

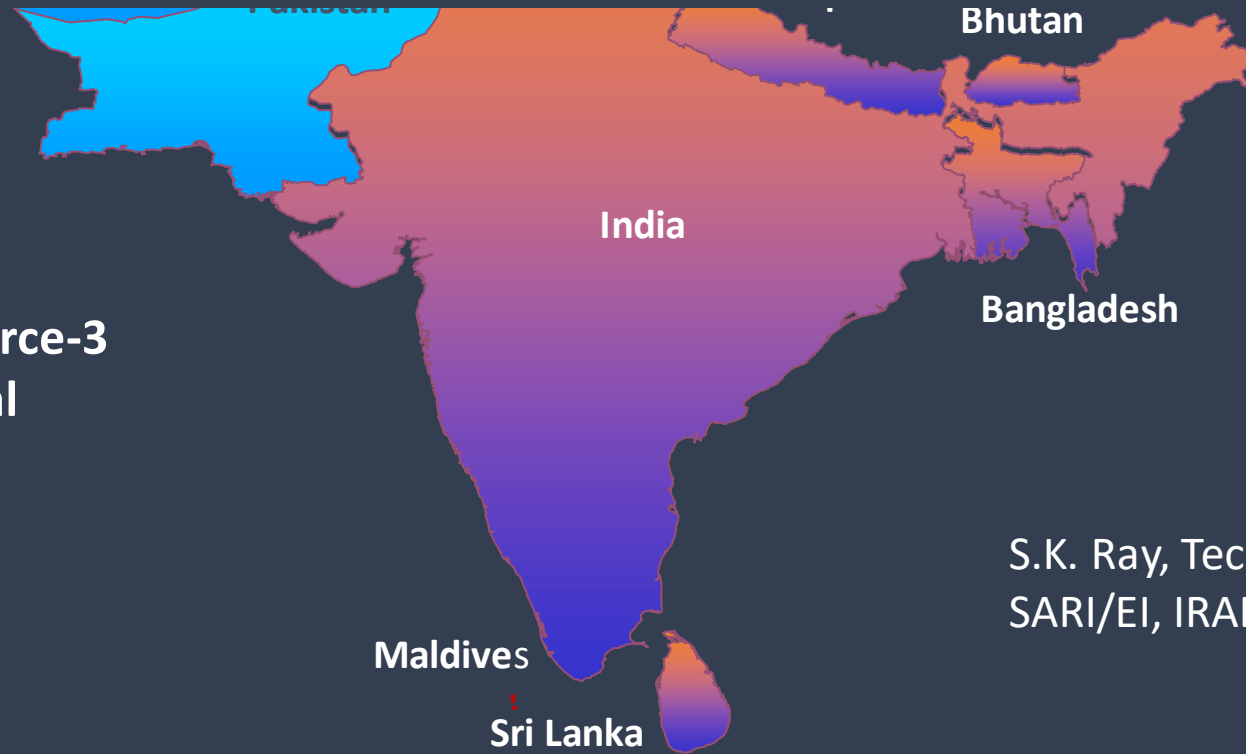


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Action for Development

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



4<sup>th</sup> Meeting of Task Force-3  
Kathmandu, Nepal

S.K. Ray, Technical Specialist  
SARI/EI, IRADe



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

- 1. SARI/E is a long standing program of USAID started in the year 2000.**
- 2. Program has consistently strived to address energy security in South Asia by focusing**
  - 1) Cross Border Energy Trade
  - 2) Energy Market Formation and
  - 3) Regional Clean Energy Development.
- 3. SARI/EI–Phase IV (2012-2017): Key Outcomes.**

Three Key Development Outcomes:

  1. *Coordinate policy, legal and regulatory issues.*
  2. *Advance transmission interconnections.*
  3. *Establish South Asia Regional Electricity Markets.*



**IRADe, a regional organization, is implementing partner**



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# SARI/EI : Structure Framework

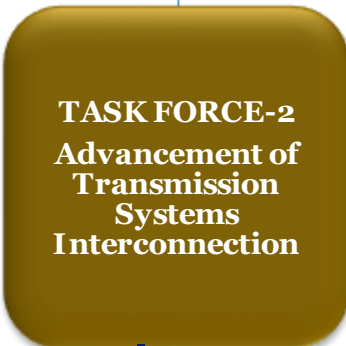


# SARI/EI : Structure Framework

**SARI/EI/IRADe (Secretariat)**



**Highly Consultative & Participatory Approach**



**Project Steering Committee**

- ❑ Apex body, provides strategic direction for SARI/EI program
- ❑ PSC member includes:
  - Govt. Nominated –Secy./JS./Director/Chairman Level officials from South Asia Country governments
  - Director Level Representatives of regional institutions such as SAARC
  - Representatives of multilateral donors (e.g. ADB and World Bank)
  - Independent Energy Experts/Diplomats

**Intergovernmental Technical Task Forces: Heart of the Program**

- ❑ Government Nominated Members (national governments, electricity utilities, regulatory commissions, power market institutions, etc)
- ❑ Task force meetings:
  - Follows Highly structured, consultative, participative approach
  - Demand-driven approach
  - Identifying needs for technical analysis, research studies

# Key findings of the Demand Driven Studies



Task Force - 1

Regional Regulatory Guidelines for common and coordinated electricity Regulatory Framework.

Suggested changes/Amendments in Electricity policy, laws and legal framework to promote CBET.

Regional Investment Framework and Policy

Innovative Policy, Fiscal and Market Instruments for Mobilizing finance.



Task Force - 2

Cross Border Electricity Trade Potential in the South Asian Region

Framework Grid code guidelines and Codes for Integrated regional power system planning, operation. Etc.

Framework and guidelines on Open access and trading license regime in South Asia.



Task force - 3

Power procurement strategy of South Asian countries

Pricing Framework – Transmission and Generation pricing

Model Power Purchase Agreement and Transmission Service Agreement

Commercial terms and conditions of Power Trade

Feasibility and desirability of power exchange market



Analytical Studies

Estimates of benefits holistically and the need for supporting regulatory and market developments that may aid in creating the political consensus for regional electricity trade

## **Task Force-3 – Goal**

To create the enabling and systemic conditions for a sustainable market for energy trading and exchange in South Asia. The focus will be on :-

- Development of Cross Border power exchanges and related market mechanisms to enhance the bilateral and multilateral arrangements.
- Market driven commercial practices in the field of power trading, including long term contractual instruments and medium/short term power trading including power exchange.

## **Task Force-3 – Activities**

To achieve the goals, some of the current activities being carried out by TF-3 are:

- The task force shall recommend the relevant commercial terms and conditions in order to streamline and promote a South Asia Regional Electricity Market.
- Planning the development of regional energy markets including a Regional Exchange through the initial creation mock trading platforms whose results will be backed up by data and market simulations.
- Final market design of South Asia market including a draft set of market rules and mechanisms that will go through a stakeholder consultation process in all countries.
- long term contractual instruments and long/medium/short term power trading and exchanges.



## **Abstracts from TOR of TF-3**

A regional energy trading market in the South Asia region is a key developmental challenge for advancing energy integration.

Many analysts have recognized the value of development of power exchange and related market mechanism to enhance Cross border Electricity Trade (CBET) among the South Asian Nations.

A power exchange must provide for a “fair, neutral and robust” market mechanism and price discovery process.

A power exchange will lead to the creation of an orderly marketplace for all buyers and sellers in South Asia.



## **Abstracts from Roadmap of TF-3**

- Suggest the most suitable structure for a South Asia regional power market.
- Evaluation of options like a dedicated power exchanges for the South Asian nation or extension of any existing power exchanges in case of short term trades.”
- The recommended set of draft market rules and design for the power exchange( pilot power exchange) to be prepared.
- Based on the market rules and agreed pilot market design, the pilot market will be set up.
- Setting up and running of pilot market is to be carried out by a suitable agency.

# South Asian Regional Power Exchange- SARPEX (Mock Trade)

## Outcome of Exercise

### Why Regional Power Exchange

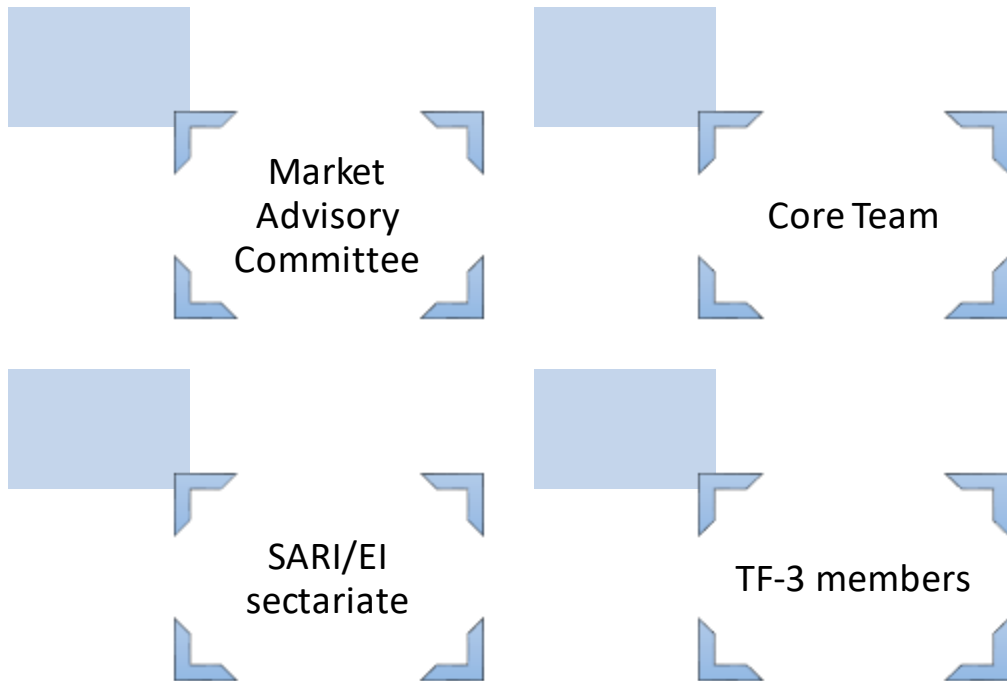
- Daily demand variation is substantial in South Asian region and providing a sizable opportunity for regional day ahead market.
- The day ahead option of power sell and buy which the exchange provides for can't be available through other contracts.
- Currently we have only long and medium term power trading though bilateral agreements.
- To extract the full benefit of regional power trade of day ahead nature, a Regional Power Exchange is essential

Ascertain the feasibility of SARPEX.

Drafting the market design and rules for the South Asian Regional Power Exchange

Enhance/capacity Building of participants from South Asian countries on the function of Power Exchange.

## Parties Involved in the Execution of SARPEX:



S.No	Name	Country	Designation	Organization
1	Mr. Anil Razdan	India	Ex- Secretary	Ministry of Power
2	Mr. Hans-Arild Bredesen	Norway	CEO	Nord Pool Consulting
3	Mr. Peter Jogersen	Denmark	Vice President	Energinet
4	Mr. Musara Beta	South Africa	Chief Market Analyst.	South African Power Pool



# Formation of Market Advisory Committee ( MAC)

Functions of the Market Advisory Committee ( MAC).

- Advice on the design of the pilot market.
- Advice on the draft set of market rules for the pilot market.
- Monitoring of the pilot market activities and give suggestion as and when required.
- To facilitate stakeholder consultation and advocacy of the Mock exercise in the respective Nation.
- To give guidance to the core team in the respective Nation.

All the Task Force – 3 members are a part of the MAC. Additional members have been taken based on the requirement of the project. These additional members may be involved on specific matters or as full fledged members.

Suggestions for additional members are welcome.



## Core Team Members : Countries Executioners for activity

S.No	Name	Country	Designation	Organization
1	Mr. Karma Namgyel	Bhutan	Chief Engineer, DHPS	Ministry of Economic Affairs
2	Mr. Denkar	Bhutan	Engineer, DHPS	Ministry of Economic Affairs
3	Mr. Ugyen Chopel	Bhutan	Engineer, DHPS	Ministry of Economic Affairs
4	Mr. Nima Tshering	Bhutan	Bhutan Power System Operator (BPSO)	Bhutan Power Coporation (BPC)
5	Mohammad Hossain,	Bangladesh	Director General	Power Cell
6	Shiekh Faezul Amin -	Bangladesh	JS (Dev)	Power Division
7	Golam Kibria	Bangladesh	Director IPP 1	BPDB
8	Md. Nuruzzaman	Bangladesh	SE (Plg)	PGCB
9	Mr. Anil Rajbhandary	Nepal	Director	Nepal Electricity Authority
10	Mr. Nutan Prakash Sharma	Nepal	Senior Devisional Engineer	DoED, NEA
11	Mr. Prabal Adhikari	Nepal	Chief Power Trade Department	NEA
12	Mr. Narendra Shrestha	Nepal	Assistant Manager	Load Dispatch Center, NEA

# Some Terminology relevant to the exercise

## Certain terms which to be relevant for understanding of the exercise

**Day ahead market:** Bidding in the market is done on day  $n$ , for trades which are effective on day  $n+1$ .

**Unconstrained Market Price and volume ( UMP & UMV) :** The discovered market price and volume which do not take into account transmission constrains.

**Constrained Market Price and volume ( CMP & CMV) :** The discovered market price and volume discovered after taking into account the transmission constrains

### **Modes of operation of pilot market :-**

**Residual Mode** - The pilot market shall be run such that the Indian domestic exchanges are not in any manner influenced by the operation of the pilot market. The un-cleared bids of Indian Domestic exchanges shall be matched against the bids of the other nations in the pilot market platform.

**Unified Mode** - The pilot market shall be run such that all the bids including the bids in the Indian exchanges are cleared simultaneously the pilot market platform



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# Thanks

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