

South Asia Regional Initiative for Energy Integration

Theme Presentation of Working Session-I

“Developing Regional Policy and Regulatory Frameworks for Sustainable Energy Integration & Cross Border Electricity Trade (CBET)”

Presented by

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Conference (Virtual) on “Sustainable Energy Infrastructure Development and Role of Cross Border Energy Trade in South Asia: Challenges, Opportunities and way forward” 15th and 16th March 2021, New Delhi, India

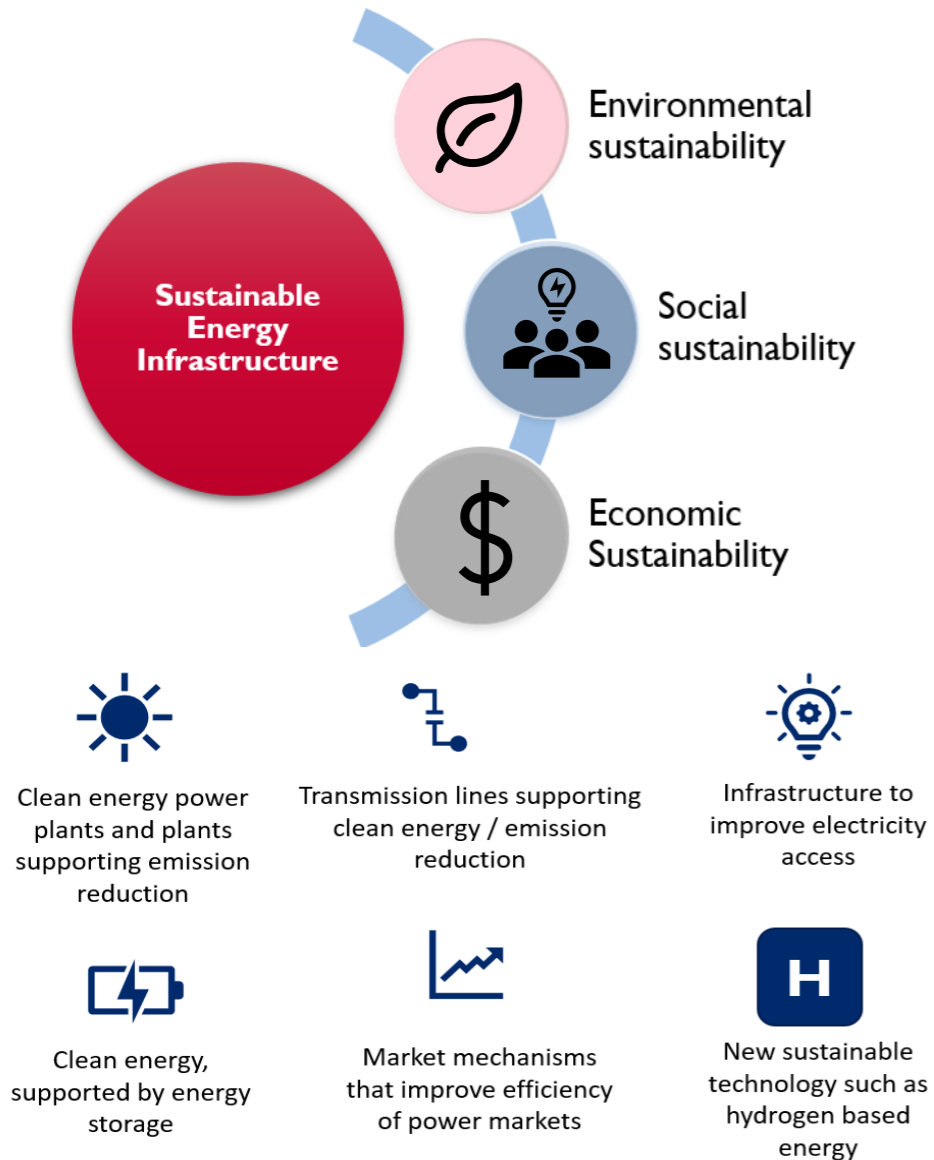


Agenda

- Defining Sustainable infrastructure and Sustainable CBET
- Need for transitioning to renewables, increasing transmission interconnections to appropriate level considering potential trade
- Need for Coordinated Policies and Regulation
- Current Status of Policies & Regulation (PR) development in SA
- Recent PR Initiatives by SA countries
- Learning from within South Asia on policy and regulations for Sustainable Energy Infrastructure (SEI)
- Learnings from international best practices.
- Regional institutional mechanisms: International experience
- Work done by SARI/EI in policy and regulatory harmonisation
- Key Findings of SARI/EI Studies -Policy, Regulatory, Legal Framework for CBET
- Key points for discussion



Defining Sustainable infrastructure and Sustainable CBET



Sustainable energy infrastructure

Energy infrastructure that supports sustainability through:

- Environmental sustainability improvement – Clean energy generation, clean energy evacuation, emission reduction (fuel substitution);
- Social sustainability improvement – Improve energy access; or
- Economic sustainability improvement - Improve energy affordability, energy security and market efficiency.

Sustainable CBET supports the use of sustainable energy infrastructure at a regional level, and is not restricted to clean energy.

For example: A gas pipeline that allows a shift from traditional biofuels to modern fuel sources, or import of power from coal power plants that solve the issue of electricity availability could all be considered sustainable in certain contexts.

Need for transitioning to renewables, increasing transmission interconnections to appropriate level considering potential trade



Most of the new CBET transactions being considered are based on hydropower. In the future, solar / wind power can also be traded.



For proposed new CBET transactions, new transmission interconnections will also be required.

- India – Bhutan MoU: 10,000 MW hydropower
- CASA-1000 for hydropower from Central Asia to Afghanistan and Pakistan
- Bangladesh: Import of 500 MW from Nepal's Upper Karnali HPP
- Bangladesh/Nepal/Bhutan may also think of importing solar and wind power from India.

- India – Bangladesh cross border lines: Most of the capacity already utilized completely.
- Evacuation of power from HPPs in Nepal – New lines planned till border of Nepal for 900 MW Arun-III HPP and 900 MW Upper Karnali HPP
- New transmission systems for evacuation from new HPPs in Bhutan such as Punatsangchu HPP

Need for Coordinated Policies and Regulation

Without consistent and coherent regional regulatory framework in place, investment opportunities and consequently large-scale development of CBET and regional sustainable energy infrastructure may not happen.

- Risks associated with forging a regional sustainable energy project would be greatly minimized if each participating country adopts complementary regulatory frameworks to facilitate cross-border interconnection and electricity trade.
- Advancement in these areas requires a coordinated effort by countries in SA for establishing a supporting regulatory and policy framework.
- This has also been observed in the case of similar experience of other regional power pools / regional groupings. For example:
 - Guidelines on CBET, issued by Regional Electricity Regulator's Association (RERA) in South African Power Pool;
 - Regional Energy Market Regulations (REMR) in Central American Interconnection; and
 - Directives and regulations of European Commission in the European common market for electricity.

Current Status of Policies & Regulation (PR) development in SA

The countries are at different stages in the development of policies and regulations.

Policies and regulations	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Cross border electricity trade	⌚ (Mentioned in law)	⌚ (Mentioned in law)	⌚ (Mentioned in law)	✓ (Guidelines, regulations, rules)	✗	⌚ (Mentioned in law)	✓ (Mentioned in law. Regulation for import.)	✗
Framework for transmission/ wheeling tariff	✗	✓	✓	✓	✗	✗	✓	✓
Framework for trading licensees	✗	✗	✗	✓	✗	✗	✗	✗
Open access	✗	✗	✗	✓	✗	✗	✗	✗

✓ Available
⌚ Partially Available
✗ Not Available

Recent Policy/Regulation Initiatives by SA countries

India

- Procedure for approval and facilitating Import/Export of Electricity by the Designated Authority
- Framework for Real-Time Market (Delivery of power within 30-60 minutes of auction, through power exchanges)
- New Power Market Regulations, introducing the concept of Market Coupling Operator

Pakistan

- National Electric Power Regulatory Authority's (NEPRA) "Detailed Design and Implementation Roadmap of the Competitive Trading Bilateral Contract Market (CTBCM)" – Competitive wholesale market by 2022
- Shift to competitive bidding for Solar PV

Nepal

- Draft Electricity Act, to allow trading licensees and open access

Learning from within South Asia on policy and regulations for Sustainable Energy Infrastructure (SEI)

Success factors from India

- Feed in Tariffs for initial years
- Fiscal incentives for initial years – Accelerated depreciation
- Net metering
- Compulsory Renewable energy purchase obligation (RPO)
- RE – thermal/storage blending
- RE certificates
- Gradual transition to auctions
- Long term certainty for exemption of inter-state transmission charge and loss for solar and wind power plants
- Long term RPO trajectory

Success factors from Pakistan

- Determination of upfront tariff for RE in initial year
- Gradual transition to auctions
- Indexation of tariff with inflation components, foreign exchange variation etc.
- Automatic indexation without having to approach regulatory every time.
- Facilitating institutions such as Alternative Energy Development Board (AEDB)

Success factors from other countries

- Bhutan - Clear delineation of type of project models that are allowed
- Nepal's - Regulatory bylaws that partially protect small developers from water flow related risks
- Sri Lanka - supportive framework for solar power net metering.

Learnings from international best practices

Regional power pools and power markets can be seen to have adopted a set of common minimum / harmonized policies, regulations and guidelines.



European Union common market

- European Commission Regulation (EC) No 714/2009 - Rules for cross-border exchanges in electricity, role of ENTSO-E and ACER
- Regulation on the internal market for electricity (EU, 2019)
- Directive on the common rules for the internal market (EU, 2019)



South African Power Pool

- IG MoU and inter utility MoU
- Agreement between Operating Members
- RERA guidelines for CBET
- Operating Guidelines
- Participation Agreement
- Market book of rules



Central American Interconnection

- Marco treaty
- Regional electricity market regulations (RMER)
- Procedure for processing requests for connection to the Regional Transmission Network (RTR)
- Procedure for the Application of Firm Contracts and Firm Rights



GCC Interconnection

- GCC General Agreement on Power Interconnection
- Power Exchange and Trading Agreement (PETA)
- GCCIA Market Procedures
- GCCIA Exchange Market Terms and Conditions
- Procedure for sharing of losses

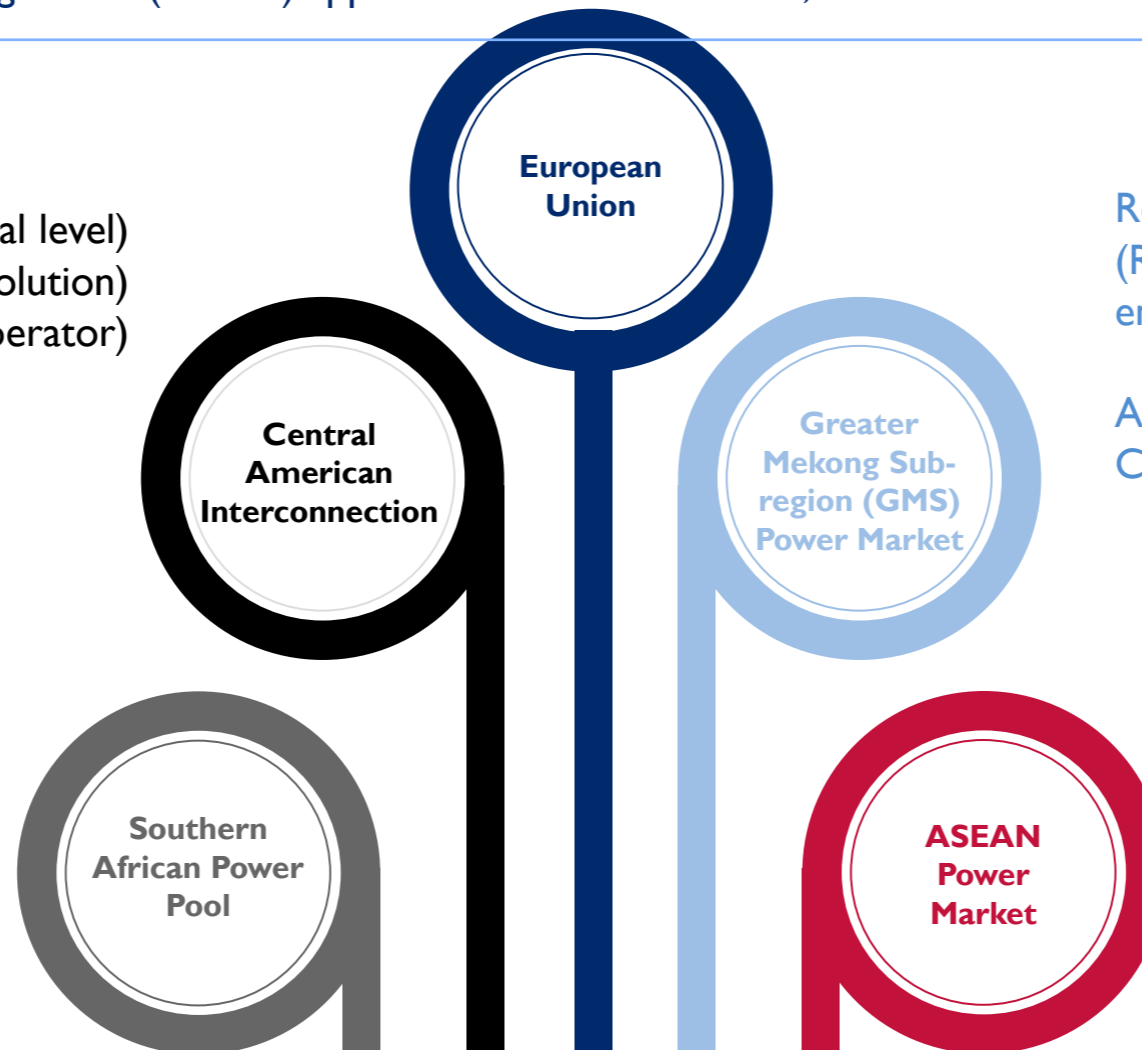
Regional institutional mechanisms: International experience

European network of transmission system operators for electricity (**ENTSO-E**), was established in 2009.
The Agency Cooperation of Energy Regulators (**ACER**) approves the network codes, and coordinates the work of national regulatory authorities.

CDMER (Coordination at intergovernmental level)
CRIE (Development of regulations, dispute resolution)
EOR (Regional transmission system operator)

Regional Power Trade Coordination Committee (RPTCC is comprised of officials from the energy departments and ministries.

A more permanent institution - Regional Power Coordination Center (RPCC) is planned.

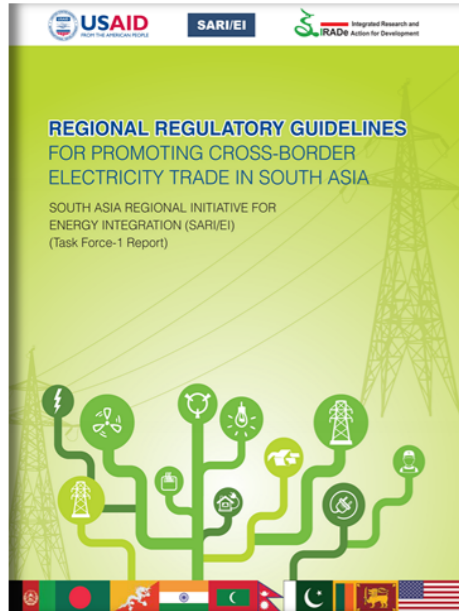


Heads of ASEAN Power Utilities (HAPUA)
ASEAN Power Grid Consultative Committee (APGCC)
ASEAN Centre for Energy (ACE)
ASEAN Energy Regulatory Network,
LTMS PIP working group

Regional Electricity Regulators Association of Southern Africa (**RERA**) provides recommendations on harmonization of the regulatory framework as well as provide an enabling environment for investment in the region's power sector.

Work done by SARI/EI in policy and regulatory harmonisation

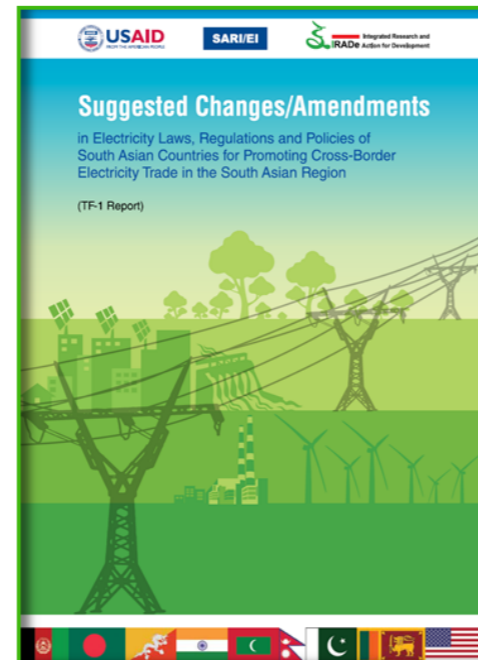
Regional Regulatory Guidelines (RRGs) for Promoting CBET in SA Region



- Report Suggested a Regional Regulatory Guidelines covering 9 key regulatory areas.
- Suggested Regional Regulatory Institutional Mechanism (SAFER)
- Implementation of RRGs

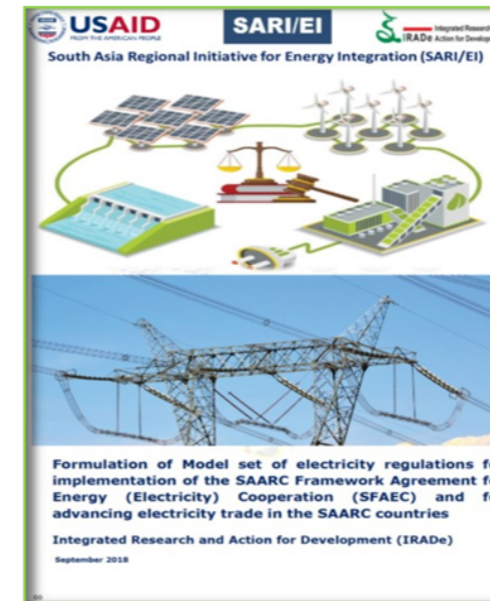
SA-South Asia

Suggested Changes/Amendments in Electricity Laws, Regulations and Policies of SA Countries for Promoting CBET in the SA Region



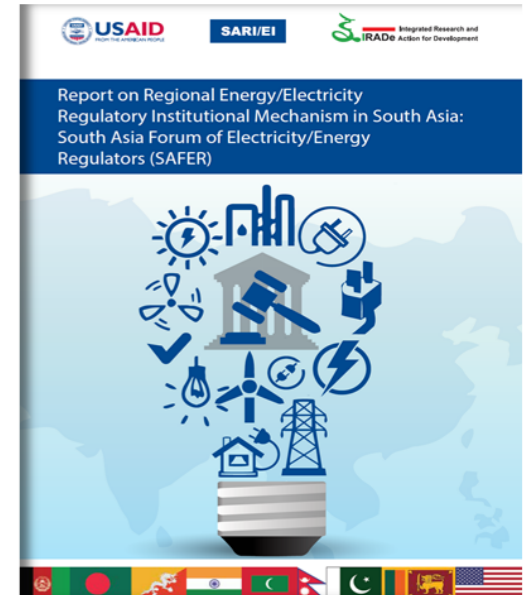
- Key ingredients for CBET
- Clause/section wise suggested changes/amendments in EL&R&P framework-Country Wise

Model set of electricity regulations for implementation of the SAARC Framework Agreement for Energy (Electricity) Cooperation & for advancing CBET in SAARC countries



- Report Suggested a detailed Model SAARC Electricity Regulation for Regional Power Trade (SERRPT)
- Addressing all the Regulatory aspects of CBET.
- Regulatory Changes for SERRPT Implementation.
- Conducted as a part of SAARC Council of Experts of Energy (Electricity) Regulators.

Regional Energy/Electricity Regulatory Institutional Mechanism in SA: South Asia Forum of Electricity/Energy Regulators (SAFER)



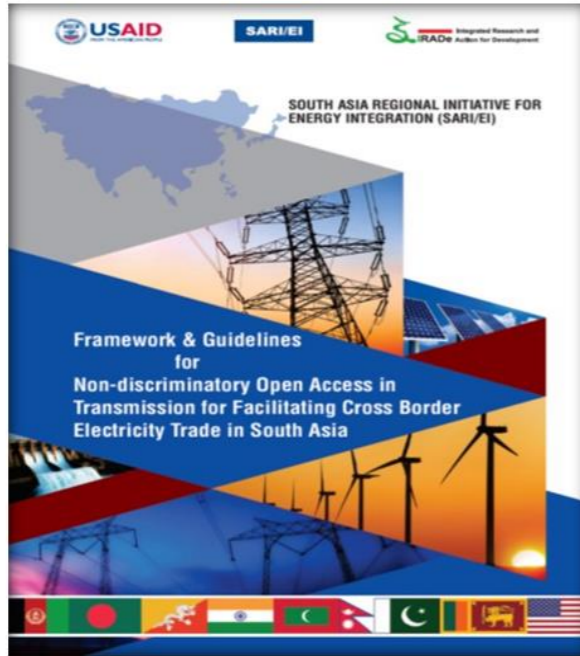
- Report Suggested the detailed structure, function and role of SAFER.
- Financial, operational aspects, Road map & strategy

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Work done by SARI/EI in policy and regulatory harmonisation

Framework & Guidelines for Non-discriminatory Open Access in Transmission for Facilitating Cross Border Electricity Trade in SA

An important ingredient for Competitive Power Market development

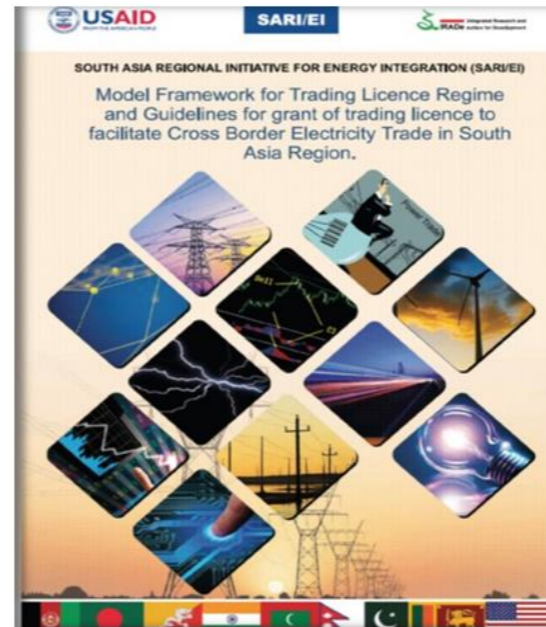


- ❑ Report Suggested a detailed Model Regional Open Access Framework & Guidelines (on 7 key areas)
- ❑ Implementation Roadmap- Regional Level Action & Country specific Action Plan

SA-South Asia

Model Framework for Trading Licence Regime and Guidelines for grant of trading licence to facilitate CBET in SA Region

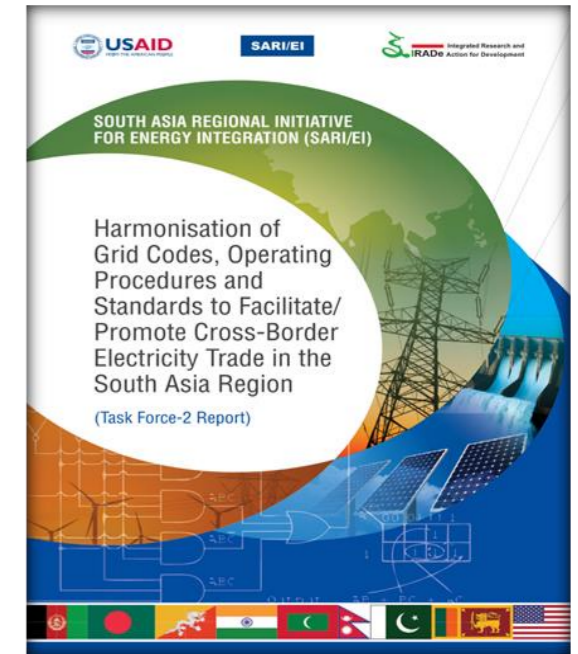
Trading License an important Regulatory tool for promoting power trading



- ❑ Report Suggested detailed Model Framework & Guidelines (on 7 key areas) for trading license regime in South Asia
- ❑ Implementation Roadmap- Regional Level Action & Country specific Action Plan

Harmonisation of Grid codes, Operating Procedures and Standards to facilitate/promote CBET in SA Region: Framework Grid Code Guidelines

Important for safe, secure and reliable power system integration & operation



- ❑ Report Suggested a very detailed set of Framework Grid Code Guidelines on Planning, Connection, Operation and Scheduling & Dispatch Guidelines.
- ❑ Suggested Regional Technical Institutional Mechanism.

Rajiv/SARI/EI/IRADE

Key Findings of SARI/EI Studies -Policy, Regulatory, Legal Framework for CBET

A

**Enabling Legal
framework**

Desirable to have **specific Legal** provisions for cross border energy/electricity trade.
Trading as a **distinct** Activity , **desire** to have Power/energy Market Development.
License requirements and the underlying rules/limitations

B

**Regulatory
Framework**

Licensing for CBET: (Important Regulatory Tool for Trading)
Open Access (OA) to transmission system: (Competitive Market), **Grid Connectivity**
Setting of fair rules and procedures for non-discriminatory open access, Defining **application process, eligibility criteria, priority order** and nodal agency for OA

C

**Regulatory
Framework**

Transmission Pricing: (cost reflective & efficient)
Country's requirement and acceptability, Setting up **principles and mechanism for determination of economically efficient transmission pricing regime** and gradually concept of location specific pricing
Adoption of **tariff framework in respective country power system through enabling regulations**

D

**Regulatory
Framework**

Transmission Planning: (coordinated Regional Planning)
regional coordination mechanism of planners, National Transmission Plans to include details of CBET lines (progress towards **developing a regional level master plan**)

E

**Regulatory
Framework**

Imbalance Settlement: (transparent common procedure), **Scheduling, dispatch, energy accounting and settlement procedures: Harmonization of grid codes:** (safe and reliable regional integrated system operation), **Dispute Resolution:** (transparent and fair legal framework), Dedicated **Cross Border Electricity Trade Regulations.**

F

**Structured
Institutional
Framework**

Structured Institutional Mechanisms/Committees/Forums at the Level of Regulators, Transmission utilities/planning Authorities , System Operation.
Committee/Mechanism to track & Monitor the progress of Implementation of MoU & advise needed interventions.

Key points for discussion

- **While CBET and sustainable energy infrastructure has been gradually increasing in South Asia, there are several challenges to scaling up to its full potential. This includes development of cross border transmission lines, and absence of multilateral regional institutional frameworks.**
- **The investments in the region also face issues of lack of long-term policy and regulatory certainty, including certainty in transmission tariff frameworks, benefits/incentives offered to developers, and environmental compliance.**
- **Considering these aspects, the following discussion points emerge:**
 - ❖ How can South Asia scale up the development of sustainable energy infrastructure, by learning from the leading practices of countries within and outside South Asia?
 - ❖ How can policy and regulatory frameworks support the investors of regional sustainable energy infrastructure?
 - ❖ What is the role of regulator in the development for sustainable energy infrastructure?
 - ❖ Considering the learnings from international experience, whether it is time to start discussions on setting up regional cooperation entities such as Association of Transmission Utilities, Association of Electricity Regulators. Etc. in South Asia.

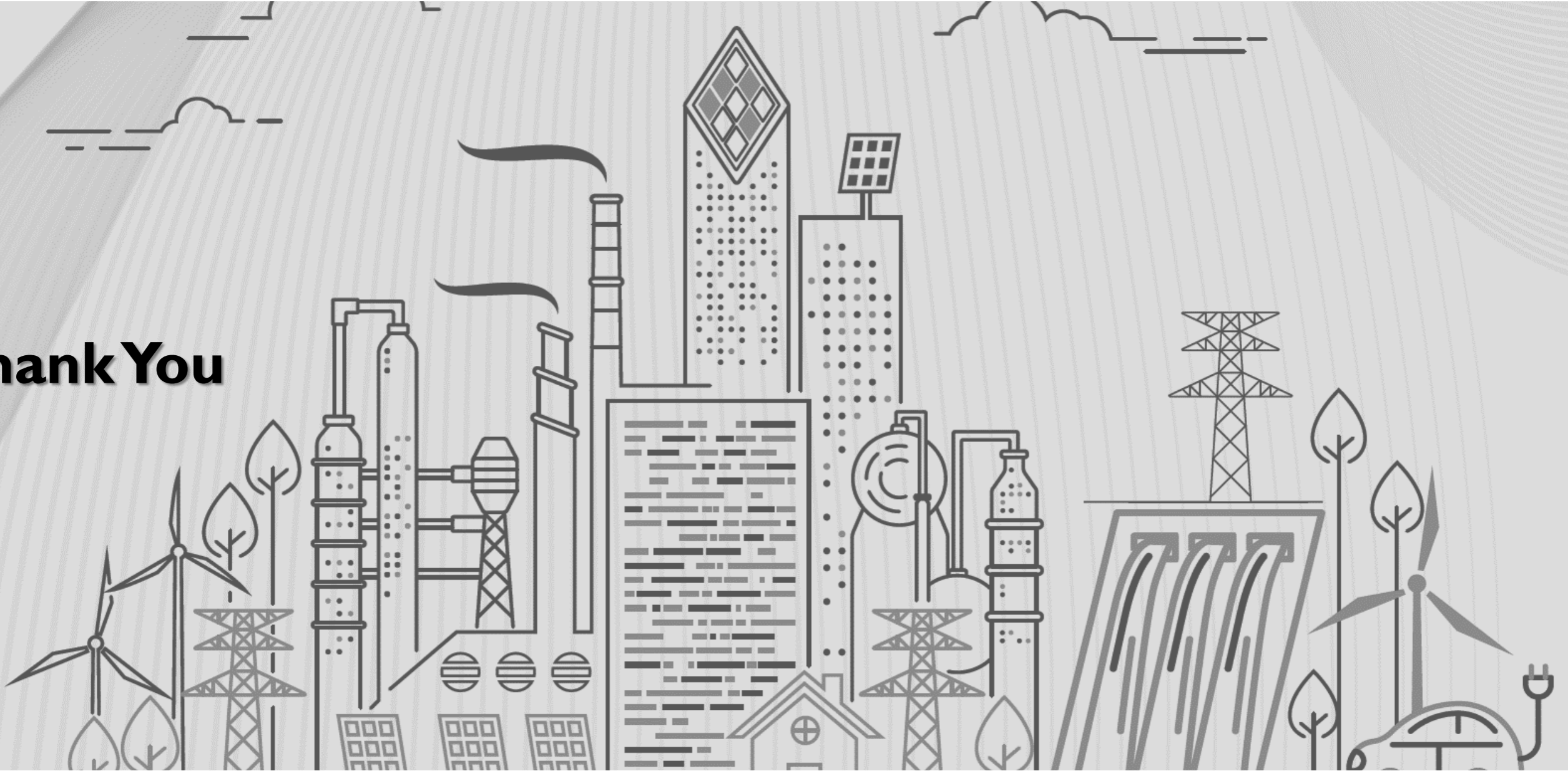


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Thank You



For more information, please visit the SARI/EI project website: <https://sari-energy.org/>