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South Asia Regional Initiative for Energy Integration

Presentation

on

Harmonisation of Rules and Common Minimum Grid Code (CMGC) for South Asia

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SARI/EI/IRADe

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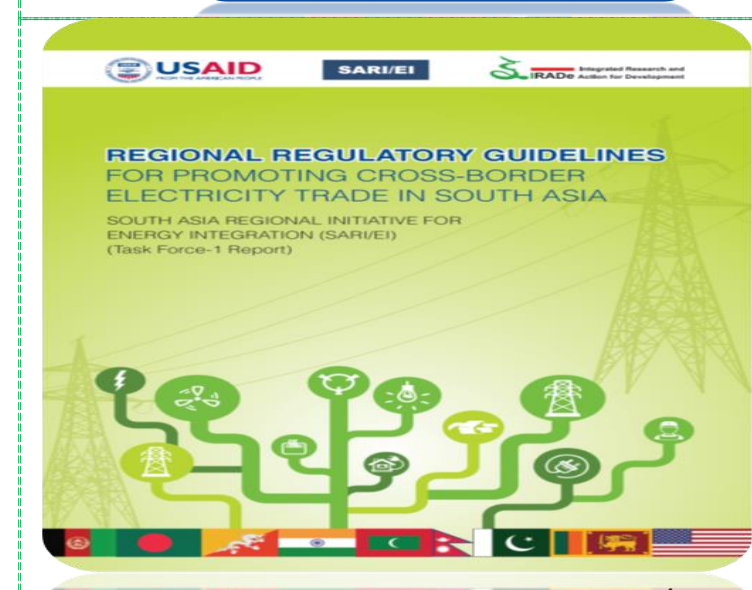
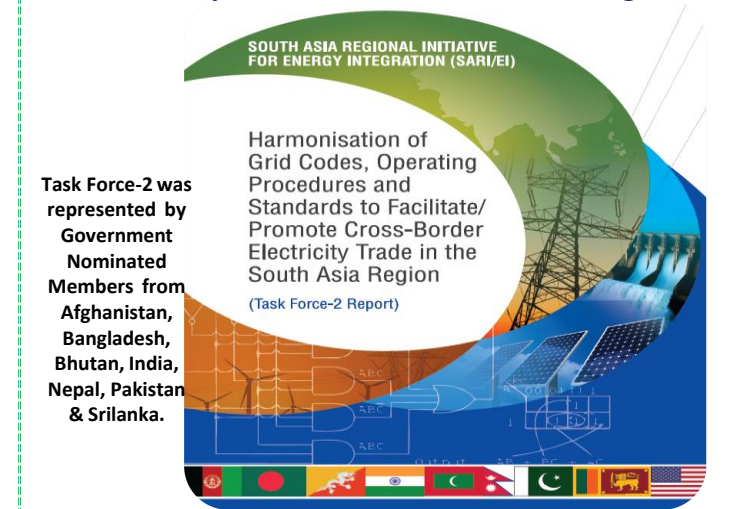


Need for Harmonisation Rules and SARI/EI Past Work

Need for Harmonization of Rules, Grid Codes and SARI/EI Past Work

- ❖ South Asia (SA) countries are at **different stage of power sector evolution** in terms **policy, regulatory and legal frameworks**.
- ❖ Any **regional market design** will need to have **some basic technical rules** to be commonly followed by the SA countries **for market to function smoothly in a transparent, fair and competitive manner**.
- ❖ **SARI/EI has recognized this need** a long time back, worked on many areas to related harmonization of policy, legal and regulatory framework among SA countries over last 8 years.
- ❖ Earlier published **regional regulatory guidelines** and as well as comprehensive report on **Harmonization of Grid codes, Operating Procedures and Standards to facilitate/promote Cross-Border Electricity Trade** in the South Asia Region-**Framework Grid Code Guidelines**.
- ❖ By **building upon the past work and taking forward various initiatives**, we have developed **The Common Minimum Grid Code for South Asia**.

Task Force-2 Report on Harmonisation of Grid codes, Operating Procedures & Standards to facilitate/promote CBET in South Asia Region





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Common Minimum Grid Code (CMGC) for South Asia

Common Minimum Grid Code for South Asia

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

Applicability and Organizational Framework

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

Organizational Framework

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

Objective

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



Structure of the Common Minimum Grid Code for South Asia

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

Connection Code

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

Connection Code

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



Connection Code

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



Operating Code

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

Scheduling and Despatch

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

Administration of the Grid

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



Common Minimum Grid Code (CMGC): Progress

SARI/EI Drafted CMGC and shared with all Regulators & stakeholders of SA countries

Conducted Stakeholder Consultation in Bangladesh, Bhutan, Nepal

Presented CMGC in the 2nd meeting of SAFIR Working Group (Dhaka, 4th Dec, 2020) & in the 18th ECM Meeting (5th December 2019)

18th ECM recommended that each member country may form a Grid Code Review Committee consisting of all the stakeholders to discuss various features of the draft CMGC

SARI/EI/IRADE were requested to do more detailed and comprehensive consultation with the grid code review committee of each country as well as with all stakeholders (utilities, system operators, planners, regulators and policy makers etc.)

Next Step

First Consultation with grid code review committees

More Detailed Consultation with utilities, system operators, planners, regulators and policy makers etc

Second Consultation with grid code review committees and Finalisation of Draft

Submission of Revised CMGC to the Chairperson of Regulatory Commissions of SA Countries



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Thank You