
Plenary Panel

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Virginia Tech, USA
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Prof. Saifur Rahman: President, IEEE Power & Energy Society, United States
Cross-Border Power Exchange: A Global View

Engr. Khaled Mahmood: Chairman of BPDB, Bangladesh
Cross-Border Power Exchange: Into and Out of Bangladesh

Mr. S.K. Soonee: Former Chairman and MD, POSOCO, India
Cross-Border Power Exchange: The Indian Perspective

Dr. Yu Jun: Co-head, Dept of Int. Cooperation, State Grid Corporation of China
Chinese Experience and Plans for Cross-Border Power Exchange

Dr. Nagaraja: Managing Director, Power R&D Company, India
Technology issues of Back-to-Back HVDC Terminals.
Virginia Tech Research Center
Arlington, Virginia, USA

PPT slides will be available at

www.saifurrahman.org
Global Energy Interconnection: Vision

Source: www.GEIDCO.org
Cross-border Power Exchange in Europe

Europe, Middle East and North Africa

EU DeserTech Project
North Africa Power Grid

Pan-Arab Grid

The Authority is currently seeking out other opportunities to fully make the most of its US$ billion plus interconnection asset:

1. By exporting power to neighboring power pools:
   - EJILST Grid (Egypt, Jordan, Iraq, Lebanon, Syria and Turkey)
   - Pan-Arab Grid and henceforth the European Grid
2. Promoting the private utilities sector in the GCC region to interconnect to the GCC Grid.

Gulf Cooperation Council Electric Power Interconnection

[Map showing power grid connections in the Gulf region, including countries like Saudi Arabia, UAE, Oman, and Qatar, with markers for substations, HVDC converter, and control center.]
Power Transfer Between Russia and Central Asia

Europe-Africa Power Interconnection
Southern Africa Transmission Projects

2015: 2nd DRC – Zambia 220 kV
2018: ZIZABONA - 330 kV
2018: Mozambique – Malawi 400 kV
2016: Zambia-Tanzania-Kenya 400 kV
2018: Morupule – Maun 400 kV
2020: MOZISA 400 kV
2020: Botswana-RSA 400 kV
2020: Namibia – Angola 400 kV
2020: Orapa – Pandamatenga 400 kV
2021: Mozambique STE – HVDC/AC
2024: Grand Inga Transmission – HVDC/AC

US-Mexico Interconnection

Current International Interconnection Points

Size of Interconnection Points to Import Capacity
National Transmission Network

1,940 MW
CAISO – Baja California

408 MW (21%)
Nogales Sonora – Arizona Project
Interconnection point: Nogales Sonora – Nogales Arizona
Size of 150 MW, 27 km Long, 230 kV of Voltage
7.98 md Investment, NPV of 81.96 md
Recommended in 2016 with a 3 years estimate for construction

IID – Baja California Project:
Interconnection point: Mexicali – Imperial Irrigation District
Size of 220 MW, 16 km Long, 230 kV of Voltage
4.15 md Investment, NPV of 68.4 md
Recommended in 2017 with a 2 years estimate for construction
India to Bangladesh Power Transfer

1160 MW of transfer capability from India
Actual transfer 1004 MW at peak on 12 March 2019

Benefits and Issues of Strong Interconnections

- A larger system can more easily withstand the failure of a generation unit or a transmission line
  - 2400 MW plant at Rooppur is 15% of a 16,000 MW system, but is only 0.8% of a 300,000 MW system
- Every zone must be equally hardened
- Power transfer and pricing issues need to be agreed upon
Issues of Interest

- Technologies to Facilitate Interconnection Operation
  - HVDC terminals (voltage/frequency issues)
- Stability and Market issues
- Security of Electricity Supply Across National Boundaries ??

Thank You

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