Theme Presentation & Context setting

“Harmonization of Institutional, Operational, Legal and Regulatory Frameworks for Implementation and Operation of the Grid Interconnections and Trade among the BIMSTEC Countries”

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Working Session 3: Harmonization of Institutional, Operational, Legal and Regulatory Frameworks for Implementation and Operation of the Grid Interconnections and Trade among the Parties
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Contents

- Why do countries integrate grids and trade electricity?
- Nature of problem: Long term, irreversible, investments, Design Principles
- BIMSTEC Regional Grid Development: Key ingredients
- Variations in Regulatory frameworks & Market structure
- Emerging Trends in CBET
- Harmonization and Coordination
- India-CERC (Cross Border Trade of Electricity) Regulations, 2019
- Points for Discussions
Why do countries integrate grid & trade electricity?

- Economic growth and Development?
- Access to cheaper source of supply?
- Clean and environmentally friendly energy?
- Security of supply?
- Energy Security?
- Access to Market?
- All above
Long term, irreversible, investments

Requires proper, conducive and friendly ecosystem/environments for investors

*Long term financial viability of Projects.*

*Prospects for an adequate return on investments.*

*Regulatory risk should be as low as possible.* (Reduce Perceived Risks too)

*Balancing the interest of all stakeholders.*

Design Regulatory Framework

Issues have to be addressed in the regulatory framework
Long term, irreversible, investments
Regional Grid Development & Market Integration

Adequate conducive legal framework
Level playing field
Rule of the Market.
Regulatory power and capacity
Trust and Confidence
Variations in Regulatory frameworks & Market structure

Power sector and regulatory frameworks

- Legacy integrated utilities
- Unbundled utilities

Power Sector Framework

- Government regulation
- Independent regulation

BIMSTEC Member States; substantially different levels of market evolution, varying frameworks for regulation & institutional framework.

Market evolution and system operation

- Monopoly
- Single Buyer
- Competitive

Market Evolution

- Legacy integrated utility
- Independent entity

Requires deeper level of coordination and harmonization, institutional Mechanism at various level

BIMSTEC Member States; it is Opportunity too to leapfrog, through learning and sharing from each other

*Includes subjective interpretations

### Emerging Trends in CBET: Towards Market form of Trade (G-G & Market)

<table>
<thead>
<tr>
<th>Country (~ CBET)</th>
<th>Capacity/Source (MW)</th>
<th>Type</th>
<th>Trader</th>
<th>Tenure in Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhutan- India (1800-1900 MW)</td>
<td>2136</td>
<td>G-G</td>
<td>PTC</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>126</td>
<td>Commercial/Market based</td>
<td>TPTCL</td>
<td>25</td>
</tr>
<tr>
<td>India – Bangladesh (1160 MW)</td>
<td>410</td>
<td>G-G</td>
<td>NVVN</td>
<td>25/5 (Tripura)</td>
</tr>
<tr>
<td></td>
<td>750</td>
<td>Commercial/Market based</td>
<td>PTC*, NVVN, Sembcorp</td>
<td>15/3 (PTC)</td>
</tr>
<tr>
<td>India-Nepal (~550 MW)</td>
<td>237</td>
<td>G-G</td>
<td>NVVN/PTC**</td>
<td>Renewed Every year</td>
</tr>
<tr>
<td></td>
<td>280- Upto 350 MW</td>
<td>Commercial/Market based</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GoI guidelines allows CBET through PXs, Trade is expected to start in near future

Bhutan-India: G-G: 1020 MW Tala, 336 MW Chhukha, 60 MW Kurichhu, 720 MW Mangdechhu I Market; 126 MW Dagachhu I India – Bangladesh; G-G: 250 NVVN, 160 NVVN (Tripura) I Sembcorp; 250 MW, NVVN: 300 MW BPDB Short & Long Term contract with NVVN for 300 MW power from DVC, PTC: 200 MW (BPDB Short-term contract for 200 MW with WBSEDCL + long term with Meenakshi Power through PTC) I India-Nepal, BSHCL (Bihar to Nepal) 200MW, **PTC 20 to 35 MW of power to NEA on commercial terms during dry season - 132 kV Tanakpur – Mahendranagar line
Harmonization and Coordination: Moving Towards Market form of Trade

**BIMSTEC: Market Integration Evolution**

- **Regional Power Market**
  - **Contractual**
  - **Legal** (G to G, bilateral agreements, trade of excess power etc.)

**Level of Optimization**
- High
- Low

**Level of Reform**
- High
- Low

- **Level of Energy Cooperation among BIMSTEC Member countries**
  - Possible - Phases of Market development for CBET
  - Continuous Trading
  - Spot Markets on exchanges
  - Auction Markets
  - OTC Markets
  - Deemed Trading Licence
  - Trading Licence
  - Nodal Agency
  - Derivatives, financial products etc.

An mix of Long Term, Medium Term, Short term and PX based Trade will be desirable one for A Journey towards the Vision of a Competitive Power Market
**Regional Legal, Regulatory, Institutional Framework for CBET in BIMSTEC**

**A. Enabling Legal framework**

Desirable to have **specific Legal** provisions for cross border energy/electricity trade. Trading as a **distinct** Activity, **desire** to have Power/energy Market Development. **License requirements** and the underlying rules/limitations

**B. Regulatory Framework**

**Licensing for CBET**: (Important Regulatory Tool for Trading)

**Open Access (OA) to transmission system**: (Competitive Market), **Grid Connectivity**

Setting of **fair rules and procedures** for non-discriminatory open access, **Defining application process, eligibility criteria, priority order** and nodal agency for OA (Cumbersome regulatory processes which causes decision making to be time consuming for governments and investors.)

**C. Regulatory Framework**

**Transmission Pricing**: (cost reflective & efficient)

**Country’s requirement and acceptability**, Setting up **principles and mechanism for determination of economically efficient transmission pricing regime** and gradually concept of location specific pricing

**Tariff framework in respective country power system through enabling regulations**
## Regulatory Framework

### Transmission Planning:
- (coordinated Regional Planning)
- regional coordination mechanism of planners, National Transmission Plans to include details of CBET lines (progress towards developing a regional level master plan)

### Harmonization of grid codes:
- (safe and reliable regional integrated system operation), Dispute Resolution:
- (transparent and fair legal framework), Dedicated Cross Border Electricity Trade Regulations.

### Imbalance Settlement:
- (transparent common procedure), Scheduling, dispatch, energy accounting and settlement procedures:

### Structured Institutional Mechanisms/Committees/Forums at the Level of Regulators, Transmission utilities/planning Authorities (i.e. BGICC), System Operation.
- Committee/Mechanism to track & Monitor the progress of Implementation of MoU & advise needed interventions.
Section 2.2 a) Coordinate and cooperate in the planning, development and operation of interconnected systems to optimize costs while maintaining satisfactory reliability and security.

Section 2.2 b) Fully recover the costs and share benefits equitably, resulting from the reductions in investments on generation, transmission systems and fuel cost.

Section 2.2 c) Provide reliable, secure and economic electricity supply to the Parties.

Section 2.2 d) Develop transmission tariff framework for trading of electricity.

Section 2.2 e) Open up new avenues of cooperation to promote electricity trade.

Section 2.3 a) Power flow among participating Member States on a nondiscriminatory basis taking cognizance of available grid capacity, power supply position and steps to harmonize technical, planning and operational standards of the grids of the connected Parties.

Section 2.3 c) Harmonization of institutional, operational, legal and regulatory frameworks for implementation and operation of the grid interconnections and trade among the Parties.
First of its Kind dedicated Regulations on CBET in the Region.

Comprehensively address various aspects of Cross Border Trade of Electricity

Provides clarity, transparency, consistency and predictability in regulatory mechanism

Can be learning process & starting point towards development of Regional Regulatory Framework

Designated Authority: facilitating the process of approval and laying down the procedure for import and export of electricity

India-CERC (Cross Border Trade of Electricity) Regulations, 2019
There are five mechanisms dealing with regional/sub-regional cooperation amongst the South Asian and Southeast Asian countries in energy sector which covers BIMSTEC Countries.

Regional Energy Cooperation and Cross Border Electricity Trade
1. Bilateral
2. Trilateral
3. Sub-Regional
4. Regional Electricity Trade Arrangements

Important to leverage the learnings of Institutional, Operational, Legal and Regulatory, Operational Harmonisation form various initiatives.
Points for Discussions

✓ What are some key Institutional, Legal and Regulatory, technical requirements

✓ Does the current Institutional, Legal and Regulatory, technical frameworks are adequate; What are the Gaps if any?

✓ What are the minimum Institutional, Legal and Regulatory, technical requirements needs to be put in place to move from bilateral to Trilateral /Multilateral Power Trade in the BIMSTEC Region.

✓ How to move towards development a regional regulatory framework for CBET.

✓ What are the important measures related to Connectivity, Open Access, Transmission Pricing, imbalance settlement and Grid Code etc. need to be taken by different countries for enhancing the regional trade.
Thank You

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Regional Legal, Regulatory, Institutional Framework for CBET in BIMSTEC

Enabling Legal Framework

Desirable to have specific Legal provisions for cross border energy/electricity trade. Trading as a distinct Activity, desire to have Power/energy Market Development.

License requirements and the underlying rules/limitations

Regulatory Framework

Licensing for CBET: (Important Regulatory Tool for Trading)

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Setting of fair rules and procedures for non-discriminatory open access, Defining application process, eligibility criteria, priority order and nodal agency for OA (Cumbersome regulatory processes which causes decision making to be time consuming for governments and investors.

Transmission Pricing: (cost reflective & efficient)

Country’s requirement and acceptability, Setting up principles and mechanism for determination of economically efficient transmission pricing regime and gradually concept of location specific pricing

Adoption of tariff framework in respective country power system through enabling regulations

Regional Coordination

Transmission Planning: (coordinated Regional Planning)

Regional coordination mechanism of planners, National Transmission Plans to include details of CBET lines (progress towards developing a regional level master plan

Regulatory Framework

Imbalance Settlement: (transparent common procedure), Scheduling, dispatch, energy accounting and settlement procedures: Harmonization of grid codes: (safe and reliable regional integrated system operation), Dispute Resolution: (transparent and fair legal framework), Dedicated Cross Border Electricity Trade Regulations.

Structured Institutional Framework

Structured Institutional Mechanisms/Committees/Forums at the Level of Regulators, Transmission utilities/planning Authorities (i.e. BGICC), System Operation.

Committee/Mechanism to track & Monitor the progress of Implementation of MoU & advise needed interventions.
**Why the Need for Policy & Regulatory Coordination/Harmonization?**

- Power and energy sector are **highly regulated** in South Asia.
- SA countries have different stages of evolution in terms of legal, regulatory, and policy frameworks. **Need complementing regulatory frameworks.**
- Strong **Political –Economy** of the Power/Energy Sector, Strategic nature.
- Development of Cross border projects, **mitigation of Investment risks** requires a robust legal, regulatory and policy framework.
- While each country is sovereign by itself, there is a **need to coordinate/ harmonise** the laws/rules/regulations related to CBET.
- Harmonised policy and regulatory framework for CBET brings **consistency, predictability and Minimize perception** of regulatory and Policy risks.

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**CERC CBTE regulation** relied upon domestic Regulation and Policy Frameworks

1. Tariff Policy
2. Tariff Regulations
3. Open access Regulation
4. Connectivity Regulation
5. Metering Regulation
6. Sharing of Inter State Transmission Charges and Losses
7. DSM Regulations
8. Scheduling and Dispatch rule……..
9. ..............................................

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**CBET: Cross Border Trade of Electricity**

CBET: Cross border Electricity Trade (CBET)
Key Risk/Perceived Risks of Cross Border Electricity Trade Projects

Why Cross-border Electricity Trade are Risky

- Project risks in general tend to be high without a comprehensive Policy, Regulatory framework for large CBET project development.
- Cross-border element greatly amplifies the risks due to geopolitical, economic and trade related factors.
- Even projects that appear to have feasible, rationale, economical in practice struggle to get it financed and built.
- Project risks in general tend to be high in countries without wide experience on large project development.

Regulatory: What happens if the domestic Policy, regulatory framework changes which impacts CBET project/Investment? What is the protection available to buyers/sellers/Investor?

Socio Political: What happens if for socio-political reasons the flow is prevented in the exporting, intermediary (if relevant) or importing country?

Economic: What happens if the economic assumptions on the project changes? What is the protection available to buyers and sellers?

Trade Barrier: What happens if a tax or duty that affects the economic fundamentals is imposed?

Infrastructure: What happens if the infrastructure to transfer the energy is not built or is not available when needed?