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Report on Regional Energy/Electricity Regulatory Institutional Mechanism in South Asia: South Asia Forum of Electricity/Energy Regulators (SAFER)

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Abbreviations

ACER	Agency for the Cooperation of Energy Regulators
ADB	Asian Development Bank
BBIN	Bangladesh, Bhutan, India, Nepal
BIMSETC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BoR	Board of Regulators
BWG	BIMSTEC Working Group
CBET	Cross-Border Electricity Trade
CEER	Council of European Energy Regulators
CERC	Central Electricity Regulatory Commission
ECOWAS	Economic Community of West African States
ENTSO	European Network of Transmission System Operators
ERERA	The ECOWAS Regional Electricity Regulatory Authority
ERGEG	European Regulators Group for Electricity and Gas
ERRA	The Energy Regulators Regional Association
EU	European Union
FG	Focal Group
GMS	Greater Mekong Sub-region
IGA	Inter-Governmental Agreement on Regional Power Trade
IRADe	Integrated Research and Action for Development
JWG	Joint Working Groups
MM	Ministerial Meeting in Foreign Affairs
MOU	Memorandum of Understanding
MS	Member States
NARUC	National Association of Regulatory Utility Commissioners
NRA	National Regulatory Authorities

PPA	Power Purchase Agreement
PSC	Project Steering Committee
PWG	Planning Working Group
RERA	Regional Electricity Regulators Association of Southern Africa
RPTCC	Regional Power Trade Coordination Committee
RRG	Regional Regulatory Guidelines
SAARC	South Asian Association for Regional Cooperation
SAC	South Asian countries
SADC	Southern African Development Community
SAFIR	South Asia Forum of Infrastructure Regulation
SAPP	Southern African Power Pool
SAR	South Asian Region
SARI/EI	South Asian Regional Initiative for Energy Integration
STEOM	Senior Officials Meeting in Areas of Trade and Economic Affairs
MMTE	Ministerial Meeting in Trade and Economic Affairs
TF	Task Force
TPA	Third Party Access
TSO	Transmission System Operators
USAID	United States Agency for International Development
WAPP	West African Power Pool Program

1 Introduction

The South Asian Countries (SAC) which includes Afghanistan, Bangladesh, Bhutan, India, The Maldives, Nepal, Pakistan and Sri Lanka possess almost 20%[1] of the global population and are also home to half of the World's poor. [2] Although these countries are on the cusp of an economic turnaround, due to lack of a number of growth ingredients the economic progress in the region is stymied. Specifically, these countries continue to experience chronic power shortages and poor quality of service and accelerated economic development is expected to exacerbate the shortages. The countries in the South Asian Region (SAR) have diverse electricity demand profiles and energy sources and multiple studies have identified quantitative and qualitative benefits of cross-border electricity trade (CBET). However, CBET still remains insignificant in the region.

South Asia has been one of the fastest growing regions in the world, with an average annual growth rate of 6% as measured by GDP per-capita. Yet despite this impressive macroeconomic growth, the energy sector in the South Asian region has not been able to keep pace, and continues to experience chronic problems of shortage of supply and poor quality of service. Given this dilemma the only long-term solution is the sustained increase in regional energy cooperation among South Asian nations. [3]

Out of the eight South Asian Countries around seven face a persistent and severe energy shortage and outages which leads to a loss of more than 2% of GDP and now the regional decision makers have come to realise that they lag behind in energy integration. Unfortunately, South Asia is the least integrated region in the world. Several countries in the region are spending more than 10% of their Forex spend on fossil imports.[4] Cross-Border Electricity Trade (CBET) in South Asia is around 2300 MW currently and being undertaken in the form of bilateral trade and is limited between India-Nepal (300) MW approx.); India-Bangladesh (600MW); and India-Bhutan (1400 MW approx.). Region is endowed with vast potential of clean energy, i.e., hydro power of 350 GW (of which only 14% has been developed) which can be developed successfully through CBET. CBET has the potential to improve energy security of the region and provide adequate and affordable electricity in the region.

CBET is expected to increase significantly in coming future. In coming future Bangladesh is planning to import 6000-7000 MW from regional grid to meet the power demand. For facilitating such CBET, several new transmission interconnections are being planned/proposed across South Asian countries which will enable greater Integration of Power Systems of South Asian Countries (SACs). The political climate is becoming increasingly more and more conducive for CBET both at the bilateral and as well as at the multilateral level as eight member states of SAARC countries signed SAARC Framework Agreement of Energy (Electricity) Cooperation. Further, the historic Power Trade Agreement (PTA) signed between India and Nepal, opens up whole range of new possibility for trade electricity between Nepal-India, and also gives an access to Nepal Power Developers to Indian Power Market. India-Bangladesh and India-Bhutan

[1] Analysis based on data from The World Bank and Population Reference Bureau (PRB)

[2] The World Bank

[3] http://www.irade.org/Need%20to%20institutionalize%20cross%20border%20border%20Electricity%20Trade%20in%20South%20Asia%20by%20V.K.Kharbanda%20and%20Rajiv%20Ratna%20Panda-Infraline%20Plus.pdf

[4] Concept Paper on First SAARC Energy Regulators' Meeting

are taking steps to enhance quantum of Cross-border Electricity Trade (CBET) in manifold. Government of India has recently come out with the guidelines for the cross-border trade of electricity and this has been followed up with the draft regulations by Central Electricity Regulatory Commission (CERC). While this will strengthen the framework for bilateral electricity trading arrangements between India and neighbouring countries in the short to medium term, the progression towards a regional integrated electricity market would be an important next step.

Power and Energy sector is a regulated sector in South Asia. Policy/Regulatory Provisions and Institutional frameworks required for promoting/facilitating CBET exist in some South Asian Countries (SACs) but are not exhaustive in nature. Currently, South Asian countries are at different stage of power sector reforms and have different electricity regulatory environment. To enhance CBET within two or more countries in South Asia. There is a need to have common/ coordinated set of regulations which facilitates/addresses the mechanism of cross-border interconnection. This can be achieved by having common/coordinated set of regulations, policies, and legal framework which addresses the mechanism of interconnection, recognizes the CBET, open access to transmission network, licensing, imbalance settlement mechanism, coordinated procedures for integrated system operation, dispute resolution, etc.

Without consistent and coherent regional regulatory framework in place, investment opportunities and consequently large scale CBET between nations that could benefit both importing and exporting nations may not happen. In the South Asian regional context, the risks associated with forging an intraregional, CBET project would be greatly minimized if each participating country adopts complementary regulatory frameworks to facilitate cross-border interconnection and electricity trade. Moreover the existing electricity regulatory, policy and legal frameworks of SACs primarily address domestic power sector issues and are not necessarily developed to address issues related to CBET, therefore there is a need for coordination/harmonization of regulations.

1.1 Background

South Asian Regional Initiative for Energy Integration (SARI/EI) which is supported by USAID is presently in its fourth and final phase (2012-2018). The aim of this program is to advance regional energy integration by increasing the CBET. The overall objective is to create the right enabling environment which would facilitate the establishment of a South Asian electricity market, and gain consensus and support from the key decision makers and stakeholders.

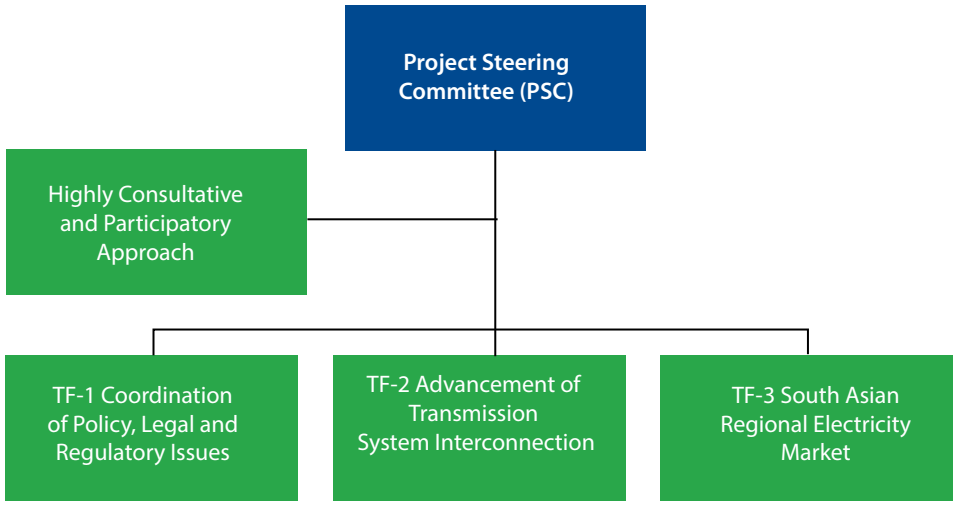


Figure 1: SARI/EI Framework

The implementing partner for this phase of the SARI/EI program is Integrated Research and Action for Development (IRADe). IRADe has setup an organization structure which is dedicated for meeting the objectives of the program. A Project Steering Committee (PSC), which is the apex body of the program provides the overall strategic direction (Fig.1). Government nominated senior officials from the country governments, SAARC, ADB, independent energy experts etc., form the members of PSC. Three dedicated Task Forces (TFs) have been constituted with members nominated from Ministries, Electricity Regulatory Commissions, Planning Authorities, National Power Transmission utilities, Power Market Institutions etc. These TFs have commissioned several studies and investigations in order to understand policy, institutional and technical issues involved in the design and implementation of CBET. The SAARC Inter-governmental Framework Agreement for Energy Cooperation[5] signed on 27 November 2014 by the Foreign Ministers of the eight member states provides a strong basis for advising CBET in the region.

A TF-1 study carried out a "detailed and comprehensive review and analysis of Electricity Laws, Policies and Regulatory framework of South Asian Countries (SAC) from the perspective of Cross-border Electricity Trade (CBET)" and has published a Regional Regulatory Guidelines (RRGs).[6] A brief summary of RRG is attached as Annexure-1. The Regional Regulatory Guidelines (RRGs)[7] aim to

- Establish transparent regulatory environment to promote CBET
- Provide a common course of action that can be referred for decision making on CBET by the regulators in their respective countries
- Ensure consistency in the transactions and remove delays on account of unclear and complicated regulatory regimes

The RRGs has recommended a regional regulatory institutional mechanism to manage the process of harmonization of regulations in close coordination with various regional bodies such as SAARC secretariat, technical committees, forums and other relevant entities etc. To this end, a Round table Meeting was organised by IRADe on "Catalysing Cross-Border Electricity Trade in South Asia: South Asia Forum of Electricity Regulators (SAFER)" on 06th August 2015. The meeting convened key stakeholders such as India's Central Electricity Regulatory Commission (CERC); South Asia Association for Regional Cooperation (SAARC), Energy Centre, Islamabad, Pakistan; Bangladesh Energy Regulatory Commission (BERC), Bangladesh, Ministry of Economic Affairs, Bhutan, Indian Renewable Energy Development Authority (IREDA), India; Power Trading Cooperation, India (PTC), Indian Energy Exchange (IEX); Power Finance Corporation, India (PFC); Rural Electrification Corporation (REC), India; National Hydro Electric Corporation Ltd. (NHPC) India; Power System Operation Corporation Ltd., India (POSOCO) among other dignitaries and guests. The meeting came to conclusion that SARI/EI will be working on a detailed white paper/study report on the regional regulatory institution by identifying its role, institutional structure and the way forward for formation of such a regional regulatory body/forum. The TOR is attached as Annexure-1

1.2 Need for a Regional Regulatory Forum in South Asia Region

The World Bank had identified the South Asia region as the fastest growing region in the World.[8] The growth has been achieved when the entire region, barring Bhutan and The Maldives, has significantly lower per capita electricity consumption (Fig.2) as compared to the World Average. Sustenance of this unparalleled economic growth in the region would require a mutually beneficial business environment that would be supported by a strong regional integration covering key economic drivers including electricity.

[5] http://www.moen.gov.np/pdf_files/SAARC-Framework-Agreement.pdf
[6] http://www.irade.org/IRADe-SARI-EI-Regional%20Regulatory-Guidelines%20(July%202015)-.pdf
[7] http://www.irade.org/IRADe-SARI-EI-Regional%20Regulatory-Guidelines%20(July%202015)-.pdf
[8] World Bank-South Asia Economic Focus Spring 2015

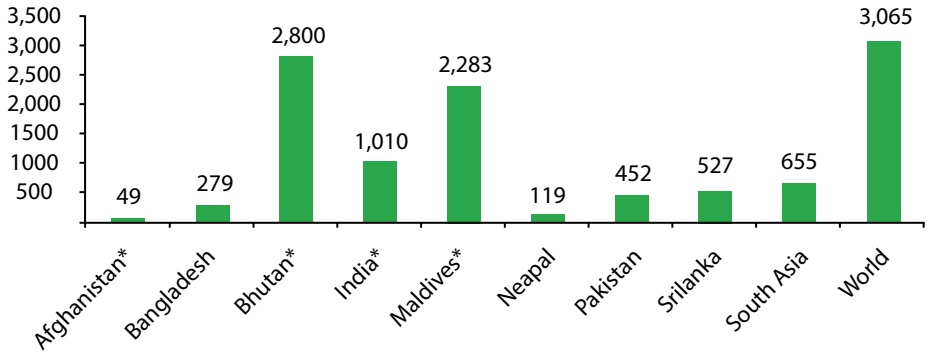


Figure 2: Per capita electricity consumption (kWh) in SAR

Source: IRENA 2009 for Afghanistan, Maldives, RoGB (2012) for Bhutan, CEA for India and World Bank (2013) for others.

In order to enhance regional cooperation among the SAR countries, there have been a number of initiatives undertaken across diverse areas. Also there are other groups with focused agendas such as South Asia Forum for Infrastructure Regulation (SAFIR) and South Asia Forum for Education Development, apart from South Asian Association for Regional Cooperation (SAARC) which is a broader umbrella for regional cooperation in the region. Such focused groups are entrusted to drive a particular sector/agenda, across the SAR, with representations from the member countries.

It is essential for all SAR countries to cooperate in utilizing each other's strengths to overcome individual weaknesses, considering the critical role of electricity in the economic advancement of the individual countries and the SAR as a whole. Among the most critical aspects, in this regard, would be the seamless integration of the country-specific power systems to promote CBET.

Globally, there are a number of successful examples of regional integration of power networks such as the Greater Mekong Region (GMR), Nordic Pool and South African Power Pool (SAPP) etc., which have gone through a journey of self-evolution before reaching their current status. In the evolutionary journey of all regional power markets, one of the most vital cogs is the regulatory harmonization of the power sector across the member countries and have come up with Regional Regulatory Institutions (Table-1) in form of institutions/ Institutional Mechanism/Regional Forums/ Regional Association etc.

Table1: Key Regional Associations on Electricity/Energy

Key Regional Associations on Electricity/Energy	Geographical Coverage
Energy Regulators Regional Association (ERRA)	Voluntary organization of independent energy regulatory bodies of the Central/ Eastern European and Newly Independent States region
Council for European Energy Regulators (CEER)	Association of the independent national energy regulators from the Member States of the European Union (EU) and European Economic Area (EEA)
Agency for the Cooperation of Energy Regulators (ACER)	Community body for integration of European Union's Markets in electricity and natural gas
Regional Electricity Regulators Association (RERA)	Association of independent electricity regulators in South Africa whose establishment was approved by the Southern African Development Community (SADC) Ministers responsible for Energy in Maseru, Lesotho on 12 July 2002

Source: International Energy Regulation Network

The countries in SAR are at various stages of electricity reform differing in legal, policy and regulatory frameworks.

Developing a robust CBET would require well defined, coherent energy policies and enabling legal and regulatory framework across all SAR countries. Formulation of a dedicated regional forum of electricity regulators would help drive the agenda for building the necessary environment to support regional electricity integration. An option being proposed for evolution and implementation of RRGs is the formation of a regional regulatory forum which will work in close coordination with various national electricity regulators, other regional entities and SAARC bodies. A transparent, stable regional regulatory framework for CBET supported through a regional regulatory institutional mechanism such as forum/agency/association of electricity regulators to take care of CBET regulations is critical for smooth and rapid expansion of trade of electricity among the south Asian countries and for creating a conducive environment for investment in CBET. [9]

From global examples, an essential aspect to be understood is that the formation of dedicated regional regulatory bodies on electricity/energy would have a number of predecessor organizations which are already working on certain aspects of regional power markets. The formation of a dedicated regulatory body would help streamline the efforts towards developing a regional market while also complimenting the ongoing works of the earlier organizations. A successful example to this can be taken from the European Union (EU) where the CEER and ACER coexist and complement each other's work towards formation of a robust energy market in the EU.

It, therefore, would be an inherent obligation for the regional regulatory forum to work in close coordination with other regional and national bodies working on specific aspects of CBET. Apart from building the necessary momentum towards a long-term vision of a seamless cross-border electricity market in the SAR, this would help complement and integrate previous efforts.

1.3 Regional Electricity Regulatory Forum in South Asia:- the Next Step for Coordination and Harmonization of Regulations

This forum is envisaged to be a neutral body which is expected to guide the design, planning and implementation of RRGs in the form of common regulations, rules and protocols in technical, operational and legal matters for promoting CBET in the South Asian Region (SAR). Following vision and mission statements are proposed in the USAID report: chapter V- Regional Regulatory Guidelines of Review of Electricity Laws, Regulations, Policies and Legal Structure of South Asia Countries (SAC) to identify areas that can hinder Cross-border Electricity Trade (CBET) and to recommend changes/Amendments therein for Consideration of the SAC.

Vision Statement: *To be a world class Regional Forum that catalyses enabling conditions for regional energy integration in the SA region.*	***Mission Statement:*** *To provide a multi-stakeholder platform among SACs to convene, deliberate and provide recommendations to the country governments on overcoming barriers to advancement of CBET in the region.*

In this context, this report analyses evolution, roles, organization structures and functions of prevailing regional regulatory forums/institutional mechanisms that facilitate CBET in different groups of countries/regional groups to understand key learnings that can be utilised in building a similar forum for SAR. This paper also studies forums that can impact electricity sector and CBET in SAC like South Asia Forum of Infrastructure Regulation (SAFIR), South Asian Association for Regional Cooperation (SAARC), Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) etc., and their role, responsibilities, structure, function etc.

On the basis of above analysis, options for regional electricity regulatory institutional mechanism is proposed along with some key points that need to be finalised for operationalisation of such forum.

[9] http://www.irade.org/Need%20to%20institutionalize%20cross%20border%20border%20Electricity%20Trade%20in%20South%20Asia%20by%20V.K.Kharbanda%20and%20Rajiv%20Ratna%20Panda-Infraline%20Plus.pdf

2 International Experiences of Regulatory Forums on Energy/Electricity

This section depicts key aspects of significant regulatory forums in energy sector in Europe and Africa that are created to enhance cross-border energy cooperation. Aspects like reasons for formation of such regulatory forums, organization structure and key tasks performed etc., are detailed to the extent available. The section objective is to gain insights of international experiences in the energy regulatory forums.

2.1 Agency for the Cooperation of Energy Regulators (ACER)

By providing a framework at EU level, the Agency for the Cooperation of Energy Regulators (ACER) plays an important part in the integration of the European Union's (EU) markets in electricity and natural gas.[10] It became fully operational on March 2011 and was established with the purpose of fulfilling the regulatory gap which existed due to the lack of competence of the National Regulatory Authorities (NRAs) in the field of the cross-border energy trade and the non-existence of a legal framework under which such trade should take place. ACER is not a regulatory authority as such, since its purpose is to facilitate the cooperation between the NRAs. Articles 5 to 11 of the ACER Regulation define most of the Agency's tasks. Some of these are also defined in the Electricity and Gas Regulations. The key tasks undertaken by ACER are:

- Complement and coordinate the work of National Regulatory Authorities (NRA) in member countries.
- Participate in the creation of European network rules.
- Issue non-binding opinions and recommendations to national energy regulators, transmission system operators and the EU institutions.
- Take binding individual decisions in specific cases and under certain conditions on cross-border infrastructure issues.
- Upon request from the European Commission, submits draft framework guidelines which serve as basis for the drafting of network codes. The network codes only become binding after comitology[11] procedure involving member states and the European Commission.

ACER is composed both of permanent staff and experts seconded by NRAs in the field of energy. Some of the key regulations prepared by ACER[12] in electricity are:

- Framework Guidelines and Network Codes which aim at providing harmonized rules for cross-border exchanges of electricity. The drafting of those documents involves the European Commission, ACER and European Network of Transmission System Operators of Electricity or ENTSO-E. which includes:
  - Capacity Allocation and Congestion Management (CACM) for Electricity
  - The Framework Guidelines on Electricity Grid Connection
  - The Framework Guidelines on Electricity System Operation
  - Conditions for access to the network for cross-border exchanges in electricity
  - Framework guidelines on electricity balancing

[10] http://www.acer.europa.eu/official_documents/acts_of_the_agency/publication/acer%20work%20programme%202015.pdf
[11] a set of procedures through which EU countries control how the European Commission implements EU law
[12] http://www.acer.europa.eu/Electricity

- Network development and infrastructure regulation
  - Network development: ENTSO-E Ten Year Network Development Plan and national plans
  - Infrastructures: trans-European energy infrastructures
  - Inter-TSO compensation mechanism

The precursor to ACER was the European Regulators Group for Electricity and Gas (ERGEG) which was set up by European Commission. It was dissolved on 1 July 2011 after ACER came into operation. Some of ERGEG's works passed to ACER (e.g., the Regional Initiatives) and some (e.g., customer issue) to Council of European Energy Regulators (CEER).

The Council of European Energy Regulators (CEER) was established in 2000 for the cooperation of the independent energy regulators of Europe. It seeks to facilitate the creation of a single, competitive, efficient and sustainable EU internal energy market. CEER's work complements (and does not overlap) the work of the Agency for the Cooperation of Energy Regulators (ACER). ACER, which has its seat in Ljubljana, is an EU Agency. CEER is a Belgian not-for-profit association. They share similar objectives. ACER's focus is on what is required in the legislation and CEER does everything else in energy regulation. CEER's motto is fostering energy markets, empowering customers. CEER's work includes international cooperation, smart grids, sustainability, Demand Side Operators and customer issues.[13]

CEER is a platform for Europe's energy regulators to develop common interests that are of pan-European or even wider significance (e.g., smart grids and sustainability issues) and which are complementary (but not overlapping) to ACER's work. CEER acts as interface at EU and international level and intends to facilitate the creation of a single, competitive, efficient and sustainable internal market for gas and electricity in Europe. It also shares regulatory best practices worldwide through its membership in the International Confederation of Energy Regulators (ICER) which brings together similar associations from across the globe including NARUC (America), ERRA (Central/Eastern Europe) and MEDREG (the Mediterranean region). To summarise, ACER's focus is on what is required in the legislation and CEER does everything else in energy regulation.

2.1.1. Evolution of ACER

Since the Single European Act of 1986, the European Union has aspired to form an integrated European market through various stage of evolutions (Fig.3). It followed a three phased approach:

- The First Directives (1998) introduced liberalising the wholesale energy market and stipulated the rules on unbundling and regulation in general terms for both the electricity and the gas markets.
- The Second Energy Package (2003) put specific regulatory rules on tariff setting and the unbundling of network operators and mandatory TPA. Its main objective was to achieve full ownership unbundling. It extended liberalisation to include retail markets as it foresaw the full market opening in 2007. It also mandated the NRAs to introduce a procedure of regulated Third Party Access (TPA). The Second Energy Package had very positive effects but there was no regulation yet to address cross-border issues. The lack of powers to national regulators restricted compliance to the EU rules. The lack of power also implied that many regulators do not manage to impose the necessary penalties that are foreseen for cases of non-compliance. Moreover, the cross-border issues were problematic in those cases in which the concerned NRAs could not agree on the conditions for access to the cross-border infrastructure as the Commission did not have decision-making power in such situations. The cross-border issues became more complex and it was increasingly difficult to agree on the necessary adaptations to the European framework as the interests of 27 NRAs could diverge considerably.
- The Third Energy Package (2009) aimed at addressing such structural deficiencies by requiring a high level of independence for the Transmission System Operators (TSOs) and regulators, as well as improved cross-border coordination. Its objective was to put in place the regulatory framework which was needed in order to fully open the European electricity markets and gas markets.

[13] https://www.ceer.eu/eer_about

Figure 3: Evolution of ACER

The first energy package witnessed the formation of the Council of Energy Regulators (CEER). The CEER was considered as the voice of the various national energy regulators of the EU members. It provided a much needed forum for cooperation and exchange of best practices on electricity regulations among the EU countries. The CEER worked towards the overall aim of establishing a 'simple, competitive, efficient and sustainable internal market for gas and electricity in Europe'. It is still functional and is an interface between Europe's national energy regulators and the European Union and at the international level. The Key Milestones of ACER is mentioned in table-2.

Table 2: ACER -Key Milestones

Year	Key Milestones
1998	Introduction of the first energy package in EU
2000	Establishment of CEER-a not-for-profit association of National Energy Regulators at EU
2003	Introduction of the second energy package
2003	Formation of the ERGEG, a formal advisory group to the European Commission on Energy and Gas
2009	The Third Energy Package
2009	Formation of European Network of Transmission System Operators (ENTSO), representing 41 electricity transmission system operators (TSOs) of 34 countries
March, 2011	Formation of ACER
July, 2011	ERGEG dissolved with its work shared between ACER and CEER
2011	Development of regional work plans on Electricity for period 2011-2014
2013	Framework guidelines in eight areas identified by European Commission as core for IEM integration

In 2003, the introduction of the second energy package with an aim to make the NRAs independent of the market players also resulted in the formation of the European Regulator's Group for Electricity and Gas (ERGEG), which is a formal advisory group to the European Commission on Energy and Gas. The ERGEG was bestowed with the responsibility to assist the EU in consolidating a single electricity and gas market in EU. It was represented by the heads of the national energy regulatory authorities of the EU nations.

The focus on the independence of the NRAs was further amplified with the third energy package, resulting in the establishment of the Agency for the Cooperation of Energy Regulators (ACER). With the formation of ACER, the ERGEG was dissolved with its key responsibilities allocated between the newly formed ACER and CEER which continued to exist. A community body with a legal personality, ACER complements and coordinates the work of the NRAs at EU level. It works towards creation of framework guidelines that would guide the NRAs to form network codes with an aim towards EU wide harmonization.

In reality, ACER is a "network agency[14]" as the existing networks are incorporated into the agency as Boards of Regulators which, together with the Directors and Administrative Boards, cooperate with the Commission and the NRAs to further the completion of the internal market. On the one hand, ACER with its specific competencies for interconnections or cross-border issues interacts with the NRAs and cooperates with the already existing European regulatory forums, such as the Council of Energy Regulators (CEER). In a nutshell, with clear roles and responsibilities multiple regulatory agencies are working towards creating a borderless electricity and gas market in Europe.

The Commission considered three options for the future regulation in order to strengthen the cooperation of energy regulators at the EU level, which was one of the recommendations from the sector inquiry: (i) to evolve the approach provided in the Second Energy Package, (ii) to broaden the competencies of ERGEG and create the so-called ERGEG+, or (iii) to set up a completely new EU body. The idea was that such body would be responsible for the adoption of individual decisions with regard to the EU energy market and related to regulatory and technical issues relevant to making cross-border trade work in practice. In the end, the Commission decided for a middle way and proposed the establishment of a new European agency–the ACER. There are many advantages which a regulatory body in the form of an agency can offer. Agencies usually have a higher degree of expertise and know-how to lead specific policies as well as possess the ability to materialize the EU's policy, which eventually helps with the decentralization of EU powers.

The prime function of ACER is to serve as an overarching body to solve cross-border conflicts by bringing the relevant NRAs together and making binding decisions if necessary without taking over the NRAs' responsibilities. The Agency aims to develop a new regulatory culture that will enable the development of the interconnection capacities and coordination of the Member States' energy policies. Apart from the Agency, one of the major contributions of the Third Energy Package is the establishment of the independence of the energy regulators from market interests and political influence. The provisions of the Third Energy Package allow for only one NRA to be established in each Member State and the tasks can no longer be given to several bodies. The NRAs' employees and members of their decision-making bodies must act independently and are not allowed to take direct instructions from the governments or other public or private bodies. A Snapshot of Agency for the Cooperation of Energy Regulators (ACER) is given in the Table -3.

[14] http://www.villa-lessing.de/wp-content/uploads/2014/02/Masterarbeit-Vesna-Tisla.pdf

Table 3: Agency for the Cooperation of Energy Regulators (ACER)-A Snapshot

Agency for the Cooperation of Energy Regulators (ACER)- A Snapshot	
Historical Evolution[15]	Created by the Third Energy Package to further progress the completion of the internal energy market both for electricity and natural gas. ACER was officially launched in March 2011, and has its seat in Ljubljana, Slovenia
Mission and Objectives[16]	ACER's missions and tasks are defined by the Directives and Regulations of the Third Energy Package, especially Regulation (EC) 713/2009 establishing the Agency. In 2011, ACER received additional tasks under Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency (REMIT) and in 2013 under Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure. The Agency's overall mission, as stated in its founding regulation, is to complement and coordinate the work of national energy regulators at EU level, and to work towards the completion of the single EU energy market for electricity and natural gas. ACER plays a central role in the development of EU-wide network and market rules with a view to enhancing competition. The Agency coordinates regional and cross-regional initiatives, which favour market integration. It monitors the work of European networks of transmission system operators (ENTSOs), and notably, their EU-wide network development plans. Finally, ACER monitors the functioning of gas and electricity markets in general, and of wholesale energy trading in particular.[17]
Member Countries	All members of European Union[18]
Organizational Structure – Roles and Functions	Three part structure which includes: ▪ The Director manages and represents the Agency ▪ The Board of Regulators: in charge of the regulatory policy of the Agency ▪ The Administrative Board: in charge of governance and budgetary aspects ▪ The Board of Appeal: treats appeals against Agency decisions
Key Focus Area(s)/Activities	Carries out various activities related to Network Development and Infrastructure Regulation. ▪ Foster cooperation among European energy regulators ▪ Ensures market integration and harmonisation of regulatory frameworks ▪ Formulates Framework Guidelines related to regulation on System operation, connection and capacity allocation leads to network codes ▪ Harmonization of transmission tariff structures
Operational Aspects[19]	Administrative Board is expected to meet 4 times and the Board of Regulators 10 times. In 2014 the Agency adopted its first fully-fledged Communication Strategy, the external communication of the Agency takes two main forms: involving NRAs and stakeholders in the Agency's work; and, communicating with the general public directly and through the media. The Agency organises an Annual Conference for all stakeholders. The event typically focuses on one of the Agency's major areas of work. The conference provides a platform for a high-level exchange of views among stakeholders and an outlook for a more strategic overview of the Agency's tasks. The Agency reports yearly on its activities and achievements in relation to the tasks assigned to it in a specific year. To provide a succinct but complete overview of the Agency's achievements, in line with the Agency's reporting requirements. **Market Monitoring Report:** The Agency provides an assessment of the progress made towards the implementation of the Third Energy Legislative Package ('the 3rd Package') and the completion of the internal energy market. **Internal communication** is geared towards the Agency's staff, seconded national experts, locally contracted employees and trainees. It should enable both management and staff to fulfil their responsibilities effectively and efficiently mainly through Internal newsletter, Lunch-time presentations, intranet

[15] http://www.acer.europa.eu/the_agency/Pages/default.aspx

[16] https://www.acer.europa.eu/en/The_agency/Mission_and_Objectives/Pages/default.aspx

[17] https://www.acer.europa.eu/en/The_agency/Mission_and_Objectives/Pages/default.aspx

[18] Presently there are 28 members – Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

[19] http://www.acer.europa.eu/official_documents/acts_of_the_agency/publication/acer%20work%20programme%202015.pdf

2.1.2. Organization Structure of ACER

The organization structure of ACER (Fig.4) is explained below:

a. **Director:** The Director manages and represents the agency. He prepares the work of the Administrative Board and adopts and publishes the opinions, recommendations and decisions that have received a favourable opinion of the Board of Regulators. He is responsible for drafting the annual work programme of the Agency and implementing it under the guidance of the Board of Regulators and under the administrative control of the Administrative Board.

b. **Administrative Board:** It is the governing body of ACER and adopts the work programme of ACER for the coming year and its multi-annual programme. It ensures that ACER carries out its mission and performs the tasks assigned to it in accordance with the Agency Regulation.

c. **Board of Appeal:** Anyone, including national regulatory authorities can lodge an appeal with the Board of Appeal against a decision taken by ACER, where the Agency has actual decision-making powers. Board of Appeal is part of the Agency but is independent from its administrative and regulatory structure.

d. **Board of Regulators (BoR):** The regulatory activities of the agency are overseen by the Board of Regulators (BoR) which is composed of senior representatives of the national regulatory authorities of the 28 Member States. BoR provides opinions to the Director which he shall follow. In addition, the Board of Regulators, within its field of competence, shall provide guidance to the Director in the execution of his tasks and the Director shall act in accordance with this guidance. BoR acts independently and shall not seek or take instructions from any government of a Member State, from the Commission, or from another public or private entity. Decisions of the BoR are adopted on the basis of a two-thirds majority[20] of the members present. Each member has only one vote.

e. **Departments:** The agency is divided into five departments – Director's Office, Administration, Electricity, Gas and Market Monitoring.

f. **Working Groups:** They advise the ACER director on the regulatory activities of the Agency. The members of the working groups are representatives of ACER, national regulators, and the European Commission.

g. **Expert Groups:** These can be setup on ad hoc basis, to provide expert support to the Agency in the development of regulatory policies.

The key tasks undertaken by ACER are:

a. Complement and coordinate the work of national regulatory authorities in member countries

b. Participate in the creation of European network rules

c. Issue non-binding opinions and recommendations to national energy regulators, transmission system operators and the EU institutions

d. Take binding individual decisions in specific cases and under certain conditions on cross-border infrastructure issues

e. Upon request from the European Commission, submits draft framework guidelines which serve as basis for the drafting of network codes. The network codes only become binding after comitology[21] procedure involving member States and the European Commission.

ACER is composed both of permanent staff and experts seconded by National Regulatory Authorities (NRAs) in the field of energy. ACER is currently working towards achieving the objectives and tasks set forth in its Work Programme 2015.

[20] http://www.acer.europa.eu/en/The_agency/Organisation/Board_of_Regulators/Documents/BoR58-03.1_Revised%20RoP_approved_public.pdf

[21] a set of procedures through which EU countries control how the European Commission implements EU law

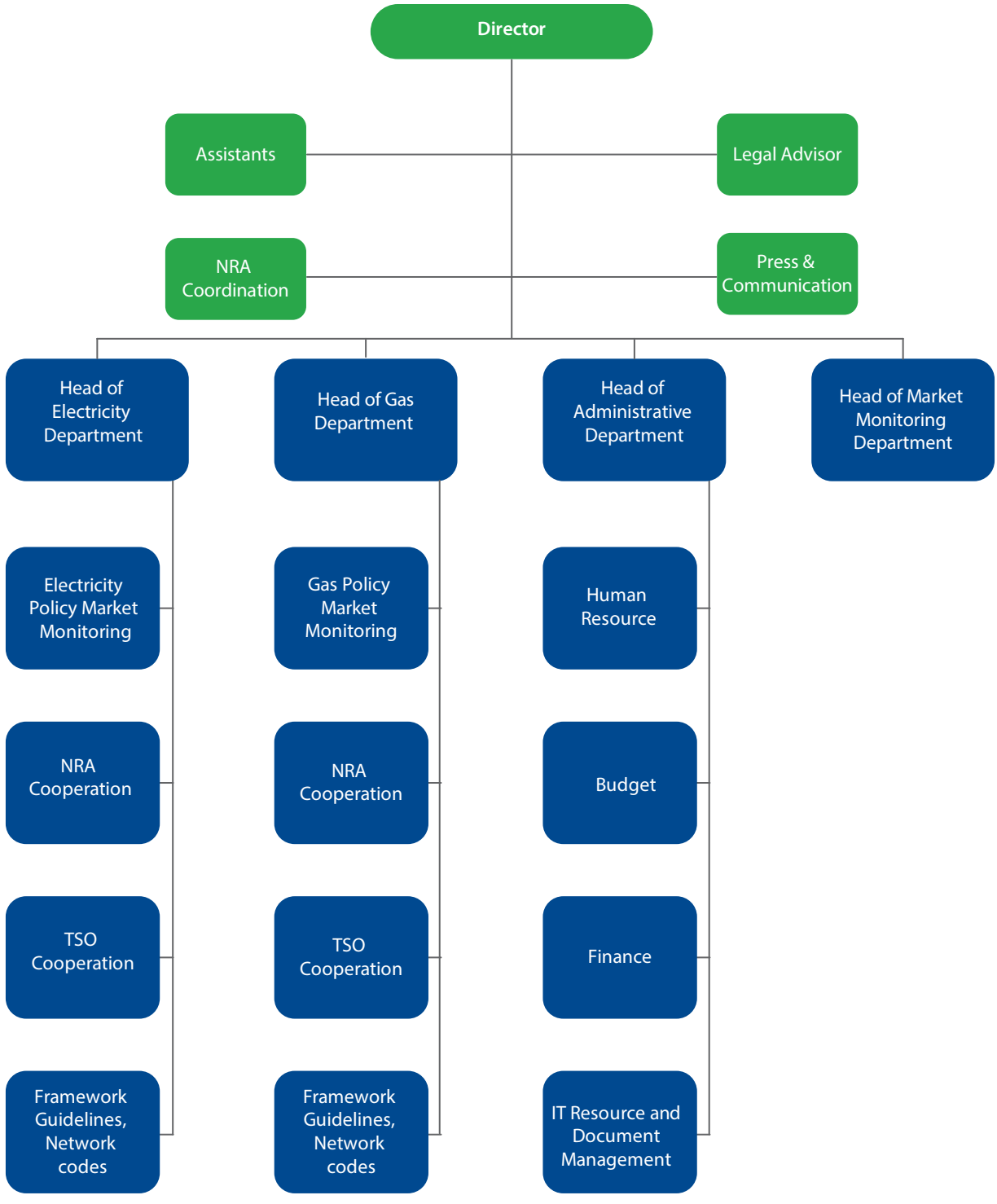


Figure 4: ACER-Organization Structure

The budget[22] of the Agency is fully subsidised from the general budget of the European Union and prepared in accordance with the principle of equilibrium, with revenue equal to expenditure. The expenditure is funded by EU. The spending encompasses of three major heads: Staff Expenditure, Infrastructure and Operating Expenditure, and Operational Expenditure.

[22] Agency for the Cooperation of Energy Regulators - Work Programme 2015

2.2 Regional Power Trade Coordination Committee (RPTCC)

The Regional Power Trade Coordination Committee (RPTCC) is the high-level body established by the Inter-Governmental Agreement on Regional Power Trade (IGA) (signed in November 2002), to actively coordinate the successful implementation of regional trade and to represent the countries involved in regional power trade[23]. After signing of PPA between Lao PDR and Thailand, the power trade in the Greater Mekong System (GMS)[24] started in 1971. Apart from this, all six GMS countries became engaged in modest cross-border exchanges for supply to border towns of neighbours and for cross-border hydropower development. From 1990 onwards, bilateral power trade gained impetus with the signing of several MOUs between governments across the GMS and growing investor interest in cross-border generation investments. In 1992, with the support of the ADB, Cambodia, Lao People's Democratic Republic, Myanmar, Thailand, Vietnam and Yunnan province of China agreed to pursue a program of regional cooperation to foster economic and social development. In 2004, Guangxi Zhuang Autonomous Region of China joined this initiative, known as the GMS Program.

With the convening of all six governments, GMS Electric Power Forum was formed in 1992, and has met regularly since its establishment. In 1993, the Experts Group on Power Interconnection and Trade was endorsed as the central coordinating entity for the GMS. Intergovernmental Agreement on Regional Power Trade (IGA) was signed and ratified, which was accepted as the overall framework for development of the regional market structure. Responsibility for policy direction and supervision of progress under IGA was assigned to relevant ministers in each GMS country. IGA stipulated the establishment of the Regional Power Trade Coordination Committee (RPTCC) as the high level body responsible for actively coordinating and guiding the development of the market. RPTCC was established in 2004 as the high level body responsible for establishment of Greater Mekong Sub-region (GMS) regional power market. The member countries are Cambodia, Lao People's Democratic Republic, Myanmar, and People's Republic of China, Thailand and Vietnam. The key milestones of Regional Power Trade Coordination Committee (RPTCC) is given in Table 4.

[23] https://www.adb.org/publications/series/proceedings-meetings-gms-regional-power-trade-coordination-committee-rptcc

[24] The GMS countries are Cambodia, the People's Republic of China (PRC, specifically Yunnan Province and Guangxi Zhuang Autonomous Region), Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand, and Viet Nam.

Table 4: Regional Power Trade Coordination Committee (RPTCC)-Key Milestones

Month/Year	Milestone
1995	The Sub-regional Electric Power Forum was formally inaugurated at a meeting in Yangon, Myanmar
1998	The Expert's Group on Power Interconnection and Trade (EGP) was established to provide recommendations on regional power issues in the GMS
2000	At the Ninth GMS Ministerial Meeting in Manila, ministers endorsed the Policy Statement on Regional Power Trade in the Greater Mekong Sub-region (the Policy Statement)
2002	The Inter-Governmental Agreement on Regional Power Trade in the Greater Mekong Sub-region (the Inter-Governmental Agreement, IGA) was signed in Phnom Penh. The IGA provided for the establishment of a Regional Power Trade Coordination Committee (RPTCC)
2005	A Memorandum of Understanding on the Guidelines for the Implementation of the RPTOA – Stage #1 (MOU #1) was signed in Kunming. This approved the draft RPTOA issued by the third RPTCC meeting (April 2005) as guidelines for Stage 1 of the regional power market. It also established two new institutions to support the work of the RPTCC: ▪ The Focal Group (FG) ▪ The Planning Working Group (PWG)
2008	A Memorandum of Understanding on the Road Map for Implementing the Greater Mekong Sub-region Cross-Border Power Trading (MOU 2) was signed in Vientiane.
2009	Finalization of the GMS Road Map for Expanded Energy Cooperation
2010	Discussions initiated on setting up of a Regional Power Coordination Centre (RPCC) for power trade in the GMS
2011	Approval of the Strategic Framework 2012-2022 in Myanmar
2012	Finalization of the Working group plans for next three years
2013	Endorsement of the Regional Investment Framework pipeline of energy projects under the new GMS Strategic Framework (2012-2022)
2014	Implementation plan approved at the 5th GMS Summit at Bangkok

Two working groups established under the RPTCC are

- Working Group on Performance Standards and Grid Code undertakes the following activities:
  - Analyses technical performance standards and grid code across 6 GMS countries
  - Prepares Implementation plan for harmonisation of countries' performance standards and grid code into a regional standard
  - Studies power transmission regulation: (i) policy on scheduling and accounting; (ii) coordinated operational planning; and (iii) communication infrastructure;

- Working Group on Regulatory Issues undertakes:
  - Study on regulatory barriers to power trade development
  - Study on Transmission Regulations enabling third party access to interconnections, prioritizing contracts/PPAs and Dispute Resolution Mechanism
  - Task forces for transmission pricing mechanism, including wheeling charge for third party access

All member countries, time and again, have agreed on the criticality of the coordination between the national regulators and the RPTCC. The representation of the national government and utilities in the Focal Group and the Planning

Working Group is helping in aligning the regional priorities with the national objectives. A number of advances have already been taken in the GMS to create a fully functional regional power pool. The proposed establishment of the Regional Power Coordination Centre is expected to further advance the regional integration in the region. A snapshot of Regional Power Trade Coordination Committee is given in Table-5 below.

Table 5: Regional Power Trade Coordination Committee (RPTCC) - A snapshot

Regional Power Trade Coordination Committee (RPTCC)	
Historical Evolution	The Regional Power Trade Coordination Committee (RPTCC) is the high-level body established by the Inter-Governmental Agreement on Regional Power Trade (IGA) (signed in November 2002), to actively coordinate the successful implementation of regional trade and to represent the countries involved in regional power trade
Aims and Objectives	Creation of regional power market
Member Countries	Cambodia, Lao People's Democratic Republic, Myanmar, People's Republic of China, Thailand and Vietnam
Organizational Structure - Roles and Functions	The committee has two working groups: ▪ Working Group on Performance Standards and Grid Code ▪ Working Group on Regulatory Issues Two institutions under the RPTCC were established. The Focal Group (FG) was established to coordinate implementation activities in each GMS country and would subsequently evolve into a technical secretariat. The Planning Working Group (PWG) was established to fulfill the functions of the operational and system planning working groups
Key Focus Area(s)/ Activities	▪ Specifying basic rules for bilateral power trading among Parties as a first step towards regional power trading ▪ Providing recommendation for the overall policy on a day-to-day management of regional power trade ▪ Establishing the short, medium and longer initiatives which need to be pursued on a priority basis in order to achieve the objectives of regional power trade within a specified timetable ▪ Identifying necessary steps for expanding the scope of regional power trade
Operational Aspects	FG and PWG comprises of representatives of national governments and utilities. The responsibilities included are identifying priority interconnection projects and establishing common regional performance standards and database. The Planning Working Group (PWG) was established to fulfill the functions of the operational and system planning working groups. It comprises a senior level representative from each member country's transmission system operator with responsibility for national transmission planning. Main objectives included identifying priority interconnection projects and establishing common regional performance standards and database.

For helping countries to design an appropriate market and implementation program, technical assistance and institutional development support are critical. World Bank has supported individual GMS countries through energy policy dialogue, technical assistance and financing. It has provided support to GMS in a two-pronged approach.

- Policy/Institutional Support
- Investment Support

Policy/Institutional Support[25]

Independent advice and relevant Technical Assistance (TA) to the RPTCC was provided by World Bank on:

- Developing good practice guidelines for bilateral arrangements;
- Developing principles regarding ownership, benefits estimation and benefits-sharing of trans-boundary transmission lines;
- Supporting power sectors of individual countries;
- Providing key technical inputs towards
  - Fostering a culture of regional planning
  - Feasibility study for bulk power transfers between countries
  - Development of a Road Map along with ADB and delineating the activities to be undertaken at various stages.

Investment Support

The Bank would explore possibilities of co-financing with other international and regional financial institutions, bilateral agencies, and commercial banks. Its investments in the GMS countries are potentially envisaged for the following areas:

- Cross-border power exchanges;
- Regional bulk power transmission systems;
- In-country HV and EHV infrastructure to support regional power trade;
- Economically, environmentally and socially sustainable generation options; and
- Design and implementation of load dispatch centres (LDCs) to facilitate countries' participation in regional power trade

2.3 The Energy Regulators Regional Association (ERRA)

The Energy Regulators Regional Association (ERRA) was founded on the premise of sharing regulatory experiences and identifying best practices. This process began in 1997 and was formalized in 2001 when ERRA began operating. The geographic reach of ERRA includes members on four continents covering 37 million square kilometres stretching contiguously from the Adriatic Sea to the Bering Sea and also including the United States and countries in Africa and Middle East.

The history of ERRA began in November 1997 at a regulatory conference which was hosted by the Hungarian Energy Office. The United States Agency for International Development (USAID) and the United States Energy Association helped coordinate the conference. (The key milestones of ERRA is given in the table-6). There were 15 countries in attendance who were guided in their discussion by two themes:

- Core principles of regulators focused on independence, transparency and public participation and
- The importance of stable and consistent regulation to attract and foster investment.

Table 6: The Energy Regulators Regional Association (ERRA)-Key Milestones

Year	Key Milestones
1997	Regional conference in Hungry attended by 15 countries
1999	Ad-hoc steering committee begins development of structural and operational elements of future association
2000	Constitution signed by 15 members
2001	Association legally registered in Hungary
2007	Chairman Committee established
2014	ERRA Customers and Retail Markets Working Group started operations

[25] Power Trade in Greater Mekong Sub-region - The World Bank

Participants of the conference exchanged their regulatory experiences which had an important influence on the direction of a future regulatory organization. Two ad hoc committees of ERRA namely the Tariff/Pricing Committee and the Licensing Committee (later expanded to include competition) were also established by the participants. These became the formal ERRA standing committees in 2001. The significant output provided by these committees, demonstrates that pooling technical knowledge can help identify effective regulatory approaches.

The involvement of NARUC[26] enabled ERRA members to receive professional regulatory assistance from their American peers. It also served as a model to build a single organization that represents geographically and institutionally diverse regulatory commissions.

ERRA provides an excellent platform for information and experience sharing among multiple countries across different continents. It has also been undertaking focused training programs from introductory trainings on regulatory aspects to customized high end training on specific topics with the objective of enhancing regulatory competence across the globe.

The Presidium, assisted by Association Staff, shall prudently manage the finances of the Association and make the arrangements for the preparation of the Annual Budget.[27] At each Annual Conference, the Chairman shall present the Assembly with a proposal for an Annual Budget, including the level of Annual Membership Dues for the coming year. The Assembly shall adopt or modify the Annual Budget with a two-thirds vote. The Association may seek to supplement its income from Annual Membership Dues with grants obtained from Foundations, Donors, or other sources and may seek to establish an endowment to support its activities and objectives. A snapshot of the Energy Regulators Regional Association (ERRA) is given in Table-7 below.

Table 7: The Energy Regulators Regional Association (ERRA) û A Snapshot

The Energy Regulators Regional Association (ERRA)	
Historical Evolution	Founded on the premise of sharing regulatory experiences and identifying best practices, this process began in 1997 and was formalized in 2001 when ERRA began operating with 15 members.
Aims and Objectives	To ensure the regulation of inter-state electricity exchanges and giving appropriate support to national regulatory bodies or entities of the member states
Member Countries	Full Members: Energy Regulators with primary responsibility for electricity regulation. Only one Energy Regulator from each country may be a Full Member of the Association. Each country has one vote in General Assembly.[28] Associate Members: (a) Additional National or Regional Utility Regulators (with primary responsibility for energy and water service areas). (b) Associations of Utility Regulators (c) State authorities who are not Utility Regulators but who have responsibilities related to public energy and water sector regulation (d) Organizations that qualify as Full Membership but choose Associate Membership status.[29] Honorary Members: Honorary Members are former Presidents, Chairmen, Commissioners, Directors, or Senior Personnel of Full Members and such other former energy regulatory staff of Full Members as the General Assembly may accept.

Contd...

[26] The National Association of Regulatory Utility Commissioners of the United States (NARUC) began formal involvement in 1999 when it signed a cooperative agreement with the U.S. Agency for International Development (USAID). Founded in 1889, NARUC is a non-profit organization dedicated to representing state public service commissions in the U.S. that regulate America's energy, telecommunications, water, and transportation utilities

[27] CONSTITUTION - Energy Regulators Regional Association

[28] http://erranet.org/AboutUs/Members#Full; Energy regulators from Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Mongolia, Montenegro, Poland, Romania, Russian Federation, Serbia, Slovakia, Turkey & Ukraine.

[29] Regulators from Bosnia and Herzegovina, Bosnia and Herzegovina (incl. Srpska), Cameroon, Ghana, Jordan, Nigeria, Oman, Pakistan, Russia, Saudi Arabia, UAE,UNMIK, USA and ECOWAS Regional Electricity Regulatory Authority

The Energy Regulators Regional Association (ERRA)	
Organizational Structure - Roles and Functions	▪ **General Assembly:** The supreme body of the Association shall be the General Assembly. Comprised of all Full Members the Association will consist of a General Assembly and a Presidium ▪ **Presidium:** The executive and representative body of the Association is the Presidium. ▪ **Financial Committee:** The General Assembly has the authority to establish a Financial Committee responsible for the financial audit of the Association. ▪ **Secretariat:** It manages the daily activities of the Association. ▪ **General Secretary:** The General Secretary is a senior energy regulatory expert and assists the technical and professional work of the ERRA Chairman, Presidium and Secretariat. He/she performs his/her duties at the Association's headquarters. This position is only fulfilled if the Chairman of the Association is not based in the Seat of the Association.
Key Focus Area(s)/ Activities	▪ Monitoring of regional market operations; resolving disputes among regional market participants. ▪ Contributing to the development of regional energy policy and assisting in building capacity of National Regulatory Bodies.
Operational Aspects[30]	The members of ERRA engage in high level technical discussions in committees and working groups. These exchanges result in suggestions for altering regulatory practices, impacting national and regional energy markets. It is through this interaction and development of trust among regulators that solutions are jointly explored that may be implemented in diverse legal systems. Knowledge transfer occurs between members through presentations and in-depth sessions of questions and answers. Regulatory staff interaction in committees and working groups for improvement in operation of energy markets. Here the committees and working groups provide the opportunity for regulatory staff to increase their professional knowledge by intensely studying real-world regulatory issues and identifying necessary remedies. ERRA instituted Technical Regulatory Exchange Programs in 2002 in order to facilitate the exchange of information and improve the exchange of daily regulatory practices. This program provides a modest stipend to support visits by regulatory staff from one country to another regulatory organization for learning the practical aspects of implementing regulatory procedures. **Types of Analyses Prepared by ERRA Committees and Working Groups** ▪ Discussion paper: When one or two members have experience on a topic they jointly prepare a paper. These address the daily institutional practices and provide advanced analysis. ▪ Issue paper: This is prepared when members have no experience in an area or would like to learn about a topic. Outside consultants are used to prepare the report and discuss the results with ERRA members. ▪ Case study: When one to three members have experience and expertise on an issue, there is sufficient information to develop an in-depth description of these members experience. In this case there is no involvement of consultants or NARUC. The case study is used to teach other members how to address an issue. ▪ Benchmarking study: This involves comparing practices in different countries. This is used to show common practices and how issues are addressed in different countries and is important for teaching common practices. For this study comparable data needs to exist across countries. This has been used to compare such issues as wholesale market monitoring and pricing issues. ▪ Workshops: ERRA committees may decide to organize separate one day workshops in conjunction with committee meetings. Experts and practicing regulators outside the ERRA region are also invited to join the workshops.

[30] Energy Regulators Regional Association Celebrating 10 Years! Assessing a Decade of Regulatory Cooperation

The National Association of Regulatory Utility Commissioners[31] (NARUC) worked closely with USAID for providing professional regulatory assistance to the association. The NARUC/USAID cooperative agreement began as a three-year program, with regional funding provided by the Energy and Infrastructure Division of the Bureau for Europe and Eurasia, USAID. USAID extended the NARUC's cooperative agreement three times, for a total 10-year period. Through the agreement, NARUC became part of USAID's three-prong approach to developing, supporting, and sustaining the nascent energy regulators. The USAID development assistance method included:

- Regional regulatory networking and information exchange organized by NARUC.
- Partnerships for access to U.S. regulatory practices implemented by NARUC.
- Long-term/short-term technical assistance managed by USAID Missions in the country.

2.4 The ECOWAS Regional Electricity Regulatory Authority (ERERA)

Despite implementing power sector reforms, the performance in the power sector across the 15 Economic Community of West African States (ECOWAS) has been unsatisfactory. In addition to charging rates below cost, the national power utilities have been under-capitalized; hence they have not been able to access financial markets or attract investors for maintenance and expansion projects. Moreover, 60% of electricity generation capacity of the region runs on petroleum fuels and, as such, any escalation in oil prices has a devastating effect on most of the economies in the region and most of the national electricity markets are too small for any meaningful gain from economies of scale. The power utilities of the region face enormous challenges in providing quality energy services to existing consumers and expanding coverage against this background.

The initiatives of ECOWAS date back to its regional Energy Policy of 1982 that seeks to harmonize the energy policies of the Member States and increase collective energy autonomy. However, the Community's instrument that has given impetus to the regional energy programme is the ECOWAS Energy Protocol that was adopted by the Heads of States and Government of ECOWAS in 2003. Since then the various actions undertaken have resulted in the establishment of the following specialized institutions of the Community: the West African Gas Pipeline Authority, the West Africa Power Pool Secretariat and the ECOWAS Regional Electricity Regulatory Authority (ERERA), for the establishment and supervision of the regional electricity market.

The primary objective of the West African Power Pool's (WAPP) establishment in 1999 by ECOWAS Heads of State was to create a regional market. There are two dimensions to this institutional approach: firstly, the establishment of the necessary legal and regulatory framework to promote long-term cooperation in the energy sector within the member states and to attract investments. The 2003 ECOWAS Energy Protocol fulfils this requirement. The second dimension relates to oversight and supportive frameworks for stakeholder activities. This meant putting in place a regional regulatory body. In January 2008 within the framework of the Energy Protocol and WAPP, the Member States of ECOWAS established the ECOWAS Regional Electricity Regulatory Authority (ERERA) by Supplementary Act A/SA.2/1/08, as a specialized institution of ECOWAS. ERERA's governance structure is provided by Council Regulation C/REG.27/12/07 of 15th December 2007 on the Composition, Organization, Functions and Operations of the Authority. The headquarters of ERERA is located in Accra, Ghana.

ERERA was created to regulate cross-border electricity exchanges and give support to national regulators of the electricity sub-sector of Member States. They have committed to build a strong institution which is credible, respectable and able to develop a strategic vision and sustainable regulatory and legal instruments to attract the much-needed investment into the regional electricity sector. A snapshot of The ECOWAS Regional Electricity Regulatory Authority (ERERA) is given in Table-8.

[31] Creation of a sustainable regional regulatory association and promotion of best practices in national energy regulation

Table 8: The ECOWAS Regional Electricity Regulatory Authority (ERERA) - A Snapshot[32]

The ECOWAS Regional Electricity Regulatory Authority (ERERA)	
Historical Evolution[33]	ERERA can be traced to the decision of ECOWAS Heads of States to establish WAPP in 1999. The decision to establish ERERA in 2007 was taken one year after the WAPP Agreement was finalized (2006) signaling the imperative that establishment of a regional electricity market necessitates the parallel establishment of regional market regulator.
Aims and Objectives	To ensure the regulation of inter-state electricity exchanges and to give appropriate support to national regulatory bodies or entities of the Member States
Member/ Partners	▪ Africa Forum for Utility Regulators ▪ Agence Française de Développement (AFD) ▪ Energy Regulators Regional Association (ERRA) ▪ EU-Africa Infrastructure Trust Fund ▪ National Association of Regulatory Utility Commissioners (NARUC) ▪ West African Power Pool (WAPP)
Organizational Structure – Roles and Functions	ERERA is governed by the Regulatory Council which is a decision-making and managerial body. The Regulatory Council currently consists of three members which is headed by the Chairman with two other members (to be enlarged to 5 members later). Council Members appointed are for a fixed non-renewable term of 5 years. The Council is supported by a pool of experts who are responsible for the day-to-day operations of ERERA. The support structure is currently made up of two units: ▪ A Technical Unit which deals with the regulatory activities and; ▪ A Human Resources, Administration and Finances Unit
Key Focus Area(s)/ Activities	▪ Regulation of cross-border electricity connections and trading among ECOWAS member states ▪ Establishment of clear and transparent tariff setting methodology for regional power pooling ▪ Facilitating the setting up of regulatory and economic environment for the development of the regional market ▪ Technical regulation of the regional power pooling and monitoring of regional market operations ▪ Assisting the ECOWAS Commission in defining the strategy for the regional energy policy ▪ Establishing effective dispute resolution methods among regional market participants ▪ Assisting national regulatory bodies in ECOWAS on capacity building and technical issues upon request
Operational Aspects	ERERA, through its pool of experts, undertakes multiple studies to enable an integrated regional electricity market. Some of the recent focus areas include: ▪ Regional operational benchmarking ▪ Third party open access ▪ Regional regulatory mechanisms

The EU-AITF TA grant has been used by ERERA to implement its first regulatory activities which has also funded part of the staffing costs and workshops, organised in the ECOWAS member states. The regulatory activities funded include:

- Regional benchmarking of the electricity sector
- Assistance to OMVS (Senegal river basin commission) and OMVG (Gambia river basin commission) to improve cross-border exchanges
- Assistance to national regulators for setting international exchange tariffs, and settlement of disputes, among other activities.

[32] http://www.erera.arrec.org/

[33] A critical analysis of ECOWAS power infrastructure integration schemes as a model for regional integration in Africa A MINI-DISSERTATION

Organization structure of the ECOWAS Regional Electricity Regulatory Authority (ERERA) for short term and medium terms are provided in Fig.5 and Fig.6 respectively.

Short Term

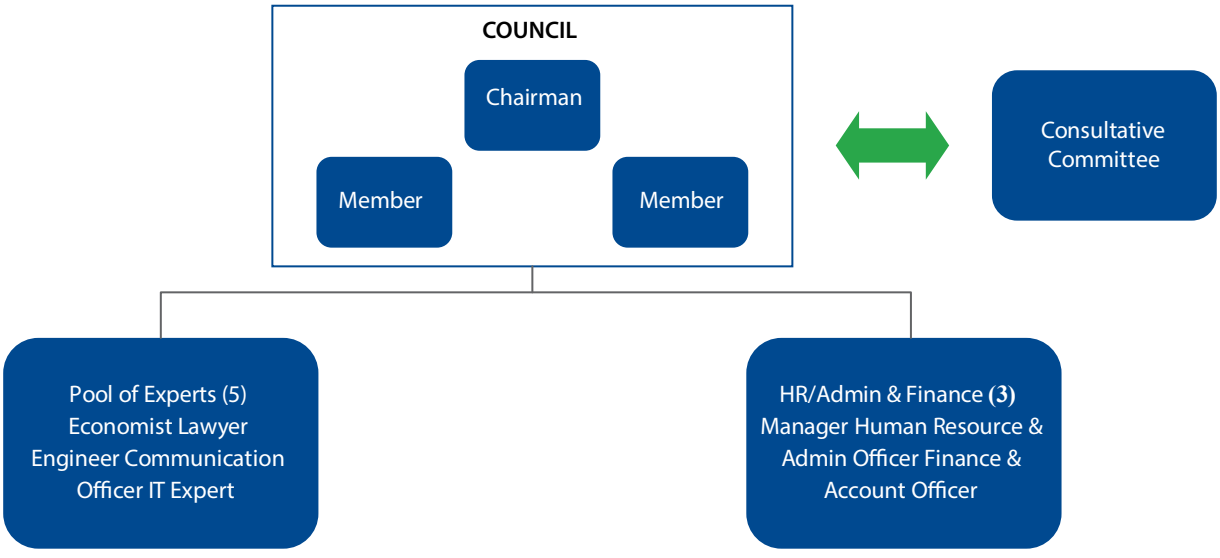


Figure 5: The ECOWAS Regional Electricity Regulatory Authority (ERERA)-Organizational Structure-Short Term

Medium Term

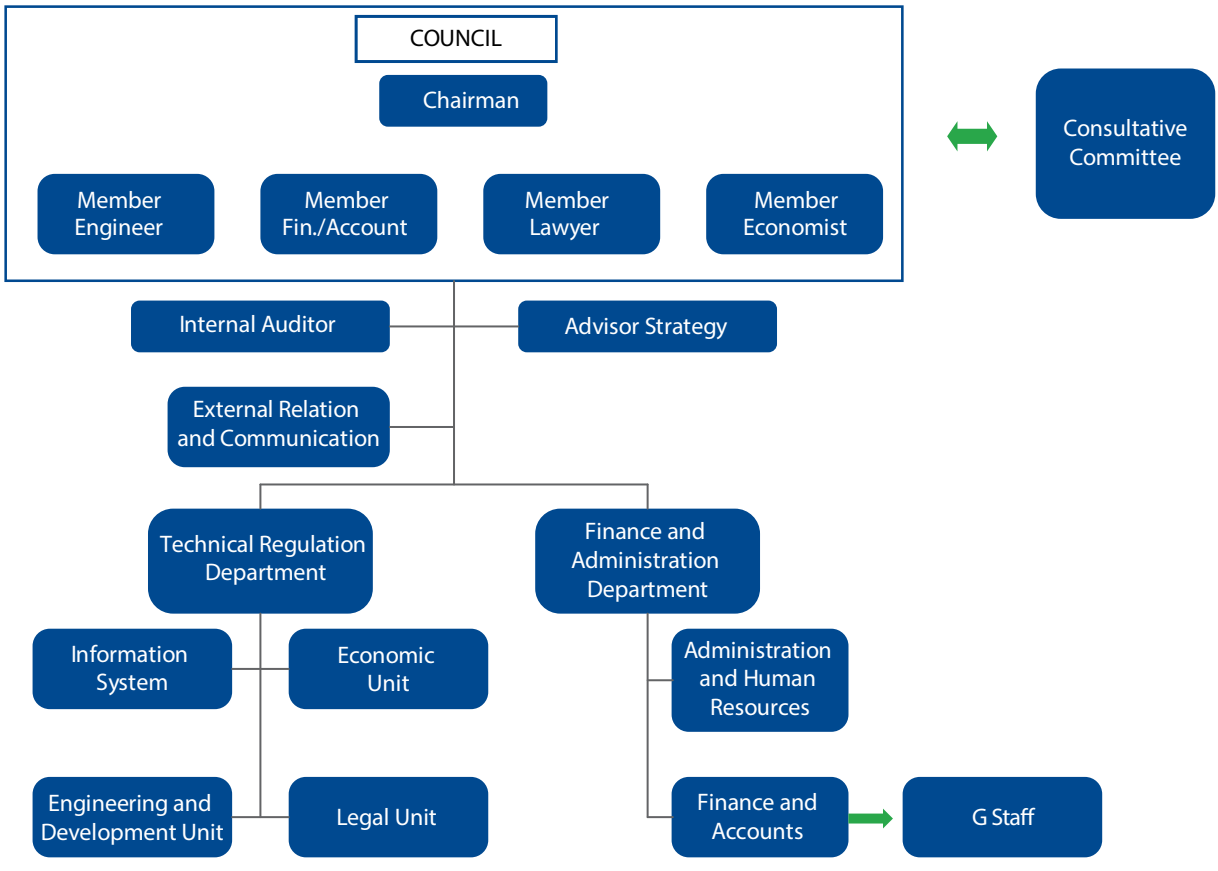


Figure 6: The ECOWAS Regional Electricity Regulatory Authority (ERERA)-Organizational Structure-Medium Term

Budget

An annual budget of expenditures for the next fiscal year and an estimate for an additional two years is prepared. The proposed budget shall be submitted to the Executive Board not less than two weeks prior to the meeting at which the budget is to be considered for approval.

All Members will be subject to a monthly assessment to recover monthly costs associated with the performance of the functions of the WAPP Organization as assigned by the Executive Board. The monthly assessment will be charged to Members per the assessment formula outlined below.

A = [0.25(1/N) + 0.75(B/C)] X
Where: A = Member's share of WAPP assessment
N = Total number of Members
B = Energy sold for the previous year
C = Total of factor B for all Members
X = Monthly Costs

Major Governing Documents of ERERA is given in the Fig.7 below.

Major Governing Documents of ERERA

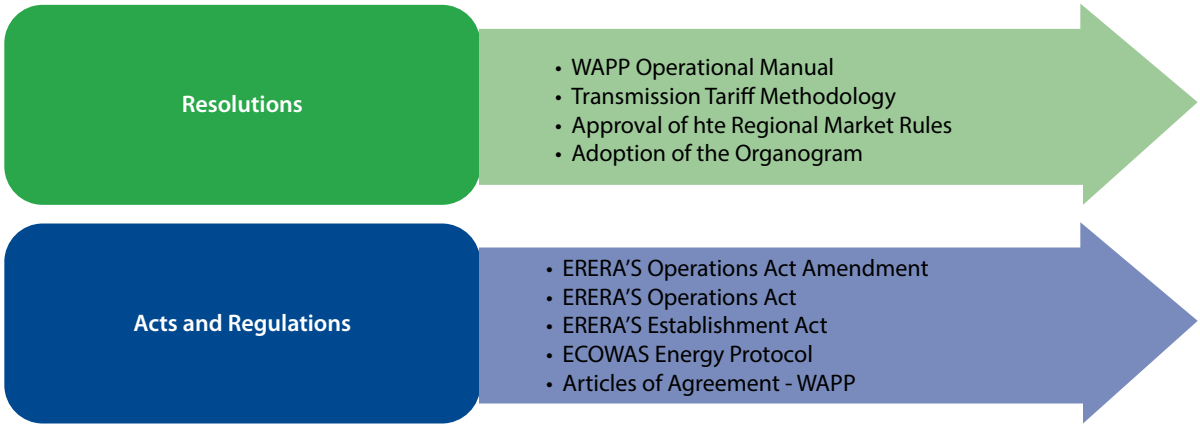


Figure 7: Major Governing Documents of ERERA

- **WAPP Market Rules:** Establish and govern an efficient, competitive, transparent and reliable market for the sale and purchase of wholesale electricity and Ancillary Services in the region and to ensure that the Operation Manual and the Regional Market Rule work together to secure efficient coordination and adequate participation.
- **WAPP Operational Manual:** Facilitates all the interconnected power systems of WAPP to operate the inter-connected Western African network efficiently and effectively and that they participate equitably in the obligations and in the benefits resulting from the Interconnection. All interconnected utilities in WAPP shall comply with the contents of operation manual document.
- **Articles of Agreement:** This institutes a management structure for WAPP and functions, in order to establish a good framework of cooperation between its Members.
- **ECOWAS Energy Protocol:** In order to promote long-term co-operation in the energy field, this Protocol establishes a legal framework based on complementarities and mutual benefits, with a view to achieving increased investment in the energy sector, and increased energy trade in the West Africa region.
- **Transmission Tariff Methodology:** The Transmission Tariff methodology of WAPP shall be used by the Regional System and Market Operator to develop model for calculation of transmission prices. It shall govern transmission pricing between parties involved in cross-border power exchange transactions in the regional electricity market. It defines Wheeling charges design, Transmission Pricing Principles; Cost recovery, the fundamental steps for calculating regional bilateral trade within ECOWAS.

2.5 Regional Electricity Regulators Association of Southern Africa (RERA)

Regional Electricity Regulators Association of Southern Africa (RERA) is a formal association of independent electricity regulators whose establishment was approved by the Southern African Development Community (SADC) Ministers responsible for Energy in Maseru, Lesotho on July 2002. SADC was created in 1992 by the SADC Treaty and Declaration following a decision by Heads of Member States (MS) to transform the regional group from a coordinating conference to a development community. It comprises fifteen Member States[34]. With eight areas of co-operation aimed at achieving political and economic integration of SADC Member States, the Directorate for Infrastructure and Services, in addition to four other sectors, is responsible for energy integration. REAR provides a platform for effective co-operation between independent electricity regulators within the SADC region. The key milestones of Regional Electricity Regulators Association of Southern Africa (RERA) is given in the Table 9 below.

Table 9: Regional Electricity Regulators Association of Southern Africa (RERA)-Key Milestones

Year	Key milestones
1991-92	Regional drought of once-in-a-century severity; tripartite agreement for wheeling of power from DRC to Zimbabwe through Zambia
1992	SADCC reconstituted as SADC
1995	Formation of the Southern African Power Pool (SAPP); initial focus on trading of excess generation capacity available in the region based on ongoing transmission projects
1998	New HCB-Eskom tariff agreement and resumption of electricity exports to South Africa
2000	SAPP Coordination Centre is established in Harare
2001	Short Term Energy Market commences operation
2002	Regional Electricity Regulatory Association of Southern Africa (RERA) is established (Secretariat is located in Namibia)
2005	RERA secretariat becomes functional
2007	Emergence of regional shortage of generation capacity
2008	Emergency plans launched to deal with regional shortage
2009	Day-Ahead Market due to commence operations
2010	MoU between RERA and African Forum for Utility Regulators

SADC's objectives are to provide economic integration of Member States through collective self-reliance and the interdependence of Member States and complementarity. In 1996, the SADC Energy Protocol was promulgated providing a broad framework for SADC Energy Sector Action Plan. The Protocol seeks to harmonise national and regional energy policies and facilitate co-operation in the development of energy pooling to ensure security and reliability of supply, and minimisation of cost amongst Member States. In furtherance of its economic integration in the energy sector, SADC established subsidiary bodies to implement the energy infrastructure programmes namely the Southern African Power Pool (SAPP) and RERA.[35]

[34] SADC countries: DR Congo*, Tanzania, Angola, Zambia, Malawi, Namibia, Zimbabwe, Botswana*, Swaziland *, South Africa, Lesotho, Madagascar *, Mozambique, Mauritius *, Seychelles*.Out of 15, 9 are members of RERA. Those marked with * do not either have regulatory authorities or are not members

[35] RERA & its regional initiatives on energy regulation and security of supply, June 2011

SADC which is aimed at increased energy supply and consumption has put in place a number of legal and policy frameworks through the adoption of instruments such as protocol, policy and strategy guidelines, regulatory frameworks, and technical standards to facilitate infrastructure development in the region. These include the SADC Energy Protocol, SADC Energy Sector Action Plan, Southern African Power Pool (SAPP) and the Regional Electricity Regulators Association of Southern Africa (RERA). RERA under the overall institutional structure of SADC is presented in the Fig.8 below.

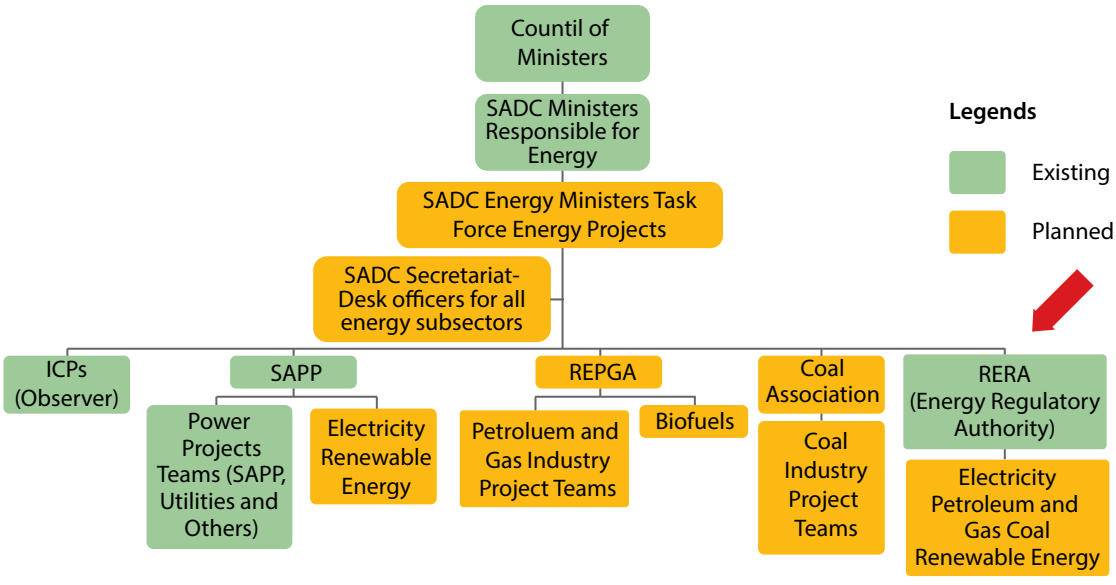


Figure 8: RERA under the overall institutional structure of SADC[36]

While SAPP considers the electricity infrastructure inter-state relations, RERA seeks to facilitate capacity building among Member States to harmonise electricity supply industry policy and legislation for energy integration; and to provide a platform for the deliberations on issues pertaining to the economic efficiency of such integration.

RERA Objectives

The primary objective of RERA is to ensure that efficient cross-border deals are not constrained by unclear or complicated processes for making regulatory decisions. The operational objectives can broadly be classified across:

- Capacity building and information sharing among the regional members, primarily on aspects of cross-border electricity trading.
- Facilitation of Electricity sector integration policies, legislations and regulations.
- Regional regulatory cooperation among the countries in the Southern African region.

RERA's mission is 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.[37] 12/15 SADC countries have energy/electricity regulators out of which 10 are Members[38] of RERA. ORE of Madagascar & Energy Commission of

[36] Source-http://www.afsec-africa.org/Portals/15/Documents/2017/April/2.5%20MN-%20AFSEC%20presentation%2027%20March%202017%20Johannesburg%20%281%29.pdf

[37] http://www.afsec-africa.org/Portals/15/Documents/2017/April/2.5%20MN-%20AFSEC%20presentation%2027%20March%202017%20Johannesburg%20%281%29.pdf

[38] RERA Membership are 1) Angola-Institute for Electricity and Water Services Regulation (IRSEA) 2) Lesotho-Lesotho Electricity and Water Authority (LEWA) 3) Malawi-Malawi Energy Regulatory Authority (MERA) 4) Mozambique-National Electricity Advisory Council (CNELEC) 5) Namibia-Electricity Control Board (ECB) 6) South Africa-National Energy Regulator of South Africa (NERSA) 7) Swaziland–Swaziland Energy Regulatory Authority (SERA) 8) Tanzania-Energy & Water Utilities Regulatory Authority (EWURA) 9) Zambia-Energy Regulation Board (ERB) 10) Zimbabwe-Zimbabwe Energy Regulatory Authority (ZERA)

Seychelles are not yet Members of RERA. Out of 12, 3 are electricity regulators, 6 are energy regulators & 3 are multi sector (energy/water) regulators. Remaining 3 countries (Botswana, the DRC & Mauritius) are at various sector reform stages. Similar to the SAR, the South African region also had bilateral electricity arrangements even before the formation of RERA. With the establishment of RERA, the focus has been to constitute an integration South African power network with necessary impacts through regulatory interventions. As a result, the RERA has developed 9 regulatory guidelines for regulating cross-border power trading in SADC region.

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

A Snapshot of Regional Electricity Regulators Association of Southern Africa (RERA) is provided in Table 10 below.

Table 10: Regional Electricity Regulators Association of Southern Africa (RERA)-A Snapsot

Regional Electricity Regulators Association of Southern Africa (RERA)	
Historical Evolution	The Regional Electricity Regulators Association of Southern Africa (RERA) was established by the Southern African Development Community (SADC) as a formal association of electricity regulators in July 2002, more particularly in terms of the SADC Protocol on Energy (1996) and of the SADC Energy Cooperation Policy and Strategy (1996)
Aims and Objectives	Cooperation on regulatory and contractual aspects through common set of regulatory guidelines
Members	▪ Electricity Control Board of Namibia ▪ Energy and Water Utilities Regulatory Authority of Tanzania ▪ Energy Regulation Board of Zambia ▪ Institute for Electricity Regulation of Angola ▪ Lesotho Electricity Authority ▪ National Electricity Council of Malawi ▪ National Energy Regulator of South Africa ▪ Zimbabwe Electricity Regulatory Commission
Key Focus Area(s)/ Activities	RERA has developed regulatory guidelines for cross-border power trading in SADC region. The regulatory guidelines have covered issues related to powers and duties of the regional regulatory in cross-border trade, framework to ensure compatibility in decision making, particularly covering the followings aspects: ▪ Operating agreements between member countries and other agreements for regional system operations and control area services; ▪ Transmission pricing; ▪ Operation of balancing markets; ▪ Provision of ancillary services; ▪ and implementation of grid codes; and Procedures and information requirements for evaluating the physical effects of major new transmission and generation facilities on the operation of the interconnected regional grid

RRERA had also signed a MoU with the African Forum of Utility Regulators for cooperation towards developing an African power market. Both entities complement each other's work with a common aim to integrate the electricity network of the African countries.

2.6 Brief comparison of Organizational Structure and operational aspects of international regulatory forums

Based on the review and analysis of the previous section, a Brief comparison of organizational Structure and operational aspects of international regulatory forums/associations/bodies is provided in the Table-11 below.

Table 11: Comparison of Organizational Structure and operational aspects of international regulatory forums

	ACER	ERERA	RPTCC	ERRA
Organizational Structure– Roles and Functions	Three part structure which includes: ▪ The Board of Regulators: in charge of the regulatory policy of the Agency ▪ Administrative Board: in charge of governance and budgetary aspects ▪ The Board of Appeal: treats appeals against Agency decisions	ERERA is governed by a decision-making and managerial body called the Regulatory Council. consists of three member, headed by the Chairman with two other members The support structure is currently made up of two units: ▪ A Technical Unit which deals with the regulatory activities and; ▪ A Human Resources, Administration and Finances Unit	▪ The Focal Group (FG) was established to coordinate implementation activities in each GMS country ▪ The committee has two working groups: ▪ Working Group on Performance Standards and Grid Code ▪ Working Group on Regulatory Issues	▪ Board of 3 Council Members, one of whom is Chairman. They are appointed for a single non-renewable term of five years by the ECOWAS Council of Ministers ▪ Various committees includes ▪ Licensing/Competition Committee ▪ Legal Regulation Working Group ▪ Tariff/Pricing Committee
Operational Aspects	▪ Administrative Board is expected to meet 4 times and the Board of Regulators 10 times ▪ Communicating with the general public directly and through the media ▪ The Agency organises an Annual Conference for all stakeholders ▪ Market Monitoring Report ▪ Internal communication through Internal newsletter, Lunch-time presentations, intranet	▪ ERERA, through its pool of experts, undertakes multiple studies to enable an integrated regional electricity markets	▪ FG and PWG are comprised of representatives of national governments and utilities	▪ ERRA's members engage in high level technical discussions in committees and working groups ▪ These exchanges result in meaningful suggestions for altering regulatory practices, impacting national and regional energy markets ▪ It is through this interaction and development of trust among regulators that solutions are jointly explored

3 Experience of Multilateral Forums in the South Asian Region

This section gives the overview about various forums which are associated with South Asian Countries such as SAFIR, SAARC, and BIMSTEC etc. The key aspects for each forum are detailed below:

3.1 South Asian Forum for Infrastructure Regulation (SAFIR)

SAFIR is an association of infrastructure regulators from India, Nepal, Bhutan, Pakistan, Sri Lanka and Bangladesh which was established in May 1999. The Forum plays a key role in disseminating knowledge and best practices among infrastructure regulatory institutions in South Asia. The secretarial service to SAFIR is provided by Central Electricity Regulatory Commission (CERC), central electricity regulator of India. The Table 12 below provides a snap shot of South Asian Forum for Infrastructure Regulation (SAFIR).

Table 12 South Asian Forum for Infrastructure Regulation (SAFIR)-A Snapshot

South Asian Forum For Infrastructure Regulation (SAFIR)	
Evolution	SAFIR was set up in May 1999 with support of World Bank to provide capacity building and training on infrastructure regulation and related topics in the region and to stimulate research on the subject by building a network of regional and international institutions and individuals active in the field.
Aims and Objectives	▪ Provide a platform for experience sharing amongst the regulators of the region ▪ Build regulatory decision-making and response capacity in South Asia ▪ Facilitate the regulatory process ▪ Conduct training programmes to serve regulatory agencies and other stakeholders ▪ Spur research on regulatory issues ▪ Provide a databank of information relating to regulatory reform processes and experience ▪ Encourage the rapid implementation of global best practices
Member countries	India, Nepal, Bhutan, Pakistan, Sri Lanka and Bangladesh
Organizational Structure – Roles and Functions	▪ Strategic direction provided by Steering Committee. This is composed of all members. [39] ▪ The Executive Committee of SAFIR holds the responsibility for operationalising the strategic direction provided by the SAFIR Steering Committee. The current members of the Executive Committee are from India, Pakistan, Nepal, Bhutan and Sri Lanka. ▪ Virtual Working Groups from amongst the representatives of the Member organizations, to discuss issues of importance in infrastructure sector.

Contd...

[39] **Bhutan:** Bhutan Electricity Authority; **Bangladesh:** Bangladesh Energy Regulatory Commission
India- electricity regulators: Central Electricity Regulatory Commission; Electricity Regulatory Commission of Indian states of Andhra Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal; Joint Electricity Regulatory Commission for Union Territories.
India-other infrastructure/energy sector bodies: Administrative Staff College of India, Indian Institute of Management, Bangalore, Petroleum and Natural Gas Regulatory Board, Tariff Authority for Major Ports, CUTS Institute for Regulation, NTPC Ltd., National Hydro Power Corporation, Tehri Hydro Development Corporation, Central Power Research Institute, World Institute of Sustainable Energy
Nepal: Electricity Tariff Fixation Commission, Water Supply Tariff Fixation Commission; **Sri Lanka:** Public Utilities Commission of Sri Lanka, Telecommunications Regulatory Commission of Sri Lanka
Pakistan: Oil and Gas Regulatory Authority, Sui Southern Gas Company Ltd., Pakistan State Oil Co. Ltd., National Electric Power Regulatory Authority

South Asian Forum For Infrastructure Regulation (SAFIR)	
Key Focus Area(s) / Activities	▪ Conducts **flagship core course and capacity building programmes** in the electricity, natural gas, telecommunications, water, transport and other sectors. The core course delivers practical lessons on the regulation and restructuring of infrastructure from within and outside the region. It also provides an ideal opportunity for participants to exchange their own experiences. ▪ Organises **Infrastructure Conference** every year to present the vibrant and evolving policy and regulatory framework in South Asia.[40] It is addressed by key Policy Makers, Regulators and Investors and aims to facilitate a constructive dialogue among all stakeholders to further strengthen regulatory framework and promote investments in the infrastructure sector. It provides an opportunity to investors and business community to understand the emerging investment opportunities/projects on offer in member countries of South Asia. ▪ Conducts in-house research as well as studies by engaging external agencies.
Operational Aspects	▪ The Steering Committee Meeting (SCM) and the Executive Committee Meeting (ECM) of the SAFIR members are also held once a year. ▪ An Annual General Meeting (AGM) of the SAFIR members is held in the form of an annual SAFIR conference. It is normally held back-to-back with the SCM/ECM. In the AGM, views of all members are sought on the functioning, role, and future directions of SAFIR. Also, general trends in the reforms process and key challenges to be addressed are discussed. ▪ Secretariat support/Administrative function provided by CERC, India. ▪ [41]Circulating a regular newsletter and utilizes web-based resources. ▪ Budget: Supported by PPIAF till 2008.[42] Funded by voluntary contribution budgets by country governments.[43]

Key focus of SAFIR is the flagship course on policy and regulatory framework offered every year for regulators/utilities and other stakeholders in infrastructure segment.

3.2 South Asian Association for Regional Cooperation (SAARC)

SAARC is the most populous regional grouping in the world which accounts for more than 20% of world population. It is formed as a regional organization of all the countries of South Asia viz., Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka for cooperation in economic, social and technical aspects to promote welfare of the people in the region and to provide a platform for the people of SAR to work together in a spirit of friendship, trust and understanding. It was established on 8 December 1985 with the signing of SAARC charter. The SAARC charter details its objectives, principles and various committees, their roles and functions. Afghanistan is the recent inclusion in SAARC (on 3 April 2007).

Objectives of SAARC[44]

The objectives of SAARC are:

- To promote the welfare of the peoples of South Asia and to improve their quality of life;
- To accelerate economic growth, social progress and cultural development in the region and to provide all individuals the opportunity to live in dignity and to realise their full potentials;
- To promote and strengthen collective self-reliance among the countries of South Asia;

[40] RFP for Engagement of Staff Consultants by SAFIR dated 6 November 2015
[41] http://siteresources.worldbank.org/IDA/Resources/PSDWBGEXT.pdf
[42] Key details about South Asia Forum For Infrastructure Regulation (SAFIR)
[43] MOM of Round Table on catalyzing CBET in South Asia dated 05th August 2015
[44] SAARC Charter, 1985

- To contribute to mutual trust, understanding and appreciation of one another's problems;
- To promote active collaboration and mutual assistance in the economic, social, cultural, technical and scientific fields;
- To strengthen cooperation with other developing countries;
- To strengthen cooperation among themselves in international forums on matters of common interests; and
- To cooperate with international and regional organisations with similar aims and purposes

3.2.1. Organizational Structure

Organizational Structure (Figure 9), Hierarchy in terms of committees and their roles and responsibilities in SAARC are mentioned below:[45]

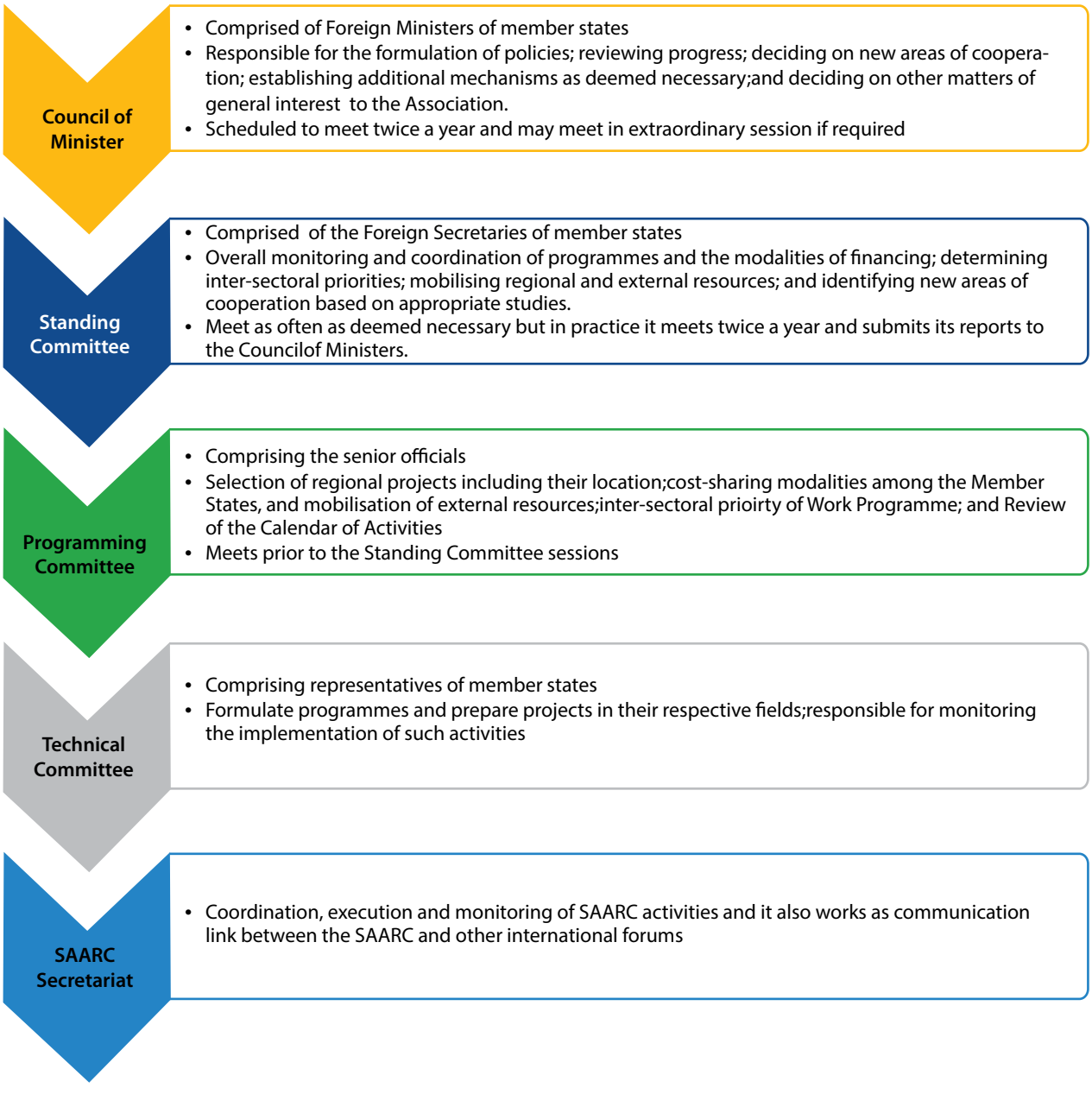


Figure 9: Organizational Structure of SAARC

[45] http://saarc-sec.org/Council-of-Ministers/53/; http://saarc-sec.org/Standing-Committee/54/

Apart from the above roles and responsibilities, Working Groups[46] are created for formulating and overseeing programmes and activities to strengthen and promote regional cooperation in their respective areas. Further, the SAARC Secretariat is supported by many regional centres which are established in different Member States with focus on an area of cooperation. Key Areas of cooperation (Table 13) are listed below:

Table 13 Key Sector of SAARC

Agriculture & Rural Development	Energy	People-to-People Contacts	Tourism
Biotechnology	Environment	Poverty Alleviation	Education
Culture	Finance	Science & Technology	Information, Communication & Media
Economic & Trade	Funding Mechanism	Security Aspects	Social Development

Financial Arrangements in SAARC[47]

- Member states make provision in their respective national budgets, for financing activities and programmes under the SAARC framework including contributions to the Secretariat budget and that of the regional institutions. Thus, the financial provision made is announced annually at the meeting of the Standing Committee.
- The annual budget for both capital as well as recurrent expenditure of the Secretariat is shared by Member States on the basis of an agreed formula.
- According to an agreed formula, **a minimum of 40% of the institutional cost of regional institutions is borne by the respective host government and the balance is shared by all Member States.** Capital expenditure of regional institutions which includes physical infrastructure, furnishing, machines, equipment etc., is normally borne by the respective host government. Programme expenditure of regional institutions is also shared by Member States, according to the agreed formula.
- In the case of activities under the approved Calendar, the local expenses including hospitality, within agreed limits, are borne by the host Government, while the cost of air travel is met by the sending Government.

3.2.2. Cooperation on Electricity Sector in SAARC[48]

The focus on energy sector by SAARC started with the formation of Technical Committee on Energy in 2000. A Working Group of Energy was formed in January 2004. SAARC Energy Center was established in 2006 at Islamabad, Pakistan. The primary objective for the establishment of the Centre was to have a regional institution of excellence for the initiation, coordination and facilitation of SAARC programs in energy. It is managed by Governing Board comprising representatives from all the member States.[49] Key Milestones meetings / activities on energy till 2010 in SAARC are provided in Figure 10 below.

[46] http://saarc-sec.org/Working-Groups/77/

[47] http://training.itcilo.it/actrav_cdrom1/english/global/blokit/saarc.htm

[48] http://saarc-sec.org/areaofcooperation/cat-detail.php?cat_id=55

[49] http://www.saarcenergy.org/AboutUs/GoverningBoard.aspx

January 2000

- Process of regional cooperation in energy sector began with formation of Technical committee on energy

January 2004

- 12th SAARC summit Special Working Group formed; Conducted a study on creating a South Asian Energy Cooperation and proposed the concept of an Energy Ring (SENERING}

October/November 2005

- First Meeting of the SAARC Energy Ministers
- Expert Group formed to deliberate on options and potential of energy conservation and energy efficiency measures; formulated a Road Map for implementation
- 13th' SAARC summit decided to establish the SAARC Energy Centre

2006

- SAARC Energy Center established in 2006 at Islamabad with key objectives [a] to promote development of energy resources, Including hydropower and energy trade in the region;(b) to develop renewable and alternative energy resources; and (c) promote energy efficiency and conservation in the region

January 2009

- Third Energy Ministers Meeting
- Energy Ring concept, developed by Expert group, approved by Energy Ministers

April 2009

- 5'"Working Group Meeting in Bhutan
- Decided to establish Experts Group on (a) Oil and Gas, (b) Electricity,(c) Renewable Energy and, (d) Technology/knowledge sharing (including energy efficiency coal etc.).
- Expert Group prepares ground work for energy cooperation In the specific Energy commodity

March-April 2010

- SAARC Regional Energy Trade Study [SRETS], recommended signing of Inter Governmental agreement
- Road map for developing SAARC Market for Electricity (SAME)

November 2014

- SAARC Inter-governmental Framework Agreement for Energy Cooperation (Electricity) signed

December 2014 & February 2016

- First two meetings of energy regulators in SAR
- Idea of forum of energy regulatory authorities floated

Figure 10 Cooperation on Electricity/Energy Sector in SAARC-Key Milestones

3.2.3. SAARC Inter-governmental Framework Agreement for Energy Cooperation (Electricity)

During the 15th SAARC Summit in 2008, it was discussed to develop the regional hydroelectricity potential, grid connectivity and gas pipelines. Consequently, the Working Group on Energy in its meeting in 2009 proposed 'Regional Inter-Governmental Framework Agreement' and included other thermal energy sources within the ambit of energy sources. A Draft Framework Agreement was circulated in a SAARC workshop in January 2011. The Working Group on Energy, in its seventh meeting held in March 2013, called upon the SAARC Secretariat to give the Draft Agreement a legal shape. Then, it was discussed during the third meeting of the Expert Group on Electricity held in December 2013. This milestone agreement was finally signed in November 2014. The key articles of the agreement[50] are:

- Articles 7 & 8 enable the transmission planning agencies of the Member States to plan the **cross-border grid interconnections** as well as to build, own, operate and maintain such system within national boundaries.
- Articles 9 to 14 mention about multiple **commercial and operational aspects** impacting CBET like Transmission Service Agreements, Electricity Grid Protection System, System Operation and Settlement Mechanism, transmission access etc.
- Article 14 refers to Knowledge Sharing and Joint Research in various aspects of power sector. Article 15 indicates **development of structure, functions and institutional mechanisms to resolve regulatory issues** related to electricity exchange and trade.
- 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.

3.2.4. Meeting of Energy Regulators of SAARC Member States

SAARC energy ministers, senior officials and expert groups meet periodically to discuss the issue of regional energy cooperation. It is felt that meetings and interactions among the policy makers and experts are not sufficient in this connection. In order to effectively materialize the issue of regional cooperation, interactions and dialogues have to be established among the stakeholders of the sector including the regulators in the Member States. It was proposed in SAARC Energy Ministers Meeting in September 2011 that SAARC energy regulators should meet periodically in line with meetings of ministers/senior officials and other energy related groups/committees under the SAARC framework.

It was decided to have a Meeting of Energy Regulators/Bodies in SAARC member states during the 5th meeting of SAARC Energy Ministers in October 2014 and the first meeting took place in December 2014 in Bangladesh.

The Meeting agreed for promotion of CBET, knowledge sharing among the energy regulators of the Member States, harmonizing legal, policy and regulatory frameworks and discussed the possibility of establishing a Regional Forum of energy regulatory authorities. Following are the plan of action discussed with regard to creation of Regional Energy forum in SAARC.[51]

- All National Regulatory Authorities (NRA) to designate one senior officer as focal point and share the contact details to the Secretariat
- NRA to communicate with each other in electronic format through designated focal point only

[50] SAARC Framework Agreement For Energy Cooperation (Electricity)

[51] http://www.dhakatribune.com/bangladesh/2014/dec/23/plan-made-form-saarc-energy-regulatory-authority

- Member States encouraged to harmonize the following with the help of Secretariat for facilitating CBET
  - Regulations, Codes and Standards
  - Tariff Determination Principles at the bilateral/trilateral/sub-regional level
- All NRAs to meet regularly, on a voluntary basis, under the banner "Council of SAARC Energy Regulators" to monitor and review the actions as described in the Plan of Action.

Subsequently, in the recent second meeting of energy regulators held in Colombo during 8-11 February 2016, it was discussed to set up a regional body "Regional Energy Regulatory Authority" or a "forum of energy regulatory authorities". This was envisaged to oversee the harmonization/coordination of regulation, codes and standards for the electricity grid, tariff determination principles and dispute resolution.[52–53] Most of the declarations in the first meeting of regulators were reiterated here. During the meeting, based on the invitation received from SAARC Secretariat, Nepal, SARI/EI Delegation comprising of Mr. V. K. Kharbanda, Project Director, SARI/EI/IRADE and Mr. Rajiv Ratna Panda, Head-Technical, SARI/EI/IRADE participated in the Second Meeting of SAARC Energy Regulators and presented the Key Findings of the SARI/EI Study on a) Harmonization of Grid Codes, Operating Procedures, Standards for promoting Cross-border Electricity Trade (CBET) in South Asia Region and b) Regional Regulatory Guidelines (RRGs) .

3.3 Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is a regional organization comprising seven Member States lying in the littoral and adjacent areas of the Bay of Bengal viz., Bangladesh, India, Myanmar, Sri Lanka, Thailand, Bhutan and Nepal. This organization came into being on 6th June 1997 through the Bangkok Declaration. BIMSTEC is home to around 1.5 billion people (~22% of the global population) with a combined GDP of 2.7 trillion USD. BIMSTEC Member States has maintained an average 6.5% economic growth in last five years.[54] A snap shot of Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is provided in the Table14.

3.3.1. Objectives of BIMSTEC

The objectives of BIMSTEC are:

- To create an enabling environment for rapid economic development through identification and implementation of specific cooperation projects in the sectors of trade, investment and industry, technology, human resource development, tourism, agriculture, energy, and infrastructure and transportation.
- To accelerate the economic growth and social progress in the sub-region through joint endeavours in a spirit of equality and partnership.
- To promote active collaboration and mutual assistance on matters of common interest in the economic, social, technical and scientific fields.
- To provide assistance to each other in the form of training and research facilities in the educational, professional and technical spheres.
- To cooperate more effectively in joint efforts that are supportive of and complementary to national development plans of Member States which result in tangible benefits to the people in raising their living standards, including generating employment and improving transportation and communication infrastructure.

[52] http://www.economynext.com/news_details_print.php?id=4197

[53] http://www.news.lk/news/business/item/12170-saarc-energy-regulators-to-establish-a-regional-regulatory-body

[54] http://www.bimstec.org/index.php?page=overview

- To maintain close and beneficial cooperation with existing international and regional organizations with similar aims and purposes.
- To cooperate in projects that can be dealt with most productively on a sub-regional basis and make best use of available synergies among BIMSTEC member countries.

3.3.2. Policy Making Bodies & Operational Bodies[55]

BIMSTEC- Organizational Structure (Figure 11) and Roles and Functions of Bodies/Committees are explained below.

- **BIMSETC Summit:** This is the highest policy making body. As per 6th BIMSTEC Ministerial Meeting held in Thailand in Feb 2004, the Summit should be held every two years, as possible. However, till date 3 summits have been held.
- **Ministerial Meeting:** Ministerial Meetings cover the area of foreign affairs and the area of trade and economic affairs (TEMM). Ministerial Meetings determine the overall policy and as recommendations for the BIMSETC Summit. It is represented by the Foreign Secretaries of the Member States. TEMM monitors the progress in the Trade and Investment Sector as well as the BIMSTEC Free Trade Agreement (FTA) policy. TEMM is composed of the Trade/ Economic Ministers of the Member States and assisted by Senior Trade/Economic Officials Meeting.
- **Senior Officials' Meeting:** This is divided into the areas of trade and economic affairs (STEOM) and foreign affairs (SOM). Permanent secretaries of trade and economic affairs, and that of foreign affairs are delegated to the respective forum.
  - **SOM:** SOM precedes the Ministerial Meetings and is represented by the Senior Officials of the Foreign Ministries of the Member States at the Foreign Secretary Level. A representative from the Ministry of Commerce/Trade is also inducted in the delegation. SOM helps Ministerial Meetings in monitoring and providing overall direction to the BIMSTEC activities. Till date 16 SOMs have been held.
  - **STEOM:** STEOM precedes TEMM and reports to TEMM. This is comprised of Senior Officials of the Trade/Commerce Ministry of the Member States and representative from Ministry of Foreign Affairs. There are couple of forums that allow active participation of the private sector under STEOM.
- **BIMSTEC Working Group (BWG):** BWG reports to the Senior Officials Meeting (SOM). The Meeting is held about monthly to review the progress of and ensure coordination among different activities. BWG Meetings are held in the BIMSTEC Secretariat, Dhaka chaired by Nepal.
- **Expert Group Meeting:** Lead countries of priority sectors of cooperation and sub-sectors are required to host expert group meetings of their responsible sectors regularly and report the result to the BWG via respective Embassies to Thailand. The result will then be further reported to the SOM.

[55] http://www.bimstec.org/index.php?page=bimstec-mechanism

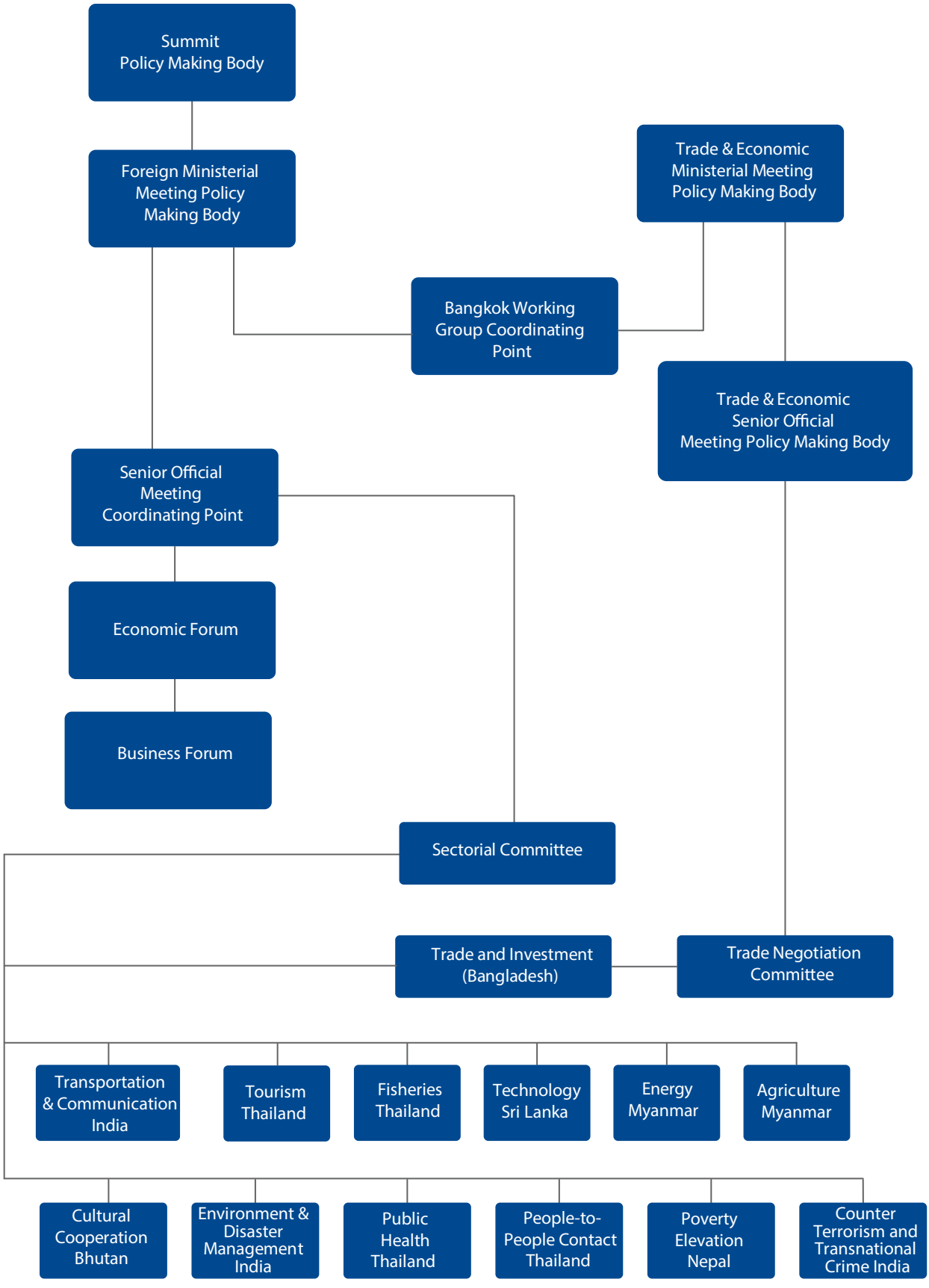


Figure 11: BIMSTEC- Organizational Structure - Roles and Functions of Bodies/Committees

Table 14 Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) - A Snapshot

Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)	
Historical Evolution	This was established on 6th June 1997 through the Bangkok Declaration. Initially, the economic bloc was formed with four Member States with the acronym BIST-EC. Following the inclusion of Myanmar on 22nd December 1997 during a special Ministerial Meeting in Bangkok, the Group was renamed 'BIMST-EC'. With the admission of Nepal and Bhutan at the 6th Ministerial Meeting (February 2004, Thailand), the name of the grouping was changed to BIMSTEC
Objectives	To harness shared and accelerated growth through mutual cooperation in different areas of common interests by mitigating the onslaught of globalization and by utilizing regional resources and geographical advantages
Key Members	Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thailand
Organizational Structure	As described in the schematic above
Key Focus Areas	Priority areas where a member country takes lead ▪ Bangladesh - Trade and Investment ▪ India - Transport and Communication, Counter-Terrorism and Transnational Crime, Environment and Natural Disaster Management ▪ Myanmar - Agriculture, **Energy** ▪ Sri Lanka - Technology ▪ Thailand - Public Health, People-to-People contact, Tourism, Fisheries ▪ Nepal - Poverty Alleviation ▪ Bhutan - Culture
Operational Aspects	▪ Annual Ministerial Meetings, to be hosted by the Member States on the basis of alphabetical rotation. ▪ SOMs, to meet on a regular basis as and when required. Other Working Groups, technical committees to meet as required. ▪ Permanent Secretariat to be established in Dhaka with first Secretary General to be nominated by Sri Lanka.

3.3.4. Activities on Energy Cooperation

BIMSTEC Energy Centre (BEC)

This has been proposed in Bengaluru to enhance cooperation, sharing of best practices, conduct feasibility studies and function as a secretariat for energy cooperation activities.

Objectives[56]

The objectives of BEC are:

- To create, manage and evaluate energy related data-base relevant to the region; and taking into view various on-going activities, suggest a road map for meaningful intra- BIMSTEC cooperation.
- To prepare and operationalize a framework for networking among the national level institutions in the region.
- To prepare the groundwork, such as feasibility studies, data collection etc., for intra- BIMSTEC energy related projects.
- To study, compile and disseminate the prevailing policies of the BIMSTEC member countries in different areas of energy sector.

[56] http://www.bimstecenergycentre.org/areas.html

- To enhance cooperation for capacity building and sharing of experiences on best practices, including reforms, regulation and energy efficiency.
- To function as the secretariat for energy cooperation activities.

Areas of Activity of BEC

- Research and Analysis of energy related statistics
- Grid inter-connections
- Transnational gas pipelines
- Hydro power
- Non-conventional sources of energy
- Efficient utilization of various energy resources and promotion of energy efficiency and conservation
- Promotion of energy trade in the region for enhancing energy security
- Investment promotion in both public and private in the energy sector

The Organization structure and operational aspects for BIMSTEC Energy Centre is provided in the figure12 below.

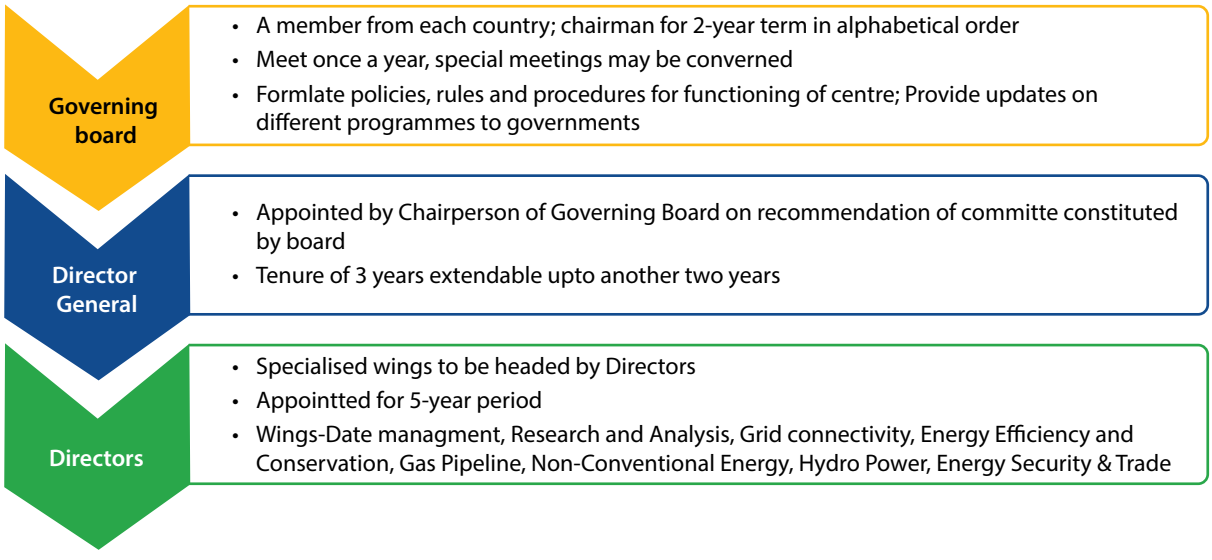


Figure 12: Organization structure and operational aspects for BIMSTEC Energy Centre[57]

3.3.5. Inter-Governmental Agreement on Grid Connectivity

The seven member states of BIMSTEC have the potential for generating around 260,000 megawatt of hydropower, which includes 150,000 MW by India, 40,000 MW by Myanmar, 30,000 MW by Bhutan and Nepal each, 500 MW by Bangladesh and Thailand each and 1,000 MW by Sri Lanka.[58] Regional integration and power exchange is expected to enhance energy security for all the member states. After extensive negotiations over a decade, the draft MOU for Memorandum of Understanding for Establishment of the BIMSTEC Grid Interconnection has recently been finalised. This MoU[59] will provide a broad framework for the Parties to cooperate towards the implementation of grid interconnections for the trade in electricity with a view to promoting rational and optimal power transmission in the BIMSTEC region. This MoU will facilitate:[60]

[57] http://www.bimstecenergycentre.org/governing_board.html
[58] http://www.thedailystar.net/frontpage/target-7-nation-power-grid-72027
[59] http://pib.nic.in/newsite/PrintRelease.aspx?relid=160976
[60] http://pib.nic.in/newsite/PrintRelease.aspx?relid=160976

(i) The optimization of using the energy resources in the region for mutual benefits on non-discriminatory basis subject to laws, rules and regulations of the respective Parties;

(ii) The promotion of efficient, economic, and secure operation of power system needed through the development of regional electricity networks;

(iii) The necessity of optimization of capital investment for generation capacity addition across the region; and

(iv) Power exchange through cross-border interconnections.

It is expected to pave the way for all member countries to buy and sell energy as per their necessity through private or public companies. The relevant BIMSTEC bodies will identify regional and sub-regional projects in the area of power generation, transmission and power trade, including hydropower, natural gas, solar, wind and bio-fuel, and implement them with top priority to meet the increasing demand for power in the region.

3.4 Bangladesh, Bhutan, India, Nepal (BBIN) Initiative

The idea of sub-regionalism within South Asia was floated in May 1996 during the SAARC Council of Ministers meeting with a growth triangle consisting of Northeast India, Bangladesh, Bhutan and Nepal. The idea got official endorsement during the 9th SAARC Summit in 1997.[61] However it was put on hold by the SAARC Standing Committee of Foreign Secretaries because sub-regionalism was thought as an obstacle to SAARC integration. Further, the first SAARC Transport Ministers meeting in New Delhi in 2007 deliberated on the "Report of the SAARC Regional Multimodal Transport Study prepared and funded by the ADB and recommended extending the SAARC Regional Multimodal Transport Study to include Afghanistan. Later, India circulated a draft Motor Vehicles Agreement and Railway Agreement to SAARC members before the 10th SAARC Summit.

The South Asia Sub-regional Economic Cooperation supported BBIN in providing technical and other support for enhancing interconnectivity between BBIN countries under the BIMSTEC and SAARC frameworks.

The priority for Member States had been identified as "connectivity", embodied by seamless electrical grids, shared access to road, rail, air and port infrastructure, and ease of travel. This is contemplated to ease the geopolitical constraints that have hindered the flow of people and goods through BBIN countries.[62] A BBIN Motor Vehicle Agreement (MVA) has been signed on 15 June 2015 at the BBIN Transport Ministers' meeting at Thimphu, Bhutan which allows motor vehicles to transport persons and cargo through member countries. A pilot implementation has already been completed in November 2015 with a cargo vehicle which traversed from Kolkata (India)– Dhaka (Bangladesh)– Agartala (India). Distance reduction achieved is approximately 900 kms and hence substantial cost savings can be achieved. The agreement will enhance connectivity and hence increased business opportunities between India's mainland and its less-developed Northeast region, and also easier connectivity among Bhutan, Bangladesh and Nepal. This is envisaged to create strategic trade partnerships and ultimately boost the regional economy. A Snapshot of Bangladesh, Bhutan, India, and Nepal (BBIN) Initiative is given in Table15 below.

[61] http://www.icwa.in/pdfs/PB/2014/BBINMVAPB09072015.pdf

[62] http://www.india-briefing.com/news/bbin-motor-vehicle-agreement-unlocks-northeast-india-10941.html/

Table 15 Bangladesh, Bhutan, India, Nepal (BBIN) Initiative-A Snapshot

Bangladesh, Bhutan, India, Nepal (BBIN) Initiative-A Snapshot	
Historical Evolution[63]	The group was formed after informal meetings that gradually developed into a consensus towards the need for sub-regional connectivity beyond bilateral agreements. It was given greater impetus following the failure of other regional cooperation mechanisms to deliver substantial change in trade, power and infrastructural linkages. The November 2014 SAARC summit held at Kathmandu saw widespread approval of a proposed land transport connectivity agreement by regional states, apart from the reservations of one country which caused the accord to fall through. However, the Summit declaration encouraged sub-regional initiatives in the effort to strive for greater regional connectivity. A framework for cooperation between four regional countries was subsequently realized.
Objectives	▪ Explore avenues of cooperation, exchange experiences, views and best practices across several sectors. ▪ Review data sharing arrangements for disaster mitigation and environmental forecasting. ▪ Strengthen transit facilitation measures such as shared border stations on key routes and harmonized customs procedures.
Key Members	Bangladesh, Bhutan, India and Nepal
Key Focus Areas	Transport, power and other infrastructure areas
Operational Aspects	It operates through Joint Working Groups (JWG) represented by each member state which discuss on formulation, implementation and review of quadrilateral agreements.

Meetings of Joint Working Groups (JWG)

The 2nd meeting of the JWGs on Sub-Regional Cooperation between BBIN on Water Resources Management and Power/Hydropower and on Connectivity and Transit were held in New Delhi in January 2015.

Two JWGs on (1) Water Resources Management and Power/Hydropower and (2) Connectivity and Transit reviewed the existing cooperation and took stock of the existing bilateral arrangements in respective areas. The JWG on Water Resources Management and Power/Hydropower discussed the scope for power trade and inter-grid connectivity between the four countries as well as potential for closer cooperation in future power projects. Key points discussed in this JWG meeting were as follows:

- Joint efforts to be made to explore harnessing of hydropower and power from other sources
- Exchange lists of future hydropower/power projects to be undertaken jointly involving at least three countries on equitable basis
- Exchange of experiences and best practices in other areas of power sector
- Data sharing for flood forecasting and ways of improving the same
- Exchanging best practices on basin-wide water resources management and its development[64]

The **3rd meeting of these JWGs** took place in Dhaka in January 2016. The JWG on Water Resources Management and Power/Hydropower carried forward earlier discussions on scope for power trade and inter-grid connectivity cooperation in future power projects and water resources management between the four countries. Specific hydropower projects under BBIN framework that could be concretized on equitable basis were discussed. It was decided that an Experts Group would be constituted for exchanging best practices in water resources management and on specifics of the identified projects, power trade, inter grid connectivity, flood forecasting and other areas of possible cooperation.[65]

[63] http://defenceforumindia.com/forum/threads/bbin-updates-and-discussion.68467/

[64] Joint Press Release 2nd Joint Working Group Meetings on Sub-Regional Cooperation –BBIN, New Delhi, Jan 30-31, 2015)

[65] Joint Press Release 3rdJoint Working Group Meetings on Sub-Regional Cooperation –BBIN, Dhaka, Jan 19-20, 2016

4 Proposed Regulatory Institutional Mechanism in SAR-South Asia Forum of Electricity/Energy Regulators (SAFER)

All regional/sub-regional groups in the region viz. SAARC, BBIN, BIMSTEC, support regional electricity sector cooperation, CBET, optimal utilization of generation resources, grid interconnections etc. The Member States in these groups signed government-level agreements for facilitating the above aspects. The natural extension of such agreement would be the establishment of a regional regulatory institutional mechanism which facilitates the above aspects. As mentioned in the previous section, 2nd SAARC energy regulators has already reiterated the requirement of "Regional Energy Regulatory Authority" to oversee the harmonization/coordination of regulation, codes and standards for the electricity grid, tariff determination principles etc. Key decision points to be considered for formation of such regulatory mechanism are mentioned below:

- What should be key roles and responsibilities?
- What should be the organizational structure?
- What would be operational aspects?
- What should be the institutional fitment?

The subsequent sections explore options to these queries utilizing the key learnings from international experience and regional context.

4.1 Key Objectives, Roles and Responsibilities

Taking cognizance of past studies on the subject and the regional and international experiences, the broad roles and responsibilities would include:

- *Providing inputs on policy and regulations*
- *Regulatory opinions and technical assistance*
- *Acting as a platform for cross-cutting deliberations across policy, regulatory, technical, legal and other aspects*
- *Acting as data bank/knowledge repository for relevant aspects on cross-border electricity trading*

RERA

RERA has developed regulatory guidelines for cross-border power trading in SADC region. The regulatory guidelines have covered issues related to powers and duties of the regional regulatory in cross-border trade, framework to ensure compatibility in decision making. The nine regulatory guidelines are:

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

The SAARC Inter-Governmental Framework Agreement for Energy Cooperation, signed on 27th November 2014 by the Foreign Ministers of the eight member states also provides a strong basis for ensuring consistency in approaches across some of the key parameters identified in the study.

The below sub-sections elaborate the key and supplementary roles and responsibilities that can be bestowed on the proposed forum.

4.1.1 Roles and Responsibilities

One of the primary tasks for the proposed regulatory agency would be to prepare a road map for CBET in SAR and promote cross cutting energy regulatory cooperation for developing regulation necessary for promoting cross-border electricity trade, integration of power systems and development regional power markets regional power/ market integration. To prepare this, it can access the existing technical and non-technical studies done by multiple organizations and can identify gaps in the regulatory aspects, knowledge gaps etc. for promoting cross-border electricity trade , integration of power systems and development regional power markets regional power/ market integration. It may be noted that this study may be performed even before formation of proposed regulatory agency/forum/association/ authority by the electricity/energy regulators of the SA countries in the region.

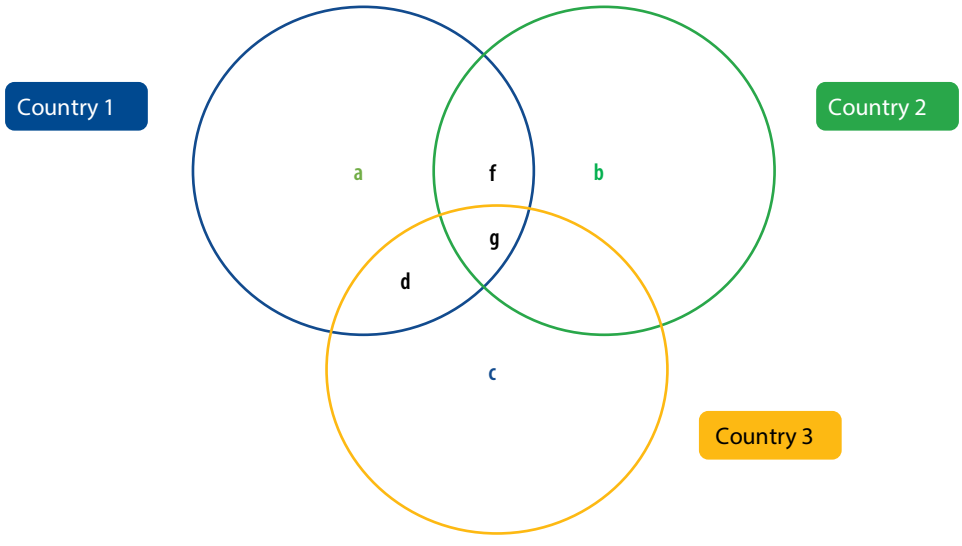


Figure 13: Possible electricity transactions in South Asian countries

The electricity trade transactions can be divided into following three categories in the context:

- All domestic electricity trade transactions (a,b,c) will continue to be mandated/ regulated as per prevailing domestic policy and regulatory regime of such country.
- CBET-bilateral transactions (India-Nepal, India-Bhutan, India-Bangladesh) between two countries (Fig.13) are currently governed as per mutual agreements between the member states (d,e,f) However, a uniform regulatory regime comprising of aspects such as scheduling, uniform balancing and settlement mechanism, dispute resolution can be helpful in medium to long term. Such mechanism can be evolved in the forum's discussions and it may be agreed on a voluntary basis to start with. Any new transactions can be taken up under the proposed regulatory agency's governing mechanism and the existing bilateral arrangements can continue in tandem. Based on experiences, all such transactions may be governed under this regulatory mechanism.
- Although a transaction among Bangladesh-India-Bhutan/Nepal is envisaged in future, no multilateral transactions (Fig.13) exist currently (g). The proposed regulatory agency would work towards developing regional policy and regulatory frameworks to facilitate multinational operations. Regulatory paradigm for such electricity trade arrangements may be addressed in the forum.

The extent of the proposed regulatory agency's operation would be directly dependent on the intensity of CBET within SAR. Since CBET is limited to bilateral trading currently, the agency has to be initiated as an enabler for broadening multilateral electricity related interactions in the region. International best practice demonstrates that coordinated policy and regulatory frameworks are essential to regional energy cooperation. Harmonizing legal, policy and regulatory frameworks with regards to licensing, tariff setting, wheeling, access to networks, market monitoring, enforcement of codes/standards and dispute resolution is required to promote CBET.

The proposed regulatory agency will act as a neutral, apolitical forum/platform for regulators and experts to assemble, brainstorm, strategize and recommend specific steps to address the multiple barriers to CBET.

Some of the key areas of focus (Table 16) for developing model regulations, commercial agreements and procedures for CBET transactions may include the following:

Table 16 The Key areas of focus, Role & Responsibility of Proposed Regulatory Institutional Mechanism in SAR-South Asia Forum of Electricity/Energy Regulators (SAFER)

S.no	Key Regulatory Requirements for CBET	Roles and Responsibilities
1	**Licensing**	**Short term:** Assist NRAs in identifying trading as a distinct licensing activity through amendments (if required) in existing policy and regulatory framework Develop model processes/requirements for obtaining and issuing licenses in aspects such as technical, financial capabilities of applicant, obligations of licensee, renewal and revocation, oversight and monitoring **Medium term:** Suggest modifications in licensing requirements as per market evolution **Long term:** Suggest modifications in licensing requirements as per market evolution and possible linkages with other regional pools in Asia
2	**Non-discriminatory Open Access to Transmission Network**	**Short term:** Assist NRAs in enabling policy amendments and identify procedures for open access for CBET i.e. (identify nodal agency, processing of applications, principles for sharing of charges and losses, coordinated scheduling and dispatch codes for CBET) **Medium term:** Assist NRAs in institutionalizing open access **Long term:** Draft open access policies for integration with inter-regional pools
3	**Transmission Pricing**	**Short term:** Assist in developing principles and mechanism for pricing and transmission losses **Medium term:** Assist NRAs in moving towards a uniform pricing regime **Long term:** Suggest pricing models for linkages with other pools
4	**Transmission Planning**	**Short term:** Identify transmission constraints for seamless CBET **Medium term:** Facilitate development of a regional coordination forum of National Transmission Utilities **Long term:** Take lead in developing master plan for multi-pool linkages
5	**Imbalance Settlement**	**Short term:** Develop common set of scheduling, dispatching, energy accounting, and settlement for deviation procedures **Medium term:** Suggest a regional imbalance settlement mechanism **Long term:** Build consensus with other pools on a common imbalance settlement mechanism
6	**Harmonization of Codes**	**Short/Medium term:** Formulation of guidelines on technical standards for the interconnection of power systems for harmonizing voltage standards and regulation, frequency limits, metering and communication standards etc. **Medium term:** Suggest a regional grid code **Long term:** Build consensus with other pools for a multi-pool grid code
7	**Dispute Resolution**	**Short Term:** Recommend guidelines on CBET dispute resolution **Medium Term:** Assist NRAs/ utilities to set up a dispute resolution forum **Long Term:** Take lead in dispute resolution aspects for multi-pool integrated scenario
8	**Duties & Taxes**	Not under domain

Note: Short term means within 2 years of formation of the proposed regional body, medium term depicts the period between 2 to 5 years from formation and long term means more than 5 years

Conduct and Facilitate Studies to Enhance CBET

The proposed regulatory agency may carry out studies to assess the overall electricity generation potential in the region and the possible future demand scenarios at a regional level to assess possible CBET. As part of its responsibilities, the proposed regulatory agency would also keep track of the existing and planned utilization of electricity generation capacities across member countries.

The main objective for conducting such periodic studies would be to develop an understanding, among regional members, for optimum and economic utilization of the electricity generation capacities through inter-regional markets. At the same time, such studies would also recommend options to countries for better leveraging each other's strengths to overcome seasonal demand variations that would otherwise be addressed internally through mostly costlier options. Another role that agency may play would be to conduct independent studies to identify potential cross-border interconnections that would help to build a seamless electricity exchange through country-specific grid. Such studies would serve as recommendations to the concerned stakeholders including potential financers to decide on interconnection priorities and ensure necessary infrastructure is created. In both these cases, SAARC Energy centre inputs may be sought if there are any ongoing or previously completed studies.

All the regulatory forums engage in high level technical discussions for altering regulatory practice and impacting regional energy markets. For example, ERRA's Committees and Working Groups prepare discussion papers, issue papers, case studies, bench marking studies and conduct workshops to disseminate findings.

4.1.2 Supplementary Roles and Responsibilities

A key aspect for building consensus on fast tracking CBET would be to develop a much needed platform for exchanging multinational viewpoints and building consensus towards opening borders for electricity exchange. The proposed regulatory agency would work towards coordination and facilitation among member nations on key aspects of CBET on a sustained and planned basis.

This would involve:

- Interactions with the country level transmission system operators.
- Developing annual agendas for regional interactions of various aspects of CBET.
- Organizing/event management of regional forums on focus subjects on the basis of agreed strategic framework on CBET.
- Coordination with other regional forums to promote regional investments in other sectors that involve electricity as an input.

4.1.2.1. Interactions with the Country Level Transmission System Operators

The proposed regulatory agency has to work towards ensuring necessary alignments among the transmission network operators of the member countries to provide necessary open access to the country's grid for bilateral and multilateral electricity exchange. At present, there is no common representation of the system operators among the South Asian countries. However, in near future, where cross-border electricity market is a full scale reality, there can be a dedicated body similar to the European Networks of Transmission System Operators (ENTSOs). In such a scenario, the agency would be expected to expand its role for better coordination with such an entity similar to the relationship between ACER and ENTSOs that is working towards ensuring a significant level of cross-border interconnection open to third party access in the region.

In either scenarios, with or without a regional representation of TSOs, the agency has to play key role of being an observer and recommending body to the country level TSOs/ regional TSO body so as to help minimize unplanned disruptions to cross-border electricity trading. The effectiveness of the relationship between the agency and TSOs of the member countries would decide the success of achieving an integrated power market in the SAR. Therefore, it becomes essential that there are regular interactions, country-specific and regional, between the TSOs and the agency to discuss on various operational issues and plans for attaining the objectives identified as part of the strategic framework.

4.1.2.2. Developing Annual Agendas for Regional Interactions

Integrating a multi-country electricity network would require strong political will among the member countries. To develop consensus on specific issues on regional markets one of best approaches would be to organize regional interactions on focussed subjects. Being the nodal regional body on electricity, the proposed regulatory agency would play a significant role in building annual agendas for regional interactions in line with the strategic road map for regional electricity market. It would be the responsibility of the agency to get the necessary buy-ins, on the agenda, from the various stakeholders. This annual agenda would serve as the base for the entire year towards the endeavour for building a regional electricity market in South Asia.

4.1.2.3. Organizing/Event Management of Regional Forums

Based on the annual agendas or on specific need basis, the proposed regulatory agency would be responsible for organizing specific events that would help in bringing regional stakeholders on a common forum. As part of its event management role, the agency would need to follow a balanced approach of ensuring requisite representation from various member countries in terms of event locations as well as participations.

4.1.2.4. Coordinate with Other Regional Forums to Promote Regional Investments in Other Sectors

The proposed regulatory agency has to play a coordinating role with other South Asian regional bodies for ensuring an inclusive growth in the region by using electricity as a catalyst. As part of its larger role, the agency would be part of regional forum of forums/working groups on specific subjects in which electricity would play a role. The learnings from the development of the GMS Program, focusing on overall regional infrastructure development, are already taking shape through SAFIR in the South Asia region. Professional linkages of the agency with SAFIR and other regional forum would help in better economic and social integration of the region.

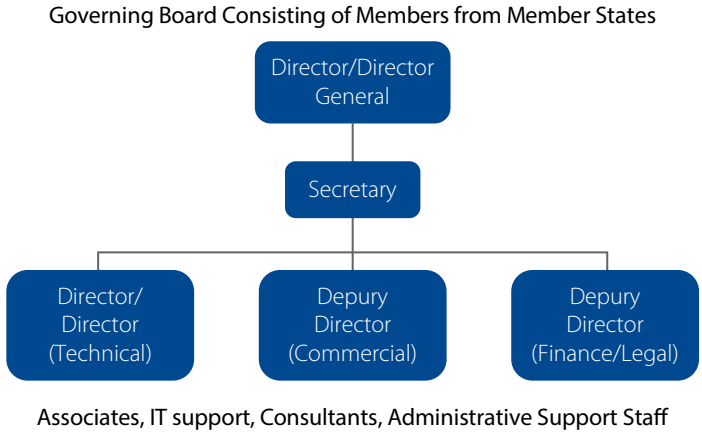


Figure 14: Proposed Organization Structure

It is pertinent to mention that the above are only a tentative set of roles and responsibilities identified for the agency which has to be finalized by stakeholders after considering their inputs. With time and growth in cross-border electricity market, these would get modified to align with the changing need of the regional electricity sector as seen in most international forums.

4.2 Organizational Framework

The proposed forum would work as a fully functional entity with a holistic structure in line with other regional/global bodies with similar work profile. Taking reference from the regional regulatory guidelines, a sample structure may be as follows (depicted pictorially in the Figure 14 alongside):

- **Governing Board:** This will be constituted by members from each Member State and headed by one member for a fixed tenure in alphabetical order.
- **Director/ Director General:** The director will act as Member Secretary to the Governing board, which reports to the Standing Committee. (S)He should have at least 20 years' experience in the power sector preferably in the regulatory domain and should be at least a graduate from an internationally accepted institute.
- **Deputy Director (Technical):** This position will be responsible for preparation of regulatory procedures/ guidelines for licensing, open access, planning for transmission, harmonization of grid codes etc. He will also be responsible for processing of any submissions from applicants for licenses of CBET, determination of open access charges and sharing among Member States etc. (S) He should have at least 12 years' experience in the power sector in relevant aspects and should be at least a graduate from an internationally accepted institute.
- **Deputy Director (Finance/ legal):** This position will be responsible for preparation of regulatory procedures/ guidelines for dispute resolution, taxes and duties. Also, he will prepare annual budget estimates as well as any finance related issue for the forum. (S)He should have at least 12 years' experience in the infrastructure sector (preferably power) in relevant aspects and should possess a Post graduate degree in Finance/Business Administration/ Investment /Economics from an institution of international repute/recognition or a CA or its equivalent.
- **Deputy Director (Commercial):** This position will be responsible for preparation of regulatory procedures/ guidelines for transmission pricing, imbalance settlement mechanism. (S)He will also be responsible for periodic settlement of deviations from scheduled transactions. (S)He should have at least 12 years' experience in the infrastructure sector (preferably power) in relevant aspects and should be at least a graduate from an internationally accepted institute.

Designation	Deputy Director (Finance)
Qualification	Post graduate degree in Finance/Business Administration/Investment/Economics from institution of international repute/recognition or a CA
Experience (in years)	More than 10 years experience
Type of Experience	1. Experience in drafting, executing commercial agreements either from public or private owned power utilities in power sector preferably in power transmission. 2. Experience in working in finance department of public or private owned power utilities in power sector preferably in power transmission
Nationality	Be a bona-fide citizen of a SAARC Member state i.e. Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka
Tenure	For three years and extendable under exceptional circumstances to a maximum period not exceeding three (3) years
Remuneration	2600 US$ per month tax free
Other perks	Accommodation allowance of US$475, education allowance for two children upto class 12 or equivalent, and other admissible allowances and benefits. He/she will also have duty free import privileges

All the Deputy Directors will be supported by sufficient number of associates. Consultants may be hired in case of short-term engagements or lack of man power or complex engagements. Sufficient administrative and IT support staff may also be recruited. One of the Deputy Directors will be looking after human resource requirements which can be decided by the Director/Chairperson based on the distribution of workload.

In the future, the organization structure may be expanded as envisaged in other similar forums. For example, ERERA's medium term organization structure has strengthened requirements in engineering, accounts, law and economics as compared to current short term structure.

The appointments for the Governing Board would be on nomination from the NRAs of the respective Member States. However, the senior staff recruitment (Director General, Secretary and Deputy Directors) can either be recruited professionally or through nominations from the Member States for a fixed tenure. In case of multiple nominations for a post, the best fit person may be appointed irrespective of the nominating Member State.

Both options, direct nomination and professional recruitment, have their own pros and cons. While professional recruitment would bring in an independent approach to the Forum's agenda, the ownership of the forum may get diluted in this case. In case of direct nominations, while the Member State ownership would be higher, the political dynamics among the member state may result in multiple agendas. The below pictorial summarise the associated pros and cons.

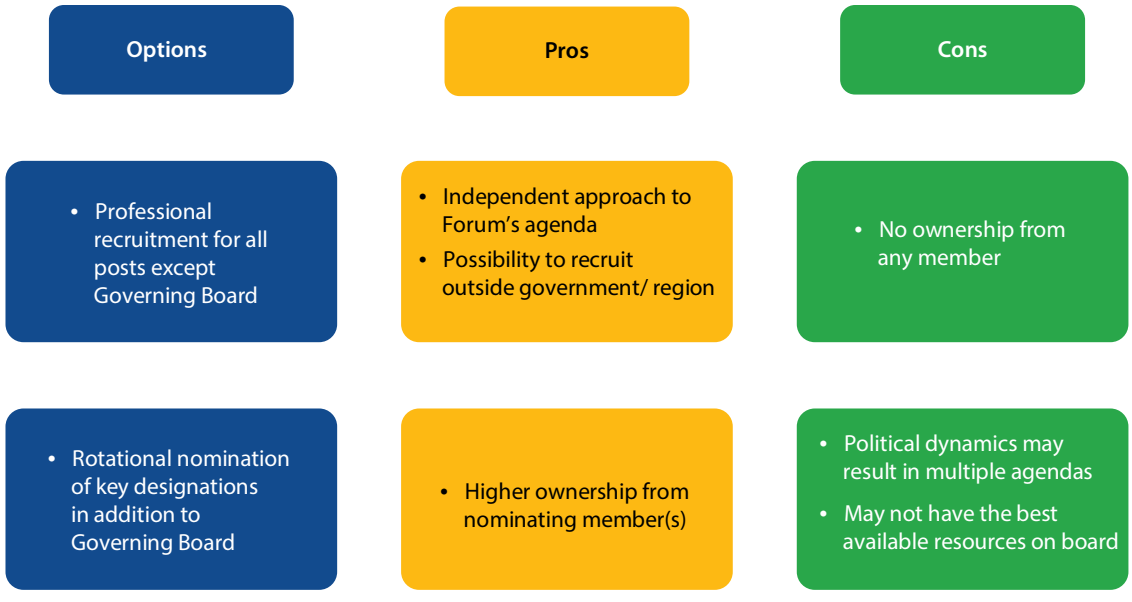


Figure 15: Sample Job Description

A key deciding factor, to the two options, is the level of ownership of the forum by the Member States. If the Governing body is able to own to represent the Member State and at the same time drive the agenda for cross-border electricity market, then the other staff may be hired professionally for a longer duration. In all cases, the governance framework of the forum has to revolve around alignment with the Governing body and hence the Member State.

4.3 Operational Aspects

The key operational aspects to be determined are:

- Financial arrangements
- Location of headquarters

4.3.1 Financial Arrangements

The proposed forum would come along with its own set up cost followed by the recurring operational costs. The set-up costs would include office establishment, recruitment, legal fee etc. Similarly, the operational cost would have salary, other administrative costs, training expenses etc. These financial arrangements may be met by:

- Government funding with pre-determined sharing ratios, for example, 40% of institutional cost of SAARC regional institutions is borne by the respective host government and the balance is shared by all Member States, according to an agreed formula. Capital expenditure is borne by host government and programme expenditure is shared by member states.
- Funding by multilateral agencies: IFIs like ADB, USAID, World Bank can be reached for specific programmes, studies and technical assistance for programmes for an initial period. As discussed in the previous section, USAID funded ERRA through cooperative agreement for 3 years which was extended for total 10 years. World Bank funded Technical Assistance to RPTCC on specific projects. Similarly, activities which can be funded by IFIs, for the proposed regulatory agency, may include:
  - Developing good practice guidelines for bilateral arrangements.
  - Developing principles regarding ownership.
  - Benefits estimation and benefits-sharing of trans-boundary transmission lines.
  - Assistance to national regulators for setting international exchange tariffs, and settlement of disputes.
  - Regional benchmarking of the electricity sector.

The membership funding may result in higher ownership among Member States but may risk delays in work due to political disagreement among members. Similarly, funding by multilateral agency shall bring in the external expertise/guidance but may risk Member State ownership. The below pictorial summarizes the pros and cons of both the options:

Options	Pros	Cons
• Member funding	• Higher ownership among members	• Delay in funds may hinder progress • Disagreement on funding proportion among members may delay progress
• Funding by multilateral agency	• Higher ownership from nominating member(s)	• Member ownership may be comparatively lower

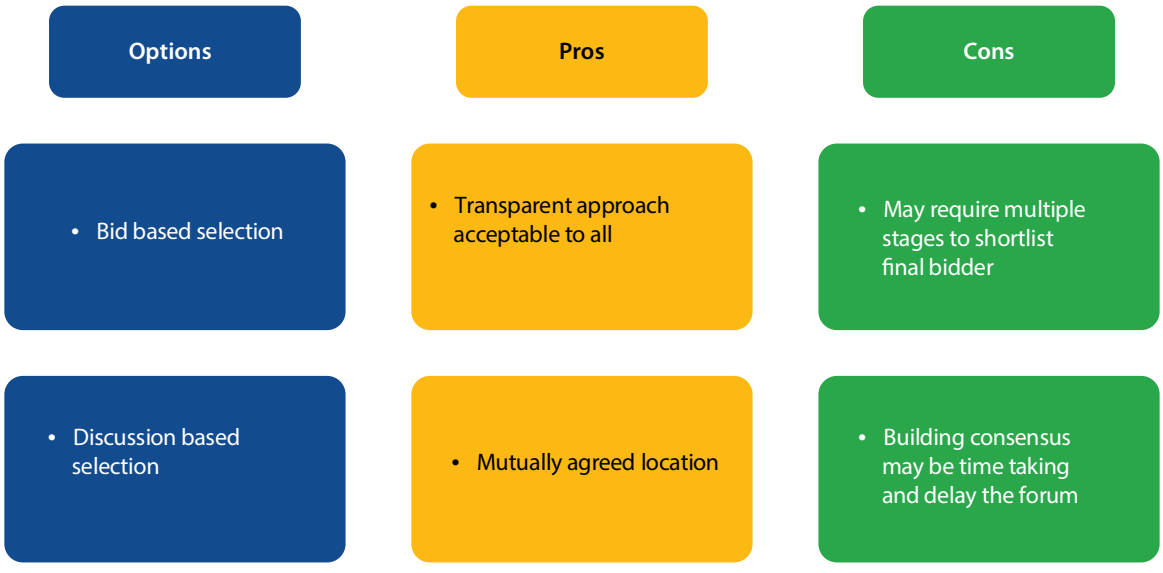
A balanced approach can be to use the funding agencies to help fund the initial set-up cost and the operating cost may be taken up by the Member States on a pre-agreed sharing arrangement.

4.3.2 Headquarter Location

A headquarter of the proposed forum in any of the capital cities of member states has to be set up as mutually agreed among stakeholders. It can be decided either by a method of competitive bidding or by voting by member states:

- In case of a competitive bidding, the criteria like contribution to budget, availability of office space, facilities and benefits and staff, accessibility, living conditions in the proposed city etc., may be given weightage. However, competitive bidding process may be time consuming. For example, the process for selection of RPCC headquarters is pending for approximately 4 years.
- In case of deciding permanent seat for ACER, voting process has been adopted as done for other bodies under EU and Slovenia has emerged successful after 2 rounds of voting.

Selection through competitive bidding would be the most transparent approach and would be acceptable to all the member states. However, it may require multiple stages to shortlist the final bidder. Another option to bidding may be discussion based agreement among the member states but building consensus may be time taking and delay the deployment of the forum. A key deciding factor should be the timeliness in finalizing the headquarters. The below pictorial summarizes the pros and cons of both the options:



The selection of headquarters need to be time bound to support the establishment of the forum as quickly as possible. A temporary makeshift headquarters can be developed at a mutually agreed location, until the selection of the permanent headquarters.

It is pertinent to mention that the aforementioned options are primarily focusing on a basic assumption that the proposed forum would be an independent body without any connect with any existing regional body. However, if it is decided that the proposed forum is part of any existing regional body, then the option of having the proposed headquarters within the existing body's headquarter may also be considered.

4.4 Institutional Mechanism

The institutional mechanism for regional regulatory agency can be in the form of (a) super regulator with binding commitments from all members (b) a voluntary forum in which all the members reach consensus and strive for guiding principles in CBET transactions. Although, presence of a super regulator can bring in uniformity and enhance CBET by binding policies/ regulations in the sector, preparedness of the regional countries has to be assessed for its desired success. A brief comparison of key parameters, for both the options, is presented below (Fig.16) :

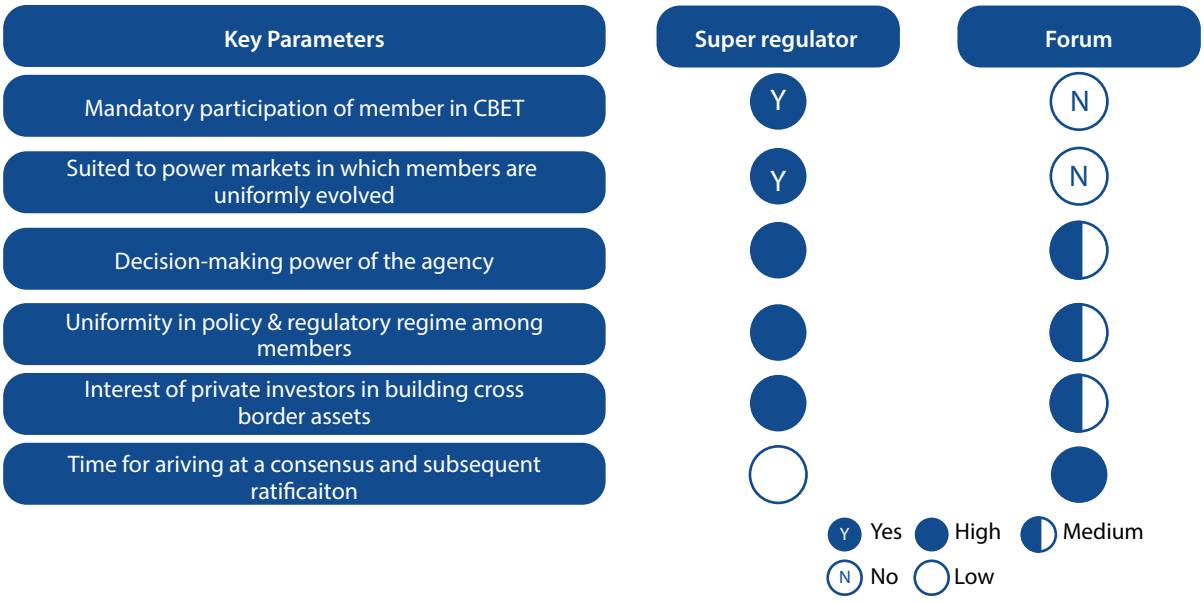
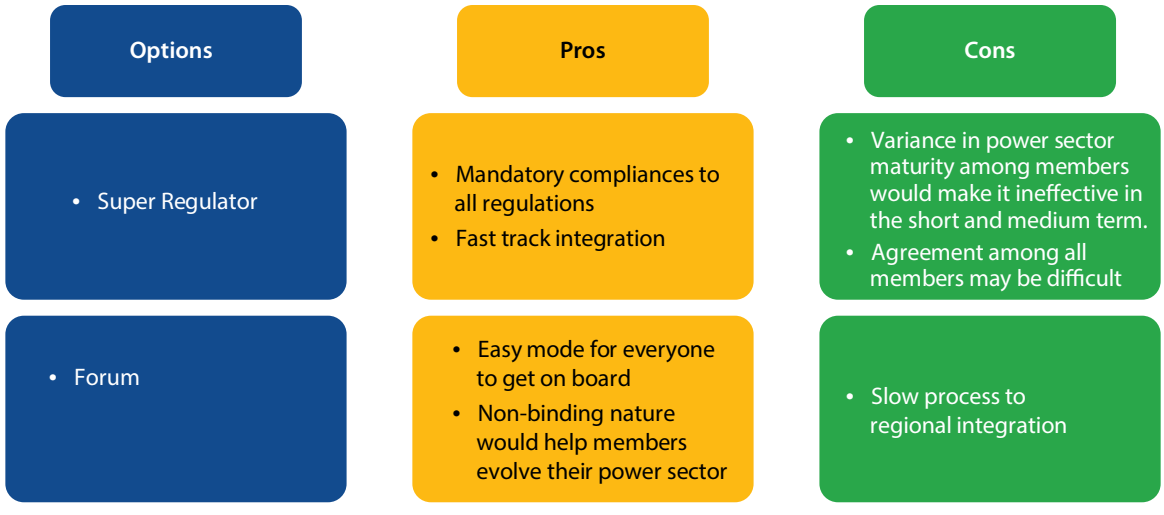


Figure 16 A brief comparison of key parameters, for both the options

Both options, super regulator or a voluntary forum, have their own pros and cons. Super regulator may result in fast track regional integration owing to the mandatory compliance of all its regulations by the Member State. In the case of a forum, getting everyone on-board is comparatively easy owing to its non-binding character. The pros and cons of both the options are discussed under the pictorial below:



As the Power Sector of South Asian region is in an evolutionary stage, development of the proposed body as a forum would definitely make it easy to get in all the Member States on board. The voluntary involvement of the Member States would also help them to work towards the evolution of their respective power sector at their individual pace. As such, a forum would be a more preferred approach in the given scenario.

4.5 Regional Independence

The proposed regional regulatory body, in the SAR, can either be formed under the framework of existing regional groups or as a new independent body. The status of such agency may also evolve in time, i.e., one option in the short term and gradually evolving to another option in long term depending on the roles and responsibilities mandated to such forum.

An independent body or forum may be nimble and more focussed in its operations. However, it may not be practically feasible to set up sector focussed cross-border body without overlapping responsibilities with an existing regional body. Also, the time taken for such forums to be set up and possible frequency of high-level meetings may be higher.

In case it is decided to set up such an agency under the purview of any existing regional bodies, some relevant bodies can be:

- **SAFIR's** key visible mandate is to provide training courses for the region's regulators, utilities and any other agencies in the infrastructure segment. Considering the key regulatory function being envisaged to the proposed regulatory agency, it has to be debated if it is optimal to align with SAFIR to reach its objectives.
- **BIMSTEC and SAARC** are regional associations that are well established through regional agreements/charters/country level and regional agreements with specific bodies/focus on energy. Both of them pointed towards requirement of a forum of regional regulators for energy for enhancing CBET. However, the difference among these groups is Pakistan and Afghanistan in SAARC are replaced by Myanmar and Thailand for BIMSTEC. The decision to align with either of them can be taken considering the quantum of CBET possible and regional gains and other politico-economic factors.
- **BBIN:** This is a recent sub-regional initiative with only Bangladesh, Bhutan, India and Nepal. CBET is one of the key focus areas of BBIN. Also, BBIN can be considered part of both BIMSTEC as well as SAARC. Hence, this grouping may be considered a back-up option / short-term option (*i.e. in long term, members can be expanded*) if this were to be considered.

European Union Experience

CEER – a regional grouping where electricity regulators exchange best practices.

ACER – a EU agency with power to regulate on certain cross-border electricity trade. It focusses on creation and enabling of internal energy market in EU, suggests regulators on harmonization and market integration.

Both co-exist.

Key Takeaway: A Forum of National Regulators can co-exist with National Regulators. The former can focus on cross-border power exchange aspects and the latter will focus on domestic transactions.

In any case, the guidelines/model regulations to be issued by the regional regulatory forum are advisory in nature.

However, it has to be noted that at least certain regulations need to be adopted so that "coordinated/ harmonized" regulatory framework is in place for CBET.

Further, in any of the above cases, if the setting up of the regulatory agency is getting delayed, the energy regulators in the region need to share and exchange their knowledge and experiences through periodical meetings, seminars, conferences, workshops etc., until such forum becomes effective. The energy regulators can also discuss and draft structure, set-up, functions and model regulations to be developed by the proposed forum. SAARC's meetings of energy regulators are a good example for this kind of interaction.

If such agency would have to fit in SAARC, its positioning among the SAARC bodies may be as depicted fig 17 below:

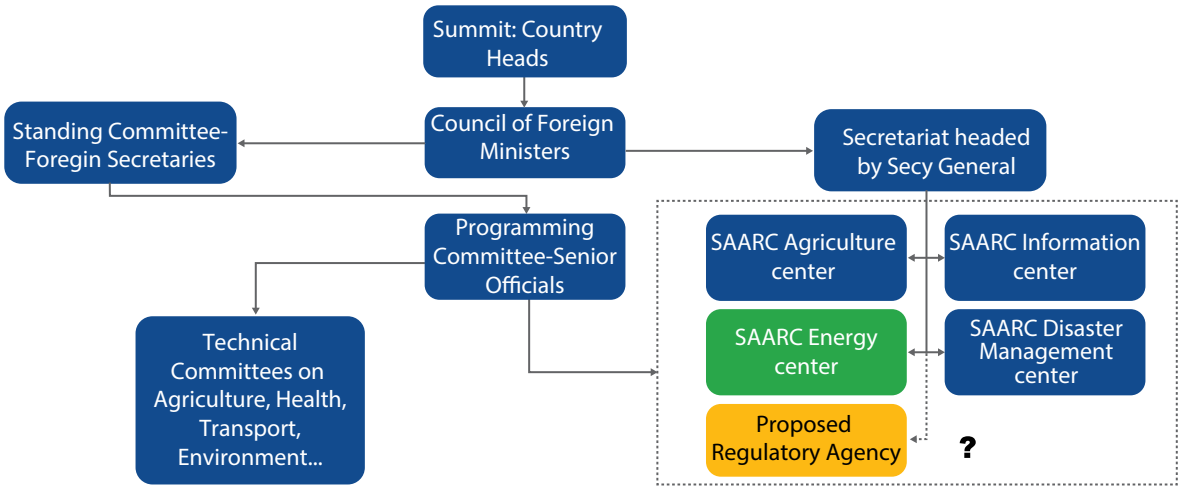


Figure 17 Fitment of Proposed Regulatory Institutional Mechanism in SAR-South Asia Forum of Electricity/ Energy Regulators (SAFER) under SAARC

Both the options, Independent body or integration with existing body have their own pros and cons. Establishing an independent body can have a focused approach to an agreed agenda and help in making faster decision making. On the other hand, integrating it with an existing regional body may lead to quick alignment with the existing body's operational principles and result in following the business guidelines of the existing body. This may slower the progress owing to adherence to pre-define meeting/decision making norms. The pros and cons of both the options are discussed in the pictorial below:

The effective regional corporation and CBET shall be achieved easily if the proposed forum has a higher degree of freedom and faster decision making capabilities.

4.5.1 Road Map for Formulation of the Proposed Regulatory Forum

The proposed milestones and tentative timelines have been kept ambitious given the imminent need of region integration of power system. Key activities, envisaged timelines and factors influencing such timelines are elaborated (Table 17) below:

Table 17 Road Map for Formulation of the Proposed Regulatory Forum

S.no	Key Activities	Factors Influencing Timeline	Envisaged Timeline (in months)
1	In-principle agreement among the stakeholders	Number of meetings required and time by stakeholders	Zero Date (T)
2	Constitute Governing Board	Time taken for Nomination of members from regulators	T+1
3	Development of policy/ mission statement, conduct of business regulations, organization structure, roles and responsibilities	Time for appointment of a consultant and delivery by the team	T+3
4	Approval of the above developed documents and organization framework by other concerned bodies/ stakeholders	-	T+4
5	Agreement on the seat	This may require RFP process and ratification of process by members	T+8
6	Operationalize and appoint staff and directors	Time taken for finding senior personnel of requisite qualifications and experience	T+12

The above are only the broad steps that would have a number of sub-steps which need to be defined upfront by the Governing Board.

5 Conclusion and Way Forward

As seen from the foregoing chapters of the study report, most regions across the globe have already initiated action for creating regulatory institution/institutional mechanisms for cross cutting energy/electricity regulatory cooperation and developing regulation necessary for promoting cross-border electricity trade, integration of power systems and development of regional power markets/market integration in some form. The South Asia region has been slow towards this agenda. However, with economic growth and power trade picking up in almost all the member states, the time is more opportune to work towards regional power market integration for everyone's benefit. Establishing a Forum/association of electricity/energy regulators of SA countries is a key critical step in this direction. A robust energy/electricity regulatory cooperation, integration of power systems, development regional power market and a seamless cross-border electricity trading among member countries would be a win-win scenario for both power deficit as well as surplus countries in South Asia Region (SAR).

The deficit countries would get to harness other country's resources, especially with lower environmental impact due to the sustainable exploitation of hydro & renewable energy in the region to meet their own electricity demand. This would ultimately help in overall socio-economic development of South Asia region as a whole. A power surplus country would have the option of better/optimal utilization of existing generation and also enhance national income through electricity exports. Further this will enhance investment in power sector Infrastructure, thereby improving the national economy.

It is, therefore, essential to establish such a body/forum/Association such as South Asia Forum of Electricity/ Energy Regulators (SAFER) within minimum time frame and initiate/advance the process of energy/electricity regulatory cooperation in the SA region and advancement of cross-border electricity trade in the region. The proposed body/ forum/Association of electricity/energy regulators can play a key role in developing cross cutting energy/electricity regulations, knowledge sharing and regulatory capacity building for promoting cross-border electricity trade, integration of power systems and development of regional power markets.

Given the importance and urgent need to create such a forum/association in the region within minimum time frame one option that could be considered to create a working group/council with focused approach under the aegis of an existing regional forum/authority/Associations such as South Asia Forum for Infrastructure Regulation (SAFIR) and SAARC/SAARC Energy Regulators consisting of members from national regulatory commissions/authorities of energy/ electricity to take forward the work of cross cutting energy/electricity regulatory cooperation, developing regulation necessary for promoting exchange of electricity & cross-border electricity trade, development regional power markets, regulatory capacity building and implementation of SAARC Framework agreement on energy cooperation in the South Asia Region. While the above option is an immediate step, there is a need to formally establish a full-fledged regional regulatory association/forum such as SAFER as suggested in detail along with its function, role and institutional structure in the chapter-4 for sustainable work in the area of cross cutting energy regulatory cooperation, coordination/harmonization of regulations, regulatory capacity building and developing regulation which are necessary for promoting cross-border electricity trade, integration of power systems and development regional power markets/market integration.

The Report has drawn international and regional experiences to propose various options across all key aspects of setting up the proposed body. As a next step, this paper can be used for further deliberations among stakeholders to initiate the process of formation of the proposed body/forum/Association of energy/electricity regulators among SA region.

Annexure 1

Scope of Work: White Paper/Study on South Asia Forum of Electricity Regulators

Scope of Work Developing a White Paper/Study on South Asian Forum of Electricity Regulators (SAFER)

Background and Purpose: USAID supported South Asian Regional Initiative for Energy Integration (SARI/EI) has consistently strived for enhancing energy security of South Asian nations since the year 2000. In its current fourth and final phase (2012-2017), the program aims to advance regional energy integration through increased cross-border electricity trade. Its overall objective is to create the right "enabling" environment to support the establishment of a South Asian electricity market, and gain consensus and support from the key decision makers and stakeholders. Integrated Research and Action for Development (IRADe) is the implementing partner for this phase of the SARI/EI program through a cooperative agreement with USAID.

To achieve the objectives of SARI/EI, IRADe has constituted three dedicated Task Forces (TFs) represented by government nominated members from South Asian Country governments (Energy/Power Ministries), Electricity Regulatory Commissions, Planning Authorities, National Power Transmission utilities, Power Market Institutions etc., headed by a high level Project steering committee. Several studies and investigations have been commissioned by the TFs to inform itself of the policy, institutional and technical issues involved in the design and implementation of cross-border electricity trade. Some of these have pointed to the need for additional enquiry and analysis such as a recent study by TF 1[66] on "Review of Electricity Laws, Regulations, Policies (El&R&P) in South Asia". This study recommended a regional regulatory institutional mechanism to manage the process of harmonization of regulations in close coordination with various regional bodies such as SAARC secretariat, technical committees, forums and other relevant entities etc. The study also proposed a set of Regional Regulatory Guidelines (RRGs). RRGs aims to: (1) establish transparent regulatory environment to promote CBET; (2) provide a common course of action that can be referred for decision making on CBET by the electricity/energy regulators in their respective countries; and (3) ensure consistency in the transactions and remove delays on account of unclear and complicated regulatory regimes. Specifically, the aim of the RRGs is to provide the national electricity regulators of the South Asian countries with a set of consistent guidelines that can be referred for developing regional regulatory framework and for decision making on CBET. Implementation of RRGs needs a strong Regional Electricity Regulatory Institutional Mechanism in South Asia. A background note on RRG is attached.

The purpose of this Scope of Work is to develop a white paper/Study through a consultative process that draws upon the views and opinions of key decision makers and stakeholders on a proposed regional regulatory institutional mechanism – the South Asia Forum of Electricity Regulators (SAFER).

The proposed SAFER will be a neutral body and will be critical for the success of CBET and harmonization/coordination of regulatory frameworks among South Asian Countries. A key task of SAFER would be to guide the design, planning and implementation of Regional Regulatory Guidelines (RRGs) in the form of common regulations, rules and protocols in technical, operational and legal matters for promoting CBET in the South Asian Region. In fulfillment of this the Consultant shall:

a) Analyze the various existing forums/institutional mechanisms prevailing in South Asian Countries such as South Asia Forum of Infrastructure Regulation (SAFIR), SAARC, BIMSTEC etc., and their role, responsibilities, structure,

[66] TF 1 works on Coordination/Harmonization of Policy, Legal and Regulatory frameworks.

function etc., with a view of coordination of electricity regulations to promote Cross-Border Electricity Trade (CBET). Assessment of complementarities of these existing entities with SAFER would be undertaken.

b) Review and analyze the international experiences in formation of regional regulatory forums/institutional mechanisms including their structure, role/responsibilities, functions etc., for harmonization/coordination of electricity regulations from the perspective of CBET. On the basis of their learnings, suggest/recommend formation of institutional mechanism for coordination of regulations in SA countries.

c) On the basis of the above analysis, recommend a suitable Regional Electricity Regulatory Institutional Mechanism in South Asia Region covering its rationale, role, function, operating structure (including working groups, expert committee etc.) and legal status.

d) Develop a Road Map with a clear action plan for formation of the Regional Electricity Regulatory Institutional Mechanism.

e) As the white paper/study should reflect the nuances, opinions and suggestions of the concerned parties/stakeholders with the objective of developing consensus towards addressing differences while building upon areas of unanimity, IRADe in consultation with Consultant and depending upon need as well as requirement may organize bilateral meetings/Con-call with such stakeholders/parties of South Asian Countries to take their views during formulating White Paper/Study. Any logistic cost for bilateral meetings outside India i.e., international travel/accommodation charges etc., will be borne by IRADe. However, any logistic cost for bilateral meetings within India will be borne by Consultant.

f) The consultant is also expected to participate in the stakeholder consultation workshops that will be organized by IRADe on the White Paper/Study. All expenses related to these will be borne by IRADe.

g) On the basis of feedback received from the stakeholder consultations, the consultant is expected to finalize the white paper/study.

Annexure 2

Brief Summary of Regional Regulatory Guidelines (RRGs)

1 **Licensing CBET**	• Recognition of Trading as a separate licensed business activity • Grant of licence for CBET through a well defined process • License requirements and the underlying rules/limitations
2 **Non-discriminatory Open Access**	• Setting of fair rules and procedures for non-discriminatory open access • Modification/amendment of applicable regulations and gradually legally binding provisions • Defining application process, eligibility criteria, priority order and nodal agency for OA
3 **Transmission Pricing**	• Transmission pricing mechanism based on a country's requirement and acceptability • Setting up principles and mechanism for determination of economically efficient transmission pricing regime based on concept of location specific pricing • Adoption of tariff framework in respective country power system through enabling regulations
4 **Transmission Planning**	• Development of regional coordination forum of National Transmission Utilities to coordinate between Member Countries on transmission planning aspects • Development of a database of information that enables coordination and cooperation towards transmission planning • National Transmission Plans to also include details of cross-border transmission lines (specially for CBET) and associated infrastructure • Sharing of the national transmission plan at the regional level and progress towards developing a regional level master plan
5 **Imbalance Settlement**	• Member countries to develop a common set of procedures for Imbalance Settlement for CBET transactions • This will include preparation of scheduling, dispatch, energy accounting and settlement procedures for both AC-AC and AC-DC interconnections in the region.
6 **Harmonization of Codes**	• Harmonization through formulation of guidelines on technical standards for interconnection of power systems on aspects related to voltage standards, frequency tolerance, thermal limits etc. • Sharing of technical characteristics and system specific data among the member countries • Rules on metering standards, communication technologies, Protection Schemes etc.
7 **Dispute Resolution**	• Dispute Resolution process should primarily be in accordance with the agreements or through amicable settlement • Referring the disputes to the SAARC Arbitration Council in case the member countries are unable to resolve disputes through amicable settlement
8 **Taxes & Duties**	• Countries to gradually move towards a zero tax regime

Annexure 3

A Snapshot of International Experiences

Region	Europe	Greater Mekong Sub-region (GMS)	Western Africa	Southern Africa
Name of Institution	ACER	RPTCC	ERERA	RERA
Geographical Area	Community body for integration of EU markets in electricity and natural gas	Responsible for establishment of Greater Mekong Sub-region (GMS) regional power market	Association of independent electricity regulators in Western Africa	Association of electricity regulators, for politico-economic integration of SADC states
Organization Structure	Director supported by Working and Expert Groups	The Focal Group The Planning Working Group supports RPTCC	Regulatory Council supported by a pool of experts	RERA reports to SADC Directorate of Infrastructure Services
Commercial	Harmonisation of transmission tariff Structures	Establish short, medium, long term initiatives for CBET	Tariff setting methodology, strategy for regional energy policy	Transmission pricing, operating agreements
Technical/ regulatory frameworks	System operation, connectivity, capacity allocation, network codes	Basic rules for bilateral trading	Technical regulation of regional power pooling	Grid codes Procedures
Others	Foster cooperation among National Regulatory Agencies Harmonisation of regulatory frameworks	Identify steps for expansion, day-to-day management	Monitor regional market; Dispute resolution methods	Balancing market operations; Ancillary services

Annexure 4

A Snapshot of Regional Experiences in South Asia

Name of Institution	SAFIR	SAARC	BIMSTEC	BBIN
Association of infrastructure regulators from SAR nations except Maldives		Regional organization of all the countries of South Asia.	Regional organization comprising 7 member states Bay of Bengal initiatives for multi-sectoral techno economic cooperation	India, Bangladesh, Bhutan and Nepal
Organization Structure	Steering Committee, Executive Committee	Council of Minister Standing Committee Program Committee Technical Committee SAARC Secretariat	BIMSETC Summit, Ministerial Meeting, Senior Officials Meeting, BIMSTEC Working Group (BWG), Expert Group Meeting	Joint Working Groups represented by each member state
Focus Area	Conducts flagship core course and capacity building programmes for all infrastructure	Multi-sector focus: Agriculture, Economic and Trade, Energy, Environment, Finance etc.	Each member country is assigned with specific sector. Energy with Myanmar	Transport, power and other infrastructure areas

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ABOUT SARI/EI

Over the past decade, USAID's South Asia Regional Initiative/Energy (SARI/E) has been advocating energy cooperation in South Asia via regional energy integration and cross border electricity trade in eight South Asian countries (Afghanistan, Bangladesh, Bhutan, India, Pakistan, Nepal, Sri Lanka and the Maldives). This fourth and the final phase, titled South Asia Regional Initiative for Energy Integration (SARI/EI), was launched in 2012 and is implemented in partnership with Integrated Research and Action for Development (IRADe) through a cooperative agreement with USAID. SARI/EI addresses policy, legal and regulatory issues related to cross border electricity trade in the region, promotes transmission interconnections and works toward establishing a regional market for electricity.

ABOUT USAID

The United States Agency for International Development (USAID) is an independent government agency that provides economic, development, and humanitarian assistance around the world in support of the foreign policy goals of the United States. USAID's mission is to advance broad-based economic growth, democracy, and human progress in developing countries and emerging economies. To do so, it is partnering with governments and other actors, making innovative use of science, technology, and human capital to bring the most profound results to a greatest number of people.

ABOUT IRADe

IRADe is a fully autonomous advanced research institute, which aims to conduct research and policy analysis and connect various stakeholders including government, non-governmental organizations (NGOs), corporations, and academic and financial institutions. Its research covers many areas such as energy and power systems, urban development, climate change and environment, poverty alleviation and gender, food security and agriculture, as well as the policies that affect these areas.

For more information on the South Asia Regional Initiative for Energy Integration (SARI/EI) program, please visit the project website:

www.sari-energy.org