

South Asia Regional Initiative for Energy Integration

Quarterly Update – July to September 2014

ACCOMPLISHMENTS FOR THE QUARTER

STUDY TOUR TO EUROPEAN REGIONAL POWER MARKET

A study tour for members of the SARI/EI task forces and Project Steering Committee (PSC) was organized July 13 – 19 by IRADe in association with the Indian Energy Exchange Limited (IEX), a leading power exchange in India, to a European regional power market.

The study tour to Amsterdam and Paris aimed at facilitating knowledge transfer and building the capacity of the task force members, PSC members and other representatives from the South Asian countries by exposing them to legal and regulatory issues, institutional governance, operational and other aspects of a European regional power market.



Photo Credit: IRADe

*Study tour to European regional power market (Amsterdam and Paris)
July 13 – 19, 2014*

The tour included a combination of classroom training sessions and site visits, covering the following topics:

- Evolution and integration of European power markets
- Challenges and solutions: integration of European power markets
- Power exchanges and various products
- Certificate market for renewable energy
- Integration of renewable power in Europe
- Electricity derivatives

The tour provided an understanding of the evolution of the European power market; legal and regulatory structures of various institutions in Europe; processes adopted for harmonization of legal, regulatory, and policy aspects; and developing common norms to facilitate cross-border electricity trade (CBET). Site visits were organized to:

- 1) TenneT (Transmission System Operator of Netherlands)
- 2) APX (Power exchange for the Netherlands, the United Kingdom and Belgium)
- 3) European Power Exchange (Power exchange for spot trading in Germany, France, Austria and Switzerland)
- 4) Powernext (Spot and derivatives markets for Europe)
- 5) RTE France (Transmission System Operator of France)
- 6) EDF France (Largest power utility of France)
- 7) Alstom Grid (Transmission and distribution manufacturer/supplier)

Key Learnings:

- **Long-term bilateral contracts:** The process of CBET started in the European market with long term bilateral contracts and establishing bilateral cross-border electricity trade transmission infrastructures.
- **Strong political will:** Strong political will and mandate provided a clear road map in the European Union (EU), which translated into legal, regulatory and policy frameworks for CBET and creation of electricity markets.
- **Coordination of regulations and forum for regulators:** To ensure effective coordination of regulations, the Agency for Cooperation of Energy Regulators (ACER) was formed as a EU body in 2010, and as a forum of national energy regulators. The overall mission of ACER, as stated in its founding regulation, is to complement and coordinate the work of national energy regulators at the EU level and work towards the completion of the single EU energy market for electricity and natural gas.
- **Bottom-up approach:** Market integration vis-à-vis market couplings were pushed by the industry, which were subsequently formalized and adopted by the EU.
- **Coordinated power exchanges:** National power exchanges of EU countries coordinate among each other on a common platform for the purposes of CBET transactions.
- **Coordination among transmission system operators (TSOs):** To ensure effective coordination, the European Network of Transmission System Operators for Electricity (ENTSO-E) was established as the association of TSOs by the EU institutions with key legal mandates for coordinated, reliable and secure operations of the interconnected electricity transmission networks, facilitating the cross-border network development, and enhancing the creation of an internal electricity market across the European countries.
- **Access to network:** Non-discriminatory open access to network and access to cross-border interconnectors has been made completely market based.
- **Role of government in building cross-border trade infrastructure:** Cross-border interconnections was largely supported and funded by the governments but on purely commercial principles.

SOUTH ASIA INVESTORS' WORKSHOP ON CROSS-BORDER ELECTRICITY TRADE

IRADe, in association with the Confederation of Indian Industry (CII), organized a two-day South Asia Investors' Workshop on Cross-Border Electricity Trade in New Delhi, India September 24 – 25, 2014. This workshop provided a platform for investors, developers, financial institutions, multilateral development banks (MDBs), and high-level officials from South Asian countries to engage in a dialogue on the challenges and investment opportunities in South Asia's power sector to enhance CBET among the South Asian countries.

The current experience of CBET in South Asia demonstrates the effectiveness of cross-border transmission interconnections and coordinated investment. Currently, most of the trade is happening on a bilateral mode and, therefore, the investments are largely being coordinated accordingly. While bilateral models are important and will continue to drive the majority of investment in the future, there is a growing understanding among the South Asian countries that a regional approach will yield more results in advancing regional CBET and bringing investment in cross-border generation and transmission system infrastructure.



Photo Credit: IRADe

South Asia Investors' Workshop on Cross-Border Electricity Trade
September 24 – 25, 2014, New Delhi, India

Overview:

The workshop broadly covered:

- Individual country perspectives on current CBET experiences, opportunities and challenges in South Asia
- The role of policies, regulations and laws to promote investments in the South Asian power sector
- Investments in infrastructure for CBET
- The role of power markets and market intermediaries in facilitating investments in the region
- Investment trends in the South Asian power sector
- Developer and investor experiences on cross-border power projects
- Ways to mitigate the risks of investments in the South Asian power sector

The two-day Investors' Workshop set an interactive climate for investors, developers, MDBs, and high-level officials from the region to promote CBET among the South Asian countries.

A concept paper on "Cross-Border Electricity Trade in South Asia: Challenges and Investment Opportunities" was prepared by IRADe and released during the workshop. The concept paper analyses the investment requirements for cross-border electricity trade in the region and identifies challenges facing each South Asian country.

Way Forward:

The workshop generated a series of recommendations for future action, including the need to:

- Promote regional cooperation in electricity and enhance political consensus in South Asia
- Formalize the entire process of regional cooperation through a South Asia electricity treaty/intergovernmental agreement that will help minimize the risks associated with regional investments in electricity and CBET
- Form a regional regulators' forum to facilitate the coordination and harmonization of regional legal, regulatory, and policy frameworks in South Asia vis-à-vis CBET
- Prepare a regional grid master plan for CBET, which will also help generate investments in the region
- Coordinate and harmonize grid codes, power system operating procedures, and establish open access to ensure smooth, optimal, secure, and reliable power system operation of CBET across the South Asian countries
- Encourage multilateral development banks and financial institutions to explore and extend financing mechanisms to promote investments in CBET for capital-intensive cross-border generation and transmission interconnection projects

- Promote public and private sector participation in CBET to help offset the massive financing requirements
- Establish a regional settlement mechanism for cross-border power transactions and disputes
- Establish a competitive regional power market in South Asia for long-term sustainability. A vibrant regional power market will make South Asia's power sector competitive and streamline investments, making it lucrative for investors who seek fair, steady, and risk-mitigated short and long term returns on their capital.

EXECUTIVE EXCHANGE TO BANGLADESH A SUCCESSFUL CROSS-BORDER BILATERAL ELECTRICITY MARKET: THE BANGLADESH INDIA EXPERIENCE

Under the SARI/EI Regional Energy Markets Partnership, the U.S. Energy Association (USEA), along with co-sponsors Bangladesh Power Development Board (BPDB) and Power Grid Company of Bangladesh (PGCB), hosted 13 energy executives from Afghanistan, Bhutan, India, Nepal, and Sri Lanka for an executive exchange August 25 – 27, 2014 in Dhaka, Bangladesh.

In addition to the visiting delegation, Bangladesh was represented by 23 local officials from BPDB, PGCB and the Bangladesh Energy Regulatory Commission (BERC). During the exchange, delegates examined approaches and techniques for investment and contracting of cross-border electricity projects, managing cross-border electricity exchange and enhancing energy security – all highlighted by the recently completed Bangladesh – India cross-border electricity link.



Photo Credit: USEA

The SARI/EI delegation examined technical, legal, regulatory, and policy considerations for facilitating a successful bilateral electricity market.

By learning in depth about the Bangladesh – India exchange of electricity, the visiting South Asian executives gained a deeper understanding of the mechanisms and policies necessary for a successful bilateral electricity market in their region. Experts from BPDB, PGCB and BERC put the recent cross-border interconnection in context as they highlighted the long term generation and transmission system plans of Bangladesh, regulatory and legal issues in supporting cross-border electricity trade, and the development and structure of Power Purchase Agreements (PPAs) for regional power imports. By meeting with and learning from the experts involved in the Bangladesh – India interconnection, SARI/EI executives were able to assess the positive results that accompany the creation of a bilateral electricity market, including increased socio-economic development and enhanced energy security.



(Top): SARI/EI delegates took a site visit to the BPDB's Haripur 412 MW combined cycle power plant in Dhaka. BPDB shared their experience in the development of the Bangladesh India Friendship Power Company.

(Bottom): At PGCB, the delegation learned about the current transmission situation in Bangladesh and the national and regional system planning underway. Delegates also visited PGCB's Aminbazar 230/132 kVAIS substation.

Photo Credit: USEA

After examining the organization, operation and development impacts of the individual players in the Bangladesh – India exchange, the delegates had the opportunity to identify actions and practices potentially applicable to the power sectors of their own South Asian countries.

Key discussions developed over the course of the three-day exchange in Dhaka, including:

- Regulatory and legal issues for promoting cross-border power trade
- Intergovernmental treaties and policy frameworks
- PPAs and payment guarantees for power imports
- Regional legal frameworks for cross-border electricity trade
- Power System Master Plan and cross-border interconnections
- Capacity price versus energy price setting
- Challenges and opportunities in developing further regional interconnections
- Dispute resolution and tariff setting
- Private investment protection in cross-border power trade
- Mutual cooperation for establishing bi-lateral grid connectivity between countries

ONGOING AND UPCOMING ACTIVITIES

- 1) Task Force 1 Study: The draft interim report on “Review of Electricity Laws, Regulations, Policies and Legal Structure of South Asian Countries” has been prepared and is currently under review by the task force members.
- 2) Task Force 2 Studies:
 - The study on “Assessment of the Electricity Trading Potential in the South Asian Region” was recently awarded and is currently under progress.
 - The Request for Proposal (RFP) for the study on “Harmonization of Grid Codes, Operating Procedures and Standards to Facilitate/Promote Cross-Border Electricity Trade in the South Asian Region” has been issued. It will be awarded soon.
- 3) Task Force 3 Study: Based on the outcome of the first meeting of Task Force 3 on South Asian Regional Electricity Markets (SAREM) in April 2014, the roadmap for the evolution of SAREM was finalized in consultation with the task force members and USAID. The terms of references of the study “Assessment of Commercial Terms and Conditions for CBET and Suggested Model of Power Exchange in the South Asian Region” was finalized. This study will be awarded soon.

Upcoming Activities (October 1, 2014 – December 31, 2014)

- 1) 3rd Project Steering Committee meeting December 17–18, 2014 in Dhaka, Bangladesh.
- 2) 4th meeting of Task Force 1 on "Coordination of Policy, Legal and Regulatory Framework" December 17–18, 2014 in Dhaka, Bangladesh.
- 3) USEA is organizing a series of capacity building activities focused on power trade for Nepal, in support of the India-Nepal Power Trade Agreement, in the October 2014–June 2015 timeframe.

ABOUT SARI/EI

The SARI/EI program, funded by the United States Agency for International Development (USAID), promotes integration of energy systems and enhances cross-border energy trade among the South Asian countries by focusing on the following three development outcomes for overall socio-economic development of the region:

Harmonize Policy, Legal and Regulatory Issues

The key result of the Harmonization of Policy, Legal and Regulatory Issues component is to create the enabling systemic conditions for a sustainable market for investment and implementation of cross-border energy trade.

Advance Transmission System Interconnections

The key result of the Advancement of Transmission System Interconnections component is to create the enabling, systemic conditions for a sustainable market for investment and implementation of subregional bilateral transmission interconnections beginning with the Eastern Subregion of South Asia.

Establishment of South Asian Regional Electricity Markets

The key result of this component on Establishment of South Asian Regional Energy Market is to create the enabling and systemic conditions for a sustainable market for energy trading and exchange among the South Asian countries.

The overarching objective of the SARI/EI program is to develop a common template for technical and commercial aspects of power exchange among the South Asian countries. It intends to create the right enabling environment to support the establishment of a South Asian electricity market, gain consensus and support from the key decision makers and stakeholders in the South Asian region.

SARI/EI WEB PAGE

For current information on SARI/EI, please visit the web page: www.sari-energy.org.

BACKGROUND

Over the last two decades, 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 region has not been able to keep pace, and continues to experience chronic problems of supply shortage and poor quality of service. South Asia's energy security dilemma is one of the single energy development challenges of the 21st century critical to the economic future of almost 1.5 billion people. Given this dilemma, the only long-term solution is the sustained increase in regional energy cooperation among the South Asian countries.

USAID's South Asia Regional Initiative for Energy's (SARI/E) role over the past decade in advocating energy cooperation in South Asia has transitioned to the next phase of advancing regional energy integration and cross-border energy trade (CBET) in eight South Asian countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka).

This new phase titled South Asia Regional Initiative for Energy Integration (SARI/EI) is designed to

build upon USAID SARI/Energy's successful implementation in the past decade to move South Asian countries towards increased regional energy security. The program will address policy, legal, and regulatory issues related to energy in the region; promote transmission interconnections; and work towards establishing a regional market exchange for electricity.



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