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

**3rd Project Steering Committee (PSC)
and
4th Task Force (TF-1) Meeting**

**Dhaka, Bangladesh
17th ,18th December,2014**





Outline of Presentation

- **Cooperative Grant Agreement**
- **Review of the SARI/EI Program Activities : 2nd year 2013-2014**
 - A) Brief of the key Activities Executed in Year 2013-2014**
 - 1. Inaugural Conference, Background Paper etc.**
 - 2. 2nd PSC Meeting**
 - 3. Task Force Meetings**
 - 3.1. TF-1**
 - 3.2. TF-2**
 - 3.3. TF-3**
 - 4. Demand Driven Studies for Task Forces**
 - 5. Study Tour to Europe, Key learnings of Study Tour**
 - 6. Investors Workshop and Key Outcomes of the Workshop**
 - B) Key Lessons Learnt During the year 2013-14**
- **Proposed Annual Work Plan 2014-2015**



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Cooperative Agreement: Highlights



Cooperative Agreement: Highlights

Program goal and objective :

1. Regional Energy Integration
2. Cross border Electricity trade
3. Establishment of South Asia Electricity Market

- Effective from 1st October, 2012
- Period -5 years (2012-2017)
- Fourth and Final Phase of SARI.

**The program follows a
Bottom Up approach**





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Review of the Activities of 2nd year (2013-2014) of the Programme





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Approach Adopted for the 2013-2014: Essence

“Plans for 2013-2014 was focused on intensive task force meetings where each of the task forces worked to address the specifics issues concerning CBET and achieving the deliverables as defined in the terms of reference of Task Forces”





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South Asia Regional Inaugural Conference of SARI/EI on “Cross Border Electricity Trade”



Inaugural Conference 4th-5th October, 2013

- Inaugurated by Dr. Montek Singh Ahluwalia, Deputy Chairman, Planning Commission, Government of India (GoI).
- Active participation: SA governments, public & private sector, ADB, World Bank and SAARC Energy Centre etc.
- PSC and TF members actively participated.
- Conference followed the SARI process of consensus building among country governments.
- Show cased the “win win” benefits cross border trade for all SA countries and IRADe published a background paper on CBET.



**South Asia Regional Inaugural Conference of SARI/EI on
“Cross-Border Electricity Trade”
4th-5th October, 2013
New Delhi, India**



Inaugural Conference : Objective

- To launch the phase IV of SARI/EI Program
- To initiate a concrete and constructive discussion on the vision and road map for the South Asian Electricity Market (SAEM)
- To build consensus among the decision-makers of the region.
- To identify key areas for policy, regulatory, and technical interventions required in the SA countries
- Discuss the best practices and experiences from Regional Power System Integration such as Europe, SAAP,GMS etc.





Key Outcome of the Conference

- ✓ **Electricity should be recognized as trading commodity.**
- ✓ Different countries follows different regulatory practices, which leads to difference in electricity pricing in the region. This calls for **need for harmonization/coordination.**
- ✓ Need for **advancing policy reforms at national level** with special focus on taxation and duties.
- ✓ To establish **guidelines for trade and dispute resolution mechanism** as pre requisite for establishing energy market
- ✓ Requirement of investors to take up large projects in hydro sector for sustainable cash flows which can be done by **investment friendly policies** in the region.
- ✓ The **grid codes and technical standards need to be coordinated** to ensure reliable regional power system operation.
- ✓ Requirement of **South Asia regional power grid** and establishments of power exchange.
- ✓ **Coordinated and shared investment in generation** and multi-country owned cross-border transmission connections to be explored for CBET.

Background Paper on “Prospects for Regional Cooperation on Cross-Border Electricity Trade in South Asia”

IRADe published and released the background paper that showed “win-win” nature of bilateral and multilateral electricity trade in SA. The paper also highlights:

- Current energy scenario and access to energy and other relevant details for the countries of the SA region
- The current status of regional energy integration including the past energy trade, projects in pipeline and those that are in various stages of planning.
- The advantages derived by countries in Africa, SE Asia and Europe due to Energy Integration
- Issues pertaining to development of a regional power market.

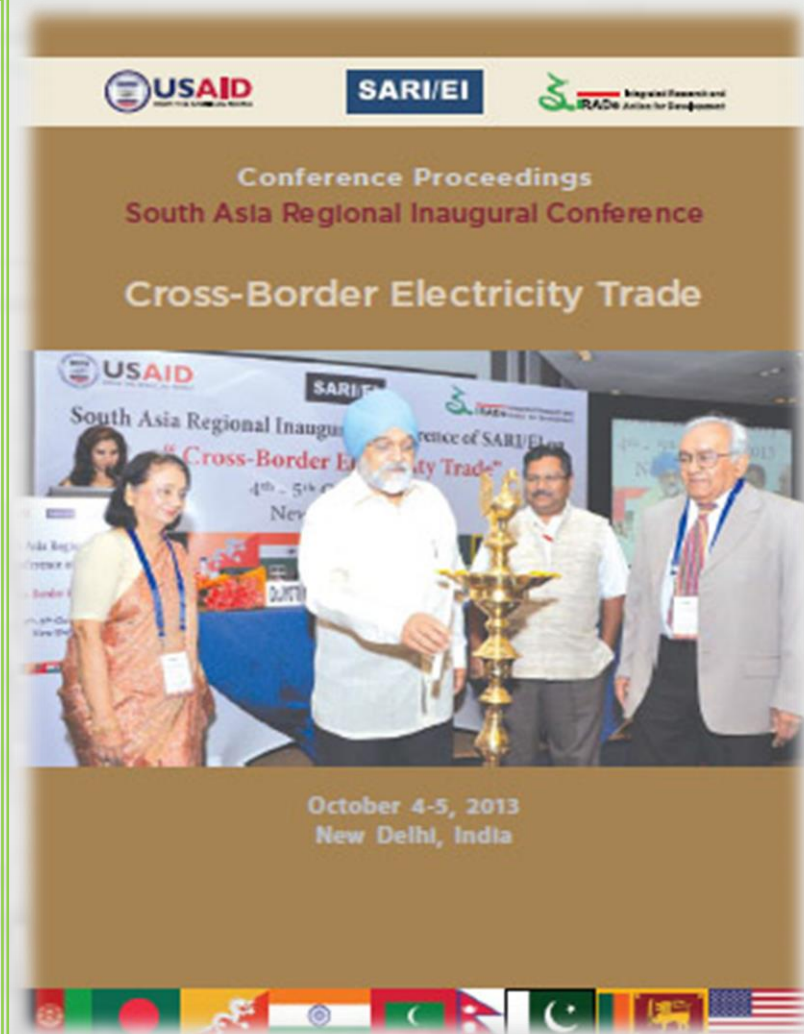


Prospects for Regional Cooperation on Cross-Border Electricity Trade in South Asia



Conference proceedings of South Asia Regional Inaugural Conference on “Cross Border Electricity Trade”

- ✓ IRADe published Conference proceedings of South Asia Regional Inaugural Conference on Cross Border Electricity Trade .
- ✓ The proceedings recommendations were in four key areas i.e.
 - 1) Policy and Regulations
 - 2) Investment in power sector
 - 3) Economic benefits
 - 4) Regional power Grid and development of power exchanges





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Project Steering Committee(PSC) Meeting



2nd PSC meeting ,8th January, 2014, New Delhi, India

- ✓ The progress of the program and plan for 2013-2014 activities were discussed.
- ✓ TOR of Task force 3 was discussed and finalized.
- ✓ Members emphasized the need for building political consensus.
- ✓ Various studies to be carried out to achieve deliverables of the Task forces were discussed.
- ✓ To bring synergies, members suggested to have Coordinated Project Steering Committee and Task Forces Meetings.





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Task Force 1: “Coordination of Policy, Legal and Regulatory framework”





**2nd Meeting of Task Force-1 on “ Coordination of Policy, Legal & Regulatory Framework”
held on 19th & 20th February, 2014 , Colombo, Sri Lanka : Findings**

- IRADe presented the key legal, Regulatory and policy issues(Country wise) and the same were discussed and deliberated.
- Members presented key legal, Regulatory and policy issues concerning CBET in South Asia.
- Scope of work(SOW) of the study of “Review of Electricity Laws, Regulations, Policies (EL&R&P) of SAC (South Asia Countries)” was finalized.



Summary of the 2nd meeting of Task Force-1

- **Currently, focus is bilateral and on case to case basis.** Bhutan and Nepal have specific provisions in their laws relating to CBET. Specific provisions in electricity laws in the long term are extremely important and will provide conducive environment.
- **For, Power trading , Nodal agency in short run and trading Licenses in long run** are required However, Generation may be de-licensed to promote capacity addition vis-à-vis CBET. Trading should be a distinct activity.
- There should not be any barriers of taxes/duties among the SAC.
- **Non Discriminatory open access** is extremely important for enhancing Private sector participation and bringing competition and investment.
- For long term sustainability, **overall tariff must reflect true cost generation and tariff should be fixed by independent regulators.**
- Members were of the view that for sustainability of the power sector, **sector reform is important to bring viability, transparency and accountability. Further, this will enhance competition and investment in the sector.**
- Members were of the view that there is need to have **independent dispute resolution body at regional level for the settlement dispute mechanism.**
- Members considered that there is need **to have standard PPA including payment security mechanism** on a regional basis which shall encourage the private investment in the SA region.

Summary

Demand Driven Studies of TF-1 in the Year 2013-2014

- **TF-1 : Study -1** : Ongoing study on review of the study on review of policies, regulations and laws, preparation regulations etc.
- Findings covering analysis on the review of the policies/acts/regulations and gaps in Laws, key policies, regulations prevailing in the SA impacting CBET.
- Analysis of the international best practices in relation to the harmonization/coordination of legal, policy and regulatory frameworks for promoting regional power trade
- Recommendations on amendments/changes required policies, regulations and laws to advance CBET.
- Template covering provision on common/ coordinated legal, policy, regulatory frame work for CBET in SAC.
- Country-wise doable strategy, specific recommendations and road map to incorporate the changes in the policies, acts/laws/regulations to facilitate and promote cross border electricity trade (*this will feed in to Program strategy for building consensus and outreach*)



TF-1 study on “Review of Electricity Laws, Regulations, Policies (EL&R&P) of SAC (South Asia Countries)”

- As decided in the 2nd TF-1 meeting , IRADe floated the EOI (Expression of Interest) for the study on “Review of Electricity Laws, Regulations, Policies (EL&R&P) of SAC (South Asia Countries)”
- Based on the EOI, formulated and floated the RFP to perspective bidders .
- IRADe evaluated the bids(4 Nos) based on combined technical and financial score, awarded the assignment to Highest ranked bidder Viz. M/s Mercados Energy Private Limited.
- IRADe placed the award obtaining necessary approval from USAID on 22nd April, 2014 .





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3rd Meeting of Task Force 1 on “Coordination of Policy, Legal and Regulatory framework” held on 4th and 5th June, 2014 | Thimphu, Bhutan

- Initial findings of the TF-1 Study was presented by Consultant and deliberated by the members.
- Detail set of questionnaire to capture the views of the members for preparing the detailed Risk Matrix and the frameworks was prepared.
- International best Practices to be analyzed and assessed by the consultant.
- Member suggested on the importance for having Synergies among all the three Task Forces to ensure that derivable of TF-2 and TF-3 deliverables are achieved within the overall legal, regulatory and policy set up which are being framed by TF-1.
- Site visit to the Basochhu HEP





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Task Force 2

“Advancement of Transmission Systems Interconnection”



2nd Meeting of Task Force 2 on “Advancement of Transmission Systems Interconnection” held on 16th -17th April 2014 , Kathmandu, Nepal

- ✓ Members presented the planning and operational aspects for Power system interconnections.
- ✓ IRADe presented on “Infrastructure Financing in South Asian Power Sector: Issues, Prospects and Challenges”
- ✓ Scope of work/ToR on “Assessment of trading potential” and “Harmonization of Grid codes” were discussed and commented upon.
- ✓ IRADe finalized the TOR subsequently.





Demand Driven Study on “Assessment of the Electricity Trading Potential of the South Asian Countries”

- **TF-2 :Study -1 : Ongoing Study to find the Trading Potential of South Asian Countries.**
- **To identify the trading potential in (MW,MWh.) of the South Asian nations (Afghanistan, Bangladesh, Bhutan, India, Pakistan, Nepal, Sri Lanka & the Maldives) over a period of next 10-20 years”**
- **D-S projections shall include the year wise trading opportunities that arise out of seasonal variations, time zone difference, difference in load curve, different weekends and holidays being followed in each South Asian nation.**



TF-2 Study on “Assessment of the Electricity Trading Potential of the South Asian Countries”

- ✓ As decided in the 2nd TF-2 meeting , RFP was prepared and floated by IRADe to perspective bidders to carry out the assignment on “*Assessment of the Electricity Trading Potential of the South Asian Countries*”.
- ✓ Bids were received from seven bidders.
- ✓ IRADe evaluated the bids , based on combined technical and financial score, awarded the assignment to Highest ranked bidder Viz. *M/s ICF Consulting India Pvt.Ltd*
- ✓ IRADe placed the award after obtaining approval from USAID on 19th September,2014.



TF-2 Study on “Harmonization of Grid Codes, Operating Procedures and Standards”

- ✓ As decided in the 2nd TF-2 meeting , RFP was prepared and floated by IRADe to perspective bidders to carry out the assignment on *“Harmonization of Grid Codes, Operating Procedures and Standards”*
- ✓ Bids were received from five bidders.
- ✓ Currently bids are being evaluated and is expected to be awarded by December, 2014.





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Task Force 3 on “ South Asian Regional Electricity Market”

Constitution of Task Force 3

- Based on the TOR and attributes of the members for Task Force 3 as finalized during the 2nd PSC meeting, IRADe initiated the process.(Nomination letters were issued by February, 2014)
- Task Force -3 on South Asia Regional Electricity Markets comprises of members from country utilities, private sector, power trading companies and energy exchanges representing all South Asian countries.
- Nomination from all the south Asian countries were received except from (Afghanistan, Pakistan, Maldives) by Mid/end March,2014.

1st Meeting of TF-3 on “South Asian Regional Electricity Market” held on 29th-30th April, 2014, Mumbai

- The ToR of TF-3 was discussed and finalized.
- Members Presented their country Experiences with respect to power trading.
- IRADe presented on 1) Evolution and Commercial aspects of power trading in India 2) Important terms and conditions of long term PPAs.
- IEX made a presentation on Power Market in India.
- As suggested by members IRADe to prepare a road map for achieving the deliverables.





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Roadmap for TF-3 (Phases)

- **Phase-1 Assessment of Preparedness of each SA nation and identification of Commercial Principals / aspects required for regional electricity market. *(six month)***
- **Phase -2 Development of Market Rules and Pilot market design etc. *(six months from the completion of phase 1)***
- **Phase-3 Running and Finalization of Pilot Market. *(Setting up of Pilot Market, Running of Pilot market, finalization of market rules etc. Anticipated completion by 2016/17)***





TF-3 Study “Assessment and Recommendation of Commercial Terms & Conditions for CBET and Suggesting the Model of Power Exchange in South Asian Region”

- **As per the Roadmap, IRADe Prepared the ToR of the study on “Assessment and recommendation of commercial terms & conditions for Cross Border Electricity Trade (CBET) and suggesting the model of Power Exchange in South Asian region”**
- **TOR was issued to the members and USAID for their comments.**
- **After incorporating comments of Members and USAID, TOR was finalized by 9th, October ,2014.**
- **IRADe prepared the RFP and the same was floated by October 17th , 2014**
- **Six (6) number of Bids were received and Bids are opened on 27th November,2014 and is currently under evaluation by IRADe.**

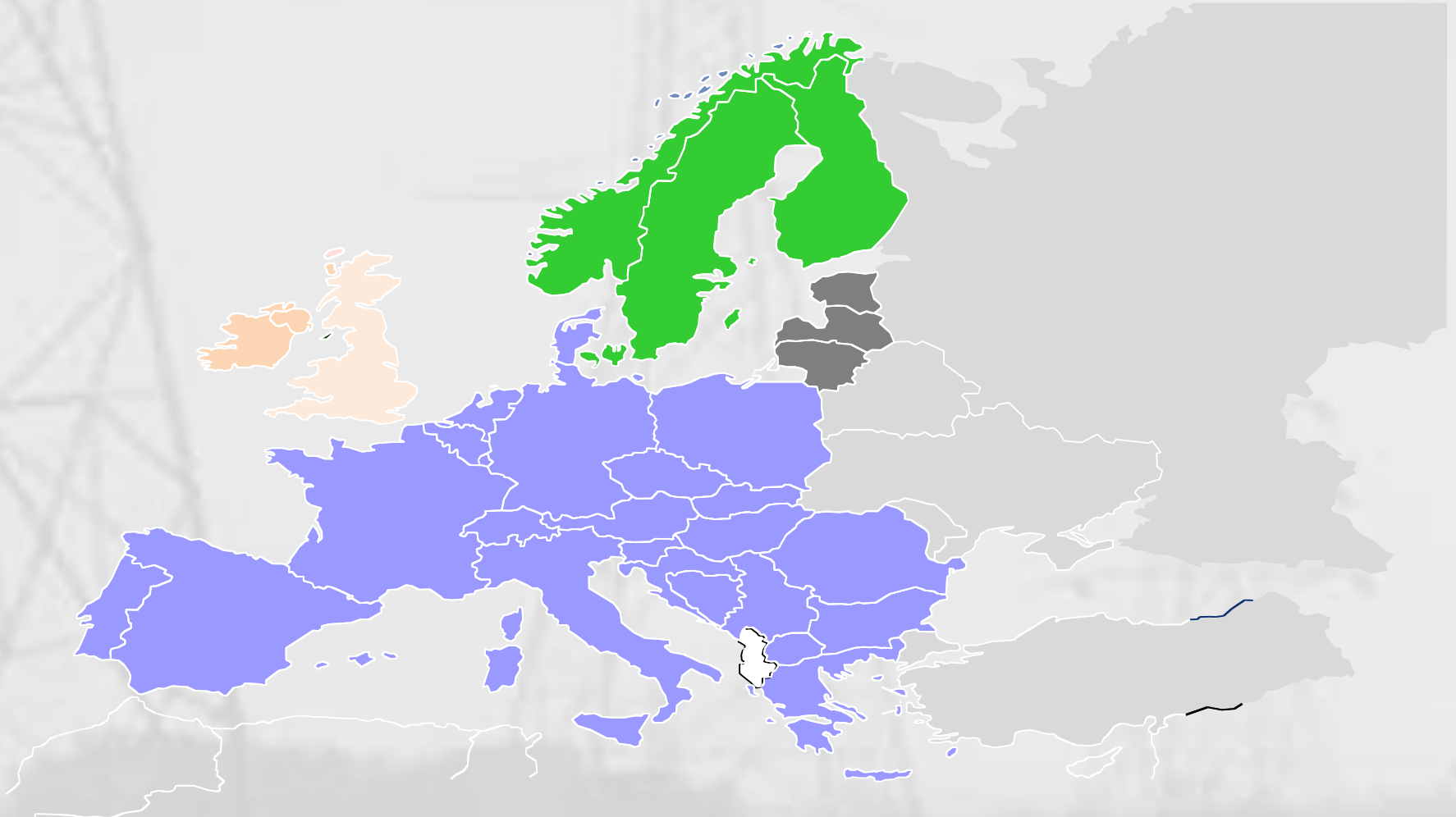


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STUDY TOUR TO EUROPEAN REGIONAL POWER MARKET (AMSTERDAM & PARIS 13th-19th July, 2014)



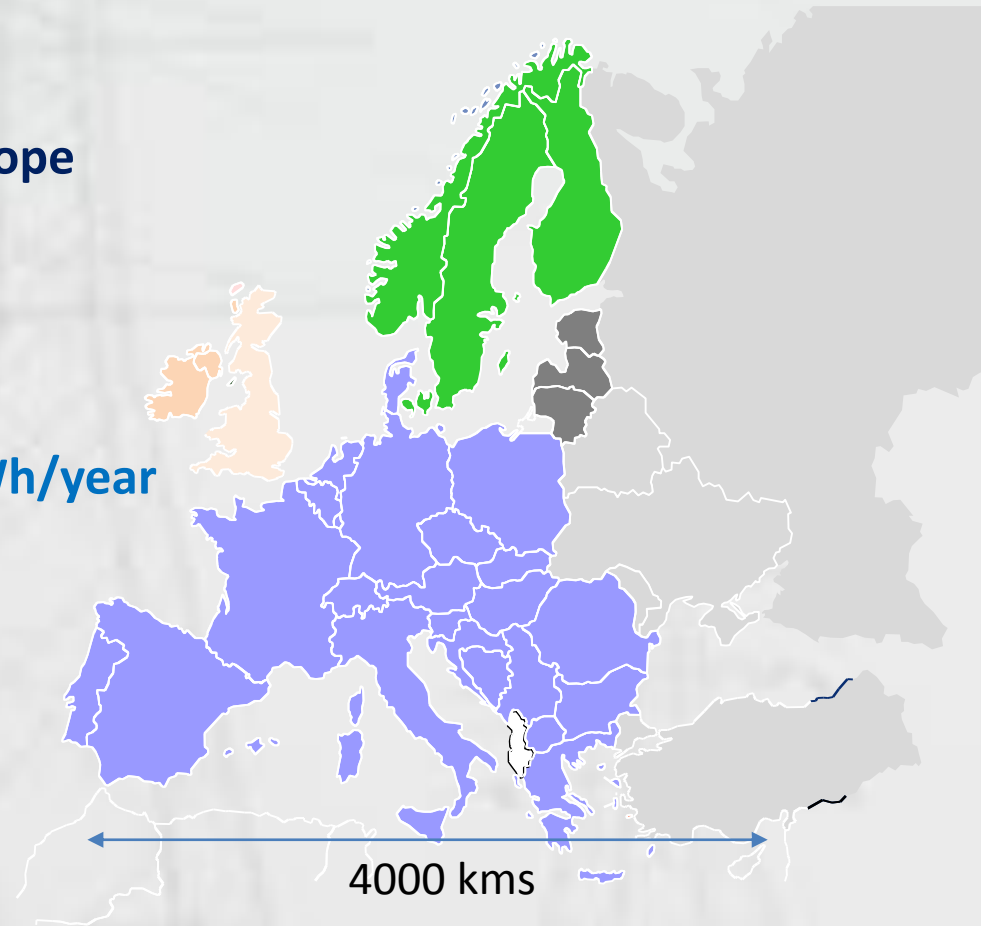
Objective of the study tour European Regional Power Market

- The study tour was organised by IRADe in association with the **Indian Energy Exchange (IEX)**, a leading power exchange in India, with a combination of class room training as well as site visits.
- The study tour aimed to **facilitate knowledge transfer and build the capacity of the task force members and other representatives from the SAC.**
- Members of task forces/PSC/senior government officials (Secy. Power, GoB) and SARI/EI team participated in the tour (12 Nos.).
- The Participants gained the **knowledge and experience from the process of evolution of European regional power markets by dwelling upon the legal and regulatory issues, institutional governance, operational and market aspects.**



European Electricity Sector

- **32 interconnected countries of Europe**
- Total Installed capacity : **850 GW**
- Consumption : **3,400 TWh/year**
- Peak Load : **500 GW**
- Physical exchanges(2012) : **400 TWh/year**
(12% total consumption)
- Population : **500 Million**



Key Highlights of the European Market

1. **Vision of EU:** Single Integrated Electricity Market.
2. **Power Exchange(PXs)** : Each country has its own Power Exchanges and they act as a nodal for Cross Border Transactions.
3. **Power Exchange** : Trading, Central Clearing and Settlement.
4. **Price Coupling(PC)** : PC is solution to couple markets by different power exchanges of the Europe: Covers the technical, legal, operational aspects.
5. **Price Coupling of Regions (PCR)** : Ensures that each PX runs the same common algorithm with same data and configuration.
6. **PXs:** Each PX is connected TSO for Capacity Information.
7. **Capacity Allocation:** Capacity Allocation Service Company(CASEC) is the nodal company in Europe which gives the right to import or export electricity over a interconnector on Behalf of TSOs.
8. **Role TSO:** 1) Construction and Maintenance 2) System services:- Maintaining Balances between Supply and Demand , 24/7 electricity Supply 3) Market Facilitation:-Stable Electricity Market.
9. **Balancing Market** : Imbalance Management is the responsibility of the TSO. TSO collects bids from Supplier and generator for both Up and Down regulation. Settlement Mechanisms:-Cost of Managing imbalances is borne by the Causer of Imbalance.

Study Tour: Key Lessons Learnt

- **Long-term bilateral contracts:** The process of Cross Border electricity Trade initiated with long term bilateral contracts.
- **Strong Political Mandate.** Strong political mandate gave a clear road map at European Union (EU) level which translated in to conducive legal, regulatory and policy framework.
- **Coordination of regulations and Forum of Regulators.** To ensure effective coordination of regulations, **Agency for Cooperation of Energy Regulators (ACER)** was formed as an EU body in 2010 as forum of National Energy Regulators.
- **Bottom up approach.** Market Integration vis-a-vis **market couplings were industry pushed**, which were subsequently adopted/formalized by EU.



Lesson
Learned

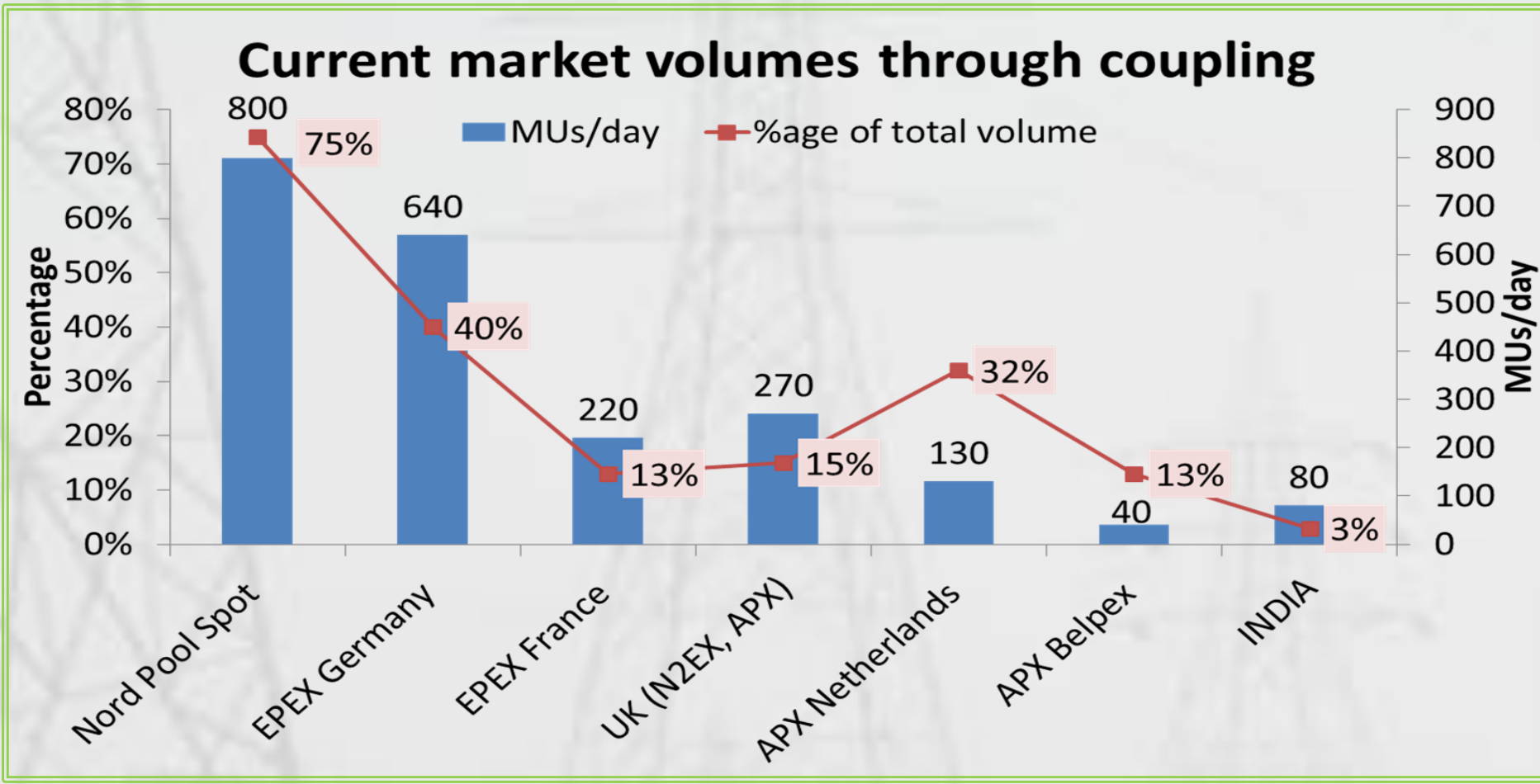
Study Tour: Key Lessons Learnt

- **Coordinated Power Exchanges:** National power exchanges of EU countries coordinates among each other on a common platform for the purposes of cross border electricity trade transactions. **No regional power exchange.**
- **Access to network:** Non Discriminatory open access to network and access to cross border interconnectors has been made completely market based. Exclusive rights to cross-border capacities have been abolished by EU.
- **Role of Government in Building Cross Border Trade Infrastructure:** Push for cross border interconnections, largely supported/funded by the Governments but on purely commercial principles.
- **Market Creations:** EU laws are mandated to allow choice of suppliers to all their consumers. Therefore, vibrant electricity markets evolved within countries.



Lesson
Learned

Study Tour: Key Lessons Learnt: Market Volumes



Investors Workshop on Cross Border Electricity Trade

➤ Investors Workshop on “Cross Border Electricity Trade” was organised by IRADe in association with CII on 24th - 25th September, 2014 | New Delhi, India.

➤ The objective of the workshop:

- 1) Investment perspectives on current Cross-Border Electricity Trade (CBET) experiences, opportunities and challenges in South Asia
- 2) Role of policies, regulations and laws in promoting investments in the South Asian power sector
- 3) Investment in infrastructure for CBET; role of power market and market intermediaries

➤ The workshop provided a platform to investors, developers, financial institutions, Multilateral Development Banks (MDB's) and high-level officials from the South Asian countries.



Concept Paper on “Cross Border Electricity Trade in South Asia: Investment Challenges and Opportunities”

- IRADe prepared in-house the Concept paper on "Cross Border Electricity Trade in South Asia: Investment Challenges and Opportunities “
- The Paper brought the critical analysis of the overall investment requirements, challenges and opportunities in CBET in SA :

- 1. Power Sector Overview of SA countries and CBET**
- 2. Key Drivers For Investment in CBET**
- 3. South Asia Investment Climate**
- 4. Key Investment challenges in CBET**
- 5. Key opportunities and investment requirements in each SA countries.**
- 6. Way Forward**

Cross-Border Electricity Trade in South Asia: Challenges and Investment Opportunities



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

South Asia Investor's Workshop on
'Cross-Border Electricity Trade'

24-25 SEPTEMBER 2014, NEW DELHI, INDIA

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Cross-Border Electricity Trade in South Asia: Challenges and Investment Opportunities



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Concept Paper: South Asia Key Statistics

	Afghanistan	Bangladesh	Bhutan	The Maldives	Nepal	India	Pakistan	Sri Lanka
Population (2013)	30.55 Million	156.6 Million	753,900	1.252 Billion	345,000	27.80 Million	182.1 Million	20.48 Million
GDP Growth Rate(2013)	4.2	6.0	5.0	3.7	3.8	5.0	6.1	7.3
Per Capita Electricity Consumption(Kwh Per Capita)	49	294	2420	2283	103	879	458	449
Access to Electricity(% Population 2010)	30	46.5	57.1	100	76.3	75	67.4	77.6
Electricity Demand in GWH (2010)	2600	28470	1749	800	3200	938,000	95,000	10,718
Projected Electricity Demand CAGR till 2020	10%	9%	7%	5%	8%	7%	10%	7%
Installed Capacity(MW)	522	8537	1488	78	740	2,53,389	20,415	3334
Key Generation Resources	Hydro, Oil	Natural Gas	Hydro	Oil	Hydro	Coal, Hydro, Wind , Solar	Coal, Natural Gas ,Hydro	Hydro oil
Investment Requirement for Electricity Infrastructure Development 2011-2020 (BUSD)		16.5	*12.62		7	468.8	96	14.05 (2032)

Key Recommendations to Promote Investment and CBET

- Building Political Consensus and Institutionalization of the process through **Intergovernmental Agreement to Promote CBET.**
- Establishing **investor friendly Regional Legal, regulatory and policy framework.**
- **Evolving a Regional Investment Policy Framework.**
- Creation of **Regional Grid Master Plan.**
- **Harmonized Grid Codes and Operation procedures** for regional power system operation.
- **Regional Electricity Regulatory Forum/Associations.**
- Exploring **Alternate Financial Mechanisms** for promoting **Public and Private Investment.**
- Establishing **Competitive Regional Electricity Market.**
- **Regional Dispute Resolution Mechanisms.**

Cross-Border Electricity Trade in South Asia: Challenges and Investment Opportunities



South Asia Investor's Workshop on
'Cross-Border Electricity Trade'

24-25 SEPTEMBER 2014, NEW DELHI, INDIA

Summary : Key Achievements of the Year 2013-2014

- ✓ Organised **high level Inaugural conference** of SARI/EI on 4th-5th October 2013, New Delhi, India
- ✓ **Back ground paper** on “Prospects for Regional Cooperation on Cross-Border Electricity Trade in South Asia”
- ✓ **Conference Proceedings**
- ✓ Successfully obtained **Government of India’s Nomination** to the PSC and Task Force
- ✓ **PSC Meeting:** 2nd PSC Meeting : organised on 8th January, 2014, New Delhi, India.
- ✓ **Task Force 1:**
 1. **2nd Meeting of Task Force-1** organised on 19th & 20th February, 2014, Colombo, Sri Lanka.
 2. **3rd Meeting of Task Force-1** organised on 4th and 5th June, at Thimphu, Bhutan
 3. **TF-1 study** on Review of Electricity Laws, Regulations, Policies (EL&R&P) of SAC (South Asia Countries) to Mercados Energy Private Limited
- ✓ **Task Force 2:**
 1. **2nd Meeting of Task Force-2** organised on 16th - 17th April 2014, Kathmandu, Nepal.
 2. **TF-2 study** on “Assessment of the Electricity Trading Potential” of the South Asian Countries”
- ✓ **Task Force 3:**
 1. Constitution of TF-3
 2. **1st Meeting of Task Force-3** organised on 29th -30th , April, Mumbai, India
 3. Road map for TF-3
- ✓ Organised **study tour to European Regional power market** Amsterdam & Paris from 13th to 19th July, 2014.
- ✓ Organised **Investors workshop on Cross Border Electricity Trade** 24th-25th Sept, 2014 at New Delhi, India.
- ✓ Concept Paper on “**Cross Border Electricity Trade in South Asia: Investment Challenges and Opportunities**”
- * **Total : 8 events (1 PSC, 4 TF Meeting, Inaugural Conference, Study Tour, Workshop)**





SARI/EI : Key Lessons Learnt During Year 2013-2014

- ✓ To follow a **consultative, participative and structured approach through the Task forces.**
- ✓ Importance of continuous TF meeting to ensure continuity of the TF activities and providing intellectual inputs to the PSC and TF members through **demand driven research and analysis.**
- ✓ Need for **Synergies among Task Forces and PSC.**
- ✓ Need of **Strategic and skilful policy advocacy and outreach for buying of the Task Force recommendations.**
- ✓ Promoting development of **hydro power(clean energy)**
- ✓ Need to work **creating a conducive investment framework** and environment in the region for investment in SA power sector and CBET.
- ✓ Need for **Intergovernmental Frame work Agreement for Regional Trade.**
- ✓ Need to further increase SARI/EI involvements in various **Government forums/initiatives i.e. inter-governmental agreements, joint working groups,** proposed regional regulator forums, proposed investment forums for Cross Border Electricity Trade.

Lessons
Learned



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Proposed Plan for the Year 2014-2015



Outline.....

Plans 2014-2015: Key Activities Planned

Essence

Work Plans 2014-2015: Key Activities Planned

1. Project Steering Committee meeting

2. Task Force Meetings:

a) TF-1 ,TF-2 and TF-3 :Tangible outputs by the end of Year: 2014-2015

b) Demand driven studies to achieve the deliverables of the Task Forces

i) Study on Coordination of Policies, regulations and laws etc. (TF-1)

ii) Study on Investment policies/guidelines for SA countries(TF-1)

iii) Study on Trading Potential (TF-2)

iv) Harmonization of Grid Codes(TF-2)

v) To assess the preparedness of each South Asian Country (SAC) for CBET(TF-3)

vi) Development of Market Rules and Pilot market design (TF-3)

3. Synergies among Task Forces and PSC :Combined task force and PSC meetings.

4. Out reach /Country Specific Consensus buildings (Task Force Findings/ Recommendations)

5. Study Tour to understand region power system integration

6. SAARC IGFA: Support/assistance to be provided by SARI/EI in implementation of IGFA.



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Plans 2014-2015: Essence

As per the PIP and taking in to account the overall progress of the program so far :

“Plans for 2014-2015 is focused on intensive task force meetings where each of the task forces will work to

- 1) Address the specifics issues concerning CBET and achieving the deliverables of Task Forces*
- 2) Conducting demand driven studies for Task Forces*
- 3) Country Specific Consensus buildings for buy in of the TF findings/recommendations.*
- 4) Focus on Nepal and Transactional Advisory Services*

Planning Develop
Goals
Strategy Ideas



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Project Steering Committee Meeting





Organising Project Steering Committee Meetings

A. 3rd PSC meeting is being organised on 17th and 18th Dec, 2014 along with the fourth TF-1 Meeting

Proposed Agenda :

1. Review of activities undertaken in 2013-14 and key lessons learnt
2. Annual Work Plan for 2014-2015
3. Analytical Study: Progress and Plan
4. Draft findings of the Task Force-1 study on “Electricity laws, regulations, policies and legal structure of south Asia countries (SAC) for promoting Cross Border Electricity Trade (CBET) .

B. 4th PSC meeting will be organised as a **Combined PSC and Task Force Meeting** in Sept,2015

Scheduled of the PSC Meetings Planned for the Year 2014-2015

ACTIVITIES	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15
PSC MEETI)NG												
1)PSC Meet for review of Year 2 and way forward for Year 3, Strategies for Consensus Buildings etc.			Combined PSC and TF-1 (17 th , 18 th)									
2)Combined PSC and Task Force Meeting												



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Task Force Meetings



Task Force: Approach

- 1) TF Activities form the heart of the program.
- 2) TFs act as the platforms for **structured, concerted, and demand-driven discussion** and follows a **highly structured and participatory approach**.
- 3) In 2013-2014 Meetings of each Task Force and its agenda were designed, with the aim of achieving objectives of Task forces and **ensuring that deliverables are achieved** and the **same approach will continue to be followed in the year 2014-2015**.
- 4) To achieve the deliverables defined in the TOR, various **demand driven studies** were initiated in the year 2013-2014. The **scope of work** for carrying out the demand driven study were developed by IRADe and finalized in consultation with TF members during the TF-1 meeting. As per the Finalized Scope of work, IRADe selected consultant through a competitive bidding route to carry out the study. **The same approach will continue to be followed in the year 2014-2015**.
- 5) **Outreach and Consensus building of Task Force Recommendation**





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Demand Driven Studies/Exercises to Achieve the Deliverables of Task Forces as Defined in the Terms of Reference of Task Forces



Demand Driven Studies /Exercises to Achieve the Deliverables of Task Forces as Defined in the Terms of Reference of Task Forces

- **TF-1 :**
 1. **Study -1 :** Ongoing study on review of the study on review of policies, regulations and laws, preparation regulations etc.
 2. **Study-2:** on Investment policies/guidelines for SA countries

- **TF-2:**
 1. **Study 1:** Ongoing Study to find the Trading Potential of South Asian Countries
 2. **Study 2:** Harmonization of Grid Codes

- **TF-3:**
 1. **Study 1:** “Assessment and recommendation of commercial terms & conditions for Cross Border Electricity Trade (CBET) and suggesting the model Of Power Exchange in South Asian region”
 2. **Study 2 :** Study on Market Rules and Pilot Market design



TF-1 : Demand Driven Studies /Exercises

- **TF-1: Study-2: Investment policies/guidelines for SA countries for Promoting Investment in South Asian power Sector and in particular in CBET:**
 - Review of the current and future investment scenario in South Asian Power Sector and in particular on the Cross Border Electricity Trade .
 - Review the current investment regimes/policies ,guidelines and institutional structures/arrangements related to investment of South Asian countries and its impact on the South Asian Power Sector and in particular on the Cross Border Electricity Trade.
 - Analysis of international best practices and suggest for a regional investment framework for promoting investment.
 - Suggest in developing investment policy guidelines for promoting investment in CBET and SA power sector”



TF-2 : Demand Driven Studies /Exercises

- **TF-2: Study-2: “Harmonization of Grid Codes, Operating procedures and standards to facilitate/promote Cross Border Electricity Trade in the South Asia”**
- Review of the Grid Codes of the respective South Asia nations and suggest possible measures with necessary changes to be made in each of the SA countries to facilitate/promote optimal and economic “cross border electricity trade” in the South Asia region.
- Based on the above review, identify the provisions in each of the Grid Codes and operating procedures that have an impact on optimal, reliable and economic operation of cross border electricity trade across the SA nations and suggest the necessary changes/additions required in the respective countries on the operation procedures/Grid codes/standards/institutional structure etc. in the South Asia region.



TF-3 : Demand Driven Studies /Exercises

- **TF-3 : Study -1** : Assessment and recommendation of commercial terms & conditions for Cross Border Electricity Trade (CBET) and suggesting the model of Power Exchange in South Asian region.
 - To assess the preparedness of each South Asian country (SAC) for Cross Border Electricity Trade (CBET) for selecting suitable models/options for power trading including a power exchange for the SAC.
 - To recommend commercial terms and conditions, principles and procedures for the short term, medium term and long term CBET in the South Asian Regional Electricity Market”
- **TF-3: Study-2: “Market Rules and pilot market design ”**
 - To develop market rules based on the exchange model as recommended by the members and develop the design of a pilot market based on the market rules and will also incorporate best practices from various International power exchanges.
 - The study will also make an assessment of the renewable energy market in each South Asian nation and explore possibility of trading of renewable energy among South Asian nations as a distinct segment.”



Schedule of Demand Driven Studies

ACTIVITIES	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15
DEMAND DRIVEN STUDIES /EXERCISES TO ACHIEVE THE DELIVERABLES OF TASK FORCES AS DEFINED IN THE TERMS OF REFERENCE OF TASK FORCES.												
TF-1 Study 1 : Ongoing study on review of the study on review of policies, regulations and laws, preparation regulations etc.		Draft Final Report				Final Report						
TF-1 Study 2 :Study on Investment policies/guidelines for SA countries(TF-1)				Start of TF-1 Study 2			Initial Findings			Final Report		
TF-2 Study 1: Ongoing Study 2 to find the Trading Potential of South Asian Countries(TF-2)				Inception Report			Interim Report			Draft Final Report		
TF-2 Study 2: Harmonization of Grid Codes(TF-2)	Start of TF-2 Study 2						Interim Report			Draft Final Report		
TF-3 Study 1: "Assessment and recommendation of commercial terms & conditions for CBET) and suggesting the model of Power Exchange in SA region"	Start of the TF-3 Study 1					Draft Findings			Final Report			
TF-3 Study 2:Study on Market Rules and Pilot Market Design						Start of the TF-3 Study 2					Initial/Interim findings	

TF-1: Tangible outputs by the End of Year: 2014-2015

- Members findings on review of existing Acts, Policies and other regulations and clear recommendations on changes (country wise) to be made (including institutional changes if any) to facilitate CBET and minimum regulatory/legal/ policy requirements needed to enable expansion of CBET and **final report** of the same.
- **Country specific actions plans and strategies** for buy in of recommendations.
- **Out reach /Country Specific Consensus building workshop/meetings** (Task Force 1 Findings/ Recommendations)
- **Interim findings** on the study on review of Investment policies/ guidelines for SA countries for promoting investment in CBET and regional exploitation of energy resources particularly hydro.



Policy,
Rules & Regulations

TF-2: Tangible Outputs by the End of Year: 2014-2015

- Member's findings on Demand supply Projections vis-a-vis trading potential for the region over a time period of next 20 years in each 5 year horizon and **Draft final report** on the same.
- Member's findings on "Harmonization of Grid Codes, Operating procedures, standards, etc. to facilitate/promote Border Electricity Trade in the South Asia region "and **Draft final report on the same.**
- **Out reach /Country Specific Consensus buildings workshop/meetings (Task Force 2 Findings/ Recommendations)**
- Initiation of long term south Asia electricity master plan.



TF-3: Tangible outputs by the End of Year: 2014-2015

- Member's findings on "Assessment and recommendation of commercial terms & conditions for Cross Border Electricity Trade (CBET) and suggesting the model of Power Exchange in South Asian region" and **final report on the same.**
- **Initial findings on the Market rules and Pilot Market design.**





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Schedule of Task Force Meetings Planned



Schedule of Task Force Meetings Planned

Monthly Activity Plan for Year 2014-2015

ACTIVITIES	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15
3RD PSC MEETING												
			PSC (17 th , 18 th)									Combined PSC and Task Force Meeting
TASK FORCE MEETINGS												
TF-1 MEETINGS												
			TF- 1(17 th ,18 th)			TF- 1(4 th)						Combined PSC and Task Force Meeting
TF-2 MEETINGS												
				TF- 2(14 th)				TF- 2(13 th)				Combined PSC and Task Force Meeting
TF-3 MEETINGS												
						TF- 3(4 th and 5 th)					TF-3	Combined PSC and Task Force Meeting



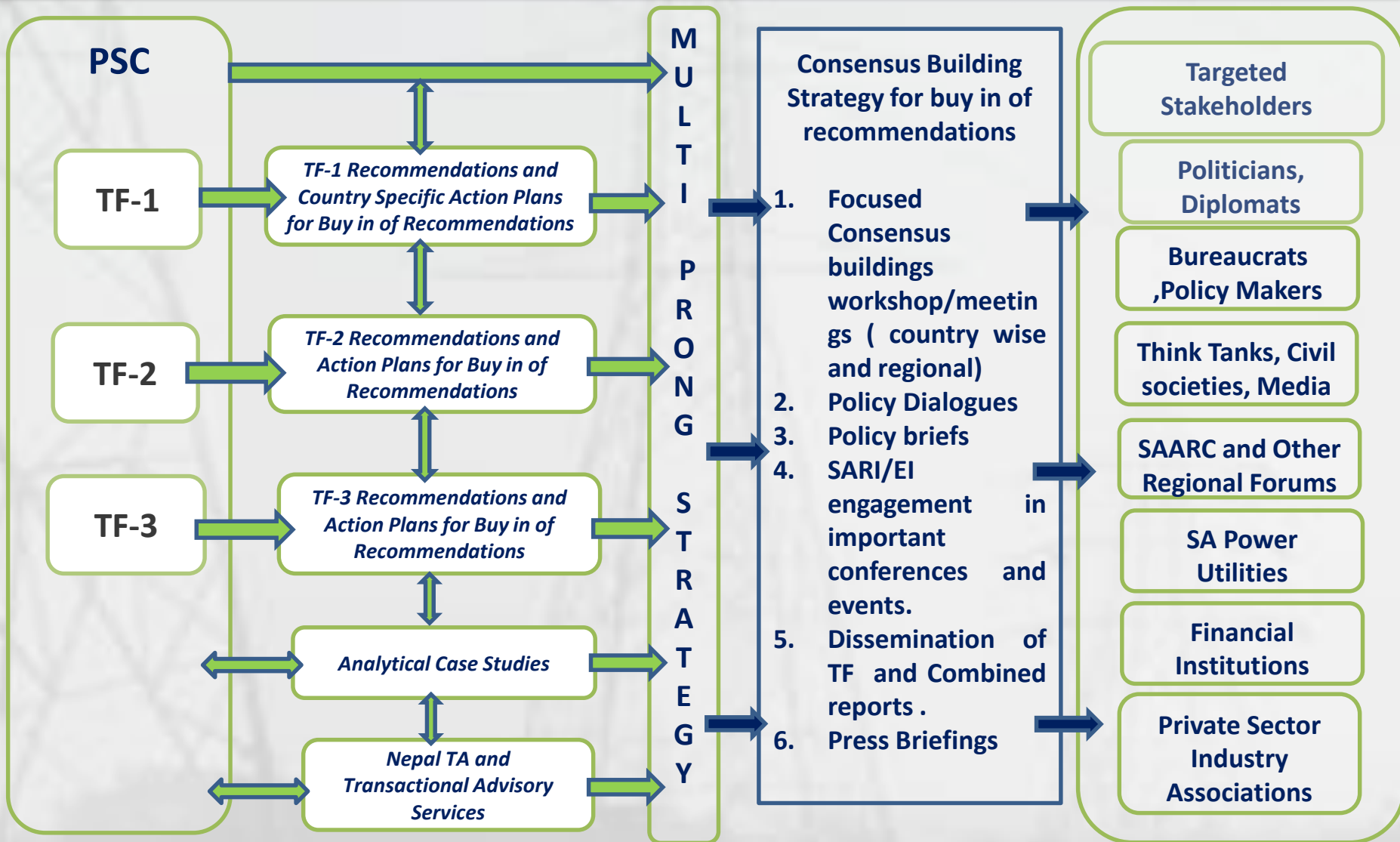
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2014-2015 : Consensus Buildings Workshop/Meetings (Task Force Findings/ Recommendations)

2014-15: Out Reach / Consensus Buildings Framework : Approach and Strategy



Consensus Building Workshop/Meetings (Task Force Recommendations)

- 1. Importance building consensus(beyond Task Forces)**
- 2. Out reach /Country Specific Consensus buildings workshop/meetings (Task Force Findings/ Recommendations. One Meeting in Nepal(TF-1 study report) , Bangladesh(TF-1 and TF-2)**
- 3. Larger audiences participations : Country Experts, Politicians, Diplomats, Bureaucrats, think tanks, Civil societies, Media etc.**

ACTIVITIES	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
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COUNTRY MEETINGS (COUNTRY EXPERTS AND STAKEHOLDER CONSULTATIONS) TO DISCUSS THE TASK FORCE REPORT FINDINGS AND COUNTRY ACTION PLANS (NEPAL, BANGLADESH)												
Out reach /Country Specific Consensus buildings, Country experts and stakeholder discussions for buildings consensus on the Task Force report findings in Nepal, Bangladesh and Bilateral Meeting							Nepal		Bangladesh			



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Technical Assistance : Focus on Nepal



Power Trade Agreement :India-Nepal; Technical Assistance :

INDIA-NEPAL has concluded a historic Electric Power Trade, Cross-border transmission interconnection and grid connectivity. Some of the key provisions of the Power Trade Agreement are as follows:

- 1. Enabling **cooperation in the power sector, including developing transmission interconnections, grid connectivity, and power exchange and trading** through the governmental, public and private enterprises of the two countries on mutually acceptable terms.*
- 2. It encourages and **facilitates investments, including joint venture investments** between the two countries, in power sector on mutually agreed terms.*
- 3. To cooperate on the various aspects of **policy harmonization for the realization of cross-border interconnections, grid connectivity** and power trade and shall work towards removing, and mutually resolving issues relating to, barriers, including tariff, levies, fees, taxes, duties or charges of similar effects, if any, in the cross-border exchange and trading of electricity.*
- 4. To allow the **authorized/licensed electricity producers/buyers/traders** of each country to engage in cross-border electricity trading, including that through Power Exchanges.*

Against this backdrop, USAID, SARI/EI Definitional Study Mission visited Kathmandu from Nov. 3-7, 2014 to explore opportunities and define a time-bound program to assist the Govt of Nepal and its power sector institutions in the public and private sector to advance Nepal-India electricity trade.



Technical Assistance :Focus on Nepal

USAID,SARI Mission visited (November 3rd - 7th) Kathmandu to explore opportunities and define a time bound program to assist Government of Nepal, Power Sector Institutions to advance Nepal-India power trade.

- ✓ *The team met official of Ministry of energy, Investment board of Nepal, NEA, Private Power Developers, IPPAN, World Bank, ADB etc.*
- ✓ *Nepal need to build understanding and linkages with Indian institution at the operating level to establish market trading functions.*
- ✓ *Need to build institution capacities to technically and financially appraise Hydro Power Projects.*
- ✓ *Need to assist in development of Independent Regulatory commission.*
- ✓ *Dedicated Resource Person In Nepal.*



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Study Tour to Understand Region Power System Integration



Study Tour to Understand Region Power System Integration

1. In the year 2013-2014 a study to understand the European regional power market was organised to learn from the evolutionary process of harmonization of legal, regulatory and policy issues concerning cross border electricity trade and operational and design aspects of the regional power markets to help TF members to make informed recommendations in advancing CBET in South Asia.
2. As in the year 2014-2015 some of task force will finalize recommendation of task forces, it is proposed to further learn from other regional power market which may help in finalizing the recommendations.
3. In the above context on a **need basis study tour to other regional power market will be organised.**



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SAARC Framework Agreement for Energy Cooperation (Electricity)

SAARC Framework Agreement for Energy Cooperation (Electricity)

During the 18th SAAARC Summit, eight members states of SAARC countries concluded the historic Framework Agreement of Energy (Electricity) Cooperation.

Member states has signed this agreement by

- ✓ ***Recognizing the importance of electricity in promoting economic growth and improving the quality of life;***
- ✓ ***Realizing the common benefits of cross border electricity exchanges and trade among the SAARC leading to optimal utilization of regional electricity generating resources, enhanced grid security and electricity trade arising from diversity in peak demand and seasonal variations; and***
- ✓ **Convinced of the need of increasing economic cooperation and creating new opportunities in the electricity sector.**

SAARC Framework Agreement for Energy Cooperation (Electricity)

Some of the important highlights of the agreement are

- ✓ **Promoting Competition:** Member States shall encourage the process of opening up of electricity sector guided by respective national priorities with the aim of promoting competition.
- ✓ **Regulatory Mechanisms:** Member States shall develop the structure, functions and institutional mechanisms to resolve regulatory issues related to electricity exchange and trade.
- ✓ **Facilitating Buying and Selling Entities:** Member States shall enable Buying and Selling Entities to engage in cross-border electricity trading subject to the laws and regulations of the concerned Member States.
- ✓ **Dispute Settlement:** Any dispute arising out of interpretation and /or implementation of this Agreement shall be resolved amicably among the Member States. If unresolved, the Member States may choose to refer the dispute to the SAARC Arbitration Council.
- ✓ **Knowledge Sharing and Joint Research in Electricity Sector:** Member States may enable and encourage knowledge sharing and joint research including exchange of experts and professionals related to, inter alia, power generation, transmission, distribution, energy efficiency, reduction of transmission and distribution losses, and development and grid integration of renewable energy resources.



Possible Areas of Technical Assistance

1. Country specific Legal, Regulatory, policy changes that may be required for Adoption/implementation of IGFA.
2. Building Regulatory Capacities .
3. Development of structure, functions and institutional mechanisms related to electricity trade and power exchange.
4. Developing coordinated procedures for the secure and reliable operation of the inter-connected grids and to prepare scheduling, dispatch, energy accounting and settlement mechanism.
5. Capacity Building of Professionals and Knowledge Sharing.



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Thank You



List of Participants of the Study Tour to Europe

S.NO	NAME OF THE PARTICIPANT	DESIGNATION	ORGANIZATION	COUNTRY
1	Mr. Mohammad Hossain	Director General, Power Cell	Ministry of Power, Energy and Mineral Resources	Bangladesh
2	Mr. Salim Mahmud	Member	Bangladesh Energy Regulatory Commission	Bangladesh
3	Mr. Monowar Islam	Secretary	Ministry of Power, Energy and Mineral Resources	Bangladesh
4	Mr. Yeshi Wangdi	Director General	Department of Hydropower and Power Systems	Nepal
5	Mr. Raju Maharjan	Senior Divisional Engineer	Ministry of Energy	Nepal
6	Mr. Sanjeeb Baral	Senior Divisional Engineer	Ministry of Energy	Nepal
7	Mr. KLRC Wijayasinghe	Assistant Director	Ministry of Power and Energy	Sri Lanka
8	Mr. JGLS Jayawardena	Acting Director (P & D)	Ministry of Power and Energy	Sri Lanka
9	Mr. Radheshyam Saha	Director	Central Electricity Authority	India
10	Mr. Harish Saran	Executive Director (Marketing)	PTC India Limited	India
11	Mr. Vijay Kumar Kharbanda	Project Director	IRADE SARI/EI	India
12	Mr. Rajiv Ratna Panda	Senior Project Manager	IRADE SARI/EI	India



Study Tour: Key Lessons Learnt: Market Coupling

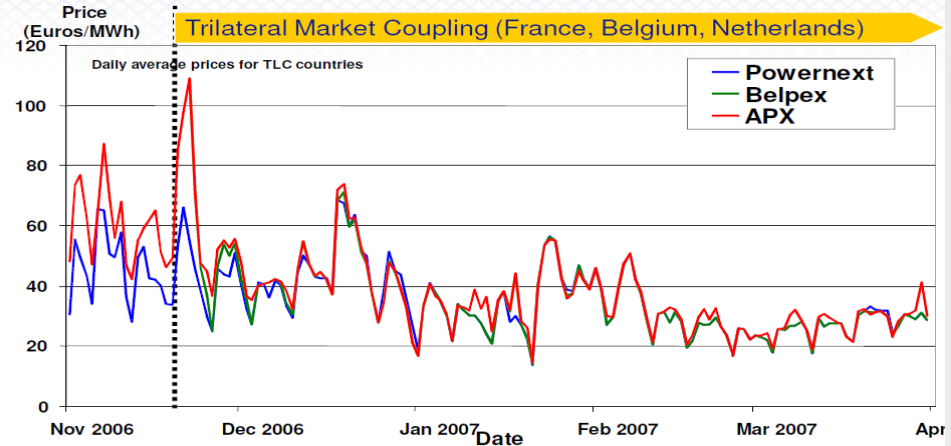
Market Couplings(MC):

- 1) a way of linking separate day-ahead (auction-style) spot markets using available cross-border transmission capacity and
- 2) An “implicit auction” – meaning daily transmission capacity allocation is integrated with the trading of energy.

Benefits of Market Couplings(MC):

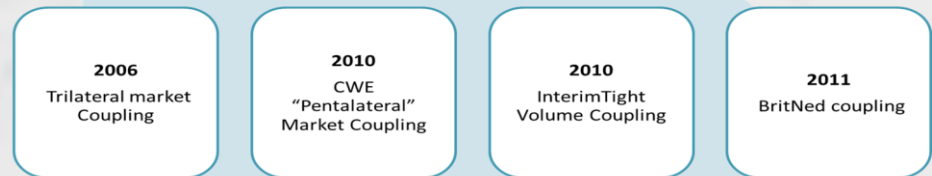
1. **Facilitates development of liquid commodity markets and fosters competition.**
2. **Reduction in risk of market abuse.**
3. **Market prices convergence**, ultimately towards a single market price if sufficient capacity is available.
4. **Optimum use of cross-border capacity** and optimization of the use of the generation global portfolio.
5. **Mitigation of price volatility by ‘absorbing’ local variations in production.**

Prices after First market coupling 2006



Convergence France, Netherlands, Belgium

Evolution of Market Coupling in EU



- Evolution of the concept started with **Nordpool** in Scandinavia
- Adopted in Central Europe through **TLC by France, Belgium and Netherland**.
- Further extended for 5 countries to ‘**Pentalateral Coupling**’ in 2010 (**FR, BL, NL + Germany & SW**)
- UK- NL coupled after BritNed Interconnector in 2011
- Success of TLC encouraged EU to make regulations in 2009 for larger coupling of regions now also known as PCR(Price Coupling of Regions) and MRC(Multi Region Coupling).