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SARI/EI

IRADe Integrated Research and Action for Development

SOUTH ASIA REGIONAL INITIATIVE FOR ENERGY INTEGRATION (SARI/EI)

Brochure

December 2016

USAID Initiative to Strengthen Energy Security in South Asia

Over the last two decades, South Asia has been one of the fastest growing region in the world, with an average annual GDP growth rate of six per cent. Despite this macro-economic growth, all the South Asian countries are facing energy and peak shortages. The region has variety of energy resources with a major potential of 350 GW of hydro-power that exists in Bhutan, India, Nepal and Pakistan. This potential offers a huge scope for tapping clean energy and meeting the energy needs of the region. There is a need to plug the increasing gap between demand and supply by developing additional resources of energy. This can be achieved by the optimum and efficient utilisation of available resources, creating a level playing field, assuring returns to investors and providing affordable electricity to consumers, thereby making the region energy secured and self-sustainable.

The US Agency for International Development (USAID) initiated the South Asia Regional Initiative for Energy (SARI/E) program spanning eight countries which includes Afghanistan, Bangladesh, Bhutan, India, The Maldives, Nepal, Pakistan and Sri Lanka in the year 2000. The program has consistently endeavoured to promote energy security in the South Asian regions by working in three focus areas viz., Cross-Border Energy Trade; Energy Market Formation; and Regional Clean Energy Development. USAID SARI/EI fourth and final phase launched in 2012 aims to advance regional energy integration and also increase cross-border electricity trade.

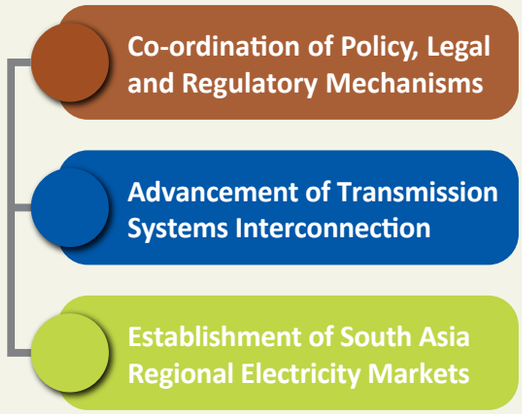
Key Developments and Current Power Trade in the South Asia Region

In South Asia region, India, Bangladesh, Bhutan and Nepal have established bilateral transmission links through which electricity to the extent of 2200 MW is being currently traded. The increasing concern for energy security has shifted political priority of country government towards Cross-Border Electricity Trade (CBET). As a result of this, some important developments took place including signing of Agreement for Electric Power Trade, Cross-Border Transmission etc., commonly know as Power Trade Agreement (PTA) between Governments of India and Nepal as well as the SAARC Framework Agreement for Energy Co-operation (Electricity) in November 2014. These developments have already mobilised stakeholders for regional and sub-regional projects in the area of power generation, transmission and power trade. In the second SAARC Energy Regulators meeting that was held in February 2016 in Sri Lanka, it was deliberated to constitute the "SAARC Council of Experts of Energy Regulators (Electricity)" and a "Forum of Regulators" for Electricity Regulation co-ordination and harmonisation. SARI/EI as technical adviser to SAARC is assisting to establish "SAARC Council of Experts of Energy Regulators (Electricity)" in this region.

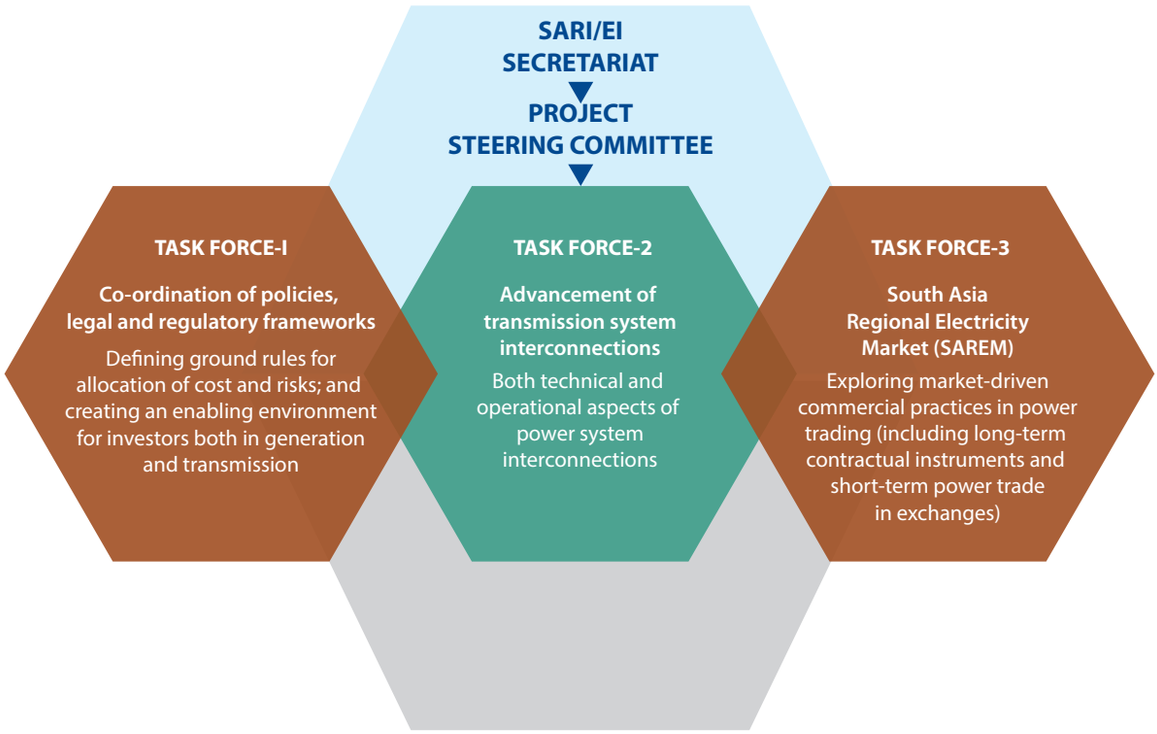
SARI/EI Phase IV

USAID's South Asia Regional Initiative/Energy Integration (SARI/EI) entered its fourth phase in October 2012. The objective of SARI/EI is to create a right "enabling" environment to support the establishment of South Asian Electricity Market and gain consensus and support from the key decision-makers and stakeholders. The project goal is to advance regional energy integration, thus increasing CBET in the region. The SARI/EI has three key components:

SARI/EI Phase IV Project Components



SARI/EI Structure & Functions

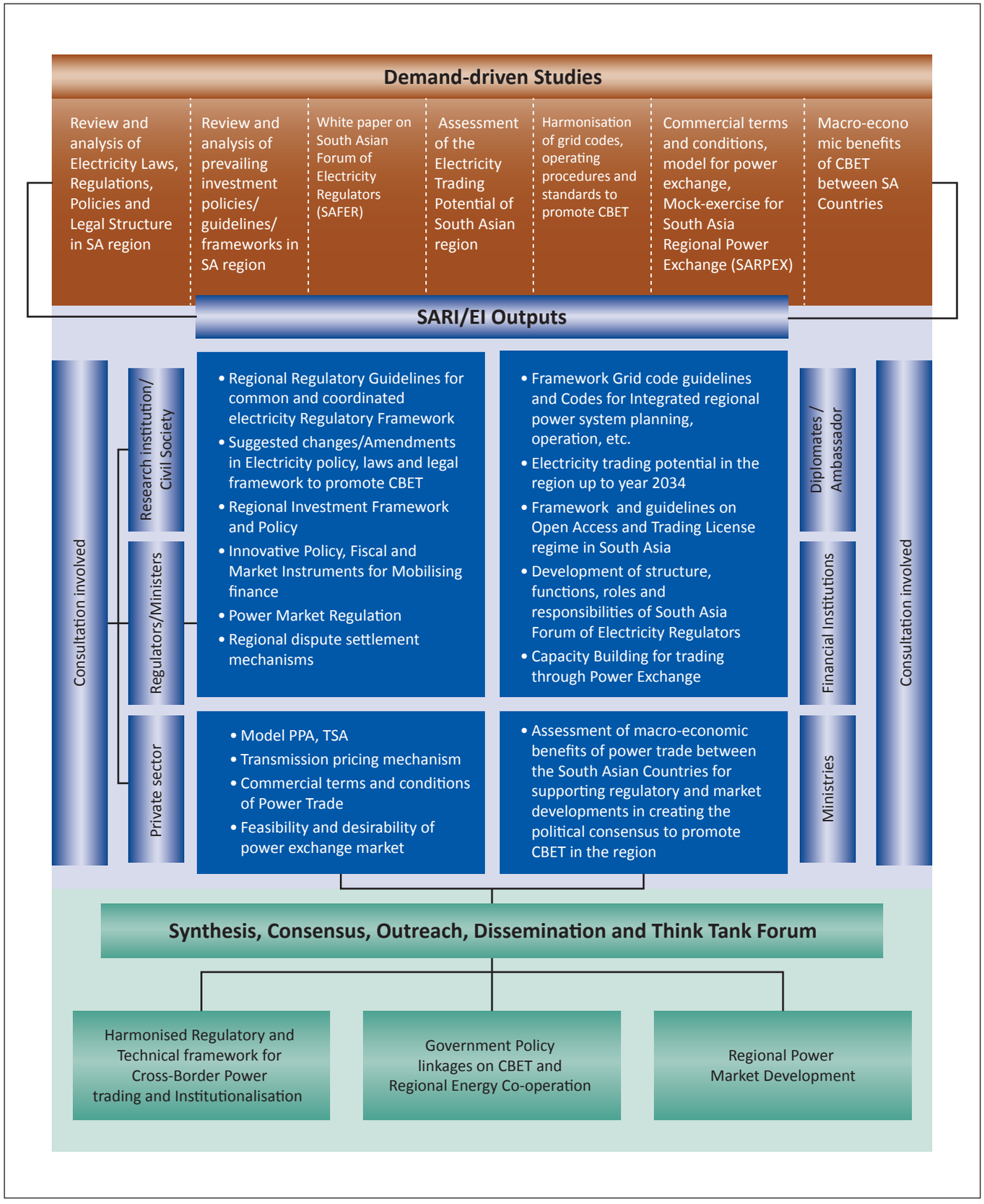


Integrated Research and Action for Development (IRADe), a regional Think-Tank is the implementing partner for the fourth phase of the SARI/EI program through a co-operative agreement with USAID. IRADe acts both as the secretariat and technical input provider and it has been working towards consensus building among member countries in-line with the program objectives. IRADe which was established in 2002 is a non-profit and fully autonomous institute for advancing multi-disciplinary research and policy analysis to aid action programs.

The Project Steering Committee (PSC) is the program's apex body that provides overall strategic direction for successful implementation of the program and creation of a South Asian energy market. The PSC comprises of senior representation from the governments of participating countries of the level of Additional Secretary and Joint Secretary, independent energy experts, diplomats and representatives from regional institutions such as SAARC secretariat and multilateral donors such as Asian Development Bank etc. The Committee provides the vision, credibility and high profile support to accomplish the vision of the program in a timely and efficient manner.

The Task Forces (TFs) are the key accelerators of the program in reaching the desired objectives of SARI/EI. The three inter-governmental TFs are working to create enabling environment for regional energy integration. The members of the TFs are nominated by the government from ministries, power transmission utilities, electricity regulatory commission and power market traders among others of participating countries. Activities taken up by the TFs include showcasing examples of the benefits of regional cooperation; leveraging counterpart funding and resources; providing unbiased support for regional initiatives; and present a platform to discuss cross-border electricity trade and promote infrastructure interconnection. To this end, the three task forces have taken up demand-driven activities with tangible outcomes. These demand-driven research and analysis provide detailed and informed recommendations on the issues of CBET. The SARI/EI project secretariat at IRADe provides technical and secretarial support to the program to achieve the goals set forward for CBET in South Asia.

SARI/EI Approach Framework



Earlier Phases of SARI/EI

Peak into the Past: SARI/Energy Phases – I, II & III (2000-2012)

Phase I (2001–2004)

The initial phase gave high emphasis on capacity building and information exchange.

* 1,500 participants on clean energy trade/efficiency, rural power supply, and regulatory issues;

* Offered opportunities for exchanging information and building skills in analysis/negotiation with a view to enhance the understanding of the energy sector and create a pool of aware stakeholders;

Planned pre-feasibility studies to identify opportunities for private sector investments in energy infrastructure; and Focused on the socio-economic aspects of regional energy cooperation, reaching stakeholders who can act as change agents—the media, public leaders, scholars, industrial energy consumers, and trade unions.

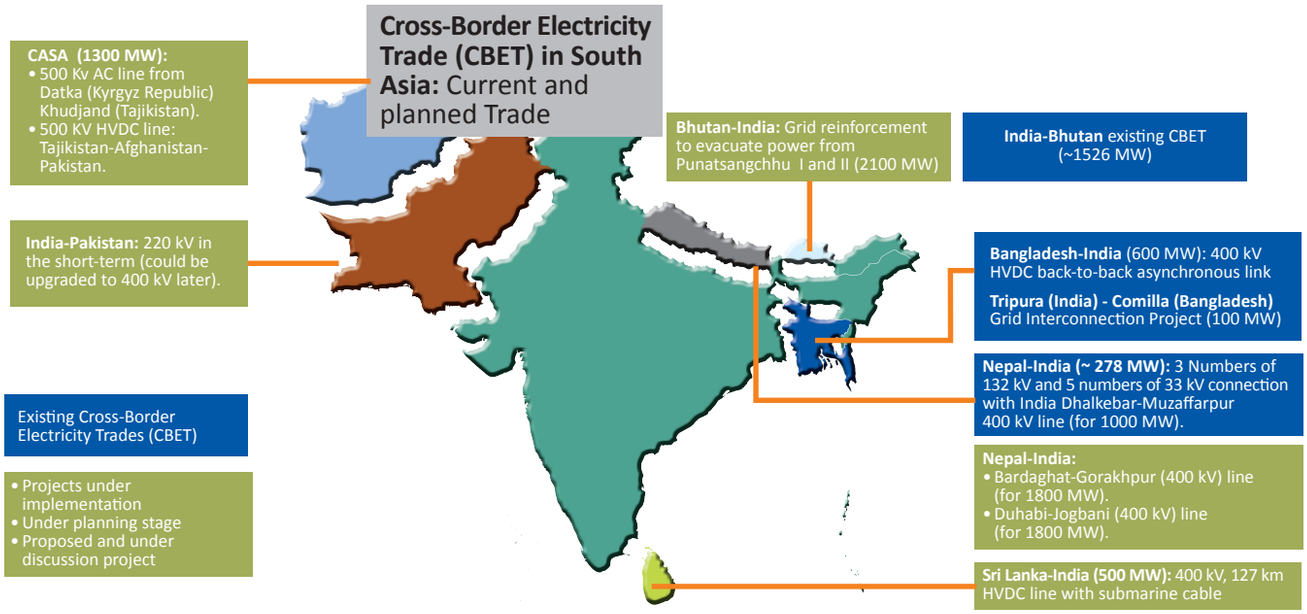
Phase II (2004–2007)

In Phase II, SARI/EI laid the foundation for increased clean energy access and improved market structures to facilitate regional investment in energy trade. It focused on improving policy, legal, and regulatory framework for cross-border energy trade. It identified, assessed, and promoted four of the five cross-border energy trade and investment projects between India and its neighbouring countries.

The program also supported bilateral energy projects in Afghanistan to encourage power imports from Central Asia to Afghanistan and the long-term transit of energy to South Asia. It spread awareness of best practices to promote environmentally sound and sustainable energy systems.

Phase III (2007–2012)

The activities in the third phase focused on enhancing regional energy security through mutual Co-operation and was marked by several tangible accomplishments. Cross-border energy trade has been significantly advanced by a series of technical assistance activities for the development of transmission infrastructure. The regional energy market formation was supported through programs that helped energy planners and policymakers in understanding the key energy market trends, latest modelling techniques, and ways to hedge risk. The details of activities on cross-border electricity trade, major cross-border infrastructure, and key energy market formation activities are explained in the figure below.



Task Force-1
Co-ordination of policies, legal and regulatory frameworks

TF-1 deals with issues related to the policy, legal, and regulatory aspects of Cross-Border Electricity Trade. Its members are from regulatory authorities, energy/power ministries, and policy-making bodies. TF-1 works on co-ordination of policies and regulations, framework for licensing, open access, investment guidelines towards creating sustainable market conditions for investment.

(a) Common Regulatory Guidelines to promote CBET.

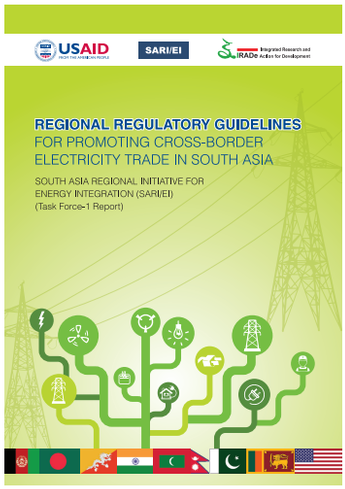
(b) Regional Regulatory Guidelines for promoting CBET in region.

Study 1: Review and analysis of Electricity Laws, Regulations, Policies and Legal Structure prevailing in each South Asian countries and to recommend changes and amendments in Electricity Laws, Policies and Regulations of South Asian Countries for promoting CBET.

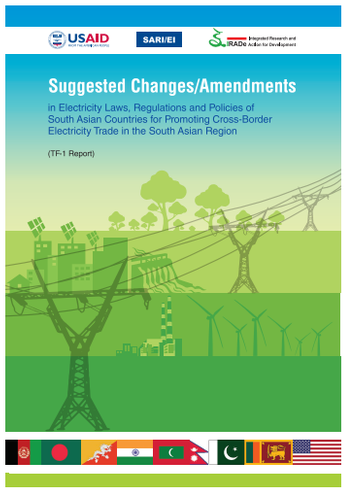
Study 2: Review of the prevailing investment friendly policies/ guidelines/ frameworks/FDI regimes in each South Asian countries and to develop Regional Investment Friendly Policy and Investment Framework for promoting investment in South Asian power sector and in CBET.

Study 3: Developing a white paper on establishing South Asian Forum of Electricity Regulators (SAFER) in SA region.

SARI/EI Phase IV: Task Forces' Activities & Demand-driven Studies



The study-1 was successfully carried out under Task Force-1 on Electricity Laws, Regulations, Policies and Legal structures of South Asian countries. The study identified the minimum requirements (critical ingredients) on regulatory framework to facilitate CBET in South Asia. It also reviewed international power pools and regional trade arrangements to understand the good practices around the world and brought out the Regional Regulatory Guidelines (RRGs) for the South Asian region. The RRGs are set of guidelines on common regulations, rules and protocols in technical, operational and legal matters for harmonisation/ coordinating on electricity regulation from the perspective of promoting CBET in South Asia. It will primarily assist the national electricity regulators of the South Asian countries in developing a regional regulatory framework and also in decision making on CBET in the South Asian Region.



To take forward the implementation of RRGs and for co-ordination/harmonisation of Electricity Laws, Regulations and policies of SA countries for promoting CBET, the study has brought out its 2nd report on "Suggested changes/amendments clause/ section wise in the existing Electricity Laws, Regulations and policies of SA countries for promoting CBET across South Asia Region. These suggested changes/amendments can be considered by each South Asian Country Governments as a base for aligning the legal, policy and regulatory frameworks prevailing in each South Asian Countries for promoting CBET in the region. This report also covers country-wise proposed long-, medium- and short-term road maps for implementation of these suggested changes and amendments.

Task Force-2
Advancement of Transmission System Interconnections

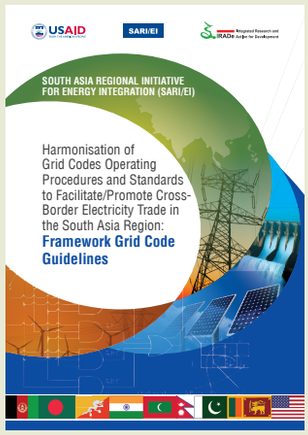
The TF-2 identifies import-export points for technically and economically feasible cross-border interconnections over the next 20 to 30 years. The TF-2 is formulating the required co-ordination procedures for stable regional/national grid operations in the region. The TF members are from various countrys' transmission utilities, the planning authorities and system operators.

Study 1: Assessment of the Electricity Trading Potential of South Asian Countries

The study looks into the existing long-term Demand-Supply projection scenarios of the participating countries and the expected developments in the next 10-20 years by taking into account the CBET potential as a means to meet the additional demand of power by each country and/or by exporting surplus power through CBET to other South Asian Nations.

Study 2: Harmonisation of grid codes, operating procedures and standards to facilitate/promote Cross-Border Electricity Trade in South Asia

The study identifies the provisions in the Grid Codes and operating procedures that will have an impact on optimal, reliable and economic operation of CBET across the South Asian nations and recommendations for necessary changes or additions required in the operation procedures/Grid codes/standards/ institutional structure etc., in respective countries and will come up with Framework grid code guidelines which are comprehensive in nature and encapsulates: (1) Impact analysis; (2) Explanatory statement; (3) Implementation provisions; and (4) Draft code.



Task Force-3
Establishment of South Asia Regional Electricity Market

TF-3 focuses on establishment of South Asian Regional Electricity market including a Regional Power Exchange. The Task Force members primarily are from the utilities, regulatory bodies, power trading companies, power exchanges. The TF-3 activities explore market-driven, commercial practices in the trading of power, including long-term contractual instruments and medium-/short-term trading exchanges. It covers matters relating to guarantee mechanisms, tariffs, wheeling charges, attribution of transmission losses, transmission pricing and other commercial issues.

Study 1: Assessment of commercial terms and conditions for CBET and suggested model of Power Exchange in South Asian region

This ongoing study is assessing the preparedness of each South Asian country for selecting suitable models/options for power trading including a power exchange for the countries and 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. The study will also come out with Model PPA and TSA for SA region.

Study 2: Pilot Market Project - Mock exercise for South Asian Regional Power Exchange (SARPEX)

A mock exercise is currently being undertaken towards establishing the desirability and the feasibility of a South Asian Regional Power Exchange (SARPEX). The other objectives are developing a draft set of market rules and design of SARPEX and build the capacity of stakeholders in understanding the functioning and operating a power exchange. The pilot project shall be run like a Day Ahead Spot Market.

Analytical Studies

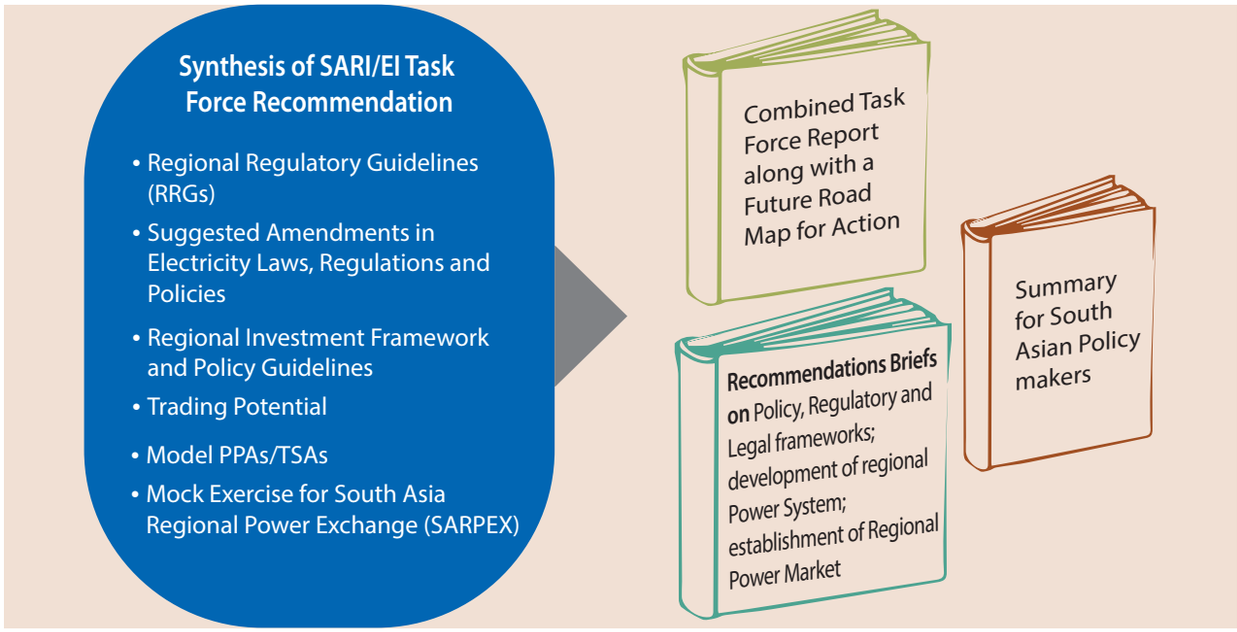
SARI/EI Macro-economic Studies on CBET

Under the SARI/EI program, IRADe has initiated a macro-economic study of electricity trade with the primary purpose to build consensus for CBET by quantifying its benefits. The objective of the study is to critically assess the potential for CBET among the nations of the South Asia region through comprehensive analytical studies that quantify the technical, economic, environmental and energy market benefits of cross border interconnection in the region. The study will involve multi country analysis and bring out the economic (macro and micro) importance of power trade besides other country benefits. The key goal of the study is to provide estimates of benefits holistically and the need for supporting regulatory and market developments that may aid in creating the political consensus for regional electricity trade. Currently a techno-economic modelling exercise is concluding its findings and recommendations on India-Nepal electricity trade benefits.

Synthesis of SARI/EI Task Force Recommendation

As per program implementation plan of SARI/EI, program needs to synthesise recommendations of all three SARI/EI task force and need to prepare combined task force report. The synthesis of task force recommendations is a very important activity as it will provide holistic South Asian perspective for advancing Cross Border Electricity Trade (CBET) in the South Asian Region. Once all the task force recommendations are finalised, the synthesis exercise will be initiated and it will come up with the following:

1. Combined Task force Report along with a Future Road Map for Action.
2. Summary for South Asian Policy makers.
3. Recommendations Briefs on
   (a) Policy, Regulatory and Legal frameworks for accelerating CBET in the South Asian Region.
   (b) Developing an Integrated Regional Power System in South Asian for advancing CBET in the South Asia.
   (c) Establishing a competitive South Power Market.



Implementation of Task Force Recommendations and Articles of SAARC Framework Agreement on Energy (Electricity) Co-Operation: Activities/Studies

Development of model Framework/Standard set of procedures and terms and conditions for grant of open access in Transmission (Implementation of Recomendation of RRGs)

Development of model Framework /Standard set of procedures and terms and conditions for grant of trading license (Implementation of recommendations of RRGs)

Regulatory Guidelines and model Regulation for domestic power Market development (Implementation of recommendations of RRG)

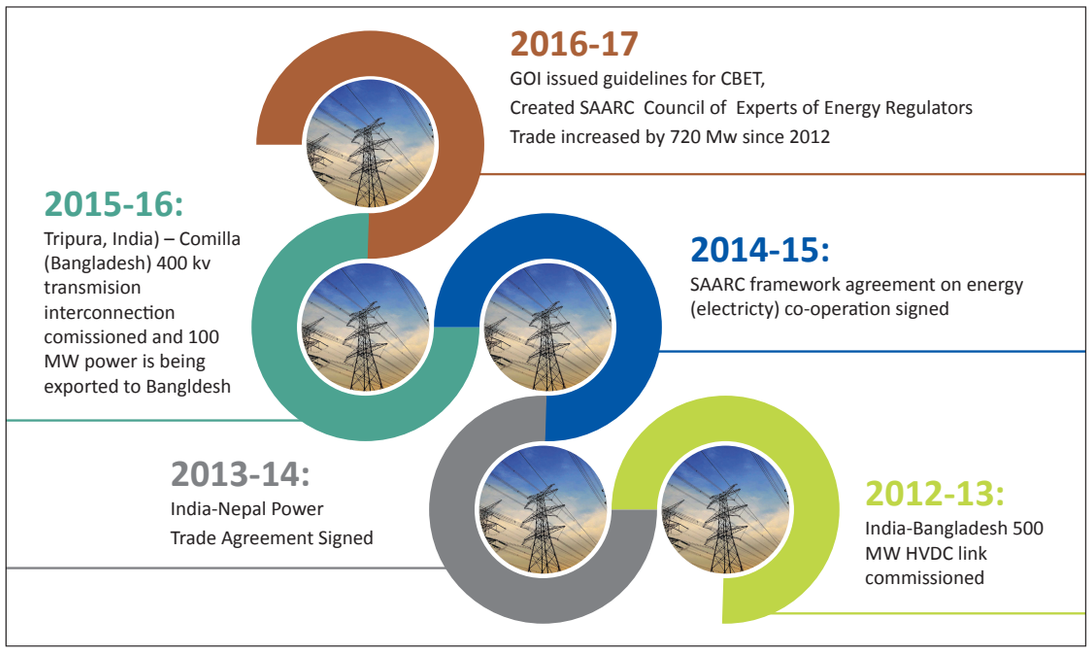
Technical advice/support to regional regulatory Institution mechanism under SAARC (To take forward the implementation of RRGs)

White paper on creation of institutional mechanism on South Asia forum /Association of Transmission and generation planning and system operation (Implementation of Recomendations framework grid code guidelines)

Development of an appropriate regional dispute settlement mechanism for promoting CBET

Working with SAARC and SAARC Energy centre

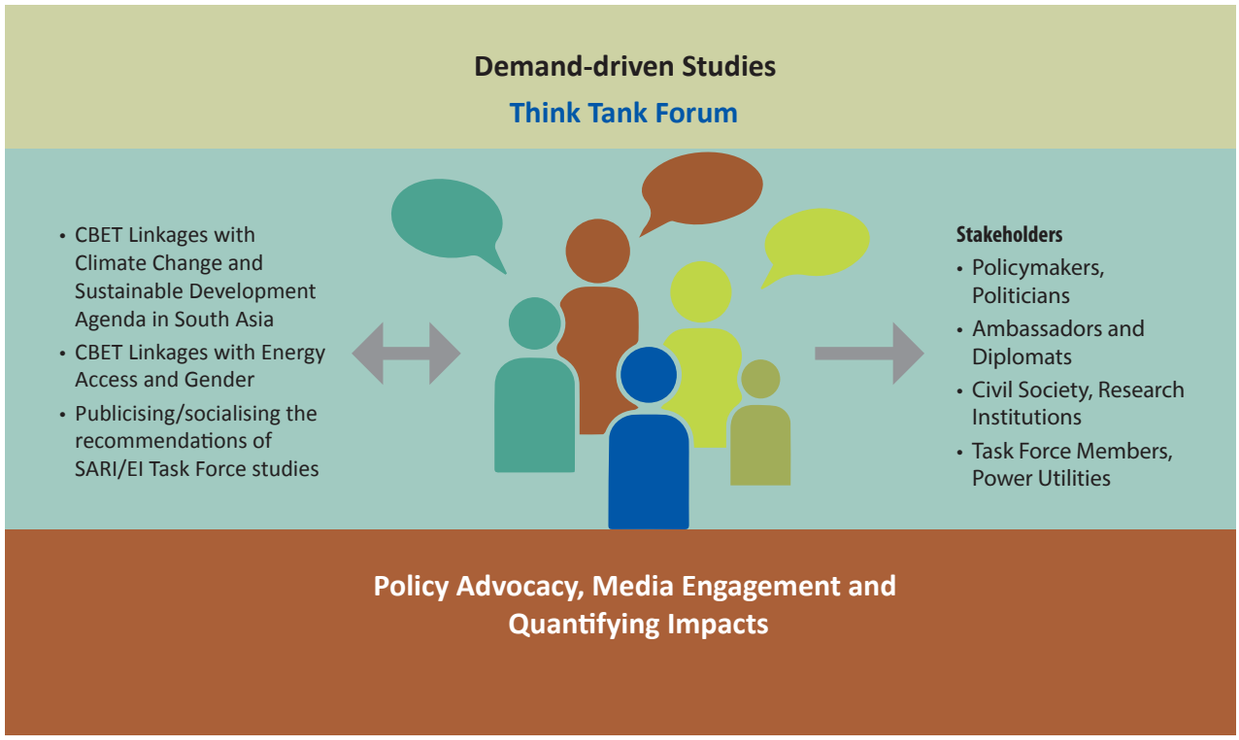
Key Impacts of SARI/EI in South-Asian Region CBET since 2012-13



Outreach Strategy Knowledge Dissemination Forum

South Asia Think Tank Forum (TTF) comprising of leading think tanks in South Asia has been created for engaging the civil society and media on the importance of CBET in the socio-economic development agendas of their countries. TTF aims in establishing narratives and examples of the relevance of CBET in the energy security and climate change discourses, the TTF shall take these messages to the stakeholders in respective countries. TTF will also take forward the work of SARI/EI and to maintain the legacy of SARI/EI work in SA region.

Synthesis, Consensus, Outreach and Dissemination



SARI/EI Events Gallery 2012-2016

Round Table Stakeholder Consultation meeting on Regional Investment Framework and Policy Guidelines for promoting investment in South Asian Power Sector and in Cross-Border Electricity Trade (CBET) in South Asia, 20th October, 2016, Bangladesh

Workshop on Power Market Development in India, 21st April, 2016 Dhaka, Bangladesh

Launch Workshop: Think Tank Forum for SA Regional Co-operation 16th September, Kathmandu, Nepal

Second meeting of SAARC Energy Regulators, 08th February, 2016, Sri Lanka

5th Meeting of Project Steering Committee, 9th and 10th November, 2016, Colombo, Sri Lanka

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