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Intermittency Caused by Weather Events

Sand Storm in Abu Dhabi

Solar PV Project in UAE
Intermittency Caused by Weather Events

Desert Storm Approaching Riyadh

Interconnections make Renewables more Useful

Danish Wind Power at Night

Norwegian Hydropower during the day
Gulf Cooperation Council Electric Power Interconnection

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.
Europe to Middle East and North Africa

Europe-Africa Power Interconnection
Cross-border Power Exchange in Europe

Active power exchanges (MW)
- 1 - 300 MW
- 301 - 900 MW
- 901 - 1500 MW
- 1501 - 4000 MW

Source: Cajeme Villarreal, SENER

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

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

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
India to Bangladesh Power Transfer

Back-to-Back HVDC 400 KV Station in Bangladesh has 800 MW of transfer capability

Issues of Interest

- Technologies to facilitate Interconnection Operation
  - HVDC terminals (voltage/frequency issues)
- Stability and Market issues
- Security of transmission network across national boundaries
Thank You

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