

South Asia Regional Initiative for Energy Integration(SARI/EI)

Common Minimum Grid Code for South Asia And Updates on the SAFIR Working group Activities

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Common Minimum Grid Code for South Asia

- The Common Minimum Grid Code for South Asia lays down the rules, guidelines and standards to be followed by various South Asia country participants in the system for cross border trading in electricity, while operating the power system, in the most secure, reliable, economic and efficient manner.

Applicability and Organizational Framework

- Applicable to all countries of South Asia, who get connected to the South Asia grid through a *synchronous* or *a-synchronous* (i.e. HVDC) connection.
- Each country will initially be represented by a **single point of contact** for the initiation of implementation of the Common Minimum Grid Code.
- Single point of contact will be supported by the **relevant Ministry** dealing with power, the **Regulator** of the respective country, the **transmission agency** of the respective country, the **system operator** of the respective country and the **accounts settlement/market operator** of the respective country.

Organizational Framework

- Later, to formalize the process of implementation, Regional coordination bodies need to be formed for South Asia, i.e. **South Asia Forum** at the Government level, at the **Regulator** level, at the **planning body** level, **transmission utility** level, at the **system operator** level and at the **accounts settlement/market operator** level.
- A South Asia Power Portal would be made for information of all South Asian countries. This would be maintained by the South Asia Forum at the planning level.

Objective

- Facilitation of cross border trading of power, while ensuring secure, reliable, economic and efficient operation of the grid.
- Facilitation of the coordinated optimal operation of the South Asian Grid.
- Facilitation of coordinated and optimal maintenance planning of generation and transmission facilities in the South Asian grid.

Structure of the Common Minimum Grid Code for South Asia

- Connection Code,
- Operating Code,
- Scheduling and Despatch Code and
- Administration of the Grid Code.

Connection Code

- a) To ensure the safe operation, integrity and reliability of the connected South Asia grid.
- b) Any new country getting connected to the South Asia grid shall neither suffer unacceptable effects due to its connectivity nor impose unacceptable effects on the South Asia grid.
- c) Any new country seeking connection to the South Asia grid is required to be aware, in advance, of the requirements for connectivity to the South Asian grid and also the standards and conditions its system has to meet for being integrated into the grid.

Connection Code

- Require to apply for Connectivity to SAFTU.
- SAFTU will carry out system studies and state whether any augmentation in the transmission system is required.
- Must have provision to implement generation and/or load control mechanisms to be able to control cross border power flows.
- Must abide by the Regional under frequency load shedding schemes to ensure commensurate load shedding
- Must abide by the Regional islanding schemes and system protection schemes, which would be decided by the South Asian Forum of Planning bodies, which are involved in operation planning.

Connection Code

- Must ensure installation of Data Acquisition System, disturbance recorders and sequence-of-events recorder at the interconnection points and other significant points
- Must ensure robust, redundant and reliable communication between countries, so that voice and data communication takes place instantly and seamlessly across countries. This would be mutually decided by the points of contacts of the South Asian countries.
- Every connection of a country's system to the South Asian grid shall be covered by a Connection Agreement between the SAFTU and the national transmission utility of the country seeking connection.

Operating Code

- Frequency Band - 49.9 - 50.05 Hz
- Voltage Band for 400 kV at interconnection point - 380-420 kV
- System Security - Protection Coordination & periodic Protection testing
- Operation liaison.
- Restoration Plans including Black Start.
- Periodic Reports - Daily, Monthly Reports.
- Outage Planning.

Scheduling and Despatch Code

- Each country to regulate their generation and/or consumers' load so as to maintain their actual drawal from the South Asia grid close to the above schedule.
- Penalty for violations in accordance with a Deviation Settlement mechanism.
- Reactive power drawals to be controlled at inter-country connection points.
- Scheduling and Despatch Procedure.

Administration of the Grid Code

- Committee for Review of the Grid Code.
- Ultimately, the Forum of South Asia Regulators would do that.

Updates on the SAFIR Working group Activities



Objective of the SAFIR Working Group

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The SAFIR Working Group works on



❖ **Enhancing Regulatory Cooperation to Facilitate Knowledge sharing;**



❖ **Addressing Cross cutting Energy/Electricity Regulatory Issues and Capacity Building in South Asia;**



❖ **Facilitate transparent regulatory framework, promoting investment in the South Asia Region.**

Key Activities of the SAFIR Working Group

- ❖ **Study /Research on South Asia energy/electricity regulations to develop regulatory pathway/Road Map for Electricity/Energy exchange and Energy Cooperation (EC) in South Asia.**
- ❖ **Organizing “South Asia Energy Sector Training and Capacity Building program on energy regulation for Energy Cooperation and exchange of electricity in South Asia “**
- ❖ **South Asia Energy/Electricity Regulatory Compendium.**
- ❖ **SAFIR-Regulatory newsletter and web portal “South Asia Energy/Electricity Knowledge Resource Database”**
- ❖ **Organizing two/three meetings of SAFIR Working Group.**

TOR of the SAFIR Working Group

To facilitate regulatory capacity building among member countries at both national and regional levels through information knowledge sharing and skills training.

To facilitate the development of -electricity/energy regulations by identifying and addressing cross cutting energy/electricity regulatory issues for advancing Exchange of Electricity/Energy in South Asia region.

To provide inputs on policy & regulations/regulatory opinions/regulatory guidelines and to develop model regulations.

To undertake research work on issues relevant to electricity /energy sector regulation through in-house/ outsourcing.

TOR of the SAFIR Working Group

Prepare a detailed road map along with various regulatory interventions needed in South Asian countries for effective energy cooperation in the region to prepare annual status report and updates on regulatory cooperation in the South Asia Region.

Create data bank/knowledge repository on energy/electricity related issues.

Prepare South Asia Energy/Electricity Regulatory Compendium.

To develop web portal on “South Asia Energy/Electricity Knowledge Resource Database”.

SAFIR–Regulatory Monthly Newsletter to enhance regulatory knowledge sharing.

Any other work assigned by SAFIR.

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- ❖ Organizing “South Asia Energy Sector Training and Capacity Building program on energy regulation for Energy Cooperation and exchange of electricity in South Asia “
- ❖ South Asia Energy/Electricity Regulatory Compendium.
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Working group

Meeting Held so far- SAFIR Working Group



Technical Visit to the Office of Public Utilities Commission of Sri Lanka by the Member's of South Asia Forum For Infrastructure Regulation (SAFIR) Working Group



First Meeting 15th-16th May, 2018, Hotel Taj Samudra, Colombo, Sri Lanka

Meeting Held so far

SAFIR Working Group on “Regulatory Cooperation to Facilitate Knowledge sharing, addressing Cross cutting Energy/Electricity Regulatory Issues and Capacity Building



Had presentation and discussion on

- ❖ **Common Minimum Grid code**
- ❖ **Evolution of Cross Border Electricity Trade in South Asia and Future Outlook.**
- ❖ **The Working Group members from Bangladesh, Bhutan, India made presentations on their respective country’s Energy /electricity Regulatory framework**
- ❖ **various technical activities of SAFIR working group**
- ❖ **Annual Work Plan for next year.**

Second Meeting, 4th December, 2019 at Hotel Radisson, Dhaka, Bangladesh

Study /Research on South Asia energy/electricity regulations under SAFIR Working Group



Study /Research on South Asia energy/electricity regulations

Two studies are proposed to be conducted by the SAFIR Working Group

- ❑ Regulatory interventions for Grid discipline and Grid reliability in the South Asian region and
- ❑ Study Cross Border Trade of Electricity.
- ❑ Study /Research on South Asia electricity/electricity regulations to develop regulatory pathway/Road Map for Electricity/Energy exchange and Energy Cooperation (EC) in SA



Study/Research on Regulatory interventions for Grid discipline and Grid reliability in the South Asian region

Objective:

- To review and analyse all the existing relevant electricity regulations, mechanisms and technical frameworks with respects to Grid discipline and Grid reliability of each South Asian Countries both from the perspective of integration/unification of regional grids of domestic power system of a country as well as cross border power grid integration.

Deliverable :

- Detailed set of Regulatory measures/Intervention and Mechanism needed for enhancing Grid discipline & Grid reliability in SA region along with detailed explanatory memorandum.
- Roadmap (regional and country wise) and action plan for implementation of above suggested Regulatory measures /Intervention.

Time Period : 6 Months from the date of award. will be awarded by December 2019 through a competitive bidding process.

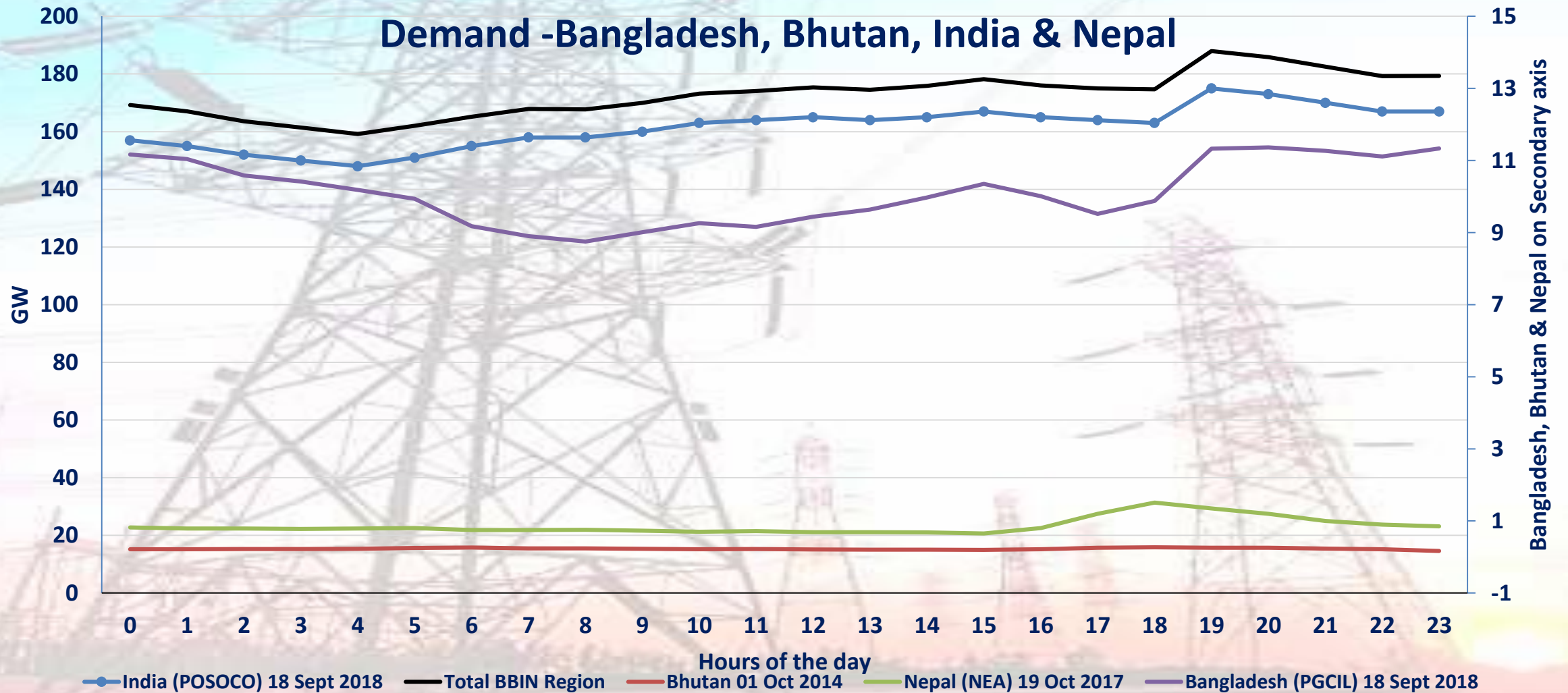
Study on Cross Border Trade of Electricity

Objective:

- To review and analyze the load and generation patterns in all neighboring countries and study the season-wise trade/barter of power between the countries to ensure 24x7 supply to all countries and optimum utilization of generation assets, including quantification of benefits for all countries.
- This may also cover planning of generation resources and anticipated import/export for 10 years ahead.
- Work out the savings in generation reserves for all countries, with the objective of providing 24x7 supply to all consumers.
- Calculate the reduction in cost of supply for each country.

Time Period : 3-4 Months from the date of award. Study is expected to start by Jan/Feb 2020

Demand Diversity: Load Profile of Bangladesh, Bhutan, India & Nepal



Study /Research on South Asia electricity/electricity regulations to develop regulatory pathway/Road Map for Electricity/Energy exchange and Energy Cooperation (EC) in SA

Objective:

- To review, study and analyze the existing energy/electricity regulations of each South Asian countries to develop regulatory pathway/Road Map for Electricity/Energy exchange, cross border electricity/energy trade and Energy Cooperation (EC) in South Asia.
- Identify and analyze the relevant provisions in all existing energy/electricity regulations that have an impact on optimal, reliable and economic Electricity/Energy exchange, cross border electricity/energy trade and carry out a detailed gap analysis for the same, from the perspective of enhanced cross border electricity/energy trade.
- Suggest and recommend the necessary changes/additions or new regulations that is required in the respective countries' for advancing Electricity/Energy exchange, cross border electricity/energy trade and Energy Cooperation (EC) in South Asia.

Time Period : 6 Months from the date of award. ToR Drafted by SARI/EI, Study is expected to start by March 2020

South Asia Energy Sector Training and Capacity Building program on energy regulation for Energy Cooperation and exchange of electricity in South Asia

South Asia Energy Sector Training and Capacity Building program on energy regulation for Energy Cooperation and exchange of electricity in South Asia

Key Topics to be Covered (Regulatory Aspects of Energy Cooperation and exchange of electricity)

- ✓ Transmission Planning
- ✓ Coordinated System Operation
- ✓ Licensing Regimes
- ✓ Tariff Frameworks
- ✓ Grid Codes
- ✓ Open access
- ✓ Transmission Pricing
- ✓ Imbalance Settlements
- ✓ Power Trading and Power Exchange Mechanism.
- ✓ Power Market Regulations
- ✓ International Experiences

- ✓ 4-5 days Training Programme
- ✓ Working Groups Members and Regulators of South Asian Countries
- ✓ Site Visit to Load Dispatch Centers/Power Utilities etc.
- ✓ One Training Program in a Year

Proposed to be held in the Month of March/April 2020

SAFIR-Regulatory newsletter and web portal “South Asia Energy/Electricity Knowledge Resource Database”

SAFIR-Regulatory newsletter

SAFIR-Regulatory newsletter



- ✓ **Aims to Increase Regulator Knowledge exchange in the SA region**
- ✓ **Track and Compile various Energy Regulatory and Policy Developments in the Region .**
- ✓ **Analysis on the Energy Regulatory and Policy Developments in the Region.**
- ✓ **It includes power, oil and gas sector.**
- ✓ **Will be circulated among the Regulatory Commission/policy makers of SA counters in electronic format. (to be Issued Monthly/Quartely)**

Proposed to Start by March, 2020

Web portal “South Asia Energy/Electricity Knowledge Resource Database”

Web portal on “South Asia Energy/Electricity Knowledge Resource Database”

Aims to Create a Energy/Electricity Sector Data Base/ Dashboards

Track and Compile various Energy/Electricity Sector Data of the Region such as (but not limited to) :

- ✓ **Energy/Power Demand, supply**
- ✓ **Energy Balance**
- ✓ **Installed capacity (total and fuel wise)**
- ✓ **energy and peak deficits, load sheading**
- ✓ **CBET in MW/MW hr, Energy Losses**
- ✓ **Per Capita Energy Consumption**
- ✓ **Generation and Transmission Projects Planned**
- ✓ **Power Market Data**
- ✓ **Renewable Energy Related Data**
- ✓ **Key Policy and Regulations**

- ✓ **Web portal with data Analytic, Indicative Graphs, pie charts and Figures, Info graphics etc .**
- ✓ **Data to provided by the Working Group Members .**
- ✓ **Will be available in Public Domain**

Proposed to Start by March 2020

South Asia Energy/Electricity Regulatory Compendium

South Asia Energy/Electricity Regulatory Compendium

Compilation has been done.

Currently is under review and designing

Documents has been sourced from respective regulatory commission websites.

For ease of reference, the regulations are classified under the following categories for each of the countries:

1. Primary legislation, key policies, rules and guidelines
2. Cross Border Electricity exchange/Trade
3. Technical Standards
4. Grid Code and System Operation
5. Transmission Investments and Pricing
6. Open Access
7. Power Trade, Exchanges and Markets
8. Licensing
9. Generation and Transmission Tariffs

* Even though the compendium focuses on regulations that enable, or have the potential to enable energy exchange/trade, it also tries to include relevant primary legislations, relevant policies and regulations that are not necessarily linked to CBET.

*In case of some of the documents, official / non-official English translations were not available, due to which only the available native language version of such documents are included

** The Compendium serves merely as a collection/compilation of already published/notified electricity regulations for ease of reference with an aim enhance₃ have better understanding/knowledge sharing about the electricity regulations of SAARC/SAFIR member countries.

SAFIR Working Group Meetings

SAFIR Working Group Meetings

We have planned to organized three meetings for the year

- ✓ **2nd Meeting of SAFIR Working Group in Dec,2019**
- ✓ **3rd Meeting of SAFIR Working Group in March ,2020**
- ✓ **4th Meeting of SAFIR Working Group in September,2020**

Continuous Interaction

Regular meetings are essential for ensuing a Consultative and participatory process





Thank You!

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