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South Asia Forum of Electricity Regulators

White Paper on Regional Regulatory Institutional mechanism

Draft for Discussion

SAFER Consultation Meeting ,16thSeptember,2016
Conference Room
Ministry of Energy , Nepal



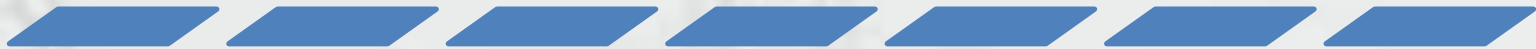
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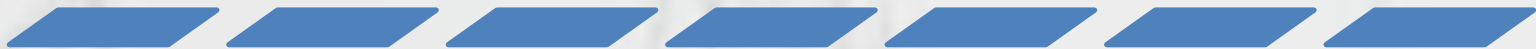


Agenda

Strategic context



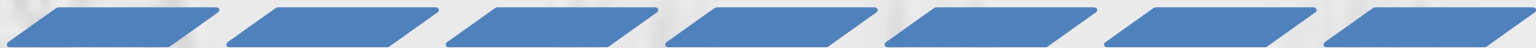
International experiences on regional electricity regulatory agencies



Existing multilateral forums in South Asia Region (SAR)



Forum of Electricity Regulatory Authority in SAR-a proposal





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Strategic context

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

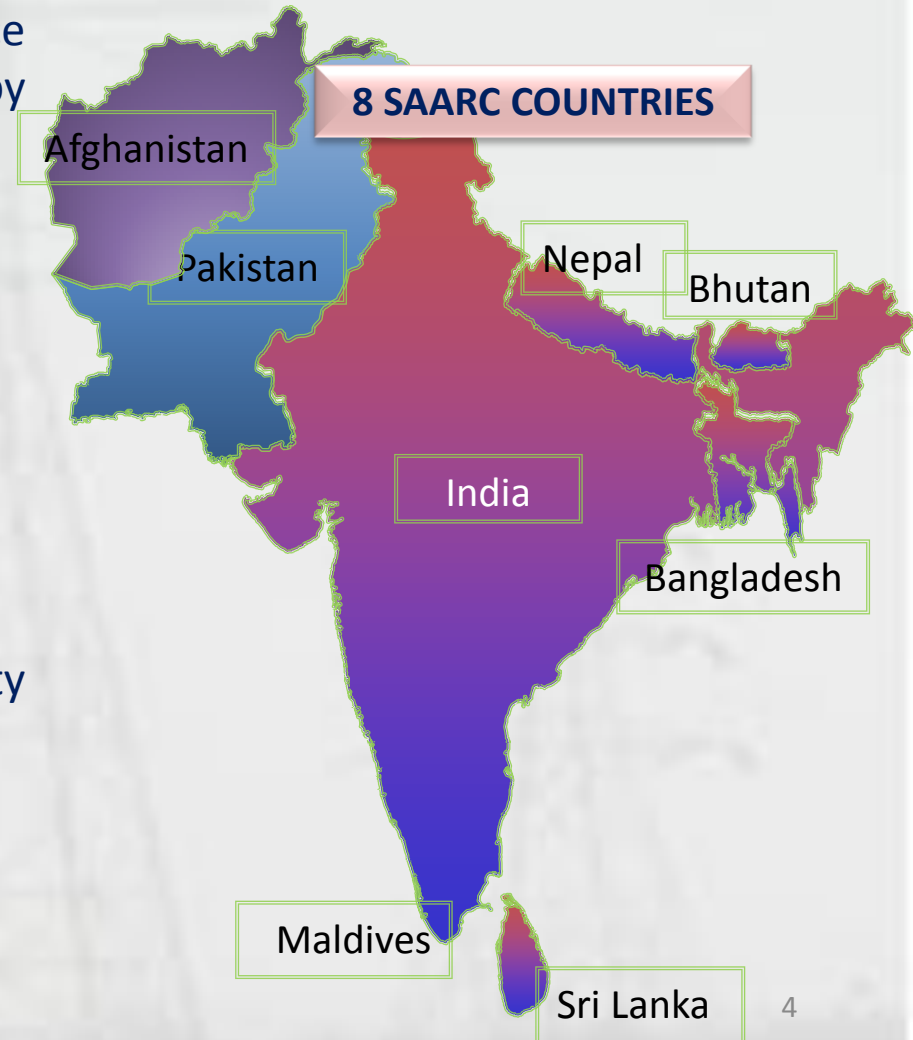
SARI/EI, long standing program of USAID since 2000, to address energy security in South Asia by focusing on

- Cross Border Energy Trade (CBET)
- Energy Market Formation and
- Regional Clean Energy Development

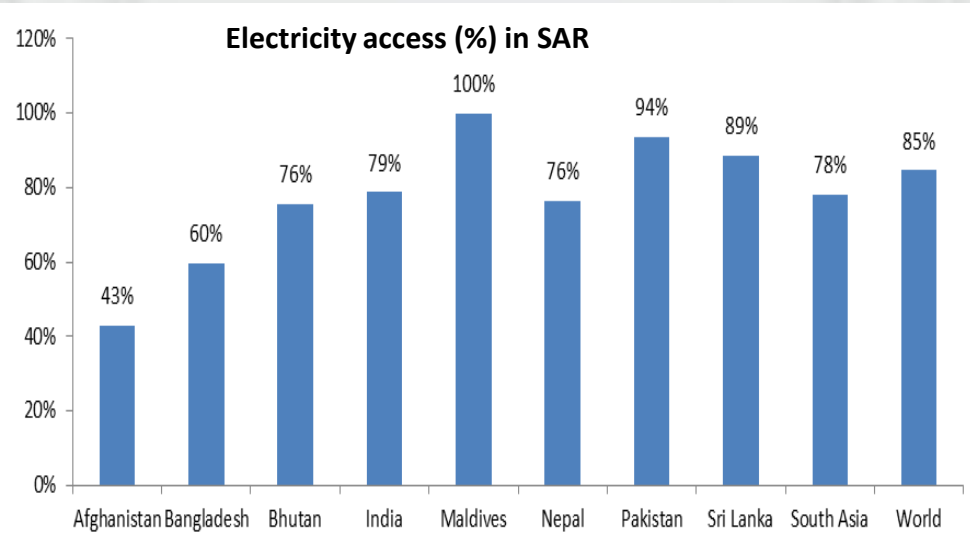
SARI/EI–Phase IV (2012-2017)-three Key development outcomes:

- Coordinate policy, legal and regulatory issues
- Advance transmission interconnections
- Establish South Asia Regional Electricity Markets

IRADe is implementing partner



Regional electricity scenario: Overview



- Persistent energy shortage leading to low access to electricity
- Resultant outages account for a loss of more than 2% of GDP
- Fossil imports constitute >10% of Forex spending

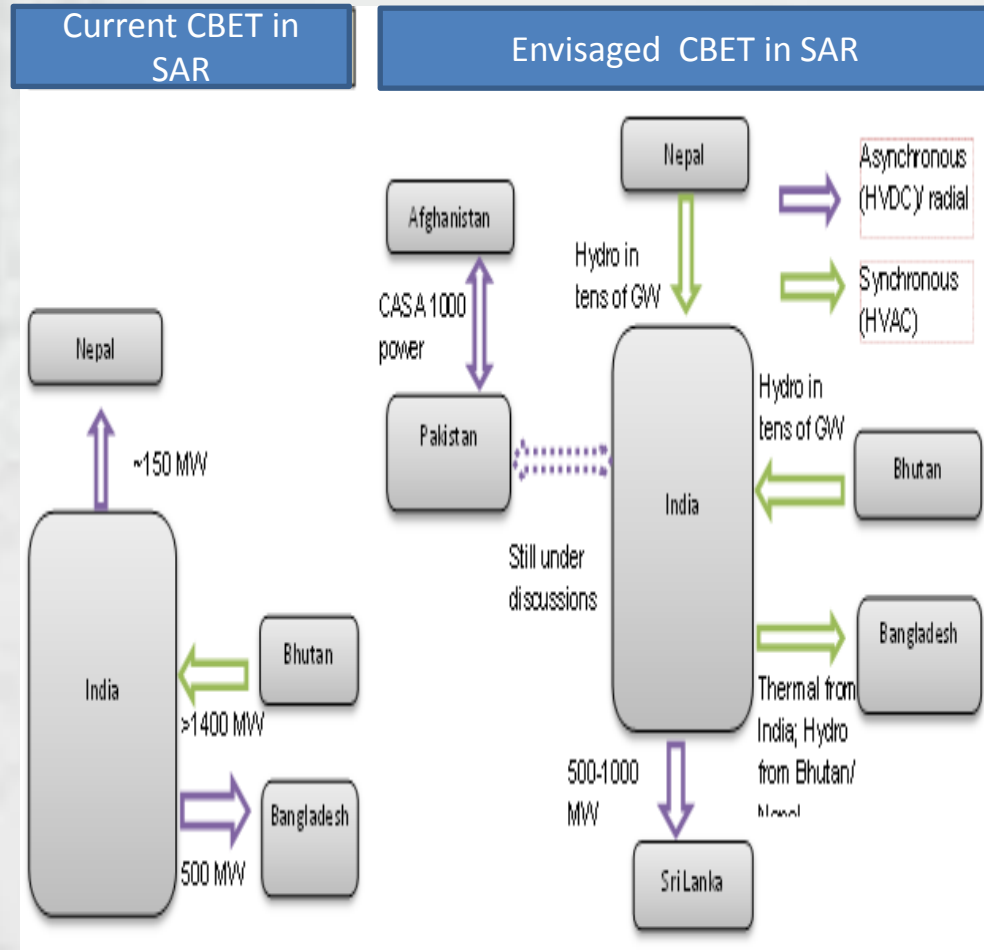
- Diverse electricity demand profiles and energy sources can be better leveraged
- Studies identified quantitative & qualitative benefits of cross border electricity trade (CBET)

Country/ Fuel sources	Coal	Oil	Natural Gas	Biomass	Hydropower*
	(million tonnes)	(million barrels)	(trillion cubic feet)	(million tonnes)	(Megawatts)
Afghanistan	440	NA	15	18-27	25,000
Bhutan	2	0	0	27	30,000
Bangladesh	884	12	8	0.08	330
India	90,085	5,700	39	139	150,000
Maldives	0	0	0	0.06	0
Nepal	NA	0	0	27	83,000
Pakistan	17,550	324	33	-	59,000
Sri Lanka	NA	150	0	12	2,000
Total	1,08,961	6,186	95	223-232	349,000

Need for regional regulatory coordination

- Studies reveal two key requirements for enhancing CBET
 - well defined & coherent energy policies
 - Supporting legal & regulatory framework

- Studies for Regional Regulatory Guidelines specify requirement of a regional regulatory forum for developing
 - Common regulations
 - Rules and protocols in technical, operational and legal matters



**Direction of arrow shows direction of net power flow*

Terms of reference for this study

- Analysis of various existing forums prevailing in south Asian countries with a view of coordination of electricity regulation to promote CBET
- Analysis of international experience in formation of regional regulatory forums for harmonization of electricity regulations from the perspective of CBET
- Recommending a suitable Regional Electricity Regulatory Institutional Mechanism in South Asia region based on analysis
- Developing Road map and Action plan for the Regional Electricity Regulatory Institutional Mechanism
- Developing consensus among the stakeholders towards building upon unanimity.



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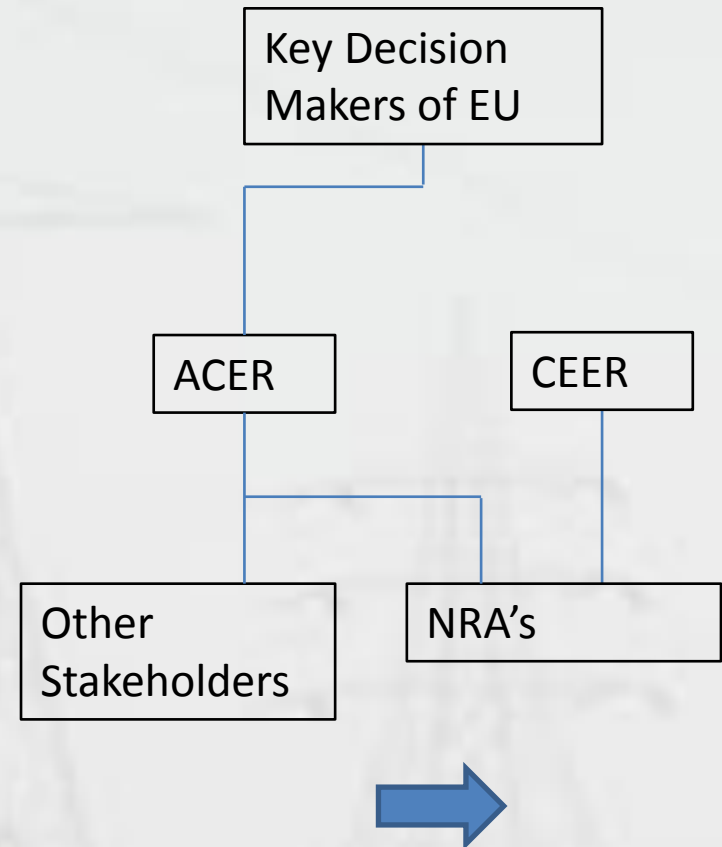
International experiences on regional electricity regulatory agencies

A snapshot of international experiences

Particulars	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

Agency for the Cooperation of Energy Regulators (ACER): Evolution

- **Need:** National Regulatory Agencies lacked competence in CBET. Also, Legal framework did not exist
- **Historical evolution:** Precursor to ACER was ERGEG which dissolved on 1 July 2011 after ACER came into operation. ERGEG's works passed to ACER and CEER.
 - **ACER** is a facilitator for cooperation between NRAs , not a regulatory authority
 - **CEER** is a platform for Europe's energy regulators to develop common interests and which are complementary to ACER's work



Agency for the Cooperation of Energy Regulators (ACER)

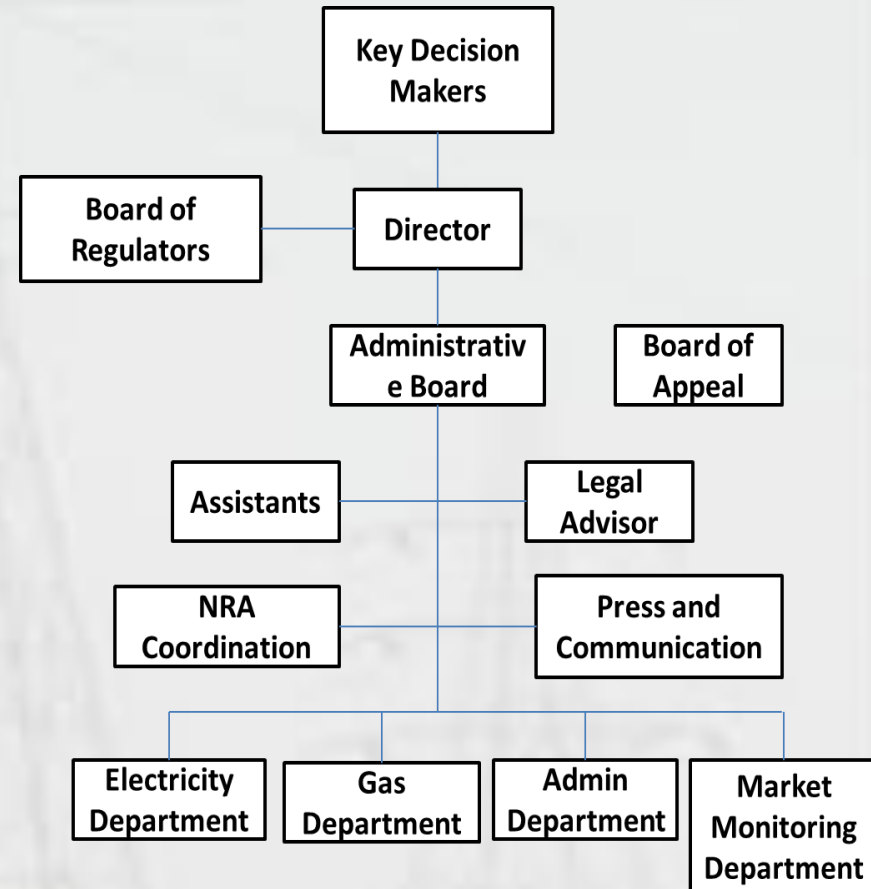
Key focus areas:

- Foster cooperation among NRAS.
- Market integration; harmonisation of regulatory frameworks and transmission tariff structures.
- Guidelines on system operation, connection and capacity allocation.

Structure: Led by a Director who is supported by Board of Regulator and an Administrative Board

Operations:

- Administrative Board meet 4 times, Board of Regulator 10 times
- Budget from the general budget of the EU



The Key Decision Makers Includes European Parliament, EU Council, European Commission and Member States

Regional Power Trade Coordination Committee (RPTCC)

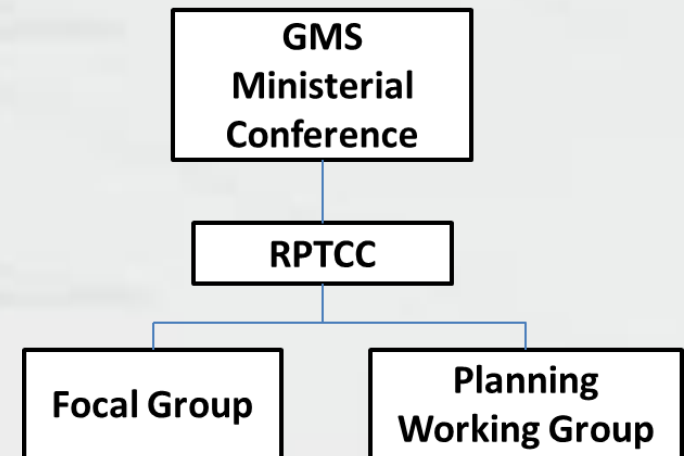
Key focus areas:

- Rules for bilateral power trading
- Recommendation for overall policy
- Develop short, medium and longer initiatives
- Steps for expanding regional power trade

Structure: include Focal Group (FG) and Planning Working Group (PWG), includes representatives of National government & Utilities

Operations:

- FG coordinates implementation activities; to subsequently evolve into a Technical Secretariat
- PWG fulfils operational and system planning
 - Identifying priority interconnection projects;
 - Establish regional performance standards and database



Working groups

- Analyses technical performance standards and grid code
- Study on regulatory issues

The ECOWAS* Regional Electricity Regulatory Authority (ERERA)

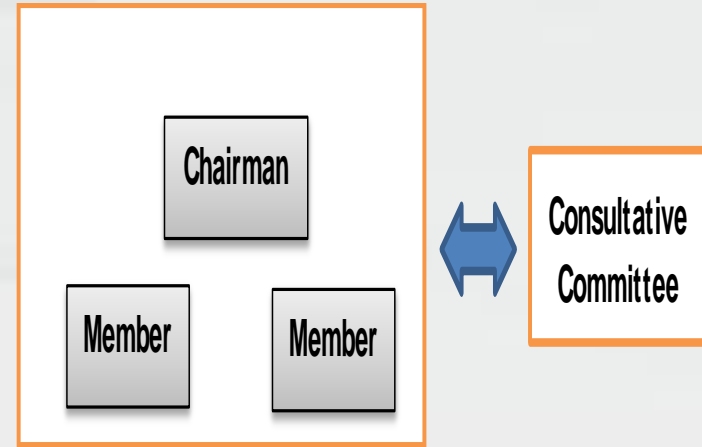
Key focus areas:

- Regulations on CBET
- Establish tariff setting methodology
- Technical regulations for regional power pooling
- Monitoring of market operations
- Dispute resolution guidelines

Structure: Governed by the Regulatory Council headed by the Chairman with two other members. Council is supported by a pool of experts

Operations:

- Undertake multiple studies to enable an integrated regional electricity markets



Pool of experts (5)
Economist
Lawyer
Engineer
Communication
...

HR/ Admin & Finance (3)
Manager
Human Resource & Admin Officer
...

→
Long term
Structure

Regional Electricity Regulators Association of Southern Africa (RERA)

Key focus areas:

- Capacity building, information sharing on CBET
- Develop integration policies, legislations and regulations.
- Regional regulatory cooperation

Operational:

- Regulations on regulator's powers and duties in CBET
- Working to ensure compatible regulatory decisions
- Licensing cross-border trading facilities
- Approving cross-border agreements in importing , exporting & transit transmission access and pricing and ancillary services, etc.

- MoU with African Forum of Utility Regulators for developing an African power market.
- Both entities work to integrate electricity network of African countries

Summary of key focus areas of regional electricity regulatory forums

Area	ACER	RPTCC	ERERA	RERA
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 NRAS, Harmonisation of regulatory frameworks	Identify steps for expansion ,day-to-day management	Monitor regional market; dispute resolution methods	Balancing markets operation Ancillary services



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Existing multilateral forums in South Asia Region (SAR)

A snapshot of regional experiences

Particular	SAFIR	SAARC	BIMSTEC	BBIN
Geography	Association of infrastructure regulators from SAR nations except Maldives	Regional organization of all the countries of South Asia.	Regional organization comprising 7 member states lying in the littoral and adjacent areas of Bay of Bengal	India, Bangladesh, Bhutan and Nepal
Organization Structure	Steering Committee, Executive Committee, Virtual Working Groups	Council of minister, Standing Committee, Programming 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 & capacity building programmes All infrastructure	Multi-sector focus eg : Agriculture, Economic & Trade, Energy, Environment Finance etc	Each member country is assigned with specific sector	Transport, power and other infrastructure areas

South Asian Forum For Infrastructure Regulation (SAFIR)

Organizational Structure- Roles and functions

- Strategic direction provided by Steering Committee
- Executive Committee responsible to operationalize strategic direction
- Working Groups discuss issues of importance in infrastructure sector

Operational aspects

- Steering Committee and Executive Committee meetings-once a year
- Secretariat support provided by CERC, India
- Budget: PPIAF support till 2008; Respective government support

Set up in May 1999 with support of World Bank to provide capacity building and training on infrastructure regulation and related topics

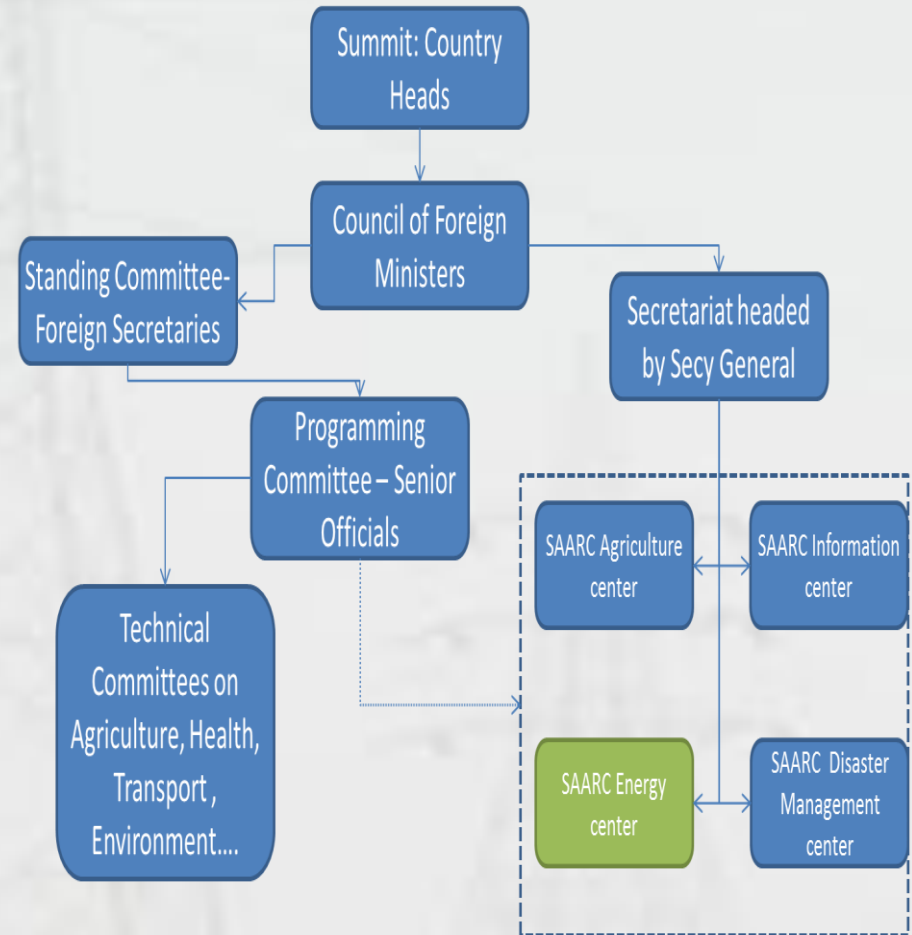
Aims and objectives

- Platform for experience sharing amongst regional regulators
- Build regulatory decision-making & response capacity in South Asia
- Facilitate regulatory process
- Conduct training programmes for regulators and other stakeholders
- Spur research on regulatory issues
- Databank of information
- Encourage rapid implementation of global best practices

South Asian Association for Regional Cooperation (SAARC)

Cooperation on electricity sector in SAARC

- Key objectives
 - Promote development of energy resources, including hydropower and energy trade in the region
 - To develop renewable and alternative energy resources
 - Promote energy efficiency and conservation in the region
- SAARC inter-governmental framework agreement for energy cooperation (electricity) signed in November 2014.



South Asian Association for Regional Cooperation (SAARC)

Organizational Structure

Council of minister

- Comprised of Foreign Ministers of MS
- Formulation of policies; reviewing progress; deciding on new areas of cooperation

Standing Committee

- Comprised of Foreign Secretaries of MS
- Monitoring and coordination of programmes and financing modalities

Programing Committee

- Comprised of senior officials of MS
- Selection of regional projects and Review of the calendar of activities

Technical Committee

- Comprised of representatives of MS
- Formulate programmes and projects

SAARC Secretariat

- Coordinate, execute and monitor SAARC activities ; interface with other forums

Key areas of cooperation

- Agriculture & Rural development
- Biotechnology
- Culture
- Economic & Trade
- Energy
- Environment
- Finance
- Funding Mechanism
- People-to- People Contacts
- Poverty Alleviation
- Science & Technology
- Security Aspects; etc.

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

Organizational Structure- Roles and functions

- **BIMSETC Summit:** Highest policy making body
- **Ministerial Meeting:** Cover the area of foreign affairs and the area of trade and economic affairs
- **Senior Officials' Meeting:** Divided into the areas of trade and economic affairs and foreign affairs.
- **BIMSTEC Working Group :** Reports to the Senior Officials meeting
- **Expert Group Meeting:** Lead countries of priority sectors of cooperation hosts the meeting

Operational aspects

- Annual Ministerial Meetings location in alphabetical order.
- SOMs, Other Working Groups, technical committees to meet as required
- Permanent Secretariat to be established in Dhaka

1st Energy Ministers conference

- MOU for Trans-power exchange and grid interconnection, hydropower development, energy security of the region,
- BIMSTEC Energy centre proposed in Bengaluru

3rd and 4th Task force meetings

- Meetings on Trans-power exchange in August 2012 and January 2013

5th Taskforce meeting

- MOU draft finalised among member countries in March 2015
- Agreement similar to SAARC Framework Agreement for Energy Cooperation

Bangladesh, Bhutan, India, Nepal (BBIN) initiative

Key Focus area(s) / Activities

- Transport, power and other infrastructure areas

Organization structure/ Operational aspects

- It operates through Joint Working Groups which discuss on formulation, implementation and review of quadrilateral agreements.

- Idea of sub-region consisting of Northeast India, Bangladesh, Bhutan and Nepal floated in May 1996
- Efforts fructified with signing of BBIN Motor Vehicle agreement (MVA) on 15 June'2015
- South Asia Sub-regional Economic Cooperation supported BBIN in providing technical and other support for enhancing interconnectivity between BBIN countries under BIMSTEC and SAARC frameworks.
- Priority identified as "connectivity", - seamless electrical grids, shared access to road, rail, air and port infrastructure, and ease of travel



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Forum of Electricity Regulatory Authority in SAR-a proposal

Key decision points for regional regulatory institutional mechanism

International and SAR experiences identify following decision pointers:

- Objective for the proposed regional body (already discussed)
- Institutional mechanism to help maximize positive regional impact
- Overall organizational framework- representation, recruitments etc.
- Other operational aspects such as:
 - Fiscal budget/funding
 - Head-office location
 - Tentative milestones to establish the forum
 - Functions



SAARC energy regulators reiterated requirement of “Regional Energy Regulatory Authority” or a “forum of energy regulatory authorities” to oversee the harmonization/ coordination of regulation, codes and standards for the electricity grid, tariff determination principles etc.



Roles and responsibilities (1/3)

The proposed forum would support the NERs on various aspects of promoting regional integration of power markets through:

- Providing inputs on policy aspects
- 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 regional power sector
- Provide support in mobilizing international and regional funding for implementation of strategic cross-border electricity projects, etc.



Roles and responsibilities- suggested policy support (1/2)

Objectives (IGTA)	Short Term (up to 2 years)	Medium Term (2-5 years)	Long Term (>5 years)
Licensing	<p>Assist NRAs -trading as a distinct licensing act.</p> <p>Model processes/ requirements for CBET licenses</p>	Suggest modifications as per market evolution	Suggest modifications as per market evolution and possible linkages with other regional pools in Asia
Non-discriminatory Open Access to Transmission Network	<p>Support NRAs in policy amendments</p> <p>Model procedures for open access for multilateral CBET</p>	Assist NRAs in institutionalizing open access	Draft open access policies for integration with inter-regional pools
Transmission pricing	Support NRAs in developing principles and mechanism for pricing & transmission losses	Assist NRAs in moving towards a uniform pricing regime	Suggest pricing models for linkages with other pools
Transmission Planning	Identify transmission constraints for seamless CBET	Facilitate development of regional coordination forum of National Transmission Utilities	Take lead in developing master plan for multi-pool linkages



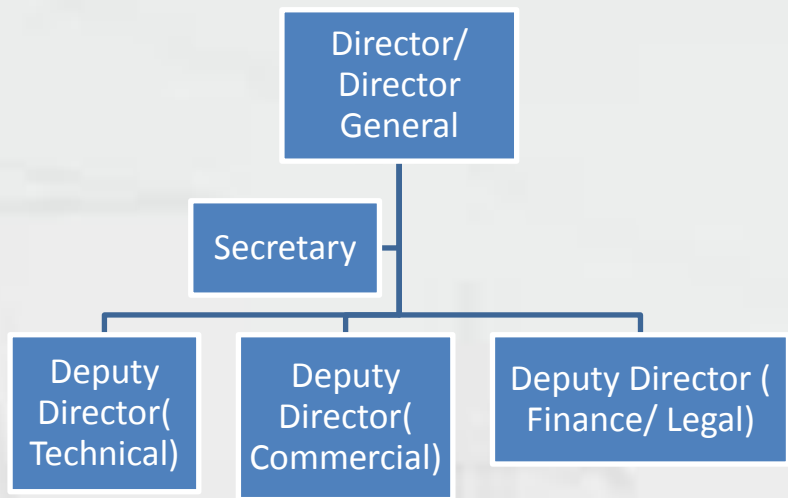
Roles and responsibilities- suggested policy support (2/2)

Objectives (IGTA)	Short Term (up to 2 years)	Medium Term (2-5 years)	Long Term (>5 years)
Imbalance Settlement Mechanism	Suggest standard procedures for imbalance settlement mechanism	Suggest a regional imbalance settlement mechanism	Build consensus with other pools on a common imbalance settlement mechanism
Harmonization of codes	Suggest guidelines on technical standards for regional interconnection	Suggest a regional grid code	Build consensus with other pools for a multi-pool grid code
Dispute Resolution	Recommend guidelines on CBET dispute resolution	Assist NRAs/ utilities to set up a dispute resolution forum	Take lead in dispute resolution aspects for multi-pool integrated scenario
Duties & Taxes	Not under domain	Not under domain	Not under domain

Organizational framework – Key functions & a sample structure

<p>Governing Board :Members from each MS national regulator; headed by one member for a fixed tenure</p>	
<p>Director/Director General: Act as Member Secretary to the Governing board</p>	<p><u>Finance/ legal function</u></p> <ul style="list-style-type: none"> ▶ Procedures / guidelines for CBET tariff, dispute resolution, taxes and duties
<p><u>Technical function</u></p> <ul style="list-style-type: none"> ▶ Procedures/ guidelines for licensing, open access, planning for transmission, harmonization of grid codes etc. 	<p>Framework Alignment with concerned regional body</p> <p><u>Commercial</u></p> <ul style="list-style-type: none"> ▶ Regulatory procedures/ guidelines for transmission pricing, imbalance settlement mechanism

Governing Board consisting of members from MS national regulator



Associates, IT support, Consultants, Administrative support staff

Professional recruitment may be undertaken for all posts other than the Governing Board

How can the organization framework be made more effective ?



Operational aspects: 1. Financial Arrangements

- Funding requirements may be met by
 - Governmental funding with pre-determined sharing ratios
 - Funding by multilateral agencies
 - Technical assistance from multilateral agencies on capacity building and/or specific business aspects
 - Specific programmes can be funded or assisted (eg: studies on setting international exchange tariffs, and settlement of disputes)
- 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
- In SAARC Annual budget of secretariat is shared as per defined formula
 - For regional institutions, minimum 40% of cost is funded by host country and balance shared by member states through agreed formula

Operational aspects: 2. Selection of permanent office

Permanent office can be decided by

- Competitive bidding process among the MS with criteria like budget contribution, living conditions, facilities and benefits etc.
- Voting by member states to choose based on presentations
- Centrally located place in the South Asia region

Bid process for RPTCC

- Bid process started in 2012; not completed
- Competitive bid process based on certain eligibility criteria and cost
- Many delays in evaluation (late submission of Laos, inadequate evaluation criteria etc)

ACER, seat in Slovenia

- EU selects the agencies seat by voting
- 3 countries participated & gave presentations on key aspects
- Slovenia emerged successful after 2 rounds of voting

Institutional mechanism: super regulator vs. apex body vs. forum

Presence of super regulator can bring in uniformity and enhance CBET by binding policies/regulations in the sector . However, what is the preparedness of SAR?

Key Parameters	Super regulator	Forum
Mandatory participation of members in CBET	Y	N
Suited to power markets in which members are uniformly evolved	Y	N
Decision-making power of the agency	●	◐
Uniformity in policy & regulatory regime among members	●	◐
Interest of private investors in building cross border assets	●	◐
Time for arriving at a consensus and subsequent ratification	○	●

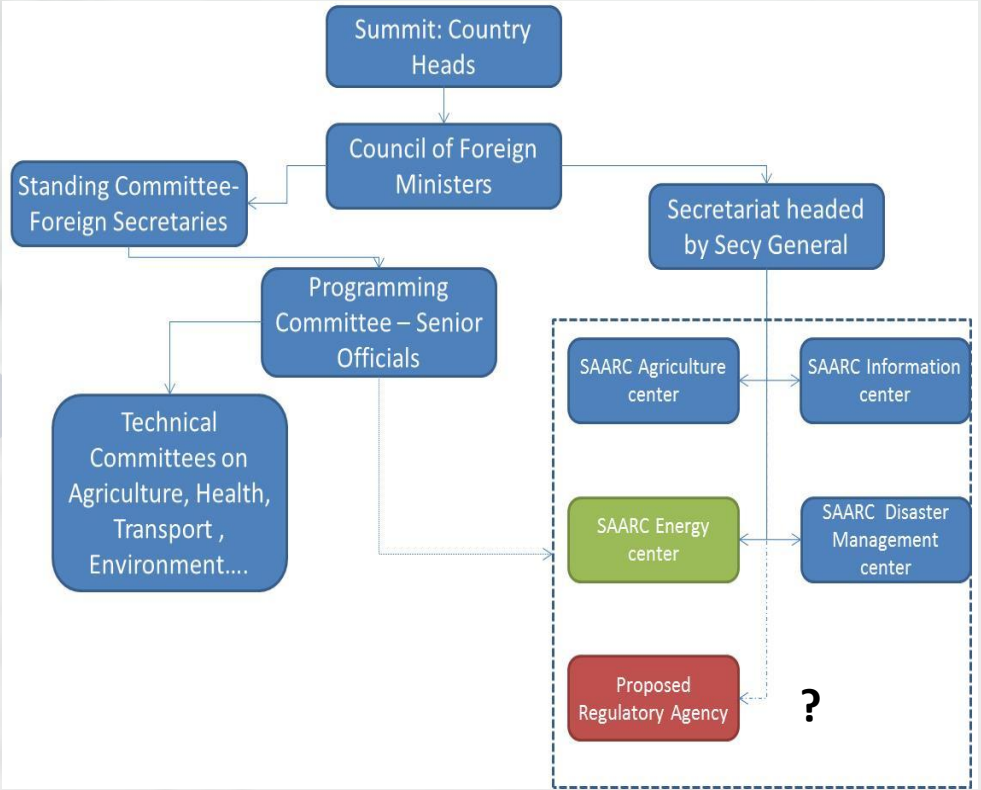
What is immediately needed-super regulator/apex body/forum ?

Y Yes
 High
 Medium
 N No
 Low

Institutional mechanism : regional independence

Positioning

- The framework of existing regional groups
- A new independent body
- As part of existing forum eg. SAARC (apex body vs. recognized body)



1. Can the agency be set up as an independent body or part of existing regional body ?
2. How can the independence of the agency be maintained if part of existing body?

Road Map for institutionalization

Key Activities	Factors influencing timeline	Envisaged timeline (in months)
In-principle agreement among the stakeholders	Number of meetings required and time by stakeholders	Zero Date (T)
Constitute Governing Board	Time taken for Nomination of members from regulators	T+1
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
Approval of the above developed documents and organization framework by other concerned bodies/stakeholders	-	T+4
Agreement on the seat of the proposed agency	This may require RFP process and ratification of process by members	T+8
Operationalise and appoint staff & directors	Time taken for finding senior personnel of requisite qualifications & experience	T+12

Benefits of having regional regulatory institutional mechanism

A regional regulatory institutional mechanism will play a key role in driving the development of a regional electricity market. This in turn would help in:

- Optimal use of regional resources
- Higher economies of scale by focusing on regional (not national) demand
- Improved energy security and reliability in the region
- Reduce environmental impact by exploiting untapped renewable energy

Power Deficit country	Power Surplus Country
Meet the growing electricity demand	Enhanced sector investments
Reduce fossil fuel usage/imports	Better/optimal capacity utilization of generation assets
Contribution to socioeconomic development in the country	Increase in national income through electricity export

Inputs and suggestion form stakeholder - Bhutan

Focus Area

Key inputs/Suggestions

Roles & responsibilities

- Include key project financing as a one of the forum's responsibility areas

Organizational framework

- Professional recruitment for all posts other than Governing Board

Selection of permanent office

- Centrally located place in the South Asia region
- Based on the selection process adopted for existing regional forum

Institutional mechanism

- To be Initiated as a forum for quick roll-out
- There should be a possibility of assessing its conversion into a super regulator

Regional independence

- Better to have an independent body which would work on the primary objective of integrating regional power market.



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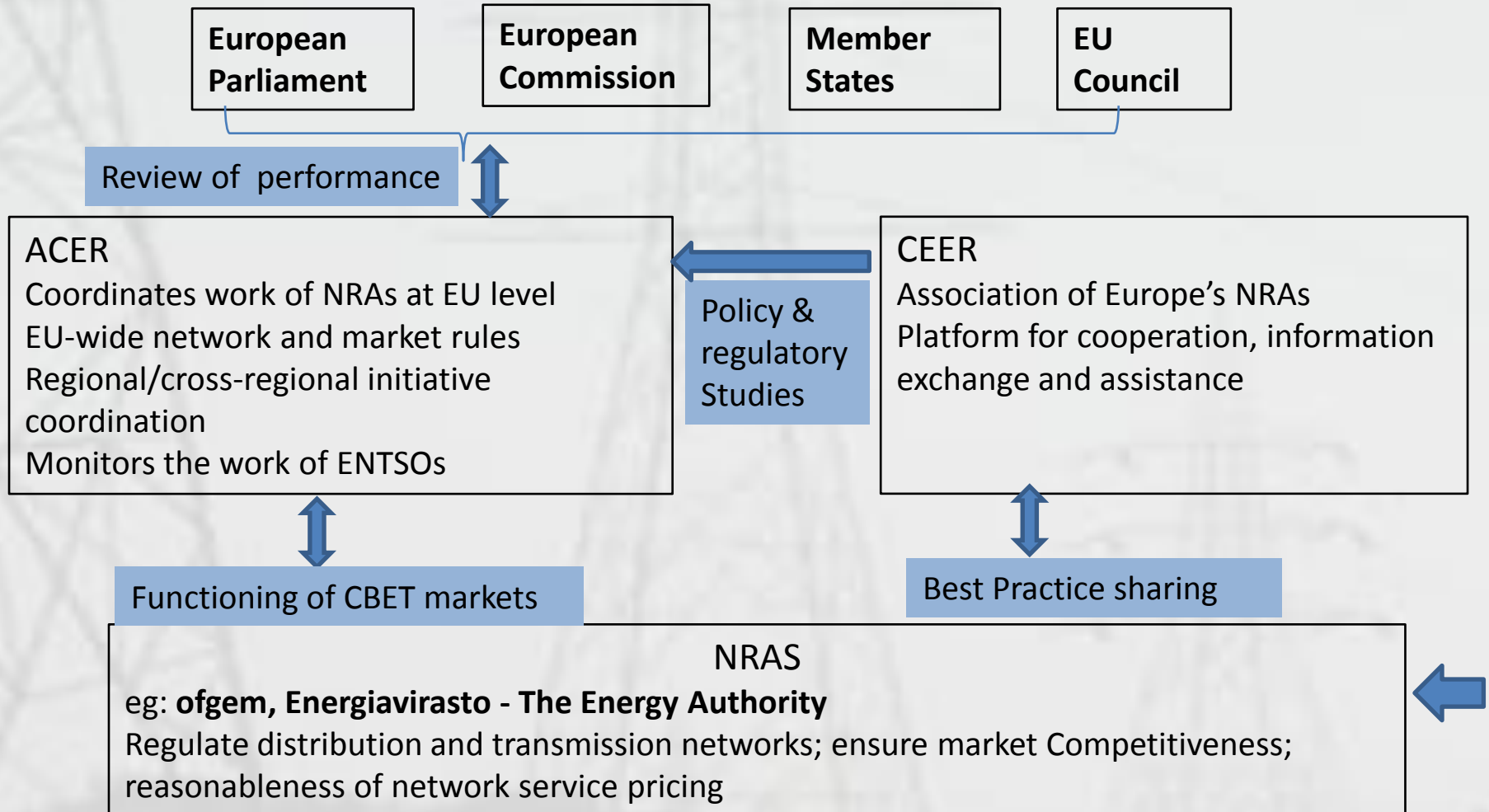
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THANK YOU

Relation between ACER , CEER & EU



South Asian Association for Regional Cooperation (SAARC)

- Article 7 & 8 enable the transmission planning agencies.
- Article 9 to 14 mention about multiple commercial and operational aspects impacting CBET.
- Article 14 refers to Knowledge Sharing and Joint Research in various aspects of power sector.
- Article 15 mechanisms to resolve regulatory issues related to electricity exchange and trade.

The key articles of SAARC Inter-governmental Framework Agreement for Energy Cooperation (Electricity)



- In the second meeting of energy regulators held in February 2016, it was discussed to set up a regional body- "Regional Energy Regulatory Authority" or a "forum of energy regulatory authorities."
- This is envisaged to oversee the harmonization/ coordination of regulation, codes and standards for the electricity grid, tariff determination principles and dispute resolution

Meeting of Energy Regulators /Bodies in SAARC MS



Organizational framework- Recruitment & staffing

- **Recruitment** : Governing board members on nomination basis by MS and professional recruitment for all other posts
- **Tenure**: Tenure of permanent and contract staff to be decided along with renewal terms and conditions
- **Qualifications**: specific to individual role
- **Consultants**: on as – required basis
- **Flexibility**: to expand for evolving org structure

Tentative responsibilities of Key stakeholders

Director/
Director
General

- Act as Member Secretary to the Governing board, which reports to the Standing Committee

Deputy
Director
(Technical)

- Preparation of regulatory procedures/ guidelines for licensing, open access, planning for transmission, harmonization of grid codes

Deputy
Director
(Finance/
legal)

- Preparation of regulatory procedures/ guidelines for dispute resolution, taxes and duties
- Prepare annual budget estimates as well as any finance related issue for the forum

Deputy
Director
(Commercial)

- Preparation of regulatory procedures/ guidelines for transmission pricing, imbalance settlement mechanism periodic settlement of deviations from scheduled transactions

