



संदर्भ: CC/RC/ Grid Code 2022

दिनांक: 17/10/2022

सचिव,  
सैंट्रल इलेक्ट्रिसिटी रेगुलेट्री कमीशन (सी.ई.आर.सी.),  
तीसरा एवं चौथा तल, चन्द्रलोक भवन,  
36, जनपथ, नई दिल्ली - 110001.

विषय - "Draft Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2022"  
- Submission of comments/suggestions thereof.

महोदय,

This has reference to public notice no. L-1/265/2022/CERC dated 7<sup>th</sup> June, 2022 vide which comments were sought on the subject draft regulations.

In this regard, please find enclosed POWERGRID's comments/suggestions on the proposed "Draft Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2022" for consideration of Hon'ble Commission.

Thanking you,

Yours faithfully

 17/10/22

(V C Sekhar)

General Manager (Regulatory Cell)

Encl:

POWERGRID's comment on subject Regulations

**Comments from POWERGRID on Draft IEGC 2022**

<b>S. No</b>	<b>Clause &amp; Page No</b>	<b>Description of Clause</b>	<b>Modification proposed</b>	<b>Reason</b>
		<b>Preliminary</b>		
1.	.....	<b>Definition of ATS not provided</b>	<p><b>New Definition proposed to be inserted :</b></p> <p><i>Associated Transmission System or ATS shall have the same meaning as defined in CERC (Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022.</i></p>	<ul style="list-style-type: none"> <li>• In CERC Grid Code, 2010, Associated Transmission System or ATS is neither defined nor does it have specific provisions regarding ATS. Only in PART – 3 i.e “Planning Code for Inter-State Transmission”, ATS is discussed regarding planning and approval.</li> <li>• In the proposed draft regulation, ATS is not defined but referred at multiple provisions in CHAPTER 5 i.e “Commissioning and Commercial Operation Code”.</li> <li>• Therefore, definition of ATS is proposed to be inserted aligning it to GNA Regulations.</li> </ul>
2.	3(29)	<i>‘Control Centre’ includes NLDC or RLDC or REMC or SLDC or Area LDC or Sub-LDC or DISCOM LDC including main and backup Centre, as applicable;</i>	<i>‘Control Centre’ includes NLDC or RLDC or REMC or SLDC or Area LDC or Sub-LDC or DISCOM LDC or <b>Control Room established as per provision of Para 28(7)</b> including main and backup Centre, as applicable;</i>	Para 28(7) has provision of remotely located control room
		<b>Connection Code</b>		
3.	11(1)	<i>Reliable speech and data communication systems shall be provided to facilitate necessary communication, data exchange, supervision and control of the grid by the NLDC, RLDC and SLDC in accordance with the CERC (Communication System for Inter-State Transmission of Electricity) Regulations, 2017 and the CEA Technical Standards on Communication.</i>	<i>Reliable speech and data communication systems shall be provided to facilitate necessary communication, data exchange <b>with Control Room established as per provision of Para 28(7)</b>, supervision and control of the grid by the NLDC, RLDC and SLDC in accordance with the CERC (Communication System for Inter-State Transmission of Electricity) Regulations, 2017 and the CEA Technical Standards on Communication.</i>	There are many bays in substation of others, the data visibility of which is equally important for operation activity.
		<b>Protection Code</b>		
4.	Regulation 14. (1) Page 34	<i>RPCs shall undertake review of the protection settings, assess the requirement of revisions in protection settings and revise protection settings in consultation with the</i>	<i>RPCs shall undertake review of the protection philosophy, assess the requirement of revisions in protection <b>settings philosophy</b> and revise protection <b>settings philosophy</b> in consultation with</i>	Modern numerical relays have hundreds of protection parameter settings and most of these parameters are IED specific and need to be optimized based on assessment of

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		<i>stakeholders of the respective region, from time to time and at least once in a year. The necessary studies in this regard shall be carried out by the respective RPC.</i>	<i>the stakeholders of the respective region, from time to time and at least once in a year. The necessary studies in this regard shall be carried out by the respective RPC.</i>	performance of the protection system in a specific network. In view of above, these parameters will depend upon the IED and utilities. Accordingly, RPC may review protection philosophy in line with Ramkrishna Task Force guidelines in place of IED specific protection settings.
5.	Regulation 14. (2)(b) Page 34	<i>Obtain approval of the concerned RPC for (i) any revision in settings, and (ii) implementation of new protection system;</i>	<i>Obtain approval of the concerned RPC for (i) any revision in <b>settings protection philosophy</b>, and (ii) implementation of new protection system;</i>	In view of comment at sl no 3 above for Point 14. (1) Page 34, approval for change in protection philosophy may be taken from RPC in line with Ramkrishna Task Force guidelines in place of IED specific protection settings
6.	Regulation 14. (2)(c) Page34	<i>intimate to the concerned RPC about the changes implemented in protection system or protection settings within a fortnight of such changes;</i>	<i>Intimate to the concerned RPC about the changes implemented in protection system, due to change in protection <b>settings philosophy</b>, within a fortnight of such changes;</i>	In view of comment at sl no 3 above for Point 14. (1) Page 34, approval for Major change in protection philosophy may be informed to RPC in line with Ramkrishna Task Force guidelines in place of IED specific protection settings.
7.	Regulation 14. (2)(d) Page34	<i>ensure correct and appropriate settings of protection as specified by the concerned RPC</i>	<i>ensure correct and appropriate implementation of protection <b>settings philosophy</b> as specified by the concerned RPC.</i>	In view of comment at sl no 3 above for Point 14. (1) Page 34, protection philosophy may be specified by RPC in line with Ramkrishna TaskForce guidelines in place of IED specific protection settings.
8.	Regulation 15. (1)	<i>All users shall conduct internal audit of their protection systems annually, and any shortcomings identified shall be rectified and informed to their respective RPC.</i>	<i>All users shall conduct internal audit of their protection systems in <b>annually two years</b>, and any shortcomings identified shall be rectified and informed to their respective RPC.</i>	In view of large number of substations, the internal audit may be carried out biannually.
9.	Regulation 15. (4) Page35	<i>The third-party protection audit report shall contain information sought in format enclosed as Annexure–1. The protection audit reports, along with action plan for rectification of deficiencies detected, if any, shall be submitted to the respective RPC and RLDC within a month of submission of third-party audit report.</i>	<i>The third-party protection audit report shall contain information sought in format enclosed as Annexure–1. The protection audit reports, along with action plan for rectification of deficiencies detected, if any, shall be submitted to the respective RPC within <b>a-two</b> months of submission of third-party detailed audit report.</i>	Rectification action in line with recommendations can only be taken after submission of detailed protection audit report.

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10.	Regulation 15. (6) Page36	<i>Users shall submit the following protection performance indices of previous month to their respective RPC on monthly basis, which shall be reviewed by the RPC:</i>	<i>Users shall submit the following protection performance indices of previous months to their respective RPC on <del>monthly</del> quarterly basis, which shall be reviewed by the RPC:</i>	In line with present practice of submitting protection performance indices on quarterly basis.
11.	Regulation 17. (2) Page37	<i>The disturbance recorders shall have time synchronization and a standard format for recording analogue and digital signals which shall be included in the guidelines issued by the respective RPCs.</i>	<i>The disturbance recorders shall have time synchronization and <del>a standard format for recording analogue and digital signals which shall be included in the guidelines issued by the respective RPCs</del> include analogue &amp; digital signals as specified by the respective RPCs. The sequence and naming of the signals may be decided by respective utilities.</i>	Details of analogue & digital signals need to be configured by utility may be specified by the respective RPCs. The sequence and naming of the signals may be decided by respective utilities.
12.	ANNEXUR E – 1, S.No (1).1 Page142	<i>The audit reports, along with action plan for rectification of deficiencies found, if any, shall be submitted to RPC or RLDC within a month of submission of report by auditor</i>	<i>The audit reports, along with action plan for rectification of deficiencies found, if any, shall be submitted to RPC <del>or RLDC within a month of submission of report by auditor</del> as per clause 15.4 of Chapter-4 Protection Code.</i>	As per CEA grid standards, RPC is the nodal entity for protection system.
13.	ANNEXUR E – 1, S.No (2).1.1.f Page142	<i>Checking and validation date</i>	<i>Checking and validation date of protection system</i>	To bring more clarity
14.	ANNEXUR E – 1, S.No (2) .(1).2 Table J (3) Page143	<i>Disturbance Recorder out available for last 6 tripping's (Y/N)</i>	<i>Disturbance Recorder output available for last <del>6</del> One Year tripping's (Y/N)</i>	DR for tripping occurred in last One year may be mentioned instead of number of trippings.
15.	ANNEXUR E – 1, S.No (2).(1).3) Page143	<i>The relay configuration checklist for available power system elements at station</i>	<i><del>The relay configuration checklist</del> Availability of relay settings for available power system elements at station.</i>	

S. No	Clause & Page No	Description of Clause	Modification proposed	Reason
16.	ANNEXUR E – 1, S.No (2).(1).4 Page144	<i>The minimum set of points on which checking and validation shall be carried out is covered in this clause. The detailed list shall be prepared by checking and validation team in consultation with concerned entity, RLDC and RPC</i>	<i>The minimum set of points on which checking and validation shall be carried out is covered in this clause. The detailed list shall be prepared by checking and validation team in consultation with concerned entity, <del>RLDC</del> and RPC.</i>	As per CEA grid standards, RPC is the nodal entity for protection system.
17.	ANNEXUR E – 1, S.No (2).(1).4).e) .(g) Page146	<i>Communication system</i>	Communication system may be considered as separate point as point (h)	
18.	ANNEXUR E – 1, S.No (2).(1).4).e) .(g) (V) Page146	<i>OPGW on geographically diversified paths for Main-1 and main-2 relay</i>	<i>OPGW on geographically diversified paths for Main-1 and Main-2 <b>distance relays</b></i>	“Distance relay” may be added for clarity
19.	ANNEXUR E – 1, S.No (2).(1).4).g) .(h) Page147	<i>Other protections</i>	Other protections may be considered as separate point	
20.	ANNEXUR E – 1, S.No (2).(1).5).(i v)	<i>The relay settings to be adopted shall be validated with simulation based or EMTP studies and details shall be enclosed in report.</i>	<i>The relay settings to be adopted shall be validated with <b>secondary injection</b> or simulation based or EMTP studies and details shall be enclosed in report.</i>	Software based simulation is already being covered during FAT of the protection system. Hence secondary injection may be considered for the validation of protection system at site.
<b>COMMISSIONING AND COMMERCIAL OPERATION CODE</b>				
21.	Regulation 21 (3) page 41	<b>21. NOTICE OF TRIAL RUN</b>  ..... <b>(3)</b> <i>The transmission licensee proposing its transmission system or an element thereof for trial run shall give a notice of not less than seven days to the concerned RLDC and CTU.</i>	<b>21. NOTICE OF TRIAL RUN</b>  ... ..  <del><b>(3)</b> <i>The transmission licensee proposing its transmission system or an element thereof for trial run shall give a notice of not less than seven days to the concerned RLDC and CTU.</i></del>	<ul style="list-style-type: none"> <li>Standard procedures are already in place wherein for required compliance, declaration and information in prescribed formats is submitted to concerned RLDC before trial run for relevant transmission elements.</li> <li>CEA certificates are also required to be obtained before Trial run</li> </ul>

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				<ul style="list-style-type: none"> <li>Only after satisfactory compliance of above requirements, charging / trial run clearance is given by RLDC.</li> </ul> <p>In view of the above, as an established procedure is already in place which is running satisfactorily, the proposed Regulation 21. (3) may lead to increase in procedural compliance. Therefore, to reduce regulatory compliances and smoothening the process, it is proposed that the same may be deleted.</p>
22.	Regulation 24 page 45	<p><b>DOCUMENTS AND TEST REPORTS PRIOR TO DECLARATION OF COMMERCIAL OPERATION</b></p>	<p><b>New clause to be added:</b></p> <p><b>Documents and Tests Required for Transmission lines/ICTs:</b>  <i>After successful trial operation of Transmission lines/ICTs, the transmission licensee shall submit the following documents to concerned RLDC:</i></p> <ul style="list-style-type: none"> <li><i>a. Values of the concerned line power flows and voltages during the trial run period.</i></li> <li><i>b. Special Energy meter (SEM) Reading corresponding to the trial run period.</i></li> <li><i>c. Event Loggers output during the trial run period.</i></li> </ul> <p><b>Documents and Tests Required for Shunt and Series Reactors/ FSC:</b>  <i>After successful trial operation of Shunt and Series Reactors/FSC, the transmission licensee shall submit the following documents to concerned RLDC:</i></p> <ul style="list-style-type: none"> <li><i>a. Values of the concerned line power flows and voltages during the trial run period.</i></li> <li><i>b. Event Loggers output during the trial run period.</i></li> </ul>	
23.	Regulation 24 (7) Page 47	<p><b>Documents and Tests Required for HVDC</b>  <i>..(b) The following tests shall be performed:</i>  <i>(i) Minimum load operation.</i>  <i>(ii) Ramp rate.</i>  <i>(iii) Overload capability.</i></p>	<p><b>Documents and Tests Required for HVDC</b>  <i>(b) The following tests shall be performed:</i>  <i>(i) Minimum load operation.</i>  <i>(ii) Ramp rate.</i>  <i>(iii) Overload capability.</i></p>	<p>Black start of VSC HVDC is not similar to black start of Synchronous Generator. The same shall be noted while proposing black starting of VSC HVDC.</p>

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		<i>(iv) Black start capability in case of Voltage source convertor (VSC) HVDC</i>	<i>(iv) Black start capability in case of Voltage source converter (VSC) HVDC <b>within rated capability of the HVDC system.</b></i>	
24.	Regulation 24 (8) Page 48	<p><b>Documents and Tests Required for SVC/STATCOM</b></p> <p><i>(a) The transmission licensee shall submit technical particulars including operating guidelines such as number of blocks and rating of each block, single line diagram, V/I characteristics, rating of coupling transformer, MSR/MSD design parameters, different operating modes, IEEE standard Model, Power Oscillation Damping (POD) enabled and tuned (if not then reasons for same) and the results of Offline simulation-based study to validate the performance of POD.</i></p> <p><i>(b) The following tests shall be performed to validate full reactive power capability of SVC and STATCOM in both the directions i.e. absorption as well as injection mode:</i></p> <p><i>(i) POD performance test.</i></p> <p><i>(ii) dynamic performance testing.</i></p>	<p><b>Documents and Tests Required for SVC/STATCOM</b></p> <p><i>(a) The transmission licensee shall submit technical particulars including <del>operating guidelines such as number of blocks and rating of each block,</del> single line diagram, V/I characteristics, rating of coupling transformer, <del>MSR/MSD—design parameters,</del> different operating modes, Power Oscillation Damping (POD) enabled and tuned (if not then reasons for same) and the results of Offline simulation-based study to validate the performance of POD</i></p> <p><i>b) The following <del>tests</del> <b>Offline simulation-based study report</b> shall be performed to validate full reactive power capability of SVC and STATCOM in both the directions i.e. absorption as well as injection mode:</i></p> <p><i>(i) POD performance test.</i></p> <p><i>(ii) dynamic performance testing.</i></p>	<p>Number and blocks and rating of each block, MSR and MSD design parameters: Being proprietary design data, requirement of same may be checked. However, rating of each VSC, MSR and MSD branch shall be communicated along with SLD.</p> <p>IEEE standard model: Type of Standard model needs to be mentioned. As per industry practice, OEM's give a user defined model and sharing the same shall generally require signing of Non-disclosure agreement with the OEM.</p> <p>Power Oscillation Damping (POD) enabled and tuned (if not then reasons for same): POD status shall be provided however POD frequencies for tuning shall be provided by Grid Operator.</p> <p>Full reactive power capability of SVC and STATCOM in both the directions can be demonstrated in field in Fixes Reactive power mode (Please note that in Fixed Q mode, voltage at HV Bus can't be controlled through STATCOM. If same cannot be performed due to system constraint, charging/trial operation should not be delayed)</p>
25.	Regulation 26(3)	<b>26. DECLARATION BY GENERATING COMPANY AND TRANSMISSION LICENSEE</b>	<b>26. DECLARATION BY GENERATING COMPANY AND TRANSMISSION LICENSEE</b> .....	<ul style="list-style-type: none"> <li>• Presently, in line with Grid Code, 2010 4<sup>th</sup> amendment and Tariff Regulations, 2019, CMD certificate is issued for ISTS elements</li> </ul>

S. No	Clause & Page No	Description of Clause	Modification proposed	Reason
	Page 50	<p>.....</p> <p><b>(3) Transmission system</b></p> <p>(a) The transmission licensee shall submit a certificate signed by the authorized signatory not below the rank of CMD or CEO or MD of the company to the concerned RLDC and to the Member Secretary of the concerned RPC before declaration of COD that the transmission line, sub-station and communication system conform to the CEA Technical Standards for Construction, CEA Technical Standards for Connectivity, CEA Technical Standards for Communication and these regulations and are capable of operation to their full capacity.</p>	<p><b>(3) Transmission system</b></p> <p>(a) The transmission licensee shall submit a certificate signed by <del>the authorized signatory not below the rank of</del> CMD or CEO or MD or <del>the authorized signatory</del> of the company <b>not below the rank of Executive Director</b> to the concerned RLDC and to the Member Secretary of the concerned RPC <b>on or before</b> declaration of COD that the transmission line, sub-station and communication system conform to the CEA Technical Standards for Construction, CEA Technical Standards for Connectivity, CEA Technical Standards for Communication and these regulations and are capable of operation to their full capacity.</p>	<p>and the same is submitted to CERC as part of Tariff Petitions.</p> <ul style="list-style-type: none"> <li>• With regard to Proposed regulation 26 (3) (a) wherein CMD certificate for ISTS is to be submitted to RLDC and RPC before declaration of COD, it is to submit that , <ul style="list-style-type: none"> <li>○ In case of Transmission, multiple elements of varied size are commissioned in different timelines. Seeking certificate from CMD before declaration of COD for each element may delay the declaration of COD.</li> <li>○ LTA/MTOA operationalization is contingent to declaration of COD of certain transmission elements. Further, certain transmission elements can be pre –requisite for declaration of other transmission elements or ATS as the case may be. Any delay in declaration of COD such transmission element may eventually lead to delay in declaration of COD of other elements or operationalization of LTA/MTOA which may not be desirable.</li> </ul> </li> <li>• In view of above discussion, , it is proposed that <ul style="list-style-type: none"> <li>○ to prevent such avoidable delay in declaration of COD and its consequential affect as discussed above, apart from CMD or CEO or MD , Executive Directors authorized may</li> </ul> </li> </ul>



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				<p>also be considered for issuing certificate for declaring readiness for COD.</p> <ul style="list-style-type: none"> <li>○ The same shall be submitted to the concerned RLDC and to the Member Secretary of the concerned RPC before declaration of COD in line with proposed Regulation.</li> </ul> <p>Further, the present practice wherein CMD certificate is submitted at the time of tariff petitions may be continued</p>
26.	Regulation 27.(1)(c) (i) (Page 52)	<p><b>27. DECLARATION OF COMMERCIAL OPERATION (DOCO) AND COMMERCIAL OPERATION DATE (COD)</b></p> <p>.....</p> <p><b>(1) (c) Transmission System</b></p> <p><i>(i) The commercial operation date in case of an Inter-State Transmission System or an element thereof shall be the date declared by the transmission licensee on which the Transmission System or an element thereof is in regular service at 0000 hours after successful trial operation for transmitting electricity and communication signal from the sending end to the receiving end as per Regulation 23 and submission of declaration as per Regulation 26(3) of these regulations :</i></p> <p>.....</p> <p><i>Provided that the commercial operation date of a transmission element which is a part of Associated Transmission System (ATS) shall be declared only after successful trial run of the last element of the said ATS:</i></p>	<p><b>27. DECLARATION OF COMMERCIAL OPERATION (DOCO) AND COMMERCIAL OPERATION DATE (COD)</b></p> <p>.....</p> <p><b>(1) (c) Transmission System</b></p> <p><i>(i) The commercial operation date in case of an Inter-State Transmission System or an element thereof shall be the date declared by the transmission licensee on which the Transmission System or an element thereof is in regular service at 0000 hours after successful trial operation for transmitting electricity and communication signal from the sending end to the receiving end as per Regulation 23 and submission of declaration as per Regulation 26(3) of these regulations :</i></p> <p>.....</p> <p><i>Provided that the commercial operation date of a transmission element <b>before SCOD</b> which is a part of Associated Transmission System (ATS) shall be declared only after successful trial run of the last element of the said ATS:</i></p>	<ul style="list-style-type: none"> <li>● In CERC Grid Code, 2010, there is no specific provisions regarding commissioning of ATS. The same has been proposed to be introduced in subject draft Regulations. In CERC GNA Regulations, 2022, ATS has been defined and limited to immediate evacuation system required for connectivity. It is understood that the subject draft provision for ATS in Grid Code, 2022 is proposed to align with CERC GNA regulations, 2022.</li> <li>● Regarding <b>first proviso of Regulation 27.1.c.i.(highlighted above) , it is to submit that</b> <ul style="list-style-type: none"> <li>○ in cases where LTA is already granted and associated projects are still under construction, the ATS may contain multiple transmission elements consisting of immediate evacuation system and common system. The immediate evacuation system is generation specific while common system is mainly required to meet the requirement of the</li> </ul> </li> </ul>

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		<p><i>Provided further that where only some of the transmission elements of the ATS have achieved successful trial run and the Connectivity grantee under GNA Regulations seeks commercial operation of such element for utilization by such grantee and is agreed by the Central Transmission Utility, the commercial operation date of such transmission elements of the ATS may be declared by the transmission licensee as per this Regulation:</i></p> <p><i>Provided also that where only some of the transmission element(s) of the ATS have achieved successful trial run and if the operation of such transmission elements are certified by the concerned Regional Power Committee(s) for improving the performance, safety and security of the grid, the commercial operation date of such transmission element(s) of the ATS may be declared by the transmission licensee as per this Regulation:</i></p>	<p><i>Provided further that where only some of the transmission elements of the ATS have achieved successful trial run and the Connectivity grantee under GNA Regulations seeks commercial operation of such element for utilization by such grantee and is agreed by the Central Transmission Utility, the commercial operation date of such transmission elements of the ATS may be declared by the transmission licensee as per this Regulation:</i></p> <p><i>Provided also that where only some of the transmission element(s) of the ATS have achieved successful trial run and if the operation of such transmission elements are certified by the concerned <del>Regional Power Committee(s)</del> RLDC for improving the performance, safety and security of the grid, the commercial operation date of such transmission element(s) of the ATS may be declared by the transmission licensee as per this Regulation:</i></p>	<p>beneficiaries and may also be common with other projects/LTA granted.</p> <ul style="list-style-type: none"> <li>○ With regard to proposed provisions wherein COD of transmission element is linked to readiness of last element of ATS, it is submitted that by inherent nature of transmission, individual components of a transmission system are usually commissioned in different timelines and because of geographical spread of the transmission system, simultaneous commissioning of all assets of a transmission system is very difficult.</li> <li>○ Further, as per Grid Code, 2010 (4<sup>th</sup> amendment), for TCBP projects, COD of a transmission element is already allowed before COD of pre-requisite if the CEA certifies that the commissioning of the asset will be in the interest of the safety and security of the grid and the asset can be put to useful service after its commissioning.</li> </ul> <p>Therefore in view of discussion above, it is proposed that as and when an element is commissioned after SCOD, its COD may be allowed irrespective of commissioning of generating station or complete ATS. <b>Considering this the first proviso of Regulation 27.1.c.i. may be restricted to COD before SCOD only.</b></p>

S. No	Clause & Page No	Description of Clause	Modification proposed	Reason
				<ul style="list-style-type: none"> <li>• Regarding <b>third proviso of Regulation 27.1.c.i.(highlighted above)</b> , it is to <b>submit that</b> <ul style="list-style-type: none"> <li>○ RPC meeting are done periodically generally after every 2-3 months. Sometimes in some Regions, RPC meetings are done at a gap of 3-6 months also.</li> <li>○ If in case RPCs are to certify that COD of an element for improving the performance, safety and security of the grid, then depending upon the periodicity of such meetings, it may result in delay of declaration of COD. Further, as practise, it may happen that RPC may send such proposals to its various technical sub committees which can further delay the declaration of COD.</li> <li>○ RLDCs being statutory bodies with the responsibility of grid operation and related activities assigned to it under Electricity Act 2003, may be the best entity regarding such certification.</li> <li>○ Further, if the same is done by RLDCs then inordinate delay in declaration of COD may not happen.</li> </ul> </li> </ul> <p>Therefore in view of discussion above, it is proposed that for conditions specified in <b>the third proviso of Regulation 27.1.c.i. RLDCs instead of RPCs may be given the responsibility to such certification. Further, CEA can also be considered for the role if required.</b></p>

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27.	Regulation 27.1(c) (ii) (Page 53)	<p><b>27. DECLARATION OF COMMERCIAL OPERATION (DOCO) AND COMMERCIAL OPERATION DATE (COD)</b></p> <p>.....</p> <p><b>(1) (c) Transmission System</b></p> <p>.....</p> <p><i>(ii) The COD of a transmission element of the transmission system under Tariff Based Competitive Bidding shall be declared only after declaration of COD of all the pre-required transmission elements as per the Transmission Services Agreement :</i></p> <p><i>Provided that in case any transmission element is required in the interest of the power system as certified by concerned RPC(s), the COD of the said transmission element may be declared prior to the declaration of COD of its pre required transmission elements.</i></p>	<p><b>27. DECLARATION OF COMMERCIAL OPERATION (DOCO) AND COMMERCIAL OPERATION DATE (COD)</b></p> <p>.....</p> <p><b>(1) (c) Transmission System</b></p> <p>.....</p> <p><i>(ii) The COD of a transmission element of the transmission system under Tariff Based Competitive Bidding shall be declared only after declaration of COD of all the pre-required transmission elements as per the Transmission Services Agreement :</i></p> <p><i>Provided that in case any transmission element is required in the interest of the power system as certified by concerned <b>RPC</b> RLDC (s), the COD of the said transmission element may be declared prior to the declaration of COD of its pre required transmission elements.</i></p>	<ul style="list-style-type: none"> <li>• Regarding first proviso of Regulation 27.1.c.ii.(highlighted above) , it is to submit that <ul style="list-style-type: none"> <li>○ RPC meeting are generally conducted periodically after every 2-3 months. Sometimes in some Regions, RPC meetings are conducted at a gap of 3-6 months also.</li> <li>○ If in case RPCs are to certify that COD of an element is required in the interest of the grid, then depending upon the periodicity of such meetings, it may result in delay of declaration of COD. Further, as practise, it may happen that RPC may send such proposals to its various technical sub committees which can further delay the declaration of COD.</li> <li>○ RLDCs being statutory bodies with the responsibility of grid operation and related activities assigned to it under Electricity Act 2003, may be the best entity regarding such certification.</li> <li>○ Further, if the same is done by RLDCs then inordinate delay in declaration of COD may not happen.</li> </ul> </li> </ul> <p>Therefore in view of discussion above, it is proposed that for conditions specified in the <b>first proviso of Regulation 27.1.c.ii., RLDCs instead of RPCs may be given the responsibility to such certification. Further, CEA can also be considered for the role if required.</b></p>

S. No	Clause & Page No	Description of Clause	Modification proposed	Reason
		<b>Operating Code</b>		
28.	Regulation 28.7 (Page 57)	<p><i>Every generating station and transmission substation of 132 kV and above shall have a control room manned by qualified operating personnel round the clock.</i></p> <p><i>Alternatively, the same may be operated round the clock from a remotely located control room, subject to the condition that such remote operation does not result in delay in execution of any switching instructions and information flow:</i></p> <p><i>Provided that a transmission licensee owning a transmission line but not owning the connected substation, shall have a round the clock coordination centre.</i></p>	<p><b>The following para may be added</b></p> <p><i>“RLDC/NLDC shall data exchange with this control room of the data of the bays/lines owned by that utility but located at other utility substations/generating stations.”</i></p>	There are many bays in substation of others, the data visibility of which is equally important for operation activity.
29.	Regulation 29.2 (d) Page 58	<i>.. The reasons for such switching off or tripping to the extent determined and the likely time of restoration shall also be intimated within half an hour...</i>	<i>.. The reasons for such switching off or tripping to the extent determined and the likely time of restoration shall also be intimated within <del>half an hour</del> one day...</i>	In case of switching off or tripping of any of important regional grid element under emergency condition (Blast or sparking), physical inspection of element and switchyard will be required thoroughly to check the actual damage and it will take time specially in Odd-Hours.
30.	Regulation 29 (15)	<i>NLDC, RLDCs, SLDCs, CTU, STUs and <b>users</b> shall operate in a manner to ensure that the steady state grid voltage as per the Central Electricity Authority (Grid Standards) Regulations, 2010 remains within the following operating range:</i>	<i>NLDC, RLDCs, SLDCs, CTU and STUs <del>and users</del> shall operate in a manner to ensure that the steady state grid voltage as per the Central Electricity Authority (Grid Standards) Regulations, 2010 remains within the following operating range:</i>	“Users” may be deleted as voltage maintenance is the under the control of NLDC, RLDC and SLDCs. Users are not having any control in maintaining voltage.
31.	Regulation 29(16), page no:63	<i>NLDC, RLDCs and SLDCs, as the case may be, shall take appropriate measures to control the voltage as per their operating procedure</i>	<i>NLDC, RLDCs and SLDCs, as the case may be, shall take appropriate measures to control the voltage as per their operating procedure. <b>In case Node voltages beyond voltage band, any outage during this condition shall be considered as deemed available.</b></i>	Outages/ failures are observed due to voltage persisting more than normal limit. Outage due to such condition may be considered as deemed available.

S. No	Clause & Page No	Description of Clause	Modification proposed	Reason
32.	Regulation 32.3 e to g (Page 82)	(e) The annual outage plan shall be reviewed by RPC on monthly and quarterly basis in coordination with all the parties concerned, and adjustments shall be made wherever necessary.	(e) The annual outage plan shall be reviewed by RPC on monthly and quarterly basis in coordination with all the parties concerned, and adjustments shall be made wherever necessary. <b>Further in case of shutdown for Bay maintenance where ever power flow is not affected, outage of bays shall be concurred on D-1 basis by concerned RLDC.</b>	It is proposed that outage for bay maintenance activity may be concurred in D-1 basis wherever power flow is not affected.
33.	Regulation 34.3 (Page 87)	The user shall carry out mock trial run of the procedure for different sub-systems including black-start of generating units along with grid forming capability of inverter based generating station, VSC based HVDC black-start support at least once in a year under intimation to the concerned SLDC and RLDC	The user shall carry out mock trial run of the procedure for different sub-systems including black-start of generating units along with grid forming capability of inverter based generating station, VSC based HVDC black-start support at least once in <b>a five</b> year under intimation to the concerned SLDC and RLDC	
34.	Regulation 34.4	Simulation studies shall be carried out by each user in coordination with RLDC for preparing, reviewing and updating the restoration procedures considering the following:	Simulation studies shall be carried out by <del>each user in coordination with</del> RLDC/ NLDC for preparing, reviewing and updating the restoration procedures considering the following:	"each user in coordination with RLDC" may be replaced by "RLDC/ NLDC" as Simulation study facility is generally available with RLDCs/ NLDC.
35.	Regulation 35.5 Page 92	<b>Operational Coordination:</b> (b) Any planned operation activity in ISTS system [such as transmission element opening or closing (including breakers), protection system outage, SPS outage and testing etc.] shall be done by taking operational code from RLDC or NLDC, as the case may be. The operational code shall have validity period of thirty (30) minutes from the time of issue...	(b) Any planned operation activity in ISTS system [such as transmission element opening or closing (including breakers), protection system outage, SPS outage and testing etc.] shall be done by taking operational code from RLDC or NLDC, as the case may be. The operational code shall have validity period of <del>thirty (30)</del> <b>Sixty (60)</b> minutes from the time of issue...	In winter, lot of lines are opened on voltage regulation. 30min deadline can be hard to meet.
36.	Regulation 39 Page No 97	<b>Reactive Power Management</b>	<b>New point to be added:</b> <b>12. Wind generating stations and generating stations using inverters should provide Reactive Power support as per B2.(3), Section-B, Part-II of Central Electricity Authority (Technical Standards</b>	New section for reactive power support should be added as per B2.(3), Section-B , Part-II of Central Electricity Authority (Technical Standards for Connectivity to the Grid) Amendment Regulations, 2013

S. No	Clause & Page No	Description of Clause	Modification proposed	Reason
			<i>for Connectivity to the Grid) Amendment Regulations, 2013.</i>	
37.	Regulation 39.(6) Page No 98	<p>NLDC, RLDCs and SLDCs shall take appropriate measures to maintain the voltage within limits inter-alia using following facilities and facility owner shall abide by the instructions of NLDC, RLDCs and SLDCs:</p> <ul style="list-style-type: none"> <li>(i) shunt reactors,</li> <li>(ii) shunt capacitors,</li> <li>(iii) TCSC,</li> <li>(iv) VSC based HVDC</li> <li>(v) synchronous/non-synchronous generator voltage control,</li> <li>(vi) synchronous condenser,</li> <li>(vii) static VAR compensators (SVC), STATCOM and other FACTS devices,</li> <li>(viii) transformer tap change: generator transformer and inter-connecting transformer,</li> <li>(ix) HVDC power order or HVDC controller selection to optimise filter bank.</li> </ul>	<p>NLDC, RLDCs and SLDCs shall take appropriate measures to maintain the voltage within limits inter-alia using following facilities and facility owner shall abide by the instructions of NLDC, RLDCs and SLDCs:</p> <ul style="list-style-type: none"> <li>(i) shunt reactors,</li> <li>(ii) shunt capacitors <i>(excluding HVDC automatic RPC control),</i></li> <li>(iii) TCSC,</li> <li>(iv) VSC based HVDC</li> <li>(v) synchronous/non-synchronous generator voltage control,</li> <li>(vi) synchronous condenser,</li> <li>(vii) static VAR compensators (SVC), STATCOM and other FACTS devices,</li> <li>(viii) transformer tap change: generator transformer and inter-connecting transformer,</li> <li>(ix) HVDC power order or HVDC controller selection to optimise filter bank</li> <li>(x) <i>Inverter based reactive power support</i></li> </ul>	<p>The shunt capacitors, which are provided as a part of HVDC, will be switched automatically as per the settings in HVDC control and so separate operational instruction need not be issued. RPC set values shall be as per NLDC/ RLDC instructions.</p> <p>“Inverter based reactive power support” need to be included.</p>
38.	Regulation 39(11),page no:99	<p>If voltages are outside the limit as specified in clause (15) of Regulation 29 of these regulations and the means of voltage control set out in Clause (6) of this Regulation are exhausted, in that event SLDCs, RLDCs or NLDC shall take all reasonable actions necessary to restore the voltages so as to be within the relevant limits including opening of lines considering security of system</p>	<p>If voltages are outside the limit as specified in clause (15) of Regulation 29 of these regulations and the means of voltage control set out in Clause (6) of this Regulation are exhausted, in that event SLDCs, RLDCs or NLDC shall take all reasonable actions necessary to restore the voltages so as to be within the relevant limits including <i>opening switching</i> of lines considering security of system.</p>	
39.	Regulation 40.2 Page 99-100	<p><b>Field Testing for Model Validation</b> (a)<b>The owner of the power system element shall be responsible to carry out tests as specified in these regulations</b></p>	<p><b>New point to be added:</b> <i>(e) Outage required if any for test to be considered as deemed available</i></p>	

S. No	Clause & Page No	Description of Clause	Modification proposed	Reason				
		<p>and for submission of reports to NLDC, RLDCs, CEA and CTU for all elements and to STUs and SLDCs for intra-State elements.</p> <p>.....</p> <p>(d) The owners of the power system elements shall implement the recommendations, if any, suggested in the test reports by the concerned RPC in consultation with NLDC, RLDC, CEA and CTU.</p>						
40.	Regulation 40.(3)- Table 9: HVDC/FACTS Devices Page No 101	<table border="1"> <tr> <td>HVDC/FACTS Devices</td> <td> <ul style="list-style-type: none"> <li>(1) Damping capability of HVDC/FACTS Controller</li> <li>(2) Frequency Controller Capability of HVDC Controller</li> <li>(3) Reactive Power Controller (RPC) Capability for HVDC/FACTS</li> <li>(4) Validation of voltage dependent current order limiter (VDCOL) characteristic for ensuring proper validation of HVDC performance</li> <li>(5) Filter bank adequacy assessment based on present grid condition.</li> <li>(6) Validation of response by FACTS devices as per settings.</li> </ul> </td> </tr> </table>	HVDC/FACTS Devices	<ul style="list-style-type: none"> <li>(1) Damping capability of HVDC/FACTS Controller</li> <li>(2) Frequency Controller Capability of HVDC Controller</li> <li>(3) Reactive Power Controller (RPC) Capability for HVDC/FACTS</li> <li>(4) Validation of voltage dependent current order limiter (VDCOL) characteristic for ensuring proper validation of HVDC performance</li> <li>(5) Filter bank adequacy assessment based on present grid condition.</li> <li>(6) Validation of response by FACTS devices as per settings.</li> </ul>	<table border="1"> <tr> <td>HVDC/FACTS Devices</td> <td> <ul style="list-style-type: none"> <li><del>(1) Damping capability of HVDC/FACTS Controller</del></li> <li><del>(2) Frequency Controller Capability of HVDC Controller</del></li> <li>(3) Reactive Power Controller (RPC) Capability for HVDC/FACTS</li> <li><del>(4) Validation of voltage dependent current order limiter (VDCOL) characteristic for ensuring proper validation of HVDC performance</del></li> <li><del>(5) Filter bank adequacy assessment based on present grid condition.</del></li> <li>(6) Validation of response by FACTS devices as per settings</li> </ul> </td> </tr> </table>	HVDC/FACTS Devices	<ul style="list-style-type: none"> <li><del>(1) Damping capability of HVDC/FACTS Controller</del></li> <li><del>(2) Frequency Controller Capability of HVDC Controller</del></li> <li>(3) Reactive Power Controller (RPC) Capability for HVDC/FACTS</li> <li><del>(4) Validation of voltage dependent current order limiter (VDCOL) characteristic for ensuring proper validation of HVDC performance</del></li> <li><del>(5) Filter bank adequacy assessment based on present grid condition.</del></li> <li>(6) Validation of response by FACTS devices as per settings</li> </ul>	Field testing of Damping capability, Frequency controller, VDCOL and filter bank adequacy based in present grid condition is not possible at site.
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