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SARI/EI



South Asia Regional Initiative for Energy Integration

Presentation on “SARI-EI Task Force Deliverable, SARI-EI Activities Updates, Institutionalisation of the Process of CBET & Work Plan for 2020-21”

Combined Meeting of SARI/EI Task Forces (Virtual), 30th September 2020, New Delhi, India

Presented by

Mr. Vinod Kumar Agrawal (Technical Director, SARI/EI IRADe) & Mr. Rajiv Ratna Panda (Technical-Head, SARI/EI IRADe)



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Brief of SARI/EI Extended phase : Key activities and Deliverables

South Asia Regional Initiative for Energy Integration (SARI/EI) Program (Extended Phase - 2018-2022)

SARI/EI

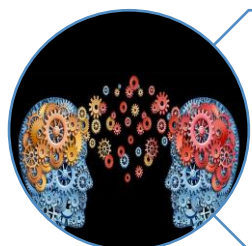
- **SARI/E is a long-standing program of USAID started in the year 2000.**



- **Addresses energy security in South Asia**
 - i) Cross Border Energy Trade
 - ii) Energy Market Formation
 - iii) Clean Energy Development

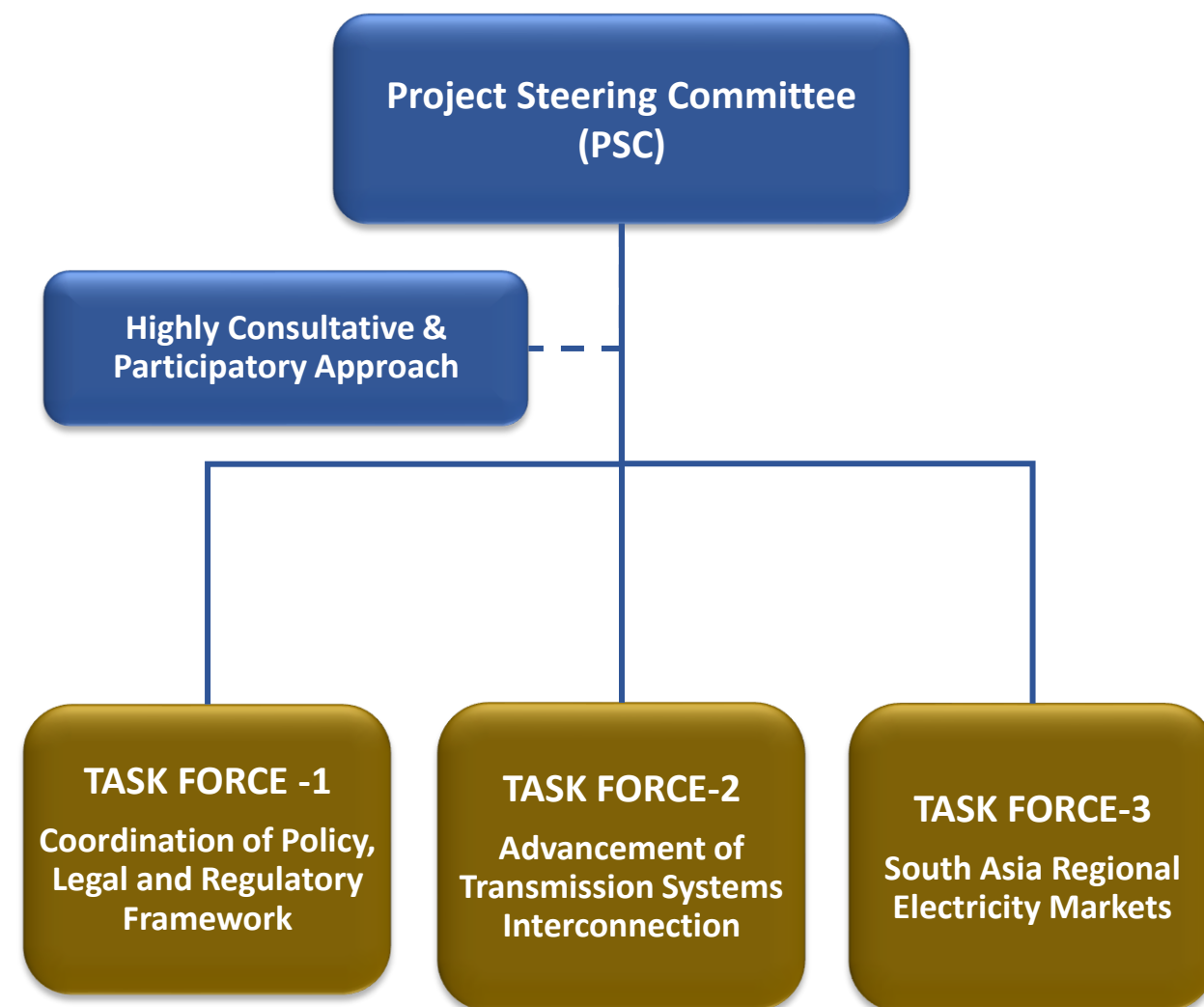


- **Extended Phase 2018-2022)**
Focus on establishing & strengthening institutional mechanisms, carry forward the legacy of SARI/EI



- **Transfer knowledge/learning**
from USAID/India's bilateral projects to rest of the region

Program Structure



Key Deliverables of the SARI/EI Extended Phase (2018-2022)



Institutionalization of South Asia Forum of Electricity Regulators (**SAFER**)



Institutionalization of South Asia Forum of Transmission Utilities (**SAFTU**)



South Asia Forum of System Operators (**SAFSO**)



Operationalization of South Asia Regional Power Exchange (**SARPEX**)



Institutionalization of South Asia Forum for Energy Investment (**SAFEI**)



Institutionalization of South Asia Forum for Electricity Market (**SAFEM**)



Pre-feasibility study on potential **transmission links** & **Network** with common **Standards & Op Codes**



A coordinated **transmission** and generation **master plan**



Framework for Regulatory **market monitoring** and **oversight**



An environment that promotes **private sector investment**



Assessment of **potential of gas** in South Asia and South East Asia till 2030



All round institutional and human **capacity building**



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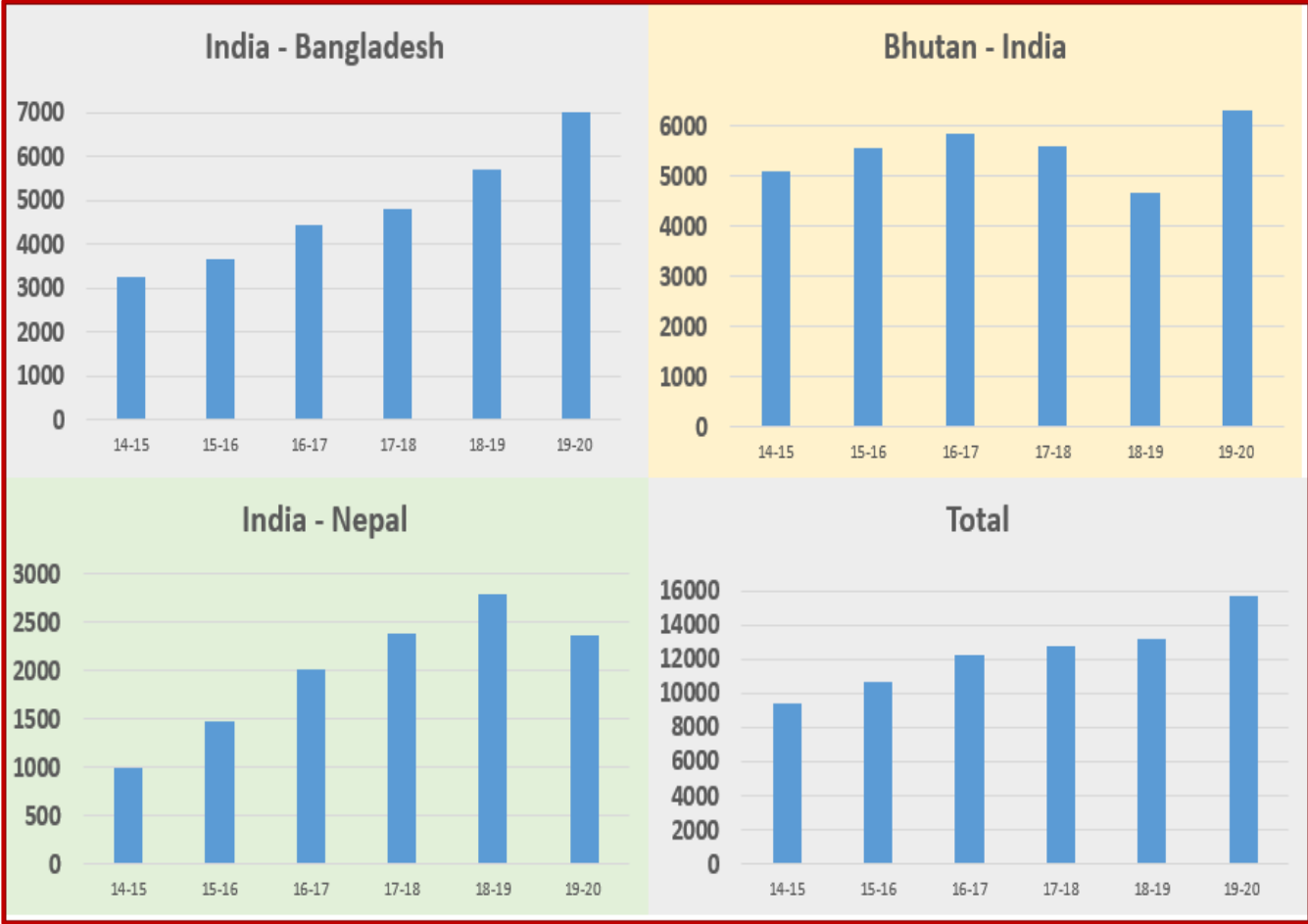


SARI-EI Key Events

Country Level Workshop & Consultation Meetings

Growth of Cross Border Energy Trade in BBIN Region during last 6 Years (GWh)

Year	India - Bangladesh	Bhutan - India	India - Nepal	Total
14-15	3271	5109	997	9377
15-16	3654	5557	1469	10680
16-17	4419	5863	2021	12303
17-18	4808	5611	2388	12807
18-19	5690	4657	2798	13145
19-20	6987	6311	2373	15671

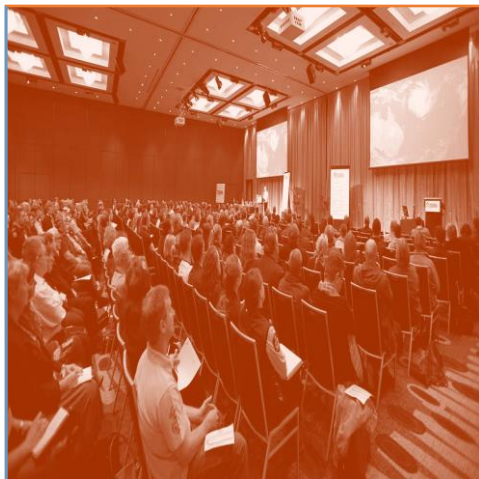


Bangladesh – HVDC Connections:
 HVDC B-t-B Pole 1 – October 13
 132 KV Tripura- Comilla – April 16
 HVDC B-t-B Pole 2 – July 18

Bhutan - Commissioning of Mangdechhu (4*180 MW):
 Unit 1: June 19, Unit 2 : July 19
 Unit 3: Aug. 19, Unit 4 : Aug. 19

Nepal - Commissioning of 400 KV Muzaffarpur – Dhalkebar Line
 Charging of Line at 132 KV : Feb 16
 Charging of Line at 220 KV : Aug 18

Number of Activities, Events, Partnership, Technical Assistance/Studies



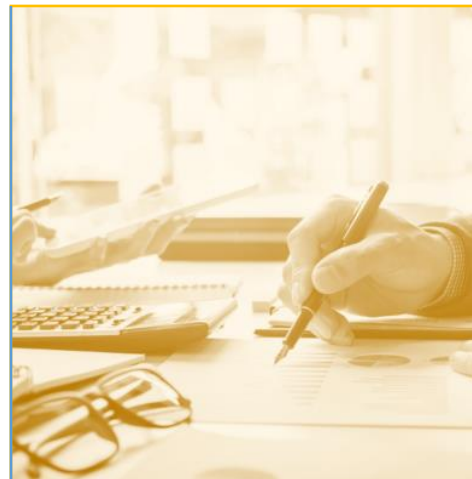
**Number of
Workshops/Confer
ences/Webinar**

11



**Number of
Engagements* with
Regional Institutions
(SAARC, SAFIR,
BIMSTEC)**

10



**Number of
Technical
Assistance/Studie
s Initiated**

7



**Number of
Technical
Assistance-at
advance level of
award**

2



**Number of
Reports/Papers
Published**

3

* Includes Joint Workshop, Participating in the formal meetings and conference organized by Regional Institutions

South Asia Country Specific Workshops and Stakeholder Consultations

BHUTAN



16th – 20th July 2019, Thimphu, Bhutan

NEPAL



23rd – 25th July 2019 at Kathmandu ,Nepal

INDIA



5th – 7th November 2019 at New Delhi, India

BANGLADESH



12th – 14th November 2019 at Dhaka, Bangladesh

NEPAL



21st – 22nd November 2019 at Kathmandu ,Nepal

SRI LANKA



14th – 16th January 2020, Colombo, Sri Lanka

Workshops and Stakeholder Consultations: Key Topics Covered

- Evolution of Power Trading in India & future outlook;
- Workshop on power trade through Power Exchange Platform;
- Power market rules and different products under Indian Power Market;
- Policy and Regulations;

Power Markets and Trade through Power Exchange



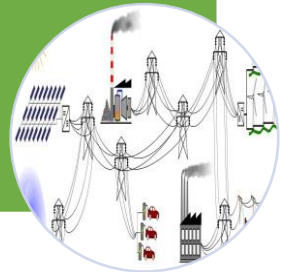
- Key learnings from Power System Operation in India;
- Mechanism towards Transmission Charges Losses and Deviation Settlement;
- Role of Independent System Operator;

System Operation



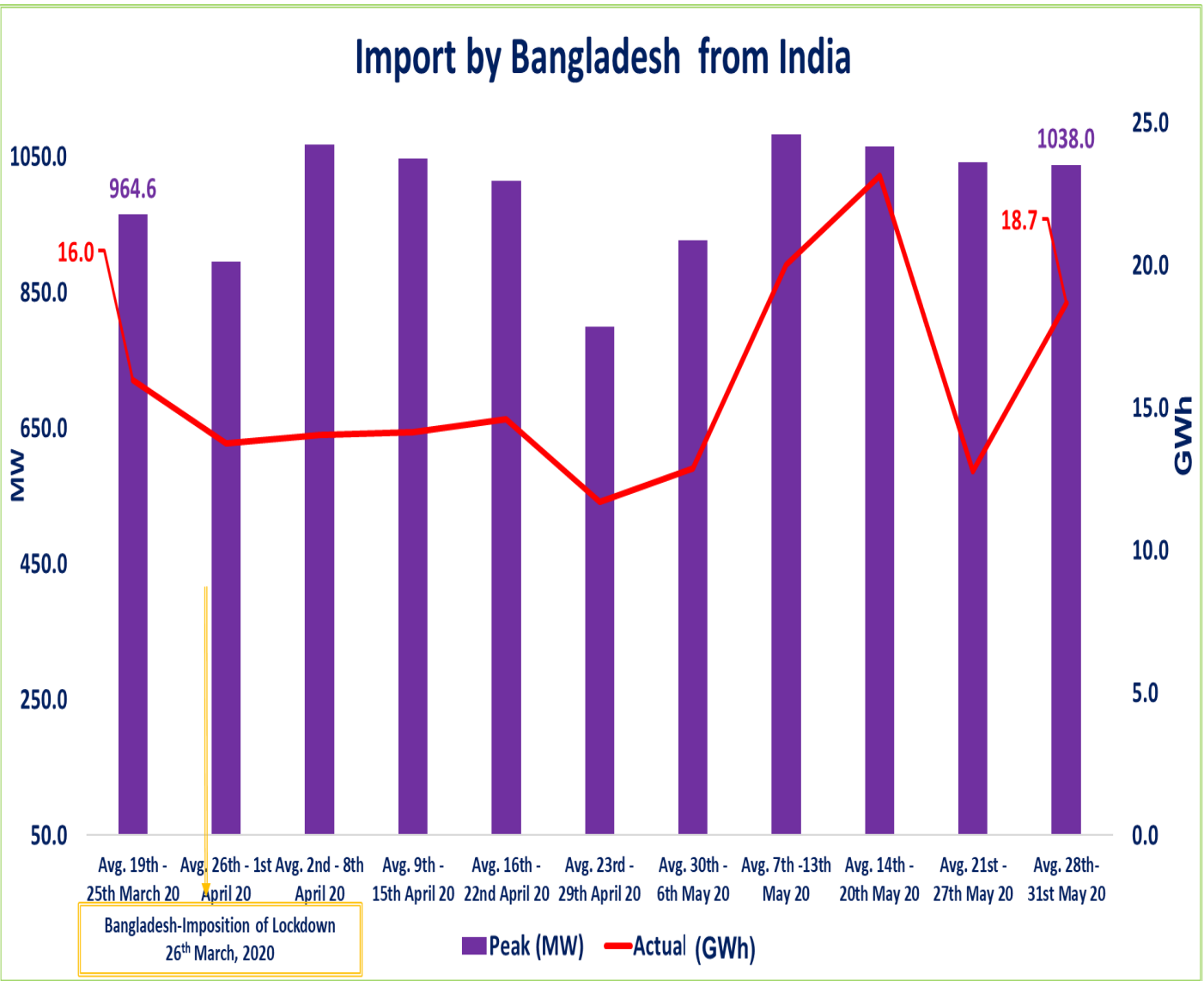
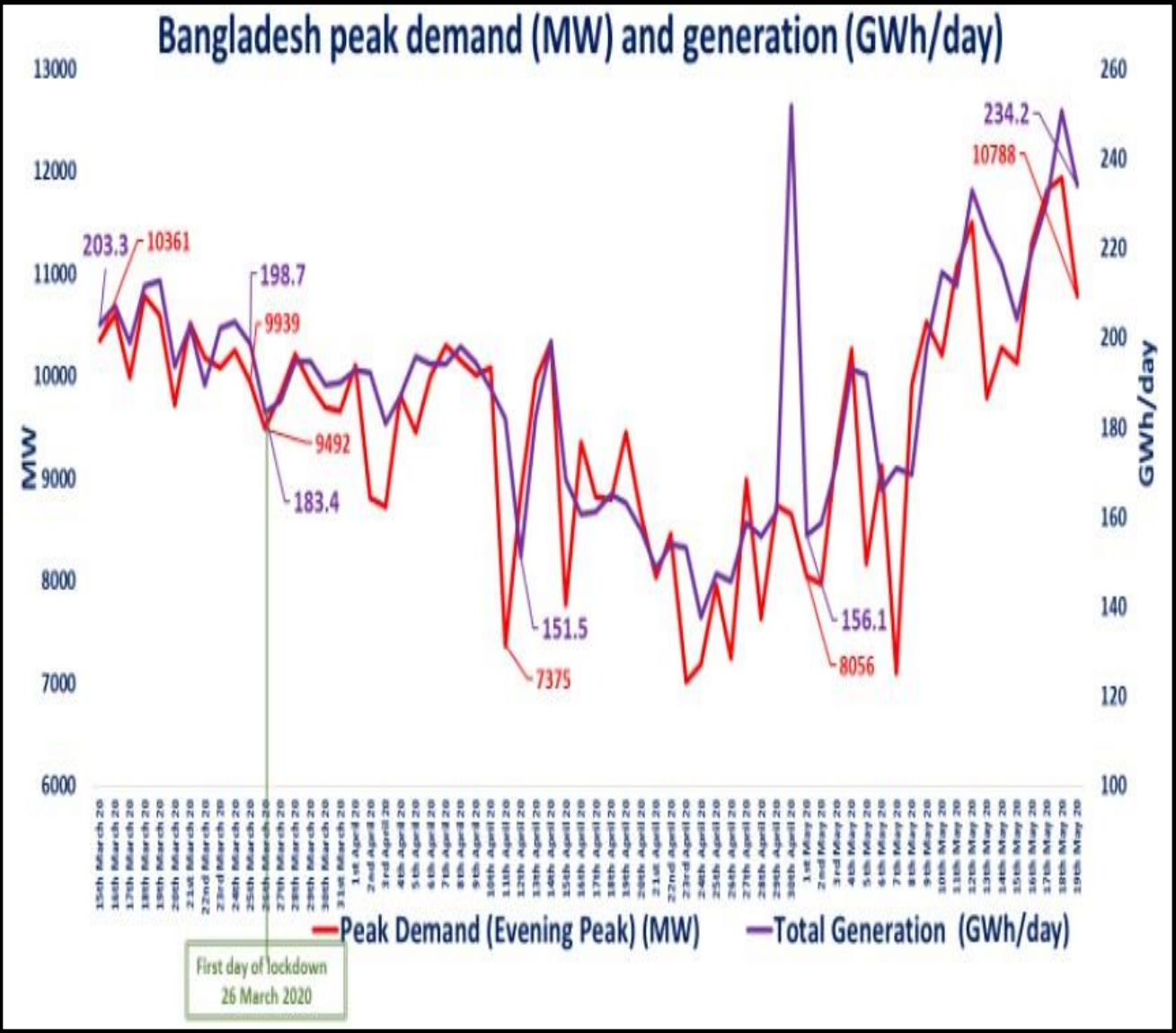
- Models of Trilateral/Multilateral Trade and Case Studies;
- Regional Grid Integration & Benefits and Challenges;
- Discussions on Common Minimum Grid Code;
- Visits to National/Regional Load Dispatch Centers, Power Exchange (IEX), Power Trading House(PTC);

Regional Grid Integration

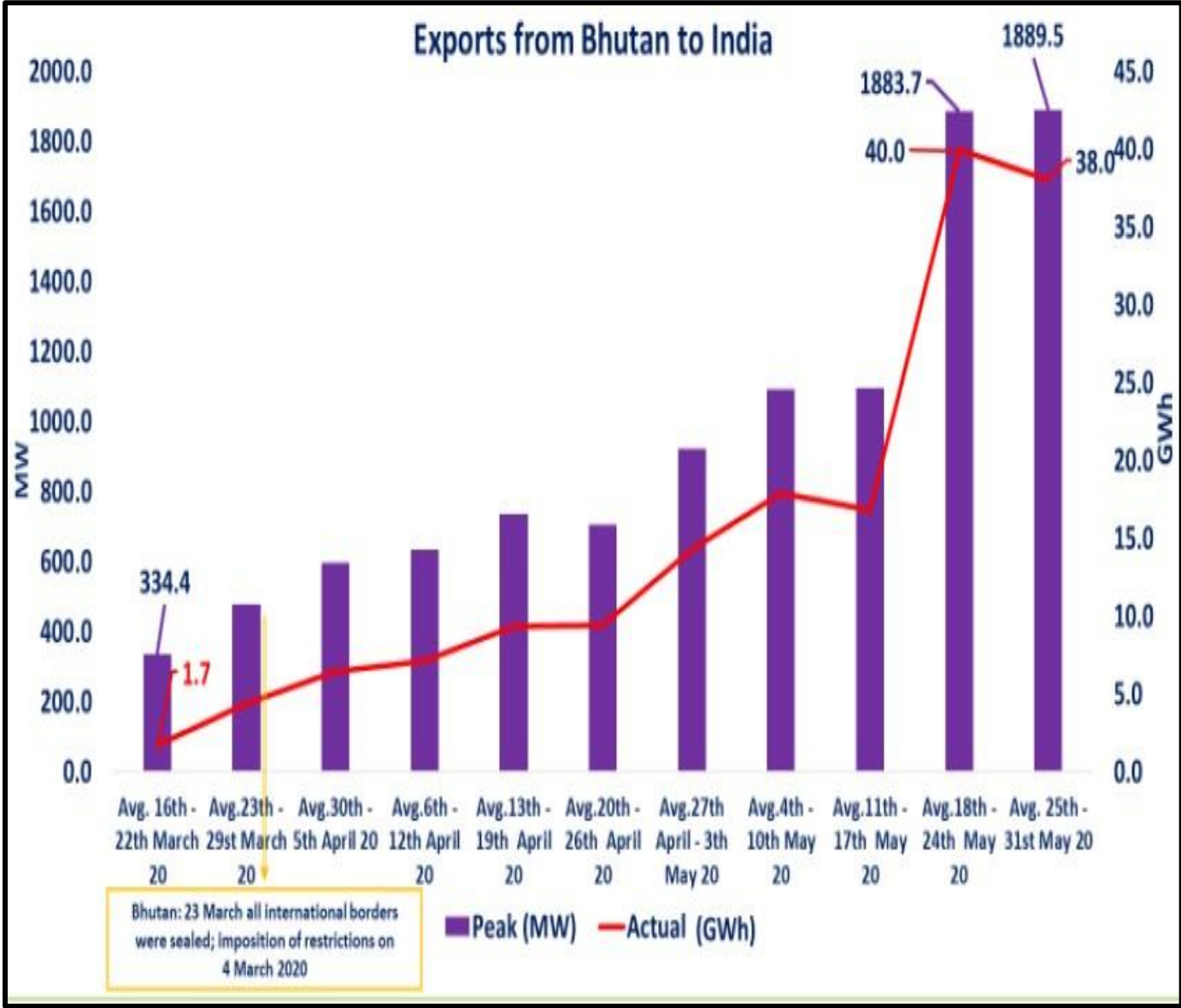
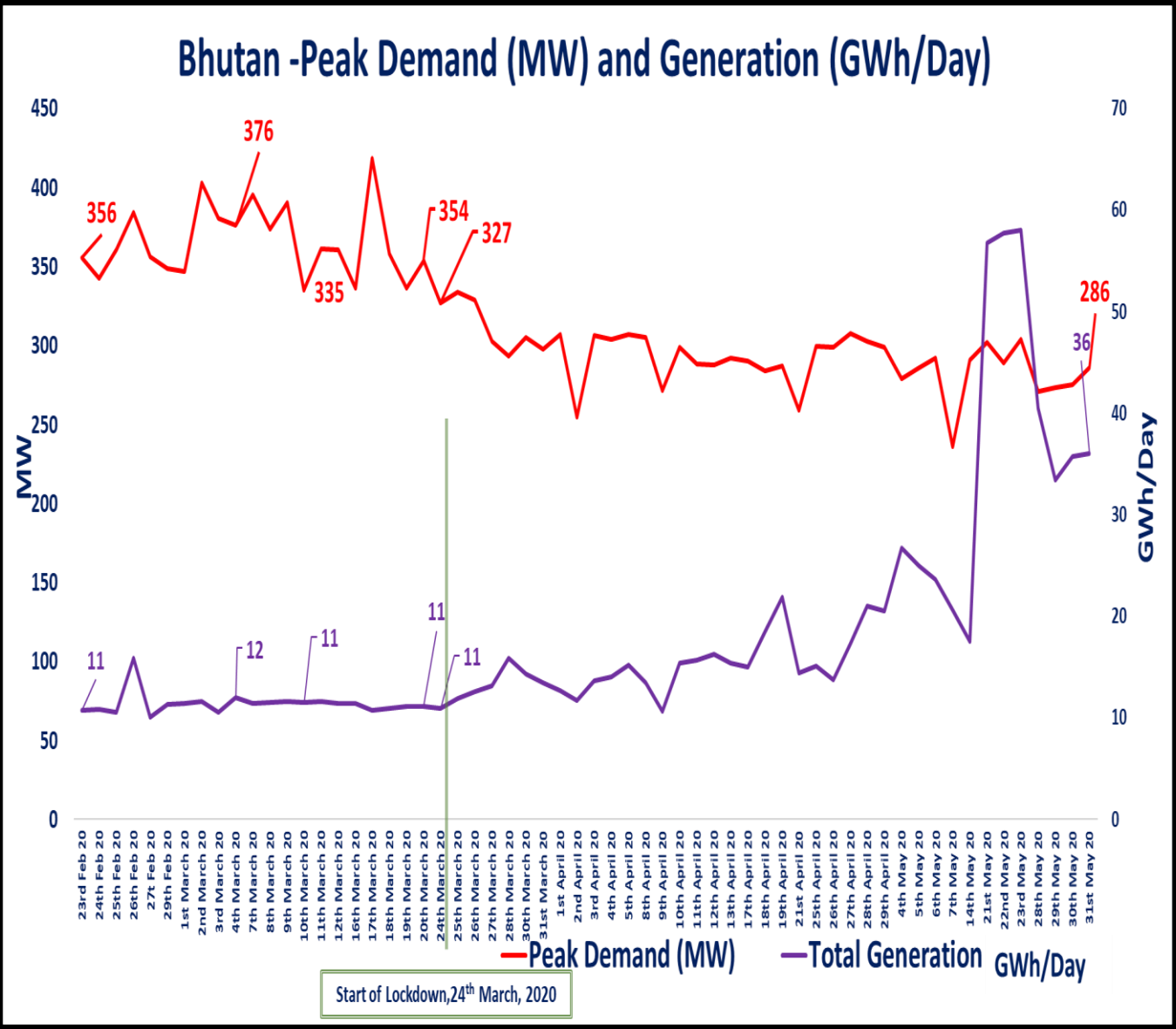


COVID 19 Impacts on Demand in BBIN Countries & Cross Border Energy Trade

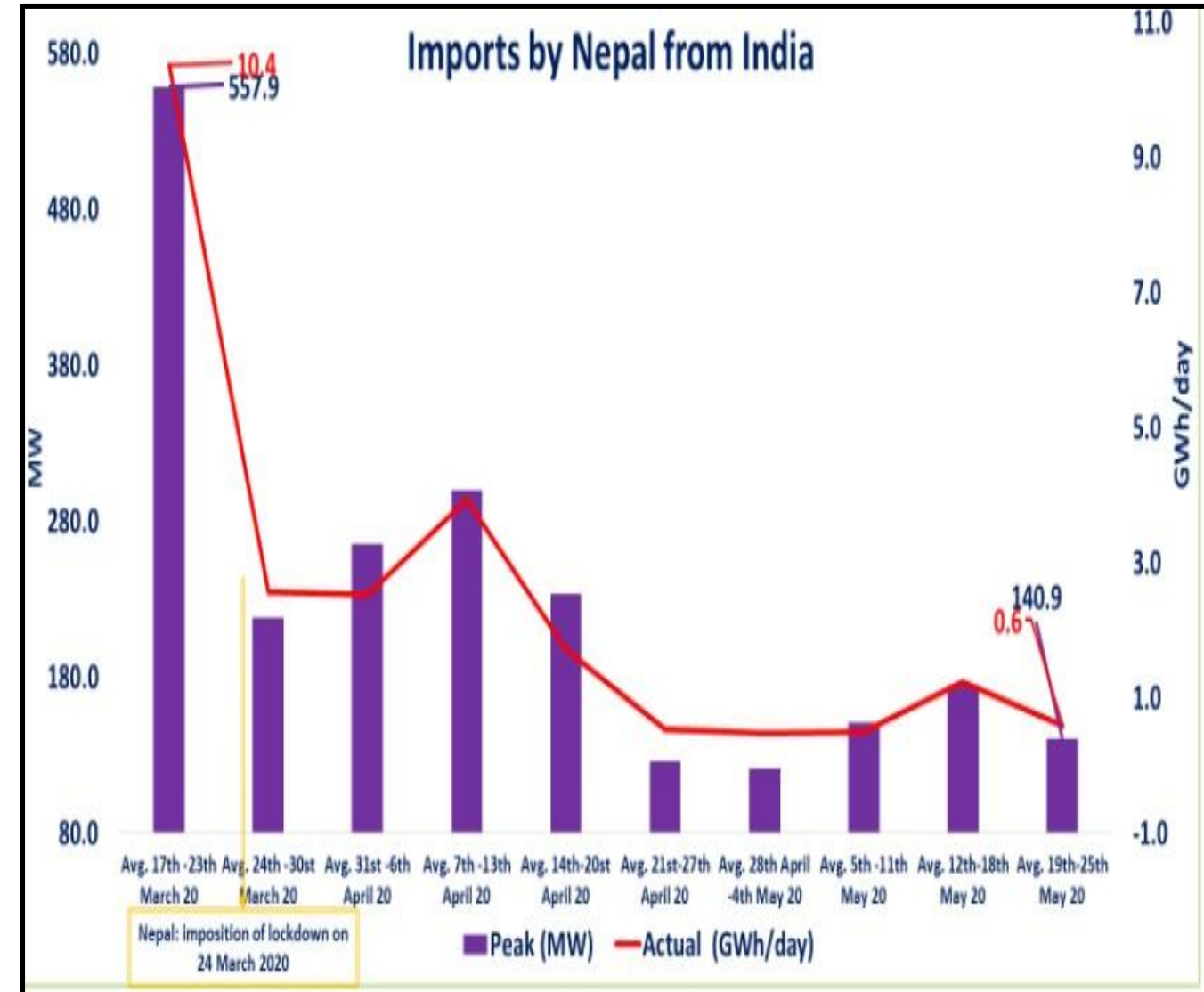
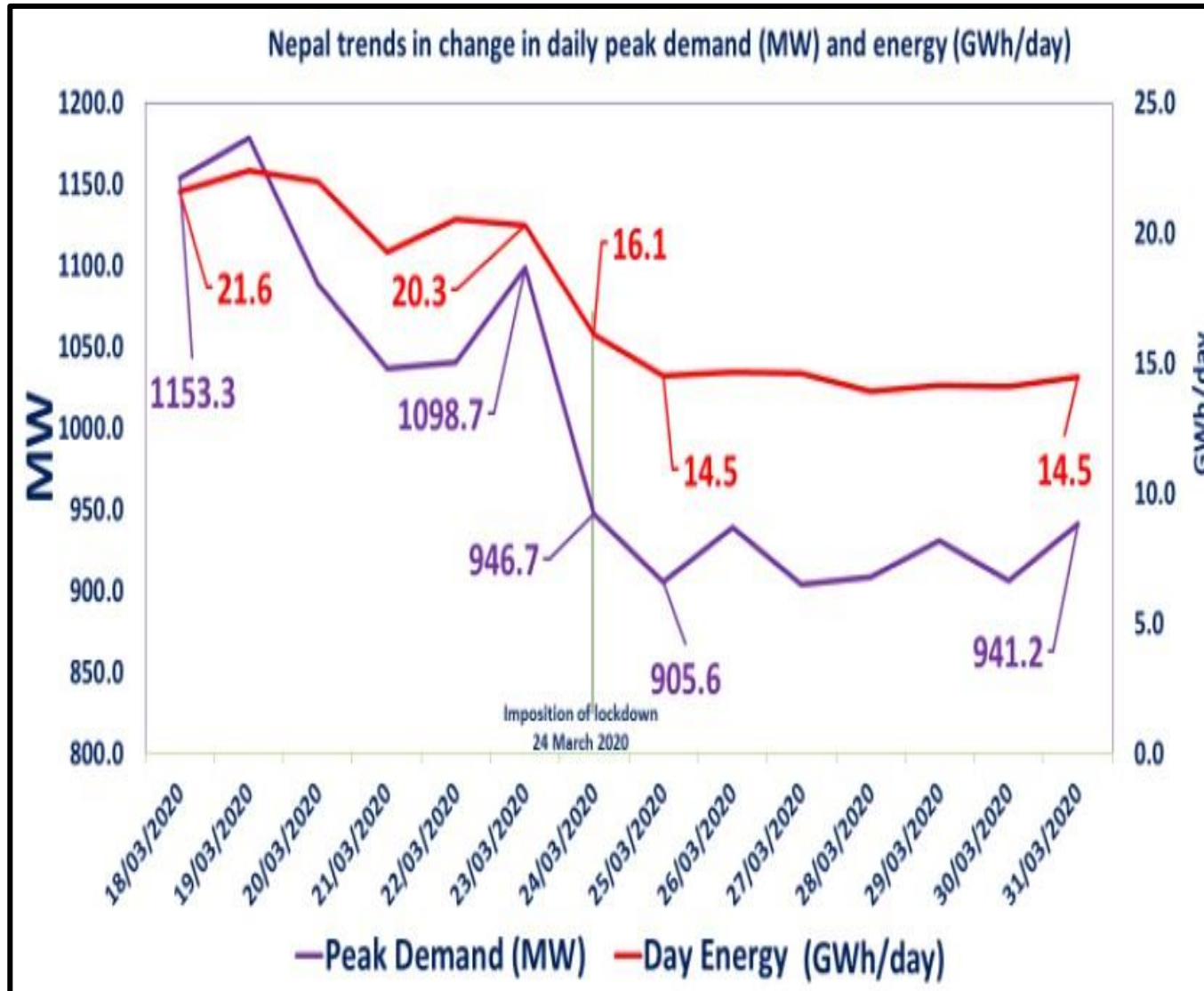
Demand Pattern & Import by Bangladesh during Covid-19



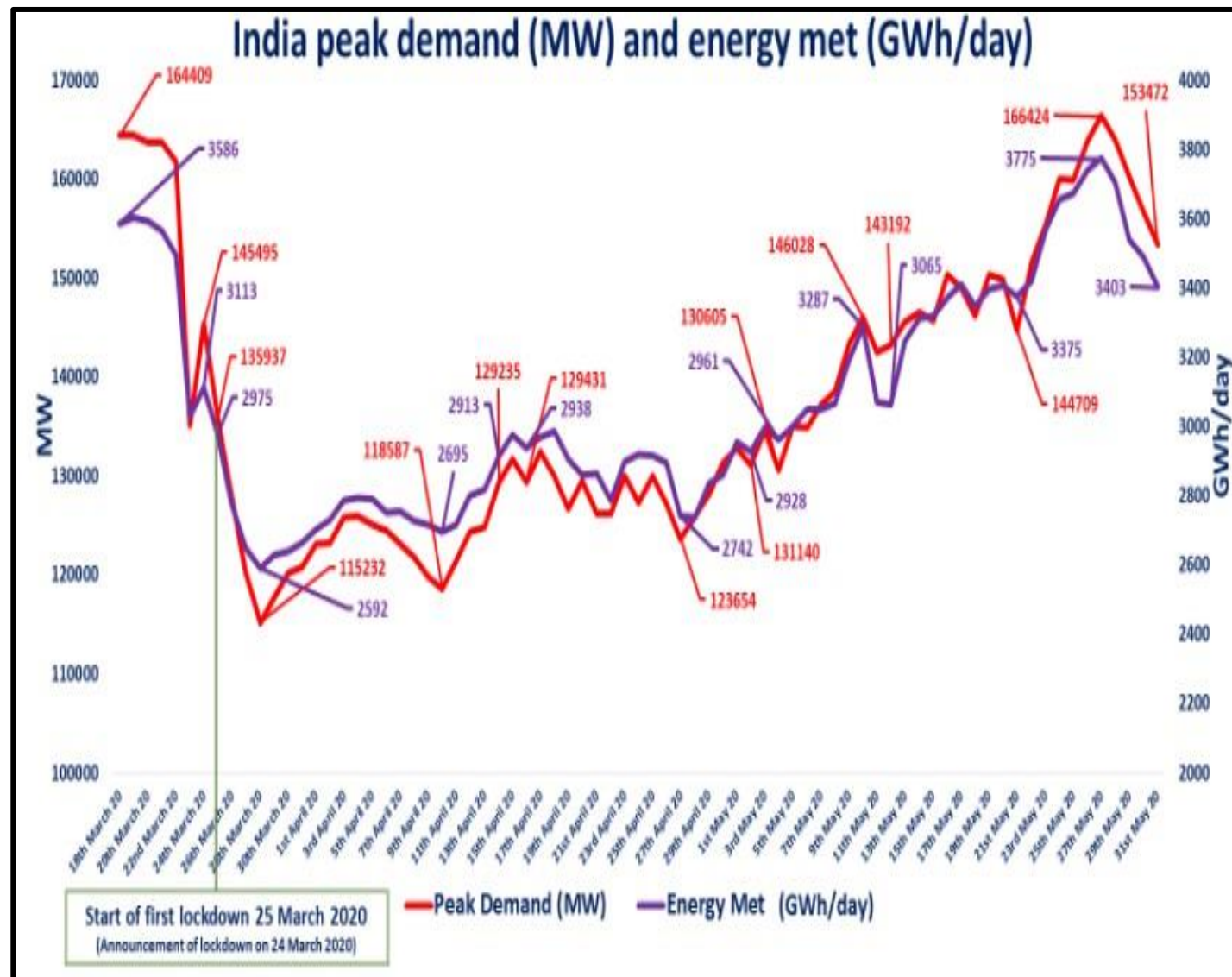
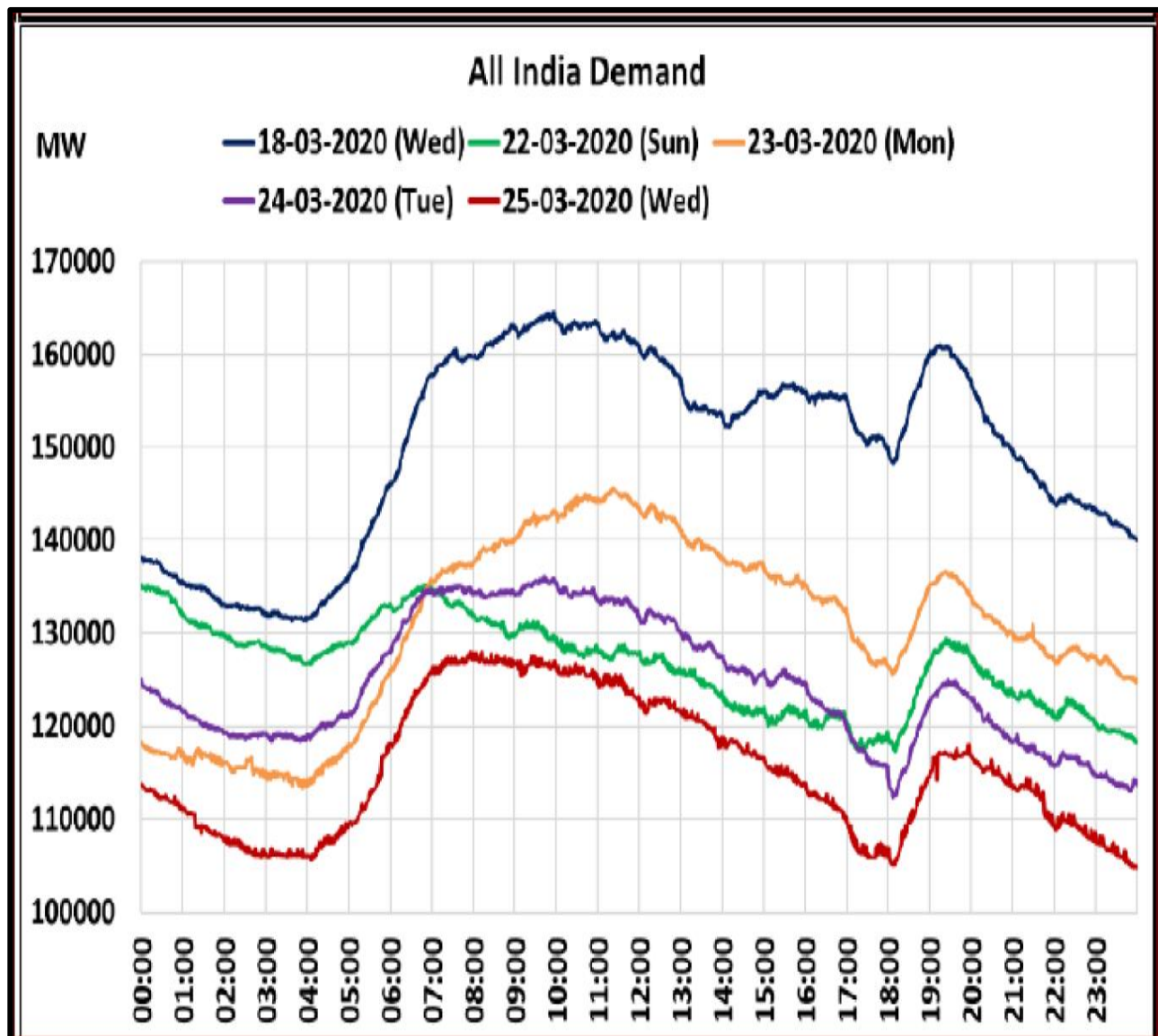
Demand Pattern & Export by Bhutan during Covid-19



Demand Pattern & Import by Nepal during Covid-19



Demand Pattern in India during Covid-19





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Integrated Research and
Action for Development

Impact of COVID-19 pandemic on South Asian Power Sector



May 2020

IRADe-SARI-26 (2020)



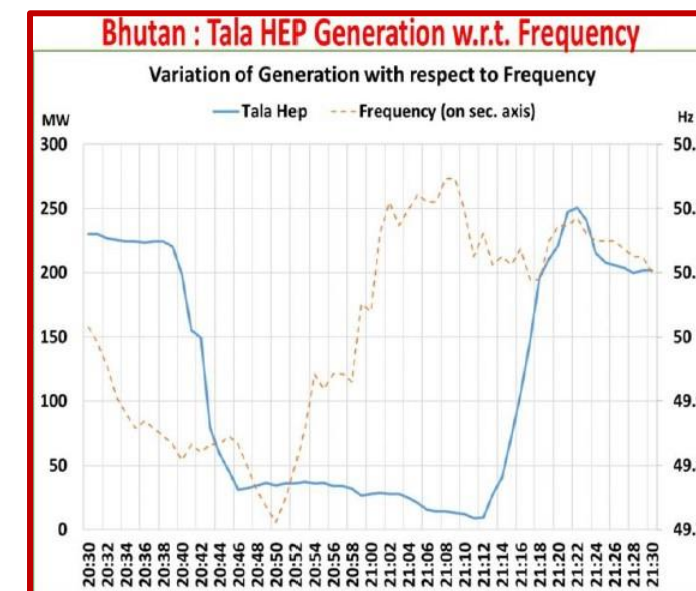
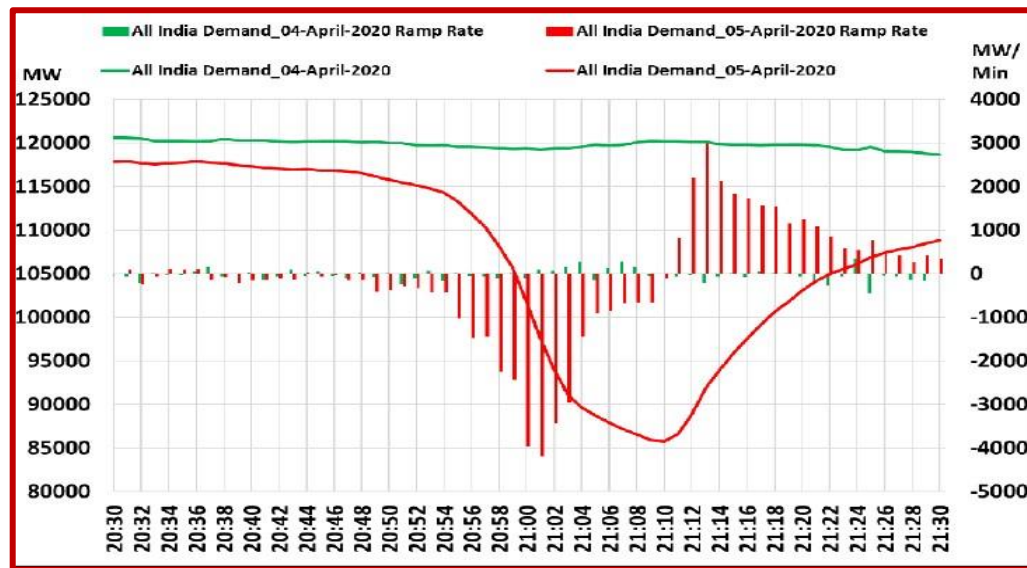
Paper on COVID-19 by SARI/EI Team

Key Findings:

- **Details of peak demand decline in BBIN Countries** (Within a week after imposition of lockdown) :
 - ✓ Nepal - **18.38 %**, Bhutan - **28.61%**
 - ✓ Bangladesh - **12 %**, India - **26%**
- **Post COVID lockdown the impact on PX volume & Prices:**
 - ✓ Market Clearing Volume dropped by **27.6%**
 - ✓ Market Clearing Price declined **16%**
- **Post COVID lockdown change in the Cross Border Flows:**
 - ✓ Peak MW reduction in Import by BD : **(-) 6.90 %**
 - ✓ Peak MW reduction in Import by Nepal : **(-) 59.40 %**
 - ✓ Peak MW increase in Export by Bhutan : **67.14%**

Due to Regional Grid Connections surplus hydro generation, particularly from Nepal & Bhutan could be transferred to India, & loss of zero cost energy at the expanse of spillage of water could be saved.

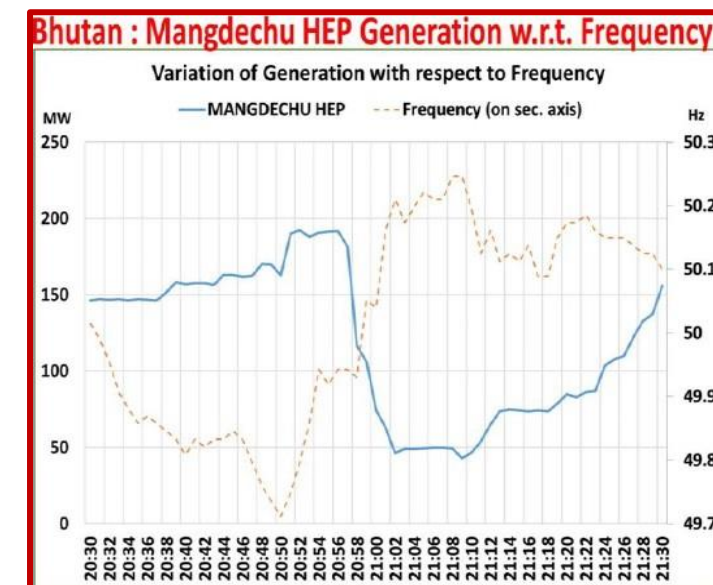
Regional Cooperation during 9pm, 9 minute Event in India



Salient Features:

- A symbolic gesture to show resolve and commitment towards fighting COVID 19;
- Instant Load Reduction around 9Pm ~ **31 GW**;
- Ramping Down Rate (in 5-6 Minutes) ~ **1000-4000 MW/Minute**;
- Ramping Up Rate (in 20 Minutes) ~ **1000-3000 MW/Minute**;
- **Contribution from Bhutan in providing Flexibility ~ 400 MW**

An excellent Example of Co-operation, to leapfrog towards RE integration in the Region





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- ➡ Key Developmental Outcomes of Task Forces
- ➡ Key Deliverable of Task Forces
- ➡ Task Forces-Focus on Institutionalisation & Synergies & among Task Forces
- ➡ SARI/EI Engagement with Regional Institutions- SAFIR, SAARC, BIMSTEC
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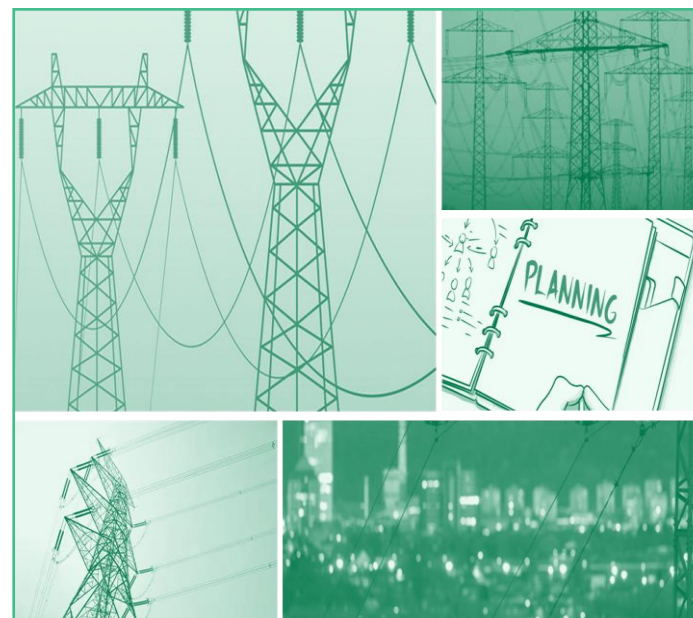
Key Developmental Outcomes of SARI-EI Task Forces

Key Developmental Outcomes of SARI-EI Task Forces



Task Force 1 “Harmonization of Policy, Legal & Regulatory Issues”

- ❖ Harmonization of Policy, Legal and Regulatory Issues.
- ❖ Create the enabling systemic conditions for a sustainable market for investment & implementation of CBET.



Task Force 2 “Advancement of Transmission System Interconnections”

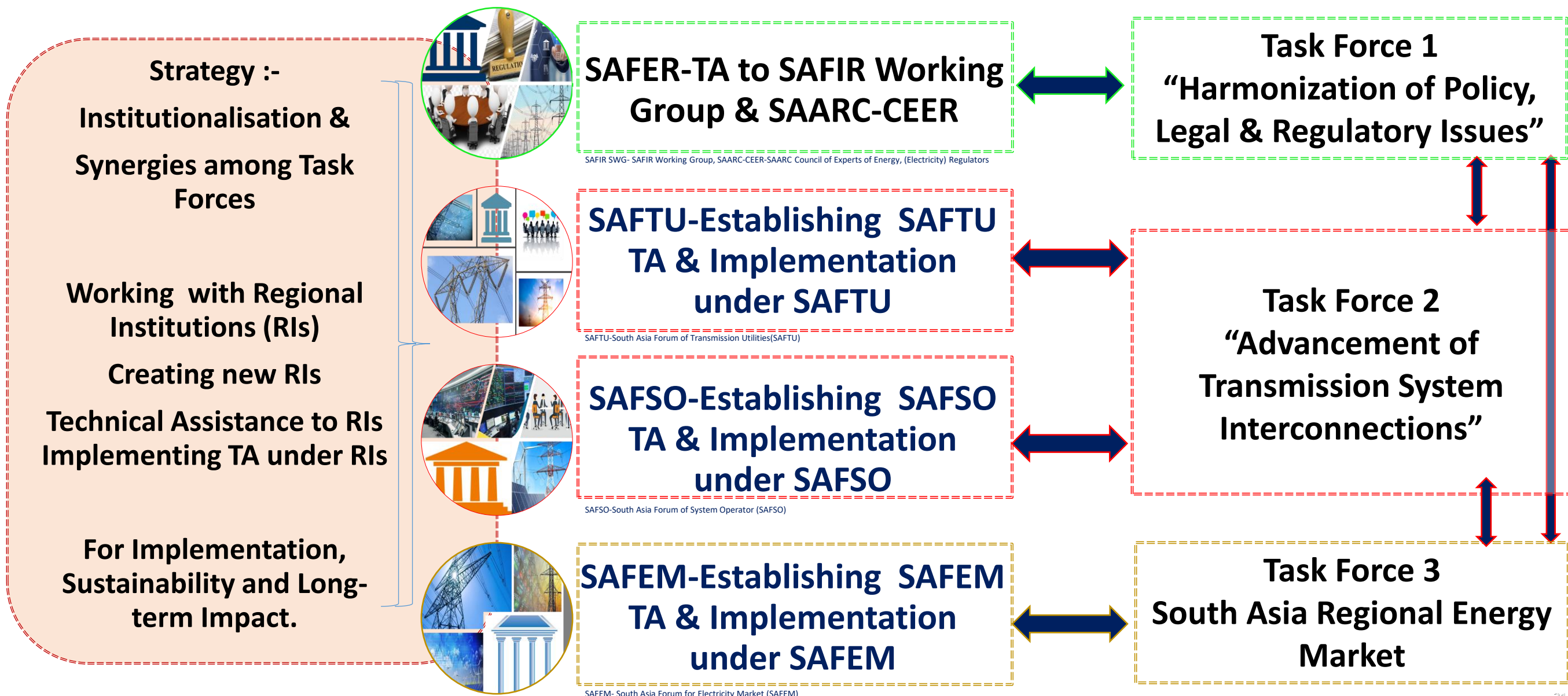
- ❖ Advancement of Transmission Systems Interconnection activity
- ❖ Create enabling, systemic conditions for a sustainable market for investment & implementation of sub-regional transmission interconnections in sub-region of SA.



Task Force 3 South Asia Regional Energy Market

- ❖ Establishment of South Asia Regional Energy Market.
- ❖ Create the enabling & systemic conditions for a sustainable market for energy trading and exchange in the eastern sub-region of SA.

SARI-EI Task Forces-Focus on Institutionalisation & Synergies among Task Forces



Some Key Deliverable-Task Force 1 “Harmonization of Policy, Legal & Regulatory Issues”



Technical Assistance (TA) & Knowledge Support (KS) to regional regulatory Institutions/mechanisms-SAFIR SWG* & SAARC-CEER**



Regulation & Policy Coordination Template (RPCT), Common Regional Regulatory Framework (CRRF) for Regional CBET



Development of a Common Minimum Grid Code (CMGC)



Model Regional Framework for Trilateral & Multilateral power Trade (MRFTMPT) in the SA Region & CBET infrastructure projects



Regulatory Pathway/Road Map (RPRM) for establishment of a South Asian Regional Electricity Markets (SAREM)



Regulatory Risk Analysis (RRA) & Mitigation Options & Instruments



Techno-Economic Analysis (TEA) of merits & demerits of following Deviation Settlement Mechanism (DSM) for CBET



Regional Cross Border Energy Policy Outlook (RCEPO) with a 25 to 30-year time horizon

*SAFIR SWG- SAFIR Working Group

**SAARC-CEER-SAARC Council of Experts of Energy, (Electricity) Regulators

Some Key Deliverable-Task Force 2 “Advancement of Transmission System Interconnections”



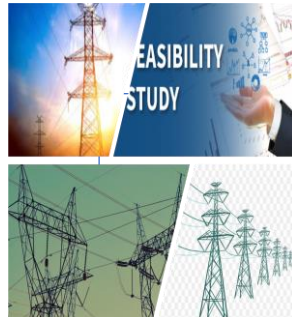
Create Regional Technical Institution (RTI) to support transmission planning & system operation –**SAFTU**,**SASFO** & implement activities



Regional Electricity Supply & Demand Scenario up to 2040. CBET **Trade Potential** by 2040



Long term South Asia Regional Electricity Generation & Transmission Master Plan (**RGTMP**)- 2040



Prefeasibility Analysis (**PA**) in the form Techno-Economic Assessment (**TEA**) of Cross Border Transmission Interconnection(**CBTI**)



Operational Procedures (**OA**) for Non-Discriminatory Access (**NDA**) to Transmission Network for all form of CBET



Framework on Transmission & Wheeling Charges (**FTWC**) for CBET including for trilateral trade.



Financing Modalities & Investment Models (**FMIM**) for CBET Transmission, Technical Coordination Template/Toolkit (**TCT**)



Investor Guide (**IG**)cum Fact sheet about various Cross Border Generation & Transmission Projects (**CBGTPs**).

*SAFTU-South Asia Forum of Transmission Utilities (SAFTU)

*SAFSO-South Asia Forum of System Operators (SAFSO)

Some Key Deliverable-Task Force 3 : South Asia Regional Energy Market”



Create Regional Technical Institution (RTI) to support transmission planning & system operation -**SAFEM** & implement activities



Operationalization of **SARPEX**, power trade through the power exchange platform



Framework/Guidelines for Regional Power Market Monitoring & Oversight (**RPMO**).



Development of Regional Transmission Tariff Framework (**RTTF**) for Trading of electricity in SA



Framework for Energy Scheduling, Accounting (**FESA**) & Deviation Settlement Mechanism (**DSM**) for CBET in SA.



Development of Dispute Resolution and Arbitration Mechanism (**DDRA**) related to CBET.



Development of the Trilateral & Multilateral Power Trade framework (**TMPTF**) in the region.



Developing Framework for Ancillary Services (**FRS**) & Renewable Energy Trade in the SA region.

*SAFEM-South Asia Forum of Electricity Market (SAFEM)

*SARPEX-South Asia Regional Power Exchange (SARPEX)



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SARI/EI Active Engagement with Regional Institutions- Pre COVID-19 and Post COVID-19

SARI/EI Active Engagement with Regional Institutions- Pre COVID-19

BIMSTEC



BIMSTEC -SARI/EI "Workshop on Enhancing Energy Cooperation in the BIMSTEC Region, 25-26 Feb,2020

SAFIR



SAFIR & SARI/EI Conference on "Regional Energy Integration & Cross Border Energy Trade, 19th February 2020

SAARC



Fourth Meeting of SAARC Energy Regulators, 06-07 Feb. 2020, Thimphu, Bhutan

SAFIR



Left to Right - Mr. Rajiv Ratna Panda, Technical-Head, SARI/EI IRADe ; Ms. Rashmi Somasekharan Nair, Deputy Chief (RA), CERC India; Mr. Pankaj Batra, Project Director, SARI/EI/IRADe ; Mr. Samdrup K Thinley, Chief Executive Officer, Bhutan Electricity Authority; Honourable Mr. P.K.Pujari, Chairperson, CERC, India ; Honourable Mr. Monowar Islam, Chairman, BERG, Bangladesh; Mr. Ram Krishna Khatiwada, Member - Economic and Financial Affairs, ERG, Nepal; Mr. C.F.K Musaddiq Ahmed, Director

18th SAFIR ECM Meeting, 5th December 2019, Bangladesh

SAFIR



2nd SAFIR Working Group meeting 4th December 2019

India Smart Grid Forum (ISGF)*



Roundtable on Interconnection of Regional Grids in Asia: SAARC GRID - GCC GRID - ASEAN GRID, 06 March,2020, Delhi

Engagement with Regional Institutions- Post COVID-19

SAFIR



SARI/EI



South Asia Regional Initiative for Energy Integration

Presentation
on

Updates on the Activities of the SAFIR Working group and Plan for Implementation of Key Activities

19th South Asian Forum for Infrastructure Regulation (SAFIR) Executive Committee Meeting (ECM)

(Virtual Meeting), 11:00 AM, Friday, 28th August 2020, New Delhi, India

Presented by

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



19th South Asian Forum for Infrastructure Regulation (SAFIR) Executive Committee Meeting (ECM),
28th August 2020, New Delhi, India



SARI/EI



South Asia Regional Initiative for Energy Integration

Presentation
on

Updates on the Activities of the SAFIR Working group and Plan for Implementation of Key Activities

26th South Asian Forum for Infrastructure Regulation (SAFIR) Steering Committee Meeting (SCM)

(Virtual Meeting), 12:15 PM, Friday, 28th August 2020, New Delhi, India

Presented by

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



26th South Asian Forum for Infrastructure Regulation (SAFIR) Steering Committee Meeting (SCM)
28th August 2020, New Delhi, India

SAARC Energy Centre



SARI/EI



South Asia Regional Initiative for Energy Integration

Presentation
on

Cross Border Electricity Trade in SAARC Region:
Current Status & Future Outlook

SAARC Energy Centre's Webinar on "Cross Border Electricity Trade (CBET) in SAARC Countries"
11:30 AM (IST), Tuesday, 11th August 2020

Presented by

Rajiv Ratna Panda (Technical-Head, SARI/EI IRADe)



SAARC Energy Centre's Webinar on "Cross Border Electricity Trade (CBET) in SAARC Countries" 11th August 2020

USAID Side event-ACEF*



Asia Clean Energy Forum-On June 16, 2020, Cross Border Power Trade and Future Energy Markets

SAARC Energy Centre



SARI/EI



South Asia Regional Initiative for Energy Integration

Deepening Power System Integration & Cross Border Electricity Trade in SAARC Region: Current Status & Future Outlook

SAARC Energy Centre's Video Conference on "Roadmap for the Implementation of SAARC Framework Agreement on Energy Cooperation-Electricity (SAARC FAEC(E))
Tuesday, 22 September, 2020

Presented by

Rajiv Ratna Panda (Technical-Head, SARI/EI IRADe)



SAARC Energy Centre's Video Conference on "Roadmap for the Implementation of SAARC Framework Agreement on Energy Cooperation-Electricity (SAARC FAEC(E)),
Tuesday, 22 September, 2020

* ASIA Clean Energy Forum-2020, It is not an Institution but a Flagship International & Regional ASIA wide Conference Platform



Task Force 1: “Harmonization of Policy, Legal & Regulatory Issues”

{Ongoing Activities}



**South Asia Forum of
Electricity Regulators
(SAFER) Activities**

South Asia Forum of Electricity Regulators & Related Key Technical Studies



South Asia Forum For Infrastructure Regulation (SAFIR) Working Group On

“Regulatory Cooperation to Facilitate Knowledge sharing, addressing Cross cutting Energy/Electricity Regulatory Issues and Capacity Building in South Asia”

- **SARI/EI is providing the technical Knowledge support /assistance**



SAARC Council of Experts of Energy (Electricity) Regulators

- **SARI/EI is providing the technical support /assistance**

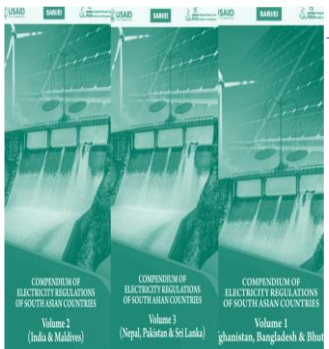
Key Activities of the SAFIR Working Group



Research & Technical Assistance - (Three Studies)
(Status:-1 study on going , 2 study to be initiated)



SA Energy Sector Training & Capacity Building program on energy regulation for Energy Cooperation & exchange of electricity in SA.
(Status:-Training /knowledge partner-Dec,2020, First Training Module -Feb,2021)



South Asia Energy/Electricity Regulatory Compendium (SAERC)
(Status:-Released on 19th February, 2020)



South Asia Energy/Electricity Knowledge Resource Database (SAKERD)
(Status:-Advance Stage:- to start by October,2020)



SAFIR-Regulatory Newsletter (SRNL)
(Status:-Advance Stage:- to start by October,2020- Quarterly)



SAFIR Working Group Meeting
(Status:-2nd meeting-4th December 2019
3rd Meeting-Nov/Dec 2020-Tentative)

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**
(To start by November ,2020)



Regulatory interventions for **Grid discipline and **Grid reliability** in the South Asian Region**
(On going, Draft Report submitted in September 2020, final report expected by Dec,2020/Jan,2021)



Study on Cross Border Trade of Electricity-Potential **Optimum Utilisation and Reduction in **Cost of Supply****
(To Start by December,2020)

In line with the suggestion of 18th ECM , 2nd SAFIR Working Group , SARI/EI is revising/expanding scope of the TOR 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

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

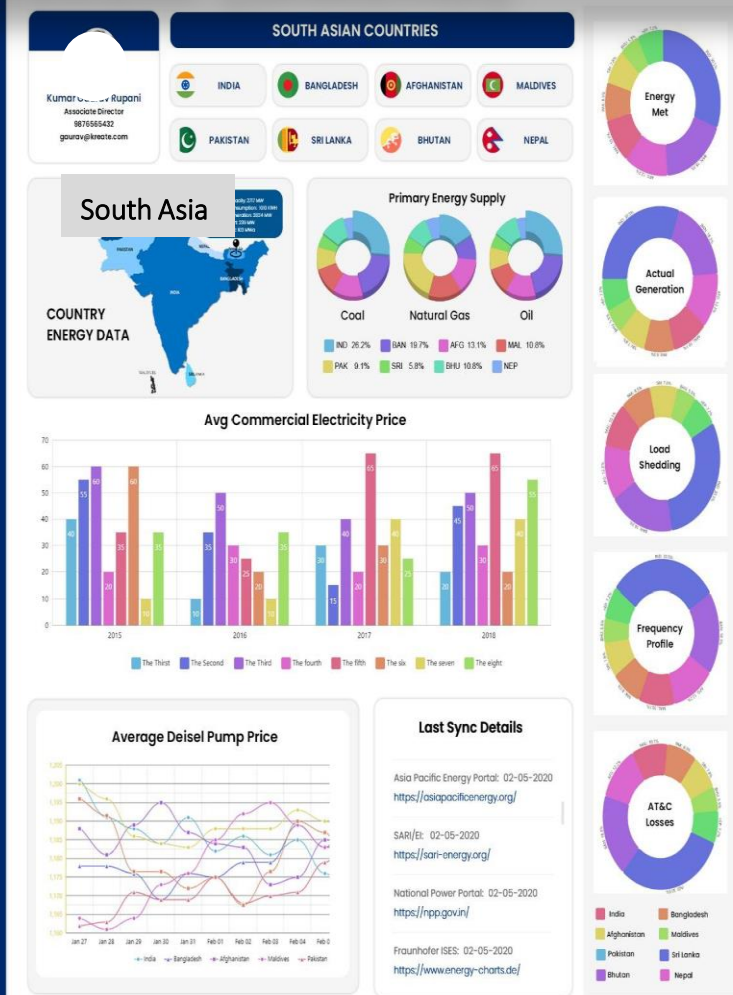
Installed capacity & Fuel Mix,
Transmission sector

Regional Power Transfer
Capacity, Power Plant details

Per capita energy
consumption, Energy resource
Primary Energy Supply &
Demand

Energy consumption, Energy
Balance, Energy access

Energy & Power Related Laws,
Policy, Regulations



Status

Expected to be awarded
by September 2020

Submission of Report,
approval of proposed
design, November, 2020

Development and parallel
testing of Website &
Software, February , 2021

Go live, May,2021

SAFIR Regulatory News Letter (SRNL)



Regulatory updates & Policy Developments in the Region



Analysis on the Energy Regulatory and Policy Developments



Will capture Important development, can have Guest Columns outside of the Region



It includes power, oil and gas sector



To be circulated in SA Countries in electronic format. (Quarterly)

Status



Concept Note, Draft Template & Format Finalized by September 2020



Finalisation of Draft for April - June 2020 Quarter by October, 2020



Issue of First SRN, November 2020

Common Minimum Grid Code (CMGC): Objective

- 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.



*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.*

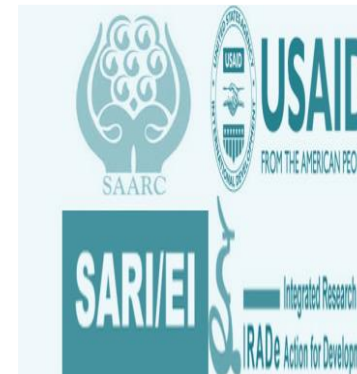


Facilitation of coordinated and optimal maintenance planning of generation and transmission facilities in the South Asian grid.

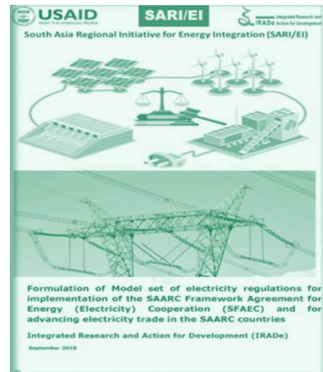
Technical Knowledge support /assistance to SAARC council of experts of Energy (Electricity) Regulators



SARI/EI is Partnering with SAARC Secretariat and SAARC Energy Center since 2013



SARI/EI is consistently providing **technical assistance, input and advice** to the SAARC council of experts of Energy (Electricity) Regulators since its inception.



Earlier finished **Model set of electricity regulations** for implementation of the SAARC Framework Agreement for Energy (Electricity) Cooperation (SFAEC) & for advancing electricity trade in SAARC countries



Study on **Harmonization of Technical Standards** for interconnecting South Asia and Central Asia Transmission Infrastructure
(to be Initiated by Jan,2021)



Standard Power Purchase Agreement Template for Buying and Selling Entities engaged in energy trade in SAARC Countries.

(to be Initiated by Dec,2020,In housework)



Task Force 2:

“Advancement of Transmission System Interconnections”

{Ongoing Activities}



**South Asia Forum of
Transmission Utilities
(SAFTU) Activities**



**South Asia Forum of
System Operator
(SAFSO) Activities**

South Asia Forum of Transmission Utilities (**SAFTU**) Activities

South Asia Forum of Transmission Utilities (SAFTU)

1

Act as a **platform for crosscutting deliberations, exchange of ideas** on system planning, technical standards & other related issues for advancing CBET.

2

Facilitate **regional system planning of the integrated transmission network.**

3

Facilitate integrated system/network development in a coordinated & consultative manner & steer the work towards the development of **Regional Transmission Master Plan.**

4

Facilitate the work towards the adoption & implementation of guidelines for CBET, grid Codes etc.;

5

Provide technical support & assistance to **Regional Regulatory Institutional mechanism** in existence and to bilateral Government mechanisms of coordination, by undertaking technical studies & discussions, wherever desired.

6

Knowledge sharing, high quality Capacity Building & Training in System planning, network development, RE integration, etc.

7

Undertake **Research, technical studies**, and come up with **white paper, discussion briefs, issue briefs**, and discussion notes in relevant areas of integrated system planning

**Draft strategy
paper on
SAFTU
Prepared**



South Asia Forum of Transmission Utilities (SAFTU) : Strategy and Action Plan

Consultation & Discussion with leading **Policy makers** of BBIN countries
(Oct/Nov, 2020)

Consultation & Discussion with leading **Transmission utilities** in the Region (i.e. PGCIL, PGCB, BPC, NEA)
(Nov/Dec, 2020)

Conference of South Asia Transmission Utilities
Declaration on SAFTU
(Jan, Feb 2021)

Drafting the TOR/Charter of the South Asia Forum of Transmission Utilities (SAFTU)
(Mar 2021)



South Asia Forum of System Operator (SAFSO) Activities

South Asia Forum of System Operator (SAFSO) Activities



Act as a platform for crosscutting deliberations and exchange of ideas towards promoting safe, secure, reliable and efficient system operation in South Asia;



Facilitate the work of development and implementation of common procedures/guidelines and frameworks in the matter of system operation and market operation;




Provide technological support and assistance towards harmonization of system operation practices and compliance with reliability standards, in the matter of cross border connections;



Facilitate development of power market and ancillary services market in the region on harmonious principles;



Promote and render assistance towards capacity building in power system/market operation and development of a Code of Ethics for Load Despatchers in South Asia;



Provide inputs and technical support and assistance to Regional Regulatory Institutional mechanism and Regulators of South Asian Countries (SACs) on the matters related to system operation;



Act as a Secretariat to the various technical Groups/Committees formed under SAFSO;

**Draft strategy
paper on SAFSO
is under
preparation**



South Asia Forum of System Operator (SAFSO): : Strategy and Action Plan

Consultation & Discussion with leading Policy makers of BBIN countries
(Nov/Dec, 2020)

Consultation & Discussion with leading Electricity System Operators in the Region (i.e. POSOCO, NLDC-PGCB, BPSO, NLDC- NEA)
(Jan, Feb 2021)

Conference of South Asia Electricity System Operators to discuss & finalise the modalities of formation of SAFSO
(April, 2021)

Drafting the Terms of Reference /Charter of the South Asia Forum of System Operators
(June, 2021)



Task Force 3

“South Asia Regional Energy Market”

{Ongoing Activities}



South Asia Forum for Electricity Market (SAFEM) Activities



Operationalization South Asia Regional Power Exchange (SARPEX), power trade through the power exchange platform

South Asia Forum for Electricity Market (SAFEM) Activities

The proposed SAFEM will be a neutral body, which aims to facilitate regional electricity market development and creation.

SAFEM will help in adoption and implementation of guidelines and policies by advising the South Asian countries on power trade and markets in the region.

Strategy paper for creating the South Asia Forum for Electricity Market (SAFEM) is under Preparation.

Paper to recommend the role, functions, operating structure of SAFEM.

9 Months study.



Operationalising of South Asia Regional Power Exchange

Demand Diversity- Daily, weekly ,Monthly, Seasonal.

PXs– Fair, Transparent, Neutral Market Place, Competitive price discovery.

TOR for Operationalization of SARPEX is under preparation

Activity will implement the recommendation of earlier study on SARPEX.

   **South Asian Regional Power Exchange (SARPEX) Mock Exercise- Key Findings**
South Asia Regional Initiative for Energy Integration (SARI/EI)



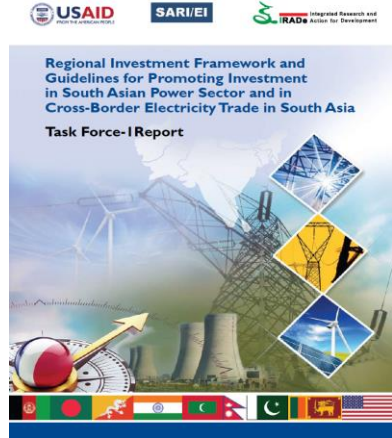
   **South Asian Regional Power Exchange (SARPEX) Market Design & Rules**
South Asia Regional Initiative for Energy Integration Initiative
Task Force-3 Report





South Asia Forum for Energy Investment (SAFEI) Activities

South Asia Forum for Energy Investment (SAFEI) Activities



“Regional Investment Framework and Guidelines for Promoting Investment in South Asian Power Sector and in Cross-Border Electricity Trade in South Asia ”



Recommended creation of a “Regional CBET investment Facilitation forum”



Focus on creating an eco-system to promote regional investment in energy infrastructure in the region and De-Risking

TOR on SAFEI is under preparation –A forum of key stakeholders and financial institutions



SARI/EI will partner with regional institutions such as the SAARC Chambers of Commerce and Industries (SAARC- CCI) for SAFEI



Private investors will be engaged through workshops, conferences and focus group discussions.



Under SAFEI “Developing a Regional Risk Management Framework with clear risk sharing mechanisms for regional energy projects & infrastructure in SA”



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Brief Work Plan for 2020-21

Brief Annual Work Plan for 2020-21

Completing
on-going
Technical
Assistance,
Studies being
conducted
under
different
Institutional
Mechanism

TF-1

SAFIR-WGP

- Regulatory interventions **for grid discipline and grid reliability** in the South Asian Region.

SAFIR-WGP

SAFIR-WGP-SAFIR Working Group

- SAFIR News Letter.

TF-2

SAFTU

- Building consensus & developing strategy paper on **South Asia Forum of Transmission Utilities (SAFTU)** in South Asia Region.

SAFSO

- Strategy/White Paper on South Asian **Forum of System Operators (SAFSO)** in South Asia Region.

TF-3

SAFEM

- Strategy paper for creating the **South Asia Forum for Electricity Market (SAFEM)**.

Brief Work Plan for 2020-21- Rolling out New Technical Assistance under different Institutional Partnership & Mechanism

Rolling out New Technical Assistance, Activities under different Institutional Partnership /Mechanism

TF-1



SAFIR-WGP

SAFIR-WGP-SAFIR Working Group



SAFIR-WGP



SAFIR-WGP



SCEER*

SAARC Council of Experts of Energy (Electricity) Regulators (SCEER)



SCEER*

- South Asia Energy Knowledge Resource Database (SAEKRD)
- South Asia electricity/electricity regulatory Road Map for Electricity/Energy exchange & Energy Cooperation (EC) in SA.
- Cross Border Trade of Electricity- Potential Optimum Utilisation & Reduction in Cost of Supply, Including regional grid balancing.
- Harmonization of Technical Standards for interconnecting South Asia and Central Asia Transmission Infrastructure.
- Standard Power Purchase Agreement Template for Buying and Selling Entities engaged in energy trade in SAARC

TF-2



SAFTU



SAFSO



Regional Transmission Master Plan

- Creating /establishing **South Asia Forum of Transmission Utilities (SAFTU)** in South Asia Region and implementing various activities.
- Creating/establishing South Asian **Forum of System Operators (SAFSO)** in South Asia Region and implementing various activities.
- Regional Transmission Master Plan for Regional Grid Development and advancing Cross Border Electricity Trade .

TF-3



SAFEM



SARPEX

- Creating/establishing **South Asia Forum for Electricity Market (SAFEM)**, and implementing various activities.
- Operationalization of South Asia Regional Power Exchange (**SARPEX**) work.

Brief Work Plan for 2020-21- Rolling out New Technical Assistance under different Institutional Partnership & Mechanism



SARI/EI is Partnering with BIMSTEC since 2016



Prepared the Report BIMSTEC Energy Outlook-2030 (20th March 2018)



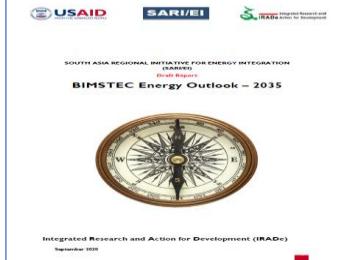
Released the First Edition BIMSTEC Energy Outlook-2030 (20th March 2018)



BIMSTEC & SARI/EI "Workshop- Enhancing Energy Cooperation in BIMSTEC Region" (25-26 February, 2020)



Released Report "Prospects of Regional Energy Cooperation & CBET in BIMSTEC region"



Second Edition of BIMSTEC Energy Outlook 2035 under preparation

Rolling out New Technical Assistance, Support, Activities with BIMSTEC



BIMSTEC

BIMSTEC Grid Transmission Interconnection Master Plan* (TF-2)

3rd Edition of BIMSTEC Energy Outlook-2040

* In principle understanding is reached, Will start only after formal approval received from BIMSTEC

Brief Annual Work Plan for 2020-21(Other Technical Activities)

Completing on-going Other Technical Activities

BIMSTEC

Second Edition of BIMSTEC Energy Outlook (A biennial Report).

Natural Gas

Analytical Study to assess the potential of **gas** for Regional Energy Cooperation.

COVID-19

Paper on **Risk Mapping and Impact Assessment of COVID-19** on South Asian Power Sector (SAPS): Policy Measures for Business Continuity and Risk Mitigation.

Rolling out other New Technical Studies

TMPT
(TF-1 & TF-3)

Model Regional Framework for Trilateral Multilateral Power Trade (**MRFTMPT**) -Transition of bilateral power trade to trilateral and multilateral power trade in South Asia

Natural Gas

Assessment of the Cross Border Natural Gas Trading (**CBNGT**) Potential in the SACs



SAFEI

Developing South Asia Forum for Energy Investment (**SAFEI**) and implementing activities.

SAFEI

Developing "A Regional Risk Management Framework with clear risk sharing mechanism for regional energy projects & infrastructure in SA" & Energy Investment Outlook under SAFEI.

Parliamentarians

Regional **Parliamentary Forum** on Energy Cooperation and Energy Trade.

Support and Expectation from Stakeholders



Formation of the Regional Institutes, like SAFTU, SAFSO, SAFEM,SAFEI.



Contributions in the Knowledge Resource Data Base Portal.



Contributions related to updating of Regulatory compendium.



Contributions in SAFIR News-letter.



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Thank You