

Cross Border Power Transmission

Role of Private Sector in Const., Mtc. & operation of
Trans Border power lines.

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Power Markets for SAARC Region and Trans Border Power Trade

Trans Border Trades :

- To Utilize Natural Resources for Regional Development like Nepal & Bhutan have High Hydropower Potential India with huge Coal Reserves, Bangladesh with Large Gas Reserves.
- To Improve System Availability in the region and enhance Load Factor Utilizing Load Diversity.
- To Enhance Efficiency and Reliability of Power Supply.
- To Lower Reserve Margin and To Benefit from Economies of Scale in Power Generation.
- To Reduce Carbon Growth and Protect the Environment.
- To create socio-political harmony amongst SAARC nations.

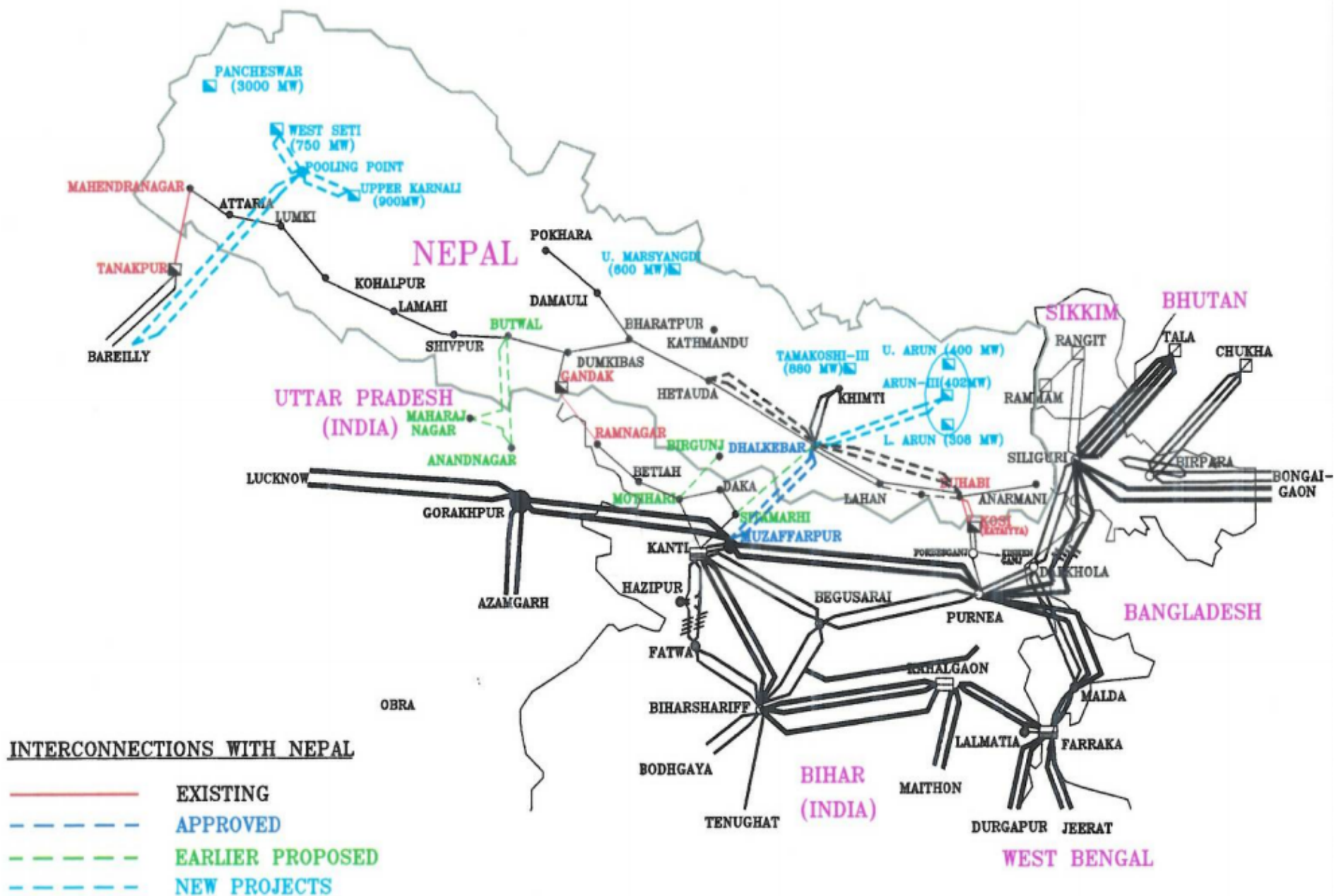
Trans Border Power lines

- To operationalise trans power trade.
- Linking the Trans Power Grids of SAARC Region.
- Technical issues for linking trans grids like voltage, frequency, safety & security of grids , HVDC.
- Different models for execution like JVs, IPP, Pvt. Sector etc.
- Commercial & payment security mechanism for sharing of cost_ capital/O&M/transmission charges/PoC Charges etc.

India-Nepal-Bhutan

- There are three 132 kV level links between India and Nepal and 14 no. of 33 kV interconnections along the contiguous border towns.
- The first high capacity 400 kV Double Circuit TL from Dhalkebar (Nepal) to Muzaffarpur (India) is expected to be realized under commercial mode by 2014 (JV between Power grid & IL&FS).
- Transmission bottlenecks due to Cross Border Transmission Capacity Constraints in North-Eastern region for evacuation of power from Bhutan.
- 2*1500 MW electricity link from NE region to bhutan to be completed by 2016 (Power Grid).

INDIA-NEPAL INTERCONNECTION



India and Bangladesh

- 71 km Baharampur-Bheramara 400 kV/500 MW HVDC link between the two nations will facilitate transfer of power of 500 MW from India to Bangladesh will start by October-2013.
- Power Grid has executed construction at Indian side of transmission grid.
- NRVNL shall look after trading of power and UI settlement mechanism.

India and Pakistan

- India able to supply about 500MW power at 220KV/50Hz from Khassa Sub Station (PSTCL) up to Attari Border to meet immediate requirement.
- Beyond 500MW, 400KV system of Indian Grid needs to be linked with 500 KV system of Pakistan through HVDC to transmit power from 400KV Power Grid/PSTCL s/s to either Attari border (80KM) or Hussainiwala border (50KM).
- Approximate Expenditure for 400KV system-Rs. 1.20 crore per KM for transfer of 2000 MW.



Technical Challenges & Solutions

Challenge-Different standards, guidelines, and procedures for technical matters.

Solution - Once sites and routes have been set, the involved countries need to agree to detailed technical specifications and develop harmonized standards for design, construction, operation, maintenance, health, safety and environment, and measurement

Regulatory Challenges & Solution

Challenges

- Regulatory issues include pricing, tariffs, transit and user fees, access and use, transmission regulation, metering, load specifications, insurance standards, health and safety, security of supply, and emergency supply arrangements.
- “Energy security” is often a readily used defense for a country's reluctance to be dependent on another country for its strategic national asset.
- Average generation costs and price levels in receiving markets serve as benchmarks for imported power.
- Disparity in Grid Parameters of different nations.

Regulatory Challenges & Solution

Solutions

- Domestic regulations must contain the correct economic incentives at the outset, in order to encourage the building of cross-border projects.
- To internalize environmental benefits, value of carbon credits should be added.
- At the project level, an environmental management office (EMO) needs to be established. The EMO should be responsible for technical planning, implementation, and internal monitoring of all the environmental mitigation and compensation measures.
- In order to increase the optimized information exchange process between the electricity market participants, the countries should establish a uniform and efficient electronic data interchange system.
- Unique grid parameters in different nations.



Thank You

