Deputy Minister of Energy
Ministry of Energy and Water
Islamic Republic of Afghanistan

Presentation to the 6th Meeting of the
Task Force on Regional Electricity Cooperation

Ulaanbaatar, Mongolia
July 9, 2010
Afghanistan – A Gateway for Regional Energy Trade

- **Strategic Location – Connection of Central Asia to South Asia**
- **Ratification of Membership in Energy Charter Treaty Pending**
- **Transmission the through North – East Power System (NEPS)**
  - Application to the Central Asian Coordinating Electric Energy Council (CACEEC) for Membership in the Coordination and Dispatching Center (CDC) to Allow Parallel (Synchronized) Operations Between Afghanistan and the CAR Electricity Grid
North East Power System (NEPS)

- **Construction and rehabilitation activities on the NEPS ongoing:**
  - Domestic Production (Generation)
  - Transmission Systems
  - Distribution Systems
- **Status of Power Purchase Agreements for NEPS**
  - Uzbekistan (120 MW currently imported)
  - Tajikistan (seasonal imports in 2012)
  - Turkmenistan (limited imports)
- **Commercialization of DABM**
  - The Afghanistan National Electric Utility DABM (MEW Department) transitioned to DABS (Government Corporation)
Progress Achieved and Planned for 2010

- **Generation:**
  - New 105 MW DPP in Kabul City by USAID (Complete)
  - Rehabilitate 11 MW HPP at Darunta by USAID (October 2010)

- **Transmission:**
  - MEW 337, Lot 1: Northern Zone Transmission, Substations and Distribution by ADB (December 2010)
  - MEW 337, Lot 2: Eastern Zone Transmission, Substations and Distribution by ADB (December 2010)
  - MEW/S 500, Lot 1: Construct 110 kV Transmission Line from Chimtala S/S to the Kabul NW S/S by World Bank (August 2010)
Progress Achieved and Planned for 2010 (Continued)

- **Substations:**
  - MEW/S 500, Lot 2: Completion of Rehabilitation and Extension of the Kabul North (2 x 40 MVA) and North West (2 x 40 MVA) Substations by World Bank (Complete)
  - MEW/S 503: Complete Construction of Aybak 220 kV S/S (1 x 16 MVA) and Extension of Mazar-e-Sharif S/S (1 x 50 MVA) by World Bank Afghanistan Reconstruction Trust Funds (December 2010)

- **MV and LV Distribution:**
  - MEW 300/2: Kabul Distribution System Rehabilitation by World Bank (August 2010)
  - MEW 300/3: Kabul Distribution System Expansion by World Bank Afghanistan Reconstruction Trust Funds (September 2010)
Progress Achieved and Planned for 2010 (Continued)

- **MV and LV Distribution:**
  - MEW 300/4, Lots 1 and 4: Kabul Distribution, Botkhak Substation, JS 1, 5 and 10 by Islamic Republic of Afghanistan (June 2010)
  - MEW 300/4, Lots 2 and 3: Kabul Distribution Rehabilitation and Expansion by Islamic Republic of Afghanistan (October 2010)
  - MEW/S 502: Mazar-e-Sharif Distribution Rehabilitation by World Bank Afghanistan Reconstruction Trust Funds (December 2010)
  - MEW/S 504: Charikar, Gulbahar and Jabul Seraj Distribution by World Bank Afghanistan Reconstruction Trust Funds (December 2010)
  - MEW/S 506: Pul-e-Khumri Distribution Rehabilitation by World Bank Afghanistan Reconstruction Trust Funds (December 2010)
NEPS Status

TURKMENISTAN
Serdar
Zoraw
Andkhay
Shoraz-Taqab
Juma-bazar
Maimana

UZBEKISTAN
Sheberghan – Naibabak 164 km 2 x 220 kV Planned 2012
Sar-e-Pul
Sheberghan
Aqcha
500 kV
40 km Gap
500 kV

HAIRATAN (No Substation)

TAJIKISTAN
Sangtuda
Geran
Sherkan Bandar
Imam Sahib
Kunduz
Takuran

SHERKAN BANDAR – PUL-E-KHUMRI 164 km 2 x 220 kV Ongoing

Afghan Energy Information Center (AEIC)
Domestic Production (Generation)
### NEPS Generation / Import Capacity

<table>
<thead>
<tr>
<th>Generating Station</th>
<th>Type</th>
<th>Current Capacity</th>
<th>Anticipated Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mahipar (Rehab)</td>
<td>Hydro</td>
<td>66 MW</td>
<td>66 MW</td>
</tr>
<tr>
<td>Naghlu (Rehab)</td>
<td>Hydro</td>
<td>100 MW</td>
<td>100 MW</td>
</tr>
<tr>
<td>Surobi (Rehab)</td>
<td>Hydro</td>
<td>26 MW</td>
<td>26 MW</td>
</tr>
<tr>
<td>Darunta HPP (Rehab)</td>
<td>Hydro</td>
<td>0 MW</td>
<td>11 MW</td>
</tr>
<tr>
<td>Power Imports</td>
<td>Imports</td>
<td>120 MW</td>
<td>300 MW</td>
</tr>
<tr>
<td>NW Kabul GT Units</td>
<td>Thermal GT</td>
<td>45 MW</td>
<td>45 MW</td>
</tr>
<tr>
<td>Tarakhil DPP Units</td>
<td>Thermal Diesel</td>
<td>105 MW</td>
<td>105 MW</td>
</tr>
<tr>
<td>Sheberghan GT Units</td>
<td>Thermal GT</td>
<td>0 MW</td>
<td>100 MW</td>
</tr>
<tr>
<td>Aynak Copper Mine</td>
<td>Thermal Coal</td>
<td>0 MW</td>
<td>200 MW</td>
</tr>
<tr>
<td><strong>TPP</strong></td>
<td><strong>Total</strong></td>
<td><strong>237 MW</strong></td>
<td><strong>637 MW</strong></td>
</tr>
</tbody>
</table>

Coal Fueled TPP for Aynak Copper Mine 400 MW plant with 200 MW sale to DABS
Transmission

220 kV
North East Power System

Maimana and Andkhoy 110 kV lines and Substations Donor: GoI Complete

Turkmenistan Import: Aqina to Andkhoy to Sheberghan to Naibabad 500/200 kV S/S and 500 KV line Donor: ADB

Uzbekistan Import: Hairatan; Naibabad / Mazar-e-Sharif to Puli-Khumri 220kV line Donor: ADB Complete

Kajakai - Kandahar – Lashkargah 110kV line Rehabilitation Donor: USG (USAID)

Chimtala Substation 220kV Donor: GoI 2008

Chimtala to Kabul 110kV line Donor: WB Complete

Tajikistan Import: Shekanbandar; Kunduz to Pul-e-Khumri 220kV line Donor: ADB Underway

Puli-Khumri to Chimtala 220kV line Donor: Gol Complete

Naghlou to Jalalabad to Mehtarlam 110kV line Donor: ADB 2010

Kajakai to Kandahar 110 kV line rehabilitation Donor: USG (USAID)

Legend

Existing Transmission Lines
Below 110kV
110kV – 132 kV
220kV and Above

Planned Transmission Lines
Below 110kV
110kV – 132 kV
220kV and Above
Power Substations

(220 kV or 110 kV to 15 – 20 kV)
Rehabilitation of Existing and Planned Distribution Systems

Aybak Distribution System
Donor: USG (USAID)
Phase I Completed; Phase II ARTF

Mazar-e-Sharif / Sar-e-Pul, Imam Sahib, Taluqan and Other Small Northern Cities, Distribution Systems
Donor: ADB, KfW

Kunduz and Khulm Distribution System
Donor: ADB and Pending

Charikar, Gulbahar, Jabul Seraj Distribution Systems
Donor: ARTF and GoI

Puli-Khumri Distribution System
Donor: ARTF

Doshi (Khenjan) Distribution System
Donor: TBD

Kunduz and Khulm Distribution System
Donor: ADB and Pending

Herat Distribution System
Donor: IRoA
Repair / Expansion Underway

Lashkargah Distribution System
Donor: USG (USAID)
Planned

Qalat Distribution System
Donor: USG (USAID)
Repair/Expansion Complete

Doshi (Khenjan) Distribution System
Donor: TBD

Kandahar Distribution System
Donor: Unfunded
Repair/Expansion Planned

Kabul and Jalalabad Distribution Systems
Donor: ADB/WB/Germany (KfW) / IRoA

Legend
Existing Transmission Lines
Below 110kV
110kV – 132 kV
220kV and Above
Planned Transmission Lines
Below 110kV
110kV – 132 kV
220kV and Above
Power Purchase Agreements

- The Islamic Republic of Afghanistan is negotiating Power Purchase Agreements with the CAR countries:
  - Uzbekistan (120 MW is currently imported and up to 300 MW expected)
  - Tajikistan (seasonal imports by 2012)
  - Turkmenistan (Discussions Underway)

- Afghanistan values electricity trade partnerships with the CAR Countries and Our Neighbors
Commercialization of DABM

- Afghanistan has established DABS, a Government Corporation, to improve operations and maintenance of generating stations, transmission systems, power substations, junction stations and the interconnecting lines and cables
- Improve power availability, reliability and quality (voltage and frequency)
- Improve customer billings and collections and sustainability of the DABS enterprise
Challenges

- Increased Power Imports from Uzbekistan, Tajikistan and Turkmenistan at Reasonable Price
- Asset Transfer, Donor Project Handover, NEPS and SEPS Operations and Maintenance and Tariffs to Cover Costs
- MEW Role in Transparent Policy Making, Legal, Regulatory, and Strategic and Operational Planning
- Reducing DABS Technical and Commercial Losses
Challenges (Continued)

- Increased Electricity Generation (coal, gas and hydro)
  - Assessing Alternative Fuel Sources
- Timely Reactive Power Compensation / Load Control and Dispatch
- Integrate and Coordinate Renewable Energy Projects with Power Infrastructure Development
- Capacity Building
Thank You
(Tasha Kor)