

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Draft Central Electricity Regulatory Commission (Cross Border Trade of Electricity) Regulations, 2017

Explanatory Memorandum

1. Background

1.1. The power sector in India and its neighbouring countries in South Asian Region must grow rapidly in order to sustain the high level of economic growth in the region. In this backdrop, strengthening of cross-border electricity cooperation can prove beneficial for all in terms of providing adequate and reliable electricity supply. As shown in the Figure 1 & 2 below, there are complementarities in electricity demand and resource endowments among these countries which can be leveraged upon to meet the growing energy requirements of the region while optimally utilizing the resources.

Figure 1: Energy Mix of Neighbouring countries

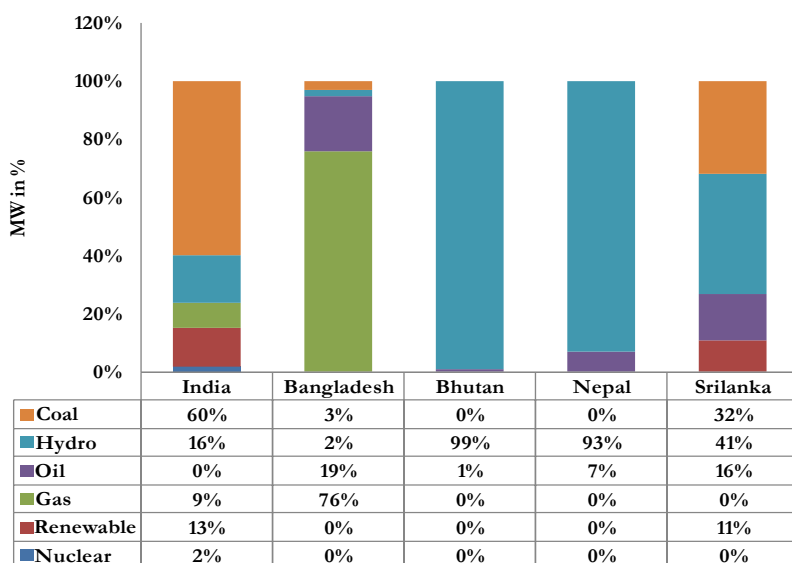


Figure 2: Seasonal Demand of Neighbouring countries;

| | January | February | March | April | May | June | July | August | September | October | November | December |
|------------------|---------|----------|-------|-------|------|------|------|--------|-----------|---------|----------|----------|
| Bangladesh | Low | Low | High | High | High | High | High | High | High | High | High | High |
| India-North East | High | High | High | High | High | High | High | High | High | High | High | High |
| Bhutan | High | High | High | High | High | High | High | High | High | High | High | High |
| India-East | High | High | High | High | High | High | High | High | High | High | High | High |
| Nepal | High | High | High | High | High | High | High | High | High | High | High | High |
| India-North | High | High | High | High | High | High | High | High | High | High | High | High |
| India-West | High | High | High | High | High | High | High | High | High | High | High | High |
| India-South | High | High | High | High | High | High | High | High | High | High | High | High |

Low
Medium
High

(Source: World Bank Reports, 2015)

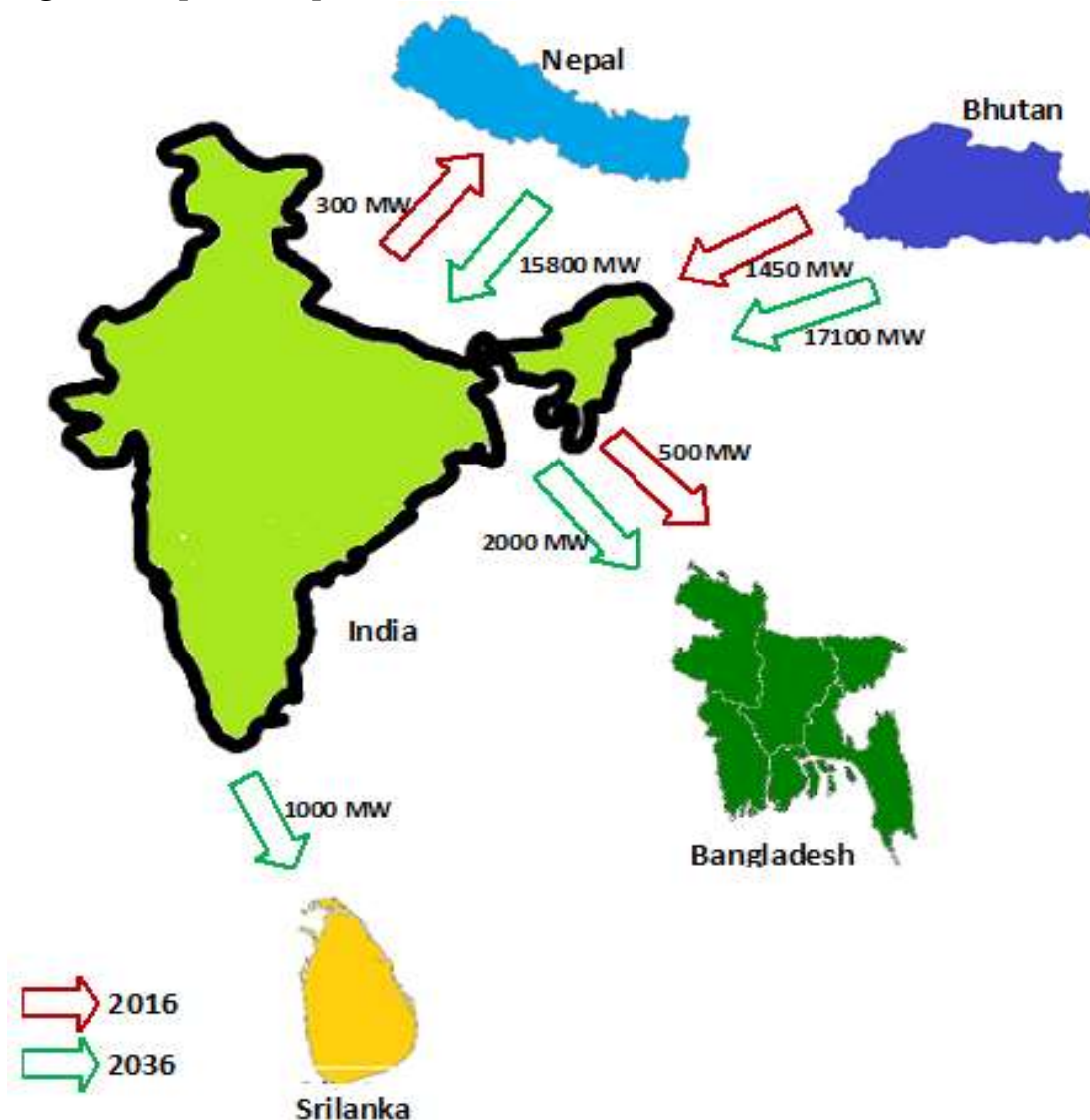
- 1.2. Furthermore, increased electricity cooperation and trade among these countries can also bring economies of scale in investments, strengthen electricity sector financing capability, enhance competition, improve sector efficiency, and enable more cost-effective renewable energy penetration.
- 1.3. Recognizing the importance of electricity in promoting economic growth & improving the quality of life in the region and envisaging the need for a stronger cross-border electricity cooperation, the South Asian Association for Regional Cooperation (SAARC)¹ countries have signed the SAARC Framework Agreement Energy Cooperation (Electricity) on 27th November, 2014. The Framework allows the member states to carry out Cross Border Trade of Electricity subject to laws, rules, and regulations of the respective member states.
- 1.4. Government of India has also initiated measures in the direction of strengthening the cross border cooperation in electricity with its neighbouring countries. In order to facilitate and promote Cross Border Trade of Electricity with greater transparency, consistency and predictability in regulatory approaches across jurisdictions and minimise perception of regulatory risks, the Ministry of Power in consultation with the Ministry of External Affairs has issued Guidelines on Cross Border Trade of Electricity (herein after referred as "Guidelines") vide OM No. 14/1/2016-Trans dated 5th December, 2016. The Guidelines issued by Ministry of Power are attached at **Annexure-1**. The objectives of these Guidelines are to:
 - (a) Facilitate cross border trade of electricity between India and neighbouring countries;
 - (b) Promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimise perceptions of regulatory risks;
 - (c) Meet the demand of the participating countries by utilising the available resources in the region;
 - (d) Ensure reliable grid operation and transmission of electricity across the borders;
 - (e) Evolve a dynamic and robust electricity infrastructure for cross border transactions.
- 1.5. The Central Electricity Regulatory Commission (CERC) (herein after referred as "the Commission") has been mandated to frame appropriate regulation for facilitating Cross Border Trade of Electricity with neighbouring countries in accordance with the above-mentioned Guidelines issued by Ministry of Power.
- 1.6. Presently, India imports around 1450 MW from Bhutan and exports around 500 MW to Bangladesh & 300 MW to Nepal². Going forward, the cross border transactions are expected to increase in the coming years. As per an estimate of Ministry of Power, by the end of 2036, India would have been importing around 17100 MW from Bhutan, 15800 MW from Nepal, and exporting around 2000 MW to Bangladesh & 1000 MW to

¹ SAARC Member States - Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka

² CEA Notes on Cooperation with Nepal, Bhutan, Bangladesh, October 2016

Srilanka³. This can further be bolstered if a uniform framework is created for undertaking cross border trading of electricity. Currently the cross border transactions in electricity between India and neighbouring countries of Bhutan, Bangladesh, Nepal and Myanmar is taking place essentially through Long-term, Medium term and Short term contracts under bilateral Memorandum of Understanding (MoU) / Power Trade Agreement (PTA) and it is envisaged that the new regulations to be framed by the Commission will further harmonize the extant laws/rules/regulations governing Cross Border Trade in Electricity and create a common platform for all the stakeholders. The import & export of power during 2016 and the import of power estimated to take place by the end 2036 is shown in the Figure 3 below:

Figure 3: Import & Export of Power from India



1.7. In this backdrop, the Commission proposes to notify the Cross Border Trade of Electricity Regulations, 2017 (short as "Draft Regulations") to facilitate the cross border trade of electricity between India and its neighbouring countries. While framing the

³ 20 (2016-2036) Year Transmission Perspective Plan Report

Draft Regulations, various planning and operational issues related to cross border trade of electricity have been considered. The salient features of the Draft Regulations are deliberated in the Section 2 below.

2. Salient Features of Draft Regulations

2.1. Objectives & Scope

- 2.1.1. The Draft Regulations have been framed with the objective to enable and facilitate Cross Border Trade of Electricity between India and its neighbouring countries. The Cross Border Trade of Electricity between India and any of its neighbouring country shall be bilateral in nature and these regulations shall be binding on all the participating entities undertaking such cross border transactions.
- 2.1.2. An applicant located within India may be using the same connectivity for both inter-state and cross border transmission purpose. Therefore, in view of consistency, it is proposed that for the participating entities located in India and seeking connectivity for long term or medium term open access for Cross Border Trade of Electricity, the existing CERC (Grant of Connectivity, Long-term Access and Medium-term Open Access in inter-State Transmission and related matters) Regulations, 2009 shall be applicable.
- 2.1.3. It is proposed that if the cross border trade of electricity between India and the neighbouring countries is taking place on the basis of Agreements made prior to these Regulations, then these Agreements shall continue to prevail till their expiry including any extension thereof. For example, the PTC is importing power from Chukha, Tala, and Kiruchu Hydro Electric Projects in Bhutan based on the power Purchase Agreements signed with Royal Govt. of Bhutan under the umbrella Agreement signed between the two countries. As proposed, the above Agreements shall be deemed to have been done under these Regulations.
- 2.1.4. The Draft Regulations, on several instances, have invoked the provisions already existing as a part of some other Regulations or Act. Wherever such references have been made to the Regulations or Act, it is clarified that amendments thereto or subsequent enactment thereof shall apply.

2.2. Institutional Framework

- 2.2.1. The institutional mechanism, rules & regulations, technical procedures etc. may vary significantly across the neighbouring countries. In view of this, the institutional framework proposed has given a lot of emphasis to the planning and coordination activities associated with Cross Border Trade of Electricity.
- 2.2.2. The Ministry of Power in its Guidelines issued on 5th December, 2016 stipulated that the Ministry shall designate an Authority for facilitating the process of

approval and laying down the procedure for cross border transaction and trade in electricity. Subsequently, in pursuance of the aforesaid Guidelines, the Ministry of Power vide OM No. 14/1/2016-Trans dated 14th December 2016 notified Member (Power System), CEA as the Designated Authority (DA). The notification is attached at **Annexure -2**.

2.2.3. According to the above mentioned notification, the DA shall carry out the following functions:

- (a) Co-ordinating with the respective nodal agency of the neighbouring countries on Cross Border Trade of Electricity.
- (b) Planning, monitoring, co-ordinating and commissioning of cross border transmission lines for cross border transaction in consultation with Central Electricity Authority (CEA) & Central Transmission Utility (CTU).
- (c) The grid security, safety & operations with respect to Cross Border Trade of Electricity in consultation with CEA, POSOCO and CTU
- (d) Examining and certifying surplus capacity of electricity in India for the purpose of Cross Border Trade of Electricity for export by coal based Indian Thermal Power Projects other than Public Sector Undertakings (PSUs) projects.
- (e) Accord the approval for Participating Entity(ies) for cross border trade between India and the neighbouring country and/or through Indian Power Exchanges
- (f) Notifying the quantum of electricity from time to time that can be traded under Cross Border Trade of Electricity through Indian Power Exchanges and any other function as may be specified by Ministry of Power

Further, as notified, the DA shall also be framing its own rules for Conduct of Business (CBR) for facilitating the process of approval and laying down the procedure for Cross Border Trade of Electricity between India and neighbouring countries. The Draft Regulations have incorporated the provisions related to Designated Authority provided in the Guidelines.

2.2.4. A detailed institutional mechanism has been proposed in the Draft Regulations with the following agencies carrying out the designated functions as mentioned below:

- (a) **Transmission Planning Agency (TPA)** - Akin to the DA in India, the neighbouring country shall designate a Transmission Planning Agency (TPA) for its country. The TPA shall coordinate with the DA in India and carry out the Transmission System planning for the Cross Border Trade of Electricity between the two countries.
- (b) **Settlement Nodal Agency (SNA)** - As provided in the Guidelines, the Ministry of Power shall notify a SNA for each of the neighbouring country who shall be responsible for settling all cross border payments pertaining to grid operations including operating charges, charges for deviation and other

charges related to transactions with a particular neighbouring country. SNA will be a member of the deviation pool, reactive energy pool and other regulatory pools for payment and settlement of the corresponding charges in the pool accounts of the region having connectivity with any other neighbouring country. This practice is already being followed in India. For instance, NVVN has been assigned the role of Nodal Agency for trading of power with Bangladesh.

- (c) **Central Transmission Utility (CTU)** - As per the CERC (Grant of Connectivity, Long Term Access, and Medium Term Open Access) Regulations, 2009, the CTU is the nodal agency for granting connectivity, long-term and medium term open access to the inter-state transmission systems in India. It is proposed that for cross border transactions also, the CTU shall be responsible for granting connectivity, long term & medium term open access to the Indian grid. It shall also be responsible for billing, collection and disbursement of the related transmission charges in accordance with the CERC (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010.

National Load Dispatch Centre (NLDC) - As per the CERC (Open Access in inter-state Transmission) Regulations, 2008 the concerned RLDC is the nodal agency for all the bilateral short term open access transactions in India. It is proposed that for cross border transactions involving two countries, the NLDC shall be responsible for granting short-term open access to the Indian grid. It shall also be responsible for billing, collection and disbursement of the related transmission charges in accordance with the CERC (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010.

In addition, the NLDC shall also act as the System Operator for India and be responsible for scheduling and dispatch of electricity related to cross border transactions. It shall also carry out other monitoring and supervision activities required for maintaining the security and stability of the international transmission link.

2.3. Eligibility Conditions for participating Applicant

- 2.3.1. The cross border trading of electricity with a neighbouring country can have significant implications on the economic and strategic interests of the country. Considering this, the Guidelines issued by Ministry of Power under Sub Clause 5.2.1 have specified the conditions based on which an applicant can either seek one time approval or case to case basis approval from the DA. The applicant shall become eligible to participate in the cross border trade of electricity only after obtaining the suitable approval from the DA. The Draft Regulations have incorporated the provisions related to eligibility conditions of the participating entities provided in the Guidelines.

2.3.2. Besides, the Draft Regulations in Clause 2(e) in the Definition section have specified that any one of the following entities from the neighbouring country can be an Applicant for seeking grant of connectivity for Cross Border Trade of Electricity:

- (a) A Hydro Generating station or generating station using renewable source of energy for a installed capacity of 50 MW and above, or
- (b) A generating station (not covered under (a) above) with installed capacity of 250 MW and above, including a captive generating plant of exportable capacity of 250 MW and above, or
- (c) Hydro Generating stations or generating stations using renewable source of energy individually having less than 50 MW installed capacity, but collectively having an aggregate installed capacity of 50 MW and above, and acting on behalf of all these generating stations, and seeking connection from CTU at a single connection at the pooling sub-station under CTU, termed as the lead generator, or
- (d) A consumer who intends to avail supply of a minimum load of 100 MW through the inter-State Transmission System of India

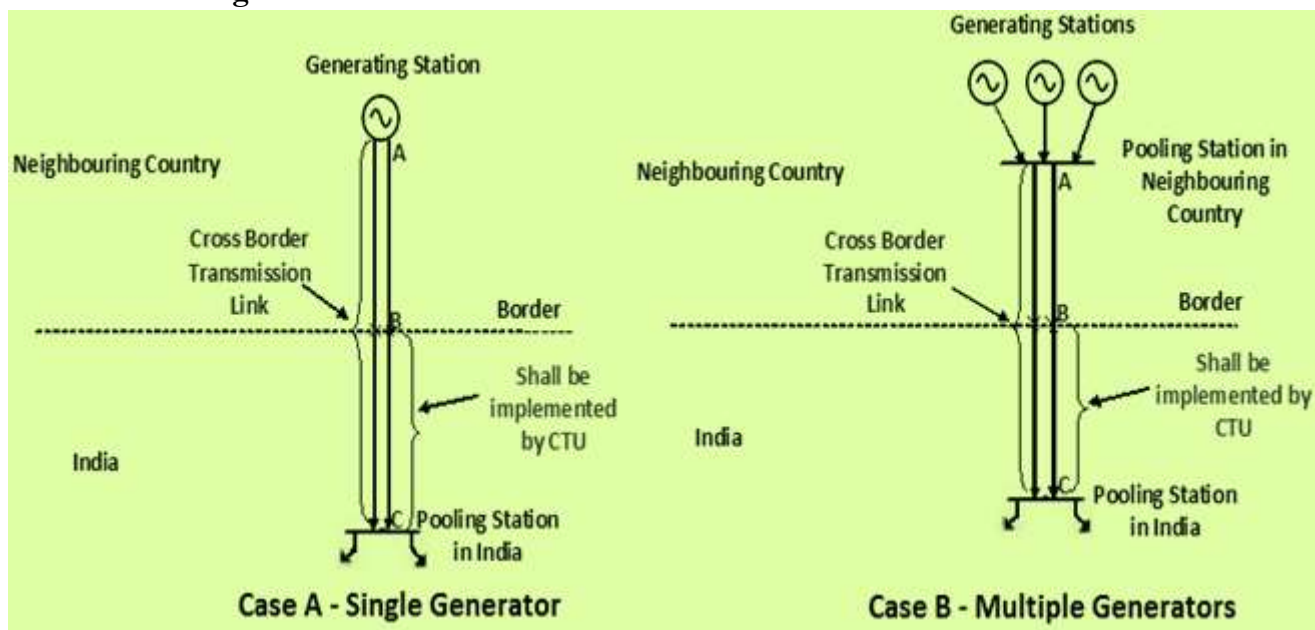
The above conditions are in alignment with the eligibility conditions required for the applicant seeking connectivity in India under CERC (Grant of Connectivity, Long Term Access, and Medium Term Open Access) Regulations, 2009.

2.4. Transmission Planning and Implementation of Cross Border Transmission Link

2.4.1. The transmission interconnection between India and a neighbouring country shall be planned jointly by the DA in India and the TPA of the neighbouring country with the approval of their respective Governments.

2.4.2. The cross border transmission link shall consist of lines (including associated transmission system) from the pooling station within India till the Indian border and lines from Indian border till the pooling station of the neighbouring country. The CTU shall be responsible for the implementation of cross border transmission link between the pooling station within India till the Indian border. Beyond the Indian border the responsibility of the implementation shall be that of the Applicant(s) or the TPA of the neighbouring country. An illustrative example may be seen below:

Figure 4: Cross Border Transmission Link



As shown in the above figure, the transmission lines (including associated transmission systems) from Point A to Point C shall be considered as cross border transmission link. The cross border transmission link shall be planned by the DA in India and the TPA of the neighbouring country in a coordinated manner. The transmission lines from Point B to Point C shall be the responsibility of CTU whereas the transmission lines from Point A to Point B shall be the responsibility of either the TPA or the Applicant of the neighbouring country.

- 2.4.3. The cross border transmission link between the pooling station within India to the Indian border shall be treated similar to other inter-state transmission lines in India. Further, considering the strategic nature of cross border transactions, it is desirable that the cross border transmission link from the pooling station within India to the Indian border be implemented based on cost plus basis and not on tariff based competitive bidding basis. It is based on the rationale that in case there is a delay in construction of generating station/associated portion of cross border transmission link in the neighbouring country, then the additional costs incurred on account of the delay can be recovered through tariff as per the extant Regulations.

The Central Government may consider allowing the construction of cross border transmission link on a cost plus basis under strategic considerations. The National Tariff Policy, 2016 has also provided for such exemptions under clause 7.1 (7) as reproduced below:

'While all future inter-state transmission projects shall, ordinarily, be developed through competitive bidding process, the Central Government may give exemption from competitive bidding for (a) specific category of projects of strategic importance, technical up-gradation etc. or (b) works required to be done to cater to an urgent situation on a case to case basis'

Accordingly, as provided under the Article 62 of the Electricity Act, the tariff for the Indian part of the cross border transmission lines (including the associated transmission systems) shall be determined by the Commission in accordance with CERC (Terms and Conditions of Tariff) Regulations, 2014 payable by the applicant (s) using these facilities for Cross Border Trade of Electricity.

2.4.4. It is important that both the sides of cross border transmission link i.e. from pooling station within India to the Indian border and pooling station within the neighbouring country to Indian Border should be implemented in a coordinated manner so that these can come up in a similar time frame. In case the CTU has implemented the transmission links, but the matching lines or the generating station in the neighbouring country could not come up within the agreed timelines, then the tariff as determined by the Commission shall be charged to the applicant even though no actual transmission of power takes place.

2.4.5. In this regard it is proposed that the DA shall make a detailed procedure specifying inter-alia the modalities for creating the transmission link, mechanism for sharing and recovery of transmission charges, contingencies in case of delays etc.

2.4.6. The mode of interconnection between neighbouring country and India will preferably be through DC links. It can help increase system stability, by preventing the cascading failures propagating from one part of a power transmission grid to another. Construction and maintenance of the transmission lines & associated systems shall be in accordance with the Indian technical standards specified by CEA from time to time.

2.5. Grid Connectivity Long Term Access or Medium Term Open Access or Short Term Open Access

2.5.1. As already mentioned in the Objective & Scope section, the existing CERC (Grant of Connectivity, Long Term Access, and Medium Term Open Access) Regulations, 2009 shall be applicable in entirety for granting connectivity, long term or medium term open access for the purpose of Cross Border Trade of Electricity to the participating entities located in India.

2.5.2. The Draft Regulations have proposed some additional requirements for granting connectivity, long term or medium term open access to the participating entities located in neighbouring country. The additional conditions are proposed keeping in view the specific requirements of Cross Border Trade of Electricity. Besides, it has also incorporated some of the amendments that the Commission is contemplating to bring in the existing CERC (Grant of Connectivity, Long Term Access, and Medium Term Open Access) Regulations, 2009. The important ones proposed are discussed below.

- (a) **Definition of Long Term and Medium Term Open Access:** As per CERC Grant of Connectivity Regulations, 2009 long term access implies the right to use the inter-state transmission system between 12-25 years whereas the medium term access implies usage for 3 months - 3 years. It is proposed that long term access be defined as right to use the inter-state transmission system for 7 or more years whereas the medium term access should be the right to use between 1 - 5 years. This is in alignment with the trends observed with respect to duration in recently signed PPAs.
- (b) **Application Fees:** The applicant located in neighbouring country seeking grant of connectivity and long term or medium term open access for cross border trade of electricity shall, along with the application, have to pay a non refundable application fee in Indian Rupees as mentioned below:

| S.NO. | Quantum of Power to be injected/off taken into/from ISTS | Application fee (Rs. in Lakh) | |
|-------|--|------------------------------------|-------------------------|
| | | For Connectivity /Long term Access | Medium-term open access |
| 1. | Up to 100MW | 4 | 1 |
| 2. | More than 100 MW and up to 500 MW | 6 | 2 |
| 3. | More than 500 MW and up to 1000 MW | 12 | 3 |
| 4. | More than 1000 MW | 18 | 4 |

The Draft Regulations have proposed to do away with Application Bank Guarantee provided under the sub clause 3 of clause 12 in CERC (Grant of Connectivity, Long Term Access, and Medium Term Open Access) Regulations, 2009. Instead, it has proposed to double the application fee for grant of connectivity and long term access.

- (c) **Access Bank Guarantee for Long Term Cross Border Access:** Besides, the application fees as discussed above, the applicant located in neighbouring country shall be required to furnish to the CTU the Access Bank Guarantee along with the application for long term access for an amount of Rs. 1 cr/MW of the long term cross border transmission access quantum. The applicant has to furnish the Access Bank Guarantee regardless of whether the augmentation of transmission system has to be taken up or not. In case any of the developers fail to construct the generating station/dedicated transmission system or makes an exit and abandon its project, then the CTU shall have the right to encash the Access Bank Guarantee. However, the long term customer can approach the CTU and seek permission to exit prior to the award of contract for execution of Transmission system. In such case, considering that the CTU may have already carried out the necessary studies and the associated preparatory work, it shall encash Rs. 20 lakhs from the Access Bank Guarantee and return the balance amount to the long term customer. After operationalization of Long Term Access the Access Bank Guarantee shall be discharged to the concerned

applicant in 5 years with one fifth of the Access Bank Guarantee amount to be refunded every year.

- (d) **Provisional Grant of Connectivity:** As also provided under CERC (Grant of Connectivity, Long Term Access, Medium Term Open Access) Regulations, 2009 it is proposed that the grant of connectivity shall be considered provisional till the cross border long term or medium term or short term access is filed by the Applicant. Further, it is proposed that the application seeking long term access has to be mandatorily filed within 2 year of date of grant of Connectivity for a minimum of 50% of the installed capacity (minus auxiliary consumption) failing which Connectivity granted shall be withdrawn and application fees shall be forfeited.
- (e) **Condition for Augmentation of Transmission Line:** It is proposed that the augmentation of Transmission system shall be undertaken only after signing up of the Long Term PPA for at least fifty(50) percent of the installed capacity of the generating station. This has been included considering the risks associated with transmission infrastructure creation for cross border trade of electricity.
- (f) **Time frame for processing:** It is proposed that the CTU shall process the Long term access applications requiring augmentation of transmission system in Indian grid within 90 days and in case the augmentation is not required the applications shall be processed within 60 days. It is further proposed that the CTU shall process the medium term open access applications within 30 days. It is proposed that the CTU shall process the application for cross border trading of electricity within the above timelines notwithstanding the existing procedures followed for processing the long term access or medium term open applications from India.

2.5.3. It is proposed that applications for grant of connectivity for short term open access shall be made to NLDC as per CERC (Open Access in inter-state Transmission) Regulations, 2008. The fees for short term open access shall be as per the procedure for scheduling for Bilateral Transactions specified in CERC (Open Access in inter-State Transmission) Regulations, 2008.

2.5.4. Unless otherwise specified in these Regulations, the provisions contained in the CERC (Open Access in inter-State Transmission) Regulations, 2008 and CERC (Grant of Connectivity, Long Term Access, Medium Term Open Access) Regulations, 2009 shall be applicable to the participating entities located in neighbouring countries seeking grant of connectivity or long term or medium term open access or short term open access for the purpose of Cross Border Trade of Electricity.

2.6. Trade Through Indian Power Exchanges

2.6.1. The Guidelines under Clause 7.0 have clearly specified the conditions based on which the participating entities can carry out trade in Indian Power Exchanges. The Draft Regulations have incorporated these provisions without any changes.

2.6.2. The entities eligible to undertake cross border trade of electricity in Indian Power Exchanges are initially allowed to trade under the categories of Term Ahead Contract, Intra Day Contracts or Contingency Contracts. However, as provided in the Guidelines, the same can subsequently be extended to other categories of contracts based on review by Ministry of Power in consultation with CERC.

2.7. Tariff Determination

2.7.1. The Guidelines under Clause 6.0 have specified the conditions for determination of generation tariff for cross border transactions. The Draft Regulations have incorporated these provisions without any changes.

2.7.2. Considering the strategic nature of the cross border trade of electricity, the Guidelines have provided for determination of tariff through Government to Government negotiations. It is further provided that in case there is an Agreement already in existence and the tariff is determined as per the terms and conditions laid down in the Agreement, then the tariff shall be deemed to have been adopted by the Appropriate Commission as and when the same is received.

For example, the tariff for 336 MW Chukha Hydro Power Project in Bhutan is determined based on the Agreements signed between Government of India and Government of Bhutan in the year 1974. According to the protocol agreed between the two countries, the tariff shall be determined at the time of commissioning of the project and thereafter be reviewed by the two Governments at the end of each 4 year period. As provided in the Draft Regulations, the tariff so determined by the Govt. of India & Govt. of Bhutan for Chukha Hydro Power Project shall be deemed to have been adopted by the Appropriate Commission.

2.7.3. Besides, it is proposed that the tariff for the Cross Border Transmission Lines & associated Systems from pooling station within India till the Indian border (which shall be the responsibility of CTU), shall be determined as per CERC (Terms and Conditions of Tariff) Regulations, 2014. The Cross Border Transmission Lines & System has already been explained the section 2.4 above.

2.7.4. The tariff for transmission system within India shall be as per the prevailing laws under Section 62 or Section 63 of the Electricity Act.

2.8. System Operations

2.8.1. While facilitating the cross border trading of electricity it is important to ensure that the interconnected grid is also operated in a stable and secure manner. Besides, there should be in place an efficient energy accounting and settlement mechanism for settlement of charges arising out of cross border transactions between India and its neighbouring countries.

2.8.2. In view of the above, the Draft Regulations have made provisions for system operations related activities for cross border trade of electricity in alignment with the procedures laid down in the existing CEA and CERC Regulations. All related provisions under CERC (Indian Electricity Grid Code) Regulations, 2010 shall also be applicable.

Declaration of Available Margins for facilitating Cross Border Transactions

2.8.3. In India, the CTU assesses the Total Transfer Capability (TTC)/Available Transfer Capability (ATC) for long term/medium term open access in inter-regional links based on the Detailed Procedure prepared under the CERC (Grant of Connectivity, Long term Access and Medium term Open Access) Regulations, 2009. Similarly, the System Operator (NLDC) assesses the TTC/ATC for short term transactions in inter-regional links based on CERC (Measures to relieve congestion in real time operations) Regulations, 2009.

2.8.4. It is proposed that the TTC/ATC for the international link should also be assessed in advance by the System Operators identified in the respective countries based on their prevailing procedures and the lower of the two values of ATC assessed by the two countries should be considered for allowing the cross border transactions.

Scheduling and Dispatch

2.8.5. It is proposed that the scheduling of Cross Border Trade of Electricity be carried out in accordance with the procedure specified in the Part 6 of CERC (Indian Electricity Grid Code) Regulations, 2010. The proposed procedure is briefly outlined below.

- The selling/buying entity shall inform their requisitions to the SNA who in turn shall coordinate with the System Operators of the respective countries for scheduling of cross border transactions.
- System Operator shall declare the quantum of power to be scheduled over the cross border link on a day-ahead basis for the next day at the interconnection point.
- The scheduling of power shall then be carried out as per agreed quantum in the contracts for each 15-minute time period in a day. The transmission

system losses shall be borne in kind by the utilities as per the quantum declared by the concerned System Operator of India or the neighbouring country.

Congestion Management and Priority of Curtailment

2.8.6. It is proposed that the NLDC being the designated System Operator for Cross Border Trade of Electricity may decide to curtail already scheduled transactions in case of tripping of cross border link, congestion over the cross border inter-connection, or any other considerations in India.

2.8.7. Further, similar to the provisions under CERC (Indian Electricity Grid Code) Regulations, 2010 the curtailment priority shall be first short term transactions followed by medium term transactions and then, long term transactions. Amongst the customers of a particular category the curtailment shall be carried out on a pro rata basis.

Meter Reading, Accounting, Deviations and Settlement

2.8.8. Special Energy Meters constituting of Main Meter, Check Meter and Standby Meter should be installed at both the ends of the cross border transmission link for recording of actual net MWh interchanges on a 15-minute basis and MVARh draws. Further, Meters should also be installed at Generating stations located outside India. All the metering arrangements shall be carried out in accordance with CEA (Installation and Operation of Meters) Regulations, 2006.

Going forward, it is envisaged that the CERC (Indian Electricity Grid Code) Regulations, 2010 may be amended to provide that the energy meters may record transactions in 5 minute time block instead of 15 minute time block at present. The cross border metering system shall be aligned to the provisions of CERC (Indian Electricity Grid Code) Regulations, 2010.

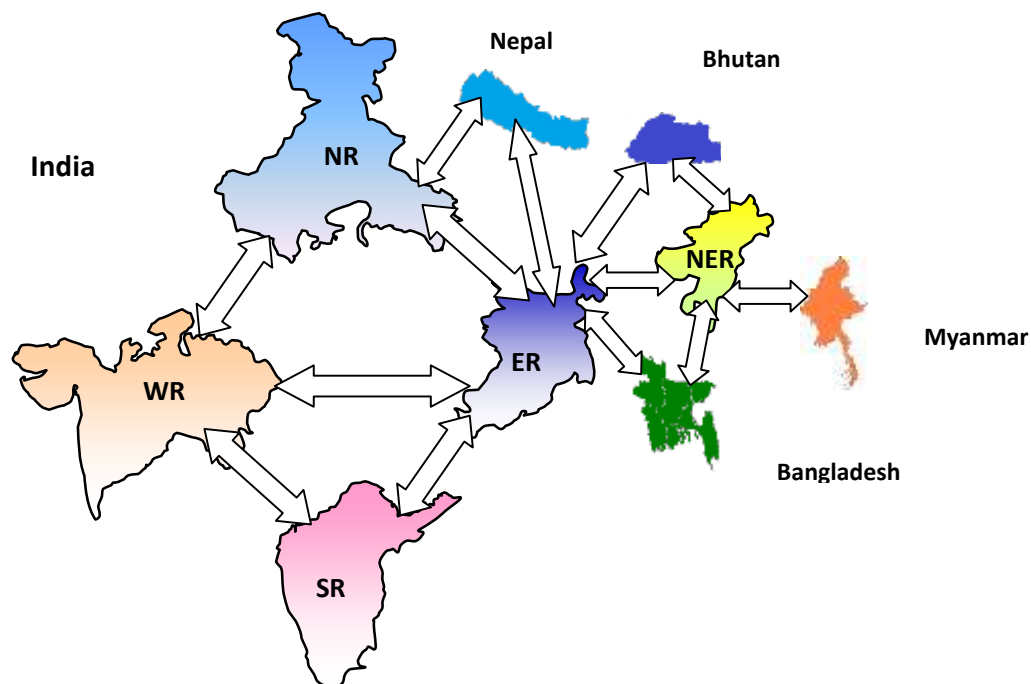
2.8.9. Before the flow of electricity on cross border transmission line, TPAs of both the countries should confirm the availability of Main Meter, Check Meter and Standby Meter to System Operator of respective country. Further, the Special Energy Meters should be open for inspection by any person authorized by the TPAs or System Operators of the respective countries.

2.8.10. It is proposed that the Settlement of accounts of all electricity imported or exported from or to the neighbouring country should be at the interconnection point and carried out by the SNA in accordance with the CERC (Indian Electricity Grid Code) Regulations, 2010.

2.8.11. The SNA, who is responsible for settlement of charges arising out of cross border transactions, shall be a member of the Regional DSM pool acting on

behalf of the selling entity/buying entity of the neighbouring country. As shown in the Figure 5 below, some of the neighbouring countries may be connected to more than one region in India. In such cases the SNA shall also be a member of respective Regional DSM Pool.

Figure 5: Grid Connectivity with neighbouring country



2.8.12. It is proposed that the following procedure be adopted for energy accounting and settlement purposes:

- Weekly meter readings by the selling and buying entity shall be taken and transmitted by the TPAs to the SNA which in turn shall provide the same to System Operator i.e. NLDC by Tuesday noon for the previous week so as to facilitate energy accounting.
- Net import /export MWh and MVarh shall be computed by NLDC and shared with System operator of the neighbouring country for matching purpose
- Deviation from schedule on the Cross Border Link for each 15 minute time interval and the Charges for deviation from schedule (imbalance) at the point of inter-connection with the Indian Grid shall be calculated by the NLDC in accordance with the CERC (Deviation Settlement Mechanism) Regulations, 2014.

2.8.13. The SNA shall pay/receive charges on account of deviation to/from Regional DSM pool maintained by the System Operator as per DSM account issued by

Regional Power Committee. It is the responsibility of the SNA to settle the same with the selling entity/buying entity of the neighbouring country.

- 2.8.14. Besides, as envisaged in the institutional framework, the SNA shall be responsible for settling scheduling charges (SOC & MOC Charges), Reactive Energy charges, Regional Power Committee (RPC) charges etc. etc. on behalf of the Selling/Buying entity with the System Operator and RPC which is in turn has to be settled by the SNA with the concerned parties. The Settlement Nodal Agency may sign an Agreement with Parties to the Cross Border trades for the required activities to be performed by the Settlement Nodal Agency. The SNA shall be paid service charges for carrying out functions under these Regulations which shall be separately notified by the Commission.

Real time SCADA Data, Communication Facilities Safety and Cyber Security

- 2.8.15. A reliable and efficient speech and data communication systems, with adequate redundancy of communication links, should be provided to facilitate necessary communication and data exchange, and supervision/control of the cross border interconnection by the respective System Operators in each of the country, under normal and abnormal conditions.
- 2.8.16. For safety, the CTU and the concerned Users shall be responsible in accordance with Central Electricity Authority (Technical Standards for connectivity to the Grid) Regulations, 2007, Central Electricity Regulatory Commission (Grant of Connectivity, Long-term Access and Medium-term Open Access in inter-state Transmission and related matters) Regulations, 2009 and CEA (Safety Requirements for construction, operation and maintenance of electrical and electric lines) Regulations, 2008.
- 2.8.17. It is proposed that a cyber-security framework identifying the critical cyber assets and protecting them should be put in place at both ends so as to support reliable operation of the cross border interconnection.

System Security Outage Planning & Recovery Procedures

- 2.8.18. The interconnection between two pooling substations of different countries should be monitored and controlled by the respective System Operators of the two countries, with proper coordination.
- 2.8.19. Detailed plans and procedures related to system security outage, planning and recovery should be finalized after the discussion between the System Operators of both the countries. While preparing the procedure the provisions related to system outage and recovery procedures under CERC (Indian Electricity Grid Code), Regulations 2010 should be followed.

2.9. Transmission Charges & Payment Security Mechanism

- 2.9.1. The PoC Injection and Withdrawal charges so determined under CERC (Sharing of ISTS Charges & Losses) Regulations, 2010 shall be applicable to the entities injecting or withdrawing power from the Indian Grid for cross border transactions. Besides, the applicant has to bear the transmission charges for using the Cross Border Transmission Link from the pooling station in India to the Indian border as determined by the Commission from time to time under the provisions of CERC (Tariff Regulations), 2014
- 2.9.2. In line with the provisions of Regulation 6.5 of Scheduling and Despatch procedure of Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and Regulation 6 on Application of losses while scheduling of contracts of the Procedure for sharing of ISTS losses, the transmission losses shall be shared as per the following methodology:
- (a) Withdrawal PoC losses as applicable would be applied at the interface.
 - (b) Injection PoC losses of respective injection grid would be applied at the interface.
 - (c) Net schedule at Indian end of the cross border transmission line would be arrived at after applying injection PoC loss of the concerned injection zone and withdrawal PoC loss.
- 2.9.3. Cross Border Transmission Access Customer shall establish payment security towards transmission charges at least ninety days prior to the intimated date of commencement of Cross Border Transmission which inter-alia shall include following for Long term access and medium term open access:
- (a) A confirmed irrevocable, unconditional and revolving Letter of Credit in favour of the CTU through bank as specified in 2.10 equivalent to two point five (2.5) times the average Bill amount towards transmission charge for 3 months of the Application Period with a validity of 1 year;
 - (b) A confirmed irrevocable, unconditional and revolving Letter of Credit in favour of the SNA of India through bank as specified in Regulation 2.10 equivalent to two point five (2.5) times the average Bill amount towards grid related charge for 3 months with a validity of 1 year as informed by SNA of India.

2.10. Bank details

- 2.10.1. Bank guarantees, Letter of credit or any other payment security or payment required to be provided under these regulations shall be furnished by the Cross Border Transmission Access Applicant/Customer in Indian Rupees from a bank in their Country which shall be counter guaranteed by Nationalized Bank of India.

- 2.10.2. In case such Bank guarantees, Letter of credit or any other payment security is established by entities of neighbouring country the same shall be duly secured by the Sovereign Guarantee of the government of the neighbouring country.

2.11. Responsibilities of DA

2.11.1. The DA shall be playing a pivotal role in smooth implementation of the cross border trade of electricity in India. As discussed in Clause 2.2.3, the notification issued by Ministry of Power has specified the broad functions of the DA.

2.11.2. Within this broad contour of activities identified by the Ministry of Power, it is proposed that the DA shall inter-alia carry out the following activities:

- (a) Coordinate with CEA, CTU and TPAs of the neighbouring country and plan for the Cross Border Transmission Link. It shall prepare procedures for creating cross border transmission link in different scenarios viz. dedicated lines, shared lines etc. The procedure may address how the transmission charges have to be recovered from the applicants using the cross border transmission link.
- (b) Coordinate with CTU, TPAs, Developers (Joint co-ordination group) for ensuring that the Cross Border Transmission Lines from pooling station within India to the Indian Border and from Indian border to the neighbouring country pooling station comes up in a similar time frame. The procedure may include measures for addressing the delays in the implementation of generator or associated cross border transmission link.
- (c) Coordinate with the System Operators and TPAs of neighbouring countries to look into various aspects associated with the operation of cross border transmission link including the protection related issues. It may consider constituting Operation Co-ordination and Protection Groups for overseeing the operations of cross border transmission link. The group may also periodically review the provisions related to protection and relay settings etc. It shall make procedures for outages, scheduled maintenance activities with mutual consent from the System Operators and TPAs of the neighbouring countries etc.
- (d) Prepare the modalities for collecting the technical, financial and commercial information from the entities of the neighbouring countries.

2.12. Dispute Settlement Mechanism

2.12.1. The Draft Regulations have proposed a time bound multi-tiered dispute settlement mechanism for resolving any disputes arising on account of cross border trade of electricity.

- 2.12.2. Initially, the participating entities involved shall try to resolve and settle the disputes shall resolve and settle the dispute mutually within 60 days from the raising of the dispute.
- 2.12.3. In case the disputes can't be resolved mutually then the same shall be escalated to Secretary (Power), Govt. India and the concerned Secretary of Govt. of neighbouring country to be resolved at Government to Government level. If it still can't be resolved within the 30 days of escalation, then it shall be referred to Singapore International Arbitration Centre and finally settled through by its arbitration in accordance with the Rules of Arbitration of Singapore International Arbitration Centre ("SIAC Rules").
