



South Asia Regional Initiative for Energy Integration

Quarterly Update – July to September 2015

ACCOMPLISHMENTS FOR THE QUARTER

COMBINED MEETING OF SARI/EI TASK FORCES AUGUST 5 – 6, 2015, NEW DELHI, INDIA

- 5th meeting of Task Force 1 on “Coordination of Policy, Legal and Regulatory Framework”
- 4th meeting of Task Force 2 on “Advancement of Transmission Systems Interconnections”
- 2nd meeting of Task Force 3 on “South Asian Regional Electricity Market”

The USAID SARI/EI combined meeting of all the above three Task Forces was held on August 5 – 6, 2015 in New Delhi, India. Task Force members from various South Asian countries along with representatives from USAID and IRADe attended the meeting. For the first time, Mr. Muhammad Naeem Malik, Director, SAARC Energy Center (SEC) along with Mr. Salis Usman, Deputy Director, SEC participated in the meeting.



Photo Credit: IRADe

Participants of the combined meeting of the SARI/EI Task Forces 1, 2 & 3, August 5 – 6, 2015, New Delhi, India

Mr. Colin Dreizin, Regional Energy Director, USAID/SARI/EI welcomed the Task Force members and other dignitaries. Highlighting the importance of the U.S. government's commitment to regional connectivity, he emphasized the need to foster connections from Central Asia to Southeast Asia, and everywhere in between, through increased physical infrastructure, regulatory trade architecture, and human and digital connectivity. He underscored that USAID's SARI/EI program builds on the momentum generated by the earlier phases of SARI/E. He emphasized USAID's strong belief that the time has come to institutionalize the process of cross-border energy trade (CBET) by establishing South Asia Forum of Electricity Regulators (SAFER) to play the crucial role in regional energy integration.

In her address, Dr. Jyoti Parikh, Executive Director, IRADe thanked the delegates for their long-term vision of CBET and noted USAID's role of support through the SARI/EI program. Further, Dr. Kirit Parikh, Chairman, IRADe, cited USAID's visionary promotion of regional energy integration in South Asia in his special address. With the support of SARI/EI, there is hope that South Asia will have a vibrant electricity trading market within the next five years and CBET can help establish cleaner power systems in South Asia.

Mr. Muhammad Naeem Malik, Director, SAARC Energy Center (SEC) provided the keynote address. He thanked USAID/SARI/EI for organizing the combined meeting of the three Task Forces, which hold a strategic importance for regional electricity interconnections in the region. He further emphasized that a multilateral approach needs to be taken in the future to address the energy crisis in South Asia. He expressed appreciation that the SARI/EI initiative is comprehensive, effective and promising, and assured the full support of SEC towards achieving the objectives of the program.

Mr. V K Kharbanda, Project Director, IRADe delivered the vote of thanks. He expressed his appreciation to all the Task Force members from the South Asian countries for sparing their valuable time and for their continued support to achieve the task force deliverables. He also thanked SARI/EI consultants and the technical team for their efforts.

Later, Mr. Kharbanda reported on the progress of various SARI/EI activities and the strategy for bringing synergies among the Task Forces. He highlighted key recommendations and findings of the activities. He also briefed the audience on the status of various demand-driven studies carried out under all the three Task Forces to achieve the targeted deliverables.

Lastly, Mr. Salis Usman, Deputy Director, SEC, made a presentation on the SAARC vision, thematic areas and program activities of SEC.

I. Release of Task Force 1 Report

The Task Force 1 report on “Regional Regulatory Guidelines” was officially released during the inaugural session.

II. Launch of SARI/EI Weekly News-mailer and Quarterly Newsletter

The SARI/EI News-mailer and Newsletter was officially launched during the meeting.

III. 5th Meeting of Task Force 1 on "Coordination of Policy, Legal and Regulatory Framework"

Mercados/KPMG presented the findings of the draft final report of the Task Force 1 study on “Review of Electricity Laws, Regulations, Policies and Legal Structure of South Asian Countries for Promoting CBET. "The study covers key ingredients for promoting CBET, findings from the international review and draft Regional Regulatory Guidelines (RRGs) framed for the proposed South Asia Forum of Electricity Regulators (SAFER). Changes and amendments in electricity laws, regulations, policies and country-wise roadmap were also presented, discussed and deliberated during the meeting.

IRADe presented the Terms of Reference for the 2nd study of Task Force 1 on "Review of the Prevailing Investment Guidelines/Frameworks/FDI Regimes in each of the South Asian Countries and Developing Regional Investment Friendly Policy Guidelines (RIFPGs) and Regional Investment Framework (RIFs) for Promoting Investment in South Asian Power Sector and CBET."

Next Steps:

- a) Develop a consensus and an outreach strategy to cultivate buy-in of Task Force 1 recommendations (including the Regional Regulatory Guidelines, the concept of institutional mechanism for coordination of electricity regulations such as SAFER , changes in electricity laws, regulations and policies, etc.) such as organizing country-wise workshops, conferences, brainstorming sessions, and bilateral meetings.
- b) Initiate preparation of a detailed white paper covering the structure, functions and roles of SAFER.
- c) IRADe to initiate the process to hire a consultant for the 2nd study of Task Force 1, to be completed within six months.

IV. 4th Meeting of Task Force 2 on "Advancement of Transmission System Interconnections"

The draft interim report and findings of the 1st study of Task Force 2 on "Assessment of the Electricity Trading Potential of South Asian Countries" was presented by ICF International and was discussed and deliberated by the members.

The draft report and findings of the 2nd study of Task Force 2 on "Harmonization of Grid Codes, Operating Procedures and Standards to Facilitate and Promote Cross-Border Electricity Trade in South Asia" was presented by Power Research & Development Consultants (PRDC) Pvt.Ltd. and discussed and deliberated by the members.

Next Steps:

- a) Based on the inputs and recommendations of the members, ICF International to revise the draft interim findings of the study, including modelling scenarios capturing seasonal variations, time zone differences, difference in load curves, etc.
- b) PRDC to revise the draft findings of the study based on the inputs and recommendations of the members, including draft guidelines and draft code for cross-border power trade.

V. 2nd Meeting of Task Force 3 on "South Asian Regional Electricity Market"

IRADe presented the Task Force 3 roadmap for establishing the "South Asian Regional Electricity Market (SAREM)." The draft report and findings (as-is scenario) of the Task Force 3 study on "Assessment and Recommendation of Commercial Terms and Conditions for CBET and Suggesting the Model of Power Exchange in South Asia" was presented by PricewaterhouseCoopers (PwC) and discussed and deliberated by the members.

Next Steps:

- a) PwC to submit the interim report covering: (i) the changes and additions in existing commercial, operational and institutional framework for promoting CBET; (ii) development and recommended economic and efficient transmission pricing framework from CBET perspective in the South Asian region; and (iii) development of a standard Power Purchase Agreement (PPA) and Transmission Service Agreement (TSA) for CBET.
- b) IRADe to initiate the process on the second phase of Task Force 3 roadmap on pilot market design, once the interim findings of the first study are finalized.

VI. Analytical Studies

Dr. Jyoti Parikh and Dr. Pradeep Kumar Dadhich, IRADe presented the objective, scope, methodology, and preliminary draft findings of the Nepal-India analytical study on “Electricity Trade in Macro-economic Framework.”

VII. SARI/EI dinner meeting on catalyzing cross-border electricity trade in South Asia: South Asia Forum of Electricity Regulators (SAFER)

A dinner meeting was organized on August 5, 2015 to deliberate on the South Asia Forum of Electricity Regulators (SAFER) with a wider audience, and to brainstorm on catalyzing cross-border electricity trade in South Asia through SAFER.

The meeting convened key stakeholders. These included India's Central Electricity Regulatory Commission (CERC), India; South Asia Association for Regional Cooperation Energy Centre (SEC), Islamabad, Pakistan; Bangladesh Energy Regulatory Commission (BERC); Ministry of Economic Affairs, Bhutan; Indian Renewable Energy Development Authority (IREDA); PTC India Ltd.; Indian Energy Exchange (IEX); Power Finance Corporation (PFC), India; Rural Electrification Corporation (REC), India; National Hydro Electric Corporation Ltd. (NHPC), India; Power System Operation Corporation (POSOCO) Ltd., India, among other dignitaries and guests. There was consensus on the need to have an institutional mechanism for coordination of regulations with respect to CBET in South Asia. It was noted that existing institutional mechanism such as South Asia Forum for Infrastructure Regulation (SAFIR) or the proposed SAARC Energy Regulators needs to be leveraged in a synergetic manner.



Mr. Gireesh B. Pradhan, Chairperson, CERC sharing his thoughts during the dinner meeting.

Photo Credit: IRADe



Mr. V.K. Kharbanda, Project Director, IRADe presenting on SARI/EI and the need for a regional regulatory institutional mechanism.

Photo Credit: IRADe

5th MEETING OF TASK FORCE 2 ON "ADVANCEMENT OF TRANSMISSION SYSTEMS INTERCONNECTIONS" SEPTEMBER 17, 2015, KOLKATA, INDIA

The 5th meeting of Task Force 2 on “Advancement of Transmission Systems Interconnection” was held on September 17, 2015 in Kolkata, India. Task Force 2 members from South Asian countries attended, along with representatives from USAID, IRADe, ICF International, and Power Research & Development Consultants Pvt. Ltd.

Ms. Monali Zeya Hazra, Regional Program Manager and Clean Energy Specialist, SARI/EI, USAID/India welcomed the Task Force 2 members and other participants.

Mr. Kharbanda, IRADe represented on the achievements and the outcomes of the combined meeting of the SARI/EI Task Forces.



5th meeting of Task Force 2 on “Advancement of Transmission Systems Interconnections”
September 17, 2015, Kolkata, India

ICF International presented the draft interim findings of the 1st study of Task Force 2 on “Assessment of the Electricity Trading Potential of South Asian Countries” and Task Force members discussed and deliberated.

The draft findings of the 2nd Task Force 2 study on “Harmonization of Grid Codes, Operating Procedures and Standards to Facilitate/Promote Cross-Border Electricity Trade in South Asia” was presented by Power Research & Development Consultants Pvt. Ltd. and deliberated by Task Force members during the meeting. PRDC also presented on the methodology, approach for grid code harmonization/coordination in South Asia, and country-wise technical data such as normal operating frequency, permissible frequency band, transmission voltage levels and permissible deviations. Further, grid codes of the respective South Asian countries covering procedures/codes/standards such as protection code, metering code, connection code, planning code, system security, demand estimation systems, outage planning, recovery procedures etc. were presented in detail. The group deliberated on the gap analysis, international experiences on harmonization and development of network codes and framework guidelines.

Status of Demand-Driven Studies

Task Force 1 Studies:

- a) **Study 1:** Mercados/KPMG has submitted the draft final report (3 volumes) of the 1st study of Task Force 1 on “Review and Analysis of Electricity Laws, Regulations, Policies and Legal Structure of South Asia Countries for Promoting CBET.” The publication includes: i) Volume I on analysis of electricity laws, regulations and policies of South Asian countries, key ingredients for facilitating CBET and analysis of key risk areas and mitigation measures adopted in other power pools/regions; ii) Volume II on regional regulatory guidelines for harmonization/coordination of regulations and regional regulatory institutional mechanisms; and iii) Volume III on changes and amendments in electricity laws, policies and regulations of South Asian countries for promoting CBET and country-wise short, medium and long-term road maps for CBET. The report will be finalized, published and will be used for outreach and consensus building.

- b) **Study 2:** The Terms of Reference of the 2nd study of Task Force 1 on “Review of the Prevailing Investment Friendly Policies/Guidelines/Frameworks/FDI Regimes in each South Asian Country and to Develop Regional Investment Friendly Policy and Investment Framework for Promoting Investment in South Asian Power Sector and in CBET” was finalized. IRADe will initiate the bidding process for the award of study.

Task Force 2 Studies:

- a) **Study 1:** ICF International has submitted the draft interim findings of the 1st study of Task Force 2 on “Assessment of the Electricity Trading Potential of South Asian Countries.” The draft interim report will be finalized in concurrence with Task Force members by November 2015.
- b) **Study 2:** Power Research & Development Consultants Pvt. Ltd. has submitted the draft findings of the 2nd study of Task Force 2 on “Harmonization of Grid Codes, Operating Procedures and Standards to Facilitate/Promote Cross-Border Electricity Trade in South Asia.” As a next step, PRDC will prepare the draft framework guidelines covering planning, connection code, operation, capacity allocation and congestion management, and scheduling and dispatch guidelines for cross-border electricity trade. The framework guidelines will be comprehensive in nature and include: i) impact analysis; ii) explanatory statement; iii) implementation provisions; and iv) draft codes.

Task Force 3 Studies:

- a) **Study 1:** PricewaterhouseCoopers Pvt. Ltd. has submitted the draft (“as-is”) report of the 1st study of Task Force 3 on “Assessment of Commercial Terms and Conditions for CBET and Suggested Model of Power Exchange in the South Asian Region.” The interim report will be submitted by October 2015.
- b) **Study 2:** The “Market Rules and Pilot Market design” study will be initiated during the next financial year.

SARI/EI Analytical Studies

IRADe and other technical team members participated in a training on ANSWER-TIMES and seasonal variations in the demand pattern. Data collection, validation, and analysis for modeling of India RES into the ANSWER-TIMES model are under progress. This will include data parameters for thermal, renewable and hydro technologies.

Study objective, scope, methodology, and preliminary draft findings of the Nepal-India analytical study on “Electricity Trade in Macro-economic Framework” were presented during the combined meeting of SARI/EI Task Forces held in August 2015. A background study was conducted on Nepal's economy, including short and medium term policies and recommendations and its various macroeconomic indicators.

Data gaps and potential sources of missing data were identified. Dr. Pradeep Kumar Dadhich and Dr. Probal Ghosh from SARI/EI team undertook a five-day visit to Nepal during August 31 – September 4, 2015 to meet potential stakeholders and data agencies of Nepal. The objective of the trip was to channel contacts for data gathering for a SAM based and ANSWER TIMES model of Nepal. Data requirement for both the SAM and the ANSWER TIMES model was shared with various ministries and government representatives. The meetings helped identify data gaps and establish working relationships with various agencies of Nepal. A report on Nepal's country economic overview was prepared using literature survey of existing reports.

CAPACITY BUILDING IN POWER TRADING SEPTEMBER 14 – 18, 2015, FARIDABAD, INDIA

On September 14 – 18, 2015, USEA conducted its first of three modules on the design, management and operation of a power trading entity. The training was conducted jointly by PTC India Ltd. (India's largest power trader) and the National Power Training Institute (NPTI), through a subcontract with PTC. Sixteen delegates were selected to participate in all three modules of the training. The training program was tailored for the Nepalese, to provide them with the institutional and human capacity to design, manage and operate a power trading entity in Nepal. The activities, which were targeted at Nepal Electricity Authority, Government of Nepal representatives and private sector, and included additional representatives from Afghanistan, Bangladesh, Bhutan, emphasized development of skills and knowledge in the functional operations of power trading and was supplemented by classroom lectures delivered by highly experienced instructors from a number of institutions (listed below).

The inauguration of the module was done by USAID/India Mission Director Ambassador Jonathan Addleton. Ambassador Addleton spoke on the recent progress of CASA 1000 – a planned transmission interconnection to take power from Kyrgyz Republic and Tajikistan to Afghanistan and Pakistan. As the Ambassador noted, the South Asian region can make similar strides if the relevant players work together.

PTC India, Chairman and Managing Director Mr. Deepak Amitabh provided the Inaugural Address. In the address, CMD-PTC noted the progress and evolution of PTC hand-in-hand with the advancements in the power markets in India, and its supporting role with its neighboring countries of Bhutan, Nepal and Bangladesh.

Over the course of five days, an overview of the Indian power sector, along with detailed presentations were provided on the roles and powers of the various energy sector players, functions and operations of load dispatch centers, the Electricity Act 2003 and national electricity and tariff policies, determination of tariffs, Availability Based Tariff (ABT) and the concept of unscheduled interchange (UI), the Indian grid code, roles and functions of the power traders, evolution of the power market, open access, regulations, deviation settlement mechanism, congestion management, and real-time system operation.

Presentations were made by the following:

1. Mr. Rajinder Kachroo, CMD, 3 Phase Solutions
2. Mr. Manish Chaudhary, Assistant Chief Finance, Central Electricity Regulatory Authority (CERC)
3. Ms. Indu Maheshawari, Assistant Professor, NPTI
4. Mr. R. K. Verma, Chief Engineer (DP&D), Central Electricity Authority (CEA)
5. Mr. R. K. Bansal, Assistant General Manager, Power System Operation Corporation Limited (POSOCO)
6. Mr. S. C. Shrivastava, Joint Chief-Engineering, CERC
7. Dr. S. K. Chatterjee, Joint Chief – RA, CERC
8. Mr. V. K. Kharbanda, Project Director, IRADe
9. Ms. Shilpa Agarwal, Deputy Chief-Engineering, CERC
10. Mr. S. S. Barpanda, AGM-Market Operations, POSOCO
11. Mr. T. N. Thakur, Ex. CEO, PTC India Ltd.
12. Mr. Rajesh Mendiratta, Director, IEX
13. Mr. A. K. Meena, Deputy Chief Design Engineer, Power Grid Corporation of India
14. Mr. S. C. Saxena, Deputy General Manager, POSOCO
15. Mr. N. Nallarasan, Deputy General Manager, National Load Dispatch Center, POSOCO





Participants included:

1. Mr. Sayed Arif Ahmadzada, Energy and Control Manager, DaAfghanistan Breshna Sherkat (DABS), Afghanistan
2. Mr. H. M. Imran Hassan, Assistant Engineer, IPP Cell- I, Bangladesh Power Development Board
3. Mr. Muhammad Faisal Hasan, Assistant Engineer, IPP Cell- I, Bangladesh Power Development Board
4. Mr. Denkar, Engineer, Transmission & Power System Division, Department of Hydropower & Power Systems, Ministry of Economic Affairs, Bhutan
5. Mr. Sanjaya Dhungel, Senior Divisional Engineer (SDE), Office of the Investment Board Nepal
6. Mr. Madhu Prasad Bhetuwal, Deputy Director General, Department of Electricity Development, Nepal
7. Mr. Shyam Kishor Yadav, Senior Divisional Engineer (SDE), Ministry of Energy, Nepal
8. Mr. Ananda Chaudhary, Senior Manager, Naulo Nepal Hydroelectric Pvt. Ltd., Nepal
9. Mr. Apar Neupane, Business Manager, Nepal Liaison Office, Statkraft Holding Singapore Pte. Ltd., Nepal
10. Mr. Krishna Bahadur Khadka, Deputy Director of Services, Nepal Electricity Authority
11. Mr. Prabal Adhikari, Chief of Power Purchase, Power Trade Department, Nepal Electricity Authority
12. Mr. Subarna Sapkota, Assistant Manager, Power Trade Department, Nepal Electricity Authority
13. Mr. Binod Lohani, Assistant Manager, Load Despatch, Power System Operations, Nepal Electricity Authority
14. Mr. Aman Rajbhandari, Assistant Manager, System Planning Department, Nepal Electricity Authority
15. Ms. Milana Prajapati, Engineer, Corporate, Planning & Monitoring Department, Nepal Electricity Authority
16. Mr. Ramesh Kumar Ghimire, Deputy Director (Legal), Nepal Electricity Authority

ONGOING AND UPCOMING ACTIVITIES

- Study tour to Nord Pool Regional Power Market Oslo (Norway) and Fredericia (Denmark) October 12 – 16, 2015.
- Project Steering Committee Meeting (Oct/Nov/Dec -TBD).
- Module 2 of the Capacity Building Program for Designing, Managing and Operating a Power Trading Entity will be conducted November 30– December 4, 2015 by PTC India Ltd. at the National Power Training Institute, Faridabad, India campus.

SARI/EI WEB PAGE

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

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.

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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SARI/EI

South Asia Regional Initiative for Energy Integration

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