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Concept Note-SAFIR-SAREP Conference on “Deepening Cross Border Electricity Trade and Region Electricity Market Development for Sustainable Energy security in the South Asia Region”, 2nd and 3rd March, 2023, Hotel Le Meridien, New Delhi, India

**Jointly Organised
by**

**South Asia Forum of Infrastructure Regulation (SAFIR)
&**

USAID’s South Asia Regional Energy Partnership (SAREP)



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**Conference
on**

“Deepening Cross Border Electricity Trade and Region Electricity Market Development for Sustainable Energy security in the South Asia Region”

March 2-3, 2023, Hotel Le Meridien, New Delhi, India

A. Background and Context:

01. South Asia (SA) region is one of the most vibrant and diverse regions in the world. It comprises of the 21% of the world's population and 5.21% (US\$ 4.47 trillion) of the global economy, as of 202¹. Access to reliable, affordable, clean, and sustainable energy is a high priority not only to support rapid economic growth and improved welfare of more than 1.8 billion population² of the SA region but also to ensure energy and climate security in the region.
02. Over the past few years, SA has experienced a sustained economic growth (average of ~ 6 %) that has lifted many from poverty and contributed to notable strides in health and education and other development indicators and in striving to achieve suitable development goals. Rapid industrialization, modernization, and urbanization lead to the rising energy demand across all the countries of the SA region. However, the current level of per capita electricity consumption of the SA region is 915 kWh per capita against the global average 2674 kWh per capita³. There is an urgent need, and a tremendous opportunity, for enhancing per capita consumption of electricity, in the SA region. Adequate supply of energy is a pre- requisite for all human pursuits ranging from economic progress to scientific research endeavours, education, healthcare, and recreational activities.
03. SA Region has tremendous hydro potential (~350 GW) and significant solar (~939 GW) and wind (967 GW) energy potential⁴. While SA is endowed with large (> 350 gigawatts) hydropower potential, only around 18 percent has been exploited so far⁵. Increased regional energy cooperation on a sustained basis among countries can bring economies of scale, strengthen electricity/energy sector financing capability, enhance competition, market development, improve sector efficiency and greening the South Asia Power Grid.
04. Cross Border Electricity/Energy Trade (CBET) possess an immense opportunity and can trigger rapid decarbonising of power/energy sector and fostering energy security in SA through the development of large-scale sustainable energy infrastructure across the region. There are significant opportunities for regional optimization of diverse energy resources in a sustainable manner through the development of interconnected and integrated power system by advancing CBET in the region. Hydro power potential of Nepal and Bhutan can help in better hydro-thermal ratio of the whole SA region.
05. The South Asian countries have recognized the importance of regional energy cooperation and CBET and are undertaking transmission interconnections and development of hydro power for five decades. In the BBIN (Bhutan, Bangladesh, India, and Nepal) sub-region, CBET has been underway between Bangladesh, Bhutan, India, and Nepal. In case of India-Bhutan, Bhutan is exporting sustainable clean hydro power to India. Many exports oriented hydro power plants are also under construction in Nepal. Various CBET projects at bilateral, trilateral, and regional level are under discussion and construction stage. There is also a small quantum of power supply between India and Myanmar.
06. While CBET started as early as the 1950s in the SA region, it is only in the last ten years that the region

¹ https://en.wikipedia.org/wiki/South_Asian_Association_for_Regional_Cooperation#:~:text=The%20South%20Asian%20Association%20for,%2C%20Pakistan%2C%20and%20Sri%20Lanka.

² <https://www.adb.org/news/op-ed/how-south-asia-can-continue-world-s-fastest-growing-subregion-lei-lei-song>

³ <https://sarepenergy.net/wp-content/uploads/2022/12/Cross-Border-Electricity-Trade-in-SAARC-Region-Current-Status-Future-Outlook-by-Rajiv-Ratna-Panda-Technical-Head-SARI-EI-IRADE.pdf>

⁴ <https://sarepenergy.net/wp-content/uploads/2022/07/brief-report-09march.pdf>

⁵ <https://sarepenergy.net/wp-content/uploads/2022/07/brief-report-09march.pdf>



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has witnessed a many-fold increase in CBET, from 1,400 MW in 2012 to 3,900 MW in 2022. With an upsurge in cross-border transmission and interconnection, power trade is expected to increase to about 43.8 GW by 2040. With the One Sun, One World, One Grid (OSOWOG) initiative pioneered by the Government of India and Green Grids Initiative (GGI)-OSOWOG, the region will get interconnected beyond SA. Large scale cross border transmission needs to be developed to tap the large-scale solar potential.

07. India's role in CBET and grid integration is crucial due to the country's central geographic location. India has promulgated forward-looking guidelines, regulations, and procedures for facilitating CBET⁶. The "Guidelines for Import/Export (Cross Border) of electricity" have allowed CBET through Indian power exchanges and trilateral CBET through tripartite agreements.
08. As a first step, Bangladesh plans to import 500 MW of electricity from a hydropower project in Nepal through India. The 1,125 MW Dorjilung hydropower project in Bhutan would also export power to Bangladesh via India. In a major change, Nepal has taken the lead on market based CBET by importing electricity from the power exchange in India starting in April 2021. Such imports of electricity by a country from a neighbouring country's power exchange are not only unique in SA but possibly a first of their kind across various subregions of Asia⁷. With the success of imports, Nepal is exporting electricity in the Indian Power Exchange (PX). Bhutan bought around 240 GWh of electricity from the Indian PX in the year 2022 and import have also started from January 2023. Bangladesh is also expected to trade through India's PX platform soon.
09. The development of hydropower, a sustainable form of energy in the region would increase by 2.7 times over the next two decades if the region could facilitate an unconstrained flow of electricity across the borders in South Asia⁸.
10. India has come up with a very ambitious plan to develop large scale sustainable energy infrastructure, to reach a target of 500 GW of Renewable energy (RE) by 2030, arguably the most ambitious plan in the world. Other SA countries also have plans for increased RE in the energy basket. Because of resource diversity between countries, to manage the RE intermittency and grid balancing, hydro resources of Bhutan and Nepal can supplement the sustainable grid integration of RE in India and other countries. Recent initiative by India for One sun One world and One Grid (OSOWOG) can further deepen power system integration in SA and beyond⁹.
11. Energy system is undergoing rapid transformation across the globe due to various socio, economic, technological, and environmental factors and SA region is also impacted by this change. Future of CBET and regional energy cooperation must navigate the global and regional context. For this, building a technology ecosystem for fostering energy technology innovation will be critical. Building new energy infrastructure will be dependent largely on the emerging energy innovations, and adoption of advanced energy technologies for ensuing energy security and accelerating clean energy transition. Various technologies such as smart grid transmission technologies, innovative energy storage technologies, developing a hydrogen economy, technologies for integrated power system operation and innovation in regional electricity market will play an important role in deepening CBET and regional electricity market development in SA region. For example, renewable power could be utilised to produce green hydrogen in a large scale. With predicated rise in RE and the renewed prospect of hydropower, generation of hydrogen through electrolysis using electricity generated from such green energy sources would help in development of green hydrogen economy in SA region. Creating technology partnerships will also be helpful among countries to accelerate

⁶ <https://www.nbr.org/publication/transforming-regional-electricity-markets-in-south-and-southeast-asia-for-a-greener-and-more-sustainable-future/>

⁷ <https://www.nbr.org/publication/transforming-regional-electricity-markets-in-south-and-southeast-asia-for-a-greener-and-more-sustainable-future/>

⁸ <https://openknowledge.worldbank.org/bitstream/handle/10986/29986/WPS8513.pdf?sequence=1&isAllowed=y>

⁹ <https://sarepenergy.net/wp-content/uploads/2022/07/brief-report-09march.pdf>



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the speed and scale of innovation.

12. The CBET across the SA region will promote economic growth and improve the quality of life for all the nations and shall balance the diversity of primary energy sources and differences in seasonal patterns of supply and demand. CBET particularly in the SA can also play an incredibly significant role in achieving the social, economic, and developmental objectives of the region and in a way shall enhance the overall stability in the region.
13. United States Agency for International Development (USAID), through its erstwhile South Asia Regional Initiative for Energy Integration Initiative (SARI/EI) Program, have been partnering with SAFIR in various areas and now activities of SARI/EI have transitioned to the South Asia Regional Energy Partnership (SAREP) program. SAFIR and USAID's SAREP Program are jointly organising the SAFIR annual infrastructure conference for the year 2023. This conference is titled, **“Deepening Cross Border Electricity Trade and Region Electricity Market Development for Sustainable Energy security in the South Asia Region”** and is scheduled to be held on 2nd – 3rd March 2023 at the Hotel Le Meridien, New Delhi, India.

B. Format of the Conference:

The conference will be a physical mode conference and will comprise of a high-level inaugural session and four focused working sessions in the format of panel discussion. Speakers can make formal brief presentations if they so desire. The conference is being jointly organized by SAFIR and USAID's SAREP Program. . High-level participation has been envisaged at the inaugural session, where Ministers/dignitaries from the SAARC States are being invited to deliver their addresses. In addition to the inaugural session, there will be four working sessions as follows:



1. High Level Inaugural Session
2. Working Session-I: “Conducive Policies and Facilitating Regulations for advancing Cross Border Energy Trade, and Region Electricity Market development for fostering Sustainable Energy and Climate Security.”
3. Working Session II – “Creating Transmission Infrastructure - Developing a South Asia Regional Power Grid for Sustainable Energy Security and Greening the Grid for cross border clean energy trade.”
4. Working Session III- “Strategy for transitioning gradually to Trilateral/Multilateral Power Trade and Development of Regional Power/Energy Market for advancing Sustainable Energy Security.”
5. Working Session IV- Building New Energy Infrastructure: Emerging Clean Energy Innovations and Technologies for accelerating clean energy transition.

C. Objective of the Conference:

Provide platform for dialogue, discussion, exchange of ideas and deliberation on:

- ❖ Key policy and regulatory design and frameworks for advancing Cross Border Energy Trade (CBET), and Regional Electricity Market development for fostering Sustainable Energy Security in SA region.
- ❖ Opportunities and Challenges offered by the region in CBET and regional electricity market, need for coordinated policies and regulation for advancing CBET.
- ❖ Developing a South Asia Regional Power Grid and Greening the Grid for cross border clean electricity trade.
- ❖ Strategy and potential benefits of gradually transitioning from bilateral to trilateral/multilateral power trade, development regional power market.
- ❖ Showcase the ‘win-win’ benefits offered by bilateral/trilateral/multilateral electricity trade.
- ❖ A regional planning approach - Regional Transmission master plan, integrated system operation
- ❖ State of energy market development in each SA country and strategy for development of regional electricity market





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- ❖ Modernizing Regional Power Grid – Smart Grid Transmission Technologies, Innovative Energy Storage Technologies, Hydrogen Economy and National Green Hydrogen Mission of India, Smart Technologies for Integrated power system operation.
- ❖ Innovation in Regional Electricity Markets- Opportunities and challenges
- ❖ Release of the Conference Knowledge Report on “ Sustainable Energy and security in South Asia: Role of Deepening Cross Border Electricity Trade and Region Electricity Market Development”.

D. Participants:

Conference participants will include SAFIR members, representative from government, ministries/departments of power, energy, planning authorities and other policy making bodies, load dispatch centers, power exchanges, power generation companies, transmission and distribution utilities, power equipment manufacturers and suppliers, trade and industry associations, SAARC, Civil society, BIMSTEC, regional forums, network associations, research & development organizations, financial institutions, Multilateral development banks, educational institutions, energy professional, researchers, consultants and other organizations/agencies affiliated with energy/power sector, nominated members of SAREP project steering committee and task forces, from South Asian countries.

E. Expected Outcomes:

The event will lead to improved understanding and awareness on: i) the policies and regulations for advancing CBET and regional electricity market development for fostering Sustainable Energy Security, ii) way forward for developing a SA Regional Power Grid and Greening the regional electricity grid for clean energy trade, iii) strategy for transitioning gradually to trilateral/multilateral power trade and development of Regional Power Market in the SA for cross border clean energy trade in bilateral, trilateral and multilateral form among the SA countries, iv) provide practical ideas and thoughts for future work plan of the SA Regional Energy Cooperation, and v) building new energy Infrastructure, fostering Clean Energy Innovations, and technology partnership for Energy Security.

F. Point of Contacts :

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G. South Asia Forum for Infrastructure Regulation (SAFIR):

The South Asia Forum for Infrastructure Regulation (SAFIR) was established in May 1999. SAFIR aims at providing high quality capacity building and training on infrastructure regulation & related topics, in South Asia and to stimulate research on the subject by building a network of regional and international institutions & individuals that are active in the field. It also aims at facilitating effective and efficient regulation of Utility and infrastructure industries, initiate beneficial exchange of knowledge and expertise, and set the trend of rapid implementation of global best practices.

H. United States Agency for International Development (USAID):

USAID is the world's premier international development agency and a catalytic actor driving development results. USAID leads international development and humanitarian efforts to save lives, reduce poverty, strengthen democratic governance, and help people progress beyond assistance.

I. South Asia Regional Energy Partnership (SAREP):

The South Asia Regional Energy Partnership (SAREP) serves as a flagship program of USAID to advance objectives of the U.S. Government's Clean Asia Enhancing Development and Growth through Energy (EDGE) initiative. SAREP is working on developing regional power markets, improving coordination and planning, strengthening national and regional institutions, building consensus on power trade, and institutionalizing a supporting framework and mechanisms. SAREP activities are supporting expansion of cross-border power trade by supporting stakeholders to participate in trilateral, multilateral, and exchange-based markets.