India’s Current and Prospective Cross Border Projects
With the Central and South Asian Economies

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Current State of Energy Infrastructure In/Around SA
Existing Cross Border Power Interconnections

Bhutan-India:
5 transmission interconnections; one 440kV (DC), two 220kV and two 132kV levels help India import of about 1260 MW from Bhutan

India -Nepal:
21 interconnections at 11 kV, 33 and 132 kV levels facilitate about 50 MW power exchange between the two countries to be increased to 150 MW

Iran-Pakistan:
Three interconnections exist between Iran-Pakistan for importing 35 MW of electricity from Iran to meet the local demand in bordering areas. Additional 1000 MW import contemplated.

Afghanistan and Central Asia:
Interconnections between Afghanistan and the CARs help Afghanistan in meeting a substantial part of their electricity demand
Section 2: Initiatives for Regional Energy Cooperation in South Asia
**Initiatives for Regional Energy Cooperation**

**Pre-feasibility studies (2001-06):**
- 2-Borders Pre-feasibility Study: options for interconnecting Indian power grid with Sri Lanka
- 4-Borders Pre-feasibility Study: options for interconnecting power grids of India, Nepal, Bangladesh, and Bhutan
- Possibility of interconnecting the Sub-stations along India-Bangladesh Border
- Indo-Sri Lanka Trade Project (Road/Rail Bridge with Power Transmission & Optical Fiber cables for data transfer for IT and Telecommunication Sectors)

**Policy Studies (2006-07):**
- Regional Energy Security for South Asia
- Power Trade in Between Central Asian Republics and with South Asia
- SAARC Regional Energy Trade Study

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Initiatives for Regional Energy Cooperation

Economic & Social Benefits Analysis (2003-06):
- Power Trade in the South Asia Growth Quadrangle (4-Border Region)
- Power Trade between India and Pakistan
- Indo-Sri Lanka Trade Project

Gas Options (2002-03):
- Gas options study for India (Selected options would benefit entire South Asia)
- Gas options study for Sri Lanka

Hydropower Resources (2002):
- Mapping of Regional Hydro-power Resources in South Asia

Power Exports from Bangladesh to India (2000):
- Viability of Power Export from Bangladesh to India study conducted in 2000 examined 500 MW power export from BD to India
Other Relevant Projects

CASA 1000 Project (Central Asia-Afghanistan-Pakistan):

- Enhance capacity of CASA to help other South Asian countries to import power from the Central Asia Region

Power export Study from Bangladesh to India:

- Study carried out in 2000 was revisited in 2005 to reaffirm the validity of options.

- It showed great promise for establishing a 1000 MW gas fired TPS in Bangladesh and export 500 MW to India.

- Now with the latest high quality coal finds in Bangladesh, the export oriented power station could even be a coal fired TPS.
Transmission charges Stage-I (250 MW) about $0.0174/unit and Stage II (500 MW) about $0.0125/unit - Revised Estimate per new study
India-Bangladesh Transmission Project

The proposed interconnection will include:

- A 125 km. of 400 kV double circuit line Baharampur (India) - Bheramara (Bangladesh)

- A 400 kV switching station at Baharampur (India) and a 500 MW back to back HVDC sub-station (400/230 kV) at Bheramara (Bangladesh)

- A 230kV interconnection with the Western grid of Bangladesh.

- Bangladesh will import 500MW from Indian starting 2012.

- The interconnection will have a provision to transfer 1000 MW between the two countries.
Transmission charges about US$ 0.0258/unit in Stage-I (500 MW) to $0.0164/unit in Stage-II (1000MW) – Revised
India-Bangladesh Sub-station Interconnections

- 24 substations - 5 to 60 Kms from the border
- 18 sub-stations – 10 to 70 Kms from the Border
- Investment required to establish the interconnections ranges between US$ 1.32 million to 4.39 million
Potential Route for the CASA 1000 Transmission System
Section 3: Future Cooperative Prospects
**Gas Import Options Being Explored**

**Iran-Pakistan-India (IPI):**

Iran, Pakistan and India recently reached an agreement for implementation of this project and the construction on the project will commence in 2009.

**Turkmenistan-Afghanistan-Pakistan-India (TAPI):**

Progress in being made in implementing this project and the construction would start in 2010 after a re-assessment of gas reserves of Turkmenistan.

**Myanmar-Bangladesh-India (MBI):**

Options to bring Myanmar gas to India via Bangladesh being explored.

**Qatar-Iran-Pakistan-India Gas Pipeline (QIPI):**

High gas prices in the international market may make this project economically viable subject to availability of additional gas supplies.
Section 3: Promoting Regional Energy Trade in South Asia
Promoting Regional Energy Trade in South Asia

- Regional Electricity/Natural Gas grids and Regional Power Pool to facilitate power/Gas trading
- Regional planning to develop hydropower resources to meet regional energy demand and reduce investment requirements
- Regional procurement mechanism for fossil fuel imports and to create Strategic Hydrocarbon Reserve
- South Asia Regional Energy fund to finance energy projects
- Develop technologies for exploitation of large reserves of hydrates along south Asia’s coastline
- Develop new technologies such as Hythane, Hydrogen, Bio-diesel, Fuel cells etc.
Thank You!