

## South Asia Regional Initiative for Energy Integration

Quarterly Update – April to June 2014

### 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.



### ACCOMPLISHMENTS FOR THE QUARTER

#### SECOND MEETING OF TASK FORCE 2 ON "ADVANCEMENT OF TRANSMISSION SYSTEMS INTERCONNECTION"

The second meeting of Task Force 2 on "Advancement of Transmission Systems Interconnection" was organized by IRADe on April 16 – 17, 2014 in Kathmandu, Nepal. The Task Force members from various South Asian countries along with representatives from USAID and IRADe attended the meeting.



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Mr. Keshab Dhoj Adhikari, Hon. Joint Secretary, Ministry of Energy, Government of Nepal inaugurated the session, and delivered the keynote address. The Task Force members made country presentations on (a) generation and transmission planning; (b) technical and operational issues related to transmission systems interconnection; and (c) prospects and challenges related to cross-border electricity trade infrastructure. IRADe presented on “Infrastructure Financing in South Asian Power Sector” and “Features of Indian Electricity Grid Code.” The discussions covered studies and exercises in order to achieve the deliverables of Task Force 2; and the Terms of Reference for the studies on “Electricity Trading Potential” and “Harmonization of Operating Procedures such as Grid Codes, Protection and Equipment Standards, etc. among the South Asian Countries.”



Photo Credit: IRADe

*Second meeting of Task Force 2 on "Advancement of Transmission Systems Interconnection"  
April 16 – 17, 2014 in Kathmandu, Nepal*

#### Key highlights of discussions/Way Forward:

The following measures need to be undertaken in the South Asian countries to promote CBET:

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- Build requisite transmission infrastructure for regional and bilateral power trade.
- Coordinate transmission system master plan and generation expansion plan related to regional electricity trade.
- Harmonize technical standards and grid codes.
- Establish a conducive environment for private sector participation to harness hydro power potential in the South Asian region.
- Identify country-wise trading potential over a typical day, week, month, season and annually for each of the 15 – 20 years period. Trading Potential shall be assessed based on the commissioning schedules of the new generating stations and their associated transmission systems as prepared by the respective countries.
- SARI/EI shall initiate the process of carrying out the studies on “Trading Potential” and “Operating Procedures” either in house or through a consultant based on the scope of work finalized.
- Present and deliberate the progress on the two studies - "Trading Potential" and “Operating Procedures” in the next Task Force 2 meeting.
- A combined meeting of all the Task Forces is recommended for better coordination among all the Task Forces.

Subsequently, based on deliberations from the Task Force members, Terms of Reference for the two studies were finalized.

#### FIRST MEETING OF TASK FORCE 3 ON "SOUTH ASIA REGIONAL ELECTRICITY MARKETS"

The first meeting of Task Force 3 on "South Asia Regional Electricity Markets" was organized by IRADe on April 29 – 30, 2014 in Mumbai, India. Task Force members from various South Asian countries along with representatives from USAID and IRADe attended the meeting. Dr. Pramod Deo, Ex. Chairperson, Central Electricity Regulatory Commission (CERC) and Mr. S. Padmanaban (Padu), Former Sr. Energy Advisor, USAID/India inaugurated the session. Dr. Deo delivered the keynote address. Padu made the special address which covered a brief overview, methodology, and progress on the SARI/EI program. Terms of Reference of the "South Asia Regional Electricity Markets" was presented, discussed intensely and agreed by the members. The Task Force also deliberated on important "Terms and Conditions of Long Term Power Purchase Agreements" and "Evolution and Commercial aspects of Power Trading in India". Country perspectives were shared by the delegates from the South Asian countries.



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Photo Credit: IRADe

*Delegates from the first meeting of Task Force 3 on "South Asia Regional Electricity Markets" on April 29 – 30, 2014 in Mumbai, India*

### Summary of the Meeting:

- Development of untapped hydro power potential in the South Asian region will ensure energy security and will bring economic benefits to all the South Asian countries.
- Unscheduled Interchange (UI) and Availability Based Tariff (ABT) mechanism are important for the system stability.
- Cross-border electricity trade of power can play a key role in optimization of existing energy resources and bring vibrancy to commercial outlook in the sector.
- Short term bilateral contracts and energy exchange through power exchanges will continue to play crucial role to fill the gap of seasonal and diurnal demand-supply pattern.

### Next steps:

- Prepare roadmap for the "South Asian Regional Electricity Market" and circulate it to Task Force members for their inputs. (Action: IRADe)

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- Formulate Terms of Reference for the study related to preparedness of CBET in South Asian countries. (Action: IRADe)
- Organize study tour for members to help learn from the international best practices on electricity market and multinational power exchanges. (Action: IRADe)

Subsequently, a roadmap was prepared by IRADe for the “South Asian Regional Electricity Markets” and circulated among the Task Force members for their review and comments.

#### AWARD OF TASK FORCE 1 STUDY

The study on the “Review of Electricity Laws, Regulations, Policies and Legal Structure of South Asian Countries” by Task Force 1 was awarded to Mercados Energy Markets India Private Limited in May 2014. The study will identify areas that can hinder CBET and recommend changes and amendments therein for consideration of the South Asian countries. The study would create an enabling environment for development and sharing of electricity resources within the region and have conducive mechanisms for large scale generation capacity addition and creation of cross-border electricity infrastructure by attracting investments in the electricity sector across the South Asian countries.

#### THIRD MEETING OF TASK FORCE 1 ON “COORDINATION OF POLICY, LEGAL AND REGULATORY FRAMEWORK”

The third meeting of Task Force 1 on “Coordination of Policy, Legal and Regulatory framework” was organized by IRADe on June 4 – 5, 2014 in Thimphu, Bhutan. Dasho Sonam Tshering, Hon. Secretary, Ministry of Economic Affairs (MoEA), Royal Government of Bhutan and Dasho Bharat Tamang, Managing Director, Bhutan Power Corporation (BPC) inaugurated the session. Mr. Tshering delivered the keynote address and Mr. Tamang made the special address. Task Force members from the South Asian countries, senior officials from the Bhutan power sector, and representatives from USAID and IRADe attended the meeting.

Mr. Anish De, CEO of Mercados Energy Markets India Private Limited presented the interim findings from the study on “Review of Existing Acts, Policies and Other Regulations and Agreements Including Gaps.” Members discussed and deliberated on the interim findings and initial conclusions.



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Photo Credit: IRADe

*Third meeting of Task Force 1 on “Coordination of Policy, Legal and Regulatory framework”  
June 4 – 5, 2014 in Thimphu, Bhutan*

### Key Findings from the Study:

- Reliable power flow across South Asian countries would have to rely primarily on long term flows. This is essential for supply reliability and also project financing of the generation and transmission assets.
- Based on the initial analysis, it is apparent that large scale CBET would require durable agreed frameworks and agreements. In case of transit being involved, the transit charges would be a key matter for negotiation. (There are no defined bases for this. Once agreed, must be laid out in the framework Agreement.)

### Summary and Way Forward:

- Need to have synergies among all the three Task Forces to ensure that deliverables of Task Force 2 and Task Force 3 are achieved within the overall legal, regulatory and policy set up framed by Task Force 1.

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- Circulate the questionnaire for the Study on “Review of Electricity Laws, Regulations and Policies of South Asian Countries” to the Task Force members. (Action: IRADe)
- Expand the review of the existing studies (such as by ADB and SAARC) and build from the reports to avoid any overlapping. (Action: Mercados)
- The study should assess and analyze the international best practices in harmonization of legal, regulatory and policy issues. (Action: Mercados)
- In addition to bilateral and multilateral trade, an innovative mode may also be planned and developed in the study. (Action: Mercados)
- Prepare questionnaire to capture the views of the members on Risk Matrix for all the modes of CBET. (Action: Mercados)
- Views and comments of the members on the interim findings of the Task Force 1 study, including possible alternate model for CBET to be incorporated in the draft report.
- Identify the critical new instruments like Intergovernmental Agreement for CBET and draw up term sheets. Submit draft report by end August 2014. (Action: Mercados)

#### Site Visit:

A site visit to the Basochhu and ongoing Punatsangchhu hydro power plant construction sites was organized on June 5, 2014. Punatsangchhu-I (1200 MW Installed Capacity) and Punatsangchhu-II (1020 MW Installed Capacity) are under construction and are expected to start commercial operation by 2015 and 2019 respectively. The senior officials from Druk Green Power Corporation made detailed presentation about Punatsangchhu-I, which was followed by site visit to the Punatsangchhu-I construction site.



Photo Credit: IRADe

*Site Visit: Punatsangchhu – I (1200 MW Installed Capacity)  
June 5, 2014 – Thimphu, Bhutan.*

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### Participation in the Executive Exchange on SAPP:

IRADe participated in the Executive Exchange on Southern African Power Pool (SAPP) Cross-border Exchange of Electricity, organized by USEA on May 19 – 22, 2014 in Johannesburg, South Africa.

### SOUTH ASIA REGIONAL EXECUTIVE EXCHANGE ON “THE SOUTHERN AFRICAN POWER POOL (SAPP) CROSS-BORDER EXCHANGE OF ELECTRICITY”

Under the SARI/EI Regional Energy Markets Partnership, the United States Energy Association (USEA), along with co-sponsor ESKOM, hosted executives from Afghanistan, Bhutan, India, Nepal, and Sri Lanka for an executive exchange on May 19 – 23, 2014 in Johannesburg, South Africa. The primary goals of the exchange were to allow South Asian delegates to observe approaches for attracting investments through competitive energy markets, learn techniques for managing energy markets in deficit power situations and analyze power trading strategies and pricing mechanisms in an energy shortage environment.



Photo Credit: USEA

*During the exchange, delegates assessed the regional energy market and gained an understanding of the positive impacts of transparent energy markets and cross-border electricity trade.*



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By examining the history, operations and development impact of the Southern African Power Pool, along with the South Africa Eskom Pool (EPP), the delegates were able to assess actions and practices that could be applied to the electricity sectors in their own countries. Furthermore, the exchange highlighted specific cross-border investment projects, thus providing a platform for the South Asian delegates to discuss and consider potential next steps towards developing a regional market and the status of cross-border exchange between Bangladesh-India, Bhutan-India, Nepal-India, Sri Lanka-India, Pakistan-Afghanistan, and Afghanistan-Central Asia. From presentations given by SAPP and ESKOM executives, the South Asian delegates also acquired knowledge of the SAPP and EPP planning, standards, tariffs, products, regulation and monitoring.

Through the exchange, SARI/EI executives gained the opportunity to assess the positive impacts of the creation of a regional energy market, as shown by SAPP, including (a) helping to optimize the use of regional resources; (b) assisting in determining the correct electricity price in the pool; (c) sending price signals for investments and real time utilization of existing assets; and (d) enabling the demand side to respond to the supply side of price signals.



Photo Credit: USEA

*While visiting ESKOM's National Control Centre in Simmerpan, South Africa, the delegation learned about the system operator's organizational structure, responsibilities and system issues as it relates to the Southern African Power Pool. ESKOM highlighted its contractual obligations to SAPP in terms of energy trade and meeting area control services.*

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Over the course of the exchange, various key discussions developed, including:

- SAPP and EPP organization and implementation structure
- Memorandum of Understanding (MOU) process and governing documents for formation of SAPP
- SAPP system design, supply, demand and transmission constraints
- SAPP current trading portfolios: bilateral, over the counter (OTC), day ahead (DAM) and post day ahead (PDAM)
- Market guidelines, including operating and trading guidelines
- Contract documentation
- Power pricing, such as bidding and auction procedures and documentation
- Market regulation and monitoring, such as controlling market power and manipulation
- Regional energy system forecasting and planning
- Main problems encountered and solutions created
- Key achievements in the SAPP market development

#### ONGOING AND UPCOMING ACTIVITIES

- Study Tour: The study tour, organized by IRADe, to European Regional Power Market (Amsterdam and Paris) in association with India Energy Exchange Limited, is scheduled for July 13 – 19, 2014.
- Investors' Workshop: This workshop, organized by IRADe, in association with Confederation of Indian Industry (CII) is planned to be held on September 24 – 25, 2014.
- Draft Report of the Task Force 1 Study: The draft report of the study on “Review of existing Acts, Policies and other Regulations and Agreements including Gaps” will be completed.
- Road Map: Finalization of “Road Map of South Asia Regional Electricity Markets” will be completed by Task Force 3.
- Award of Task Force 2 Study: The study on “Assessment of the Electricity Trading Potential in the South Asian Region” will be awarded by IRADe.
- Terms of Reference: Finalization of Terms of Reference and Deliverables of Task Force 3 Study on “Assessment of Preparedness of each South Asian Country on Commercial Principles of Power Trading, Power Exchanges, etc.”

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### 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](http://www.sari-energy.org)

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