MINUTES OF THE 27TH STEERING COMMITTEE MEETING (SCM) OF SOUTH ASIA FORUM FOR INFRASTRUCTURE REGULATION (SAFIR)

Date: 19th April 2021; Monday

Virtual Meeting conducted through MS Teams

The meeting was chaired by Mr. Md. Abdul Jalil, Chairperson, South Asia Forum for Infrastructure Regulation (SAFIR) & Bangladesh Energy Regulatory Commission (BERC). List of participants is enclosed at **Annexure-I.**

In his opening remarks and welcome address, Mr. Md. Abdul Jalil, Chairperson, SAFIR and Chairperson of BERC welcomed all dignitaries to the meeting. He expressed his gratitude to all members for supporting his efforts in leading SAFIR as Chairperson. He also wished good health and wellbeing in times of Covid pandemic.

In his address, Mr. P.K. Pujari, Chairperson, CERC India expressed best wishes to all in these trying times. He also mentioned about the recent development on cross border trade in power exchanges in India. Nepal participated in the Day Ahead Market on the Indian Power Exchange for the first time. This was indeed an important milestone and he hoped that that more such transactions would be carried out in future on bilateral and multilateral basis.

In his address, Mr. Tauseef. H. Farooqi, Chairman of NEPRA, Pakistan expressed his pleasure to participate in the SAFIR SCM for the first time. He appreciated the fact that SAFIR has been contributing to greater cooperation and

energy trade among the member countries of the regionand added that he looked forward to a fruitful discussion in the meeting.

In his address, Mr. Samdrup Thinley, Chairperson, Bhutan Electricity Authority expressed his pleasure to interact with SAFIR Members through virtual meeting.

In their address, Mr. Dilli Bahadur Singh, Chairperson Nepal ERC and Mr. Janaka Ratnayake, Chairperson, PUCSL, Sri Lanka expressed their happiness to participate in the Steering Committee meeting.

The Forum thereafter took the agenda items for consideration.

Agenda 1: Confirmation of the minutes of the 26th Executive Committee Meeting held on 28th August, 2021 through virtual conference.

Dy. Chief (RA), CERC/ SAFIR Secretariat explained the action taken on various points earmarked for SAFIR Secretariat.After discussion, the minutes of the 26th Steering Committee meeting were confirmed.

Agenda 2: Appointment of Next Chairperson, SAFIR

Dy. Chief (RA), CERC/ SAFIR Secretariat informed the Steering Committee about the decision of the Executive Committee in its 20th Meeting held on 10th March, 2021 regarding the selection of next Chairman of SAFIR. On completion of the term of the current incumbent viz., Chairperson of Bangladesh Energy Regulatory Commission, EC had unanimously selected Mr. Samdrup K. Thinley, CEO, Bhutan Electricity Authority, Bhutan as the next Chairperson of SAFIR for a term of two years. The proposal was placed for endorsement of the

Steering Committee in accordance with the bye-rules and memorandum of association of SAFIR.

The proposal was agreed by all the members and Mr. Samdrup K. Thinley was selected as the Chairperson of SAFIR for a period of two years.

Agenda 3: Accounts Related Matters

a. Budget for F.Y. 2021-2022

Deputy Chief (RA), CERC apprised the salient features of the SAFIR budget, including the projected income and expenditure. The main points of discussion are as below:

(i) It was apprised that during the 26th SCM of SAFIR held on 28th August, 2020, a moratorium of one year on the membership fees was approved by the members in order to utilize the surplus accumulated in the FCRA Funds. Considering that the Forum continued to have sufficient reserves and added to the fact that all activities of SAFIR were being conducted through an online mode due to the pandemic, the budget proposed a further moratorium for the F.Y, 2021-2022 to all the Member organizations of SAFIR, so as to utilize the surplus accumulated in the FCRA Funds.

(ii) The Members were apprised about the ongoing FCRA "No Objection Certificate" issue with the Ministry of Home Affairs (MHA), Government of India and the bankers of SAFIR. It has been informally ascertained that the FCRA NOC was not applicable to SAFIR. However, response from the bankers was awaited in this matter. Accordingly, once the response is received, pending invoices pertaining to members outside India for the previous years would be raised in the F.Y. 2021-2022.

(iii) Chairperson, UPERC sought to understand the tax applicability on SAFIR under the Income Tax Act, 1961 as he opined that "SAFIR being a multilateral body must be exempted from the payment of income tax".Chairperson, CERC clarified that there are certain International Organisations which are specifically exempted under the Act. However SAFIR does not qualify for such exemption. Accounts Officer, SAFIR clarified that SAFIR is registered as an "Association of Person" with the income tax department and a flat rate of 30% plus applicable education cess is levied on the surplus income generated on year-on-year basis.

After discussion, the budget for the F.Y. 2021-2022 was approved.

b. Appointment of Tax Consultant for filing the Income Tax Return (ITR) for the F.Y. 2020-2021.

c. Appointment of Consultant for filing the FCRA Return for the F.Y. 2020-2021.

d. Appointment of GST Consultant for filing the GST Returns for the F.Y. 2021-2022.

Deputy Chief (RA), CERC apprised that M/s MBR & Co. LLP, Chartered Accountants were appointed as the tax consultants of SAFIR to file its ITR, FCRA return and GST returns for the F.Y. 2019-2020, on retainership basis. However, owing to pre-occupation in various works, the CA firm has requested for withdrawal of their services with respect to filing the ITR, FCRA return and GST returns of SAFIR.

Thereafter, SAFIR Secretariat will initiate the process of sending quotations to the Chartered Accountant firms (on its panel & new firms) for the purpose of filing its ITR, FCRA return and GST returns and the tax consultant with the lowest quotation (i.e. L1) will accordingly be selected, on retainership basis.

The Members approved the same.

e. Accounts related resolutions:

The following accounts related resolutions were duly approved by Members:

i) Resolution for applying for net banking facilities with Union Bank of India (erstwhile Corporation Bank) for viewing bank statements and payment of statutory dues.

ii) Resolution for withdrawal/addition of Authorized Signatory(s) in the bank accounts of SAFIR.

Agenda 4: Membership fees from SAFIR members for FY 2021-22

Deputy Chief (RA), CERC apprised that as already informed while discussing the budget, no membership fee will be levied for the F.Y. 2021-2022, owing to surplus FCRA funds. A decision on restoration of membership fee could be decided in the next SCM.

Further, the Members were apprised regarding the membership withdrawal request of Assam Electricity Regulatory Commission (request received in February, 2020, but allowed to continue their membership for F.Y. 2020-2021 as no membership fee was levied) and Sikkim State Electricity Regulatory Commission (request received in April, 2021). Chairperson, NEPRA, Pakistan opined that as no membership fee is levied for the F.Y. 2021-2022, the Members may be asked to

4

continue and they may decide to withdraw next year, if the membership fees is levied.The Members agreed to this and directed SAFIR Secretariat to convey the decision of the SC to Assam and Sikkim SERC

Members were also apprised regarding the non-receipt of any formal communication from Electricity Regulatory Commission, Nepal regarding their induction as Member of SAFIR. Chairperson, ERC Nepal informed that in order to join as a Member of an International organization, approval is required from the Government of Nepal. However, the same is under process and he expects the approval to be received soon. The SC requested to convey the approval at the earliest so as to formally induct ERC of Nepal as a member of SAFIR.

Agenda 5: Status update of planned activities of SAFIR for FY 2020-21 and Proposal for 2021-22

Deputy Chief (RA), CERC informed that as directed by the Executive Committee in its 20thmeeting, SAFIR Secretariat had conducted the annual SAFIR Core Course with Indian Institute ofManagement, Ahmedabad in March 2021 in coordination with Gujarat Electricity Regulatory Commission on a virtual mode . Further, the SAFIR Infrastructure Conference was held in March 2021 throughvideo conferencing with support from USAID, SARI/EI and IRADe over 2days with three working sessions. The SC was also apprised that the Indian Institute of Corporate Affairs (IICA) has been awarded the study on "Regulatory Practices for Innovation: Cross learnings frominfrastructure sectors" and the same is to be completed in theFY 2021-22.

For FY 2021-22, the Steering Committee was informed that as a study was already awarded to IICA, the same would be completed in FY 21-22 and hence, no new study is proposed in FY 2021-22.

As regards conducting the next Core Course for FY 2021-22, SAFIR Sectt proposed that the same may be conducted in physical mode/ online mode based on the easing of restrictions on travel due to the pandemic and after soliciting proposals from Members . As done in the previous financial year, SAFIR Secretariat would assist the EC to evaluate the proposals.

Dr AbhaYadav, Professor, IICA (a member of SAFIR) offered to conduct the Core Course / capacity building programs for the members of SAFIR. Chairperson, WBERC stated that the programs offered by IICA for WBERC officers are well received.

Chairperson, NEPRA opined that if the Core Course is conducted online, more than one officer may be nominated from each organisation so that the organisation can gain more insights and knowledge, thereby making the best use of technology.

Ms. Anjuli Chandra, Member, PSERC suggested to conduct the Core Course by December of every year as the last three months of the financial year keep the officers of the Regulatory Commissions busy, they being involved in the works related to determination of tariff.

The members were also informed that the SAFIR Infrastructure Conference for FY 2020-21 was held in collaboration with USAID/IRADE and SARI/EI. As regards

conducting the Conference for the next financial year, representative of IRADE offered to conduct the next Conference in association with USAID

The SC appreciated the suggestions and approved the Secretariat proposal for FY 2021-22.

Agenda 6: Status Update on the activities of SAFIR Working Group on "Regulatory Cooperation to Facilitate Knowledge sharing, addressing Crosscutting Energy/ Electricity Regulatory Issues and Capacity Building in South Asia" – by SARI/EI/IRADE

a) Status update of various activities

Mr. Pankaj Batra, Project Director, SARI/EI and Mr. Rajiv Ratna Panda, Associate Director, SARI/EI made a presentation **(Annexure –II)** on the "Updates on the Activities of the SAFIR Working Group (SWG) on "Regulatory Cooperation to Facilitate Knowledge sharing, addressing Crosscutting Energy/ Electricity Regulatory Issues and Capacity Building in South Asia" as follows:

a) Study on South Asian electricity regulations to develop regulatory pathway for electricity/ energy exchange and energy cooperation in South Asia.
b) Study on regulatory interventions for grid discipline and grid reliability in the region.
c) Revision of TOR of the study on " Cross Border Electricity Trade"
d) Organizing a South Asia Energy Sector training and capacity building program on "Energy Regulation for Energy Cooperation and Exchange of Electricity in South Asia" .
e) Develop the South Asia Energy/Electricity Regulatory compendium
f) Develop the South Asia Energy/Electricity Knowledge Resource database.

g) SAFIRRegulatory Newsletter.

h) SAFIR Working Group meetings.

The Steering Committee was also informed that the Terms of Reference for the study on South Asian Electricity Regulations to develop regulatory pathway for Electricity/ energy exchange and energy cooperation in South Asia has been prepared by SARI/EI/IRADe and the same was shared with SAFIR Secretariat for approval. The same was received in the month of November 2020 and accordingly the process of issuance of an RFP has been initiated and currently bids are under evaluation by SARI/EI/IRADe. The study is expected to commence from May,2021.

Officials of IRADe also informed that the scope of work for the study on Cross Border Electricity Trade has undergone changes as per suggestions received in various meetings of SAFIR ECM/SAFIR Working Group and the revised Terms of Reference for the study now titled "Assessing the potential benefits of Cross Border Electricity Trade for affordable supply of electricity, facilitating grid balancing of renewable energy integration, and suggesting a framework for ancillary service market in the South Asia Region" has been shared with SAFIR Secretariat in February,2021 for approval. The process of RFP will be initiated within 20-25 days from the date of receipt of approval from SAFIR Secretariat. They also updated that the total duration of the study would be 9 months.

Officials of SARI/EI/IRADe also presented updates on South Asia energy sector training and capacity building program on energy regulation for energy cooperation and exchange of electricity in South Asia and informed that the first training program is expected to be held in September 2021.

The Steering Committee was also informed that the South Asia Energy/Electricity Regulatory Compendium was released in February 2020 and the Compendium has been further updated till the month of June 2020.

Officials of IRADe also updated that the South Asia Energy/Electricity Knowledge Resource Database would be in the form of a user-friendly website with various data analytics, indicative graphs, pie charts and figures, info graphics, Annual Energy Data Book etc. The Pilot Demonstration (few countries) is expected in August, 2021 and the submission of show case, proposed design, software design, and database design would be completed by April, 2021.

Officials of IRADe also informed that the first edition of the SAFIR Regulatory Newsletter (SRN) which provides regulatory updates &policy developments in the South Asian Region was released during the SAFIR-SARI/EI Conference (Virtual) on "Sustainable Energy Infrastructure Development and Role of Cross Border Energy Trade in South Asia: Challenges, Opportunities and Way forward" held on 15th &16th, March 2021.

Officials of IRADe also informed that the third meeting of the SAFIR Working Group meeting (Virtual) could be held in the month of August 2021, along with Pilot Demonstration of South Asia Energy/Electricity Knowledge Resource Database (SAKERD). The fourth SAFIR Working Group meeting would also be planned in the month of December 2021 at Sri Lanka after taking into consideration the overall scenario COVID 19 in the South Asia Region.

The SC appreciated the activities of the SWG and the knowledge support being lent by IRADe/SARI/EI program

b) Working Group study on "Regulatory Interventions for Grid Discipline and Grid Reliability in the South Asian Region (SAR)"- by IRADe

The officials of IRADe informed the Steering Committee that draft report on the study on " Regulatory interventions for grid discipline and grid reliability in the region " was prepared in the month of November,2020and shared with SAFIR Working Group members for their comments and suggestions in the month of December,2020. Currently, comments have been received from SWG member countries of Bhutan, Bangladesh, Nepal, Pakistan, Sri Lanka and the comments has been incorporated in the report. On receiving comments from India, the report will be finalised and released in the next meeting of SAFIR.

Thereafter, Mr. Hitesh Chaniyara (Executive Director, PWC, India) & Mr. Rajiv Ratna Panda (Associate Director, SARI/EI IRADe) made a presentation **(Annexure -III)** on the key findings of the SWG Draft Research Study Report on "Regulatory Interventions for Grid Discipline and Grid Reliability (GDR) in the South Asian Region". The presentation covered in detail the approach and methodology, key indicators defining GDR, draft suggested regulatory measures/interventions, suggested specific technical capacity building measures. It covered regional regulatory recommendations in the South Asia region for improving grid discipline & reliability and country wise identified regulatory gaps, interventions, and proposed roadmap. Subsequent to the presentation, a detailed discussion was carried out on the study and following action points emerged:

a) Chairperson, NEPRA, Pakistan desired to have a one-to-one consultation meeting with SARI/EI/IRADe where detailed discussions could be held with their technical team, to which SARI/EI/IRADe conveyed its acceptance.

b) Comments have been received from Bhutan, Bangladesh, Nepal, Pakistan, Sri Lanka and these comments has been incorporated in the report. CERC, India would be conveying its comments on the report to SARI/EI/IRADe in addition to the comments sent by POSOCO.

c) Some State Regulators of India desired to go through the report in detail before providing their comments and suggestions as there would be technical implications and sought more time to go through the report. It was also conveyed that the desirous States could hold one-to-one consultation with SARI/EI/IRADe independently, to which SARI/EI/IRADe conveyed its acceptance. SARI/EI/IRADe will organise virtual stakeholder consultations with Electricity Regulatory Commissions of West Bengal, Uttar Pradesh, Bihar, Tripura.

The SC decided that SARI/EI/IRADe should incorporate all the comments and suggestions as received from the above SERCs, CERC and POSOCO and make a detailed presentation on the revised report in the next ECM meeting for approval and finalisation.

Agenda 7: Next meeting of the Steering Committee

Deputy Chief (RA), CERC informed that the Steering Committeemeetings are held once every financial year. The next meeting of the Steering Committee is proposed in April-May 2022. Chairperson, CERC proposed that the venue of the next meeting of the Steering Committee may be reviewed by SAFIR Sectt. considering the prevalent situation. The same was agreed to, by the Steering Committee.

The Steering Committee formally placed on record its appreciation to Mr. Md. Abdul Jalil, Chairman BERC and Mr. Monowar Islam (ex-Chairman BERC) for steering SAFIR during their tenure as Chairperson, SAFIR and welcomed Mr. Samdrup K. Thinley as new Chairperson of SAFIR.

The meeting ended with a vote of thanks to the Chair.

Jalil 06.5.2021

Md. Abdul Jalil
Chairman, SAFIR and
Chairman, Bangladesh Energy Regulatory Commission, Bangladesh

/ ANNEXURE – I /

LIST OF PARTICIPANTS OF
THE 27TH STEERING COMMITTEE MEETING (SCM)
OF
SOUTH ASIA FORUM FOR INFRASTRUCTURE REGULATION (SAFIR)
HELD ON MONDAY, THE 19TH APRIL, 2021.

[THROUGH VIDEO CONFERENCING]

S. No.	NAME AND DESIGNATION	ORGANIZATION	COUNTRY
01.	Mr. Md. Abdul Jalil Chairman SAFIR	BERC	Bangladesh
02.	Mr. Samdrup K. Thinley CEO	BEA	Bhutan
03.	Mr. P.K. Pujari Chairperson	CERC	India
04.	Mr. Janaka Ratnayake Chairman	PUCSL	Sri Lanka
05.	Mr. Tauseef H. Farooqi Chairman	NEPRA	Pakistan
06.	Mr. Dilli Bahadur Singh Chairman	ERCN	Nepal
07.	Mr. T.S. Balasubramanian Member (Fin.)/ Officiating Chairperson	TAMP	India
08.	Mr. D.K. Sharma Chairperson	HPERC	India
09.	Mr. M.K. Goel Chairperson	JERC (State of Goa & UTs)	India
10.	Mr. M. Chandrasekar Chairperson	TNERC	India
11.	Mr. D. Radhakrishna Chairperson	TERC	India
12.	Mr. Raj Pratap Singh Chairperson	UPERC	India
13.	Mr. D.P. Gairola Member (Law)/Chairperson Incharge	UERC	India
14.	Mr. Sutirtha Bhattacharya Chairperson	WBERC	India
15.	Mr. P. Raja Gopal Reddy Member	APERC	India

16.	Mr. Arun Kumar Sharma Member	CSERC	India
17.	Mr. Naresh Sardana Member	HERC	India
18.	Mr. Shashi Bhushan Pathak Member	MPERC	India
19.	Ms. Anjuli Chandra Member	PSERC	India
20.	Dr. Sushanta K. Chatterjee Chief (RA)	CERC	India
21.	Dr. (Ms.) AbhaYadav Director	IICA	India
22.	Mr. Anand Sagar Pandey DGM (Coml.)	NTPC	India
SPECIAL INVITEES			
23.	Mr. Arun Goyal Member	CERC	India
24,	Mr. Pravas Kumar Singh Member	CERC	India
25.	Mr. Vijay Menghani Chief (Engg.)	CERC	India
26.	Ms. Rashmi Somasekharan Nair Dy. Chief (RA)	CERC	India
27.	Mr. Md. Firoz Zaman Dy. Director	BERC	Bangladesh
28.	Mr. Sanjeev Tinjan Asst. Chief (RA)	CERC	India
30.	Mr. Nilesh Diwan Accounts Officer, SAFIR	SAFIR	India
29.	Mr. Ankit Gupta Research Officer	FOR	India
30.	Mr. Pankaj Batra Project Director	SARI/EI, IRADe	India
31.	Mr. Rajiv Ratna Panda Technical Head	SARI/EI, IRADe	India

South Asia Regional Initiative for Energy Integration

Presentation
on

Updates on the Activities of the SAFIR Working Group (SWG) on
"Regulatory Cooperation to Facilitate Knowledge sharing, addressing Crosscutting Energy/ Electricity Regulatory Issues and Capacity Building in South Asia"

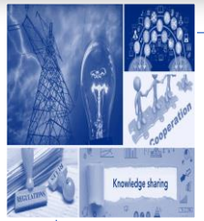
Presented by

Mr. Rajiv Ratna Panda (Associate Director, SARI/EI IRADe) & Mr. Pankaj Batra (Project Director, SARI/EI IRADe)

27th South Asian Forum for Infrastructure Regulation (SAFIR) Steering Committee Meeting (SCM)
(Through Video Conferencing), 11.45 AM , Monday, 19th April 2021, New Delhi, India

Contents

Objective and Scope of Work/TOR of the SAFIR Working Group (SWG)



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.

Scope of Work/TOR of the SAFIR Working Group (SWG)

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 (SA) region (SAR).

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.

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, updates on regulatory cooperation in SAR

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 Newsletter to enhance regulatory knowledge sharing.

02 Key Activities of the SAFIR Working Group

02.1

Research & Technical Studies -

(Three No. of Studies)

02.2

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

02.3

South Asia Energy/Electricity Regulatory Compendium (SAERC)

02.4

South Asia Energy/Electricity Knowledge Resource Database (SAKERD)

02.5

SAFIR-Regulatory Newsletter (SRNL)

02.6

SAFIR Working Group Meeting

02.1 Study/Research under SAFIR Working Group

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

Regulatory interventions for Grid discipline and Grid reliability in the South Asian Region

Study on Cross Border Trade of Electricity- Potential Optimum Utilisation and Reduction in Cost of Supply

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02.1.1 Study/Research on South Asia Energy/Electricity Regulations to develop Regulatory Pathway/Road Map for Electricity/Energy Exchange & Energy Cooperation (EC) in South Asia

Objective of the Study :

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.

Status → ToR Drafted & Finalized by SARI/EI on Sept,2020 → TOR Shared with SAFIR on 16th Sept,2020 → Approved of TOR received from SAFIR on 11th Nov,2020 → RFP issued 7th December,2020, Last Date - 22nd Jan 2021 → Bids are under Evaluation, Expected award date –May,2021 → Time Period of the Study 5 Months

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02.1.2 Study/Research on Regulatory Interventions for Grid Discipline and Grid Reliability in the South Asian Region

Objective of the Study :

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.

Deliverables:

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.

Status

- Finalized Draft Report was submitted by Consultant (PWC) on Nov,2020
- Draft Report shared with SAFIR Working Group Members for Comments/Observations on 1st Dec,2020
- Comments received from Bhutan, Bangladesh, Nepal, Pakistan, Sri Lanka.
- Comments has been incorporated, upon receiving all country comments , report will be further finalised.
- Brief Presentation to SAFIR SCM, 19th April,2021
- Report finalisation, May/June,2021. Will be released in the next SAFIR event/meeting

Comments Received:- I Bhutan, Jan 25, 2021 I Bangladesh, Jan28,2021 I India, under process, expected to be received by April,2021 I Nepal, Feb 10, 2021 I Pakistan, Mar 4, 2021 I Sri Lanka, Mar 2, 2021 I

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02.1.3 Study on Cross Border Trade of Electricity- Potential Optimum Utilisation and Reduction in Cost of Supply

2nd Meeting of SAFIR working group {Dhaka, 4th December,2019}	2nd Meeting of SAFIR working group {Dhaka, 4th December,2019}	18th ECM Meeting {5th December 2019}	18th ECM Meeting {5th December 2019}
*{Overall **Renewable energy Growth** Scenario and opportunity for **Regional Grid Balancing** was discussed}*	*{It was decided to take up **another study** on the **requirement of balancing generation on a regional basis** and develop a report for the same}*	*{Chairman of SAFIR/BERC suggested that the Working Group should also consider working on **methods to reduce the cost of supply**. This could be **added** as an objective in the **Study on Cross Border Trade in Electricity** }*	*{ It was also suggested that the Working Group could **assess** as to **how balancing costs can be reduced due to the flexibilization of thermal power so that there is no economic loss** }*

In the above context, SARI/EI has revised/expanded the scope of the TOR of "Study on Cross Border Trade of Electricity…." to make the study holistic, comprehensive, more analytical and taking in to account the renewable energy and grid balancing aspects, ancillary service etc. in a integrated manner

Status → **Drafting the Revision of ToR* completed by SARI/EI Jan,2021** → **Shared the Revised TOR with SAFIR Secretariat on 3rd Feb,2021 for approval** → **RFP within 20-25 days from the date of receive of Approval** → **Duration of the Study 9 Months**

*Revised TOR of the SAFIR Working Group Study is titled as "Assessing the Potential Benefits of Cross Border Electricity Trade for Affordable Supply of Electricity, Facilitating Grid Balancing of Renewable Energy Integration, and Suggesting a Framework for Ancillary Service Market in the South Asia Region"

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

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

- Licensing Regimes, Tariff Frameworks
- Transmission Planning, Coordinated System Operation
- Grid Codes, Open access
- Transmission Pricing, Imbalance Settlements, energy accounting,
- Power Market Regulations, Power Trading & Power Exchange Mechanism, Market Design
- New Areas: Renewable Integration, Energy Storage, Ancillary Services, Electric vehicles, Smart Grid

Working Groups Members and Regulators of South Asian Countries

4-5 days Training Programme

Site Visit to Load Dispatch Centers/Power Utilities etc.

Topics will be designed in to 3-4 Modules

Status → Training Module design by June,2021 → Drafting of the Agenda of the First Training Program, July,2021 → Finalisation of the Training /knowledge partner , August, 2021 → First Training Program September 2021.

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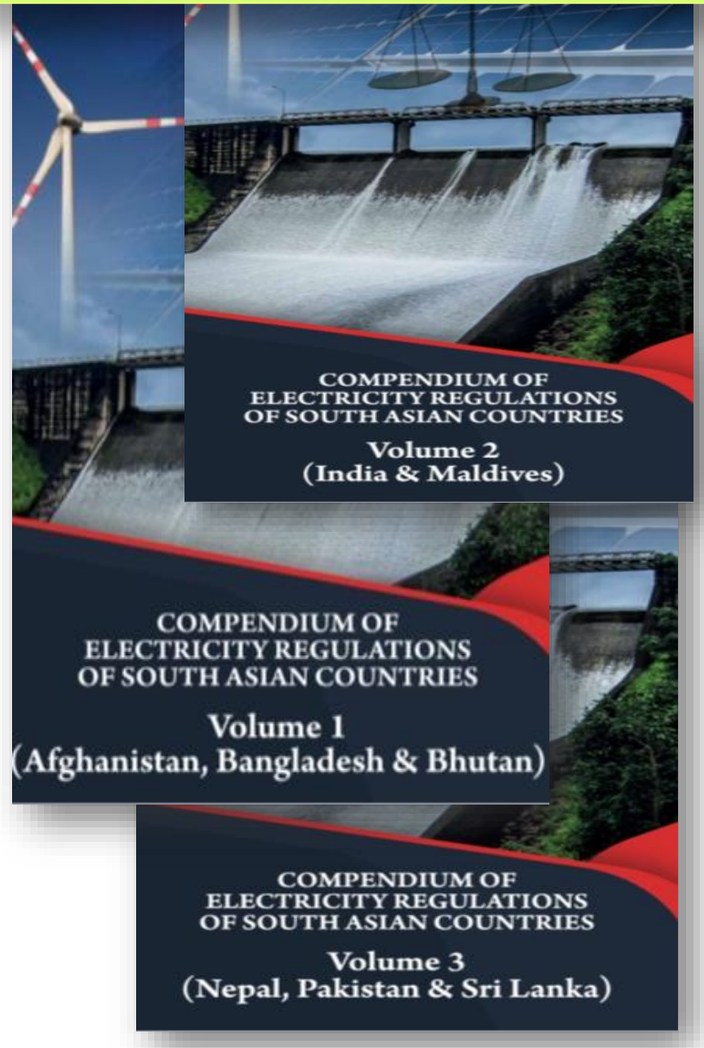
02.3 South Asia Electricity Regulatory Compendium

- Compendium (A first of Its kind in SA) has been prepared
- Released in the SAFIR Conference 19th February, 2020, New Delhi
- Compendium- Comprehensively Captures all aspects (Three Volumes)
- Primary Legislation, Key Policies , Guidelines
- Regulations
- Technical Standards
- Grid Code, Transmission Pricing, Open Access,
- Power Trade & Markets, Cross Border Electricity Trade
- Licensing, Generation and Transmission Tariffs
- Six Monthly Updating & Yearly Edition



South Asia Electricity Regulatory Compendium has been updated till June 2020

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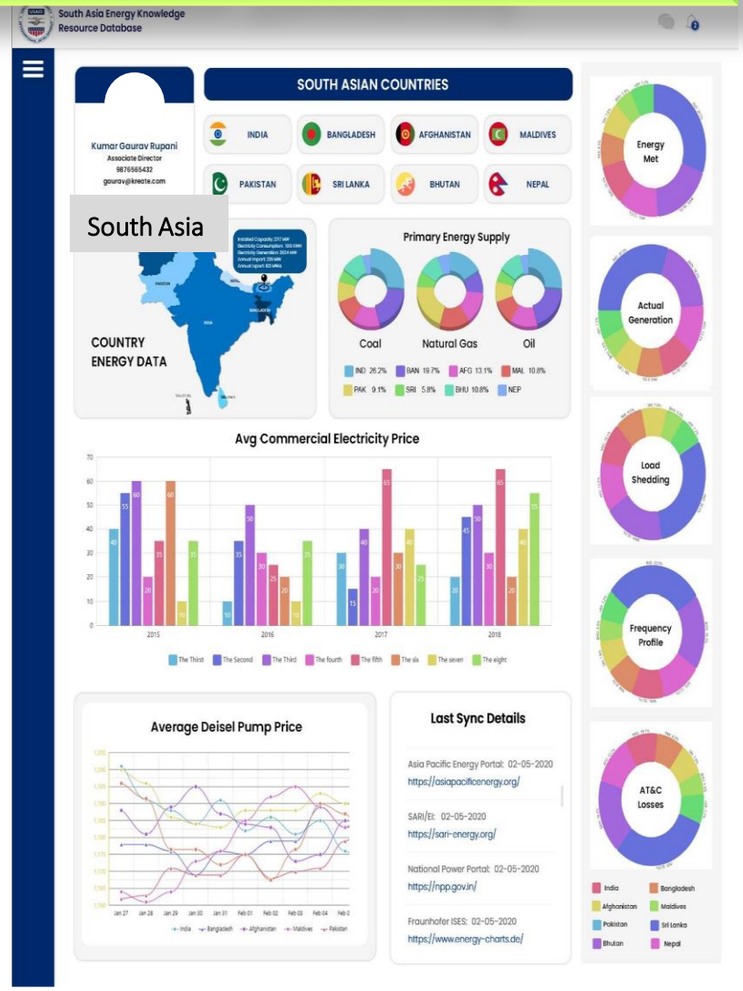
02.4 South Asia Energy/Electricity Knowledge Resource Database (SAKERD)

Aims to Create a Comprehensive Energy/Electricity Sector Data Base

{Online, user friendly, data Analytic, Indicative Graphs, pie charts and Figures, Info graphics, Annual Energy Data Book }

- Power Related Time Series Data
- Energy Met, Actual Generation , Energy & peak deficits, Rate & volume transaction of PXs
- Cross Border (MU & MW), Frequency Profile, Diversity Factor, T & D losses
- Electricity Generation Capacity and Transmission Network
- Installed capacity & Fuel Mix, Transmission sector
- Regional Power Transfer Capacity, Basic Power Plant details
- Key Energy Statistics (Both Year wise and Past Trends & Forecasts, Country Wise)
- Per capita energy consumption, Energy resource potential & reserves, Primary Energy Supply & Demand
- Total energy consumption & sector wise consumption, Energy Balance, Energy access
- Key Policy and Regulations
- Key Energy & Power Sector Related Laws, Policy & Regulations
- National Power & Energy Sector Master Plans/Projection etc.



Status → **Contract awarded in November 2020** → **Submission of show case , proposed design, software design , database Design April,2021** → **Pilot Demonstration (Few countries), August,2021**

02.5 SAFIR Regulatory News Letter (SRNL)

Regulatory updates & Policy Developments in the Region

Analysis on the Energy Regulatory and Policy Developments

Capture Important development, can have Guest Columns outside of the Region

First SAFIR Regulatory Newsletter

Published

Circulation in SA Countries in electronic format.

Status

First SAFIR Regulatory Newsletter was Released during SAFIR-SARI/EI Conference (Virtual) on "Sustainable Energy Infrastructure Development and Role of Cross Border Energy Trade in South Asia: Challenges, Opportunities and Way forward"-15th &16th March 2021

02.6 SAFIR Working Group Meeting

First Meeting of SAFIR Working Group

15th-16th May, 2018

Colombo, Sri Lanka

Second SAFIR Working Group meeting

4th December 2019

Dhaka, Bangladesh

Third SAFIR Working Group meeting (Virtual) August 2021

(Along with Pilot Demonstration of South Asia Energy/Electricity Knowledge Resource Database (SAKERD))

Fourth SAFIR Working Group meeting

Sri Lanka, Dec,2021

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03 Key Findings of the SWG Draft Research Study Report on "Regulatory Interventions for Grid Discipline and Grid Reliability (GDR) in the South Asian Region

Presented by

Mr. Hitesh Chaniyara (Executive Director, PWC, India) & Mr. Rajiv Ratna Panda (Associate Director, SARI/EI IRADe)

27th South Asian Forum for Infrastructure Regulation (SAFIR) Steering Committee Meeting (SCM) (Through Video Conferencing), 11.45 AM , Monday, 19th April 2021, New Delhi, India

03.1 Approach and Methodology

1 Review and analyse sector framework and institutions/ stakeholders (Legislative, Policy, Regulatory, Others)

2a Identify key indicators defining grid discipline and grid reliability

2b Identify key measures to achieve grid discipline and grid reliability

3 Assess level of implementation and compliance of identified measures

4 International experiences on regulatory interventions for improving grid discipline and grid reliability

5 Identify gaps in (i) Sector framework and institutions/ stakeholders and (ii) Implementation and compliance of identified measures

6 (a) Regulatory measures/ interventions needed to improve grid discipline and grid reliability in SAR countries along with the roadmap

(b) Suggest capacity building measures

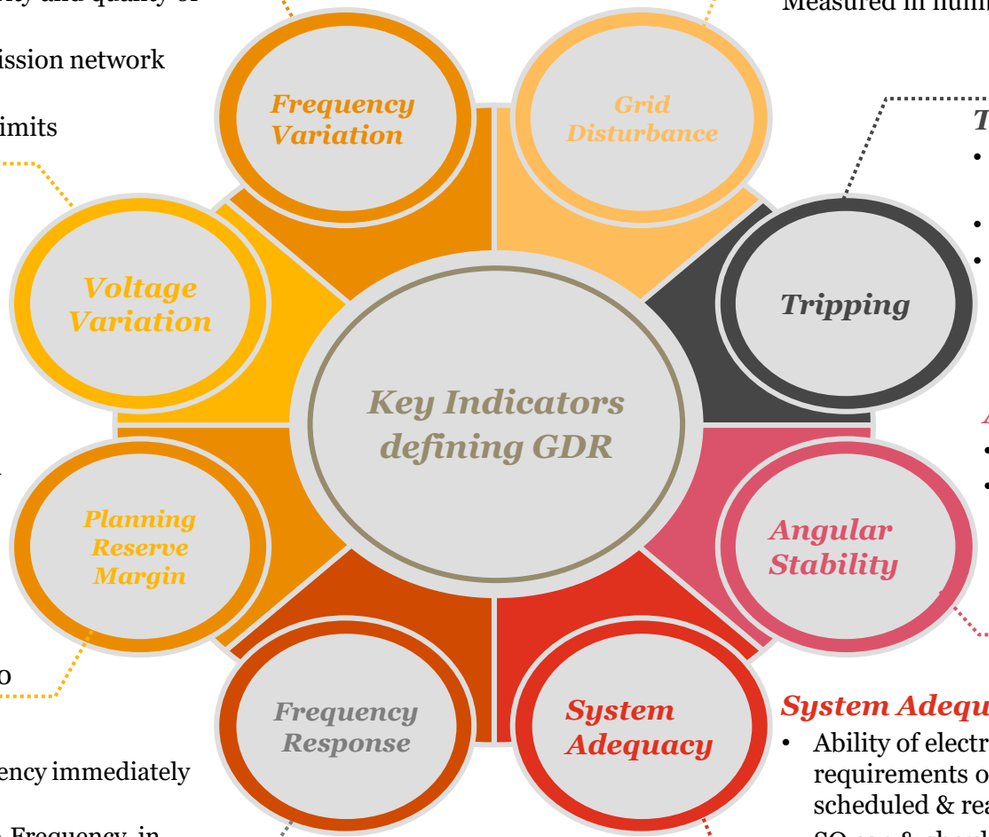
03.2 Key indicators defining GDR

Frequency Variation
- Most important parameters for assessment of security and quality of power supply in any grid
- Has impact on generator voltage & passive transmission network elements
- Measured by % of times frequency breaches given limits

Voltage Variation
- Can occur in power system due to multiple reasons (inadequate supply of reactive power, overloaded/underloaded circuits, etc.
- May lead to malfunctioning of equipment
- Measured by % of times voltage breaches normal operating limits and contingency limits

Planning Reserve Margin
- Designed to measure amount of generation capacity available to meet expected demand in planning horizon
- Provides indication of the additional capacity available to meet unforeseen - increases in demand, outages and trends
- Reserve Margin (%) = (Capacity - Load) / Load x 100

Frequency Response
- Measure of interconnection's ability to stabilize frequency immediately following sudden loss of generation or load
- Frequency response = (Δ Demand + Δ Generation)/ Δ Frequency, in MW/Hz



Partial or Complete Grid Disturbance
Measured in number of outages and duration of outages

Tripping per line and Tripping duration per line
- Count of interruptions over period of time (daily / weekly/ monthly/ yearly)
- Tripping duration - interval of time electric line is tripped
- Frequency and duration of tripping - indication of performance measured at a balancing area level or interconnection level

Angular Stability
- Measured using phase angle difference
- Real-time angle difference between nodes, sampled from widely dispersed locations in the power system network and synchronized from common time source of a GPS radio clock, provides SO with an immediate awareness of system strength and stress

System Adequacy
- Ability of electricity system to supply aggregate electrical demand and energy requirements of the end-use customers at all times, taking into account scheduled & reasonably expected unscheduled outages of system elements
- SO can & should take controlled actions or procedures to maintain a continual balance between supply & demand within its control area by public appeals & interruptible demand

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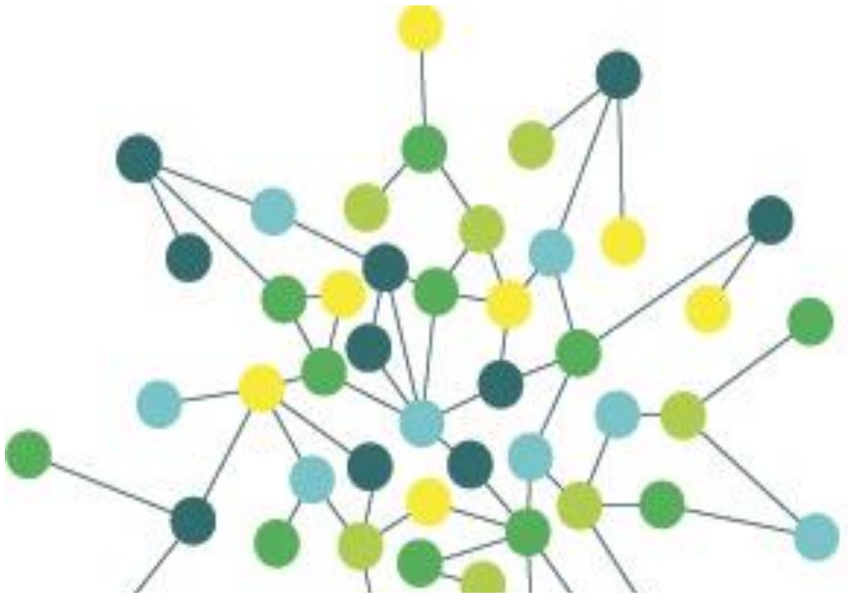
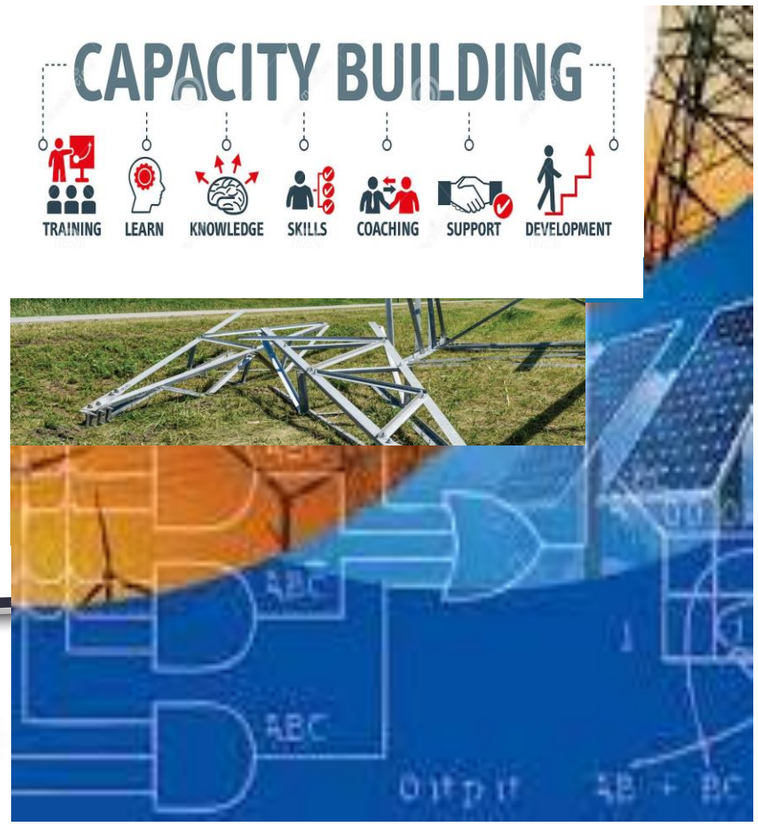
03.3 Draft Suggested Regulatory Measures/Interventions
&
03.4 Suggested Specific Technical Capacity Building Measures





03.3.1 Key recommendations – South Asia Region

Regional regulatory recommendations in the South Asia Region for improving grid discipline & reliability

Recommendation

Area of Intervention	Suggested regulatory intervention
System planning	Specify a detailed transmission planning criteria to be followed by Transmission Licensee to achieve economies of scale, reduction in network congestion, strategy for generation & load alternatives and renewable energy integration.
System construction and safety	Grid code to have provisions related to system construction and safety like standards for general safety requirements and Designate the responsibility to monitor compliance to promote grid discipline and grid reliability
Grid connection	Lay down detailed procedure for grid connections for users including renewable energy generators. Standardize process for grid connectivity by defining test requirements for power system elements for synchronous & non-synchronous generator and HVDC & FACTS devices for ensuring power system safety.
System operation	Publish procedure for operational planning, system security, demand management, outage management and partial or complete grid disturbance, define key system performance indicators, define grid incidence and grid disturbance events.
	Develop ancillary service market for primary, secondary and tertiary responses in the country.
	Introduce incentive / penalty-based imbalance settlement mechanism and the rules and procedure for implementation of the same.
Scheduling and despatch	Specify penalty for mis-declaration by the generating companies and inaccurate demand forecasting by distribution companies.
	Specify framework for co-ordination of CBET with details of identified roles and responsibilities of various stakeholders, standard contracts for export and import of power, grid safety related provisions for CBET.
Information and comm. technology	Push for adoption of advanced technology including Information and Communication Technology (ICT). specify cyber security related aspects to identify critical information infrastructure.
Monitoring and compliance	Lay down provision for periodic publishing of monitoring and compliance reports, system performance reports, third-party audit reports and other such important documents in the public domain.
	Define and mandate capturing information on grid performance indicators for effective reporting of status of grid reliability.

Institutional Interventions – Proposed regional regulatory agency, i.e., South Asia Forum of Electricity / Energy Regulators (SAFER)/ to act as neutral, apolitical forum/ platform for regulators and experts to assemble, brainstorm, strategize and recommend specific steps to address the multiple barriers to CBET is proposed. Existing Institution/Institutional mechanism such as SAFIR, SAARC council of experts of Energy(Electricity) may also take up such role.

03.3.2

Bangladesh: Identified regulatory gaps, interventions and proposed roadmap

Identified regulatory gaps and corresponding intervention

G1 *Absence of transmission planning manual*

BERC to develop transmission planning manual

G2 *Inadequate measures in system construction and safety.*

BERC to define the rules and procedure for monitoring compliance to system construction and safety regulations

G3 *Absence of System Protection Philosophy and third-party protection audits*

BERC to define mechanism for strengthening of power system protection through white paper or consultation paper

G4 *Absence of ancillary services market in Bangladesh*

Develop ancillary service market in Bangladesh

G5 *Absence of detailed framework for CBET*

BERC to specify framework for co-ordination of CBET

G6 *Inadequate regulatory push to regularly assess adequacy of current technology & recommend more effective technology solutions*

BERC to define and mandate capturing information on grid performance indicators

Proposed roadmap

Short Term (≤ 3 years)	Medium Term (3-6 years)	Long Term (> 6 years)
Working paper to be floated on transmission planning criterion	Draft amendments to the Grid code for deliberations and finalisation	Appropriate amendments to Grid code to operationalize transmission planning criteria.
Grid code to mandate conducting independent third-party safety audits biennially	1. Regulator to mandate conducting independent third-party safety audits once a year and internal audits once every quarter. 2. Monitor compliance to the same.	
BERC to mandate TSO to define protection system philosophy.	1. The System Protection Working group/ committee at NLDC to frame appropriate standard specifications for Protection Systems 2. Grid code to mandate independent third-party audit	
Publish consultation paper/ white paper	1. Develop Regulations to enable ancillary services market. 2. Regulations to introduce secondary response through AGC and market-based price discovery.	
Comprehensive study to understand role played by various stakeholders for CBET in Bangladesh	BERC to draft specific Regulations defining framework for coordination of CBET.	Form separate specialized department within PGCB to coordinate CBET effectively.
Publish consultation paper/ white paper on regulatory intervention for cyber security code	BERC to publish cyber security standards covering standards for ICT, identification of data transfer protocols, measures for information protection, provision for cyber audits & capacity building	

April 2021

03.3.3

Bhutan: Identified regulatory gaps, interventions and proposed roadmap

Identified regulatory gaps and corresponding intervention

G1 *Absence of transmission planning manual*

BEA to develop transmission planning criterion

G2 *Inadequate measures in system construction and safety.*

BEA to define mechanism for strengthening of power system safety

G3 *Absence of System Protection Philosophy and third-party protection audits*

BEA to specify system protection philosophy, protection schemes and guidelines for testing & commissioning.

G4 *Bhutan has not capitalised its hydro power resources by offering ancillary services*

Develop ancillary service market in Bhutan

G5 *Absence of detailed framework for CBET*

BEA shall specify framework for co-ordination of CBET

G6 *Absence of Cyber security standards for critical information infrastructure*

Regulations/ codes/ rules for implementation of ICT infrastructure like communication facilities, operational technology systems and Cyber Security

Proposed roadmap

Short Term (≤ 3 years)	Medium Term (3-6 years)	Long Term (> 6 years)
Working paper to be floated on transmission planning criterion	Draft amendments to the Grid code to be prepared for deliberations and finalisation	Appropriate amendments to Grid code to operationalize transmission planning criteria.
Conduct study on international best practices and propose approach for their adoption	1. Define safety standards and make necessary provisions for their compliance. 2. Make provisions to conduct independent third-party safety audits annually	
BEA to mandate TSO to define the protection system philosophy.	1. System Protection Working group/ committee at NLDC to frame appropriate standard specifications for Protection Systems 2. Grid code to mandate independent third-party audit	
Publish consultation paper/ white paper	Develop Regulations to enable ancillary services market.	Regulations to introduce secondary response through AGC and market-based price discovery.
Conduct study to understand role played by various stakeholders for CBET in Bhutan	BEA to draft specific Regulations defining framework for coordination of CBET.	Form separate department within BPSO to coordinate CBET effectively
BEA to publish consultation paper/ white paper on regulatory intervention for cyber security code	BEA to publish cyber security standards which encompass standards for ICT, identification of data transfer protocols, measures for information protection, provision for cyber audits & capacity building	

April 2021

03.3.4

India: Identified regulatory gaps, interventions and proposed roadmap (1/2)

Identified regulatory gaps and corresponding intervention

G1 *Update Transmission system planning manual with present day system planning techniques*

Initiate revision of transmission system planning manual and introduce international best practices for planning

G2 *Resilience of present Regulation for ancillary services is inadequate. Efforts to introduce de-linking of payment from pool account and improving response time for secondary and tertiary services to be made*

Take necessary steps to make ancillary service market framework more resilient

G3 *Currently no post-despatch analysis is conducted and there is no/ inadequate compensation to generators forced to run below normative parameters*

Introduce provisions related to post despatch analysis and compensating generators that are compelled to run below normative parameters as per grid code

Proposed roadmap

Short Term (≤ 3 years)	Medium Term (3-6 years)	Long Term (> 6 years)
1. Mandate SLDCs to prepare scenario based probabilistic demand 2. CEA to assess storage systems for demand response measures	1. Introduce framework to ensure better utilisation of existing infrastructure 2. Promote transmission system operators to conduct contingency analysis based on contingency list	Impose penalty/ claw back on transmission operator(s) for non-compliance to contingency analysis and contingency listing
1. Consultation paper/ white paper outlining methodology for accurately assessing primary, the response time of secondary and tertiary reserves 2. Introduce secondary response through AGC and market-based price discovery of ancillary services	Devise a framework to modify payments provisions of Ancillary Services	Introduce energy storage systems and fast transient frequency support using controlled inertial response from wind turbines
Regulatory intervention to compensate generating stations that are compelled to operate below normative plant availability factor.	Introduce provisions related to post-despatch analysis in the grid code.	

April 2021

03.3.4

India: Identified regulatory gaps, interventions and proposed roadmap (2/2)

Identified regulatory gaps and corresponding intervention

G4 *Grid code lacks adequate provisions to ensure robust cyber security*

Make interventions for building cyber security code for power systems, ensuring capacity building of concerned stakeholder

G5 *RPCs conduct system protection studies and lay down regional system protection standards that are not necessarily standardized.*

Regulatory intervention to standardise protection plans to introduce best practices like creation of system defence plan as a proactive step for system protection

Proposed roadmap

Short Term (≤ 3 years)	Medium Term (3-6 years)	Long Term (> 6 years)
1. Develop consultation paper/ white paper on cyber security, 2. Develop cyber security code,	Publish cyber security code for various communication technologies, identification of data transfer protocols, measures for information protection, provision for cyber audits and capacity building.	Push for mandating the compliance to international standards by the International Electrotechnical Commission (IEC) and the International Organization for Standardization (ISO) for ICT infrastructure.
1. Regulator shall recommend having a common protection philosophy for grid users at national level. 2. Grid Code shall mandate regular protection audit plans for internal and third-party audits.	Regulator shall define a clear mandate for NPC/RPCs in coordination with SO (NLDC/RLDC/SLDC) to prepare system defence plan	Regulator shall specify penalty/ claw back for non-compliance to system defence planning on NPC/ RPCs.

03.3.5

Nepal: Identified regulatory gaps, interventions and proposed roadmap

Identified regulatory gaps and corresponding intervention

G1 *Absence of transmission planning criterion*

ERC of Nepal to develop transmission planning criterion

G2 *Inadequate measures in system construction and safety.*

ERC of Nepal to define mechanism for strengthening of power system safety

G3 *Absence of System Protection Philosophy and third-party protection audits*

ERC of Nepal to specify system protection philosophy, protection schemes and guidelines for testing & commissioning.

G4 *Absence of ancillary services mechanism in Nepal*

Develop ancillary service market in Nepal

G5 *Absence of detailed penalty mechanism in Grid Code/ Regulations*

Introduce incentive / penalty-based imbalance settlement mechanism

G6 *No clear mandate to publish information related to power system in public domain*

Lay down provision for periodic publishing of monitoring and compliance reports in the public domain.

Proposed roadmap

Short Term (≤ 3 years)	Medium Term (3-6 years)	Long Term (> 6 years)
Working paper to be floated on transmission planning criterion	Draft and notify transmission planning criterion	
Conduct a study on international best practices and propose approach for their adoption	1. Define safety standards and make necessary provisions for their compliance. 2. Make provisions to conduct independent third-party safety audits annually	
Publish consultation paper/ white paper	1. Finalise and notify Regulations for Imbalance Settlement Mechanism 2. Issue rules and procedure to operationalize	
Develop Regulations to enable ancillary services market.	1. Market-based operation to be established for providing ancillary services in Nepal 2. Explore scope for participation in SAR ancillary services market	
Develop system protection philosophy, schemes and guidelines	1. Provisions to conduct independent third-party safety audits annually. 2. Penalty provisions for non-compliance to the system protection, testing and commissioning standards	
1. ERC of Nepal to mandate periodic publishing of various monitoring and compliance reports. 2. Explore imposing penalties for non-compliance	-	

Pakistan: Identified regulatory gaps, interventions and proposed roadmap

Identified regulatory gaps and corresponding intervention

G1 *No mechanism to ensure compliance to system planning standards*

NEPRA to introduce penalty provisions for non-compliance of system planning standards

G2 *Absence of imbalance settlement mechanism*

NEPRA to introduce incentive / penalty-based imbalance settlement mechanism

G3 *Absence of a commercial mechanism/ market for providing ancillary services*

NEPRA to introduce a commercial mechanism for ancillary services (primary, secondary and tertiary responses)

G4 *Absence of detailed framework for CBET*

NEPRA to specify framework for co-ordination of CBET

G5 *Inadequate regulatory push to regularly assess adequacy of current technology to manage grid operations and recommend more effective technology solutions*

NEPRA to encourage adoption of technology solutions for improving system operations, market operations, grid reliability and cyber security

G6 *Absence of mechanisms to monitor performance standards of transmission licensee*

Introduction of incentive/ penalty mechanism for improving transmission system availability

Proposed roadmap

Short Term (≤ 3 years)	Medium Term (3-6 years)	Long Term (> 6 years)
Introduce penalty provisions for non-compliance	-	
Publish consultation paper/ white paper	Rules and procedure for implementation of the incentive/ penalty-based mechanism to be issued after comprehensive stakeholder consultations	
Publish consultation paper/ white paper	Issue Regulations on ancillary services (covering primary and tertiary)	Issue Regulations on secondary response through AGC and market-based price discovery of ancillary services
Conduct study - Role played by various stakeholders for CBET	Issue Regulations defining framework for coordination of CBET	Form separate department within the System Operator for CBET coordination
Publish consultation paper/ white paper	Mandate phased adoption of technology solutions for improving system operations, market operations, grid reliability and cyber security	
Develop Regulations for claw back mechanism or penalty provisions for the transmission licensee(s)	-	

April 2021

Sri Lanka: Identified regulatory gaps, interventions and proposed roadmap

Identified regulatory gaps and corresponding intervention

G1 *No mechanism to ensure compliance to system planning standards*

PUSCL to introduce penalty provisions for non-compliance of system planning standards

G2 *Absence of imbalance settlement mechanism*

PUSCL to introduce incentive / penalty-based imbalance settlement mechanism

G3 *Absence of a commercial mechanism/ market for providing ancillary services*

PUSCL to introduce a commercial mechanism for ancillary services (primary, secondary and tertiary responses)

G4 *Absence of detailed framework for CBET*

PUSCL to specify framework for co-ordination of CBET

G5 *Inadequate regulatory push to regularly assess adequacy of current technology to manage grid operations and recommend more effective technology solutions*

PUSCL to encourage adoption of technology solutions for improving system operations, market operations, grid reliability and cyber security

G6 *Inadequate performance monitoring indicators*

PUSCL to define and mandate capturing information on grid performance indicators for effective reporting of status of grid reliability

Proposed roadmap

Short Term (≤ 3 years)	Medium Term (3-6 years)	Long Term (> 6 years)
Introduce penalty provisions for non-compliance	-	
Publish consultation paper/ white paper	Rules and procedure for implementation of the incentive/ penalty-based mechanism to be issued after comprehensive stakeholder consultations	
Publish consultation paper/ white paper	Issue Regulations on ancillary services (covering primary and tertiary)	Issue Regulations on secondary response through AGC and market-based price discovery of ancillary services
Conduct study to understand - role played by various stakeholders for CBET	Issue Regulations defining framework for coordination of CBET	Form separate department within the System Operator for CBET coordination
Publish consultation paper/ white paper	Mandate phased adoption of Technology solutions for improving system operations, market operations, grid reliability and cyber security	
PUSCL to define performance indicators of grid reliability (Dependability Index, Security Index, Reliability Index, Available Transfer Capability, Contingency Violation etc.)	-	

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03.4 Suggested Specific Technical Capacity Building Measures

03.4 Suggested capacity building measures (1/2)

#	Training Name	Relevant Audience	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
1	Introduction to Grid Discipline and Reliability	Regulators	Y	Y	Y	Y	Y	Y	Y	Y
2	Capacity Building on Development of Grid Code	Regulators	Y	N	N	N	Y	Y	N	N
3	Capacity Building on Development of System planning Manual and Long term Transmission Plan	Regulators/ Technical Authority for electricity standards/ Transmission operator	Y	Y	Y	N	Y	Y	N	N
4	Formulation of Penalty/Incentive provisions for promoting Grid Discipline	Regulators	Y	Y	Y	N	N*	Y	Y	Y
5	Training Programme on International Best Practices in Transmission System planning	Technical Authority for electricity standards/ Transmission operator	N#	Y	Y	Y	N*	Y	Y	Y
6	Strengthening standards for system safety and grid connection.	Regulators/ Technical Authority for electricity standards/ Transmission operator	Y	N	Y	Y	N*	Y	Y	Y
7	System Protection- Best Practices and Enforcement Regulations	Regulators	Y	Y	Y	Y	N	Y	Y	Y

*Can be allotted when basic transmission system is developed
#After Afghanistan develops its Transmission system manual

** after creation of transmission system*
 # only after system planning manual

03.4 Suggested capacity building measures (2/2)

#	Training Name	Relevant Audience	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
8	Balancing the Grid- Ancillary services	Regulators	Y	Y	Y	Y	N*	Y	Y	Y
9	Strengthening of Outage Management	Regulators/ Technical Authority for electricity standards/ Transmission operator	Y	Y	Y	N	N*	Y	Y	Y
10	Information and Communications Technology - Best Practices and Implementation	Regulators	Y	Y	Y	Y	Y	Y	Y	Y
11	Capacity Building on Regulatory framework for Cyber Security	Regulators	Y	Y	Y	Y	Y	Y	Y	Y
12	Capacity Building on Assessment of Investments in GDR	Regulators/ Transmission operator	Y	Y	Y	N	Y	Y	Y	Y
13	Capacity Building for Disclosure of GDR related Information to General Public	Regulators/ Transmission operator	Y	Y	Y	Y	Y	Y	Y	Y
14	Power system simulation exercise	Transmission operator/ System operator	Y	Y	Y	Y	N*	Y	Y	Y

*Can be allotted when basic transmission system is developed

** after creation of transmission system*

Thank You

Afghanistan: Identified regulatory gaps, interventions and proposed roadmap

Identified regulatory gaps and corresponding intervention

G1 *Absence of independent electricity regulator and codes*

Independent electricity regulator to regulate sector participants, to specify sector code and their enforcement to be created under the empowering act.

G2 *Absence of planning manual, codes for construction & safety and grid connection*

Regulator to develop transmission planning criteria, define mechanism for strengthening of power system safety and laydown detailed procedure for grid connectivity

G3 *Absence of ancillary market, imbalance settlement method and CBET framework*

Development of ancillary service market for relieving congestion and minimising frequency fluctuations. Introduce incentive / penalty-based imbalance settlement mechanism and laydown detailed procedure for CBET

G4 *Improvement in ICT and measures for robust monitoring and compliances*

Implementation of ICT (e.g., SCADA/EMS, WAMS/PMU) and guidelines for ensuring cyber security. Lay down provision for periodic publishing of relevant reports highlighting grid performance

Proposed roadmap

Short Term (≤ 3 years)	Medium Term (3-6 years)	Long Term (> 6 years)
1. Creation of independent electricity regulator 2. Regulator notify grid code after consultation	-	-
Grid code have provision for system planning, const. & safety and grid connection	1. Working paper on planning criteria 2. Conduct a study for strengthening safety 3. Publish white paper on grid connectivity	1. Notification of planning criteria 2. Define safety standards & compliance 3. Provisions to conduct 3rd party safety audits
Grid code have provision for management of frequency response by providing ancillary services, imbalance settlement mechanism and coordination of CBET	1. Conduct study on intro. ancillary services 2. A white paper on progressive narrowing of frequency band 3. Study on for building CBET framework.	1. Regulator to explore establishing market-based ancillary services. 2. Rules for incentive/ penalty-based framework 3. Draft regulation on CBET framework
1. Grid code has provision for implementation of advance ICT infra & cyber security measures 2. Grid code should mandate - publishing of monitoring & compliance reports	1. Conduct study to prepare roadmap for adoption of advanced ICT infra 2. Consultation paper on cyber security 3. Regulator to publish monitoring & compliance reports	1. Regulator to mandate use of advanced ICT technologies 2. Regulator to publish cyber security standards 3. Regulator to explore imposing penalties for non-compliance of reporting

Maldives: Identified regulatory gaps, interventions and proposed roadmap

1. Currently, Maldives has no transmission grid. Physical dispersion of the islands makes it virtually impossible to connect the entire country on a single grid. Due to its geographic location, surrounded by ocean, with nearly 1000 kms to the nearest mainland, even cross border electricity trade has not been considered as a viable option for Maldives.

2. The Ministry of Environment and Energy report 'Greater Malé Region Renewable Energy Integration Plan' and the USAID report 'Maldives Submarine Cable Interconnection Pre-feasibility Study' give a detailed analysis of options for undersea electrical interconnections in Greater Malé. Both studies clearly show that interconnections would support significant increases in renewable energy deployment.

3. Large-scale renewable energy deployment in Greater Malé will require the islands of Malé, Villingili, Thilafushi, Gulhifalhu and Hulhumalé/ Hulhulé to be interconnected using undersea electrical cables.

4. Considering the possible future inter connections in Maldives, we suggest that capacity building for drafting regulations covering the following shall be initiated to ensure grid discipline and reliability:

   - System Planning
   - System Construction and Safety
   - Grid Connection
   - System operation
   - System protection, testing and commissioning
   - Scheduling and Despatch
   - Information and Communication technology
   - Monitoring and Compliance