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South Asia Regional Initiative for Energy Integration (SARI/EI)



Formulation of Model set of electricity regulations for implementation of the SAARC Framework Agreement for Energy (Electricity) Cooperation (SFAEC) and for advancing electricity trade in the SAARC countries

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Abbreviations



ACER	Agency for the Cooperation of Energy Regulators
BEA	Bhutan Electricity Authority
BERC	Bangladesh Energy Regulatory Commission
BBIN	Bhutan, Bangladesh, India and Nepal
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BPC	Bhutan Power Corporation
BPDB	Bangladesh Power Development Board
BPTA	Bulk Power Transmission Agreement
CASA	Central Asia – South Asia
CBET	Cross border electricity trade
CEA	Central Electricity Authority
CEB	Ceylon Electricity Board
CRIE	Regional Commission for Electric Interconnection
CERC	Central Electricity Regulation Commission
CTU	Central Transmission Utility
DABS	Da Afghanistan Breshna Sherkat
DGPC	Druk Green Power Corporation
DHPC	Dagachhu Hydro Power Corporation
DHPS	Department of Hydropower and Power Systems
DOE	Department of Energy
DoED	The Department of Electricity Development
DPDC	Dhaka Power Distribution Company
EC	European Commission
ECOWAS	Economic Community of West African States
ENTSO-E	European Network of Transmission System Operators for Electricity
EOR	Ente Operator Regional



ERERA	ECOWAS Regional Electricity Regulatory Authority
ERLDC	Eastern Region Load Despatch Center
ETFC	Electricity Tariff Fixation Commission
HVDC	High Voltage Direct Current
IBN	Investment Board of Nepal
IRADe	Integrated Research and Action Development
ITSA	Implementation and Transmission Service Agreement
JV	Joint Venture
LCIA	London Court of International Arbitration
MER	Regional Electricity Market
MOEWRI	Ministry of Energy, Water Resources and Irrigation
NEA	Nepal Electricity Authority
NEPRA	National Electric Power Regularity Authority
NLDC	National Load Despatch Center
NTDC	National Transmission and Despatch (Grid) Company
NVVNL	NTPC Vidyut Vyapar Nigam Limited
PGCB	Power Grid Company of Bangladesh
PGCIL	Power Grid Corporation of India Limited
POSOCO	Power System Operation Corporation
PPA	Public Private Partnership
PTA	Power Trade Agreement
PUCSL	Public Utilities Commission of Sri Lanka
REMR	Regional Electricity Market Regulations
RERA	Regional Electricity Regulators Association of Southern Africa
RGOB	Royal Government of Bhutan
SAARC	South Asian Association for Regional Cooperation
SADC	Southern African Development Community
SAFER	South Asia Forum of Electricity Regulators
SAFIR	South Asia Forum for Infrastructure Regulation
SAFTU	South Asia Forum of Transmission Utilities and System Operators

SAPP	South African Power Pool
SARCO	SAARC Arbitration Council
SARI/EI	South Asia Regional Initiative for Energy Integration
SERRPT	SAARC Electricity Regulation for Regional Power Trade
SFAEC	SAARC Framework Agreement on Energy (Electricity) Cooperation
SIAC	Singapore International Arbitration Centre
SIEPAC	Central American Electrical Interconnection System
TPC	Tata Power Company Limited
TPTCL	Tata Power Trading Company Limited
USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority
WAPP	West African Power Pool



SARI/EI



Study and Research by

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This model regulation is suggestive in nature and is based on the research, review and analysis of prevailing Electricity Laws, Regulation frameworks and Policies of SA countries and articles of SAARC framework agreement on energy cooperation (electricity) and the model regulations as suggested in the report can be considered by each SAARC Country Governments as a base document for doing further work in aligning/harmonising/coordinating the legal, policy and regulatory frameworks prevailing in each South Asian Countries for promoting Cross Border Electricity Trade (CBET) in the region and for implementation of articles of SAARC framework agreement on energy cooperation (electricity).

The information/data as existed in public domain and obtained/collected from the various primary and secondary sources as on April 2018 has been used on an "as-is" basis without any independent verification. While every care has been taken to ensure the accuracy of data/information furnished, the author shall not be responsible in any manner whatsoever for any error or omissions, or for the results obtained from the use of this data/information and provides no assurance regarding the accuracy, timeliness, adequacy, comprehensiveness and/or completeness of such information. The author shall not be liable for any losses and damages arising as a result of any inaccuracy or inadequacy or incomprehensiveness or incompleteness of such information.

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1 Executive Summary

1.1 Introduction

CBET between SAARC countries are currently conducted based on bilateral agreements. Bhutan exports power to India, through Indian power trading entities, from large hydro stations. The present power transfer capacity between Bhutan and India is around 2,500 MW. Nepal has been importing power from India at least since 1970s, with the power from India playing a crucial role in the dry months of December – April, when the hydropower generation in the country falls very low. Imports from India accounted for nearly 34% of the annual electricity supply of the country in FY 2015-16. Bangladesh buys more than 350 MW of power from India under both long term and short-term arrangements.

There is also cross border trade conducted between SAARC and non-SAARC countries, such as in the case of Pakistan – Iran, Afghanistan – Tajikistan, Afghanistan – Turkmenistan, Afghanistan – Iran, Afghanistan – Uzbekistan and India – Myanmar.

In the long term, relying exclusively on bilateral agreements is not recommended, due to requirements such as allowing power trade between non-neighboring countries and reducing the time taken for negotiation and finalization of agreements in the absence of standardization. On November 2014, realizing the need for multilateral cooperation in electricity, the SAARC member states came together to sign the SAARC Framework Agreement for Energy Cooperation (Electricity).

1.2 Need for model regulations

Most of the existing CBET transactions in South Asia are under Government-to-Government arrangements. An analysis of key CBET arrangements in South Asia reveals a few common characteristics:

- Irrespective of the type of PPA, the trade is dependent on bilateral Government-to-Government agreements. For example, the existing arrangements between India and Bhutan on sale of power from Tala, Chuka and Kurichhu hydropower plants led to the development of cross border links and commercial arrangements. This allowed the Dagachhu Hydro Power Corporation to enter into PPA with Tata Power Trading, utilizing available margins in the existing cross border links.
- There is no regional co-ordination in planning of Cross Border Transmission Interconnections, except under bilateral Government-to-Government arrangements. For example, Cross Border Transmission Interconnections between India and Nepal are discussed and agreed through Joint Working Group and Joint Steering Committee, which have representatives from both the countries.
- There are no provisions allowing third country trade, with one of the countries allowing transit access to CBET.
- In the existing framework, planning of CBET transmission interconnections and signing

of PPAs are a lengthy process. For example, for nearly two years, India and Nepal has been discussing the implementation modality for the 400 KV New Butwal – Gorakhpur cross border transmission line (As per the minutes of meeting of Joint Working Group and Joint Steering Committee).

The above points to the need for a common harmonized regulatory framework for CBET in South Asia that may address many of the shortcomings in the existing arrangements. The SAARC Framework Agreement on Energy Cooperation provides a starting point for planning of such a regulatory framework.

1.3 Gap analysis of existing regulatory framework for CBET

The following four aspects were identified as the minimum key requirements in the regulatory framework of the countries to support CBET.

1. Enabling provisions for CBET, such as eligibility criteria, non-discriminatory open access and approval procedures;
2. Regulatory and institutional provisions that can reduce the effort and time for CBET, such as standardization of procedures, and appointment of nodal agencies;
3. Provisions for regulatory harmonization and co-ordination with neighboring countries on matters related to CBET; and
4. Safeguards for network protection, procedure for recovery from outages, and protection of public interest during emergency.

A gap analysis was conducted wherein the the regulatory framework in each country is tested against the above listed requirements. The summary of gap analysis of regulatory framework for CBET in South Asian countries are provided below. It can be seen that there is a complete or partial absence of provisions for CBET in the regulatory framework of these countries, notwithstanding the fact that in many of the countries, cross border electricity trade already happens under adhoc mechanisms or government-to-government arrangements.

Table 1: Summary of gap analysis

Requirement for CBET	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri lanka
Enabling provisions	()	()	()	()	x	()	()	x
Accelerators	x	x	x	()	x	x	()	x
Harmonization and co-ordination	x	x	x	()	x	x	x	x
Safeguards	x	x	x	()	x	x	x	x

✓ Available ↻ Partially Available ✖ Not Available

The above analysis proves the requirement and relevance of a model regulation for Cross Border Electricity Trade, which can be adopted by the South Asian countries for implementation of Framework Agreement and promotion of CBET.

1.4 International experience

There are multiple instances of countries within the same region adopting regulatory instruments that promote CBET. Thus, experience in the following contexts were studied to derive the useful lessons and learnings for the formulation of Model Regulations:

- European Union's Internal Market for Electricity;
- West African Power Pool (WAPP);
- South African Power Pool (SAPP); and
- Central American Electrical Interconnection System (SIEPAC).

An analysis of regulatory frameworks for CBET in the above listed markets / regions shows that the regional institutional mechanisms have played a key role in development and implementation of such frameworks. This could be through entities with legal powers such as European Union, ECOWAS Regional Electricity Regulatory Authority (ERERA), Regional Commission for Electric Interconnection (CRIE) or through entities which can only provide recommendation, such as Regional Electricity Regulators Association of Southern Africa (RERA). Thus, in the absence of such regional entities playing a key role in South Asia, the challenge in formulating a model regulation for CBET is clearly evident. Thus, any such model regulation has to be formulated in such a way that it is acceptable to all the parties involved, which require all the provisions in such regulation to be fair and equitable.

1.5 Concept of model regulations

As per the Framework Agreement, the Member States were required to enable CBET on voluntary basis subject to laws, rules and regulations of the respective Member States and based on bilateral/trilateral/mutual agreements between the concerned states. They were also required to develop the structure, functions and institutional mechanisms for regulatory issues related to electricity exchange and trade.

However, so far, there have not been any considerable effort in creating the laws, rules and regulations at the National level in SAARC nations that are aimed to support the Framework Agreement (except in case of India). In such a context, a set of 'Model SAARC Electricity Regulation for Regional Power Trade (SERRPT)' is being proposed, as a regulatory instrument to implement the provisions of Framework Agreement.

Unlike the Framework Agreement, these model regulations can be utilized by the South Asian countries as a template for customization and notification of final Regulations for Regional Power Trade. Thus, these model regulations are not a mere extension of the Framework Agreement. The ultimate aim is to enable the development of legally enforceable regulatory mechanisms for regional power trade.

The model regulations can be notified by the National / Central level Regulatory Authority for electricity sector of the South Asian countries, which want to adopt these regulations. Each country is expected to separately notify these regulations, with minor changes if required. The Central / Federal Governments in each of the South Asian countries are expected to facilitate the notification of these Regulations by the respective Regulatory Authorities.

1.6 Key aspects of model regulations

CBET involves entities, which participate in the trade, regulatory authorities who regulate and monitor the market, transmission utilities that own and operate the cross border interconnections etc. In order to have a uniform definition in the context of model regulations, the following definitions have been proposed:

- (a) **Host Country** – Country which notifies these Regulations;
- (b) **Remote Country** – Country with whom Host Country have / plans to have CBET;
- (c) **Regulatory Authority** - The regulatory body, which is entrusted with the regulation of electricity sector at the national level, in each Country.
- (d) **Participating Entity** – Any of the entities which meets qualification requirements for CBET and is interested in undertaking CBET;
- (e) **Authorized Participating Entity** – Participating Entity which has obtained “CBET Authorization” from Regulatory Authority;
- (f) **Government Designated Agency** – The Governmental authority designated by the Government of each Country for issuing directions to the Regulatory Authority regarding CBET;
- (g) **Transmission Planning Agency** – Agency designated so by the Government of each Country for undertaking transmission planning at national level.
- (h) **National System Operator** – The agency entrusted with the scheduling and operational of national level transmission grid of each Country.
- (i) **CBET Transmission Service Provider** – The entity which owns and operates Cross Border Transmission Interconnections;
- (j) **Central Transmission Utility** – The entity which has overall responsibility for operating and maintaining the national transmission network;

The model regulations do not envisage a scenario where there is an overstepping of jurisdiction beyond the national boundaries, by any Government, Government Designated Agency or Regulatory Authority. However, the jurisdiction constraint also requires that for each CBET transaction between a Host Country and Remote Country, there shall be an identifiable CBET Participating Entity registered under Host Country and Remote Country. CBET Participating Entity in Host Country will be responsible for the transactions within the Host Country, and CBET Participating Entity in Remote Country will be responsible for transactions within the Remote Country.

Another key feature of model regulations is that the Government of each country will have a “Right of Refusal” to deny CBET Authorization to any CBET Participating Entity registered within the Country. It could do so based on investigations of ownership, and any other criteria. This is expected to address concerns on strategic interests of the countries. Further, Government

of each country will have powers to order curtailment of CBET Transactions in national interest. However, the Government will have to compensate for losses incurred on account of such curtailment.

The concept of “CBET Authorization” is introduced in the model regulations, which is an authorization granted by the Regulatory Authority to a Participating Entity for participating in CBET. A built-in element of Government approval is added in the CBET Authorization process, by providing the Government Designated Authority with a Right of Refusal to provide its clearance.

The model regulations further provide details on:

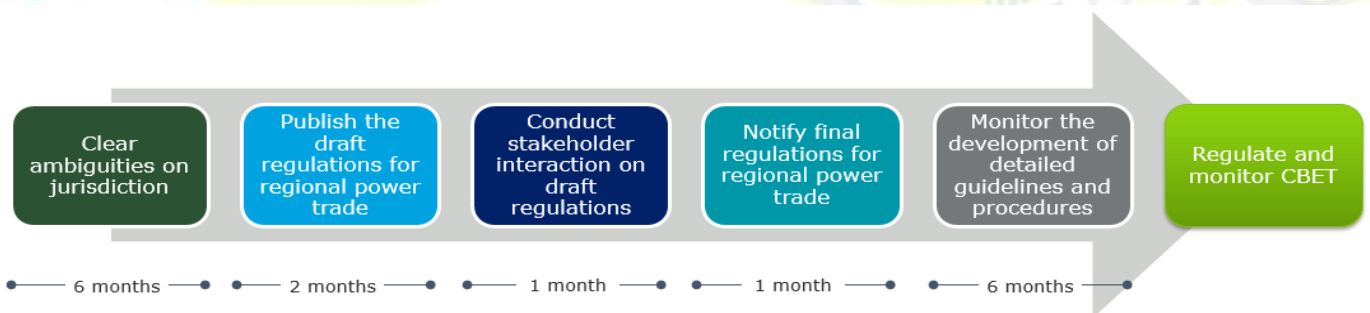
- Eligibility for CBET Authorization;
- Planning of Cross Border Transmission Interconnections;
- Open Access;
- CBET through Power Exchanges;
- Dispute Resolution;
- System operation and imbalance settlement;
- Network protection; and
- Institutional mechanisms for coordination.

The complete model regulations along with an explanatory note is provided as part of the full report.

1.7 Implementation roadmap

A proposed roadmap for translating the model regulations to national level regulations, along with indicative minimum timelines is provided below.

Figure 1: Roadmap for implementation of model regulations



It is anticipated that the entire activities may take a minimum of 16 months, considering that it requires coordination between Government and Regulatory Authorities within the same country, and between Regulatory Authorities, System Operators and Transmission Planning Agencies of multiple countries.

The detailed overall roadmap, with separate country-wise roadmap is provided as part of the full report.

2 Introduction

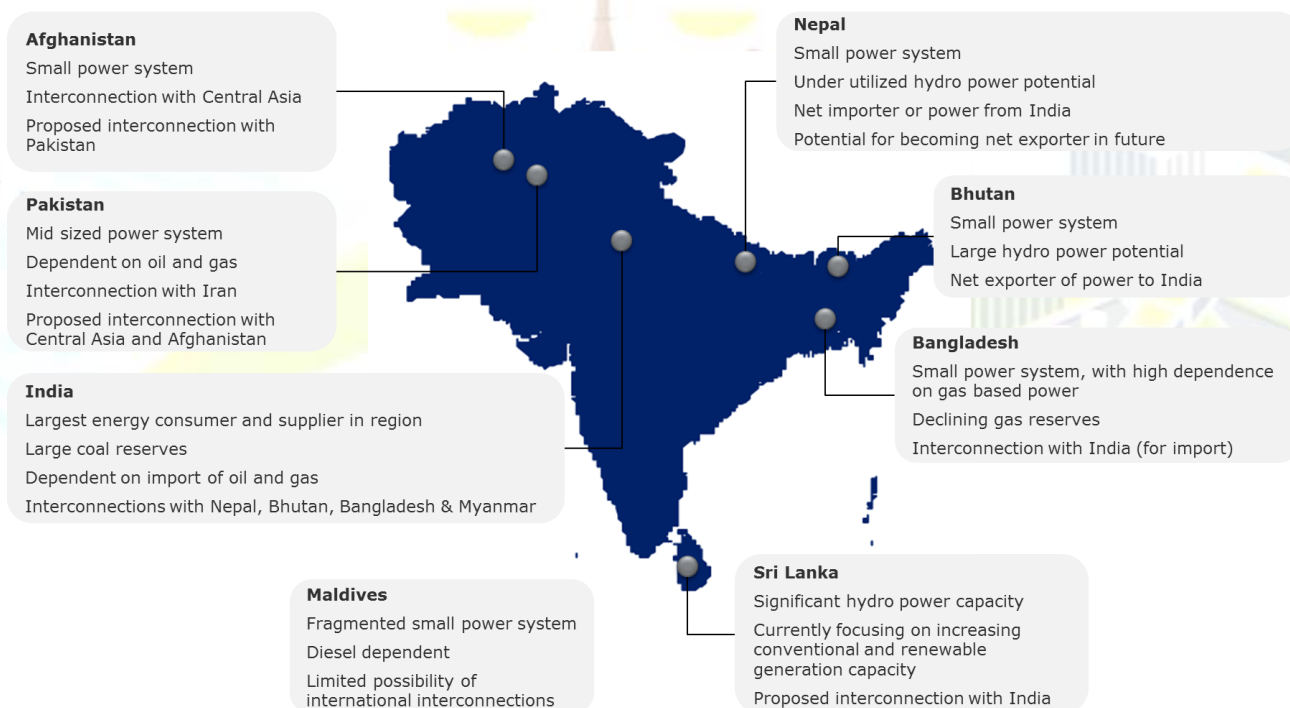
2.1 Background

The South Asian Association for Regional Cooperation (SAARC) was established in 08 December 1985. The objectives of SAARC included “*promotion of welfare of people, improvement of quality of life, acceleration of economic growth and social progress*”. Access to and availability of affordable sources of energy is a key parameter that can contribute to achievement of SAARC’s objectives. However, many of the South Asian countries suffer from electricity deficits and mismatch between seasonal availability and demand for electricity. Such circumstances had resulted in the gradual evolution of cross border electricity trade (CBET) in the region.

2.2 Significance of CBET in South Asia

The South Asian region has diverse natural resources ranging from large coal reserves in India, gas reserves in Pakistan and Bangladesh, hydropower potential in Nepal and Bhutan, and non-conventional resources (solar and wind) in India, Maldives and Sri Lanka. The following figure provides a snapshot of the key resources and interconnections in the region.

Figure 2: Power system profile for South Asia



Source: SARI/EI (2017), *Regional Investment Framework Guidelines*

Some of the key aspects that support the case for CBET in South Asia are discussed below:

1. Availability of surplus generation and stranded assets in India, vis-à-vis power deficit in countries like Nepal and Bangladesh

Countries like Nepal and Bangladesh currently do not have enough generation sources to meet the power demand all-around the year. In comparison, there are countries like India and Bhutan, which has surplus generation sources available. CBET allows trade between surplus to deficit countries, resulting in optimum utilization of generation assets, and availability of electricity to aid the economic growth.

2. Seasonal generation shortage in hydro power dependent countries like Nepal, which can be offset from other SA countries

In countries such as Nepal and Bhutan, during winter season the water sources freeze resulting in reduction of generation from hydropower sources. In comparison, in countries such as India, demand is lower in winter season, therefore leaving enough excess generation for trade with hydro dependent countries.

3. Potential for large scale hydropower plants in countries like Bhutan and Nepal, coupled with demand for large scale clean power in India and other SA countries

In densely populated countries like India, it is no longer possible to plan for new large hydro power plants without risking large-scale population displacement and ecological impacts. In comparison, countries like Bhutan and Nepal offers possibility of setting up large-scale export oriented hydro power plants, which can meet the requirement of clean energy for India, Bangladesh etc.

4. Difference in Time Zones

Due to the difference in time zones, there is a diversity in peak demand among the South Asian countries. This offers the possibility of meeting peak demand with less peak generation capacity coupled with CBET, instead of each country trying to meet peak demand entirely on its own.

5. Unavailability of adequate hydropower as a variable generation source for system balancing under high rates of RE penetration in India

Hydropower plants with large reservoirs are utilized as a balancing source in regions with high share of renewable energy, such as Denmark and Norway. However, in India where there is a large quantum of RE (and significantly higher quantum of RE planned for future) the availability of standalone hydropower plants (not linked with irrigation) is limited. CBET offers the possibility of utilizing flexibility of large hydro power plants in other countries in the region, for accommodating the variability of RE in India.

6. Ease of access to isolated border towns from grids of neighboring countries rather than from domestic power grid

In border areas, it might be economical to supply power from a neighboring country instead of extending the domestic grid over large distance and rough terrain. A case in example is India providing supply to Myanmar's border town of Tamu, which is not linked to Myanmar's power grid.

The above aspects have led to various CBET arrangements between South Asia countries. A

summary of CBET in South Asia is provided below.

Table 2: Summary of CBET arrangements in South Asia

Trade Partners	Key Interconnections	Nature of Trade
Afghanistan – Central Asia (Iran, Tajikistan, Turkmenistan, Uzbekistan)	Interconnection with Iran at 132 KV, and with Tajikistan, Turkmenistan and Uzbekistan at 220 KV	All lines used for import of power to Afghanistan. More interconnections with Central Asia under progress. (CASA-100)
Bangladesh – India	Baharampur(India) - Bheramara (Bangladesh)- 400 KV Surjyamaninagar(India) - South Comilla(Bangladesh)- 132 KV	CBET under medium and long term PPAs
Bhutan – India	Multiple interconnections at 400 KV, 220 KV, 132 KV and 11 KV	Net export to India on an annual basis, though during dry season there is import from India.
India - Myanmar	11 KV Moreh (India) –Tamu (Myanmar)	Limited to supply of nearly 3 MW to the border town of Tamu in Myanmar
Nepal - India	Multiple interconnections at 132 KV, 33 KV and 11 KV	All lines currently used for import of power to Nepal Export, at least on a seasonal basis is expected to commence in future with commissioning of new large hydro power plants
Pakistan - Iran	Multiple interconnections at 132 KV and 20 KV	All lines currently used for import of power to Pakistan

Bhutan exports power to India, through Indian power trading entities, from large hydro stations. The present power transfer capacity between Bhutan and India is around 2,500 MW. Nepal has been importing power from India at least since 1970s, with the power from India playing a crucial role in the dry months of December – April, when the hydropower generation in the country falls very low. Imports from India accounted for nearly 34% of the annual electricity supply of the country in FY 2015-16. Bangladesh buys more than 350 MW of power from India under both long term and short-term arrangements.

There is also cross border trade conducted between SAARC and non-SAARC countries, such as in the case of Pakistan – Iran, Afghanistan – Tajikistan, Afghanistan – Turkmenistan, Afghanistan – Iran, Afghanistan – Uzbekistan and India – Myanmar.

2.3 Context

CBET between SAARC countries are currently conducted based on bilateral agreements. In the long term, relying exclusively on bilateral agreements is not recommended, due to requirements such as allowing power trade between non-neighboring countries and reducing the time taken for negotiation and finalization of agreements in the absence of standardization.

On November 2014, realizing the need for multilateral cooperation in electricity, the SAARC member states came together to sign the SAARC Framework Agreement for Energy

Cooperation (Electricity).

Figure 3: Extract from Framework Agreement

**SAARC FRAMEWORK AGREEMENT
FOR ENERGY COOPERATION (ELECTRICITY)**

The SAARC (South Asian Association for Regional Cooperation) Member States, comprising Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka;

Recognizing the importance of electricity in promoting economic growth and improving the quality of life;

Realizing the common benefits of cross border electricity exchanges and trade among the SAARC Member States leading to optimal utilization of regional electricity generating resources, enhanced grid security, and electricity trade arising from diversity in peak demand and seasonal variations;

Convinced of the need of increasing economic cooperation and creating new opportunities in electricity sector;

Recalling the decision of the Sixteenth SAARC Summit held in Thimphu (2010), to enhance cooperation in the energy sector to facilitate energy trade, development of efficient conventional and renewable energy sources including hydropower;

Emphasizing the need to promote regional power trade, energy efficiency, energy conservation and development of labeling and standardization of appliances, and sharing of knowledge;

Recalling further the decision of the Seventeenth SAARC Summit held in Addu City-Maldives (2011), which directed the conclusion of the Inter-governmental Framework Agreement for Energy Cooperation;

Now, therefore, in the spirit of solidarity and mutual cooperation, and subject to laws, regulations and international obligations of the Member States, wherever applicable, have agreed as follows:

The Framework Agreement emphasized the need to promote regional power trade. It also noted that cross border electricity exchanges and trade among the SAARC Member States leads to optimal utilization of regional electricity generating resources, enhanced grid security, and electricity trade arising from diversity in peak demand and seasonal variations.

As per the Framework Agreement, the Member States were required to enable CBET on voluntary basis subject to laws, rules and regulations of the respective Member States and based on bilateral/trilateral/mutual agreements between the concerned states. They were also required to develop the structure, functions and institutional mechanisms for regulatory issues related to electricity exchange and trade. However, so far, there have not been any considerable effort in creating the laws, rules and regulations at the National level in SAARC nations that are aimed to support the SAARC Framework Agreement.

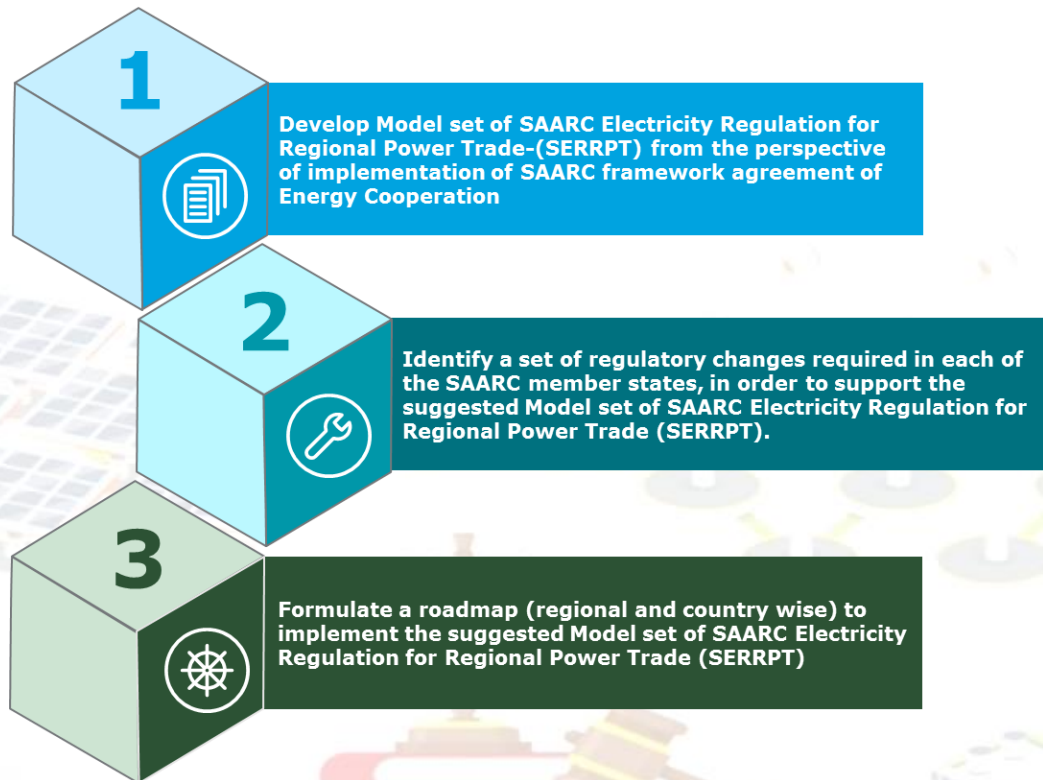
In 2018, the SAARC Council of Experts of Energy Regulators – Electricity (CEERE) approved the engagement of South Asia Regional Initiative for Energy Integration (SARI/EI) to provide technical support to assess and review the suitability of a set of electricity regulations for the

implementation of SAARC Framework Agreement to advance electricity trade in South Asia.

2.4 Key objectives

The objectives of this study are as follows:

Figure 4: Key objectives



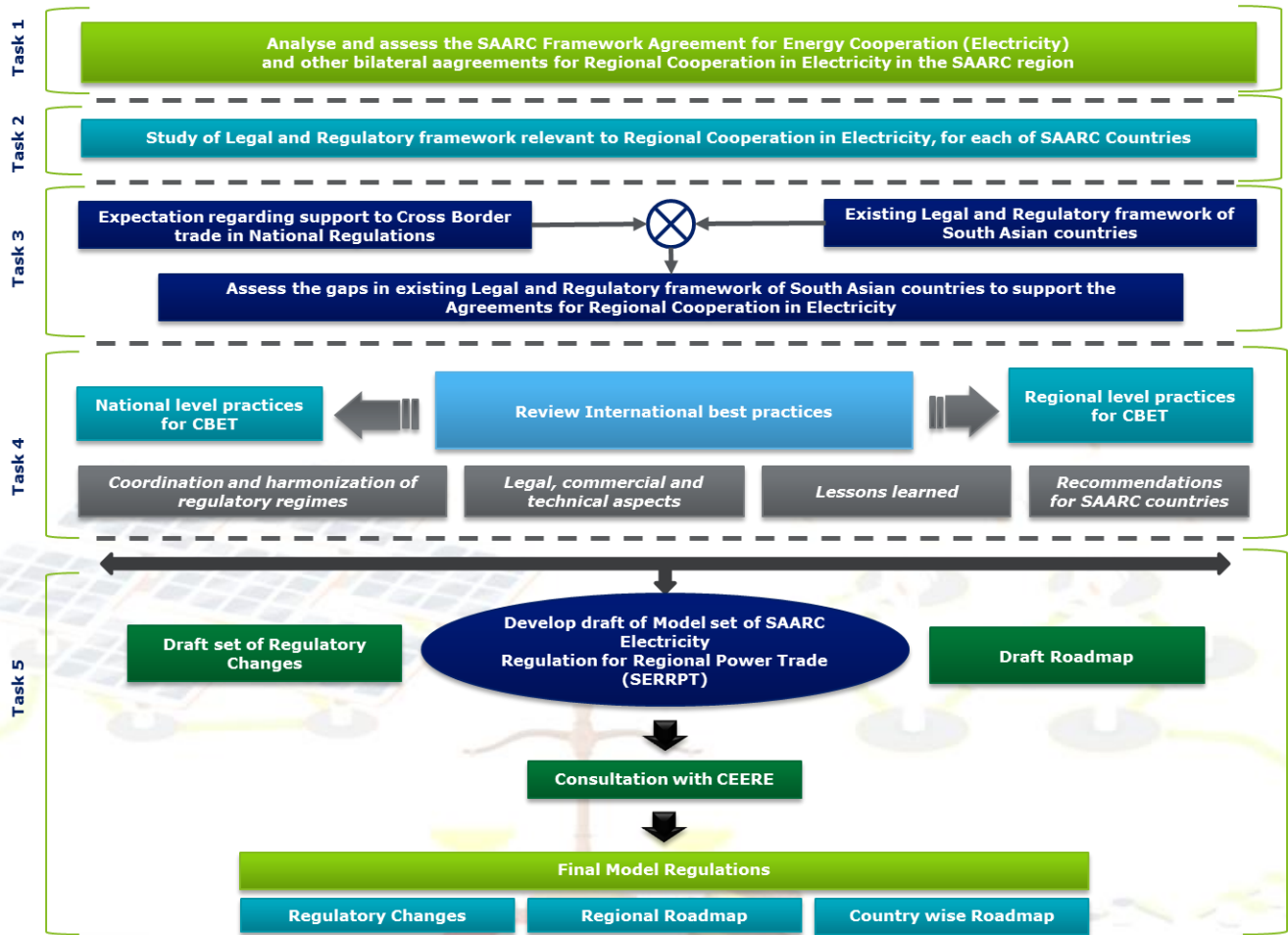
2.5 Methodology

This study is conducted in a task-wise manner, consisting of the following tasks:

- Task 1: Study of Agreements for Regional Cooperation in Electricity
- Task 2: Study of Legal and Regulatory framework relevant to Regional Cooperation in Electricity, for each of the South Asian Countries
- Task 3: Assess the gaps in existing Legal and Regulatory framework of South Asian countries to support the Agreements for Regional Cooperation in Electricity
- Task 4: Review of International Best Practices
- Task 5: Develop and finalize Model set of SAARC Electricity Regulation for Regional Power Trade (SERRPT) and implementation Roadmap

An illustration of the methodology is provided below:

Figure 5: Methodology for the study



For the framing of regulations, an analytical framework is proposed, which consists of meeting the requirements and expectations of legal and policy regime, maintaining adherence to a set of basic principles and building upon past experiences.

Figure 6: Framework and approach for framing of Regulations



The framework aims to address the following key questions:

1. What is the mandate of SAARC Framework Agreement on Energy (Electricity) Cooperation (SFAEC), with regard to the regulatory framework for cross border electricity trade in SAARC member states?
2. Whether the existing regulatory framework in SAARC member states satisfy the mandates and requirements of SFAEC?
3. What has been the past experience in the role of regulatory framework in SAARC member states in promoting or impeding cross border electricity trade?
4. How have the other regional power pools and other international power trade arrangements tackled the issue of a common regulatory framework for cross border trade?
5. What shall be the fundamental regulatory principles that are to be considered in the formulation of regulations?

In the framing of Regulations, the following principles¹ have been adopted:

- **Accountability** – Clear demarcation of roles of Government, Regulatory Commissions and sectoral entities
- **Adaptability** – Ability to respond to changing circumstances and continue to be relevant in the future
- **Efficiency** – Adoption of cost effective and swift mechanisms
- **Predictability** – Objective framework with a long term perspective that supports long term investment decisions
- **Fairness** – Fair towards all stakeholders and countries. *(This includes ensuring that there is no bias against any specific country, and respecting the legislative powers of each of the countries)*
- **Transparency** – Open to public scrutiny

¹ Dept. of Business, Govt. of United Kingdom (2011), Principles for Economic Regulation - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/31623/11-795-principles-for-economic-regulation.pdf

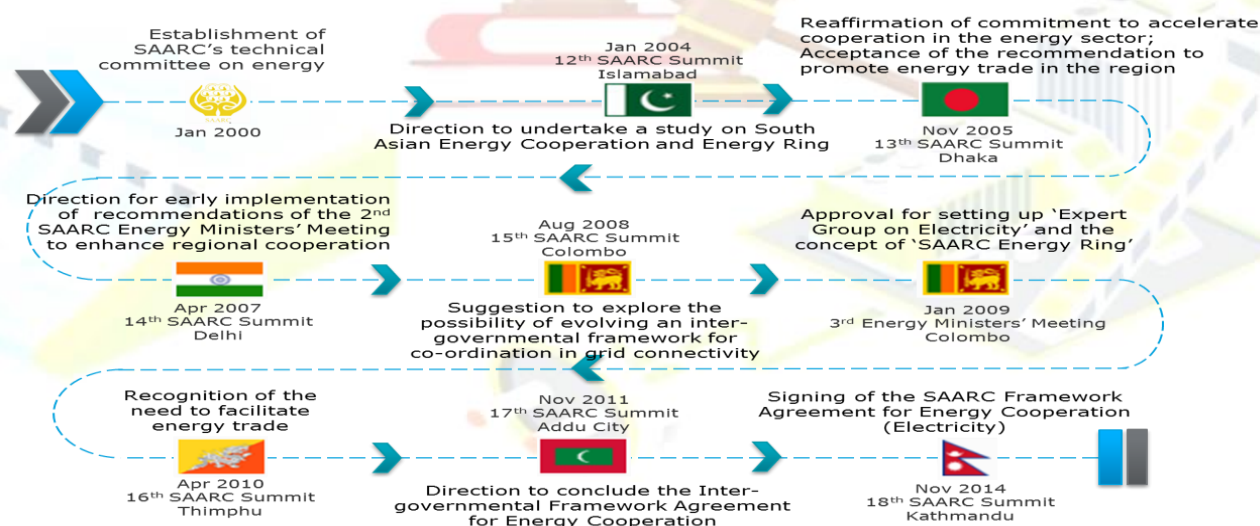
3 SAARC Framework Agreement on Energy Cooperation (Electricity)

3.1 History

SAARC's focus in energy sector can be traced as far back as 2000, when a Technical Committee on Energy was set up. A focused effort on regional cooperation in energy sector was initiated with the Dhaka Declaration² of 13th SAARC summit in 2005, which reaffirmed the commitment of SAARC Member States to regional cooperation and trade in energy. Another major development was the creation of an 'Expert Group' on Electricity in 2009, which was later mandated to prepare the SAARC Inter-Governmental Framework Agreement on Energy Cooperation (Electricity).

The development of Framework Agreement was aided by the activities of SAARC's Working Group on Energy, Expert Group on Electricity, meetings of SAARC Energy Ministers and by a series of SAARC summits. A timeline of key events leading to the eventual signing of Framework Agreement at the 18th SAARC summit in November 2014 is provided below:

Figure 7: Timeline of evolution of SAARC Framework Agreement



As per available information, Governments of Bangladesh, Bhutan, India and Nepal have ratified the Agreement.

3.2 Salient features of the Framework Agreement

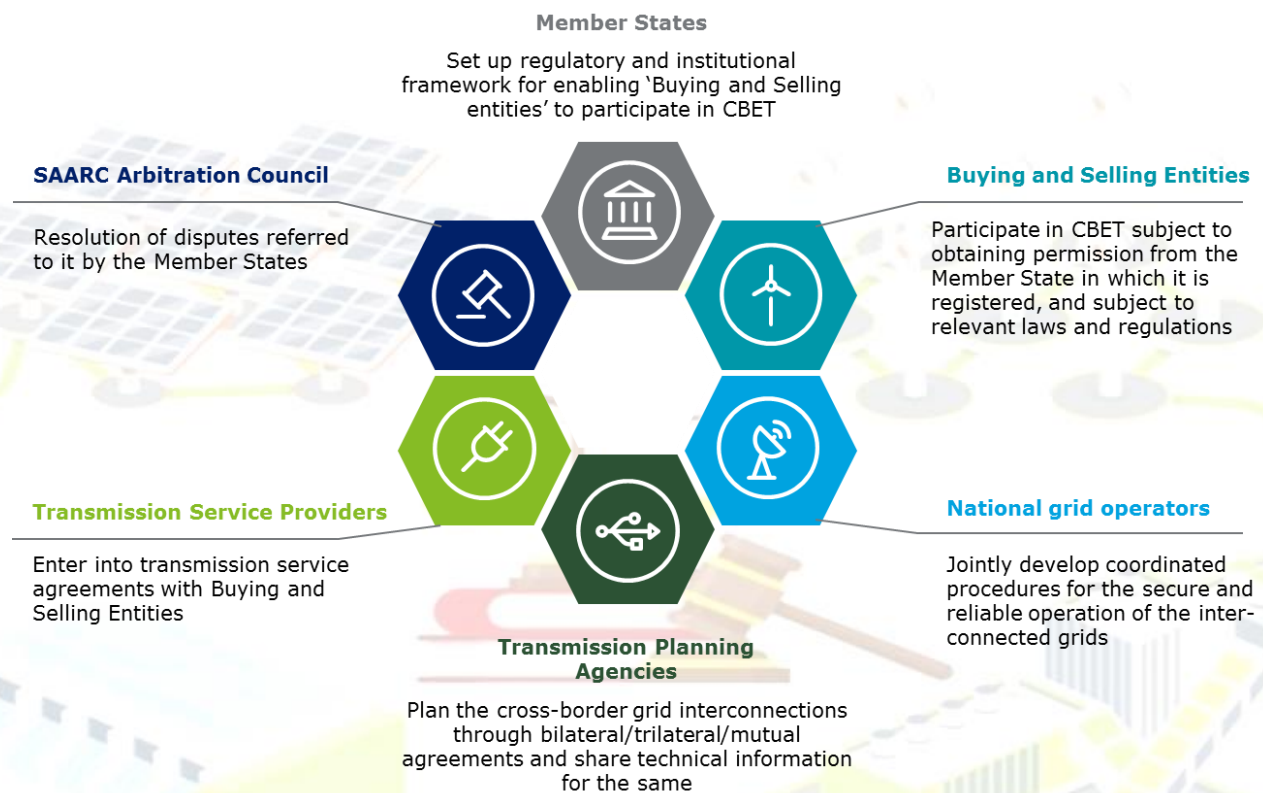
The SAARC Member States signed the inter-governmental Framework Agreement on Energy Cooperation (Electricity) during the 18th SAARC summit held at Kathmandu in November 2014. The Framework Agreement lays down the guiding principles for enabling cross-border trade of

² SAARC (13 Nov 2005), Dhaka Declaration - [http://saarc-sec.org/uploads/digital_library_document/13 - Dhaka - 13th Summit 12-13 Nov 2005.pdf](http://saarc-sec.org/uploads/digital_library_document/13_-_Dhaka_-_13th_Summit_12-13_Nov_2005.pdf)

electricity on voluntary basis, between 'Buying and Selling Entities' of the SAARC Member States. As per the Framework Agreement, the "Member States may enable cross-border trade of electricity on **voluntary basis subject to laws, rules and regulations of the respective Member States** and **based on bilateral/ trilateral/ mutual agreements** between the concerned states".

In its endeavor to facilitate and promote CBET, the Framework Agreement envisages the following key entities, with corresponding roles and responsibilities:

Figure 8: Key entities and their responsibilities as per Framework Agreement



Some of the salient features of the Agreement include:

- Non-discriminatory access to transmission grids for the purpose of CBET;
- International coordination in transmission interconnection planning, system operations, and energy accounting;
- Promotion of information sharing between Member States;
- Encouraging countries to undertake power sector reforms in their respective jurisdictions, to promote competition; and
- Identification of SAARC Arbitration Council as the forum for resolution of unresolved disputes.

3.3 Regulatory provisions required to implement Framework Agreement

One of the most important features of the Framework Agreement is that almost all of its articles are subject to 'laws and regulations of the concerned Member States'. An overview of the key

provisions for CBET in the SAARC Member States, as per the Articles of the Framework Agreement is provided below:

Table 3: Key provisions of SAARC Framework Agreement on Energy Cooperation (Electricity)

Articles	Description
Article 1: Buying and Selling Entities	Buying and Selling Entities means any authorized public or private power producer, power utility, trading company, transmission utility, distribution company, or any other institution established and registered under the laws of any one of the Member States having permission of buying and selling of electricity within and outside the country in which it is registered.
Article 13: Facilitating Buying and Selling Entities	Member States shall enable Buying and Selling Entities to engage in cross-border electricity trading subject to the laws and regulations of the concerned Member States.
Article 2: Objective	Member States may enable cross-border trade of electricity on voluntary basis subject to laws, rules and regulations of the respective Member States and based on bilateral/ trilateral/ mutual agreements between the concerned states.
Article 3: Scope	Member States may enable Buying and Selling Entities to negotiate the terms, conditions, payment security mechanism and tenure of electricity trade under the Government regulatory mechanisms of the concerned states.
Article 4: Duties and Taxes	Member States may work towards exempting from export/import duty/levies/fees etc. for cross-border trade and exchange of electricity between Buying and Selling Entities.
Article 5: Data updating and sharing	Member States may share and update technical data and information on the electricity sector in an agreed template.
Article 6: Promoting competition	Member States shall encourage the process of opening up of electricity sector guided by respective national priorities with the aim of promoting competition.
Article 7: Planning of Cross-border interconnections	Member States may enable the transmission planning agencies of the Governments to plan the cross-border grid interconnections through bilateral/trilateral/mutual agreements between the concerned states based on the needs of the trade in the foreseeable future through studies and sharing technical information required for the same.
Article 8: Build, Operate and Maintain	Member States may enable the respective transmission agencies to build, own, operate and maintain the associated transmission system of cross-border interconnection falling within respective national boundaries and/or interconnect at

Articles	Description
	mutually agreed locations.
Article 9: Transmission Service Agreements	Member States may facilitate authorized Buying and Selling Entities to enter into transmission service agreements with the transmission service providers for the purpose of cross-border electricity trade.
Article 10: Electricity Grid Protection System	Member States shall enable joint development of coordinated network protection systems incidental to the cross-border interconnection to ensure reliability and security of the grids of the Member States.
Article 11: System Operation and Settlement Mechanism	Member States shall enable the national grid operators to jointly develop coordinated procedures for the secure and reliable operation of the inter-connected grids and to prepare scheduling, dispatch, energy accounting and settlement procedures for cross border trade.
Article 12: Transmission Access	Member States shall, for the purpose of cross-border trade, enable non-discriminatory access to the respective transmission grids as per the applicable laws, rules, regulations and applicable inter-governmental bilateral trade agreements.
Article 14: Knowledge sharing and joint research in Electricity Sector	Member States may enable and encourage knowledge sharing and joint research including exchange of experts and professionals related to, inter alia power generation, transmission, distribution, energy efficiency, reduction of transmission and distribution losses, and development and grid integration of renewable energy resources.
Article 15: Regulatory Mechanism	Member States shall develop the structure, functions and institutional mechanisms for regulatory issues related to electricity exchange and trade.
Article 16: Dispute Settlement	Any dispute arising out of interpretation and/or implementation of this Agreement shall be resolved amicably among the Member States. If unresolved, the Member States may choose to refer the dispute to SAARC Arbitration Council.
Articles 17 – 20: Withdrawal, Entry into Force, Amendment, Review	Supporting provisions for Withdrawal from the Agreement, Entry into Force of the Agreement, Amendment and Review of Agreement etc.

As most of the above articles refer to the applicable laws and regulations of respective Member

States, it is imperative that for proper implementation of the Framework Agreement, there need to be a robust legal and/or regulatory framework in each of the Member States to implement the provisions of Framework Agreement.

3.4 Analysis of Indo-Nepal Power Trade Agreement vis-à-vis the Framework Agreement

The Framework Agreement also requires the Member States to act subject to international obligations of the Member States, and to enable CBET based on bilateral/trilateral/mutual agreements between the concerned states. One such key bilateral agreement is the Indo-Nepal Power Trade Agreement (PTA) signed between the Governments of India and Nepal on 21 October 2014. The PTA aims to enhance cooperation in the field of transmission interconnection, grid connectivity and power trade.

The key provisions in the PTA and its importance/implications vis-à-vis the Framework Agreement are explored below.

Table 4: Key provisions of Indo-Nepal Power Trade Agreement

Provisions of PTA	Implication on Framework Agreement
<p>ARTICLE-I</p> <p>This Agreement will enable cooperation in the power sector, including developing transmission interconnections, grid connectivity, power exchange and trading through the governmental, public and private enterprises of the two countries on mutually acceptable terms</p>	<p>This is in line with the concept of 'Buying and Selling Entities' in the Framework Agreement</p>
<p>ARTICLE-II</p> <p>(a) The Parties shall mutually work out a coordinated procedure for secure and reliable operation of the national grids interconnected through crossborder transmission interconnection(s) and prepare scheduling, dispatch, energy accounting, settlement and procedures for cross-border power trade and unscheduled interchange.</p>	<p>This is in line with Article 11 of the Framework Agreement.</p>
<p>ARTICLE-II</p> <p>(b) The Parties shall allow non-discriminatory access to the cross-border interconnection(s) for all authorized/licensed participants in the common electricity market</p>	<p>Mostly in line with Article 12 of the Framework Agreement, though the Framework Agreement does not explicitly provide for a "common electricity market"</p>
<p>ARTICLE-IV</p> <p>(a) The Parties shall cooperate on the various aspects of policy harmonization for the realization of cross-border interconnections, grid connectivity and power trade. Both Parties shall work towards removing, and mutually resolving issues relating to, barriers, including tariff, levies, fees, taxes, duties or charges of similar effects, if any, in the cross-border exchange and trading of electricity.</p>	<p>In line with Article 4 of the Framework Agreement</p>

Provisions of PTA	Implication on Framework Agreement
<p>ARTICLE-IV</p> <p>(b) The Parties shall allow the authorized/licensed electricity producers/ buyers/traders of each country to engage in cross-border electricity trading, including that through Power Exchanges, and to seek cross-border transmission access as per the laws of the respective country.</p>	<p>In line with Articles 1 and 13 of the Framework Agreement</p>

It can be seen that even though the PTA is signed before the signing of Framework Agreement, the provisions of these two documents exist in harmony, without any considerable points of conflict.

3.5 Summary

Most of the articles of Framework Agreement are subject to 'laws and regulations of the concerned Member States'. For the implementation of Framework Agreement, the following minimum contents may be expected from the regulatory framework of respective Member States:

Table 5: Summary of expectations on regulatory framework for CBET

No	Content	Rationale
1	Definition of 'Buying and Selling Entities' who are qualified to indulge in CBET	To implement article 1 of the Framework Agreement which envisages authorized 'Buying and Selling Entities' participating in CBET
2	Framework and institutional mechanism for providing authorization / permission to 'Buying and Selling Entities' to indulge in CBET	To implement article 13 of the Framework Agreement, on facilitating 'Buying and Selling Entities' to undertake CBET
3	Institutional mechanism and procedures for planning and execution of cross-border interconnections, including manner of sharing of costs.	To implement articles 7 and 8 of the Framework Agreement, related to planning, construction and operation of cross border interconnections
4	Non-discriminatory open access to transmission lines	To implement article 12 of the Framework Agreement, to enable non-discriminatory access to the respective Member State's transmission grids
5	Structure, functions and institutional mechanisms for transmission access, power trade and other matters related to CBET	To implement article 15 of the Framework Agreement, on establishing regulatory mechanisms
6	Institutional mechanism for co-ordination in scheduling, system operation, energy accounting and settlement; including possibility of new regional arrangements such as a SAARC Forum of Transmission	To implement article 11 of the Framework Agreement, on enabling the national grid operators to jointly develop coordinated procedures for the secure and reliable operation of the inter-connected grids

No	Content	Rationale
	Utilities and System Operators	
7	Procedure for dispute resolution, including enabling provision for referring disputes to SAARC Arbitration Council	To implement article 16 of the Framework Agreement, on dispute resolution mechanisms
8	Procedure and institutional mechanism for data and information sharing; including possibility of arrangements under SAARC Energy Center, such as a SAARC Center of Excellence for Electricity	To implement article 5 of the Framework Agreement, for sharing and updating technical data and information between Member States

In case of any of the above provisions are not available in the regulatory framework of Member States, the same could be introduced as part of the proposed model set of electricity regulations for implementation of the Framework Agreement.

Though the framework also refers to specifying waiver of duties for CBET and opening up of electricity sector to promote competition, such provisions are not mandatory provisions of the Framework Agreement, and the Member States may choose to implement them on a voluntary basis, subject to their energy sector policy, vision and roadmaps.

4 Existing arrangements for CBET in South Asia

Most of the existing CBET in South Asia are under Government-to-Government arrangements, with a few exceptions such as Tata Power Trading Company's PPA with Dagachhu power plant in Bhutan. Important features of a few CBET arrangements in South Asia are highlighted below.

4.1 CBET between DHPC (Bhutan) and TPTCL (India)

Dagachhu Hydro Power Corporation's (DHPC) 126 MW Dagachhu Hydroelectric Project was the first export oriented hydro power project in Bhutan under Public Private Partnership (PPP) mode. Tata Power Company Limited (TPC), which is incorporated in India, holds 26% of equity in the project, whereas the rest is owned by entities owned / controlled by the Royal Government of Bhutan.

This run of river project, commissioned in 2015, has a PPA with Tata Power Trading Company Limited (TPTCL), which is also incorporated in India. TPTCL in turn has PPAs with different entities in India. Currently, TPTCL is selling the power to distribution companies and industrial consumers in India.

Table 6: CBET between DHPC (Bhutan) and TPTCL (India)

No	Parameter	Value
1	PPA Quantum	126 MW, net of Royalty Power
2	Royalty power to RGoB	12% for first 12 years, 18% for next 18 years.
3	Term of PPA	25 years
4	Delivery point for power	Interconnection point between electricity grids of Bhutan and India at 'New Siliguri'
5	Evacuation arrangement	Bhutan Power Corporation (BPC) to build evacuation line connecting the project with Bhutan's electricity grid <i>[For power transfer between Bhutan and India under the PPA for DHPC, the existing cross border interconnections had adequate margins, and therefore no new cross border interconnections were required]</i>

No	Parameter	Value
6	Transmission Service Agreement	Signed between Powerlinks Transmission (a 51:49 joint venture between TPC and PGCIL) and PGCIL, for a term of 25 years.
7	Sharing of transmission costs	Borne by DHPC up to "Delivery point" and by TPTCL thereafter
8	Scheduling	TPTCL to provide day ahead injection schedule at "Delivery point" to India's National Load Despatch Center (NLDC) & Eastern Region LDC (ERLDC) through Bhutan's NLDC.
9	Energy Accounting	Actual injection of DHPC at Delivery Point to be shared by Bhutan NLDC to ERLDC on a weekly basis. TPTCL liable to pay for deviations from schedule as per India's deviation settlement mechanism.
10	Billing Frequency	Monthly
11	Payment	In Indian Rupees (Electronic transfer)
12	Payment security	TPTCL to open monthly revolving, irrevocable Letter of Credit in favor of DHPC, at a bank in Delhi, India for amount equivalent to two month charges
13	Change in Law	No tariff adjustment on account of change in law, either in Bhutan or in India
14	Dispute Resolution	In case of failure of amicable settlement, arbitration at Singapore International Arbitration Centre (SIAC)

4.2 CBET between NVVNL (India) and BPDB (Bangladesh)

BPDB currently imports power from India through the Indian trading entities PTC India and NTPC Vidyut Vyapar Nigam Ltd. (NVVNL). The power transfer reached 682 MW in Sep 2017.

The PPA with NVVNL, signed in February 2012, is for a quantum of up to 250 MW for a period of 25 years. This was a government-to-government PPA. NVVNL, in turn arranged power from various central generating stations of NTPC. The supply has commenced from October 2013 after completion of Bheramara (Bangladesh)-Baharampur(India) 400 KV transmission link between India and Bangladesh.

Table 7: CBET between NVVNL (India) and BPDB (Bangladesh)

No	Parameter	Value
1	PPA Quantum	250 MW
2	Term of PPA	25 years
3	Delivery point for power	400KV side at Baharampur Substation
4	Evacuation arrangement	Bheramara (Bangladesh)–Baharampur(India) 400 KV HVDC cross border interconnection utilized for power transfer between India and Bangladesh.
5	Transmission Service Agreement	Bulk Power Transmission Agreement and Transmission Service Agreements signed between PGCIL and BPDB for a term of 35 years.
6	Sharing of transmission costs	Any inter-state transmission charges within India reimbursed to seller by BPDB. BPDB also bears inter-state transmission losses within India, and transmission charges and losses in Bangladesh. Any intra-state transmission losses and charges within India to be borne by the seller.
7	Scheduling	Scheduling is done at 400kV Baharampur substation, as per India’s grid code. NVVNL to coordinate with NLDC India and NLDC Bangladesh for scheduling. Within India, NVVNL is also liable to pay applicable deviation settlement charges. However, such charges are then passed on to BPDB.
8	Energy Accounting	As per India’s grid code
9	Billing Frequency	Monthly
10	Payment	In US Dollars (Electronic transfer)
11	Payment security	BPDB to open monthly revolving, irrevocable Letter of Credit in favor of Seller, at a bank in Bangladesh for amount equivalent to three-month charges. Additional guarantee on payment provided by Government of Bangladesh

No	Parameter	Value
12	Change in Law	PPA provides for tariff renegotiation for change in law in either India or in Bangladesh. BPDB to bear the impact of change in law. Change in law in India to be considered, only if the same is approved by CERC.
13	Dispute Resolution	In case of failure of amicable settlement, arbitration at Singapore International Arbitration Centre (SIAC)

4.3 CBET NVVNL (India) and NEA (Nepal)

For power trade between Nepal and India, there are multiple 11KV, 33KV and 132 KV cross border lines. On February 2016, the 400 KV Dhalkebar (Nepal) - Muzaffarpur (India) was commissioned, though it is charged only up to 132 KV due to delay in construction of 400 KV substation.

The import of power by Nepal from India is under various bilateral treaties / contracts under Government-to-Government mode, and a few commercial PPAs through Indian power traders. An example is NEA's PPA with NVVNL, for power purchase up to 160MW through Dhalkebar-Muzaffarpur transmission line.

Table 8: CBET between India (NVVNL) and Nepal (NEA)

No	Parameter	Value
1	PPA Quantum	Up to 160 MW
2	Term of PPA	Initially signed for 5 months, though extended subsequently during multiple times
3	Delivery point	Muzaffarpur substation end of Muzaffarpur (India) - Dhalkebar (Nepal) line
3	Evacuation arrangement	The cross-border transmission line, 400kV Muzaffarpur (India) - Dhalkebar (Nepal), is developed by two separate JVs: Power Transmission Company Nepal Limited (Nepal side) and Cross-border Power Transmission Company Limited (India side)

No	Parameter	Value
4	Transmission Service Agreement	NEA signed Implementation and Transmission Service Agreement (ITSA) with both Power Transmission Company Nepal Limited (Nepal side) and Cross-border Power Transmission Company Limited (India side)
5	Sharing of transmission costs	NEA has reserved full transmission capacity of 400kV Muzaffarpur (India) - Dhalkebar (Nepal) line and shall pay transmission charges for same. Transmission charges till delivery point borne by NVVNL.
6	Scheduling and energy accounting	On the Indian side, NVVNL to coordinate scheduling with India's NLDC and ERLDC. NVVNL will also pay applicable deviation settlement (imbalance) charges if any, which shall then be reimbursed by NEA.
7	Billing frequency	Weekly
8	Payment	In Indian Rupees (INR)
9	Payment Security Mechanism	NEA to provide irrevocable and revolving letter of credit for 105% of 21 days of bill, through any scheduled commercial bank in New Delhi, India

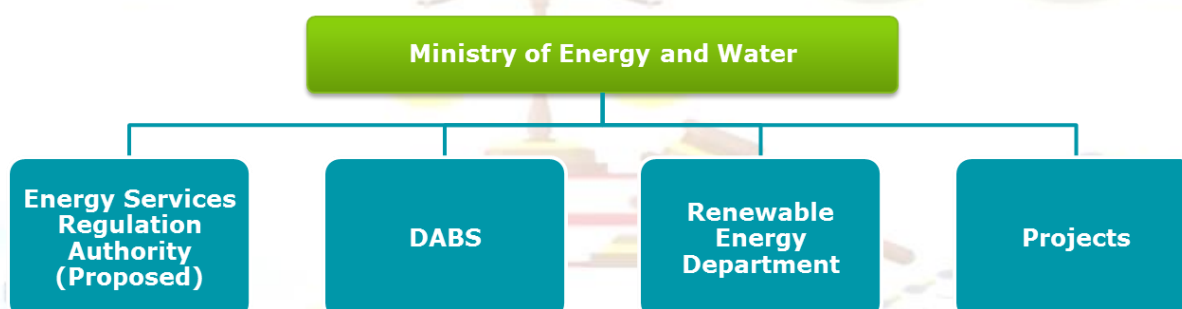
5 Legal and regulatory framework for electricity in South Asian countries

5.1 Afghanistan

5.1.1 Institutional Framework for Electricity

The Ministry of Energy and Water (MEW) is the overall governing body for the electricity sector in the country. At present, the policy and regulatory framework governing the electricity sector in Afghanistan is in nascent stages of development. The generation, transmission and distribution of electricity is carried out by vertically integrated utility Da Afghanistan Breshna Sherkat (DABS). Energy Services Regulation Authority is the proposed sector regulator, which is envisaged to act as a department of Ministry of Energy and Water. The following figure illustrates the arrangement of power sector in Afghanistan.

Figure 9: Power Sector Institutional Framework in Afghanistan



DABS is owned by Government of Afghanistan and is responsible for operating and managing electric power generation, import, transmission, and distribution throughout Afghanistan on a commercial basis. Power imported from Tajikistan and Uzbekistan is managed by DABS.

Afghanistan has CBET with countries in Central Asia such as Iran, Tajikistan, Turkmenistan and Uzbekistan under bilateral arrangements. It also plans to trade power with Kyrgyzstan and Pakistan under CASA-1000 project. Master agreement on transmission system in CASA-1000 project provides for open access and imbalance settlement, which are critical ingredients, required for non-discriminatory open access in CBET projects.

5.1.2 Legal and Policy Framework for Cross Border Electricity Trade

The Power Services Regulation Act 2016 provides the basic legal framework for regulation of electricity / power sector in Afghanistan. The Act envisages issue of licenses for production, import, export, transmission and distribution of electricity. The Ministry of Energy and Water is identified as the agency responsible for implementing the provisions of the Act at the federal level. The Ministry is also empowered to provide electric energy services by itself or through

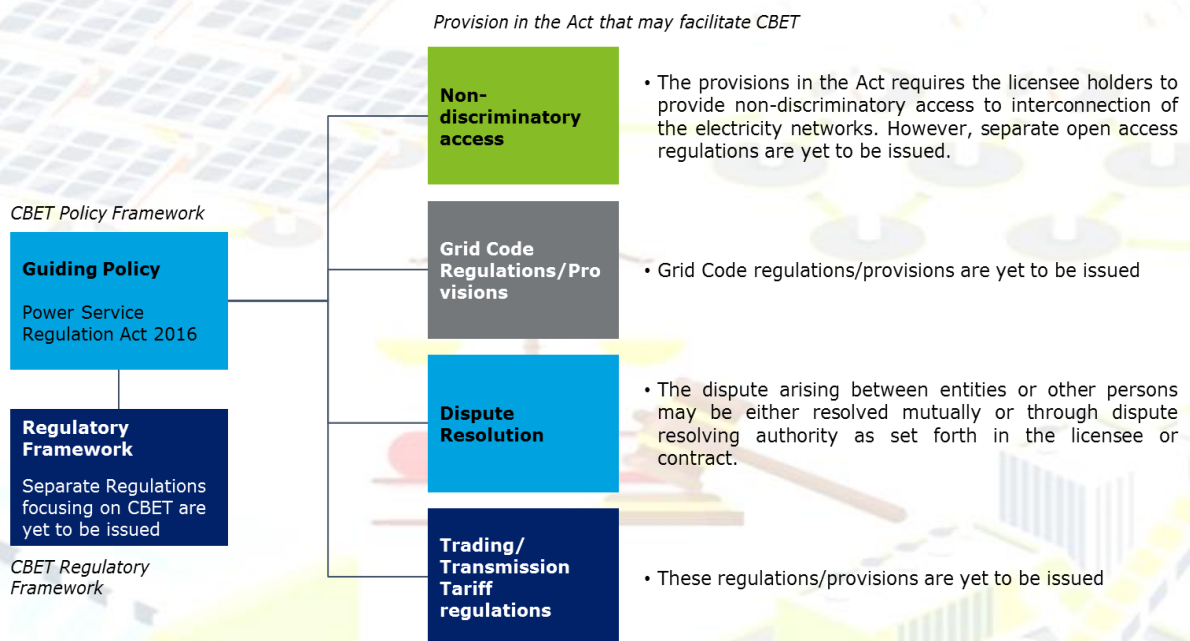
other government institutions, foreign and domestic private sector or joint ventures.

The Act recognises cross border power trade as a separate activity, which could be conducted by obtaining either an import license or an export license. These licenses are issued by the authority for a maximum of 15 years.

In addition, the Act provides for the provisions of non-discriminatory interconnection to electricity network. In order to achieve the same, provisions have been made in the Law that requires the license holder to provide interconnection of the electricity network. Moreover, the permit holder who has dominating force in the market shall effectively and non-discriminately ensure interconnection in possible technical areas amongst other permit holders.

5.1.3 Regulatory Framework for Cross Border Electricity Trade

Figure 10: Regulatory Framework for CBET in Afghanistan



The Power Service Regulation Act 2016 provides for setting up of an Energy Service Regulation Authority and defines its powers and authority. It also covers aspects on licensing, technical standards, network interconnection and access etc. The Act also has provisions for grant of license for import and export of electricity.

5.1.4 Conclusion

The power sector in Afghanistan is yet to evolve in terms of institutional set up and regulatory framework for implementation of enabling framework for cross border electricity trade. However, DABS already imports power through interconnections with neighbouring countries.

5.2 Bangladesh

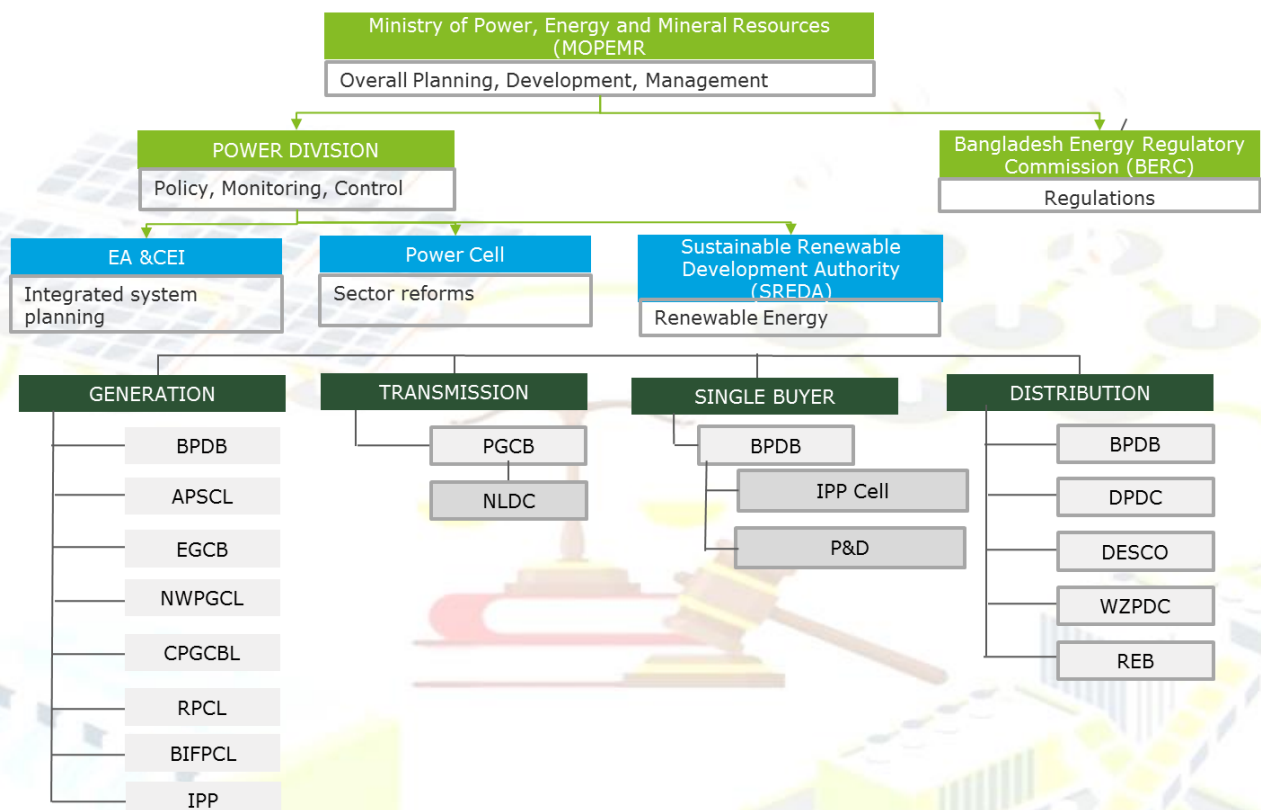
5.2.1 Institutional Framework for Electricity

In Bangladesh, the Ministry of Power, Energy and Mineral Resources (MoPEMR) looks after the primary energy and electrical power policy and administration in Bangladesh. A Power Division

under MoPEMR is the key entity responsible for policy framing, monitoring, coordination and control of the power sector. MoPEMR along with Power Division also leads discussions on cross border trade of electricity with neighboring countries.

On the regulatory front, Bangladesh Energy Regulatory Commission (BERC), established in 2003, is responsible for framing rules and regulations for generation of electricity, creating enabling environment for private sector investment, management of sector through fixing reasonable tariff with transparency and creating competitive markets.

Figure 11: Power Sector Institutional Framework in Bangladesh



Power Grid Company of Bangladesh Ltd. (PGCB) is responsible for planning, operation, maintenance and development of transmission network. The system operator National Load Despatch Centre (NLDC) dispatches electricity from generating entities following merit order dispatch principle and is part of PGCB.

The Bangladesh Power Development Board (BPDB) is responsible for major portion of generation and distribution of electricity, mainly in urban areas, except Dhaka and West Zone of the country. The Board is under the Power Division of MPEMR. The Bangladesh power sector operates under a single buyer model. BPDB acts as the single buyer of all the electricity generated in Bangladesh and sells bulk electricity to all the distribution utilities.

5.2.2 Legal and Policy Framework for Cross Border Electricity Trade

The Quick Enhancement of Electricity and Energy Supply (Special Provisions) Act, 2010 agrees on the need for quick implementation of the plan to import electricity and energy from abroad. As per the Act, the Government of Bangladesh and all enterprises owned or controlled by the

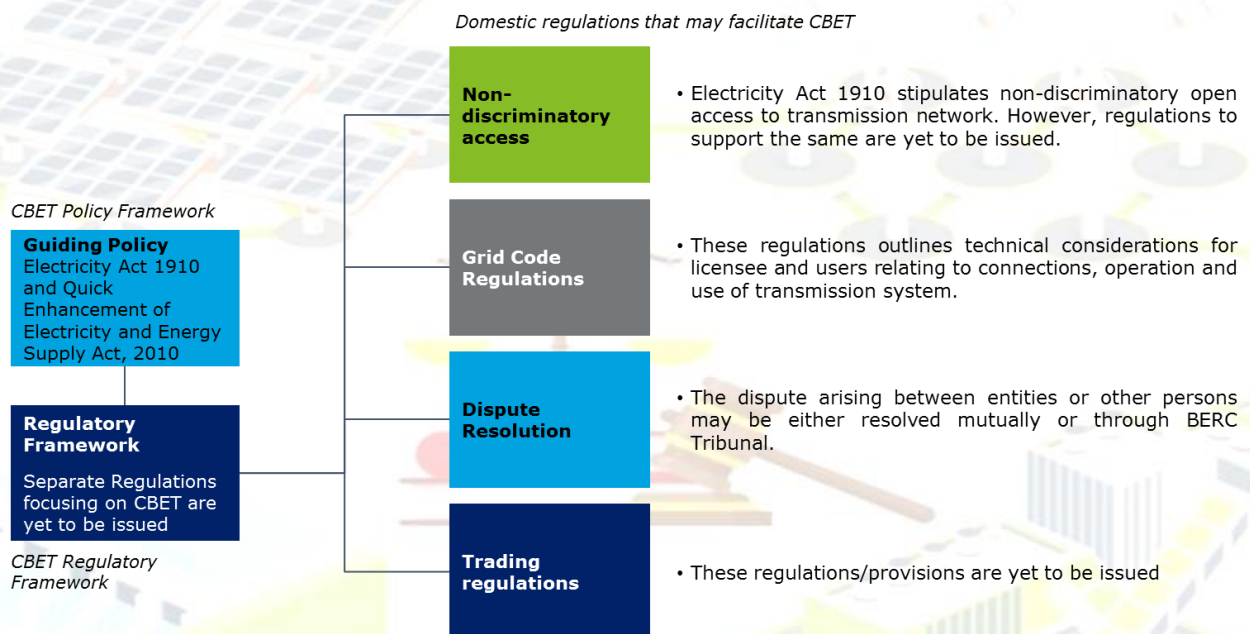
Government may accept any proposal for undertaking any plan regarding import of electricity or energy from abroad and transmission, transportation and marketing thereof and quick implementation of the same.

In addition, the erstwhile Electricity Act 1910 also had an enabling provision for cross border trade, which allowed BPDB to import electricity with sanction of Government.

"6A. Cross-border trade in Electricity. – The Board and/or the Single Buyer may import electricity from and export to any foreign state using the transmission system of the country with previous sanction of the Government at such rate as may be determined by the Government."

5.2.3 Regulatory Framework for Cross Border Electricity Trade

Figure 12: Regulatory Framework for CBET in Bangladesh



As the cross-border electricity trade has so far been restricted only to BPDB, regulations on cross border trade have not yet evolved. However, the regulatory framework already has other enabling provisions such as transmission pricing and grid code.

BERC Electricity Grid Code 2012

The Grid Code of 2012 establishes procedures for operation of facilities that will use the transmission system. The code lays down information requirements and the procedures governing the relationship between the licensee and users. In addition, the code is designed to promote planning, development, maintenance and operation of an efficient and economical transmission system to facilitate competition in the generation and supply of electricity. Following are some of the salient clauses of these regulations:

- Chapter 4 of these regulations outlines the process to be followed for transmission system planning. Transmission planning requires system planner, as appointed by the government, to prepare a long-term power system plan for generation and transmission system expansion to meet future demand. These regulations also encourages the

system planners to work in close coordination with the distribution utilities and licensee to complete the planning exercise.

- Chapter 5 of these regulations specifies the connection conditions. These conditions specify the technical, design and operational criteria that must be complied with by any User connected to the Transmission System. In terms of system performance, the regulations requires the generating unit to generate power output within a frequency range of 47.5 to 52 Hz. It also requires transmission system frequency to be controlled in the range of 49 to 51 Hz, subjected to grid discipline.
- Under this section, provision has also been made for international and inter-regional connection. The procedure requires licensee to consult with the Commission and the Line Ministry for any agreement and execution related to International Connection to the Grid.
- The other chapters of these regulations describes the process that shall be followed by licensee/user/system operator for outage planning, scheduling and dispatch, frequency and voltage management etc.

Dispute Settlement Regulations, 2014

The dispute settlement regulations specifies procedures that will be followed in case of dispute arising between licensees or between licensees and consumers. These regulations also paved the way for the establishment of BERC Tribunal, a judicial wing of the commission responsible for adjudicating disputes between parties, conduct hearing, provide legal opinion to the commission upon requirement etc.

While these regulations does offer a mechanism to resolve dispute arising between parties, it is silent on the process or mechanism that will be followed in case dispute arising between parties engaged in cross border trade of electricity.

BERC Power Transmission Tariff Regulations, 2016

These regulations specify the terms and conditions for determination of revenue requirement and tariff for electricity transmission. At present, the charges for transmission licensee, PGCB, is computed based on cost plus basis factoring the total investments incurred and the total energy wheeled.

Note: BERC has notified BERC Power Transmission Regulations 2016. However, no English translation of this document was available for review.

Open Access Regulations

Electricity Act 1910 stipulates non-discriminatory open access to transmission network.

"7...(2) *The functions of the transmission utility shall be –*

..

(d) to provide non-discriminatory open access to its transmission system for use by –

(i) any licensee or generating company on payment of the transmission charges;
or

(ii) any person, as and when such open access is provided subject to the provisions of sub-section (3), on payment of the transmission charges and any surcharge thereon, as may be specified by the Commission;

(3) The Commission shall, in consultation with the licensees, and with the approval of the Government, issue necessary regulations in order to ensure open non-discriminatory access by all the concerned parties to the grid system in Bangladesh.”

BERC has put in place the Grid Code and various other regulations, which are required for the open access framework. However, it is yet to notify regulations for non-discriminatory open access for the transmission and distribution system.

5.2.4 Conclusion

There is a strong political willingness in Bangladesh for exploring cross border power trade with other countries in South Asia such as India, Nepal and Bhutan. The intent is also evident in the provisions of Quick Enhancement of Electricity and Energy Supply (Special Provisions) Act, 2010 and from the ongoing electricity trade with India. However, probably due to the continuation of BPDB as single buyer, detailed regulatory framework for cross border trade and supporting concepts such as open access are yet to evolve.

5.3 Bhutan

5.3.1 Institutional Framework for Electricity

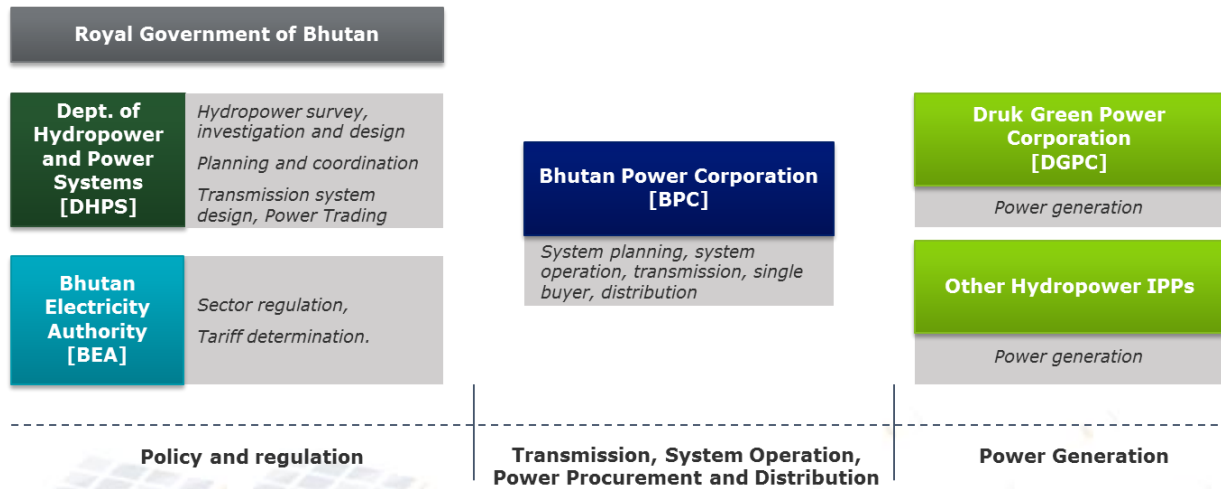
In Bhutan, the Department of Hydropower and Power Systems (DHPS) under Ministry of Economic Affairs leads and coordinates various organizations of Royal Government of Bhutan (RGoB) involved in the planning and development of the country's large hydropower resources (> 25 MW) and cross border electricity trade with neighboring countries. It is also responsible the formulation of national policies and guidelines related to hydropower development, implementation of institutional reforms, providing an enabling environment for participation of public and private sectors in development of hydropower resources, and ensuring that hydropower exports generate maximum revenue for the nation.

Bhutan Power Corporation Limited (BPC) is responsible for transmission and distribution of electricity throughout the Country and to provide transmission access for generating stations for domestic supply as well as export. BPC has the mandate to ensure that a reliable and adequate electricity supply is available to all consumers within Bhutan.

The Druk Green Power Corporation (DGPC) is a wholly owned corporate entity of the RGoB. It is an autonomous body, which operates and maintains the large hydropower assets of the nation. It is also responsible to promote and develop new hydropower stations in the country

The Bhutan Electricity Authority (BEA) is the electricity regulator in the country. It is responsible for developing regulations, standards, codes and procedure for performance standards, technical and safety requirements for construction, O&M for generation and transmission and distribution facilities

Figure 13: Power Sector Institutional Framework in Bhutan



5.3.2 Legal and Policy Framework for Cross Border Electricity Trade

The Electricity Act 2001 provides the legal and policy framework for the electricity sector in Bhutan. The primary objective of the Act is to provide safe and reliable supply of electricity in a sustainable manner, and to enhance revenue generation through export of electricity. In order to achieve these objectives, the Act provides for enabling provisions for the restructuring of the power supply industry and for private sector participation. Moreover, the Act provides mechanisms for licensing and regulating the operations of power companies by establishing Bhutan Electricity Authority as an autonomous body.

The Act recognises international power trade (export and import of electricity) as a separate activity and requires the entity to obtain either an import or an export license before engaging in such activities.

In policy related to transmission facility, Clause 10.1 of Hydro development policy 2008 specifies that the project developer need to have a power evacuation agreement with Bhutan Power Corporation and the developer will be responsible for laying transmission lines and connect to the nearest Grid sub-station of the Bhutan Power Corporation and beyond this point BPC will provide transmission facility for domestic supply and connectivity till international border in case of export. The developer will need to pay the transmission and wheeling charges to BPC as determined by BEA.

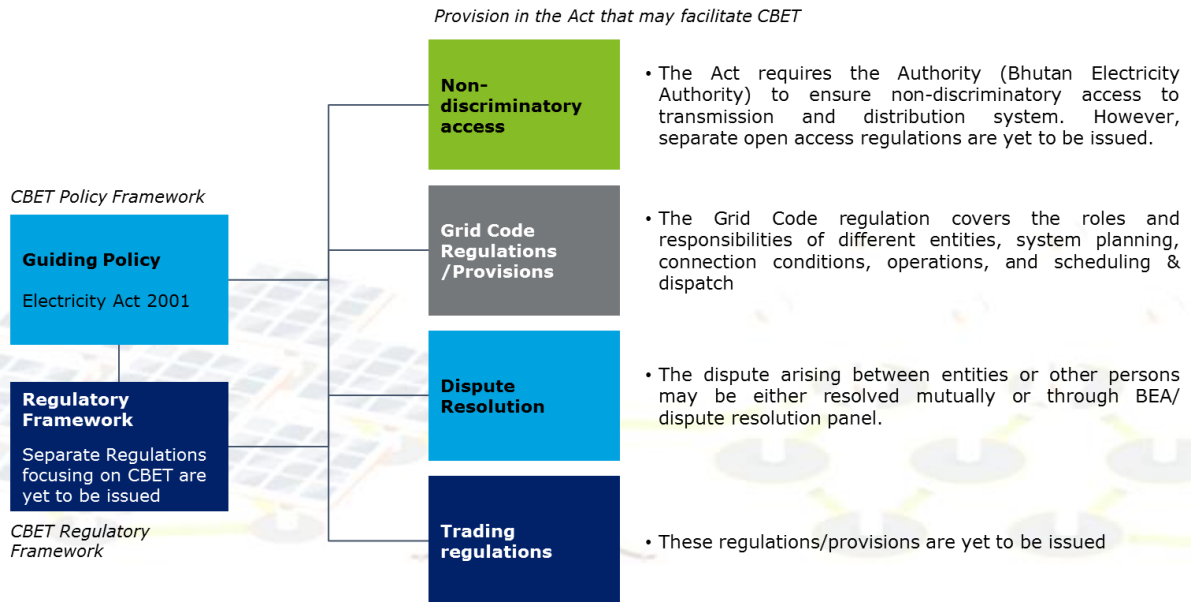
Policy related to off-take of electricity is dealt with in the Bhutan Hydro Sustainable Hydro Power Development Policy 2008. As per the Clause 9.1 of this policy, project developer can contract and export the electricity generated after complying with licensing regulations and adjusting for the royalty power/ energy. Clause 9.2 of this policy states that the Royal Govt. of Bhutan have the first right to purchase any power/ energy that it requires at the off-take rate applicable at the generating station bus bar.

5.3.3 Regulatory Framework for Cross Border Electricity Trade

The Electricity Act 2001 provides for setting up of the BEA and defines its powers and authority. It also covers aspects on licensing, system operations, non-discriminatory access to

transmission and distribution system etc. However, the Act does not require the Authority to specifically issue regulations regarding cross border electricity trade, except to regulate and monitor the activities of the licensee holders. Following are some of the regulations issued by the BEA that are useful for facilitating cross border trade with the neighboring countries:

Figure 14: Regulatory Framework for CBET in Bhutan



BEA Grid Code Regulations, 2008

The purpose of this regulation is to establish the basic rules, procedures, guidelines and standards to be followed by the various licensees and all power utilities connected to the transmission system to plan, develop, maintain and ensure secure, reliable and efficient operation of the transmission system in economic manner. It aims to create a level playing field for all users, without any discrimination. The code covers roles and responsibilities of different entities, system planning, connection conditions, operations, and scheduling & dispatch. Following are some of the salient features of this regulation:

Section 3 of the Grid Code outlines the roles and responsibilities of the BEA, the Ministry and licensees so far as they relate to the Grid Code regulations. Besides determining general policies and strategies for power sector operations, the Ministry is also responsible for developing the power system master plan. The BEA is majorly responsible to develop regulations, standards, codes, principles and procedures for a well and efficient functioning of the sector. Contrary to this, the system operator is bound to monitor the export and import of electricity among other functions.

Section 4 of the Grid Code outlines the planning code. The objective of this code is to specify the principles, procedures and criteria, which shall be used in the planning and development of the transmission system; promote coordination among all licensees; identify planning studies and promote information exchange. The code requires the Ministry to develop the overall power system master plan and the transmission licensee to carry out the planning process.

Section 5 specifies the connection conditions of the Grid Code. This section specifies the

minimum technical and design criteria, which shall be complied with by the Transmission Licensees and any User connected to, or seeking connection to, the Transmission System. This Section also sets out the procedures by which the Transmission Licensee shall ensure compliance by any User with the above criteria as pre-requisite for the establishment of an agreed connection.

Section 6 specifies operations and operational planning with regards to the Grid Code. This section covers all-important aspects of Transmission System operation, including operation planning. So far as the system operating is considered, the system is considered to be in a normal state when the transmission system frequency is within the limit of 49.5 Hz to 50.5 Hz.

Dispute Resolution Procedure, 2009

This procedure is applicable for settlement of disputes between Licensees and between Licensees and Customers relating to the enforcement of the Electricity Act of Bhutan, 2001 and Regulations, Codes, Standards and Licences thereof. Following are some of the salient features of this regulation:

Section 3 of the dispute resolution procedure requires the applicant to formally submit its complaint with the BEA along with all supporting documents and by identifying the nature of complaint.

Section 7 and 8 requires the BEA to endeavour to offer its decision on the dispute matter within a period of 30 days. However, in case the any each party is not satisfied with the decision of the BEA then the parties may appeal to the Authority within 10 working days.

Section 9 of the procedure requires the BEA to refer the case to the dispute resolution panel in case it is unable to resolve the case due to its complex nature.

5.3.4 Conclusion

The Government of Bhutan recognizes the importance of Cross Border Electricity Trade for the economic development of the country. Its power trade with India account for 70 percent of the overall revenue generated from exports. In order to boost the trade of electricity with neighbouring countries the Government has expressed interest to move from bilateral to trilateral electricity trade. However, a common policy and regulatory framework that facilitates cross border trade is yet to be developed and finalized.

5.4 India

5.4.1 Institutional framework for Cross Border Electricity Trade

In India, the Ministry of power (MOP) is the apex body to formulate laws, policies and guidelines related to the Cross Border Electricity Trade (CBET). These policies are prepared in consultation with the Ministry of External Affairs.

Central Electricity Regulatory Commission (CERC) is an independent and autonomous regulatory agency, which is entrusted with regulation of electricity industry as per laws, policies and guidelines laid out by Govt. of India. CERC is responsible for framing of regulations for the implementation of cross border electricity trade in line with the guidelines issued by the MOP.

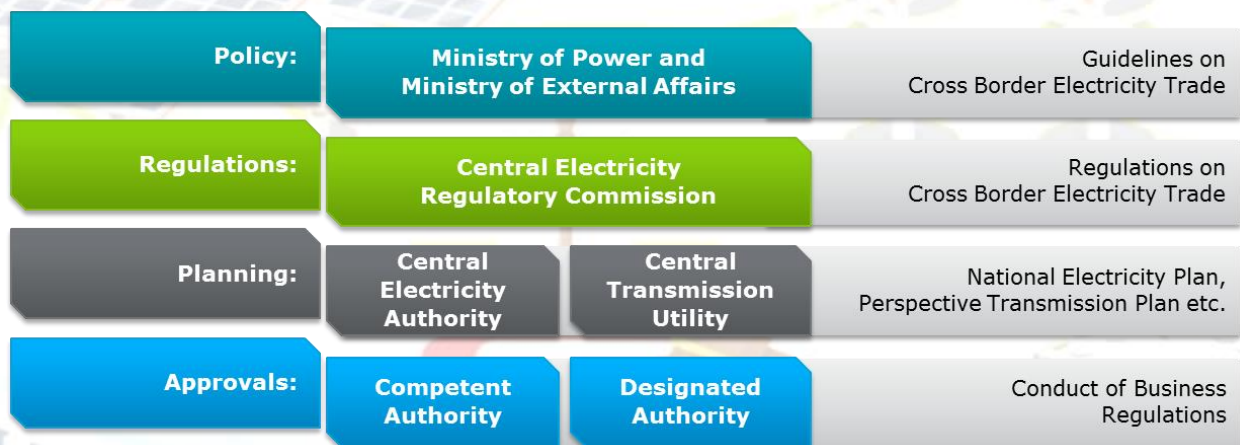
The transmission interconnection between India and its neighboring country are expected to be planned jointly by transmission planning agencies of the two countries with approval of the respective Governments. The associated transmission system within India for CBET interconnections will be planned jointly by CTU and CEA, with approval of Ministry of Power.

Member (Power Systems) of CEA is notified by the Govt. of India as:

1. The Designated Authority for facilitating the process of approval and laying down the procedure for cross border transaction and trade in electricity; and
2. The Competent Authority to issue approval to Indian generation stations exclusively supplying power to neighboring countries, to build independent transmission system for connecting to the neighboring country’s transmission system.

The Designated Authority and Competent Authority undertake their duties and functions as per procedure laid out in their respective Conduct of Business Regulations.

Figure 15: Power Sector Institutional Framework in India



5.4.2 Legal and policy framework for Cross Border Electricity Trade

The Guidelines on CBET, notified by the Ministry of Power, is one of the policy documents that deal with promotion and facilitation of cross border trade between India and neighboring countries. These guidelines were issued in 2016 with an aim to promote cross border trade with greater transparency, consistency and predictability in regulatory approaches across jurisdictions and to minimize the perception of regulatory risks. Following are some of the key clauses of these guidelines:

- Clause 3.0 of the guidelines promotes cross border transaction between India and neighboring countries based on bilateral agreements.
- Clause 4.0 outlines the institutional arrangement for cross border transaction. As per the proposed institutional arrangement, the procedure for cross border transaction will be defined by a Designated Authority, which will be appointed by the MOP. In addition, the CERC will frame the regulations for facilitation of cross border trade in electricity that will be binding on all participants.
- Clause 5.0 of the guidelines outlines the eligibility criteria for participating entities to

participate in cross border trade of electricity.

Eligibility criteria for Participating Entities who can obtain one-time approval as per MoP's CBET Guidelines

- a) Import of electricity by Indian entities from Generation projects located outside India and owned or funded by Government of India or by Indian Public Sector Units or by private companies with 51% or more Indian entity (entities) ownership;
- b) Import of electricity by Indian entities from projects having 100% equity by Indian entity and/ or the Government / Government owned or controlled company(ies) of neighboring country.
- c) Import of electricity by Indian entities from licensed traders of neighboring countries having more than 51% Indian entity(ies) ownership, from the sources as indicated in para (a) and (b) above.
- d) Export of electricity by distribution licensees / Public Sector Undertakings (PSUs), if surplus capacity is available and certified by the concerned distribution licensee or the PSU as the case may be.

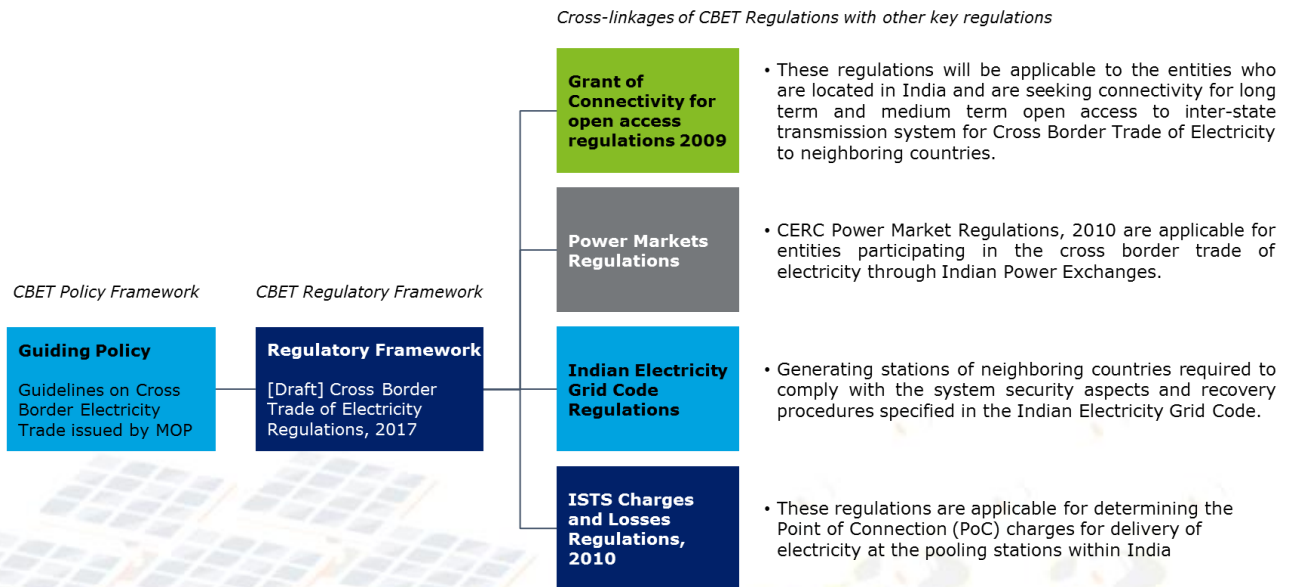
[Any other participating entity shall be eligible to participate in cross border trade of electricity after obtaining approval of the Designated Authority on case-to-case basis.]

- Clause 6.0 defines the guiding principle for tariff determination. As per this clause, for government-negotiated transactions, tariff will be decided through mutual negotiation between governments of both the countries. For other cross border transactions (imports), tariff will be determined through competitive bidding under Section 63 of the Electricity Act 2003, except in case of hydropower projects in which tariff may be determined by CERC as per its regulations. Contrary to this, tariff for export of electricity can be determined either mutually or through competitive bidding.
- Clause 8.0 of the guidelines lays down the criteria for development of transmission system, scheduling and accounting. As per this clause, transmission interconnection will be planned jointly with neighboring countries. However, the associated transmission interconnection on the Indian side will be planned by CEA and CTU. In term of transmission access, priority for cross border transactions will be determined by CTU as per CERC regulations on CBET.

5.4.3 Regulatory Framework for Cross Border Electricity Trade

India has the most evolved regulatory framework for electricity trading and grant of connectivity among SAARC countries. However, cross border transactions between India and neighboring countries of Bhutan, Nepal, Bangladesh and Myanmar have so far taken place essentially through short, medium and long-term contracts under bilateral Memorandum of Understanding (MOU) or Power Trade Agreements (PTA). In order to further harmonize the existing laws/rules/regulations and to create a common platform for all stakeholders, CERC has proposed new regulations on Cross Border Trade of Electricity, which are currently in draft stage.

Figure 16: Regulatory Framework for CBET in India



1. Cross Border Trade of Electricity Regulations, 2017 (Draft)

The draft regulations have been framed with an objective to facilitate cross border trade between India and neighboring countries. Following are some of the salient features of these regulations:

Tariff Determination

Tariff determination covers the following scenarios:

1. Export/import of power at tariff determined through Government-to-government negotiations;
2. Import of non-hydro power at tariff determined through competitive bidding;
3. Import of hydro power at tariff to be determined by CERC;
4. Export of power at negotiated tariff between parties, or through competitive bidding; and
5. Trade through Indian power exchanges;

For cross border transmission link from pooling station within India till Indian border, the transmission tariff will be determined through CERC's Tariff Regulations.

Institutional Structure

For coordinating with other nodal agencies for the purpose of cross border trade of electricity and to grant approval to entities to participate in cross border transaction, Designated Authority will be responsible. Apart from Designated Authority, four agencies namely Transmission Planning Agency, Settlement Nodal Agency, National Load Dispatch Centre and Central Transmission Utility have been identified to carry out specific functions.

Transmission Planning, Connectivity and Access

The regulations proposes that transmission interconnection between India and the trading partner shall be planned jointly by Transmission Planning Agencies of the two countries with the approval of their respective Governments. The regulations also allows building of independent transmission system for generating plants which are supplying power exclusively to the neighboring countries with prior approval from the Government of India. On the connectivity and access front, the eligible entities are required to submit an application of grant of connectivity to CTU as per CERC Regulations 2009.

System Operation

The draft regulations emphasize the need to ensure that the interconnected grid is operated in a stable and secure manner while putting in place an efficient energy accounting and settlement mechanism. In order to achieve the same, provisions for system operation related activities for cross border trade of electricity have been made in the regulations in line with the procedures laid down in the existing CEA and CERC Regulations. The same applies for scheduling and dispatch. As per the draft regulations, the scheduling of cross border electricity shall be carried out in accordance to the procedures specified in Indian Electricity Grid Code Regulations, 2010.

Transmission charges & Payment Security Mechanism

Estimation of transmission charges for the purpose of cross border trade of electricity shall be as per CERC Sharing of ISTS Charges & Losses Regulations, 2010. These charges are applicable to both injecting and drawing entity connected to the Indian Grid.

Dispute Settlement Mechanism

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. CERC ISTS Charges & Losses Regulations, 2010

CERC sharing of ISTS charges and losses regulation 2010 describes in detail the intent and process for calculating and sharing of charges and losses for use of transmission system. It adopts the point of connection (PoC) methodology, wherein transmission pricing is sensitive to distance, direction and quantum of power transfer. These regulations are used to estimate the PoC injection and withdrawal charges and losses, for each of the different zones and nodal points.

3. Grant of Connectivity, Long-Term Access and Medium-Term Open Access to the Inter-State Transmission and Related Matters) Regulations, 2009

These regulations, issued by CERC in 2009, apply for the grant of connectivity, long-term access and medium-term open access, in respect of inter-State transmission system. The regulations specify procedure for making applications for connectivity and open access separately for long term and medium term, priority of applications, nodal agency for each type of open access, eligibility conditions and related aspects. Following are some of the salient features of these regulations:

- As per chapter 3, the application for grant of connectivity shall be submitted to the

'nodal agency' i.e. Central Transmission Utility (CTU). The nodal agency after thorough coordination and consultation with other stakeholders shall approve grant of connectivity to the applicant. However, the grant of connectivity does not entitle an applicant to interchange power with the grid unless it obtains long, medium or short-term open access.

- Chapter 4 of these regulations deals with the criteria for granting long or medium term open access. It states that medium term open access can be granted if the resultant power flow can be accommodated in the existing transmission lines. However, before granting long-term open access due consideration will be given by CTU as per plans proposed by CEA. These regulations also states that the application for open access will be processed on a first come first serve basis.
- Chapter 5 & 6 of these regulations lays down the procedure for grant of long and medium term open access. These includes the details required for submission of application, system studies that will be carried out by the Nodal Agency, the transmission charges that will be applicable, and renewal terms among others.

4. Indian Electricity Grid Code, 2010

The Indian Electricity Grid Code (IEGC), issued by CERC in 2010 serves as a single set of technical and commercial rules, encompassing all the utilities and entities connected to/or using the inter-State transmission system (ISTS). The grid code consists of planning code for inter-state transmission, connection code, operating code including system security aspects, demand estimation, demand management, outage planning and recovery procedures, scheduling and dispatch code and compliance oversight. In terms of CBET, provisions in Grid Code on scheduling, curtailment of transactions and recovery from outages are important.

5.4.4 Conclusion

India's "Guidelines on CBET" has provided a strong policy and regulatory framework to support CBET, especially in terms of defining an institutional framework for CBET. Thus while the guidelines may still undergo further changes, it is important that a supporting institutional framework will already be in place (Designated Authority, Competent Authority, Transmission Planning Agencies etc.). The guidelines, paired with CERC's regulations on CBET are expected to be a key enabler in standardizing the process for CBET by Indian entities.

5.5 Maldives

5.5.1 Institutional Framework for Electricity

Maldives is composed of geographically separate islands. Currently all islands have their own power systems. Each island is effectively a mini-grid with a diesel based generation system while very few islands have the PV systems feeding electricity directly into the grid. Electricity service is provided by utilities or managed by themselves in the islands.

Electricity supply in the inhabited islands in the Male' (capital) region is provided by State Electric Company Ltd. (STELCO). Electricity supply in the outer islands is provided by FENAKA Corporation and Island Community/Council. Government of Maldives owns both STELCO and FENAKA. Some of the resorts have their own electricity supply arrangements.

Maldives Energy Authority (MEA) is an independent regulatory body affiliated to the Ministry of Energy and Environment and operates under guidance of a Governing Board appointed by the President. The institutional framework for Maldives power sector is shown below:

Figure 17: Power Sector Institutional Framework in Maldives



5.5.2 Legal and Policy Framework for Cross Border Electricity Trade

Law 4/96 (Provision of Utility Services), 2012 delegates various duties and functions related to regulation of electricity industry, to the Maldives Energy Authority (MEA). However, due to the geographic position of Maldives, there is no reference to cross border electricity trade in policies and laws of Maldives.

5.5.3 Regulatory Framework for Cross Border Electricity Trade

In the absence of legal and policy framework for cross border electricity trade, the regulatory framework is also not available for cross border electricity trade.

5.5.4 Conclusion

Due to its geographic location, surrounded by ocean, with nearly 1000 kms to the nearest mainland, cross border electricity trade is not a viable option for Maldives, and therefore there is no corresponding legal and policy framework for cross border electricity trade.

5.6 Nepal

5.6.1 Institutional Framework for Electricity

The power sector in Nepal is under the jurisdiction of the Ministry of Energy, Water Resources and Irrigation (MoEWRI). The Department of Electricity Development (DoED) under the Ministry is responsible for licensing of generation, transmission and distribution projects. The Water and Energy Commission (WEC) established to develop water and energy resources in an integrated and accelerated manner, primarily assists the Government of Nepal, the Ministry, and other related agencies in the formulation of policies and planning of projects in the water resources and energy sectors.

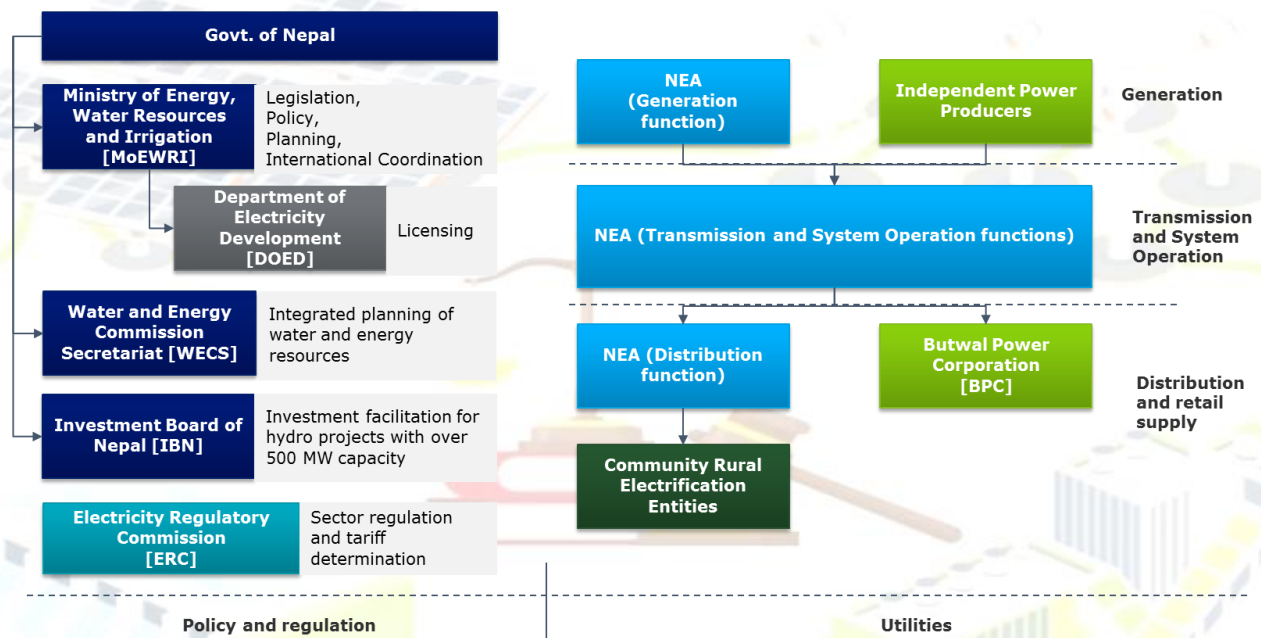
Till 2017, retail electricity tariffs were regulated by an Electricity Tariff Fixation Commission (ETFC), which was formed in 2011. In 2017, an Electricity Regulatory Commission Act was passed, which dissolved ETFC. The Government is in the process of setting up an independent

Electricity Regulatory Commission under the new Act.

The Government owned Nepal Electricity Authority (NEA) is primarily responsible for transmission and distribution of electricity in Nepal. It also owns some generation assets. The power trade department of NEA is responsible for trading of electric power both in terms of domestic and cross border market. It is the single window interface of NEA with Independent Power Producers (IPPs) for processing their application for Power Purchase Agreements (PPA).

NEA also undertakes system planning studies including demand forecasts and generation planning. However, there is also a newly created transmission entity Rashtriya Prasaran Grid Company (RPGC) which is also involved in transmission planning. The institutional structure of power sector in Nepal is provided below.

Figure 18: Power Sector Institutional Framework in Nepal



5.6.2 Legal and Policy Framework for Cross Border Electricity Trade

The Electricity Act 1992 is the primary legislation for the power sector in Nepal. The Act has enabling provisions for import and export of electricity:

"22. Import and Export of Electricity: (1) If the licensee desiring to distribute electricity by importing the same within the Nepal, may do so by obtaining prior approval of Government of Nepal as prescribed.

(2) The licensee desiring to export electricity generated on its own to the foreign country may do so by entering into an agreement with Government of Nepal on such matter.

(3) The exporter of electricity pursuant to Sub-section (2) shall have to pay export duty as prescribed to Government of Nepal."

The Hydropower Development Policy 2001 specifies that license may be granted by the Government to export electricity from projects with installed capacity of more than 100 MW.

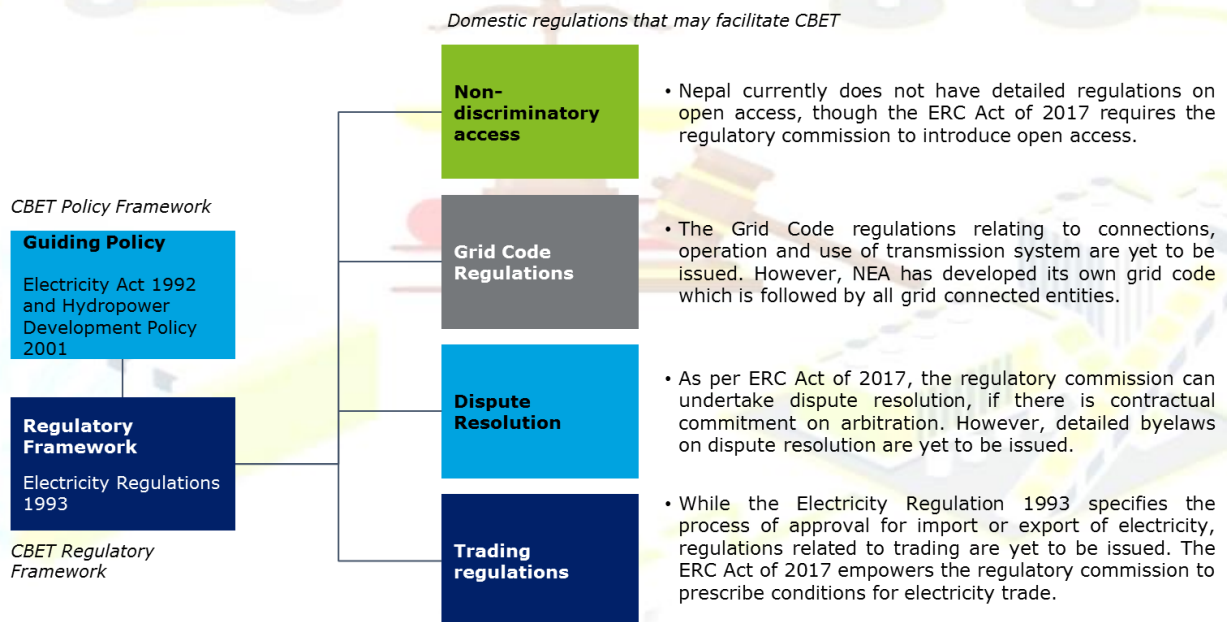
5.6.3 Regulatory Framework for Cross Border Electricity Trade

Electricity Regulation 1993 is a set of rules, which were notified under the Electricity Act 1992. As per Clause 23 of Electricity Regulation 1993, if the licensee who has obtained license for production, transmission or distribution wants to import electricity into Nepal, then it may apply for the same to Department of Electricity Development, with details of import arrangement for approval of Govt. of Nepal. The application shall contain at-least the following:

- The name of the country from where the electricity is to be imported;
- standard of voltage of electricity to be imported;
- quantity;
- area of transmission or distribution; and
- period of importing the electricity.

Other than the provisions in Electricity Regulation 1993, a regulatory framework for cross border electricity trade could not develop further in the absence of an independent regulatory Commission.

Figure 19: Regulatory Framework for CBET in Nepal



In September 2017, the President of Nepal gave assent to the “Nepal Electricity Regulatory Commission Act, 2017”. The Act proposes a comprehensive overhaul of the regulatory framework for power sector in Nepal with the proposed establishment of an independent electricity regulatory commission. The new Act has the following key provisions that are relevant to cross border electricity trade also:

- Electricity regulatory commission has been established as a regulatory body to regulate the generation, transmission, distribution or trade of electricity;
- The electricity regulatory commission shall make provision of open access in the

electricity system; and

- The electricity regulatory commission shall determine the process for the establishment of wholesale market of electricity.

The electricity regulatory commission has not been constituted, and the chairperson and members have not been appointed as on 01 July 2018. As the regulatory commission becomes operational, it can be expected that a regulatory framework involving open access, transmission pricing etc. may be put in place.

5.6.4 Conclusion

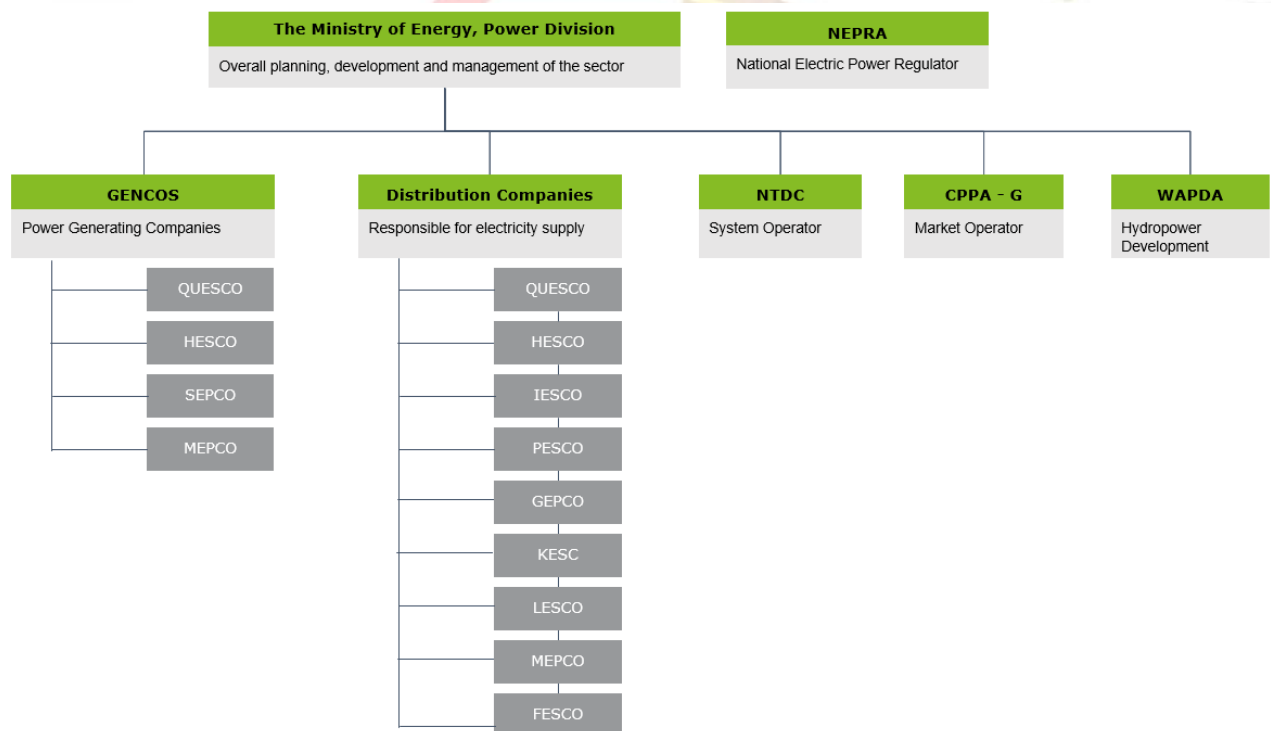
In spite of legal and policy provisions on import / export of power, a regulatory framework for cross border electricity trade is yet to evolve. The situation might change with anticipated increase in transmission capacity between Indian and Nepal, progress in construction of export oriented hydropower projects in Nepal and the implementation of Indo Nepal Power Trade Agreement.

5.7 Pakistan

5.7.1 Institutional Framework for Electricity

In Pakistan, the Power division of the Ministry of Energy is the nodal division for all matters concerning the power sector in Pakistan. The main functions of this division is policy formulation, planning, coordination and monitoring. The division also coordinate in matters related import/export of electricity.

Figure 20: Power Sector Institutional Framework in Pakistan



National Transmission and Dispatch Company (NTDC) and Central Power Purchasing Agency (CPPA) are two key organizations in the power sector in Pakistan. NTDC was incorporated in

1998 and is mostly responsible for system operation, transmission network operation and power exchange administration. On the other hand, the CPPA-G is the Market Operator responsible for procuring electric power on behalf of DISCOs and to facilitate the power market transition from the current single buyer to competitive market.

On the regulatory front, National Electric Power Regulatory Authority (NEPRA) is responsible for regulating the power sector for promoting a competitive structure for the industry and for ensuring reliable power supply in the country. In addition, NEPRA is also responsible for framing rules and regulations for import of power into Pakistan.

Another key entity in Pakistan’s power sector is the Water and Power Development Authority (WAPDA). It is an autonomous and statutory body under the administrative control of the Federal Government, and is entrusted with operation and maintenance of the running Hydro Power Projects (HPP) and future development of HPPs.

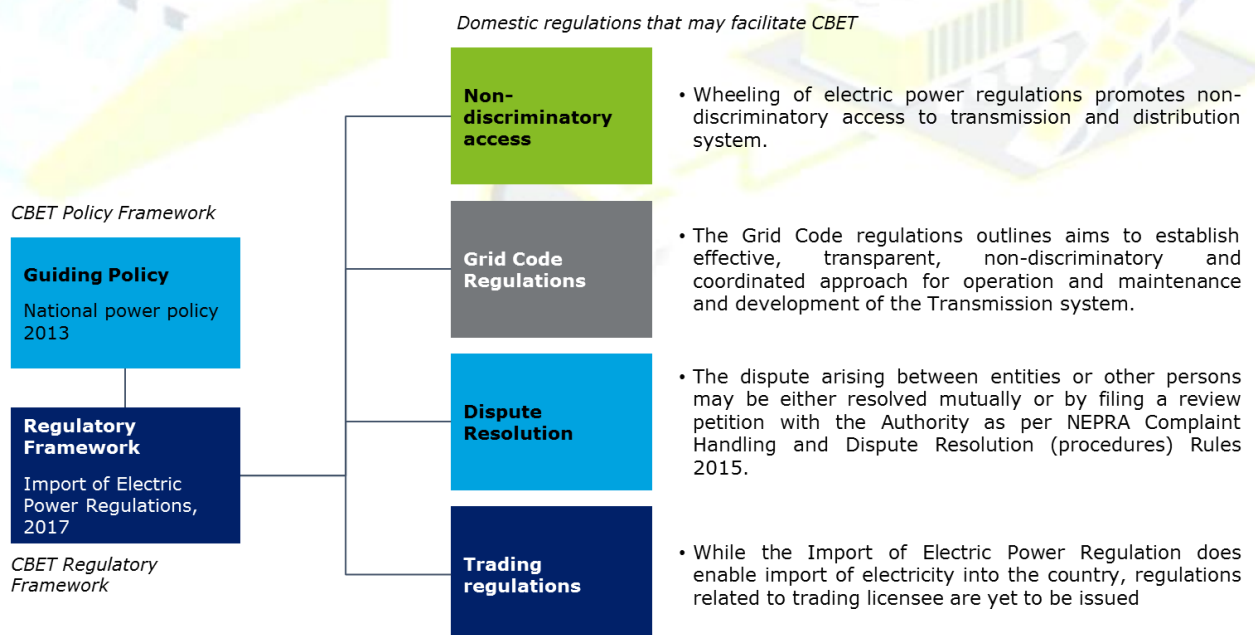
5.7.2 Legal and Policy Framework for Cross Border Electricity Trade

The Electric Power Act of 1997 is the primary legislation for electric power in Pakistan. The Act provides for regulation of generation, transmission and distribution of electric power in the whole of Pakistan and for the establishment of National Electric Power Regulatory Authority (NEPRA). However, the Act makes no mention of cross border electricity trade as a separate activity. Pakistan’s National Power Policy 2013 states that the Government may redesign and strengthen the national grid transmission network and build a regional transmission and power trading system.

5.7.3 Regulatory Framework for Cross Border Electricity Trade

While an overall policy framework for cross border trade of electricity is yet to be issued by Pakistan, there are certain enabling regulations such as Import of Electric Power Regulations.

Figure 21: Regulatory Framework for CBET in Pakistan



Import of Electric Power Regulations, 2017

NEPRA's Import of Electric Power Regulations, 2017 specify the process that shall be followed by applicants for approval of rates for import of power. The buyer is required to share a comprehensive tariff proposal, as shared by seller, for import of power along with supporting documents such as project cost, tariff assumptions, and tariff break-up. Apart from this, the buyer is also required to share details regarding the aspects such as cost of interconnection arrangement, requirement of network augmentation. The Authority evaluating the application have the right to approve the rate at which power is imported into Pakistan with or without any modification, with an intimation to the federal government.

These regulations require the seller to comply with the grid code, distribution code and other applicable regulations issued by NEPRA for import of power into Pakistan.

Wheeling of Electric Power Regulations, 2016

The wheeling of electric power regulations promote non-discriminatory open access to transmission and distribution system to applicants who either are connected or intend to connect with the transmission or distribution system. The regulations also set out the process for availing wheeling of power by generating company. Following are some of the salient features of this regulation:

- Clause 3 of the regulations requires the transmission and distribution company/licensee to provide non-discriminatory access to transmission and distribution system to the applicant. Moreover, the regulations also requires the transmission and distribution company/licensee to maintain a detailed report of the electric power capacity of its respective transmission or distribution system.
- Clause 9 of the regulations specifies that the wheeling charges for wheeling of electric power will be the one that is approved by the authority in the tariff petition of the transmission and distribution system.
- Clause 11 of the regulations allow for banking of energy in situations where Transmission or Distribution Company is unable to transport power to the end consumer or the consumer is unable to accept delivery of the output power at the exit point of the system.

Complaint Handling and Dispute Resolution Procedure Rules, 2015

The dispute settlement regulations were first notified in 2015 and specifies procedures that will be followed in case of dispute arising between licensees or between licensees and consumers.

The Grid Code, 2005

The Grid Code of Pakistan were issued in 2005 in accordance with the Regulation of Generation, Transmission and Distribution of Electric Power Act 1997. The Grid Code sets-out criteria, guidelines, basic rules, procedures, responsibilities, standards and obligations for the operation, maintenance and development of the electricity transmission system of Pakistan. The primary objectives of the Grid Code are to establish effective, transparent, non-discriminatory and coordinated approach for operation and maintenance and development of the Transmission system. In addition, provisions have also been incorporated to ensure

equitable management of technical matters in the interest of all parties connected to the grid, including distribution licensee, generators, consumers and any other user. The Grid Code includes the following sub-codes:

- Code Management;
- Data Registration Code;
- Operation Code;
- Connection Code;
- Planning Code; and
- Scheduling and Dispatch Code.

5.7.4 Conclusion

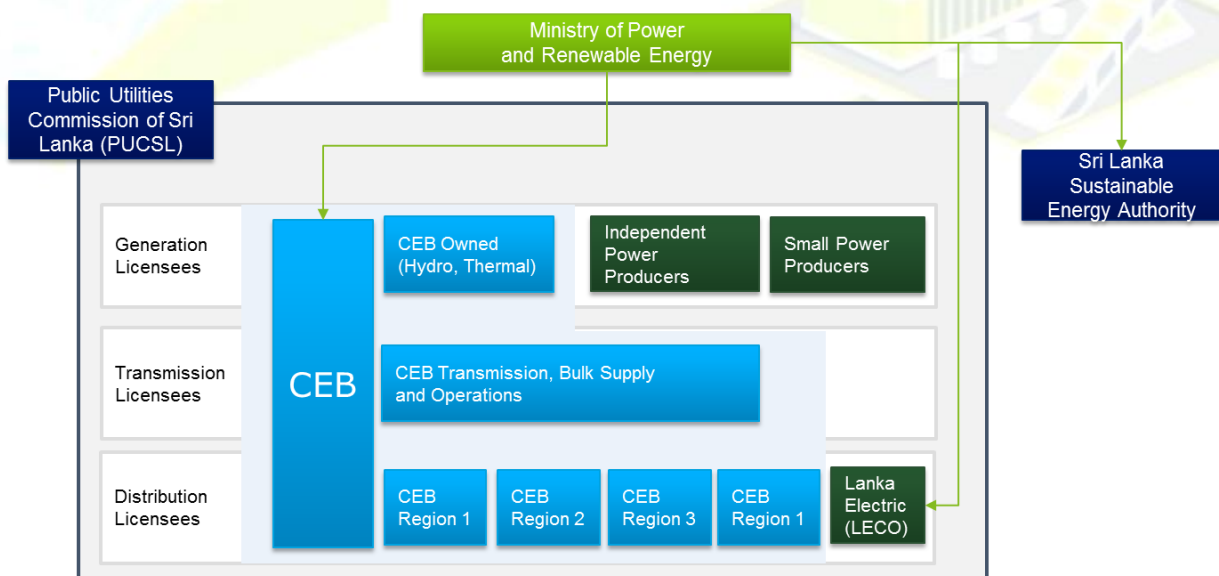
The Import of Electric Power Regulations, 2017 in Pakistan provides a basic regulatory framework covering certain aspects of cross border electricity trade. The regulatory framework of the country also supports open access and transmission pricing. The country already imports power from Iran. Thus, there is some level of regulatory framework that is already in place to support CBET, though there is scope for its enhancement and improvement.

5.8 Sri Lanka

5.8.1 Institutional Framework for Electricity

The power sector in Sri Lanka is composed of a mix of large, small, public and private entities. The Ministry of Power and Renewable Energy is responsible for formulation of energy policy, project implementation and monitoring, and supervision of state-owned electricity utilities. The publicly owned Ceylon Energy Board (CEB), which is involved in power generation, transmission, distribution and revenue collection is also under the supervision of the ministry.

Figure 22: Power Sector Institutional Framework in Sri Lanka



Public Utilities Commission of Sri Lanka (PUCSL) is the Infrastructure regulatory commission

presently empowered to regulate electricity industry. The Sri Lanka Electricity Act no. 20 of 2009 (subsequent amendment in 2013) mandates commission to promote competition and determine transmission pricing such that it provides efficient service possible to the consumers.

The Sri Lanka Sustainable Energy Authority (or SLSEA) is the primary body responsible for the issuance of licenses for sustainable energy projects in Sri Lanka. SLSEA is also responsible for promotion of renewable energy in the country.

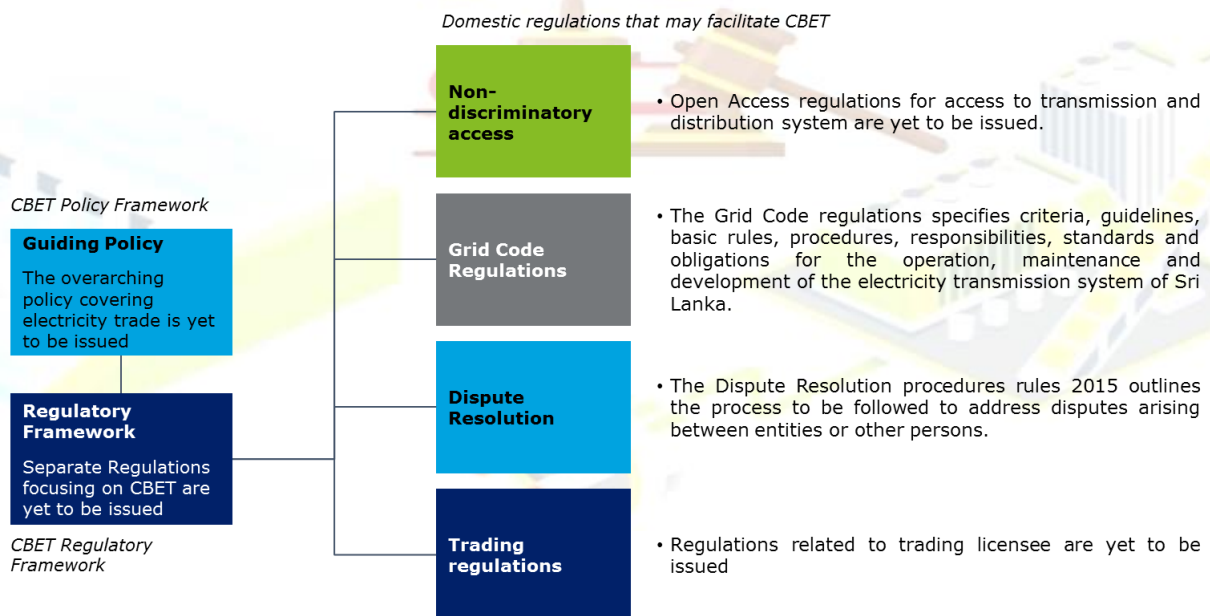
5.8.2 Legal and Policy Framework for Cross Border Electricity Trade

The Electricity Act 2009 primarily governs power sector in Sri Lanka. The Act mentions legislation for only generation, transmission and distribution segment of the electricity sector. It promotes cost reflective tariffs & charges, facilitate consumer service and promote investment in construction of new generation, transmission line and distribution lines etc. However, the Act does not directly lays down any guiding principles or guidelines to promote cross border electricity trade.

5.8.3 Regulatory Framework for Cross Border Electricity Trade

In the absence of legal and policy framework for cross border electricity trade, the regulatory framework specific to cross border electricity trade is also not available. Open access is also not available as CEB continued to be the single buyer for electricity. However, certain other supporting regulations such as grid code and transmission planning code are already notified.

Figure 23: Regulatory Framework for CBET in Sri Lanka



Grid Code

The Grid Code of Sri Lanka has been formulated under terms specified in the Electricity Act 2009. The Grid Code specifies criteria, guidelines, basic rules, procedures, responsibilities, standards and obligations for the operation, maintenance and development of the electricity transmission system of Sri Lanka. The primary objectives of the Grid Code are to establish effective, transparent, non-discriminatory and coordinated approach for operation and

maintenance and development of the Transmission system. In addition, provisions have also been incorporated to ensure equitable management of technical matters in the interest of all parties connected to the grid, including distribution licensee, generators, consumers and any other users. The grid code consists of:

- General code;
- Grid planning code;
- Grid connection code; and
- Generation dispatch code.

Transmission Planning Code, 2011

The transmission planning code provided for all round development of transmission system to ensure that the system is capable of delivering power from generating plants to various load centers across the country in a reliable and secure way. It specifies the planning period, frequency at which the plan will be updated and guidelines for system modeling.

Dispute Resolution Procedure Rules, 2015

The dispute resolution rules specifies procedures that will be followed in case of dispute arising between parties i.e. between two licensee, a licensee and a customer or a licensee and other affected party. These rules requires that the dispute be amicably settled between parties under Part I of the procedure rules. However, if the parties fail to settle dispute between themselves then the parties may call upon the commission to resolve the dispute.

5.8.4 Conclusion

Being an island nation, Sri Lanka's power system is isolated, and policy and regulatory framework for cross border electricity trade has not yet developed. The sector continues to adopt a single buyer model through CEB. In the future, as plans for submarine cable interconnection with India's grid proceeds further, the country will have to consider putting in place adequate regulatory provisions for cross border trade.

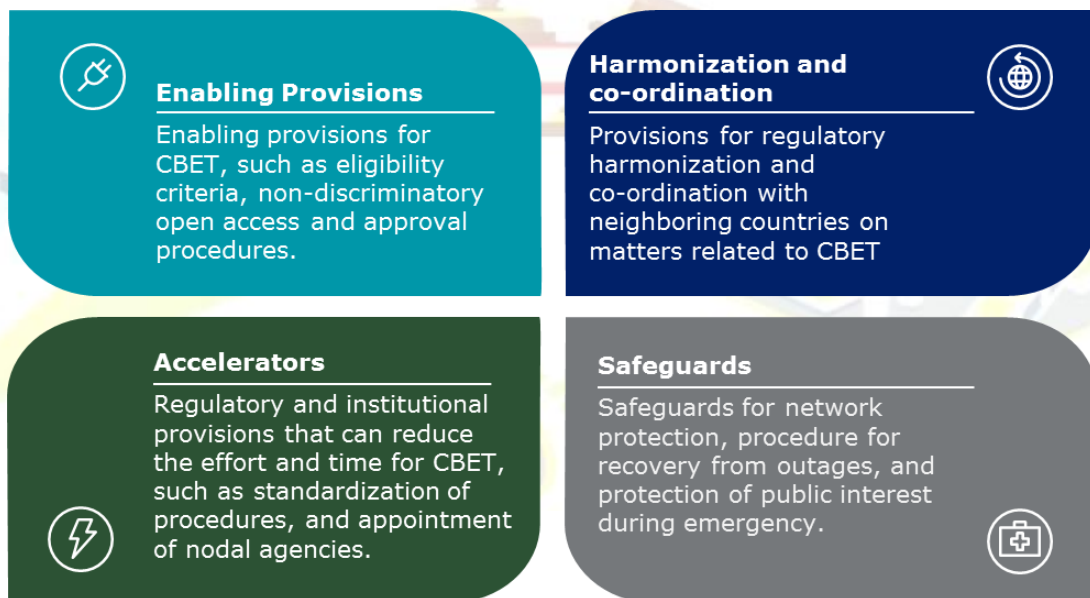
6 Gap analysis of regulatory framework in South Asian countries

6.1 Methodology for gap analysis

For gap analysis of regulatory framework in South Asian countries for CBET, the following key requirements have been identified:

5. Enabling provisions for CBET, such as eligibility criteria, non-discriminatory open access and approval procedures;
6. Regulatory and institutional provisions that can reduce the effort and time for CBET, such as standardization of procedures, and appointment of nodal agencies;
7. Provisions for regulatory harmonization and co-ordination with neighboring countries on matters related to CBET; and
8. Safeguards for network protection, procedure for recovery from outages, and protection of public interest during emergency.

Figure 24: Key requirements for CBET Regulatory Framework



Thus, for conducting gap-analysis, the regulatory framework in each country is tested against the above listed requirements. Based on the analysis, the availability* of such provisions in the country's regulatory framework is categorized under any of the following three options:

Table 9: Categorization legend for gap analysis

✓	Already available in the legal / regulatory framework of the country
⌚	Partially available in the legal / regulatory framework of the country
✗	Not available in the legal / regulatory framework of the country

* Availability itself is defined as the presence of reference to the subject under consideration in publically accessible legal / regulatory documents.

6.2 Findings of gap analysis

Based on the above methodology, the findings of gap-analysis of each of the South Asian countries are described in the subsequent sub-sections.

6.2.1 Afghanistan

In Afghanistan, there is an enabling provision for import and export of electricity and non-discriminatory interconnection facilities in its primary legislation for electricity. However, apart from that, there is no regulatory framework for CBET and for issues related to CBET.

Table 10: Gap analysis for Afghanistan

Requirement for CBET	Availability	Comments
Enabling provisions	⌚	Power Services Regulation Act, 2016 allows grant of license for import / export of electricity, for up to 15 years. The act also allows requires license holders to provide interconnection facilities in a non-discriminatory manner.
Accelerators	✗	No clear procedure / regulations for CBET have been defined.
Harmonization and co-ordination	✗	No provisions in regulatory framework for harmonization and co-ordination with other countries on matters related to CBET.
Safeguards	✗	No defined safeguard mechanisms.

✓ Available ⌚ Partially Available ✗ Not Available

6.2.2 Bangladesh

The intent of Government of Bangladesh to promote cross border trade is evident in the

provisions of Quick Enhancement of Electricity and Energy Supply (Special Provisions) Act, 2010 and from the ongoing electricity trade with India. However, detailed regulatory framework for cross border trade and supporting concepts such as open access are yet to evolve.

Table 11: Gap analysis for Bangladesh

Requirement for CBET	Availability	Comments
Enabling provisions	⌚	The Quick Enhancement of Electricity and Energy Supply (Special Provisions) Act, 2010 allows Government approval for import of electricity. The erstwhile Electricity Act, 1910 also allows BPDB / Single Buyer to import / export electricity with sanction of the Government. The Act of 1910 also stipulated non-discriminatory open access to transmission network.
Accelerators	✘	No clear procedure / regulations for CBET have been defined.
Harmonization and co-ordination	✘	No provisions in regulatory framework for harmonization and co-ordination with other countries on matters related to CBET.
Safeguards	✘	No defined safeguard mechanisms.
		✓ Available ⌚ Partially Available ✘ Not Available

6.2.3 Bhutan

In Bhutan, there is an enabling provision for import and export of electricity and non-discriminatory open access in its primary legislation for electricity. However, apart from that, there is no regulatory framework for CBET and for issues related to CBET.

Table 12: Gap analysis for Bhutan

Requirement for CBET	Availability	Comments
Enabling provisions	⌚	Electricity Act, 2001 allows grant of license for import / export of electricity. The Act also prescribes non-discriminatory access to transmission and distribution systems.

Requirement for CBET	Availability	Comments
Accelerators	✘	No clear procedure / regulations for CBET have been defined.
Harmonization and co-ordination	✘	No provisions in regulatory framework for harmonization and co-ordination with other countries on matters related to CBET.
Safeguards	✘	No defined safeguard mechanisms.

✓ Available ⌚ Partially Available ✘ Not Available

6.2.4 India

India's "Guidelines on CBET" has provided a strong policy and regulatory framework to support CBET, especially in terms of defining an institutional framework for CBET. However, there is scope for aligning those guidelines more in line with SAARC Framework Agreement. For example, relaxation in eligibility criteria for Participating Entities could act as an accelerator for CBET.

Table 13: Gap analysis for India

Requirement for CBET	Availability	Comments
Enabling provisions	⌚	The Government's 'Guidelines on Cross Border Electricity Trade' provides a clear framework for CBET, which is being augmented with CERC's proposed regulations on CBET.
Accelerators	⌚	CERC's draft regulations for CBET and the Conduct of Business regulations of Designated Authority together functions to provide clear process and accountability for CBET activities.
Harmonization and co-ordination	⌚	The Government's 'Guidelines on Cross Border Electricity Trade' stipulates co-ordination with neighboring countries on planning, monitoring, coordination, grid safety etc.
Safeguards	⌚	CERC's draft regulations for CBET allows curtailment of CBET in the interest of grid security

✓ Available ⌚ Partially Available ✘ Not Available

6.2.5 Maldives

Due to its geographic location, surrounded by ocean, CBET is not a viable option for Maldives, and therefore there is no corresponding legal and policy framework for cross border electricity trade.

6.2.6 Nepal

In spite of legal and policy provisions on import / export of power, a regulatory framework for cross border electricity trade is yet to evolve in Nepal.

Table 14: Gap analysis for Nepal

Requirement for CBET	Availability	Comments
Enabling provisions	☺	Electricity Act 1992 and Electricity Regulation 1993 allows licensing for import and export of power, along with determination of export duty.
Accelerators	✘	No clear procedure / regulations for CBET have been defined.
Harmonization and co-ordination	✘	No provisions in regulatory framework for harmonization and co-ordination with other countries on matters related to CBET.
Safeguards	✘	No defined safeguard mechanisms.

✓ Available ☺ Partially Available ✘ Not Available

6.2.7 Pakistan

The Import of Electric Power Regulations, 2017 in Pakistan provides a basic regulatory framework covering certain aspects of cross border electricity trade. The regulatory framework of the country also supports open access and transmission pricing. Thus, there is some level of regulatory framework that is already in place to support at least import of power. However, there are no specific guidelines outlining institutional mechanisms and procedures for planning and execution of cross border interconnections.

Table 15: Gap analysis for Pakistan

Requirement for CBET	Availability	Comments
Enabling provisions	☺	National Power Policy of 2013 states that Government may build a regional transmission and power trading system.

Requirement for CBET	Availability	Comments
		Wheeling of Electric Power Regulations of 2016 requires the transmission and distribution companies to allow non-discriminatory access to their respective system.
Accelerators	☺	NEPRA has issued Import of Electric Power Regulations, 2017, which allows distribution companies and market operators to import power from foreign countries.
Harmonization and co-ordination	✘	No provisions in regulatory framework for harmonization and co-ordination with other countries on matters related to CBET.
Safeguards	✘	No defined safeguard mechanisms.

✓ Available ☺ Partially Available ✘ Not Available

6.2.8 Sri Lanka

Policy and regulatory framework for cross border electricity trade in Sri Lanka has not yet developed, probably because of it being an island nation. In the future, as plans for submarine cable interconnection with India's grid proceeds further, the country will have to consider putting in place adequate regulatory provisions for cross border trade.

Table 16: Gap analysis for Sri Lanka

Requirement for CBET	Availability	Comments
Enabling provisions	✘	No reference to cross border electricity trade or import of power in legal and regulatory framework.
Accelerators	✘	No clear procedure / regulations for CBET have been defined.
Harmonization and co-ordination	✘	No provisions in regulatory framework for harmonization and co-ordination with other countries on matters related to CBET.
Safeguards	✘	No defined safeguard mechanisms.

✓ Available () Partially Available ✗ Not Available

6.3 Summary of gap analysis

The summary of gap analysis of regulatory framework for CBET in South Asian countries are provided below. It can be seen that there is a complete or partial absence of provisions for CBET in the regulatory framework of these countries, notwithstanding the fact that in many of the countries, cross border electricity trade already happens under adhoc mechanisms or government-to-government arrangements.

Table 17: Summary of gap analysis

Requirement for CBET	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri lanka
Enabling provisions	()	()	()	()	✗	()	()	✗
Accelerators	✗	✗	✗	()	✗	✗	()	✗
Harmonization and co-ordination	✗	✗	✗	()	✗	✗	✗	✗
Safeguards	✗	✗	✗	()	✗	✗	✗	✗

✓ Available () Partially Available ✗ Not Available

The above analysis proves the requirement and relevance of a model regulation for Cross Border Electricity Trade, which can be adopted by the South Asian countries for implementation of Framework Agreement and promotion of CBET.

7 International experience in regulatory framework for CBET

There are multiple instances of countries within the same region adopting regulatory instruments that promote CBET. The lessons and learning from those instances could be used in the formulation of Model Regulations. An illustration of some of the key regional power arrangements are provided below, followed by detailed description of regulatory mechanism adopted for CBET by such regional arrangements.

7.1 European Union’s Internal Market for Electricity

7.1.1 Regional arrangement and institutional mechanisms

The European Union (EU) is an economic and political union between 28 EU countries that together cover much of the European continent. The countries together constitute a single market (also known as the 'internal' market) through a standardised legal system that apply in all member states.

Figure 25: Evolution of European Union



The internal market of European Union also contains a single internal market for electricity. The market focuses on providing market access to third parties and on ensuring competition on wholesale and retail markets. The market hosts day ahead, intra-day, forward and balancing products. Various power exchanges such as EPEX, APX and NORD POOL operate in this market.

An Agency for Cooperation of Energy Regulators (ACER) has been set up for cooperation amongst energy regulators in the EU. ACER defines the transnational network codes, which are

a set of guidelines for transnational electricity networks and markets. It also monitors implementation of its network codes.

Another key entity is the European network of transmission system operators for electricity (ENTSO-E), whose tasks include:

- Elaborating rules (network codes) for the operation of the electricity transmission networks;
- Coordinating grid operation through the exchange of operational information; and
- Development of common safety and emergency standards and procedures.

ENTSO-E is also responsible for drafting a 10-year network development plan every two years, which is then reviewed by ACER.

7.1.2 Regulatory instruments adopted for promotion of CBET

The guiding framework for single internal market for electricity in Europe evolved through a set of directives and regulations of European Union, issued between 1996 and 2009.

Directive 96/92/EC, 1996

In 1996, Directive 96/92/EC was issued, which dealt with ensuring autonomy of system operator, and availability of non-discriminatory access.

The directive required the Member States to issue non-discriminatory rules for system interconnection. The system operator was entrusted with determining the use of interconnectors with other systems, and ensuring the secure and efficient operation, coordinated development and interoperability of the interconnected systems.

The directive also required Member States to enable access to their system through interconnections for entities outside the Member State.

"Article 20

1. Member States shall take the necessary measures to enable:

(i) independent producers and auto producers to negotiate access to the system so as to supply their own premises and subsidiaries in the same Member State or in another Member State by means of the interconnected system;

(ii) producers located outside the territory covered by the system to conclude a supply contract following a call for tender for new generating capacity, and to have access to the system to perform the contract."

The directive required the Member States to designate an independent authority for dispute resolution, and clarified that in matters related to refusal of access for cross border trade, dispute resolution shall be done by the dispute resolution authority covering the system of the single buyer or the system operator which refuses use of, or access to, the system. The directive had the following safeguard mechanism to handle crisis:

"Article 23

In the event of a sudden crisis in the energy market and where the physical safety or

security of persons, apparatus or installations or system integrity is threatened, a Member State may temporarily take the necessary safeguard measures.

Such measures must cause the least possible disturbance in the functioning of the internal market and must not be wider in scope than is strictly necessary to remedy the sudden difficulties which have arisen.”

Directive 2003/54/EC, 2003

Directive 2003/54/EC of 2003 was mostly an improvement over previous directives of 1996, and sought to strengthen the concepts of independence of system operator, role of regulatory authorities and allowing non-discriminatory third party access to networks.

Regulation (EC) No 714/2009

Regulation (EC) No 714/2009 was the most important EU directive concerning CBET. The regulations aimed to set fair rules for cross-border exchanges in electricity, thereby enhancing competition within the internal market in electricity. This was issued along with Directive 2009/72/EC which improved upon the previous directive of 2003, Regulation (EC) No 713/2009 which dealt with establishing an Agency for the Cooperation of Energy Regulators (ACER).

In terms of institutional framework, Regulation (EC) No 714/2009 entrusted ACER to review and recommend network codes network codes for providing and managing effective and transparent access to the transmission networks across borders. The directive also recommended to establish ENTSO-E In order to ensure optimal management of the electricity transmission network and to allow trading and supplying electricity across borders.

The regulation required ENTSO-E to regularly publish and update a non-binding Community³-wide ten-year network development plan, in order to ensure greater transparency regarding the entire electricity transmission network in the Community. The directive recommended that viable electricity transmission networks and necessary regional interconnections, relevant from a commercial or security of supply point of view, should be included in the network development plan.

The regulation also contained “Guidelines on the management and allocation of available transfer capacity of interconnections between national systems”. The guidelines stipulated the following:

Guidelines on the management and allocation of available transfer capacity of interconnections between national systems

- When there is no congestion, there shall be no restriction of access to the interconnection.
- No transaction-based distinction shall be applied in congestion management.
- TSOs shall not in normal course, limit interconnection capacity, merely in order to solve congestion attributable to their own control area.

³ European Community (EC).

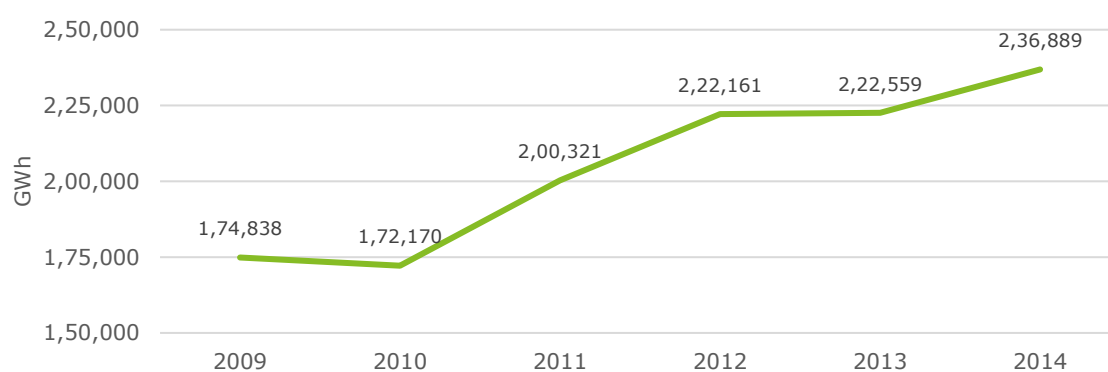
- Congestion-management methods shall be market-based (auctions) in order to facilitate efficient cross-border trade.’
- The national regulatory authorities shall regularly evaluate the congestion-management methods.
- The access rights for long and medium-term allocations shall be firm transmission capacity rights. They shall be subject to the use-it-or-lose-it or use-it-or-sell-it principles at the time of nomination.
- With a view to promoting fair and efficient competition and cross-border trade, coordination between TSOs within the regions shall include all the steps from capacity calculation and optimisation of allocation to secure operation of the network, with clear assignments of responsibility. Coordination shall also include the exchange of information between TSOs.
- TSOs shall publish all relevant data related to network availability, network access and network use, including a report on where and why congestion exists, the methods applied for managing the congestion and the plans for its future management.
- TSOs shall publish all relevant data concerning cross-border trade on the basis of the best possible forecast. In order to fulfil that obligation the market participants concerned shall provide the TSOs with the relevant data. The manner in which such information is published shall be subject to review by the regulatory authorities. TSOs shall publish at least:
 - a. annually: information on the long-term evolution of the transmission infrastructure and its impact on cross-border transmission capacity;
 - b. monthly: month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (for example, impact of summer and winter seasons on the capacity of lines, maintenance of the network, availability of production units, etc.);
 - c. weekly: week-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSOs at the time of calculation of the forecast, such as the weather forecast, planned network maintenance work, availability of production units, etc.;
 - d. daily: day-ahead and intra-day transmission capacity available to the market for each market time unit, taking into account all netted day-ahead nominations, day-ahead production schedules, demand forecasts and planned network maintenance work.
- All information published by the TSOs shall be made freely available in an easily accessible form. The data shall include information on past time periods with a minimum of two years, so that new market entrants may also have access to such data.

- The use of congestion income for investment to maintain or increase interconnection capacity shall preferably be assigned to specific predefined projects which contribute to relieving the existing associated congestion and which may also be implemented within a reasonable time.

7.1.3 Learning and inferences

As per European Commission⁴, the 2009 directives and regulations on energy sector (Third energy package) Energy Package has led to increased liquidity of European electricity markets and significantly increased cross-border trade. Data on cross-border trade showed that cross-border trade in electricity between most EU countries has increased and so has the use of interconnectors. The share of imports in the total electricity available for final consumption has grown in 23 Member States between 2008 and 2012. Despite a decline in EU electricity demand between 2008 and 2014, traded volume of electricity also increased in Europe between 2008 and 2014⁵.

Figure 26: Trend of cross-border traded electricity* for a selection of borders in Europe



* Day ahead nominations Source: ACER Market Monitoring Report 2015

The Commission also predicted that investments into cross-border infrastructure are likely to increase further in the current decade, due to the energy package of 2009.

However, the Commission also noted that uncoordinated use of interconnectors has led to a limitation of available cross-border capacity. Some interconnectors were reported to be used to 25% of their capacities. This was attributed to TSOs restricting imports to accommodate domestic renewable energy, and TSO preferring to earn congestion rents.

Another key learning from the experience of European Union is the importance of regional level bodies such as ACER and ENTSO-E. The existence of ACER and ENTSO-E allows a coordinated development of regional frameworks and documents such as the network codes. A case in example is the process followed for the development of network codes (such as Network

⁴ European Commission (30 Nov 2016), Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the internal market for electricity - https://eur-lex.europa.eu/resource.html?uri=cellar:d7108c4c-b7b8-11e6-9e3c-01aa75ed71a1.0001.02/DOC_1&format=PDF

⁵ European Commission (30 Nov 2016), Evaluation Report covering the Evaluation of the EU's regulatory framework for electricity market design and consumer protection in the fields of electricity and gas - https://eur-lex.europa.eu/resource.html?uri=cellar:20674470-b7b9-11e6-9e3c-01aa75ed71a1.0001.02/DOC_1&format=PDF

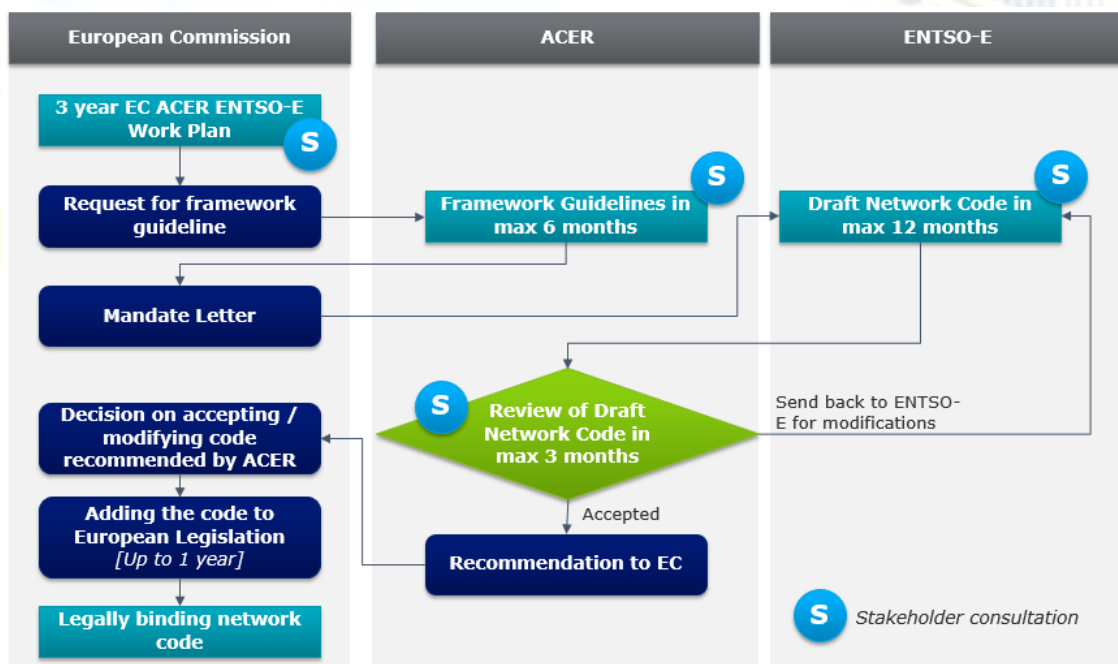
Connection Code, System Operation Code, Market Network Codes), which is illustrated below:

- The EC-ACER-ENTSO-E Three-Year Plan covers the plan for individual framework guidelines and network codes over the medium term.
- In each year of the plan period, the European Commission (EC) undertakes a consultation process to establish the priority areas for network code development and requests ACER to develop a framework guideline in a particular area.
- ACER has a period of six months to develop the framework guideline after wide stakeholder consultations. The framework guidelines of ACER provide the “terms of reference” to be used by ENTSO-E to develop the corresponding network code, or codes, and serves as the basis against which the code(s) will be subsequently assessed.
- Once the EC is satisfied with ACER’s guideline, it formally invites ENTSO-E to develop the corresponding network code(s).
- ENTSO-E has a period of 12 months to develop a code for submission to ACER, which then has up to three months to provide ENTSO-E with a reasoned opinion on it.
- If ACER judges the code to be in line with the framework guideline, it can recommend that the EC approve it. If it does not, it is also entitled to recommend that ENTSO-E modify the code.
- The EC is not bound to accept ACER’s recommendation and can also modify the code. It may also undertake further assessment.
- Once the EC is satisfied, it will initiate the process for translation of the network code into European legislation, making it legally binding in all EU Member States.

Source: ENTSO-E Annual Report 2012

The above process is illustrated graphically below.

Figure 27: Process for finalization of network codes in European Union



Source: ENTSO-E Annual Report 2012

7.1.4 Implications for South Asia

The case of European Union is not directly comparable with that in South Asia, as directives and regulations of European Union are binding upon its participants. However, South Asia can still draw lessons from the European Union, especially in areas such as:

1. Recognizing the importance of coordination of Regulators (ACER) and system operators (ENTSO-E);
2. Recognizing the need for regional coordination in matters related to capacity allocation of transmission interconnectors and cross border trade;
3. Importance of making information on available transmission capacity, congestion, system expansion plans etc. in the public domain;
4. Use of congestion income for augmentation of transmission capacity to relieve congestion; and
5. Need for considering the role of variable renewable energy and their impact on cross border trade.

7.2 West African Power Pool (WAPP)

7.2.1 Regional arrangement and institutional mechanisms

The West African Power Pool (WAPP) covers 14 of the 15 countries (Benin, Côte d'Ivoire, Burkina Faso, Ghana, Gambia, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo) of the Economic Community of West African States (ECOWAS).

Figure 28: West African Power Pool



WAPP was established to ensure Regional Power System integration and realization of a Regional Electricity Market. WAPP brings together 27 member companies operating in Public

and Private Generation, Transmission and Distribution segments in West. WAPP's activities are coordinated by General Secretariat of the West African Power Pool (SG / WAPP).

The ECOWAS Regional Electricity Regulatory Authority (ERERA) is the regulator of regional cross-border trade of electricity in West Africa and the regional regulator of cross border electricity interconnections in West Africa. It was established by the member states WAPP in January 2008.

7.2.2 Regulatory instruments adopted for promotion of CBET

The key regulatory instruments of WAPP/ERERA relevant for CBET are:

The Regional Market Rules (RMR)

The Regional Market Rules for WAPP were approved by ERERA in August 2015. The Rules govern the commercial transactions pertaining to cross border electricity flows in WAPP.

The Rules clearly specify the conditions of initial phase of regional trade, which includes:

1. Bilateral trading under standards and procedures prescribed by WAPP;
2. Use of model contracts for short, medium and long term bilateral contracts;
3. Calculation of transmission price under approved Regional Transmission Pricing methodology; and
4. Regulation and dispute resolution in regional market provided by ERERA.

The Rules also specify characteristics of future phases 2 and 3, and conditions precedent for all the three phases. The rules entrust the System and Market Operator (SMO) of WAPP with the following duties related to cross border interconnectors:

1. Operational planning of interconnectors
2. Coordination of the use of interconnectors
3. Overview and control of flows in interconnectors
4. Allocation of transmission capacity in interconnectors

Some of the key features of WAPP's Regional Market, as described in the Rules are as follows:

- Access to transmission capacity shall be approved on a first come first serve basis
- Settlement of bilateral contracts shall be as per schedule, and not as per delivery.
- Hourly trading interval / time block;
- Settlement of daily imbalances in kind for each trading interval, within 72 hours
- ECOWAS Court of Justices as the appellate court against decisions of ERERA
- One nodal entity for CBET to be designated by each country

Regional Market Procedures

The Regional Market Procedures, approved by ERERA in August 2015, provides more detailed procedures to support Regional Market Rules. The procedures cover the following important aspects:

- Requirements for Market Participants;
- Obligations of SMO;
- Obligations of Market Participants;
- Market scheduling time table and process;
- Settlement, invoicing and payment procedures;
- Dispute Resolution Procedures;
- Determination of Market Fees and Transmission Loss Factors;
- Maintenance of Information System;
- Information exchange protocols;
- Information Submission Formats, for submission of information by market participants to SMO; and
- Suspension of market in difficult situations.

With regard to the qualifying requirement for Market Participants, the Procedures stipulate the following:

- a. Be resident in, or have a permanent establishment in any of the WAPP countries;
- b. Be issued with a relevant license to perform electricity transmission and/or distribution and/or generation and/or sale and/or supply and/or import or export and/or system and market operations business in any of the WAPP countries by the competent regulatory authority of that country;
- c. Not being immune from judicial suit;
- d. Being capable of being sued in its own name in a court; and
- e. Have an acceptable credit rating

WAPP Transmission Tariff Methodology

The Transmission Tariff Methodology was adopted by ERERA in August 2015. The selected method for calculation of tariff is described as a point to point MW-Km load flow based Tariff methodology. The fundamental steps in the methodology are:

1. Determine regional transmission assets and asset value;
2. Calculate annual revenue requirements for each TSO asset used for regional bilateral trading;
3. Calculate use of transmission system and associated transmission losses for each regional bilateral trade;
4. Calculate transmission revenue requirements for each TSO for regional bilateral trades; and
5. Calculate transmission tariff and transmission losses for the purchaser of each regional bilateral trade.

The regional transmission revenue and losses are calculated annually. The costs are charged at rate per kWh based on hourly scheduled (contracted) energy. The transmission losses are paid by the purchaser of the regional bilateral trade. The price payable for the energy losses is determined by ERETA.

WAPPs Operation Manual

Technical parameters and operational rules for Regional Market are specified in WAPP's Operational Manual which was approved by ERETA in September 2015

ERETA Regulations

As per ERETA's Operations Act under Regulation C/Reg.27/12/17^[1], ERETA shall draft a harmonized criteria for the granting of licenses and authorizations for participants in the regional market, and assist in its adoption by Member States. The Regulation also states that ERETA will approve applications for authorizations of licenses to participate in the regional market, proposed by national regulatory authorities.

7.2.3 Learning and inferences

WAPP is still in an early stage, as the regional market operations commenced only on June 2018 with bilateral trade. However, there are still lessons that could be learned from WAPP, the most significant of which is its mechanism for getting the regional level documents approved by national governments. The legal mandate of ERETA is imposed on the member states through the following activities:

1. The ECOWAS energy protocol was adopted by all the heads of government of the member countries.
2. Major documents such as the Article of Agreement and key rules are endorsed in the Meeting of Energy Ministers organized by ECOWAS Secretariat. These are also approved by the ECOWAS Council of Ministers.
3. General Assembly, which is the highest decision making body for the WAPP comprises the representatives of all member states. It is responsible for the co-ordination towards the implementation of the principles of the Articles of Agreement and facilitate the implementation of programs and projects.

The use of model bilateral agreements in WAPP is another best practice for other regional entities which are trying to promote CBET.

Also, the RMR requires the SMO of WAPP to appoint qualified Auditors every year to carry out audits of compliance of its internal and business process with RMR, compliance with RMR and Market Procedures, market software systems and market accounts. This is a key aspect that could work towards improving confidence of the stakeholders on the regional level SMO.

7.2.4 Implications for South Asia

ERETA's Regional Market Rules stipulate a phase wise regional market development, with simple bilateral trading in Phase 1, and bilateral trading with transit through a third country in

^[1] ERETA (15 December 2007), *Composition, Organisation, Functions and Operation of the ECOWAS Regional Electricity Regulatory Authority* - <http://ereta.arrec.org/wp-content/uploads/2016/08/ERETA-s-Operations-Act.pdf>

Phase 2. This aspect is relevant for South Asia also, where it needs to be decided if trade involving third country transit is to be included in proposed model regulations, or kept aside for implementation at a later stage.

ERERA’s vast set of regulatory instruments and operational documents, covering set of Rules and Procedures are indicative of the fact that while the Regulatory framework specifies the broadframework, detailed procedures are to be evolved by the system operators.

7.3 South African Power Pool (SAPP)

7.3.1 Regional arrangement and institutional mechanisms

The Southern African Power Pool was established in 1995, comprising 12 Southern African Development Community (SADC) member countries (Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe) of which nine are operating members whose interconnected grid carries about 97% of the power produced by SAPP countries. SAPP is the most advanced power pool in Africa. Trading under SAPP consists of both bilaterally negotiated contracts, and competitive trade (day ahead, intra day, forward physical market - monthly and forward physical market - weekly). The competitive trade is executed through a market trading platform SAPP-MTP.

Figure 29: South African Power Pool



Along with SAPP which manages the pool, another key entity is the Regional Electricity Regulators Association of Southern Africa (RERA). RERA was set up to facilitate the harmonization of regulatory policies, legislation, standards and practices and to be a platform for effective cooperation among energy regulators within the SADC region.

7.3.2 Regulatory instruments adopted for promotion of CBET

RERA has developed their Guidelines on Cross Border Power Trading in Southern Africa in 2010. The regulatory bodies of Lesotho, Malawi, Mozambique, Namibia, South Africa, United Republic of Tanzania, and Zambia have been reported to have adopted these guidelines for implementation.

The RERA Guidelines aim to provide an enabling framework for cross-border trade and investment in infrastructure that will reduce some of the uncertainties deterring investment and undermining efforts to improve security of supply through cross-border trading. The guidelines state its objective as:

"Ensure that efficient cross-border deals are not constrained by unclear or complicated processes for making regulatory decisions"

The RERA Guidelines cover the following areas:

1. Regulator's powers and duties in cross-border trading
2. Working to ensure compatible regulatory decisions
3. Timing of regulatory interactions for proposed cross-border transactions
4. Licensing cross-border trading facilities, imports and exports
5. Approving cross-border agreements in importing countries
6. Approving cross-border agreements in exporting countries
7. Approving cross-border agreements in transit countries
8. Approving transmission access and pricing and ancillary services
9. Promoting transparency in the regulation of cross-border trading

The guidelines require the national regulators to issue licenses for import and export of electricity, subject to the following conditions:

- a. The application complies with the applicable legal and regulatory framework;
- b. The applicant has demonstrated the technical expertise to construct, operate and maintain any associated power facility in compliance with any national grid code;
- c. The applicant has demonstrated sufficient financial resources to properly construct, operate and maintain the facility or to undertake the cross-border trading activity; and
- d. Issuing a licence would not undermine national security of electricity supply.

The guidelines mandate the country level regulators / decision making authorities to oversee access to transmission for cross-border transactions to ensure that access is non-discriminatory to the greatest extent possible under the law.

7.3.3 Learnings and inferences

RERA's success is significant considering that its regulations and recommendations are not automatically binding on the national level regulators. It is for the regulators to decide upon whether and how they want to implement RERA's regulations, guidelines and

recommendations. In view of this, RERA's guidelines are kept simple, with details left to the regulators to decide upon.

Another key learning was in terms of RERA's acceptance of the fact that some countries may chose not to have an independent regulatory commission. The RERA regulatory guidelines focus on the decisions affecting cross-border trading, regardless of whether the decision-maker is an independent agency or the government.

7.3.4 Implications for South Asia

The RERA guidelines, including its guidelines on CBET do not have a formal legal status over the decisions of individual national regulators. This model is very significant in case of South Asia where countries may be more open to accept such a regional association of regulators than a powerful regional regulatory body.

RERA's guidelines on key conditions for grant of export / import license may also be significant for South Asia, which could consider similar requirements, such as technical expertise, financial resources and nation's security interests.

7.4 Central American Electrical Interconnection System (SIEPAC)

7.4.1 Regional arrangement and institutional mechanisms

SIEPAC stands for Sistema de Interconexión Eléctrica para los Países de América Central, commonly translated in English as the Central American Electrical Interconnection System. The interconnection, commissioned in 2013, covers Panama, Costa Rica, Honduras, Nicaragua, El Salvador, and Guatemala. Bulk of the cross border trade in SIEPAC is under bilateral contracts though a very small quantum (<5%) is traded in a spot market.

Figure 30: Central American Interconnection System



In the Central American Interconnection System, the Regional Commission for Electric Interconnection (CRIE) has been set-up pursuant to the Framework Treaty for regional Electricity Market in Central America. The Commission has its own legal identity and has jurisdiction over the Regional Electricity Market (MER).

Ente Operador Regional (EOR) is the regional market operator for MER. EOR has its own legal

status and capacity of international public law applicable to the signatory parties to Framework Treaty of the Central American Electricity Market signed in 1996. EOR is located in the Republic of El Salvador.

7.4.2 Regulatory instruments adopted for promotion of CBET

The key regulatory instrument of CRIE for regulation of CBET is its Regulation of Electricity Market, 2005. The document is a detailed compilation which mainly discusses market structure, and duties and responsibilities of market participants.

Some of the key provisions of the Regulation, based on its unofficial English translation are provided below:

- The activities of the Market are carried out by the agents, which may be natural or legal persons dedicated to the generation, transmission, distribution and commercialization of electricity, as well as large consumers.
- Market agents, with the exception of the transmitting agents, can buy and sell electric power freely without discrimination of any kind and guarantee the free transit of electrical energy through the electricity networks in the member countries of the MER
- Market agents can install generation plants in any of the networks of the member countries of the Regional Electricity Market (MER) for regional marketing of the energy produced;
- Market agents have free access to regional and national transmission networks.
- The commercial energy transactions carried out in the MER are valued by applying a system of nodal prices. Nodal prices are the short-term prices that represent the marginal costs of operation due to scheduled or actual injections and withdrawals of energy in each node of the RTR.
- The EOR, in coordination with the national level system operators, is responsible for the conciliation, billing and settlement of the commercial obligations resulting from the transactions in the MER.
- The technical operation of the MER is carried out through a decentralized hierarchical structure, in which the EOR is responsible for and coordinates the operation of the MER while the Operators of the Systems and National Markets, are responsible of the coordination of the operation in each of their countries.

The Regulations stipulate the following requirements for any market agents who wish to obtain approval for participation in MER:

Procedure for obtaining approval to participate in Regional Market

- 1 Any agent wishing to carry out transactions in the MER must submit to the EOR, through its national level system operator, the following:
 - a) Request for authorization to perform transactions in the MER;
 - b) Proof of being duly authorized in the national market to participate in international

transactions, extended by the national level system operator or the corresponding authority;

- c) Certificate issued by the national level system operator certifying compliance with the applicable technical requirements, according to the type of market agent;
- d) Minimum guarantee of payment in the MER.

2 The EOR, within a period of five (5) business days, from the receipt of the request to carry out transactions in the MER, shall require from the national level system operator of the applicant's country any additional information or clarification that may be required.

3 If the additional information or clarification required by the EOR, according to the previous numeral, is not provided to the satisfaction of the EOR within a term of ten (10) business days, from the notification of additional information or clarification, it will be considered that the agent has withdrawn the request to carry out transactions and the EOR will terminate the procedure and file the application.

4 The EOR, within a maximum period of thirty (30) days from the reception of the request or the additional information or clarification required in accordance with section 2, by means of a written communication, with the explanation of reasons, authorize the agent to perform transactions in the MER and notify the corresponding national level system operator, as long as the applicant through his national level system operator has accredited to the EOR compliance with the requirements.

5 If the applicant has not complied with the requirements established in numeral 1, the EOR, within a maximum period of thirty (30) days from the reception of the request or the additional information or clarification required pursuant to numeral 2, by means of a written communication, with explanation of reasons, it will deny the request to carry out transactions in the MER and will notify the corresponding OS / OM.

6 Market agents must immediately notify the EOR, through their national level system operator, of any change in their information related to the request for authorization to perform transactions in the MER. The EOR will send this information to the CRIE.

7 The CRIE will evaluate the change in information, in a maximum period of thirty (30) days, from the date of reception of the information and verify that it complies with the Regional Regulation. The CRIE will issue by resolution the decision to be followed in relation to said agent.

7.4.3 Learnings and inferences

In 2002, CRIE issued the Transitory Regulation of Electricity Market for MER / SIEPAC which continued till 2005, when CRIE issued the Final Regulation of Electricity Market. This allowed SIEPAC to conduct trade without waiting for the detailed framework in place.

In SIEPAC, regional trade is considered as an additional control area over which CRIE has regulatory jurisdiction. This allows national regulators to maintain jurisdiction over their domestic market and CRIE to maintain jurisdiction over matters relating to cross border trade.

7.4.4 Implications for South Asia

The institutional framework for CRIE might not be relevant for South Asia, as CRIE has direct jurisdiction over regional market. However, the stipulated requirements and procedures for obtaining approval to participate in CBET may be of value in the context of South Asia.

7.5 Summary of international experience

An analysis of regulatory frameworks for CBET in European market, WAPP, SAPP and SIEPAC shows that the regional institutional mechanisms have played a key role in development and implementation of such frameworks. This could be through entities with legal powers such as European Union, ERERA, CRIE or through entities which can only provide recommendation, such as RERA. Thus, in the absence of such regional entities playing a key role in South Asia, the challenge in formulating a model regulation for CBET is clearly evident. Thus any such model regulation has to be formulated in such a way that it is acceptable to all the parties involved, which require all the provisions in such regulation to be fair and equitable.

In terms of framing of such model regulations, lessons could be drawn from similar provisions in other regional frameworks (with modifications to suit the context of South Asia), such as:

- Qualification criteria for participation in CBET based on WAPP and SAPP;
- Transparency requirements of European Union;
- Procedure for approval for CBET as specified for SIEPAC; and
- The need for considering the role of variable renewable energy and their impact on cross border trade, as pointed out in the case of European Union.

8 Model SAARC Electricity Regulation for Regional Power Trade (SERRPT)

CHAPTER 1: INTRODUCTION

1. Short Title and Commencement

- 1.1. These Regulations shall be called as "Model SAARC Electricity Regulation for Regional Power Trade (SERRPT)"
- 1.2. The objective of these Regulations is to have enabling regulations in place to implement the provisions of Framework Agreement for Energy Cooperation (Electricity) signed by the South Asian countries in November 2014.
- 1.3. These Regulations shall come into force since <***> days of its notification.

2. Definitions and interpretations

- 2.1. Unless the subject or context otherwise requires, in these Regulations:
 - a) 'Authorization for CBET' or 'CBET Authorization' means authorization granted by the Regulatory Authority to a Participating Entity for participating in CBET;
 - b) 'Authorized Participating Entities' means the Participating Entities which have obtained Authorization for CBET;
 - c) 'Bulk Power Transmission Agreement' (BPTA) means an agreement signed between Transmission Service Providers and intended users of the transmission network, assuring the Transmission Service Providers that the users will pay transmission charges for the transmission network that will be developed.
 - d) 'Cross Border Electricity Trade' (CBET) means physical trade of electricity between Authorized Participating Entities of Countries, which results in cross border flow of electricity;
 - e) 'CBET Transmission Service Provider' (CBET TSP) means Transmission Service Provider for Cross Border Transmission Interconnection;
 - f) 'Central Transmission Utility' means the entity which has overall responsibility for operating and maintaining the national transmission network;
 - g) 'Cross Border Transmission Interconnection' means the transmission network infrastructure, including but not limited to lines, towers, substations, metering, protection and communication equipment developed for conducting electricity trade across international borders.
 - h) 'Corporate Entity' means a legal entity, recognized under the laws of the Country in which it is established.
 - i) 'Dedicated Interconnections' mean Cross Border Transmission Interconnections constructed for the use of single or multiple Participating Entities, for the entire lifetime of such interconnections.

- j) 'Government Designated Authority' means the Governmental authority designated by the Government of each Country for issuing directions to the Regulatory Authority, as per terms and conditions of these Regulations;
- k) 'Framework Agreement' means the Framework Agreement for Energy Cooperation (Electricity) signed by the South Asian countries in November 2014;
- l) 'Host Country' means the Country under whose legal jurisdiction, these Regulations are being framed;
- m) 'Long Term Open Access (LTOA)' means Open Access for a period of fifteen (15) years or higher;
- n) 'LTOA Nodal Agency' means the nodal agency for LTOA, as notified by the Regulatory Authority;
- o) 'Country' means any of the eight South Asian countries;
- p) 'Medium Term Open Access (MTOA) means Open Access for a period of three (3) months to five (5) years;
- q) 'MTOA Nodal Agency' means the nodal agency for MTOA, as notified by the Regulatory Authority;
- r) 'National System Operator' means the agency entrusted with the scheduling and operational of national level transmission grid of each Country;
- s) 'Negative Country List' means the list of Countries notified by Government Designated Agency, with whom Cross Border Electricity Trade is not allowed;
- t) 'Open Access', in the context of these Regulations, refers to non-discriminatory provision for the use of transmission network by any Participating Entities;
- u) 'Open Access Nodal Agency' means STOA Nodal Agency, MTOA Nodal Agency or LTOA Nodal Agency as the case may be;
- v) 'Open Interconnections' mean Cross Border Transmission Interconnections which are constructed without any permanently identified users.
- w) 'Participating Entities' means the entities who are eligible to participate in Cross Border Electricity Trade, as per Section 5;
- x) 'Regulatory Authority' means the regulatory body, which is entrusted with the regulation of electricity sector at the national level, in each Country;
- y) 'Remote Country' means any of the Countries other than Host Country;
- z) 'SAARC' means the South Asian Association for Regional Cooperation;
- aa) 'SAARC Arbitration Council' means a specialized body of the Governments of SAARC having its Secretariat at Islamabad, in Pakistan;
- bb) 'Short Term Open Access (STOA) means Open Access for a period of up to one month;
- cc) 'STOA Nodal Agency' means the nodal agency for STOA, as notified by the Regulatory Authority;
- dd) 'Transmission Planning Agency' means the Agency designated so by the Government of each Country for undertaking transmission planning at national level.
- ee) 'Transmission Service Provider' means the entity which owns and operates a transmission line.

CHAPTER 2: ENABLING FRAMEWORK FOR CROSS BORDER ELECTRICITY TRADE

3. Facilitation of Participating Entities to undertake Cross Border Electricity Trade

- 3.1. Participating Entities, which intend to undertake Cross Border Electricity Trade, shall apply for CBET Authorization before the Regulatory Authority.
- 3.2. Authorized Participating Entities shall be allowed to participate in Cross Border Electricity Trade with Participating Entities from Countries that are not in the Negative Country List.

4. Negative Country List

- 4.1. There shall be no Cross Border Electricity Trade with countries which are in the Negative Country List.

5. Minimum eligibility criteria for Participating Entities

- 5.1. Participating Entity may be any of the following Corporate Entities which are legally authorized to undertake their respective business functions in the Countries in which they are established:
 - (1) Power Generation Utility;
 - (2) Power Distribution Utility;
 - (3) Power Transmission Utility;
 - (4) Integrated Power Utility;
 - (5) Power Trader; and
 - (6) Power Exchange.
- 5.2. All the Participating Entities shall satisfy the following minimum eligible criteria:
 - (1) The Participating Entity shall be incorporated as a legal entity in the Country in which it is applying for CBET Authorization; and
 - (2) The Participating Entity shall be subject to the laws of the Country in which it is applying for CBET Authorization.
- 5.3. **Power Generation Utilities** shall satisfy the following minimum eligible criteria in order to be considered as a Participating Entity:
 - (1) The entity shall be legally authorized to undertake power generation in the Country in which it is established.
 - (2) Each generating station of the Power Generation Utility shall be treated as a separate entity.
 - (3) The entity shall have a power generation plant, either under construction or in operation in the generating station for which it is seeking Authorization.
 - (4) The power generation plant for which Authorization is being sought, should already have connectivity with the national transmission grid, or should have obtained statutory approval for such connectivity.
- 5.4. **Power Distribution Utilities** shall satisfy the following minimum eligible criteria in order to be considered as a Participating Entity:
 - (1) The entity shall be legally authorized to undertake electricity distribution and/or retail supply of electricity in the Country in which it is established.
 - (2) The entity shall already have established electricity network in its area of electricity distribution.
 - (3) The entity should already have connectivity with the national transmission grid, either directly, or through regional / state level grids.
- 5.5. **Power Transmission Utilities** shall satisfy the following minimum eligible criteria in order to be considered as a Participating Entity:
 - (1) The entity shall be legally authorized to buy, sell or trade electricity in the Country in which it is established.

- (2) The entity should already have connectivity with the national transmission grid, either directly, or through regional / state level grids.

5.6. **Integrated Power Utilities** shall satisfy the following minimum eligible criteria in order to be considered as a Participating Entity:

- (1) The entity shall be legally authorized to buy, sell or trade electricity in the Country in which it is established.
- (2) The entity should already have connectivity with the national transmission grid, either directly, or through regional / state level grids.

5.7. **Power Traders** shall satisfy the following minimum eligible criteria in order to be considered as a Participating Entity:

- (1) The entity shall be legally authorized to trade electricity in the Country in which it is established.

5.8. **Power Exchanges** shall satisfy the following minimum eligible criteria in order to be considered as a Participating Entity:

- (1) The entity shall have established a power exchange platform, which is legally authorized to conduct electricity trade through it, in the Country in which it is established.

6. Terms and conditions for granting Authorization to Participating Entities

6.1. Even though a Power Generation Utility may have multiple generating stations owned by it, each station will be treated as a separate Participating Entity, and CBET Authorization will also have to be obtained separately for each of the generating stations.

6.2. The Regulatory Authority shall treat applications for CBET Authorization from both Government owned and privately owned Participating Entities at par, without any preference or bias.

6.3. CBET Authorization shall not be linked with open access. The Participating Entities could obtain open access even after receipt of CBET Authorization.

6.4. CBET Authorization is non-transferable, and shall be valid for a period of ten years, or for the period up to which its license for electricity is valid, whichever is lower, subject to furnishing of annual reports before Regulatory Authority and to compliance reviews by the Regulatory Authority.

6.5. Authorized Participating Entities shall furnish annual reports as per the formats and timelines prescribed by the Regulatory Authority, failing which they will be liable for payment of fines, and cancellation of their CBET Authorization.

6.6. Authorized Participating Entities can apply for extension of Authorization by ten more years, subject to the application being submitted before the Regulatory Authority within a period of one year prior to the expiry of current Authorization.

7. Procedure for granting authorisation to Participating Entities

7.1. Participating Entities who require CBET Authorization shall file an application before the Regulatory Authority, duly signed by its authorized signatory, with the following details:

- i. Filled-in application form for CBET Authorization;
- ii. Proof of payment of application fees for CBET Authorization; and
- iii. Proof of meeting eligibility criteria as provided in Section 5;

7.2. The application shall also be accompanied with the following in a sealed envelope, or in an electronically encrypted manner, duly signed by its authorized signatory:

- i. Details of immediate ownership of Participating Entity
- ii. Details of ultimate ownership of Participating Entity
- iii. Details of all subsidiaries of Participating Entity
- iv. Details of all parent entities of the Participating Entity

Provided that details, at the minimum shall contain complete name and address of owner / shareholder, and their ownership share.

- 7.3. The Regulatory Authority shall start processing of the application once it is satisfied the adequate documents as per Section 7.1 and 7.2 have been filed.
- 7.4. If the Regulatory Authority is prima-facie satisfied of the eligibility of Applicant to obtain CBET Authorization, it shall issue a public notice inviting comments on the proposal to award CBET Authorization to the Applicant.
- 7.5. If the Regulatory Authority is prima-facie satisfied of the eligibility of Applicant to obtain CBET Authorization, it shall communicate its proposal to grant CBET Authorization to the Government Designated Authority, in accordance to procedure laid out in Section 9.
- 7.6. After processing of the objections and comments received as part of public consultation, and the communication from Government on its clearance under Section 9, the Commission shall issue its order on grant / denial of CBET Authorization.
- 7.7. Applications for amendment or withdrawal of CBET Authorization shall be processed in the same manner as that of application for grant of CBET Authorization.

8. Timeframe for processing of application for authorisation to Participating Entities

- 8.1. The Regulatory Authority shall strive to finalize the petitions for obtaining Authorization within three months of filing of application.

9. Government's 'Right of Refusal' for providing authorisation

- 9.1. In case the Regulatory Authority is of the opinion that a Participating Entity which has submitted an application for obtaining Authorization for CBET satisfies the eligibility criteria laid down in Section 6, it shall forward all the application details to the Government Designated Authority, for obtaining its clearance.
- 9.2. The Government Designated Authority can refuse to grant clearance to the application made by Participating Entities for obtaining Authorization for CBET, if it is of the opinion that the proposed award of Authorization for CBET to the Participating Entity pose a threat to:
 - (1) national security;
 - (2) national energy security;
 - (3) national strategic interests; or
 - (4) public well being.
- 9.3. While communicating its refusal to grant clearance, the Government Designated Authority shall mention broad reasons for its decisions, though there shall be no need for supporting evidence to be furnished.

Provided that such communication between Government Designated Authority and Regulatory Authority shall be treated as confidential, accessible only to the Chairperson and Members of the Regulatory Authority.
- 9.4. The Regulatory Authority shall not take a final decision on the application for Authorization, without obtaining the final decision from Government Designated Authority on its clearance.
- 9.5. In case the Government Designated Authority refuses to grant clearance to a Participating Entity, the Regulatory Authority shall reject the application for Authorization and treat the matter as closed;
- 9.6. Provided that in case of such rejection, the Regulatory Authority shall in no circumstances be required to communicate the reasons under which the Government Designated Authority has refused to grant clearance.
- 9.7. The Government Designated Authority is also empowered to review the clearances granted by it to Authorized Participating Entities, and may choose to revoke its clearance, if it is of the opinion that continuation of the Authorization to the Authorized Participating Entity pose a threat to:
 - (1) national security;

- (2) national energy security;
- (3) national strategic interests; or
- (4) public well being.

9.8. The Regulatory Authority shall withdraw the Authorization for CBET granted to the Participating Entity within five days of receipt of official communication from the Government Designated Authority on revocation of clearance to such an Authorized Participating Entity.

Provided that such communication between Government Designated Authority and Regulatory Authority shall be treated as confidential, accessible only to the Chairperson and Members of the Regulatory Authority.

Provided that the Regulatory Authority shall in no circumstances be required to communicate the reasons under which the Government Designated Authority has decided to revoke its clearance.

9.9. In case the Regulatory Authority denies or revokes Authorization for CBET, due to refusal or revocation of clearance by the Government Designated Authority, the Participating Entities shall have the right to approach the judicial court at federal/national level, as per the laws of the Country.

10. Participation of power traders in cross border electricity transactions

10.1. The absence of legal and regulatory framework for power trading, or power traders, or power trading licensees shall not be a constraint in allowing Cross Border Electricity Trade involving power trader who is registered under a Remote Country, insofar as the CBET Transaction is with an Authorized Participating Entity in the Host Country.

10.2. In case of CBET transactions with power traders as the Participating Entity, the ultimate injection / drawal point entity within the country shall also have a valid CBET Authorization.

10.3. Power traders may be allowed to undertake trades through power exchange platform within the same country, on behalf of entities located in Remote Country, so far as such entities have a valid CBET Authorization in the Remote Country, and the Remote Country does not feature in the Negative Country List of Host Country.

10.4. Power traders shall be allowed to undertake third-country trade, wherein power is brought from one Remote Country, and sold to another Remote Country, with the Host Country's transmission network in between.

11. Participation of Power Exchanges in cross border electricity transactions

11.1. The absence of legal and regulatory framework for power exchanges shall not be a constraint in allowing Cross Border Electricity Trade involving power exchange which is registered under a Remote Country, insofar as the CBET Transaction is with an Authorized Participating Entity in the Host Country.

11.2. Power exchange transactions involving CBET shall be conducted in separate market sessions. All bidders participating in such sessions shall have valid CBET Authorization.

11.3. The sessions and type of contracts allowed for CBET through power exchange shall be as decided by the Regulatory Authority.

11.4. Participating Entities of Remote Countries can conduct trade through the power exchange platform situated in a Host Country, subject to compliance with the existing regulations of the Host Country, and subject to such Participating Entities in Remote Countries having obtained CBET Authorization in the Remote Country.

11.5. Participating Entities of Remote Countries can conduct trade through the power exchange platform situated in a Host Country, by utilizing the services of a power trader who is registered as an entity with CBET Authorization in the Host Country, subject to such Participating Entities in Remote Countries having obtained CBET Authorization in the Remote Country.

12. Treatment of entities which are already undertaking CBET

12.1. Entities that currently undertake CBET based on bilateral agreements, shall continue to undertake CBET as per the terms and conditions of relevant bilateral agreements, without having to separately apply for Authorization under these Regulations, for the time period in which existing bilateral agreement remains valid.

13. Applicability of existing Regulations

13.1. All of the existing regulations on electricity industry and cross border electricity trade shall continue to be valid and in force. However, in case of conflict between provisions of these regulations and any other regulations, the provisions under these regulations shall prevail.

13.2. CBET Authorization does not by itself allow Authorized Participating Entities to participate in Cross Border Electricity Trade, as they also have to comply with all other legal and regulatory formalities, including obtaining open access to the transmission network.

CHAPTER 3: INSTITUTIONAL FRAMEWORK

14. Role of Regulatory Authority

14.1. The Regulatory Authority shall have the duties, powers and responsibilities to:

- (1) Process applications for CBET Authorisation;
- (2) Co-ordinate with Government Designated Agency on CBET Authorisation;
- (3) Comply with Government Designated Agency under the provisions of Section 45 and 46;
- (4) Notify STOA Nodal Agency, MTOA Nodal Agency and LTOA Nodal Agency;
- (5) Approve the detailed guidelines for Open Access; and

14.2. The Regulatory Authority shall also carry out all other duties, powers and responsibilities allocated to it under these Regulations.

15. Role of Government

15.1. The Government of Country shall have the duties, powers and responsibilities to:

- (1) Identify and notify the Government Designated Agency;
- (2) Direct the Government Designated Agency on matters pertaining to Negative Country List;
- (3) Issue directions to Government Designated Agency to enable it to undertake its powers granted under Section 9, 58 and 60;
- (4) Any other matter as allowed under constitutional and legal framework.

16. Role of Government Designated Agency

16.1. The Government Designated Agency shall have the duties, powers and responsibilities to:

- (1) Compile and update the Negative Country List;
- (2) Exercise the 'Right of Refusal' for providing authorisation, if needed;
- (3) Issue directions to Regulatory Authority under Sections 58 and 60.
- (4) Issue orders on identification of Transmission Planning Agency, National System Operator and Central Transmission Utility, if required.

16.2. The Government Designated Agency shall also carry out all other duties, powers and responsibilities allocated to it under these Regulations.

- 16.3. The Government Designated Agency is not required to seek the guidance of the Government in all matters, and can perform its duties and exercise its powers as provided in these Regulations.
- 16.4. In case there is a written order or direction from the Government to the Government Designated Agency on matters related to Cross Border Electricity Trade, the Government Designated Agency shall comply with such directions.

17. Role of Transmission Planning Agency

- 17.1. The Transmission Planning Agency shall have the duties, powers and responsibilities to:
- (1) Approve new Cross Border Transmission Interconnections; and
 - (2) Finalize specifications for metering, network protection and communication facilities for Cross Border Transmission Interconnections.
- 17.2. The Transmission Planning Agency shall also carry out all other duties, powers and responsibilities allocated to it under these Regulations.

18. Role of National System Operator

- 18.1. The National System Operator, in co-ordination with the Central Transmission Utility shall conduct system studies and publish corridor wise total transmission capacity, available transmission capacity, and available transmission margins, for the current period and forecast for the future period.
- 18.2. The National System Operator shall also carry out all other duties, powers and responsibilities allocated to it under these Regulations.

19. Role of CBET Transmission Service Provider

- 19.1. The CBET Transmission Service Provider shall have the duties, powers and responsibilities to:
- (1) Own, operate and maintain Cross Border Transmission Interconnections;
 - (2) Own, operate and maintain metering systems, as specified in clause 38;
 - (3) Own, operate and maintain network protection systems, as specified in clause 39;
 - (4) Own, operate and maintain voice and data communication media, as specified in clause 40;
 - (5) Provide adequate information and data to National System Operator and Open Access Nodal Agencies, for matters relating to energy accounting, settlement and Open Access.
- 19.2. The CBET Transmission Service Provider shall also carry out all other duties, powers and responsibilities allocated to it under these Regulations.

CHAPTER 4: PLANNING, EXECUTION AND OPERATION OF CROSS BORDER TRANSMISSION INTERCONNECTIONS

20. Planning of Open Interconnections for Cross Border Transmission

- 20.1. It shall be the duty of the Transmission Planning Agency to periodically assess the adequacy of existing Cross Border Interconnections, and the requirement of any new Cross Border Interconnections, in a forward looking manner.
- Provided that such assessment shall be conducted by Transmission Planning Agency at least once in every year.
- 20.2. To assess the requirements for new Cross Border Interconnections, Transmission Planning Agency shall invite the views of Participating Entities, National System Operator, and other interested stakeholders.

- 20.3. Authorized Participating Entities can also intimate the Transmission Planning Agency about their views and requests on Cross Border Interconnections, even without any specific request for the same from Transmission Planning Agency.
- 20.4. In case of disputes involving viability or requirement of new Cross Border Interconnections, the affected parties can approach the Regulatory Authority, which shall take a final decision on the Interconnection.
- 20.5. Before approving any new Cross Border Interconnection, the Transmission Planning Agency shall also obtain the concurrence of Transmission Planning Agency of the Remote Country with which the new Cross Border Interconnection is going to be connected to. Such concurrence shall, at a minimum include:
 - (1) Assurance that the Cross-Border Interconnection will have continued connectivity with the National Transmission Grid or a dedicate transmission system in the Remote Country.
 - (2) Indicative timelines for construction and commissioning of network infrastructure in Remote Country required for the continuity of Cross Border Interconnection beyond Host Country's termination point for such Cross-Border Interconnection.
 - (3) Agreement on the proposed technology and voltage level for the interconnection.

21. Sharing of costs related to Open Interconnections

- 21.1. The modality of financing and construction of Open Interconnections for Cross Border Transmission Interconnections, which are approved by Transmission Planning Agency, shall be as per the applicable laws, regulations and guidelines of the Country.
- 21.2. In case there are no restrictions as per applicable laws, regulations and guidelines, the Transmission Planning Agency can chose any of the following options:
 - (1) Direct the Central Transmission Utility to finance, develop and operate the project, on a cost plus basis
 - (2) Identify a project developer based on tariff based competitive bidding, who shall then act as CBET Transmission Service Provider. The CBET Transmission Service Provider shall finance, develop and operate the project.

Provided that it shall be the responsibility of Transmission Planning Agency to obtain approvals from Regulatory Authority, and from Government if applicable, for the conclusion of competitive bidding.
- 21.3. It shall be the responsibility of the CBET Transmission Service Provider to obtain all statutory clearances and approvals for the Open Interconnection.
- 21.4. The CBET Transmission Service Provider shall enter into individual Bulk Power Transmission Agreement with intended users of the Open Interconnection. The BPTA shall provide, at a minimum, the following provisions:
 - (1) Assurance from the intended users that they shall pay their share of transmission charges upon Commissioning of the Open Interconnection, irrespective of their usage; and
 - (2) Contract Performance Guarantee for up to <...%> of project cost, proportional to the capacity allotted to the user.
- 21.5. The CBET Transmission Service Provider shall proceed with financing and construction of the Open Interconnection upon satisfaction of all of the following requirements:
 - (1) The Regulatory Authority or the Government of the Country has legally authorized the CBET Transmission Service Provider to undertake transmission of electricity through grant of a transmission license, or in any other manner if transmission is not a licensed activity; and
 - (2) Bulk Power Transmission Agreement is signed by intended users of the Open Interconnection, for use of at least <...%> of its anticipated available transmission capacity, for a period of at least 20 years.

22. Determination of Transmission Tariff for Open Interconnections

22.1. In case of Open Interconnections awarded through tariff based competitive bidding, the tariff applicable to the Transmission Service Provider shall be as adopted by the Regulatory Authority, based on the tariff discovered under the bidding process.

Provided that the Regulatory Authority shall order deviation from the tariff discovered under the bidding process only to cover differences in cost on account of changes in design / scope of work for the Open Interconnections or on account of Force Majeure events.

22.2. In case of Open Interconnections developed by the Central Transmission Utility, the Regulatory Authority shall determine the Transmission Tariff based on its own regulations on transmission pricing.

22.3. The Regulatory Authorities may try to ensure that manner of transmission pricing does not place renewable energy power plants at a disadvantage in comparison to conventional power plants.

23. Planning and execution of Dedicated Interconnections

23.1. Financing and construction of Dedicated Interconnections within the territory of each Country shall be the responsibility of the Authorized Participating Entities who are the intended users of such Dedicated Interconnection within the Country.

23.2. Application for approval of scheme for Dedicated Interconnections can be submitted before the Transmission Planning Agency, by the Authorized Participating Entities who are the intended users of such Dedicated Interconnection within the Country.

23.3. Transmission Planning Agency can decide on the application for approval of scheme for Dedicated Interconnections, after review of technical feasibility and concurrence from the Transmission Planning Agency of Remote Country, giving due regard to the Negative Country List.

23.4. Transmission Planning Agency shall conduct a public consultation process, which shall also include a public hearing, before deciding on granting approval of scheme for Dedicated Interconnections.

24. Manner of payment of Transmission Tariff

24.1. Manner of payment and collection of transmission tariff for Cross Border Interconnections shall be as per regulations on the same, notified by the Regulatory Authority.

CHAPTER 5: NON-DISCRIMINATORY OPEN ACCESS

25. Right of Participating Entities to obtain non-discriminatory Open Access to transmission network for CBET

25.1. Authorized Participating Entities shall have the right to obtain Open Access to transmission network, for the purpose of undertaking Cross Border Electricity Trade, subject to compliance with terms and conditions of these Regulations.

25.2. The right of Open Access for Authorized Participating Entities, for undertaking Cross Border Electricity Trade shall necessarily cover Open Access to the national transmission grid, and Open Interconnections for Cross Border Trade.

25.3. The right of Open Access for Authorized Participating Entities, for undertaking Cross Border Electricity Trade shall not be applicable in the case of Dedicated Interconnections for Cross Border Trade, as such Interconnections are built as dedicated assets for use by a pre-identified group of Authorized Participating Entities.

25.4. The Regulatory Authority can decide on whether right of Open Access to regional and sub-regional transmission networks within the Country shall be granted to the Authorized Participating Entities, for undertaking Cross Border Electricity Trade.

25.5. The Transmission Utilities and Transmission Service Providers shall be liable to penal action by the Regulatory Authority, if it is proved that they have tried to refuse Open Access which ought to have been granted under Section 25.

26. Categories of Open Access for CBET

26.1. Open Access may be any of the following three types, based on duration:

- (1) Long Term Open Access (LTOA)
- (2) Medium Term Open Access (MTOA)
- (3) Short Term Open Access (STOA)

26.2. Priority for open access for the purpose of scheduling will be proportional to the term of open access.

26.3. Priority for open access for the purpose of curtailment will be inversely proportional to the term of open access.

26.4. STOA and MTOA is granted to allow utilization of margins available in the transmission system, and therefore there shall be no network enhancement associated with them.

26.5. LTOA can be granted only for dedicated utilization of transmission capacity, and therefore it generally involves network upgradation.

27. Terms and conditions of Open Access for CBET

27.1. All Authorized Participating Entities shall be eligible for applying for Open Access, subject to the following requirements:

- (1) Power traders can apply for open access only if the corresponding generating station or drawal point is already connected to the national transmission grid of the Host Country, and if the corresponding generating station or drawal point within the country has a valid CBET Authorization.
- (2) For STOA and MTOA, the existing network shall have sufficient margins to accommodate such transactions.
- (3) For LTOA, the network shall have equivalent dedicated transmission capacity available throughout the tenure of LTOA. In case such capacity is not available, necessary network augmentation shall be undertaken.
- (4) Interface meters adhering to the requisite technical standards, and associated systems for proper energy accounting, shall be available in the injection / drawal point.
- (5) The entities at injection/drawal points within the Country, and the Authorized Participating Entity shall be in compliance with the technical standards for connectivity to the grid, if such standards are notified by Regulatory Authority / any governmental authority.
- (6) The Authorized Participating Entity shall not have been declared to be in payment default to any of the Transmission Utilities and System Operators in the Host Country, for a period of more than three months.

27.2. The terms and conditions for grant of Open Access shall include:

- (1) Adherence to technical standards and codes, including the grid code, and any additional standards related to metering, protection and network safety;
- (2) Adherence to the scheduling framework, dispatch instructions and restrictions imposed by the System Operators;
- (3) Maintaining the stipulated performance guarantees and security deposits;
- (4) Timely payment of fees and charges;
- (5) Curtailment of transactions in case of congestion in the grid;
- (6) Timely filing and reporting of transaction information as required by the Regulatory Authority; and
- (7) Assist in the investigations of Regulatory Authority.

- 27.3. Monitoring of adherence of Authorized Participating Entities shall be the responsibility of National System Operator, who shall be assisted by the Transmission Utilities and Transmission Service Providers.
- 27.4. In case of violations of terms and conditions of Open Access, the National System Operator shall communicate the same to the Authorized Participating Entity for complying with the terms and conditions of Open Access.
- 27.5. The National System Operator can order cancellation of Open Access, and can recommend the Regulatory Authority to impose fines, in case of continued non-compliance of terms and conditions of Open Access.
- Provided that Authorized Participating Entities can approach the Regulatory Authority against actions of National System Operator on cancellation of Open Access and on recommendation of fines.

28. Injection and drawal points for Open Access

- 28.1. In case of export of power under CBET, the relevant Cross Border Interconnection shall be treated as the drawal point of power, for Open Access.
- 28.2. In case of import of power under CBET, the relevant Cross Border Interconnection shall be treated as the injection point of power, for Open Access.

29. Procedure for approval of Short-Term Open Access for CBET

- 29.1. To obtain STOA, in order to conduct CBET, application shall be submitted by Authorized Participating Entity to the STOA Nodal Agency, within four months before the required start date of Open Access, and at least six full working days in advance.
- 29.2. The application for STOA shall be in the format prescribed by STOA Nodal Agency and accompanied by the following documents:
- (1) Proof of satisfaction of eligibility criteria, as per Clause 27
 - (2) Proof of connectivity of injection/drawal entities with the transmission grid in the Host Country
 - (3) Concurrence of System Operator under whose jurisdiction the injection/drawal entities are located, within the Host Country (if different from the STOA Nodal Agency)
 - (4) Copy of agreement signed with Authorized Participating Entity of Remote Country
 - (5) Proof of payment of application fees
 - (6) Proof of payment of bank guarantee towards transmission and system operation charges for the duration of STOA
- 29.3. The application for STOA shall be processed by the STOA Nodal Agency, and results intimated to the applicant, within three working days of receipt of application, on a "First Come First Serve" basis, subject to obtaining concurrence from the STOA Nodal Agency of Remote Country as per clause 32.
- 29.4. The approved Open Access shall be operationalized within three days from the date of approval.
- 29.5. Once STOA is approved by the STOA Nodal Agency, it cannot be amended, and the Authorized Participant Entity which has obtained Open Access shall be liable for payment of all charges for the duration of approved Open Access, irrespective of actual utilization.
- 29.6. There shall be no provision of renewal of STOA, once the existing STOA term expires. Each new application for STOA shall be treated independently.
- 29.7. Regulatory Authority shall be the Appellate Authority against the actions of STOA Nodal Agency on all matters relating to Open Access.

30. Procedure for approval of Medium Term Open Access for CBET

- 30.1. To obtain MTOA, in order to conduct CBET, application shall be submitted by Authorized Participating Entity to the MTOA Nodal Agency, within five months to one year before the required start date of Open Access.
- 30.2. The application for MTOA shall be in the format prescribed by MTOA Nodal Agency and accompanied by the following documents:

- (1) Proof of satisfaction of eligibility criteria, as per Clause 27
 - (2) Proof of connectivity of injection/drawal entities with the transmission grid in the Host Country
 - (3) Concurrence of System Operator under whose jurisdiction the injection/drawal entities are located in the Host Country (if different from the MTOA Nodal Agency)
 - (4) Proof of payment of application fees
 - (5) Copy of Power Sale / Power Purchase / Power Trade Agreements signed with Authorized Participating Entity of Remote Country
- 30.3. The application for MTOA shall be processed by the MTOA Nodal Agency, and results intimated to the applicant, within sixty days of receipt of application, subject to obtaining concurrence from the MTOA Nodal Agency of Remote Country as per clause 32.
- 30.4. The applications for MTOA shall be processed on a monthly basis, with priority being given for applications with longer duration of MTOA over applications with shorter duration of MTOA in case the total requested MTOA is more than the available transmission capacity margins.
- 30.5. Within one month of receipt of intimation of approval of Open Access, the Authorized Participating Entity shall sign an agreement for MTOA with the relevant Transmission Utilities, and also deposit bank guarantee for transmission and system operation charges for a two month period.
- 30.6. The approved Open Access shall be operationalized within two months from the date of signing of agreement for MTOA.
- 30.7. Once MTOA is approved by the MTOA Nodal Agency, it cannot be amended. However, an application for cancellation of MTOA can be submitted, which shall be approved by the MTOA Nodal Agency upon payment of all charges for an additional period of five months, or remaining period of MTOA, whichever is longer.
- 30.8. There shall be no provision of renewal of MTOA, once the existing MTOA term expires. Each new application for MTOA shall be treated independently.
- 30.9. Regulatory Authority shall be the Appellate Authority against the actions of MTOA Nodal Agency on all matters relating to Open Access.

31. Procedure for approval of Long-Term Open Access for CBET

- 31.1. To obtain LTOA, in order to conduct CBET, application shall be submitted by Authorized Participating Entity to the LTOA Nodal Agency, at least three years before the required start date of Open Access.
- 31.2. The application for LTOA shall be in the format prescribed by LTOA Nodal Agency and accompanied by the following documents:
- (1) Proof of satisfaction of eligibility criteria, as per Clause 27
 - (2) Proof of existing/anticipated connectivity of injection/drawal entities with the transmission grid in the Host Country
 - (3) Concurrence of System Operator under whose jurisdiction the injection/drawal entities are located (if different from the LTOA Nodal Agency)
 - (4) Proof of payment of application fees
- 31.3. The application for LTOA shall be processed by the LTOA Nodal Agency, and results intimated to the applicant, within 120 days of receipt of application, subject to obtaining concurrence from the LTOA Nodal Agency of Remote Country as per clause 32.
- 31.4. The applications for LTOA shall be processed on a monthly basis, with priority being given for applications with longer duration of LTOA over applications with shorter duration of LTOA.
- 31.5. Within one month of receipt of intimation of approval of Open Access, the Authorized Participating Entity shall sign an agreement for LTOA with the relevant Transmission Utilities, and also deposit bank guarantee for transmission and system operation charges for a two month period, and bank guarantee for execution of network augmentation and system strengthening activities identified for operationalization of LTOA.
- 31.6. The approved Open Access shall be operationalized within three years from the date of signing of agreement for LTOA.

- 31.7. Against approved LTOA, the Authorized Participating Entities shall be allowed to apply for amendments, in the following cases, for once in two years:
- (1) Change of quantum of Open Access, up to +/- <...%> of approved Open Access quantum;
 - (2) Change of Cross Border Interconnection, provided there is no change in Remote Country, and subject to obtaining revised Concurrence from the Remote Country;
 - (3) Change of drawal/injection point within the Host Country, within <...> KM of previously identified drawal/injection point.
- 31.8. Application for amendment of LTOA as per clause 31.7 shall be approved by the LTOA Nodal Agency without penal charges, subject to technical feasibility of revised LTOA.
- 31.9. Ongoing LTOA can be renewed, subject to submission of application for renewal, at least six months before the expiry of existing LTOA.
- 31.10. Regulatory Authority shall be the Appellate Authority against the actions of LTOA Nodal Agency on all matters relating to Open Access.

32. Procedure to request concurrence from Remote Country for Open Access

- 32.1. The application form for grant of Open Access shall clearly specify the name of Authorized Participating Entity of Remote Country, who shall be responsible for injection/drawal of power from the Cross-Border Interconnection.
- 32.2. If the application for Open Access satisfies the eligibility criteria, the Open Access Nodal Agency shall forward the salient details of proposed Open Access for CBET to the Open Access Nodal Agency of Remote Country for their concurrence, through the respective National System Operators.
- 32.3. The Open Access Nodal Agency of Host Country will keep the application for Open Access in abeyance, while decision on concurrence for the same is awaited from the Open Access Nodal Agency of Remote Country.
- 32.4. The Open Access Nodal Agency of Host Country will reject the application for grant of Open Access, if concurrence for the same is denied by the Open Access Nodal Agency of Remote Country.
- 32.5. The Open Access Nodal Agency of Host Country will continue processing of the application for grant of Open Access, if concurrence for the same is granted by the Open Access Nodal Agency of Remote Country.

33. Procedure to issue concurrence to Remote Country for Open Access

- 33.1. In case of references received from a Remote Country on providing concurrence for Open Access, the decision on concurrence shall be taken by the Open Access Nodal Agency based on outcome of application filed for Open Access before it by the relevant Authorized Participating Entity.

34. Detailed guidelines for Open Access

- 34.1. The Open Access Nodal Agency shall be responsible for preparing the operational guidelines and detailed procedure for open access, which shall then be got approved from the Regulatory Authority.

Provided that such operational guidelines shall cover at least the following aspects:

- (1) Detailed procedure for determining the technical feasibility of open access
- (2) Manner of prioritization of applications
- (3) Manner of curtailment in case of congestion
- (4) Detailed procedure for undertaking network capacity augmentation
- (5) Procedure for handling of minor changes and amendments.

35. Information systems for Open Access

- 35.1. The Open Access Nodal Agency shall be required to publish details of submitted, pending and finalized open access applications. The list shall contain, at the minimum,

- (1) Name of the applicant
- (2) Quantum applied for
- (3) Open Access tenure
- (4) Injection and drawal entities
- (5) Injection and drawal points
- (6) Application status
- (7) Reasons for denial of open access (if denied)

36. Monitoring of Open Access

36.1. The Open Access Nodal Agency shall take penal action against the users of open access, if it is satisfied of violation of open access terms and conditions, after conducting investigations.

37. Connectivity

37.1. Manner and procedure for applying for connectivity to the grid shall be the same as that in existing mechanisms.

37.2. In the absence of detailed guidelines on connectivity, the Central Transmission Utility shall prepare detailed guidelines and procedures for approval of connectivity, which shall then be reviewed and approved by the Regulatory Authority.

CHAPTER 6: METERING, PROTECTION AND COMMUNICATION FOR CROSS BORDER TRANSMISSION ELEMENTS

38. Metering

38.1. The Transmission Planning Agency shall discuss and finalize the metering scheme for Cross Border Transmission Interconnections with Transmission Planning Agency of Remote Country.

Provided that the Transmission Planning Agency shall give due consideration to the views and opinions of National System Operator, and relevant CBET Transmission Service Providers before finalizing the metering scheme and specifications.

38.2. The relevant CBET Transmission Service Providers shall be required to install and maintain the metering system, at their own cost, based on the specifications of Transmission Planning Agency.

38.3. If the Central Transmission Utility opts to install its own meters at the termination point of Country's Cross Border Transmission Interconnection, the CBET Transmission Service Provider shall offer required assistance and vacant space for the same.

39. Network Protection

39.1. The Transmission Planning Agency shall discuss and finalize the network protection system specifications for Cross Border Transmission Interconnections with Transmission Planning Agency of Remote Country.

Provided that the Transmission Planning Agency shall give due consideration to the views and opinions of Central Transmission Utility, National System Operator, and relevant CBET Transmission Service Providers before finalizing the network protection system specifications.

39.2. The network protection system shall also include disturbance-monitoring equipment and fault recording equipment.

39.3. The relevant CBET Transmission Service Providers shall be required to install and maintain the network protection system, and backup protection system, at their own cost, based on the specifications of Transmission Planning Agency.

40. Communication

- 40.1. The National System Operator shall establish voice and data communication facilities with National System Operators of Remote Countries with which the Host Country has Cross Border Transmission Interconnections.
- 40.2. CBET Transmission Service Providers shall be required to include communication media and associated equipment as part of their transmission network, that shall support the communication between National System Operators.
- 40.3. Specifications for voice and data communication facilities shall be prescribed by the National System Operator in consultation with Transmission Planning Agency, Central Transmission Utility, CBET Transmission Service Providers and National System Operator of Remote Countries.

CHAPTER 7:

SCHEDULING AND SYSTEM OPERATION FOR CROSS BORDER ELECTRICITY TRANSACTIONS

41. Scheduling

- 41.1. Scheduling of transactions till the termination point of Cross Border Interconnections shall be conducted as per existing scheduling mechanisms.

Provided that at the minimum, for all Cross-Border Electricity Transactions, the Authorized Participating Entity which has obtained Open Access shall be required to provide day-ahead schedule (in MW) for each of the 15 minute time intervals for the upcoming day, before 5 PM IST of the previous day.

- 41.2. The National System Operator of Host Country shall communicate to the National System Operator of Remote Country, the total scheduled power injection / drawal from Host Country to the Remote Country, for each of the 15 minute time blocks of next day, for each of the Cross Border Interconnections, within a time, and in a manner to be specified in detailed guidelines.
- 41.3. The National System Operator of Host Country shall obtain the total scheduled power injection / drawal from Remote Country to the Host Country, from the National System Operator of Remote Country, for each of the 15 minute time blocks of next day, for each of the Cross Border Interconnections, within a time, and in a manner to be specified in detailed guidelines.
- 41.4. The National System Operator shall publish detailed guidelines on scheduling for Cross Border Electricity Trade.

42. System Operation

- 42.1. System operation within the Host Country shall be conducted as per the prescribed grid code of the Host Country.
- 42.2. For system operation related to CBET, separate detailed procedure shall be developed by the National System Operator, which may then be modified, if required and approved by the Regulatory Authority.
- 42.3. If required, the Regulatory Authority, in consultation with the National System Operator shall amend the existing grid code, to accommodate the changes required to support the procedure for system operation related to CBET.
- 42.4. The National System Operator shall ensure the availability of adequate operating reserves (Spinning/Contingency/Stand-by) for use during contingency conditions and large demand variation conditions in case of synchronous Cross Border Transmission Interconnections.
- 42.5. No important element of the interconnected grid shall be deliberately opened or removed from service at any time, except
 - a. Under an emergency, and conditions in which such isolation would prevent a total grid collapse and/or would enable early restoration of power supply;

- b. For safety of human life;
- c. When serious damage to costly equipment is imminent then isolate the equipment by suitable disconnection without endangering security of the system; or
- d. Such isolation is to be specifically instructed after mutual agreement of the National System Operators of the two countries through specific messages exchanged to this effect.

43. Outage Planning

- 43.1. The National System Operator of Host Country shall intimate the National System Operator of Remote Country regarding all planned and unplanned, full or partial shutdown of Cross Border Transmission Interconnections.

44. Curtailment

- 44.1. The power traded through Cross Border Transmission Interconnections shall normally be treated as a 'must run' and shall not be subject to curtailment except under system constraints, and conditions which pose a threat to the system / grid security.
- 44.2. In case of system constraints, or conditions involving a threat to grid security, the National System Operator of Host Country may be constrained to curtail the Cross-Border Electricity transactions completely or partially. The National System Operator of Host Country shall not be liable for any loss, commercial or otherwise, sustained by the Remote Country on account of such curtailment.

CHAPTER 8: COMMERCIAL FRAMEWORK

45. Energy Accounting

- 45.1. A committee constituted by the National System Operator, with representatives from Central Transmission Utility and CBET Transmission Service Providers shall be constituted to prepare monthly energy accounts at the national level for Cross Border Electricity Trade. This committee may also interact with similar bodies in other Countries for confirmation and reconciliation of CBET transactions.
- 45.2. Unless otherwise specified by the Regulatory Authorities, settlement of transactions shall be as per scheduled values, with imbalance or deviation charges being dealt in the manner specified in clause 42.

46. Commercial settlement of transactions

- 46.1. The Authorized Participating Entities of Host and Remote Countries shall settle their bills between themselves, as per their contractual agreement.
- 46.2. The respective Authorized Participating Entity within each Country shall be responsible for payment of all charges and fees that are payable to National System Operator, Transmission Service Providers and Central Transmission Utility.

47. Deviation settlement or imbalance charges

- 47.1. The Participating Entities within the Host Country shall be liable for payment of deviation charges, in case of any deviation in their injection / drawal, as per applicable regulations of the Host Country. In the absence of such regulations, the National System Operator may charge an appropriate cost for balancing, as per a common methodology to be formulated by it.
- 47.2. A mutually acceptable and suitable mechanism for settlement of deviation from schedule (imbalance) on the cross-border link along with payment mechanism needs to be evolved by the Regulatory Authorities in South Asian countries in consultation with National System Operators and Central Transmission Utilities.

Until such a mechanism is evolved at the regional level, in cases of imbalance in Host Country, occurring on account of deviation in injection / drawal on the part of a Remote Country, the National System Operator of Host Country may impose deviation charges or balancing costs as the case may be, on the counterpart Participating Entities in the Host Country, who shall then recover the same from their counterpart Participating Entities in the Remote Country.

48. Fees for processing of application for CBET Authorization

48.1. The fees for processing of application for CBET Authorization shall be notified by the Regulatory Authority.

49. Fees for application of open access

49.1. The fees for processing of application for open access shall be notified by the Regulatory Authority.

50. Fees and charges for Open Access for CBET

50.1. Authorized Participating Entities which have obtained Open Access for CBET shall be liable for the following charges and losses:

- (1) Transmission Charges
- (2) Transmission Losses
- (3) Fees and charges of System Operator
- (4) Deviation Charges
- (5) Reactive Energy Charges, if applicable

50.2. The Regulatory Authority shall be responsible for the determination of these charges and losses.

Provided that the Regulatory Authority shall notify interim tariffs, if it requires additional time for notification of detailed order on open access fees and charges.

51. Relinquishment charges for Open Access for CBET

51.1. For Short Term Open Access, even if the capacity has to be relinquished before the end of term of Open Access, the Authorized Participating Entity which has obtained Open Access shall be liable for payment of all Open Access charges for the remaining term of Open Access.

51.2. Capacity under Medium Term Open Access can be relinquished upon payment of Open Access charges for five months, or remaining term of Open Access, whichever is higher.

51.3. Capacity under Long Term Open Access, which has not completed the initial 15 years of its term, can be relinquished, upon providing a notice period of one year, and payment of net present value of <...%> of the transmission charges, corresponding to the stranded transmission capacity, for the period falling short of 15 years of LTOA.

51.4. Capacity under Long Term Open Access, which has completed the initial 15 years of its term, can be relinquished without payment of any relinquishment charges, upon providing a notice period of one year.

Provided that if provided notice period is less than one year, complete charges for the period falling short of one year shall require to be paid.

51.5. The Regulatory Authority shall be empowered to settle any disputes relating the "Stranded transmission capacity".

52. Payment Security Mechanism

52.1. All applicants of Open Access for conducting Cross Border Electricity Trade shall be required to submit two months of transmission and system operation charges as payment security, to the Open Access Nodal Agency.

53. Transmission Service Agreements

- 53.1. CBET Transmission Service Providers shall enter into Transmission Service Agreements with users of CBET Transmission Interconnections, based on standard Transmission Service Agreement formats, developed by the Central Transmission Utility, and approved by the Regulatory Authority.
- 53.2. The Central Transmission Utility shall strive to facilitate harmonization of requirements of Countries at both ends of CBET Transmission Interconnections, while preparing the model Transmission Service Agreement.

CHAPTER 9: COORDINATION BETWEEN SYSTEM OPERATORS IN NEIGHBORING COUNTRIES

54. Information Sharing

- 54.1. The National System Operator shall co-ordinate with National System Operator of Remote Countries to enable Cross Border Electricity Trade, including sharing of information for the purpose of approval of Open Access, energy accounting, and settlement.
- 54.2. National System Operator shall be assisted by Regulatory Authority, Government Designated Agency, Central Transmission Utility, CBET Transmission Service Providers, and Transmission Planning Agencies to ensure to ensure coordination and information sharing with Remote Countries on matters relating to Cross Border Electricity Trade.

55. Emergency Procedures

- 55.1. National System Operator of a Host Country can request the National System Operator of a Remote Country for grid support during black start. The National System Operator of Remote Country shall strive to provide such support, subject to any restrictions on account of Negative Country List of either Countries, and subject to National System Operator of Host Country agreeing to the rates proposed by National System Operator of Remote Country.

CHAPTER 10: DISPUTE RESOLUTION

56. Preliminary Dispute Resolution

- 56.1. In case of disputes between different entities on matters relating to Cross Border Electricity Trade, the entities shall strive to resolve the disputes between them in an amiable manner, and shall retain proof of communication, on their efforts to resolve dispute.
- 56.2. In case of any disputes between two entities registered in the same SAARC Country, the Regulatory Authority shall be the primary forum for dispute resolution. The appellate authority on dispute resolution order of the Regulatory Authority shall be as per the laws of the Country.
- 56.3. Notwithstanding above, in case there is a valid agreement between the entities, which specifies that resolution of disputes shall be as per arbitration, the same shall be adopted, without any need for requesting dispute resolution before the Regulatory Authority.

57. Dispute Resolution through Arbitration

- 57.1. In case of disputes relating to Cross Border Electricity Trade between entities registered under different SAARC Countries, if the dispute cannot be resolved in an amiable manner, the parties may approach an arbitration forum for dispute resolution.

- 57.2. The arbitration shall be conducted in accordance with the relevant arbitration rules as at present in force, and the award made in pursuance thereof shall be binding on the parties.
- 57.3. The Regulatory Authority shall also comply with the award for arbitration forum, insofar as the commercial impact is limited to the parties, which have gone for arbitration.
- 57.4. The parties shall agree to abide by the award of arbitration forum before initiating arbitration.
- 57.5. Unless agreed otherwise by both the parties in the dispute, arbitration shall be conducted at SAARC Arbitration Council, based on SAARC Arbitration Rules.
- 57.6. In case of disagreement on utilization of SAARC Arbitration Council for dispute resolution, the parties can utilize alternate dispute resolution forums such as Singapore International Arbitration Centre (SIAC), London Court of International Arbitration (LCIA) and International Court of Arbitration.

CHAPTER 11: MISCELLANEOUS

58. Regional mechanisms for coordination and knowledge sharing

- 58.1. The Regulatory Authority shall promote and support the constitution of forums and bodies for coordination on CBET at the regional level such as forums of Regulatory Authorities, National System Operators and Central Transmission Utilities.
- 58.2. The Regulatory Authority shall promote and support the constitution of regional level institutions for knowledge sharing and capacity building, such as centres of excellence on electricity.

59. Implementation of withdrawal, amendment or review of Framework Agreement

- 59.1. In case of withdrawal of the Government from the Framework Agreement, the Regulatory Authority shall obtain the advice of the Government Designated Authority on the manner of continuation of existing arrangements for Cross Border Electricity Trade, and on the manner of new plans for Cross Border Electricity Trade.
- 59.2. In case of any amendments to the Framework Agreement, the Regulatory Authority shall issue orders under this Regulation, or amend these Regulations, to implement the changes in Framework Agreement.

60. Compliance to the directions of Governments during emergency

- 60.1. During times of emergency, the Government may choose to issue directions to curtail Cross Border Electricity Trade keeping national interest in mind. Such directions, if issued through the Governmental Designated Agency, shall be binding on the Regulatory Authority, Participating Entities, and National System Operator.
- 60.2. The Regulatory Authority shall:
 - i. identify the entities which have suffered verifiable losses on account of curtailment of Cross Border Electricity Trade by the Government;
 - ii. quantify the losses and the required compensation amount;
 - iii. conduct a public consultation process and
 - iv. issue a recommendation to the Government on the entities, quantum, manner and timeline for payment of compensationwithin two months of issue of order for curtailment by the Government.
- 60.3. The interpretation of the Government Designated Authority, as to whether a certain scenario constitutes 'emergency' and as to whether a certain direction is in the 'national interest' shall not be open for further scrutiny by the Regulatory Authority.

61. Power to relax

61.1. In case of any difficulties arising out of implementation of these Regulations, the Regulatory Authority shall be empowered to issue any order, specifying relaxation of any of the requirements of these Regulations, duly recording reasons for the same, and after conducting a public consultation;

Provided that such relaxation shall not be intended to curtail competition in the market, except in circumstances under Section 60.

62. Power to issue directions

62.1. In order to implement these Regulations, the Regulatory Authority shall be empowered to issue necessary orders and directions, insofar as the same is not in conflict with the provisions of these Regulations.



9 Explanatory note on model regulations for Regional Power Trade

9.1 Existing arrangements for CBET in South Asia

Most of the existing CBET transactions in South Asia are under Government-to-Government arrangements. An analysis of key CBET arrangements in South Asia reveals a few common characteristics:

- Irrespective of the type of PPA, the trade is dependent on bilateral Government-to-Government agreements. For example, the existing arrangements between India and Bhutan on sale of power from Tala, Chuka and Kurichhu hydropower plants led to the development of cross border links and commercial arrangements. This allowed the Dagachhu Hydro Power Corporation to enter into PPA with Tata Power Trading, utilizing available margins in the existing cross border links.
- There is no regional co-ordination in planning of Cross Border Transmission Interconnections, except under bilateral Government-to-Government arrangements. For example, Cross Border Transmission Interconnections between India and Nepal are discussed and agreed through Joint Working Group and Joint Steering Committee, which have representatives from both the countries.
- There are no provisions allowing third country trade, with one of the countries allowing transit access to CBET.
- In the existing framework, planning of CBET transmission interconnections and signing of PPAs are a lengthy process. For example, for nearly two years, India and Nepal has been discussing the implementation modality for the 400 KV New Butwal – Gorakhpur cross border transmission line (As per the minutes of meeting of Joint Working Group and Joint Steering Committee).

The above points to the need for a common harmonized regulatory framework for CBET in South Asia that may address many of the shortcomings in the existing arrangements. The SAARC Framework Agreement on Energy Cooperation provides a starting point for planning of such a regulatory framework.

9.2 Concept of model regulations

The SAARC member states signed the Framework Agreement for Energy Cooperation (Electricity) on November 2014. The Framework Agreement emphasized the need to promote regional power trade. It also noted that cross border electricity exchanges and trade among the SAARC Member States leads to optimal utilization of regional electricity generating

resources and enhanced grid security.

As per the Framework Agreement, the Member States were required to enable CBET on voluntary basis subject to laws, rules and regulations of the respective Member States and based on bilateral/trilateral/mutual agreements between the concerned states. They were also required to develop the structure, functions and institutional mechanisms for regulatory issues related to electricity exchange and trade.

However, so far, there have not been any considerable effort in creating the laws, rules and regulations at the National level in SAARC nations that are aimed to support the Framework Agreement (except in case of India). In such a context, a set of 'Model SAARC Electricity Regulation for Regional Power Trade (SERRPT)' is being proposed, as a regulatory instrument to implement the provisions of Framework Agreement.

Unlike the Framework Agreement, these model regulations can be utilized by the South Asian countries as a template for customization and notification of final Regulations for Regional Power Trade. Thus, these model regulations are not a mere extension of the Framework Agreement. The ultimate aim is to enable the development of legally enforceable regulatory mechanisms for regional power trade.

The model regulations can be notified by the National / Central level Regulatory Authority for electricity sector of the South Asian countries, which want to adopt these regulations. Each country is expected to separately notify these regulations, with minor changes if required. The Central / Federal Governments in each of the South Asian countries are expected to facilitate the notification of these Regulations by the respective Regulatory Authorities.

9.3 Key features to be provided in the model regulations

An analysis of the Framework Agreement has identified the following minimum features, which may be incorporated in the model regulations for implementation of the Framework Agreement:

1. Definition of 'Participating Entities'⁶ who are qualified to undertake CBET;
2. Framework and institutional mechanism for providing authorization / permission to 'Buying and Selling Entities' to indulge in CBET;
3. Institutional mechanism and procedures for planning and execution of cross-border interconnections, including manner of sharing of costs;
4. Non-discriminatory open access to transmission lines;
5. Structure, functions and institutional mechanisms for transmission access, power trade and other matters related to CBET;
6. Institutional mechanism for co-ordination in scheduling, system operation, energy accounting and settlement;
7. Procedure for dispute resolution, including enabling provision for referring disputes to SAARC Arbitration Council; and

⁶ Considering that traders may also undertake CBET, the term 'Participating Entities' has been utilized instead of 'Buying and Selling Entities'.

8. Procedure and institutional mechanism for data and information sharing.

Thus the draft Model Regulations for Regional Power Trade, for South Asian countries have been prepared on the basis of above identified requirements, giving due consideration to the existing regulatory framework for electricity in the South Asian countries, and learnings from international experience on such regional power trade arrangements.

9.4 Key entities which are relevant for CBET

CBET involves entities, which participate in the trade, regulatory authorities who regulate and monitor the market, transmission utilities that own and operate the cross border interconnections etc. In order to have a uniform definition in the context of model regulations, the following definitions have been proposed:

- (a) **Host Country** – Country which notifies these Regulations;
- (b) **Remote Country** – Country with whom Host Country have / plans to have CBET;
- (c) **Regulatory Authority** - The regulatory body, which is entrusted with the regulation of electricity sector at the national level, in each Country. This could be:
 - *Afghanistan - Electricity Regulatory Authority*
 - *Bangladesh – Bangladesh Energy Regulatory Commission (BERC)*
 - *Bhutan – Bhutan Electricity Authority (BEA)*
 - *India – Central Electricity Regulatory Commission (CERC)*
 - *Maldives – Maldives Energy Authority (MEA)*
 - *Nepal – Electricity Regulatory Commission (To be established)*
 - *Sri Lanka – Public Utilities Commission of Sri Lanka (PUCSL)*
- (d) **Participating Entity** – Any of the entities which meets qualification requirements for CBET and is interested in undertaking CBET;
- (e) **Authorized Participating Entity** – Participating Entity which has obtained “CBET Authorization” from Regulatory Authority;
- (f) **Government Designated Agency** – The Governmental authority designated by the Government of each Country for issuing directions to the Regulatory Authority regarding CBET;
For example: Member (Power System) of Central Electricity Authority, in India.
- (g) **Transmission Planning Agency** – Agency designated so by the Government of each Country for undertaking transmission planning at national level. This could be:
 - *Afghanistan – Ministry of Energy and Water, Govt. of Afghanistan.*
 - *Bangladesh – Power Division, Ministry of Power, Govt. of Bangladesh.*
 - *Bhutan – Department of Energy, Royal Govt. of Bhutan*
 - *India – Power Grid Corporation of India Ltd. (PGCIL)*
 - *Maldives – Ministry of Environment and Energy, Govt. of Maldives.*
 - *Nepal – Rashtriya Prasaran Grid Company Ltd. (RPGCL) / Nepal Electricity Authority (NEA) [To be decided by Ministry of Energy, Govt. of Nepal]*

- *Sri Lanka – Ceylon Electricity Board (CEB).*
- (h) **National System Operator** – The agency entrusted with the scheduling and operational of national level transmission grid of each Country. This could be:
 - *Afghanistan - Da Afghanistan Breshna Sherkat (DABS);*
 - *Bangladesh – National Load Dispatch Centre (NLDC);*
 - *Bhutan – Bhutan Power System Operator (BPSO);*
 - *India – Power System Operation Corporation’s (POSOCO) National Load Despatch Centre (NLDC)*
 - *Maldives – State Electric Company Ltd (STELCO);*
 - *Nepal – Rashtriya Prasaran Grid Company Ltd. (RPGCL) / Nepal Electricity Authority (NEA) [To be decided by Ministry of Energy, Govt. of Nepal]; and*
 - *Sri Lanka – Ceylon Electricity Board (CEB).*
- (i) **CBET Transmission Service Provider** – The entity which owns and operates Cross Border Transmission Interconnections;
- (j) **Central Transmission Utility** – The entity which has overall responsibility for operating and maintaining the national transmission network; This could be:
 - *Afghanistan - Da Afghanistan Breshna Sherkat (DABS);*
 - *Bangladesh – Power Grid Company of Bangladesh (PGCB);*
 - *Bhutan – Bhutan Power Corporation Limited (BPC);*
 - *India – Power Grid Corporation of India Ltd. (PGCIL);*
 - *Maldives – State Electric Company Ltd (STELCO);*
 - *Nepal – Rashtriya Prasaran Grid Company Ltd. (RPGCL) / Nepal Electricity Authority (NEA) [To be decided by Ministry of Energy, Govt. of Nepal]; and*
 - *Sri Lanka – Ceylon Electricity Board (CEB).*

9.5 Fundamental assumptions for the model regulations

9.5.1 Jurisdiction

In the absence of a regional level regulator, the model regulations will have to restrict within the respective legal jurisdiction of each of the countries. Therefore, Regulatory Authorities in each country will have jurisdiction on the CBET Participating Entities registered within their legal jurisdiction. The model regulations do not envisage a scenario where there is an overstepping of jurisdiction beyond the national boundaries, by any Government, Government Designated Agency or Regulatory Authority.

However, the jurisdiction constraint also requires that for each CBET transaction between a Host Country and Remote Country, there shall be an identifiable CBET Participating Entity registered under Host Country and Remote Country. CBET Participating Entity in Host Country will be responsible for the transactions within the Host Country, and CBET Participating Entity in Remote Country will be responsible for transactions within the Remote Country. This arrangement supports the principle of accountability – there will be an accountable entity registered within the country, for each CBET transaction.

9.5.2 Strategic Interests of the Countries

Government of each country can decide on which of the countries it wishes to have Cross Border Electricity Trade with, and which of the countries it wishes not to have any Cross Border Electricity Trade. This is a matter to be decided by each of the countries, as no country shall force any other country to have trade with it. However, it also remains a fact that by signing the Framework Agreement, the SAARC Member States have shown a commitment towards regional power trade. Thus, the model regulations have incorporated the concept of "Negative Country List". If any of the SAARC Member State do not want to allow power trade with any other country, it can include such countries in the Negative List.

Negative Country List - *The list of Countries notified by Government Designated Agency, with whom CBET is not allowed;*

At the same time, as long as a Remote Country is not in the Negative List, Government of a Host Country may not impose additional restrictions that result in selective eligibility / ineligibility for CBET Participating Entities of Remote Country. In other words, Governments can decide the countries with which it wishes to have CBET, however within such countries, there cannot be further levels of selection or eligibility criteria. This is being proposed in the interest of fairness.

Government of each country will have a "Right of Refusal" to deny CBET Authorization to any CBET Participating Entity registered within the Country. It could do so based on investigations of ownership, and any other criteria. This is expected to address concerns on strategic interests of the countries. Further, Government of each country will have powers to order curtailment of CBET Transactions in national interest. However, the Government will have to compensate for losses incurred on account of such curtailment.

9.5.3 Physical Interconnections

The decision on whether the Cross Border Interconnections shall be developed based on competitive bidding or on cost-plus model shall be based on regulatory framework of the respective countries. There is no need for the model regulations to specify or prefer any method over another.

The model regulations also stipulate two types of Cross Border Interconnections:

Open Interconnections - *Cross Border Transmission Interconnections, which are constructed without any permanently identified users.*

Dedicated Interconnections - *Cross Border Transmission Interconnections constructed for the use of single or multiple Participating Entities, for the entire lifetime of such interconnections.*

9.5.4 Relevant Agencies and Authorities

In the interest of adaptability, it is for the respective countries to identify their:

- Transmission Planning Agency;
- Central Transmission Utility;
- National System Operator; and

- Government Designated Authority;

The model regulations merely refer to them by the above generic names, and the respective Governments will be free to identify such agencies, and even change them if and when required.

9.6 Concept of CBET Authorization

The concept of “CBET Authorization” is introduced in the model regulations, which is an authorization granted by the Regulatory Authority to a Participating Entity for participating in CBET.

CBET Authorization - Authorization granted by the Regulatory Authority to a Participating Entity for participating in CBET;

It is closely linked to the concept of a license, but not exactly a license. The concept of authorization was proposed instead of a license to avoid delays in putting together an enabling legal framework for such licensing. For introducing the concept of a license for CBET, existing fundamental legislation for electricity sector in South Asian countries may have to be amended, which is a lengthy process. The existing law has provisions for “import license” and “export license” only in the case of Afghanistan, Bhutan and Nepal.

CBET Authorization is not linked to any specific transaction. For example, CBET Authorization granted to a 600 MW generating station, can be used to participate in CBET with multiple entities, in multiple countries.

A built-in element of Government approval is added in the CBET Authorization process, by providing the Government Designated Authority with a Right of Refusal to provide its clearance. Thus, if the Government has apprehensions on foreign ownership of entity applying for CBET Authorization, or any other concerns, it has an option to refuse its clearance.

CBET Authorization is granted initially for a period of ten years or for the period up to which its license to operate in electricity sector is valid, whichever is lower. However, it does not preclude the possibility of Regulatory Authority revoking the authorization under valid reasons before the expiry of term of authorization.

The Authorized Participating Entities shall be required to file annual reports before the Regulatory Authority, and to make any information related to their CBET transactions available to the Regulatory Authority.

In the interest of equity and fairness, it is proposed that Regulatory Authority shall treat applications for CBET Authorization from both Government owned and privately owned Participating Entities at par, without any preference or bias.

It may also be noted that CBET Authorization shall not be linked with open access. The Participating Entities could obtain open access even after obtaining CBET Authorization.

9.7 Eligibility for obtaining CBET Authorization

The following entities are considered as eligible for applying for CBET Authorization, subject to compliance of other requirements as per the Regulations, and subject to the condition that these entities are legally authorized to undertake their respective business functions in the

Countries in which they are established:

- Power Generation Utility;
- Power Distribution Utility;
- Power Transmission Utility;
- Integrated Power Utility;
- Power Trader; and
- Power Exchange.

Thus, if there is a power exchange in country A, it can obtain CBET Authorization for operations up to termination point of network of country A. However, it will have to make arrangements with counterparts in other countries, say with a power trader in country B to complete the CBET arrangement. Such an arrangement will allow entities in Country B also to access the power exchange of country A.

To rephrase, the Participating Entities shall satisfy the following minimum eligible criteria:

- The Participating Entity shall be incorporated as a legal entity in the Country in which it is applying for CBET Authorization; and
- The Participating Entity shall be subject to the laws of the Country in which it is applying for CBET Authorization.

In addition, separate additional criteria is fixed, based on the nature of the business.

For generation utilities, the basic requirements will be the existence of the plant and its access to national transmission network. Considering these, the following eligibility criteria is prescribed for Power Generation Utilities:

- The entity shall be legally authorized to undertake power generation in the Country in which it is established.
- Each generating station of the Power Generation Utility shall be treated as a separate entity.
- The entity shall have a power generation plant, either under construction or in operation in the generating station for which it is seeking Authorization.
- The power generation plant for which Authorization is being sought, should already have connectivity with the national transmission grid, or should have obtained statutory approval for such connectivity.

For Power Distribution Utilities, they key requirements will be the presence of an actual electricity network and its access to the transmission network:

- The entity shall be legally authorized to undertake electricity distribution and/or retail supply of electricity in the Country in which it is established.
- The entity shall already have established electricity network in its area of electricity distribution.

- The entity should already have connectivity with the national transmission grid, either directly, or through regional / state level grids.

Ideally, **Transmission Utilities** shall not participate in CBET, as they are facilitators of CBET, and in the interest of ensuring Open Access, they shall not have any conflict of interest with other CBET participants. At the same time, it is possible that some countries have Transmission Utilities as the “single buyer” for electricity. Considering this, the following minimum eligible criteria is prescribed for Power Transmission Utilities:

- The entity shall be legally authorized to buy, sell or trade electricity in the Country in which it is established.
- The entity should already have connectivity with the national transmission grid, either directly, or through regional / state level grids.

For Integrated Power Utilities, the following minimum eligible criteria is prescribed in order to be considered as a Participating Entity:

- The entity shall be legally authorized to buy, sell or trade electricity in the Country in which it is established.
- The entity should already have connectivity with the national transmission grid, either directly, or through regional / state level grids.

Power Traders shall satisfy the following minimum eligible criteria in order to be considered as a Participating Entity:

- The entity shall be legally authorized to trade electricity in the Country in which it is established.

Power Exchanges shall satisfy the following minimum eligible criteria in order to be considered as a Participating Entity:

- The entity shall have established a power exchange platform, which is legally authorized to conduct electricity trade through it, in the Country in which it is established.

9.8 Planning of Cross Border Transmission Interconnections

The Transmission Planning Agency is entrusted with periodically assessing the adequacy of existing Cross Border Interconnections, and the requirement of any new Cross Border Interconnections, in a forward-looking manner (To be conducted at least once in a year).

The Transmission Planning Agency is required to obtain the views of all stakeholders, including the Authorized Participating Entities before finalizing the proposal for new Cross Border Transmission Interconnections.

Cross Border Interconnections shall not be commercially viable, without certain guarantees from the Remote Country also. Therefore, before approving any new Cross Border Interconnection, the Transmission Planning Agency shall also obtain the concurrence of Transmission Planning Agency of the Remote Country with which the new Cross Border Interconnection is going to be connected to. Such concurrence shall, at a minimum include:

- Assurance that the Cross-Border Interconnection will have continued connectivity with

the National Transmission Grid or a dedicated transmission system in the Remote Country;

- Indicative timelines for construction and commissioning of network infrastructure in Remote Country required for the continuity of Cross Border Interconnection beyond Host Country's termination point for such Cross-Border Interconnection; and
- Agreement on the proposed technology and voltage level for the interconnection.

Within the country, if there is a dispute on Cross Border Transmission Interconnection, such as the Transmission Planning Entity not approving the proposal for a new interconnection put forward by the Authorized Participating Entities, the same can be settled before the Regulatory Authority.

For sharing of costs for Open Interconnections, the Transmission Planning Agency can choose any of the following options, in case there are no restrictions as per applicable laws, regulations and guidelines:

1. Direct the Central Transmission Utility to finance, develop and operate the project, on a cost plus basis
2. Identify a project developer based on tariff based competitive bidding, who shall then act as CBET Transmission Service Provider. The CBET Transmission Service Provider shall finance, develop and operate the project.

Provided that it shall be the responsibility of Transmission Planning Agency to obtain approvals from Regulatory Authority, and from Government if applicable, for the conclusion of competitive bidding.

To ensure the commercial viability of transmission interconnections, construction of new Open Cross Border Interconnections shall commence only after Bulk Power Transmission Agreement is signed by intended users of the Open Interconnection, for use of at least 80% of its anticipated available transmission capacity, for a period of at least 15 years.

In case of Dedicated Cross Border Interconnections, such as cross border evacuation line of an export-oriented plant, as it is the respective entities, which will be financing those lines, the Transmission Planning Agency is not required to review and approve their commercial viability. The Agency can decide on the application for approval of scheme for Dedicated Interconnections, after review of technical feasibility and concurrence from the Transmission Planning Agency of Remote Country, giving due regard to the Negative Country List.

9.9 Open Access

Open Access to transmission networks is a key enabling requirement for CBET beyond Government-to-Government arrangements. Therefore, Authorized Participating Entities shall have the right to obtain Open Access to transmission network, for the purpose of undertaking Cross Border Electricity Trade, subject to compliance with terms and conditions of these Regulations.

The Transmission Utilities and Transmission Service Providers shall be liable to penal action by the Regulatory Authority, if it is proved that they have tried to refuse Open Access without a

valid and legal reason.

Three types of Open Access are envisaged:

1. Long Term Open Access (LTOA) – 15 years or higher
2. Medium Term Open Access (MTOA) – 3 months to 5 years
3. Short Term Open Access (STOA) – up to 1 month

Priority for open access for the purpose of scheduling will be proportional to the term of open access.

STOA and MTOA is granted to allow utilization of margins available in the transmission system, and therefore there shall be no network enhancement associated with them.

LTOA can be granted only for dedicated utilization of transmission capacity, and therefore it generally involves network upgradation

The Regulatory Authority shall determine the Nodal Agencies for LTOA, MTOA and STOA who shall then publish detailed guidelines for open access, and process applications for open access.

Applications for Open Access for CBET transactions also require the Regulatory Authority to forward the salient details of proposed Open Access for CBET to the Open Access Nodal Agency of Remote Country for their concurrence, through the respective National System Operators. This concurrence is required, as there should be an approval on drawal / injection of power from the point of interconnection of transmission grids of both countries, so that the proposed CBET transaction is complete.

9.10 CBET through Power Exchanges

Currently, within South Asia, only India has operational power exchanges. There are discussions on regional power exchanges, either as separate entities, or by expanding the existing market of Indian exchanges beyond borders. While this process evolve by itself, the model regulations may also contain enabling features for allowing participation of power exchanges in CBET.

The model regulations allow power exchanges with CBET Authorization to participate in CBET. However, this raises the concern of bypassing of CBET Authorization requirement. Power Exchange auctions are mostly anonymous. Allowing power exchanges to participate in CBET indirectly allows even firms without CBET Authorization to participate in CBET with power exchange as a medium. On the other hand, if a requirement is added that even the entities in the country who submit bids in the exchange shall also have CBET Authorization, the same will have to be uniformly adopted, and cannot be clubbed with the existing domestic trade.

Even as per India's CBET guidelines, the Participating Entities are eligible for participation in CBET through Indian Power Exchanges under Term Ahead Contracts, and Intra Day / Contingency Contracts. The Day Ahead Spot market, which is the most popular in domestic market is excluded. Considering this, the following requirements are imposed on CBET through power exchanges:

1. If the legal and regulatory framework allows entities from Remote Countries to become

trading members in the power exchange platform, the same may be allowed. Alternatively, entities in Remote Countries can make arrangements with trading licensees in the same geography as that of power exchange, to sell / purchase power on their behalf, in the power exchange platform. (Either option will require amendments to India's Power Market Regulations)

2. Power exchange transactions involving CBET shall be conducted in separate market sessions. All bidders participating in such sessions shall have valid CBET Authorization.
3. The sessions and type of contracts allowed for CBET through power exchange shall be as decided by the Regulatory Authority.

As regional power exchange mechanisms evolve, these provisions can be modified.

9.11 Dispute Resolution

The Framework Agreement suggests dispute resolution under SAARC Arbitration Council. The SAARC Arbitration Council (SARCO), established in Islamabad, Pakistan has been operational since 2010. However, Governments may also prefer to conduct arbitration at more established and popular arbitration courts such as in Singapore and London. Thus, the model regulations, though agreeing with the basic spirit of Framework Agreement, also allows arbitration at other courts such as Singapore International Arbitration Centre (SIAC), London Court of International Arbitration (LCIA) and International Court of Arbitration, if both the parties agree on not utilizing SAARC Arbitration Council as the arbitration venue.

9.12 System operation

For system operation related to CBET, the model regulations require the National System Operator to prepare a separate detailed procedure, which may then be modified, if required and approved by the Regulatory Authority. The model regulations also cover the possibility of requiring amendments to the existing grid code, in order to accommodate the changes required to support the procedure for system operation related to CBET.

In the interest of grid security, the model regulations require the National System Operator to ensure the availability of adequate operating reserves (Spinning/Contingency/Stand-by) for use during contingency conditions and large demand variation conditions in case of synchronous Cross Border Transmission Interconnections.

The model regulations propose the CBET transactions to have a 'must run' status where they shall not be subject to curtailment except under system constraints, and conditions that pose a threat to the system / grid security. This is proposed to avoid any tendency on the part of National System Operator to curtail CBET transactions merely to meet any sudden requirements of domestic market.

9.13 Network protection

To protect the grid and grid elements, necessary protection systems will have to be installed, which may cover relays, disturbance-monitoring equipment, fault recording instruments etc. The model regulations entrust the Transmission Planning Agency to finalize the network protection system specifications for Cross Border Transmission Interconnections, in coordination with Transmission Planning Agency of Remote Country. It is for the CBET

Transmission Service Providers to install and maintain the network protection system, and backup protection system, at their own cost, based on the specifications of Transmission Planning Agency.

9.14 Commercial mechanisms for imbalance / deviation settlement

South Asian countries other than India have not yet developed detailed mechanisms and commercial framework for imbalance / deviation settlement. However, the system operators may prefer to have some form of imbalance / deviation settlement framework so that system-balancing costs are compensated. Therefore, the model regulation proposes that the Participating Entities within the Host Country shall be liable for payment of deviation charges, in case of any deviation in their injection / drawal, as per applicable regulations of the Host Country. Also, in the absence of such regulations, the National System Operator may charge an appropriate cost for balancing, as per a common methodology to be formulated by it.

As per the model regulations, a mutually acceptable and suitable mechanism for settlement of deviation from schedule (imbalance) on the cross-border link along with payment mechanism needs to be evolved by the Regulatory Authorities in South Asian countries in consultation with National System Operators and Central Transmission Utilities. However, development of such detailed mechanisms after regional level consultations may take time. Therefore the model regulations also propose a transitional mechanism: In cases of imbalance in Host Country, occurring on account of deviation in injection / drawal on the part of a Remote Country, the National System Operator of Host Country may impose deviation charges or balancing costs as the case may be, on the counterpart Participating Entities in the Host Country, who shall then recover the same from their counterpart Participating Entities in the Remote Country.

9.15 Institutional mechanisms for coordination

In the interest of obtaining wider acceptability, and ease of implementation, the model regulations do not recommend any specific regional institutional mechanisms as a mandatory requirement. However, study of international experience shows that regional mechanisms play a key role in CBET. One of the most relevant example is the common market for electricity in Europe, in which the regional mechanisms of Agency for the Cooperation of Energy Regulators (ACER) and European Network of Transmission System Operators for Electricity (ENTSO-E) play a key role.

Even the Framework Agreement talks about international cooperation and institutional arrangements, as listed below:

- Article 5: Data updating and sharing - Member States may **share and update technical data and information** on the electricity sector in an agreed template.
- Article 7: Planning of Cross-border interconnections - Member States may enable the transmission planning agencies of the Governments to plan the cross-border grid interconnections through bilateral/trilateral/mutual agreements between the concerned states based on the needs of the trade in the foreseeable future through studies and **sharing technical information** required for the same.
- Article 10: Electricity Grid Protection System - Member States shall enable **joint**

development of coordinated network protection systems incidental to the cross-border interconnection to ensure reliability and security of the grids of the Member States.

- Article 11: System Operation and Settlement Mechanism - Member States shall enable the national grid operators to **jointly develop coordinated procedures for the secure and reliable operation of the inter-connected grids and to prepare scheduling, dispatch, energy accounting and settlement procedures** for cross border trade.
- Article 14: Knowledge sharing and joint research in Electricity Sector - Member States may **enable and encourage knowledge sharing and joint research** including exchange of experts and professionals related to, inter alia power generation, transmission, distribution, energy efficiency, reduction of transmission and distribution losses, and development and grid integration of renewable energy resources.

Considering the above, the South Asian countries may consider instituting at the least, the following regional mechanisms:

1. A South Asia Forum of Transmission Utilities and System Operators

The South Asia Forum of Transmission Utilities and System Operators can provide a forum for the transmission utilities and system operators for coordination in matters related to CBET, including, but not limited to the following activities:

- Undertake coordinated system planning
- Jointly develop coordinated network protection systems incidental to the cross-border interconnection
- Jointly develop coordinated procedures for the secure and reliable operation of the inter-connected grids
- Jointly prepare scheduling, dispatch, energy accounting and settlement procedures for cross border trade; and
- Provide technical support and inputs to South Asia Forum of Electricity Regulators (SAFER).

An existing study of SARI/EI on harmonization of grid codes⁷ has already recommended the constitution of such a regional forum. The study report has also provided the possible sub-divisions within the forum, and its duties and functions.

2. A South Asia Forum of Electricity Regulators

Even though the model regulations are to be implemented at the national level, some level of interaction between the Regulatory Authorities will still be required, especially in case of coordination / harmonization in grid code, approval of procedure of scheduling of CBET, network protection of cross border electricity transmission interconnections etc. For undertaking coordination in matters related to CBET between Regulatory Authorities in South Asia, the Regulatory Authorities may come together to constitute a South Asia Forum

⁷ SARI/EI (2017): *Harmonization of Grid Codes, Operating Procedures and Standards to Facilitate/Promote Cross-Border Electricity Trade in the South Asia Region* - <https://sari-energy.org/wp-content/uploads/2017/08/Harmonisation-of-grid-codes-operating-procedures-and-standards-to-facilitatepromote-cross-border-electricity-trade-in-the-south-asia-region-Framework-grid-code-guidelines-Rajiv-LR-1.pdf>

of Electricity Regulators (SAFER). At the minimum, SAFER can provide a forum of regular interactions and discussions between the Regulatory Authorities in South Asia. It need not necessarily be a standalone forum, but can also work in coordination with existing regional mechanisms such as the South Asia Forum for Infrastructure Regulation (SAFIR).

The constitution of SAFER was initially recommended by SARI/EI's study on Regional Regulatory Guidelines⁸. The idea was further expanded in a detailed study conducted by SARI/EI on SAFER⁹. The study report provides roles and responsibilities of SAFER, operational aspects, financing arrangements and a roadmap for setting up the forum.

3. A South Asia Center of Excellence for Electricity, possibly under SAARC Energy Center

To support the Article 14 of Framework Agreement, which stipulates that the Member States may enable and encourage knowledge sharing and joint research including exchange of experts and professionals, a South Asia Center of Excellence for Electricity may be set up, possibly under the SAARC Energy Center.

The model regulations require the Regulatory Authorities to promote and support such regional forums and centers of excellence.

9.16 Associated notifications and guidelines

The model regulations require the following matters to be notified:

- Government to issue an order on identification / designation of Government Designated Agency;
- Government Designated Agency to publish the "Negative Country List" in coordination with Government;
- Government Designated Agency to issue orders on identification of Transmission Planning Agency, National System Operator and Central Transmission Utility, if required; and
- Regulatory Authority to issue an order on identification / designation of STOA Nodal Agency, MTOA Nodal Agency and LTOA Nodal Agency.

These Regulations require the following guidelines or schemes to be prepared:

- Detailed guidelines for Open Access to be prepared by Open Access Nodal Agencies, and approved by the Regulatory Authority;
- Detailed guidelines on scheduling for CBET to be prepared by National System Operator;
- Regulations and detailed procedure for imbalance charges / deviation settlement charges to be prepared by the Regulatory Authority in consultation with National System Operator;

⁸ SARI/EI (2015), *Regional Regulatory Guidelines* - <https://sari-energy.org/wp-content/uploads/2015/06/IRADe-SARI-EI-Regional-Regulatory-Guidelines-July-2015-.pdf>

⁹ SARI/EI (2016), *Report on Regional Energy/Electricity Regulatory Institutional Mechanism in South Asia: South Asia Forum of Electricity/Energy Regulators (SAFER)* - <https://sari-energy.org/wp-content/uploads/2016/08/Report-on-Regional-Energy-Electricity-Regulatory-Institutional-Mechanism-in-South-Asia-SAFER-RP.pdf>

- Metering scheme for Cross Border Transmission Interconnections to be finalized by Transmission Planning Agency, in consultation with Transmission Planning Agency of Remote Countries;
- Network protection system specifications for Cross Border Transmission Interconnections to be finalized by Transmission Planning Agency, in consultation with Transmission Planning Agency of Remote Countries; and
- Specifications for voice and data communication facilities to be prescribed by the National System Operator in consultation with Transmission Planning Agency, Central Transmission Utility, CBET Transmission Service Providers and National System Operator of Remote Countries.
- Central Transmission Utility to prepare detailed guidelines for connectivity, if required, and get the same approved by the Regulatory Authority.

These Regulations also require the Regulatory Authority to prescribe fees and charges for:

- Application fee for CBET Authorization;
- Application fee for Open Access;
- Fees and charges for obtaining Open Access; and
- Relinquishment charges for Open Access.

9.17 Alternate Options

9.17.1 Open Access Duration

Currently, Long Term Open Access (LTOA) is defined in the model regulations as open access for a period of 15 years or more. Any duration below this could have issues and implications on obtaining financial closure for Cross Border Interconnections, as loan repayment period will be about 12 – 15 years.

However, in case of India, LTOA is defined as open access for a period of 7 years or more. Thus, there is a potential for lack of harmony in some CBET transactions involving India and other countries. In case this is an issue, duration of LTOA can be defined as open access for a period of 7 years or more, provided that there is a valid Bulk Power Transmission Agreement (BPTA) signed for 20 years or more. BPTA ensures that irrespective of open access and power purchase agreements, there is an entity, which has committed itself to pay for transmission charges for at least 20 years.

9.17.2 Negative List vs Positive List

In the model regulations, it is assumed that CBET is allowed with all South Asian countries, other than those in "Negative Country List", as there was already a wide agreement on CBET in the Framework Agreement. However, if required, this could be changed, and a "Positive List" can be maintained, so that CBET is allowed only with countries in the "Positive List".

9.18 Articles of Framework Agreement which are not adopted in model regulations

9.18.1 Exemption of duties / taxes on CBET

As per article 4 of the Framework Agreement:

"Member States may work towards exempting from export/import duty/levies/fees etc. for cross-border trade and exchange of electricity between Buying and Selling Entities".

However, this is a matter relating to taxation and customs duties, which is best left to the respective governments to decide on. It will be against the principle of fairness if the model regulations try to propose exemption of duties / levies for CBET. Thus, the model regulations do not incorporate any clauses for the implementation of article 4 of the Framework Agreement.

9.18.2 Introduction of competition

As per article 6 of the Framework Agreement:

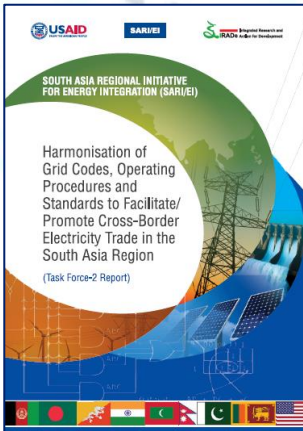
"Member States shall encourage the process of opening up of electricity sector guided by respective national priorities with the aim of promoting competition."

However, activities such as "opening up of electricity sector" and "promotion of competition" are major reforms, which are to be planned and executed by the respective governments and regulatory authorities. Thus, the model regulations do not incorporate any clauses for the implementation of article 6 of the Framework Agreement.

9.19 Available resources for guidance and reference

In the finalisation of model regulations, associated guidelines and procedures, and subsequent market reforms, if needed, the respective Regulatory Authorities and other entities can refer to the following detailed studies that are already publicly available, to obtain guidance and suggestions.

Table 18: Reference/guidance material from SARI/EI

Study report	Source	Contents
	<p>SARI/EI (2017): Harmonization of Grid Codes, Operating Procedures and Standards to Facilitate/Promote Cross-Border Electricity Trade in the South Asia Region - https://sari-energy.org/wp-content/uploads/2017/08/Harmonisation-of-grid-codes-operating-procedures-and-standards-to-facilitatepromote-cross-border-electricity-trade-in-the-south-Asia-region-Framework-grid-code-guidelines-Rajiv-LR-1.pdf</p>	<p>Framework Grid Code Guidelines, which provides basic criteria for system planning, connection and operational rules and responsibilities to be followed by the Generating stations, Transmission utilities, Distribution utilities and traders.</p>

Study report	Source	Contents
	<p>SARI/EI (2015): Regional Regulatory Guidelines for Promoting Cross-Border Electricity Trade in South Asia- http://irade.org/IRADe-SARI-EI-Regional%20Regulatory-Guidelines%20(July%202015)-.pdf</p>	<p>RRG addresses regulatory aspects of a) Licensing for cross-border electricity trade b) Non-discriminatory open access to transmission network c) Transmission pricing regime applicable to CBET transactions d) Transmission planning particularly recognizing the planned/proposed cross-border interconnections e) Imbalance settlement mechanism for trade transactions f) Harmonization of codes g) Dispute resolution h) Duties and tax regimes applicable to CBET</p>
	<p>SARI/EI (2017): Model Framework for Trading Licence Regime and Guidelines for grant of trading licence to facilitate Cross Border Electricity Trade in South Asia Region - https://sari-energy.org/wp-content/uploads/2018/05/SARI-EI-IRADe-Report-on-Model-Framework-for-Trading-Licence-Regime-and-Guidelines-for-grant-of-trading-licence-to-facilitate-Cross-Border-Electricity-Trade-in-South-Asia-Region-RP-IRADE.pdf</p>	<p>Guidelines and action plan for putting in place legal and regulatory framework for introduction of power traders as a market participant, in both domestic market and CBET</p>
	<p>SARI/EI (2016): Suggested Changes/Amendments in Electricity Laws, Regulations and Policies of South Asian Countries for Promoting Cross-Border Electricity Trade in the South Asian Region- http://irade.org/TF-1-Report-Suggested-Changes-Amendments-in-Electricity-Laws-Regulations-and-Policies-of-SAC-for-Promoting-CBET-in-SA-Region.pdf</p>	<p>Recommends the suggested changes/amendments in electricity laws, policies and regulation on the thorny aspects challenging cross-border trade by addressing issues such as trading license, non-discriminatory open access, transmission pricing, transmission planning, settling the imbalance by energy accounting and scheduling, harmonizing of codes etc. in existing electricity laws, policies and regulation along with the country wise proposed short, medium and long-term roadmaps.</p>

Study report	Source	Contents
 <p>The cover features the USAID, SARI/EI, and IRADA logos at the top. Below them is a map of South Asia and a large image of a power transmission tower. The title is prominently displayed in a blue box. At the bottom, there are flags of the SAARC member states.</p>	<p>SARI/EI (2017): Framework & Guidelines for Non-discriminatory Open Access in Transmission for Facilitating Cross Border Electricity Trade in South Asia - http://irade.org/Framework%20&%20Guidelines%20for%20Non-discriminatory%20Open%20Access%20in%20Transmission%20for%20Facilitating%20Cross%20Border%20Electricity%20Trade%20in%20South%20Asia.pdf</p>	<p>Recommends a Model Framework & Guidelines for Non-discriminatory Open Access in Transmission for Facilitating Cross Border Electricity Trade in South Asia Framework which is very essential to move towards a market form of cross border power trade along with regulatory harmonization among Open Access regimes in South Asia and Roadmap and action plan for non-discriminatory open access regime in South Asia.</p>
 <p>The cover includes the USAID, SARI/EI, and IRADA logos. It features a collage of images related to power generation and transmission, including wind turbines, solar panels, and power lines. The title is clearly visible in a blue box, and the bottom shows the SAARC member state flags.</p>	<p>SARI/EI (2017): Regional Investment Framework and Guidelines for promoting investment in South Asian Power Sector & in Cross Border Electricity Trade Projects in South Asian Region - https://sari-energy.org/wp-content/uploads/2018/03/SARI-EI-Report-Regional-Investment-Framework-and-Guidelines-for-Promoting-Investment-in-SA-Region-Report-low-resolution-March-9-2018-Final-Design-Rajiv-1.pdf</p>	<p>Regional Investment Framework and guidelines to establish a conducive environment for investments in cross-border electricity trading in South Asia</p>

10 Key regulatory changes required to support model regulations

10.1 Providing power to the Regulatory Authorities to regulate CBET

In case of many of the countries, it is possible that the fundamental law that provides power to the Regulatory Authority to regulate the sector covers only generation, transmission, distribution and trading, but not CBET. A case in example is India. India overcame this ambiguity by modifying the definition of inter-state trade, in CERC's trading license regulations.

*"inter-State trading' means purchase of electricity from one State for resale in another State **and includes electricity imported from any other country for resale within India or exported to any other country subject to compliance with applicable laws and clearance by appropriate authorities.**"*

The above definition introduced CBET as a sub category of power trading, thereby bringing it within the jurisdiction of CERC. By adding the part on compliance with laws and clearance by appropriate authorities, it also maintained the requirement of additional clearances from agencies including Ministry of External Affairs, Govt. of India.

In addition, when Ministry of Power, Govt. of India issued its guidelines on CBET on December 2016, the guidelines entrusted CERC to frame regulations for CBET, which shall then be binding on all the participating entities.

"4.3 The Central Electricity Regulatory Commission (CERC) of India shall frame appropriate regulation for facilitating cross border trade of electricity with neighboring countries in accordance with these guidelines. The regulation so framed by CERC shall be binding on all the participating entities."

The above two steps adopted by India offers a workable template without lengthy process of legal amendment, for bringing CBET into the jurisdiction of Regulatory Authorities, so that they can go forward with notifying regulations for regional power trade, based on the model regulations. However, it may also depend on respective legal framework of each countries, and it is for the legal experts to suggest whether the jurisdiction issue can be solved through an executive order or through laws.

The specific amendments that may be adopted in the South Asian countries for providing power to the Regulatory Authorities to regulate CBET are described below:

10.1.1 Nepal

In Nepal, as per Electricity Regulatory Commission Act of 2017, the Electricity Regulatory Commission has powers to regulate trading of electricity. Thus, once the Commission formulates its directives / guidelines for trading of electricity, it could define trading similar to the manner of India, so that CBET comes under the Commission's jurisdiction.

*"trading' means purchase of electricity for resale thereof **and includes electricity***

imported from any other country for resale within Nepal or exported to any other country subject to compliance with applicable laws and clearance by appropriate authorities."

However, the above might not in itself be enough, and there is possibility of concerns on ERC overstepping of jurisdiction. Therefore, the Government may also consider issuing a notification / law empowering the Commission to introduce regulation for CBET, based on the Framework Agreement.

"The SAARC Framework Agreement for Energy Cooperation (Electricity) was signed by the SAARC Member States, including Nepal, on November 2014. Subsequently, the Agreement was ratified by the Parliament / Government on <date>. Based on the SAARC Framework Agreement, the Electricity Regulatory Commission shall frame directives for the regulation of cross border power trade."

10.1.2 Sri Lanka

In Sri Lanka, the Electricity Act 2009 covers neither trade nor CBET. The Act covers only generation, transmission and distribution of electricity. Therefore, the Government may consider issuing an order / notification / law requiring PUCSL to frame regulation for CBET, based on the Framework Agreement.

"The SAARC Framework Agreement for Energy Cooperation (Electricity) was signed by the SAARC Member States, including Sri Lanka, on November 2014. Subsequently, the Agreement was ratified by the Parliament / Government on <date>. Based on the SAARC Framework Agreement, the Public Utilities Commission of Sri Lanka shall frame regulations for the regulation of cross border power trade."

10.1.3 Bhutan

In Bhutan, export / import of electricity is a licensed activity, and regulation of licensees comes under the ambit of Bhutan Electricity Authority, as per Electricity Act, 2001. However, the authority of BEA to regulate CBET is not well defined. Therefore, the Government may consider issuing an order / notification / law requiring BEA to frame regulation for CBET, based on the Framework Agreement.

"The SAARC Framework Agreement for Energy Cooperation (Electricity) was signed by the SAARC Member States, including Bhutan, on November 2014. Subsequently, the Agreement was ratified by the Parliament / Government on <date>. Based on the SAARC Framework Agreement, the Bhutan Electricity Authority shall frame regulations for the regulation of cross border power trade."

10.1.4 Bangladesh

In Bangladesh, BERC Act of 2003 do not specify any license for trading or CBET, or any powers of the Regulatory Commission on matters relating to trading or CBET. The provisions of Electricity Act, 1910 provides the power to give approval for CBET to the Government. Therefore, the Government will have to delegate the power in turn to BERC to frame regulation for CBET, through an order / law, based on the Framework Agreement.

"The SAARC Framework Agreement for Energy Cooperation (Electricity) was signed by

the SAARC Member States, including Bangladesh, on November 2014. Subsequently, the Agreement was ratified by the Parliament / Government on <date>. Based on the SAARC Framework Agreement, the Bangladesh Energy Regulatory Commission shall frame regulations for the regulation of cross border power trade."

10.1.5 Pakistan

In Pakistan, the Electric Power Act of 1997 covers neither trade nor CBET. However, NEPRA's Import of Electric Power Regulations, 2017 specify the process that shall be followed by applicants for approval of rates for import of power. In the interest of clearing ambiguities, the Government may consider issuing an order / notification / law requiring NEPRA to frame regulation for CBET, based on the Framework Agreement.

"The SAARC Framework Agreement for Energy Cooperation (Electricity) was signed by the SAARC Member States, including Pakistan, on November 2014. Subsequently, the Agreement was ratified by the Parliament / Government on <date>. Based on the SAARC Framework Agreement, the National Electric Power Regulatory Authority shall frame regulations for the regulation of cross border power trade."

10.1.6 Afghanistan

The Power Services Regulation Act 2016 provides the basic legal framework for regulation of electricity / power sector in Afghanistan. The Act envisages issue of licenses for activities including import and export of electricity. Trading is not recognized as a separate activity. In the interest of clearing ambiguities, the Government may consider issuing an order / notification / law requiring the Energy Service Regulation Authority / Afghanistan Electricity Regulatory Authority to frame regulation for CBET, based on the Framework Agreement.

"The SAARC Framework Agreement for Energy Cooperation (Electricity) was signed by the SAARC Member States, including Afghanistan, on November 2014. Subsequently, the Agreement was ratified by the Parliament / Government on <date>. Based on the SAARC Framework Agreement, the Energy Service Regulation Authority / Afghanistan Electricity Regulatory Authority shall frame regulations for the regulation of cross border power trade."

10.2 Relaxation of licensing requirement for CBET

In case of Afghanistan, Bhutan and Nepal, export and import of electricity are licensed activities. This is as per the provisions of:

- Afghanistan – Power Services Regulation Act 2016
- Bhutan – Electricity Act, 2001
- Nepal - Electricity Act, 1992

Once the model regulations are adopted, this will lead to a dual licensing scenario wherein CBET Participating Entities will have to obtain export / import license in addition to CBET Authorization. This can be avoided by having the respective Regulatory Authorities (in case of Bhutan and Afghanistan) or Government (in case of Nepal) to issue a Regulation / Order that treats CBET Authorization as equivalent to both export and import license. The detailed

procedure for the same is to be decided in consultation with legal experts, as in some countries, this may require amendment of laws also.

10.3 Participation of cross border entities in domestic power exchanges

The power exchanges in India may consider allowing entities outside India to access the exchange platform through trading licensees in India. This may require amendment of their business rules, which in turn will require approval from CERC.

10.4 Implementing a comprehensive framework for trading licensees.

South Asian countries other than India lack a framework for power traders. The presence of power traders / trading licensees bring multiple benefits to the countries, for conducting CBET, such as:

- Allow demand aggregation or aggregation of generation resources;
- Act as counter party in the transactions - Providing single window service for market participants;
- Bring in market transparency - Removal of information asymmetry and enabling optimum utilization of generation capacity;
- Introduce market liquidity- Enabling of market discovery of price; and
- Aiding in wholesale competition and market development.

Thus, the South Asian countries other than India may also consider putting in place regulatory and operational frameworks for trading licensees. Such a framework is expected to cover, at the minimum, the following components:

- Trading to be defined as an allowed and licensed activity under statutory legislation, under regulatory jurisdiction of the relevant Regulatory Authorities;
- Regulations on power trading covering:
 - Categories of trading licensees and qualification criteria;
 - Grant and revocation of trading licence;
 - Terms, conditions and obligations of trading licensees; and
- Removal of hurdles such as discontinuation of single-buyer model;

A detailed report on “Model Framework for Trading Licence Regime and Guidelines for grant of trading licence to facilitate Cross Border Electricity Trade in South Asia Region” is already available.¹⁰ Policy makers and regulatory may refer to the report on guidelines and action plan for putting in place legal and regulatory framework for introduction of power traders as a market participant.

10.5 Implementing comprehensive regime for Open Access

Open Access is one of the key enablers of CBET involving multiple market participants. A

¹⁰ SARI/EI (2017), *Model Framework for Trading Licence Regime and Guidelines for grant of trading licence to facilitate Cross Border Electricity Trade in South Asia Region* - <https://sari-energy.org/wp-content/uploads/2018/05/SARI-EI-IRADE-Report-on-Model-Framework-for-Trading-Licence-Regime-and-Guidelines-for-grant-of-trading-licence-to-facilitate-Cross-Border-Electricity-Trade-in-South-Asia-Region-RP-IRADE.pdf>

minimum regulatory framework for Open Access in CBET transactions is already available as part of the model regulations. However, for further details on setting up the operational framework, application procedure, pricing etc., the report prepared by SARI/EI on “Model framework and guidelines for non-discriminatory open access regime in transmission and grant of open access to initiate power trading and facilitate Cross Border Electricity Trade in the South Asian countries” may be referred to.

10.6 Report on suggested amendments in electricity laws, regulations and policies

A detailed report on “Suggested Changes/Amendments in Electricity Laws, Regulations and Policies of South Asian Countries for Promoting Cross-Border Electricity Trade in the South Asian Region” is already available.¹¹

The report analyzed the electricity laws, regulations and policies in South Asian countries and gave recommendations for amendment for the promotion of CBET under the following categories:

1. Recognition of Trade in National law;
2. Policy for Regional Electricity Trade;
3. Licensing Regimes;
4. Duties & Taxes;
5. Transmission Plan and Charges;
6. Open Access in Transmission;
7. Commercial Mechanisms to Settle Imbalances;
8. Cross-border Tariff Determination; and
9. Dispute Resolution.

While many of the above areas are also covered in the model regulations, the document continues to be relevant and crucial. In parallel to the efforts for notification of national regulation for regional power trade on the lines of model regulations, the countries may also consider implementing the amendments / changes proposed in the above-mentioned report.

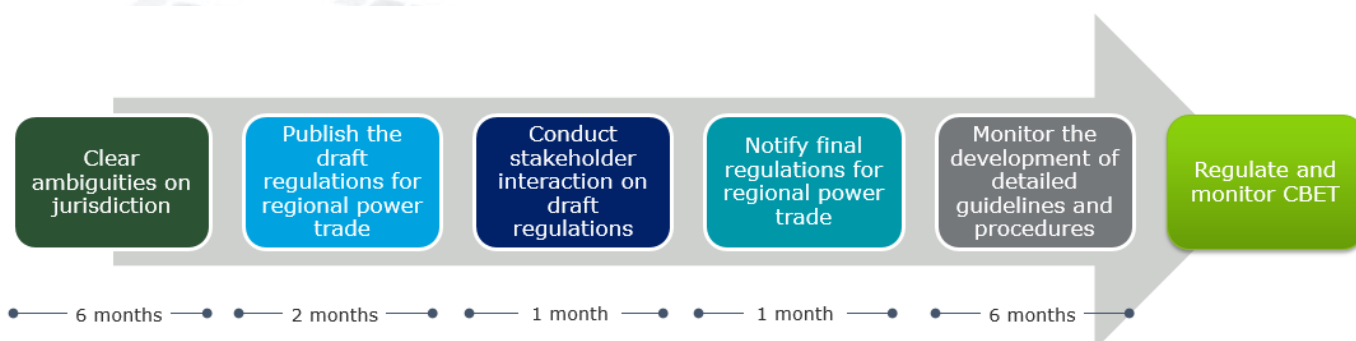
¹¹ SARI/EI (2016), *Suggested Changes/Amendments in Electricity Laws, Regulations and Policies of South Asian Countries* - http://irade.org/TF-1-Report_Suggested-Changes_Amendments_in-Electricity-Laws-Regulations-and-Policies-of-SAC-for-Promoting-CBET-in-SA-Region.pdf

11 Roadmap for implementation of model regulations

11.1 Roadmap for model regulations

A proposed roadmap for translating the model regulations to national level regulations, along with indicative minimum timelines is provided below.

Figure 31: Roadmap for implementation of model regulations



It is anticipated that the entire activities may take a minimum of 16 months, considering that it requires coordination between Government and Regulatory Authorities within the same country, and between Regulatory Authorities, System Operators and Transmission Planning Agencies of multiple countries. Each of the key activities in the roadmap are described below.

11.1.1 Clearing the ambiguities on jurisdiction

This is applicable in case of countries other than India wherein there is no clear and explicit powers for the Regulatory Authorities to regulate CBET. Therefore, in case of these countries, the Regulatory Authorities will have to take steps to clear ambiguities on its jurisdiction over CBET, including recommending to the Government to issue a notification / law on the same.

11.1.2 Publish the draft regulations for regional power trade

The respective Regulatory Authorities may adopt the model Regulations after incorporating any country specific amendments that they may wish to incorporate. After incorporating country specific modifications, the draft regulations for regional power trade may be released for stakeholder consultations.

11.1.3 Conduct stakeholder interaction on draft regulations

The draft regulations require wide level of stakeholder interactions, which may take a minimum of one month, and more realistically, at least three months.

11.1.4 Notify final regulations for regional power trade

Based on the comments received as part of stakeholder interactions, the Regulatory Authorities

may notify the final regulations.

11.1.5 Monitor the development of detailed guidelines and procedures

Once the final regulations are notified, there is a substantial number of detailed procedures, guidelines and orders that are to be developed and finalized, as listed in the section in 'Associated notifications and guidelines' in the explanatory note to the model regulations. This includes the notifications on identifying Government Designated Agency, Transmission Planning Agency etc.

During this stage, the Government will also have to intervene to clear the issue of making CBET Authorization as equivalent to export and import licenses, in the case of Afghanistan, Bhutan and Nepal.

11.1.6 Regulate and monitor CBET

After the regulatory, operational and institutional frameworks are in place, CBET can commence based on the regulations on regional power trade. The Regulatory Authorities will also have the added responsibilities of market monitoring to ensure that CBET does not result in any adverse effects in the domestic market.

11.2 Country-wise roadmap

The specific country-wise roadmap for implementation of the model regulations is provided below, along with the Regulatory Authority, which is responsible for its implementation.

Table 19: Country-wise roadmap for implementation of model regulations

Country, and implementing Authority	Short Term (10-12 months)	Medium Term (12-24 months)
Afghanistan: Electricity Regulatory Authority	<ul style="list-style-type: none"> ▪ Request Government to issue an order / law to delegate the power for regulating CBET to Electricity Regulatory Authority ▪ Prepare and publish the draft regulations for regional power trade ▪ Conduct stakeholder interaction on draft regulations ▪ Notify final regulations for regional power trade 	<ul style="list-style-type: none"> ▪ Request Government to issue an order / law that treats CBET Authorization as equivalent to having both import and export licenses ▪ Monitor the development of, and give approval to detailed procedures, guidelines and orders to support the model regulations
Bangladesh: Bangladesh Energy Regulatory Commission	<ul style="list-style-type: none"> ▪ Request Government to issue an order / law to delegate the power for regulating CBET to BERC ▪ Prepare and publish the draft 	<ul style="list-style-type: none"> ▪ Monitor the development of, and give approval to detailed procedures, guidelines and orders to support the model regulations

Country, and implementing Authority	Short Term (10-12 months)	Medium Term (12-24 months)
	<ul style="list-style-type: none"> regulations for regional power trade Conduct stakeholder interaction on draft regulations Notify final regulations for regional power trade 	
Bhutan: Bhutan Electricity Authority	<ul style="list-style-type: none"> Request Government to issue an order / law to delegate the power for regulating CBET to BEA Prepare and publish the draft regulations for regional power trade Conduct stakeholder interaction on draft regulations Notify final regulations for regional power trade 	<ul style="list-style-type: none"> Request Government to issue an order / law that treats CBET Authorization as equivalent to having both import and export licenses Monitor the development of, and give approval to detailed procedures, guidelines and orders to support the model regulations
India: Central Electricity Regulatory Commission	<ul style="list-style-type: none"> Co-ordinate with Government for harmonization of its CBET Guidelines with the model regulations 	<ul style="list-style-type: none"> Modify power exchange business rules, allowing cross border entities to also participate in power exchange platform directly / through traders in India, in line with model regulations
Maldives: Maldives Energy Authority	<ul style="list-style-type: none"> Nil, as no CBET is envisaged 	<ul style="list-style-type: none"> Nil, as no CBET is envisaged
Nepal: Electricity Regulatory Commission <i>(Yet to be formed)</i>	<ul style="list-style-type: none"> Notify Regulations on trading, with the definition of trading covering CBET also Request Government to issue an order / law empowering the Electricity Regulatory Commission to introduce regulation for CBET 	<ul style="list-style-type: none"> Request Government to issue an order / law that treats CBET Authorization as equivalent to having both import and export licenses Monitor the development of, and give approval to detailed procedures, guidelines and

Country, and implementing Authority	Short Term (10-12 months)	Medium Term (12-24 months)
	<ul style="list-style-type: none"> Prepare and publish the draft regulations for regional power trade Conduct stakeholder interaction on draft regulations Notify final regulations for regional power trade 	orders to support the model regulations
Pakistan: National Electric Power Regulatory Authority	<ul style="list-style-type: none"> Request Government to issue an order / law empowering NEPRA to introduce regulation for CBET Prepare and publish the draft regulations for regional power trade Conduct stakeholder interaction on draft regulations Notify final regulations for regional power trade 	<ul style="list-style-type: none"> Monitor the development of, and give approval to detailed procedures, guidelines and orders to support the model regulations
Sri Lanka: Public Utilities Commission of Sri Lanka	<ul style="list-style-type: none"> Request Government to issue an order / law empowering PUCSL to introduce regulation for CBET Prepare and publish the draft regulations for regional power trade Conduct stakeholder interaction on draft regulations Notify final regulations for regional power trade 	<ul style="list-style-type: none"> Monitor the development of, and give approval to detailed procedures, guidelines and orders to support the model regulations

The above roadmap refers to the minimum list of activities for implementation of the model regulations. In the long term, the countries may also consider initiating power sector reforms and introduction of competition, in line with the policy goals and targets set by the respective Governments.

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