Grid Code either pursuant to any agreement with STU or otherwise and include SGS and ISGS.

Commission's view:

The term "Generator" proposed is synonymous to the Generating Company which has been covered at S. No. (ii) of Definitions, accordingly, no reiteration is required.

(xi) **Grid Contingencies:** Abnormal operating conditions brought out by tripping of Generating Units, Transmission lines, Transformers or abrupt load changes or by a combination of the above leading to abnormal voltage and/or frequency excursions and/or overloading of network equipment.

Commission's view:

The term 'Grid Contingencies' cannot be limited to the proposed definition, hence, it would be appropriate not to limit the comprehension of the term by defining it. Moreover, the same is also not covered in CERC Indian Electricity Grid Code Regulations, 2010, accordingly, proposed definition not included. .

(xii) **Grid Disturbance**: Grid Disturbance is the situation where disintegration and collapse of grid either in part or full take place in an unplanned and abrupt manner, affecting the power supply in a large area of the region.

Commission's view:

Since the term is used at various places in the SGC Regulations and the term is also defined in the CEA (Grid Standards) Regulations,2010, therefore, instead of proposed definition, the definition of the term Grid Disturbance has been included as it is in the CEA (Grid Standards) Regulations, 2010.

(xiii) **Planned Outage**: An Outage in relation to a SGS unit for Power Station Equipment or Transmission facility which has been planned and agreed with SLDC, in advance in respect of the year in which it is to be taken.

Commission's view:

Since the term 'Planned Outage' has been used at various places in the Regulations, therefore, the Commission decided to include the definition of the same as Follows:-

"***Planned Outage****: An Outage in relation to an IaSGS unit for Power Station Equipment or Transmission facility which has been planned and agreed with SLDC, in advance in respect of the year in which it is to be taken."*

(xiv) **Protocol**: Protocol is the software implemented to exchange the information with external device or equipment through interfacing communication port.

Commission's view:

The term 'Protocol' has not been used anywhere in the SGC Regulations, 2016, accordingly, not required to be included.

(xv) **Remote Transmitting Unit (RTU)**: RTU means a unit for data transmission in digital and sequential mode i.e. to transmit low level analogue / digital signals from transducers, switches, relays etc. connected to it and to transmit received signal to devices connected to it.

Commission's view: -

The term RTU is a general technical term and needs no specific definition to be included in the Regulation. Further, it is observed that a RTU is basically a 'Remote Terminal Unit' capable of transmitting & receiving data and therefore, definition of RTU cannot be limited to Remote Transmitting Unit. Accordingly, not required to be included.

3.2 The sub-regulation 4 of the Regulation 3.5 of the Draft SGC Regulations :-

"(4) The One time data (includes data required for modelling of existing electrical power system) shall be submitted within six (6) months from the date of notification of these Regulations by all the Users to STU. The data other than this one time data i.e. any augmentation/modification in the existing system shall be made available to STU on or before 1st of May & 1st of November every year."

Stakeholders Comments/Suggestions

UPCL has requested to specify the detail of required one time data which is to be submitted to STU by the Distribution Licensee.

***Commission's* view:**

The data to be furnished by the Distribution Company to STU has been mentioned at Part-II-Distribution of Annexure-3. However, as per above suggestion and for bringing more clarity the same has been revised as follows:-

"(4)The One time data (in the format prescribed at Part-II-Distribution of Annexure-3) shall be submitted within six (6) months from the date of notification of these Regulations by all the Users to STU. The data other than this one time data i.e. any augmentation/modification in the existing system shall be made available to STU on or before 1st of May & 1st of November every year.

3.3 Sub- regulation (2) of Regulation 4.6 : of the Draft SGC Regulations:

"(2) Application for establishing new arrangement or modifying existing arrangement of connection to and/or use of the IaSTS shall be submitted by the concerned Transmission Licensee or User (Generator) to the State Transmission Utility. In case of consumer connected to IaSTS/ distribution licensee network the application shall be submitted to the Distribution licensee who inturn shall coordinate with the STU in accordance with UERC (Release of new HT & EHT Connections, Enhancement and Reduction of Loads) Regulations, 2008 amended from time to time.

Provided that for Generating Units embedded in the Distribution systems, and not connected to the IaSTS, shall be finalized by the respective Distribution Licensees.

Provided further, that the standard format for application shall be developed by State Transmission Utility and shall be made available at its website within two (2) months of notification of these Regulations."

Stakeholders Comments/Suggestions

UPCL has submitted that the Generating Units embedded in the Distribution systems is already taken up by the Distribution Licensee. Moreover it is not categorically mentioned anywhere in Regulation that when two or more generators opt to have common evacuation system then the cumulative capacity in MW should also be evacuated as per the clause of 15 (1) (b) of RE Regulation 2013.

Commission's view:

For bringing more clarity in said Regulation, the Commission hereby modifies the same, which shall now be read as follows:*"(2) Application for establishing new arrangement or modifying existing arrangement of connection to and/or use of the IaSTS shall be submitted by the concerned Transmission Licensee or User to the State Transmission Utility. In case of consumer connecting/connected to IaSTS/ distribution licensee network the application shall be submitted to the Distribution licensee who in turn shall coordinate with the STU in accordance with UERC (Release of new HT & EHT Connections, Enhancement and Reduction of Loads) Regulations, 2008 amended from time to time.*

Provided that for Generating Units embedded in the Distribution systems, and not connected to the IaSTS, shall be finalized by the respective Distribution Licensees in accordance with applicable Regulation of UERC Tariff and Other Terms for Supply

of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2013 amended from time to time.

Provided further, that the standard format for application shall be developed by State Transmission Utility and shall be made available at its website within two (2) months of notification of these Regulations.

3.4 Sub-regulation (6) of Regulation 4.6 of the Draft SGC Regulations :

"(6) The State Transmission Utility shall, within Thirty (30) days, from the receipt of an application under sub-Regulation (2) of this Regulation and after considering all suggestions and comments received from the parties identified under sub-Regulation (4) of this Regulation:

(a) accept the application with such modification or such conditions as may be specified by the State Transmission Utility;

(b) Reject the application for reasons to be recorded in writing if such application is not in accordance with the provisions of these Regulations."

Stakeholders Comments/Suggestions

PTCUL has suggested that the above Regulation may be replaced as:

(a)

(i) STU shall make a formal offer within 60 days of the receipt of the application. The offer shall specify and take into account any works required for the extension or reinforcement of the State Transmission System necessitated by the applicant's proposal and for obtaining any consent necessary for the purpose.

(ii) If the specified time limit for making the offer against any application is not adequate, STU shall make a preliminary offer within the specified time indicating the extent of further time required for detailed analysis.

(iii) Any offer made by STU shall remain valid for a period of 60 days and unless accepted before the expiry of such period, shall lapse thereafter.

In the event of offer becoming invalid or not accepted by the applicant alternative offer or revised application can be furnished with processing fee and the procedure laid above will be followed.

(b) **Rejection of Application**

STU shall be entitled to reject any application for connection to or use of the State Transmission System due to the following reasons apart from others as considered reasonable:

(i) If such proposed connection is likely to cause breach of any provision of its Licence or any provision of the State Grid Code or any provision of IEGC or any criteria or covenants or deeds or regulations by which STU is bound;

(ii) If the applicant does not undertake to be bound, in so far as applicable, by the terms of the State Grid Code;

(iii) If the applicant fails to give confirmation and undertakings according to this section.

Commission's view:

The comment of PTCUL with regard to the acceptance of the application by the transmission utility is not maintainable as increasing the time period from 30 days to 60 days after receipt of application would not only be against the philosophy of promoting efficiency of an organization but also would result in harassment of the User due to delay in release of connection.

Further, as per provision in the Regulation, the conditions may be specified by the STU separately. Accordingly, the comments have not been accepted.

3.5 Sub-regulation 3 of Regulation 4.8: of the Draft SGC Regulations

"4.8.3 ***Protection:***

(1) Protection Systems shall be provided by all Transmission Licensees and Users connected to IaSTS in co-ordination with STU to isolate the faulty equipments and protect the other components against all types of faults, internal/ external to them, within specified fault clearance time as specified in sub-Regulation 4.8.2 of these Regulation.

Provided that all Users or Transmission Licensees connected to IaSTS shall provide protection systems as specified in the Connection Agreement.

(2) *Relay setting co-ordination shall be done by STU."*

Stakeholders Comments/Suggestions

PTCUL/SLDC has suggested that:

1) In addition to Regulation 4.8.3 sub-Regulation (2), following sub-Regulation may be incorporated in order to improve the protection system of the State Grid:

   STU shall investigate any malfunctioning of protection or other unsatisfactory protection issues. Users shall take prompt action to correct any protection malfunction or issue as discussed and agreed to in these periodical meetings. GCC shall decide the date from which the existing protection provided in STU and/ User systems not meeting the minimum requirement as stipulated in this code is required to be changed.

   If, it is felt by STU that user's protection system does not comply with the norms, user is bound to get his protection system checked/tested/ inspected by STU, and if required replaced by new ones after its inspection and testing, so that there is no adverse impact on state grid or STU's system.

   Instead of PLCC system, Optical fiber cable, V-sat or any other communication system can be used with the approval of PCC.

   Slower fault clearance times for faults on a User's system may be agreed to but only if, in STU's opinion, system conditions allow this. STU shall specify the required opening time and short circuit rating of the circuit breakers at various locations for STU/ transmission licensee and Distribution Licensees/Open Access Customers directly connected to Transmission System. At generating stations, line faults should be cleared at the generating station end within the critical clearing time so that the generators remain in synchronism.

***Commission's view*:-**

The suggestions made by SLDC & PTCUL are primarily for empowering the STU and elaborating the issues which should be part of the 'Connection Agreement' to be executed between the parties. Inclusion/addition of such

comments would narrow down the scope of the Regulation. Hence, no change is being made in the Regulations.

3.6 Sub-regulation 2 of Regulation 5.2 of the Draft SGC Regulations:

"*(2) No part of the State Grid shall be deliberately isolated from the rest of the State Grid, except (i) under an emergency and conditions in which such isolation would prevent a total grid collapse and/or would enable early restoration of power supply, (ii) for safety of human life (iii) when serious damage to a costly equipment is imminent and such isolation would prevent it and (iv) when such isolation is specifically instructed by SLDC. Complete synchronization of grid shall be restored as soon as the conditions again permit it. The restoration process shall be supervised by SLDC, in coordination with RLDC, as per operating procedures separately formulated by SLDC."*

Stakeholders Comments/Suggestions

On sub-regulation 2 of Regulation 5.2 of the draft Regulations, UJVN Ltd. has proposed an additional point for incorporation at (v) as *'(v) On account of emergency regulation of water from Dam/Barrage by competent authority'* after point no. (iv).

Commission's view:-

This issue is already covered under the provision (iv) of Regulation 5.2(2) of the Draft SGC Regulations, since SLDC is the authority within the State which takes decision in any emergent situation to protect the grid from such events. Hence, the proposed addition is not required.

3.7 Sub-regulation 6 of Regulation 5.2 of the Draft SGC Regulations:

"*(6) All thermal generating units of 200 MW and above and all hydro units of 10 MW and above (except those with upto 3 hours pondage), which are synchronized with the Grid, irrespective of their ownership, shall have their governors under restricted mode of operation at all times. The restricted governor mode of operation shall have the following features:*

(a) There should not be any reduction in generation in case of improvement in Grid frequency below 50.05 Hz (for example, if Grid frequency changes from 49.9 to 49.95 Hz, there shall not be any reduction in generation). Whereas for any fall in Grid frequency, generation from the unit should increase by 5% limited to 105 % of the MCR of the unit subject to machine capability

(b) *Ripple filter of+/- 0.03 Hz shall be provided so that small changes in frequency are ignored for load correction, in order to prevent governor hunting.*

Provided that if the above generating unit cannot be operated under restricted governor mode operation, then it shall be operated in free governor mode operation with manual intervention to operate in the manner required under restricted governor mode operation."

Stakeholders Comments/Suggestions

On sub-regulation 6 of Regulation 5.2 of the draft SGC Regulations, UJVN Ltd. has commented that presently power stations of UJVN Ltd. are not having governors capable of operation in Restricted Governor Mode. Moreover, several power stations are equipped with Hydro Mechanical Governors which are being operated manually. UJVN Ltd. Requested the Commission to relax the norms for operation till such time the governors are replaced with new ones.

Further, it is also to submit that Chibro and Khodri Power stations are operated in Tandem with restriction of only one meter level variation of collection gallery. In case of any variation of load in Chibro Power Station it becomes inevitable to change the load at Khodri Power Station also to maintain the collection gallery level. However, it has to be done manually and many a times, it takes around 30 minutes or even more to stabilize the collection gallery level. Therefore, it may not be possible to operate these two power stations in restricted mode until SCADA is implemented for Tandem Operation in both the Power Stations.

The Ramganga Power Station is operated as per the water requirement of UP irrigation Department. Fixed amount of water is released by UP Irrigation Department. Therefore, restricted governor mode operation is not possible.

Commission's view:-

UJVN Ltd. in its comment has shown limitations of its Power Stations namely Chibro, Khodri & Ramganga wherein the variation of load in upstream Power Station results in change in load in the downstream power station. In UERC (State Grid Code) Regulations, 2016 such limitations have

been addressed at proviso of sub-regulation (6) of Regulations 6.2 which gives liberty to the generator for operating its generating stations with manual intervention to bring them to be operated in the manner required under the restricted governor mode of operation. Hence, the norms of operation are not required to be relaxed.

3.8 Sub-regulation 10 of Regulation 5.2 of the Draft SGC Regulations:

"*(10) All thermal Generating Units of 200 MW and above and all hydro units of 10 MW and above, operating at or up to 100% of their Maximum Continuous Rating (MCR) shall normally be capable of (and shall not in any way be prevented from) instantaneously picking up to 105% and 110% of their MCR, respectively, when frequency falls suddenly. After an increase in generation as above, a Generating Unit may ramp back to the original level at a rate of about one percent (1%) per minute, in case continued operation at the increased level is not sustainable. Any Generating Unit not complying with the above requirements shall be kept in operation (synchronized with the State grid) only after obtaining the permission of SLDC. However, SLDC can make up the corresponding short fall in spinning reserve by maintaining an extra spinning reserve on the other Generating Units of the State.*"

Stakeholders Comments/Suggestions

On sub-regulation 10 of Regulation 5.2 of the Draft Regulations, UJVN Ltd. has commented that most of the Hydro Power Plants of UJVN Ltd are more than 30-35 years old and are not in condition to achieve picking up to 105% or 110% instantly. Moreover, for Run of the River Plants to pick up to 105% or 110% instantly is not possible due to non availability of water input.

Also, picking up to 105% or 110% not only depends on water discharge but also on reservoir/barrage as well as tail race level.

Normally, head decreases due to rise in tailrace level, so, it will not be feasible in those conditions also, when all the units of a power house are running & discharge is high.

***Commission's* view:-**

Although the comment of UJVN Ltd. has been taken care of in this Regulation as for non-complying Generating Units, there is a provision of obtaining permission from SLDC. However, to make the same more

forceful following has been inserted between the lines "*…after obtaining the permission of SLDC"* and "*However, SLDC can make up… of the State."* in the aforesaid Regulation:-

"and SLDC while giving such permission shall consider the type/age of plant, hydro condition, discharge availability etc."

3.9 Sub-regulation 10 of Regulation 5.2 of the Draft SGC Regulations:

"(13) All generating units shall normally have their automatic voltage regulators (AVRs) in operation, with appropriate settings. In particular, if a generating unit of thirty (30) MW and above size is required to be operated without its AVR in service, the SLDC shall be immediately intimated about the reason and duration, and its permission obtained. Power System Stabilizers (PSS) in AVRs of generating units (wherever provided), shall be got properly tuned by the respective generating unit owner as per a plan prepared for the purpose by the STU from time to time. STU will be allowed to carry out checking of PSS and further tuning it, wherever considered necessary."

Stakeholders Comments/Suggestions

On sub-regulation 13 of the Regulation 5.2 of the draft Regulations, UJVN Ltd. has commented that as most of the Hydro Power Stations of UJVN Ltd are old and in some of the power stations AVR are not properly functioning, till the time RMU of such power station is undertaken, relaxation may be allowed.

Commission's view:-

The comment, made by UJVN Ltd. with regard to the constraints of the old Hydro Power Stations, is already covered in the Regulations as there is a provision in the sub-regulation 10 of Regulation 6.2 of UERC (State Grid Code) Regulations, 2016, wherein for any deviation the generator may take permission of SLDC.

3.10 Sub-regulation 10 of Regulation 5.2 of the Draft SGC Regulations:

"(22) All State Constituents shall make all possible efforts to ensure that the grid voltage always remains within the following operating range:

VOLTAGE–(kV RMS)		
Nominal	**Maximum**	**Minimum**
765	800	728
400	420	380
220	245	198
132	145	122

Stakeholders Comments/Suggestions

On sub-regulation 22 of Regulation 5.2 of the Draft Regulations, PTCUL/SLDC has commented that:

The following system parameters are proposed to be incorporated in the UERC (State Grid Code) Regulations, 2016 operating code (chapter 5) and its Regulation 5.2.22 may be replaced as given below: -

System Parameters: Limits of Voltage Variation		
Nominal (kV)	**Maximum (kV)**	**Minimum (kV)**
765	800	728
400	420	380
220	245	198
132	145	122
66	72	60
33	36	30

Distribution Licensees and Open Access/EHV Consumers directly connected to STS shall ensure that their loads do not affect STU system in terms of causing any:

(i) Unbalance in the phase angle and magnitude of voltage at the interconnection point beyond the limits prescribed.

(ii) Individual and Total Harmonic Distortion (THD) of voltage shall not exceed the values specified in clause 3(2) of the CEA Grid Standards (reproduced below).

System Voltage (kV)	**Total Harmonic Distortion (THD)**	**Individual harmonic of any particular frequency**
765	1.5%	1.0%
400	2.0%	1.5%
220	2.5%	2.0%
33 to 132	5.0%	3.0%

SLDC may direct the Distribution Licensees and Open Access/EHV Consumers connected to STU System to take appropriate measures to bring the Harmonics within permissible limit.

In the event of Grid disturbances in the Northern Regional grid, STU shall not be liable to maintain the system parameters within the normal range of voltage and frequency.

Insulation Co-ordination of the User's equipment shall conform to values as specified by STU from time to time out of those applicable as per Indian Standards/Codes. Short circuit current of switchgear shall not be less than its magnitude and time specified by STU from time to time.

Commission's view:-

The suggestion of including nominal voltage of 66 kV & 33 kV has been considered as the values proposed are same as that provided in IEGC Regulations, 2010.

Voltage :- (kV RMS)		
Nominal (kV)	**Maximum (kV)**	**Minimum (kV)**
765	800	728
400	420	380
220	245	198
132	145	122
66	72	60
33	36	30

Since for grid stability and security, the provisions for Harmonic Distortion, unbalance in Phase Angle, insulation co-ordination and short circuit current of switchgear are vital, therefore, accepting the comments of SLDC and PTCUL the Commission decided to add following sub-regulations as sub-regulation 23 and 24 at Regulation 6.2 of UERC (State Grid Code) Regulations, 2016:

"*(23)* ***Distribution Licensees and Open Access/EHV Consumers directly connected to IaSTS shall ensure that their loads do not affect STU system in terms of causing any:***

(i) Unbalance in the phase angle and magnitude of voltage at the interconnection point beyond the limits prescribed.

(ii) Individual and Total Harmonic Distortion (THD) of voltage shall not exceed the values specified in clause 3(2) of the Grid Standards.

"*(24)* ***Insulation Co-ordination of the User's equipment shall conform to values as specified by STU from time to time out of those applicable as per Indian Standards/Codes. Short circuit current of switchgear shall not be less than its magnitude and time specified by STU from time to time.***

3.11 Regulation 6.1 of the Draft SGC Regulations:

"6.1 Introduction

This Chapter sets out the:

...

(4) Complementary commercial mechanisms (in the ***Annexure–1****), which shall be applicable w.e.f. such date as may be decided by Commission for introduction of Intra-State ABT."*

And Annexure-1 of Draft (State Grid Code) Regulations, 2016 states that:

"(1) The beneficiaries shall pay to the respective IaSGS Capacity Charges corresponding to plant availability and Energy Charges for the scheduled dispatch, as per the relevant notifications and orders of the Commission. The bills for these charges shall be issued by the respective IaSGS to each beneficiary on monthly basis."

Stakeholders Comments/Suggestions

On clause 4 (1) of Annexure-1 of Regulation 6.1, UJVN Ltd. has commented that:-

Annexure-I

According to Clause 50(4) of UERC Tariff Regulations 2015, the Energy and Capacity Charges are calculated on the basis of actual Energy Supplied to the Beneficiary. Whereas, as per Draft Grid Code 2016, Regulation 6.1(4) Annexure-I, the Energy and Capacity Charges are provisioned on the basis of dispatch schedule. This is inconsistent with UERC Tariff Regulations.

***Commission's view*: -**

Under no deviation conditions, the scheduled dispatch would be the actual dispatch. The '*scheduled dispatch*' as stated in clause 1 of the Annexure-1 is basically the actual generation under no deviation conditions. The billing by the IaSGS or payment to the IaSGS would be governed by the MYT Regulations and Tariff Orders as issued by the Commission from time to time. This has clearly mentioned in the clause 1 of aforesaid Annexure.

However, at clause 2 of the Annexure-1, it has clearly been stipulated that in case of any deviation in actual generation from the dispatched schedule, the concerned IaSGS shall receive or shall pay in accordance with the Deviation Settlement Mechanism Regulations.

The main objective for making such provisions in the Regulations is to encourage grid discipline and forcing the participants to improve procedures for forecasting & scheduling. Further, as and when the Intra-state ABT Mechanism and the Deviation Settlement Mechanism would be implemented in the State, the provisions as stated in Annexure-1: COMPLEMENTARY COMMERCIAL MECHANISMS would be Applicable w.e.f. such date as may be decided by the Commission. In the said mechanism, there would be provisions of incentive as well as disincentive depending upon the nature of deviations.

Moreover, this provision of UERC (State Grid Code) Regulations, 2016 is in line with the provisions of IEGC Regulations, 2010.

3.12 Sub-regulation 18 of Regulation 6.4 of the Draft SGC Regulations:

"(18) The quantum of penalty for the first mis-declaration for any duration/ block in a day shall be the charges corresponding to two days fixed charges. For the second mis-declaration the penalty shall be equivalent to fixed charges for four days and for subsequent mis-declarations, the penalty shall be multiplied in the geometrical progression over a period of a month."

Stakeholders Comments/Suggestions

UJVN Ltd. has commented that this clause is inconsistent with respect to Clause no 51(2) of UERC Tariff Regulations, 2015. In Regulation 51 (2) of UERC Tariff Regulations, 2015, the penalty is multiplied in the geometrical progression over a period of a day (as already clarified by the Hon'ble

UERC) whereas in Draft UERC (State Grid Code) the penalty is multiplied in the geometrical progression over a period of a month. This clause may be corrected as mentioned in UERC Tariff Regulations, 2015.

Further, UJVN Ltd is of the opinion that two different penalties/charges i.e. mis-declaration and deviation charges should not be imposed at the same time. Therefore, after implementation of DSM mechanism the provision of mis-declaration penalty should be removed from draft State Grid code Regulation, 2016 and UERC Tariff Regulations, 2015.

Commission's view:-

While reviewing the above comment of UJVN Ltd., the mentioned clarification issued earlier vide reference No. UERC/5/Tech/228/2014-15/2016 Dated 17.03.2015 w.r.t. the penal provision for mis-declaration i.e. penalty to be multiplied in geometrical progression over a period of Day or based on over a period of Month has also been reviewed. Considering the above penal clause necessary for effective grid discipline and to avoid deliberate violations, the Commission decided to finalise the aforesaid Regulation of UERC (State Grid Code) Regulation, 2016 consistent with the IEGC Regulations, 2010, therefore, no revision is required.

Further, with regard to the inconsistency of the above Regulation with MYT Regulations, accordingly, necessary amendment will be done in UERC Tariff Regulation, 2015 for the consistency in the Regulations.

Further, it is to clarify that 'mis-declaration' and 'deviation' are two different terms and should be referred appropriately. Hence, the comment of UJVN Ltd. is not maintainable.

3.13 Sub-regulation 3 & 4 of the Regulation 6.5: Scheduling and Despatch procedure

…

(3) By 10 AM every day, the IaSGS shall advise the SLDC, the station-wise ex-power plant MW and MWh capabilities foreseen for the next day, i.e., from 0000 hrs to 2400 hrs of the following day.

(4) *The above information of the foreseen capabilities of the IaSGS along with the entitlements of the State in various ISGS given by RLDC and the corresponding MW and MWh entitlements of each beneficiary, shall be compiled by the SLDC every day for the next day, and advised to all beneficiaries by 11 AM. The beneficiaries shall review it vis-à-vis their foreseen load pattern and their own generating capability including bilateral exchanges, if any, and advise the SLDC by 1 PM their drawal schedule for each of the IaSGS/ISGS in which they have shares, long term bilateral interchanges, approved short-term bilateral interchanges and composite request for day-ahead open access and scheduling of bilateral interchanges.*

Provided that a beneficiary's entitlements for plant-wise drawl/bilateral exchanges through the inter-State connections can be determined in lump sum by the SLDC if it is operationally convenient and feasible to do.

Stakeholders Comments/Suggestions

On Regulation 6.5 (3), UPCL has proposed that time specified for IaSGS/open access consumers should be changed to 8 AM instead of 10 AM, to facilitate the power purchase planning by distribution licensee.

On Regulation 6.5 (4), UPCL has proposed that the time by which the beneficiaries should be advised should be changed to 9 AM instead of 11 AM, so that the Distribution Licensee can prepare the power purchase planning after receiving all these data and subsequently the deficit/excess power can be sent to power exchange upto 11 AM.

***Commission's view*: -**

Time is the essence of the Scheduling as the impact of scheduling has an important role in power procurement planning in the State. Scheduling is interlinked with the flow of various information among the Users/States through Load Dispatch Centers connected to the Grid; therefore, these should be uniformly applicable to the Users and should be consistent to IEGC, 2010. Since, the proposal of UPCL with regard to Regulations 6.5 (3) & 6.5 (4) of the draft SGC Regulations, 2016 are not consistent with CERC (Indian Electricity Grid Code) Regulations, 2010. Accordingly, the proposal has not been considered.

3.14 Sub-regulation 20 of the Regulation 6.5: Scheduling and Despatch procedure

"…

(20) Revision of declared capability by the IaSGS having two part tariff with capacity charge and energy charge and requisition by beneficiary (ies) for the remaining period of the day shall also be permitted with advance notice. Revised schedules/declared capability in such cases shall become effective from the 4th time block, counting the time block in which the request for revision has been received in the SLDC to be the first one."

Stakeholders Comments/Suggestions

On Regulation 6.5 (20), UJVN Ltd. has suggested that in view of unpredictable river discharge and non-control of water discharge in some of the power stations of UJVN Ltd., it has requested that the revised schedules/declared capability should become effective from the 3rd time block in place of 4th time block (for Hydro Power Stations) .

Commission's view: -

The proposal of UJVN Ltd. is not consistent with CERC (Indian Electricity Grid Code) Regulations, 2010. Accordingly, the suggestion has not been considered.

3.15 Sub-regulation 21 of the Regulation 6.5: Scheduling and Despatch procedure

"…

(21) Notwithstanding anything contained in sub-Regulation (20) of this Regulation, in case of forced outages of a unit, for those stations who have a two part tariff based on capacity charge and energy charge for long term and medium term contracts, the SLDC shall revise the schedule on the basis of revised declared capability. The revised declared capability and the revised schedules shall become effective from the fourth time block, counting the time block in which the revision is advised by the IaSGS to be the first one."

Stakeholders Comments/Suggestions

On Regulation 6.5 (21), UJVN Ltd. has suggested that in case the SLDC changes the schedule sent by IaSGS then it will require the change of schedule of other downstream power station, e.g. Load Schedule of four downstream power stations of Chibro Power Station, namely, Khodri, Dhakrani, Dhalipur and Kulhal depends on load Schedule of Chibro Power

Station. Similar conditions are for MB-I and MB-II HEPs. UJVN Ltd. has requested that consideration should be made for change in schedule by SLDC for all downstream power stations also.

***Commission's view*: -**

The Regulation provides for revising the schedule on the basis of revised declared capability of the HEPs and the same is inconsistent with the IEGC Regulations, 2010 hence the relevant provision of Regulations needs no revision. Further, in accordance with the aforesaid Regulation, in case the projects located in the downstream of a generating plant gets affected due to shut down of upstream generating station, then SLDC may accordingly revise the generation schedule of downstream generating station considering the river discharge and minimum storage in the downstream barrages.

3.16 Regulation 6.6: Reactive Power and Voltage Control

"(1) Reactive power compensation should ideally be provided locally, by generating reactive power as close to the reactive power consumption as possible. The beneficiaries are, therefore, expected to provide local VAr compensation/generation such that they do not draw VArs from the EHV grid, particularly under low-voltage condition. However, considering the present limitations, this is not being insisted upon. Instead, to discourage VAr drawals by Beneficiaries, VAr exchanges with IaSTS shall be priced as follows:

(a) *The Beneficiary pays for VAr drawal when voltage at the metering point is below 97%.*

(b) *The Beneficiary gets paid for VAr return when voltage is below 97%*

(c) *The Beneficiary gets paid for VAr drawal when voltage is above 103%.*

(d) *The Beneficiary pays for VAr return when voltage is above 103%*

Provided that there shall be no charge/payment for VAr drawal/return by a Beneficiary on its own line emanating directly from an IaSGS."

Stakeholders Comments/Suggestions

On Regulation 6.6 (1), UJVN Ltd. has suggested that it has been observed that during low grid voltage conditions, it is not possible to generate scheduled load due to higher current levels which results into rise in temperature in generators and transformers. Therefore, under such circumstances, when grid voltage is below the minimum operating voltage

specified in UERC (State Grid Code) Regulations, 2016, no deviation charges should be applicable for deviation in scheduled load.

Commission's view:-

There is no provision of charges against deviations in case of Voltage, rather it is based on frequency linked pricing mechanism. Thus, the proposal of UJVN Ltd. is not consistent with Indian Electricity Grid Code Regulations, 2010. Accordingly, the suggestion has not been considered.

Additional Comments:

Stakeholders Comments/Suggestions

1. PTCUL/SLDC

PTCUL/SLDC has suggested following suggestions:-

"In lines with the practice followed at the central level and as already provisioned in State Grid Code of Punjab, the following committee is proposed and needs elaborated inclusion in Hon'ble UERC (State Grid Code) Regulations, 2016:-

State Operational Coordination Committee (SOCC):-

State Operation and coordination committee shall coordinate the implementation of operating code (chapter-5) and scheduling & despatch code (chapter-6) to ensure that respective generators and distribution licencee(s) using State transmission system discharge their obligations under the SGC.

State OCC shall comprise of chief engineer level members to be nominated by the GCC. Such nominated members shall be one each from the STU, State distribution licencee(s) and major IaGS and one representative member from Open Access Consumers (on rotational basis) : -

The SOCC shall meet every month and deliberate on all technical and operational aspects of Load dispatch and system operation and shall give their recommendations to the GCC. Preferably this meeting shall be held every month after publication of NRPC OCC Meeting agenda and before NRPC OCC Meeting date for the month. The meeting schedule shall be communicated by SLDC to all the members of State OCC.

The rules to be followed by the committee in conducting its business shall be formulated by the committee and shall be approved by the GCC.

The committee shall perform the following functions;

(i) Review the agenda point of NRPC/ OCC Meeting and finalise the information & issues for further submission to NRPC.

(ii) Review the reactive compensation in the State Transmission System.

(iii) Review the next month Anticipated demand & Availability;

(iv) Review and analyse the grid disturbances happened during previous month;

(v) Review and finalize the next month Outage Plan of State Transmission System;

(vi) Deliberate and prepare the Under Frequency Load Shedding Schemes and the mechanism to be adopted for the same for various sub-stations to ensure that the frequent tripping of same feeder is avoided;

(vii) Review the installation of Disturbance Recorders, Event Loggers in the State Transmission System;

(viii) Review & Study the implementation of free governing/ restricted governing system for all the generating stations.

(ix) Review & finalize the LGBR Reports

(x) Review the any other agenda points as finalized by SLDC on the basis of agenda points proposed by various state constituents.

Further, PTCUL/SLDC has suggested that in order to develop a smooth and standardized data reporting system for reliable compilation of data/information sought by various Central & State Authorities, agencies, Commissions, Committee's etc., the following Data Code is proposed to be incorporated in the Hon'ble UERC (State Grid Code) Regulations, 2016: -

CHAPTER NO. X - DATA CODE :

X.1 Introduction:

This section contains a list of all data required by STU and SLDC, which is to be provided by Users, and data required by Users to be provided by STU at times specified in the State Grid Code.

X.2 Objective

The objective of this section is to list out all the data required to be provided by Users to STU and /or SLDC and vice versa, in accordance with the provisions of the State Grid Code.

X.3 Responsibility

X.3.1 All Users are responsible for submitting up-to-date data to STU/ SLDC in accordance with the provisions of the State Grid Code.

X.3.2 All Users shall provide STU and SLDC with the name, address and telephone number of the person responsible for sending the data.

X.3.3 STU shall inform all Users and SLDC of the name, address and telephone number of the person responsible for receiving data.

X.3.4 STU shall provide up-to-date data to Users as provided in the relevant schedule of the State Grid Code.

X.3.5 Responsibility for the correctness of data rests with the concerned User providing the data.

X.4 Data Registration

X.4.1 The STU/SLDC shall develop the prescribed formats for submitting all relevant data by user and submit the same to the Commission for its approval within Ninety (90) days of notification of these Regulations.

X.4.2 Changes to Users Data:

Whenever any User becomes aware of a change to any items of data that is registered with STU, the User must promptly notify STU of the changes. STU on receipt of intimation of the changes shall promptly correct the database accordingly. This shall also apply to any data compiled by STU regarding its own system.

X.4.3 Methods of Submitting Data:

The data shall be furnished in the standard formats for data submission and such formats must be used for the written submission of data to SLDC/STU.

Where standard formats are not enclosed these would be developed by SLDC/STU in consultation with Users.

All data to be submitted under the Schedule(s) must be submitted to SLDC/STU or to such other department and/or entity as STU may from time to time notify to Users. The name of the Person who is submitting each schedule of data must be indicated.

Where a computer data link exists between a User and SLDC/ STU, data may be submitted via this link. The data shall be in the same Excel (.xls /.xlsx) format as specified for paper transmission. Electronic encoding shall be made accordingly.

Consultation with the SLDC/ STU and resolve issues such as Protocols, transmission speeds etc. at the time of transmission. Other modes of data transfer, such as compact disc, hard disc or magnetic tape may be utilized if SLDC/ STU give its prior written consent.

X.4.4 Data not supplied

Users are obliged to supply data as referred to in the individual sections of the State Grid Code and listed out in the Data Registration Section Appendices. In case any data is not supplied by any User or is not available, STU or SLDC may, acting reasonably, if and when necessary, estimate such data depending upon the urgency of the situation. Similarly, in case any data is not supplied by STU, the concerned User may, acting reasonably, if and when necessary, estimate such data depending upon urgency of the situation. Such estimates will in each case, be based upon corresponding data for similar plant or Apparatus or upon such other information, the User or STU or SLDC, as the case may be, deemed appropriate.

X.4.5 Special Considerations

STU and SLDC and any other User may at any time make reasonable request for extra data as necessary.

STU shall supply data, required/requested by SLDC for system operation, from data bank to SLDC.

Note: X- Chapter no. as allotted by Hon'ble UERC.

Commission's view:-

With regard to the proposal for inclusion of roles of State Operational Coordination Committee (SOCC) in the UERC (State Grid Code) Regulations, 2016, it is observed that the roles defined for State Operational Coordination Committee (SOCC) are actually encroaching the roles of SLDC, GCC & STU in one or the other way. Moreover, formation of too many Committees would unnecessarily increase the friction in working of different entities.

With regard to Data Code, in roles & functions of SLDC a new sub-Regulation has been added as:

"SLDC shall prepare document "Procedures for Data/Information exchange with

Constituents" and submit the same before the Commission for its approval within 3 months of the notification of Regulations."

Stakeholders Comments/Suggestions

2. UJVN Ltd.

UJVN Ltd. has commented that most of the Hydro Power Stations of UJVN Ltd. are more than 30-35 year old and due to old and obsolete technology in the control system and equipment, it is quite difficult to implement all the aforesaid Regulations.

Commission's view:-

Comment is general in nature. Such limitations/relaxations have already been covered in the UERC (State Grid Code) Regulations, 2016 at Regulations 6.2(6), 6.2(8), 6.2(10) & 6.2(13). Therefore, needs no further consideration.

Stakeholders Comments/Suggestions

3. UPCL

UPCL has commented that it has been observed, occasionally the hourly record kept at SLDC does not match with SEM Data as per which Over drawal/Under drawal billing is done due to such discrepancy at times it becomes difficult to manage the system Over drawal/Under drawal. UPCL suggested that, SLDC should try its level best to improve the hourly record keeping to reduce mismatch with SEM Data.IPP/State Generators' real time generation data may be provided to SLDC.

Commission's view:-

Since, the works with regard to implementation of Intra-state ABT are in progress in a time bound manner and with the implementation of Intra-state ABT, the issue raised by UPCL would be resolved. Therefore, needs no revision/alteration/amendments in draft Regulations.

Annexure-I

List of stakeholders who submitted comments on draft Regulations.

1. Power Transmission Corporation of Uttarakhand Limited (PTCUL).
2. State Load Dispatch Centre (SLDC).
3. Uttarakhand Power Corporation Limited (UPCL)
4. UJVN Ltd.

Annexure-II

List of participants who attended the Public Hearing.

1. Sh. M.A. Khan, Director (F), UPCL.
2. Sh. A.K. Singh, C.E, UPCL
3. Sh. Pravesh Kumar, E.E, UPCL
4. Sh. Muneer Alam, E.E, UPCL
5. Sh. Purushottam Singh, E.D (O&M), UJVNL
6. Sh. Ambrish Sharma, E.E (Comml.), UJVNL
7. Sh. Kamal Kant, C.E (C&R), PTCUL.
8. Sh. S.P. Arya, S.E (C&R), PTCUL.
9. Sh. Amit Singh, E.E, SLDC
10. Sh. Sachin Sharma, Reg. Manager, Arunachal Pradesh Power Corporation Ltd.
11. Sh. Antriksh Singh Bisht, Dy. Manager, SEPL.
12. Sh. S.K. Garg, D.G.M, BST Textile Mill, Rudrapur.