ROUNDTABLE ON INTERCONNECTION OF REGIONAL GRIDS IN ASIA: GCC GRID – SOUTH ASIA GRID – ASEAN GRID

In Partnership with USAID and European Union

03 MARCH 2023 (FRI) | 14:00 ~ 17.30 IST | Venue: Regency - 1, Lalit Hotel

ROUNDTABLE BACKGROUND

Electricity grids were an important technological invention. They marked an advance that helped humanity think beyond its self-drawn boundaries of community and enabled countries to partner together to develop integrated electricity grids. Today, in the various regions around the globe, approximately twenty regional electricity grid integration initiatives are at various stages of development and market integration. International experience has proven that interconnection of smaller power systems to form a large power pool or regional grid is beneficial to all users in terms of efficiency, economy, reliability, and resilience.

21st century is Asian century as the region will have dominant economic and political role of global, regional and sub regional implications. Asia is one of the most vulnerable regions to adverse climate change events. Sub region of South Asia alone is home to the one-fourth of the world's population, experiences extreme weather conditions. Climate change is expected to affect lives globally and endanger critical infrastructure, including energy. The increase in climate-related incidents emphasizes the urgent need for building sustainable and resilient energy infrastructure. Economic losses from drought, floods and landslides have rocketed in Asia. In 2021 alone, weather and water-related hazards caused total damage of US$ 35.6 billion, affecting nearly 50 million people, according to a new report from the World Meteorological Organization.

Volatility and instability in global energy markets increased the vulnerabilities of South Asian countries in their endeavors to provide reliable and affordable energy. On the other hand, South Asian countries are endowed with enormous clean energy resources. Countries along the Himalayan belt have a combined hydro resource potential of 350 GW, of which only 18 percent has been tapped. The region also has tremendous solar and wind potential. Energy cooperation, specifically cross-border electricity trade (CBET), will support optimal utilization of clean energy resources in the region, lowering the cost of power and reducing GHG emissions. As the green hydrogen economy evolves, surplus hydropower and solar and wind potential in countries can be tapped by green hydrogen electrolyzers in high green hydrogen demand countries.

A large, interconnected grid across a subregion, region, or continent can bring far-away resources to the load center and exploit diversity of peak hours and time zones, among other factors. The relevance of interconnected regional grids has gained attention due to the increasing share of variable renewable energy resources in the grids. Integration of intermittent renewable resources (such as wind and solar) is efficiently handled in a larger balancing area that offers better forecasting of generation. Interconnected grids could also offer the opportunity to replace a country's own costly generation by relatively cheaper imported power. Even in power deficit and surplus scenarios, due to demand profile diversity, opportunities of mutually beneficial energy trade exist. These variations are not only due to difference in time zones, but also due to seasonal differences in each interconnected country. An interconnected Asian grid spanning from the western end of the Gulf region (GCC – Gulf Cooperation Council) to the eastern parts of Southeast Asian (ASEAN) grid will allow for leveraging the 5-hour time zone difference with regard to solar power generation and utilization. As solar generation diminishes and evening peak starts in ASEAN region, solar generation will be at its peak in the GCC region. Later when evening peak load increases in western parts of India and GCC region, the base load plants in ASEAN grid could support. Also, the morning peak in Southeast Asia can be supported by base load plants in the SAARC/BIMSTEC region. This

manner of interconnected operations helps not only in integration of renewables, but also efficient operation of base load plants across the Asian region.

ISGF had mooted the idea of interconnection of Reginal Grids in Asia (GCC Grid, South Asia/BIMSTEC Grid and ASEAN Grid) in 2018; and organized the first Roundtable on Interconnection of Regional Grids in Asia in March 2019 as part of India Smart Utility Week 2019. This Roundtable was attended by key stakeholders from all 3 regions including GCC Interconnection Authority (GCCIA), BIMSTEC Secretariat and several ASEAN countries. The participants of the Roundtable unanimously welcomed the idea and identified following 2 interconnections in the first phase:

1. Oman-India undersea HVDC Link
2. India-Myanmar-Thailand Overhead Line

USAID, with its focus on advancing regional energy market integration and enhancing regional energy cooperation, seeks to facilitate regional grid interconnections in the Asia Pacific region. India is providing leadership for integration of regional grid at the highest level. The idea of One Sun One World One Grid (OSOWOG) initiative has been put forth by the Hon'ble Prime Minister of India Shri Narendra Modi, at the First Assembly of the ISA in October 2018. The initiative aims at connecting energy supply across borders. Vision behind the OSOWOG initiative is the mantra that "the sun never sets". The OSOWOG initiative aims to connect different regional grids through a common grid that will be used to transfer renewable energy power and, thus, realize the potential of renewable energy sources, especially solar energy.

Under ISA's leadership, OSOWOG is taking shape; and the need for multi-country transmission interconnection and integration of regional electricity markets will take place across the globe. Trans-regional power interconnections are long term, irreversible, investment-intensive, and require a conducive and friendly ecosystem/ environment for investors. This also requires certain level of harmonization of policy, regulatory and legal frameworks, and development of regional power market structure for economical operation of interconnected grids.

One of the most important areas of development for interconnecting regional grid shall be developing successful business models for developing and financing of cross-border electricity transmission interconnections which shall facilitate achieving OSOWOG and other such energy cooperation initiatives which shall contribute towards reducing the carbon emission and enable clean energy transition.

European Union is currently in the process of undertaking a scoping study to design a new program to support regional integrational of grid in South Asia. Both USAID and European Union along with stakeholders from the three regions (viz. GCCIA, BIMSTEC, ASEAN) participated in the successive Roundtables organized by ISGF in 2020, 2021 (virtual) and 2022 (virtual).

In the above context, ISGF, USAID and European Union is organizing a high-level Roundtable on "Interconnection of Regional Grids in Asia – cross border electricity trade across Regions" as part of ISUW 2023.

Objectives

The main objectives of the Roundtable on Interconnection of Regional Grids in Asia – cross border electricity trade across regions include:

1. *Presenting the transmission interconnection opportunities that exist in the BIMSTEC/SAARC, ASEAN, GCC region and the opportunities and challenges for interconnecting regional grids*
2. *Status of Interconnection of grids among ASEAN, SAARC/BIMSTEC, ASEAN and GCC regions and transmission links being explored by OWOWOG initiative*

3. *Role of regional Institutions/forums in power system integration inside a region and facilitating trans regional interconnection.*
4. *Perspectives on certain level of required harmonization in policy, regulatory and legal frameworks, and development of regional power market structure for economical operation of interconnected grids*
5. *Successful business model for developing and financing of cross-border electricity transmission interconnections and creating an investor friendly environment*
6. *Regional learning of transiting from bilateral to trilateral, multilateral cross border electricity trade in the BIMSTEC/SAARC, ASEAN, GCC region*
7. *Different regional power market model for regional grid integration*
8. *Developing awareness and facilitate building consensus among regional stakeholders regarding different types of innovative business models for developing and financing cross border transmission interconnections*
9. *Providing a platform for exchange of practitioners' experience of benefiting from regional interconnected grids*

ROUNDTABLE AGENDA	
14:00 ~ 14:30	**Inaugural Session** **Welcome Address: Reji Kumar Pillai,** President, India Smart Grid Forum (ISGF) **Opening Keynotes:** 1. **Monali Zeya Hazra**, Regional Energy and Clean Energy Specialist in the Energy Division of Indo-Pacific Office in USAID/India 2. **Matthieu Craye**, Senior Policy Officer, European Commission 3. **Mohammad Afzal**, Joint Secretary (Transmission), Ministry of Power 4. **Arun Goyal,** Member, CERC
14:30 ~ 16:00	**Session-1**: ***Envisioning Trans-Regional Energy Connectivity between the South Asia Region – Southeast Asia Region – Gulf Region - Prospects and Opportunities*** Chair: **Mohammad Afzal**, Joint Secretary (Transmission), Ministry of Power Theme Presentation: **Rajiv Ratna Panda**, Power Market Specialist, SAREP **Discussants**: 1. **HE Minister Naif Mohammed Al Abbadi**, Chairman of GCC Board, Minister of Energy Advisor for Electricity Affairs, Ministry of Energy, KSA 2. **Tenzin Lekphell**, Secretary-General, BIMSTEC Secretariat 3. **Ashok Pal, Deputy COO,** Central Transmission Utility of India Ltd. 4. **Dirghayu Kumar Shrestha**, Deputy Managing Director, Transmission Directorate, Nepal Electricity Authority (NEA), Nepal 5. **Rohan Seneviratne**, General Manager, Ceylon Electricity Board (CEB), Sri Lanka 6. **Sonam Tobjey**, CEO, Bhutan Power Corporation, Royal Government of Bhutan 7. **Golam Kibria**, Managing Director, Power Grid Company of Bangladesh (PGCB), Bangladesh

16:00 ~ 17:15	**Session-2**: ***Development of Power Market for Regional and Inter Regional Power Trade*** Chair: **Arun Goyal,** Member, CERC Moderator: **Ravi Seethapathy**, Chairman – Biosirus; and WG Chair, India Smart Grid Forum Theme Presentation: **Swetha Ravi Kumar,** Head of FSR Global, Florence School of Regulation **Discussants**: 1. **Nuki Agya Utama**, Executive Director, ASEAN Centre for Energy 2. **S S Barpanda,** Director – Market Operations, Grid Controller of India 3. **Subir Sen**, Executive Director, Power Grid Corporation of India Ltd 4. **Deki Choden**, Energy Regulatory Authority, Bhutan 5. **Dilli Bahadur Singh,** Energy Regulatory Commission, Nepal 6. **S N Goyal,** CMD, IEX 7. **Harish Saran**, ED, PTC 8. **Ahmed Ali**, Director General, Energy, Ministry of Environment, Climate Change and Technology, Republic of Maldives
17:15 ~ 17:30	**Key Takeaways and Next Steps by Namrata Mukherjee**, Deputy Chief of Party (Trade &Investments), **SAREP**

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