South Asia Regional Workshop On Competitive Electricity markets design, implementation & benefits, March 18-20, 2014
AFGHANISTAN ENERGY SECTOR

- Afghanistan Energy Infrastructure, generation, transmission and distribution were almost destroyed during the civil war and conflict, over the past three decades.

- Since 2002, a huge effort has been made to improve the quality and quantity of power available in Afghanistan.

- Another bold move was to corporatize the National electricity service department Da Afghanistan Breshna Mossasa (DABM) into an independent state owned utility (September 2009) called DABS.
CROSS BORDER Electricity TRADE

- Afghanistan relies on imported power for almost 80% of its needs.
- Power is imported from four of its neighbors: Uzbekistan, Tajikistan, Turkmenistan and Iran.
- The tariffs, quantity and quality of the supply vary quite widely between the suppliers.
- Ultimately Afghanistan would like to secure reliable and good quality supply and stable tariffs for the medium to long term.
I. INTRODUCTION

Despite 30 year of war, the Afghan Electricity sector has been developed considerably, some figures are:

- More than 75% of the population in Kabul, Herat, Mazar-e Sharif, Kunduz, Zarange, Aybak, Maymana and Pul-e Khumri have a 24-hour power supply for the first time in decades.

- DABS customers connected to the National Grid have increased on more than 60% within the last 6 years.

- DABS collection rate is now a days more than 85%.
Afghanistan Power Grid
Essentially the Afghan Power Infrastructure is categorized into 3 general networks:

- **North East Power System (NEPS),** consisting of a grid linking 17 load centers (Kabul, Mazar-i-Shariff, Jalalabad, etc) with Uzbekistan and Tajikistan Power grid.

- **South East Power System (SEPS),** consisting of Khandar, linking Kajaki HPP and etc.

- **Herat network,** linking the Herat Zone with Iran power grid.
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I. INTRODUCTION (Cont.)

✓ The rapid growth has been driven by the availability of additional energy’s imports from Uzbekistan, Tajikistan, Iran and Turkmenistan.

✓ Security Energy in Afghanistan is being achieved due to regional interconnections.

✓ Despite these developments, more challenges are to be faced to achieve a secure power market.
I. INTRODUCTION (Cont.)

Therefore, the Government of Islamic Republic of Afghanistan (GoIRA) firmly believes that in order to secure energy for each of our countries:

- **A Regional Market shall be established.**
- **Private sector participation needs to be encouraged.**
AFGHANISTAN CROSS BORDER INTERCONNECTIONS & EXPECTED BENEFITS
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II. AFGHANISTAN POWER INTERCONNECTIONS
II. Afghanistan Power Interconnection

- CURRENTLY INTERCONNECTIONS:

<table>
<thead>
<tr>
<th>Countries</th>
<th>Currently/Expansion</th>
<th>Afghan Infrastructure Ownership</th>
</tr>
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<tbody>
<tr>
<td>Uzbekistan</td>
<td>AC 220 kV</td>
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<tr>
<td>Tajikistan</td>
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<td>Iran</td>
<td>AC 132kV</td>
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<tr>
<td>Turkmenistan</td>
<td>AC 110kV System Reinforcement AC 500kV</td>
<td>GoIRA</td>
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AFGHANISTAN CROSS BORDER INTERCONNECTIONS & EXPECTED BENEFITS TRANSMISSION OF ELECTRICITY THROUGH AFGHANISTAN.

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II. Afghanistan Power Interconnection (cont.)

- FUTURE CROSS BORDER POWER TRADE – CASA1000:
  - Countries
    - Kyrgyzstan
    - Tajikistan
    - Afghanistan
    - Pakistan

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ADB: AFG-TMK Regional Interconnection Project

ADB: AFG-TMK 500kV Interconnection

ADB: Additional 500 kV Hindu Kosh Crossing (Salang Pass) Resolve currently transmission capacity limitation

Sheberghan 600 MW within 6 years. Enough natural gas to fire more than 10,000 MW

Hajigak Coal TPP Capacity: 800MW

CASA-1000 DC 500kV

Baghdara HPP Capacity: 210MW
Kunar HPP Capacity: 1089MW
Surobi2 HPP Capacity: 180MW

USAID, USFOR-A and ADB: SEPS – South East Power System double circuit only one to be strung

Interconnection with Pakistan reinforcing SEPS stringing the second circuit.

Kajaki HPP 100MW

Legend
Exist 220kV
Future AC 500kV
CASA: 1000 DC 500kV
Future AC 220kV
SEPS’s 220kV Reinforcement to Pakistan

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IV. CASA-1000

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IV. CASA-1000

• Project Scope:

  ❖ Kyrgyzstan and Tajikistan exporters of electricity.
  ❖ Afghanistan and Pakistan as importers of electricity.
  ❖ A 500 kV HVAC transmission link between Kyrgyz Rep. and Tajikistan.
  ❖ A 500 kV, 750 km HVDC transmission system between Tajikistan and Pakistan – 562 km are through Afghanistan.
  ❖ A 300 MW DC to AC Converter Station at Afghanistan.
  ❖ A 1000 MW DC to AC Converter Station at Pakistan.

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**AFGHANISTAN CROSS BORDER INTERCONNECTIONS & EXPECTED BENEFITS**

**TRANSMISSION OF ELECTRICITY THROUGH AFGHANISTAN.**

IV. CASA-1000 (cont.)

- Developed Strategies:
  - Creation of CASAREM - **Central Asia South Asia Regional Electricity Market**
  - CASAREM entails to the development of a Regional Market among the CASA-1000 countries. Working on:
    - Multiregional power trading agreements: Energy Price and transfer fees.
    - Legal Framework: laws, policies, acts and regulation to attract private investment.

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V. Conclusion

Regional Electricity Market would benefit Afghanistan

1. Strengthen Legal and Institutional Capacity.
2. Transit fees and/or electricity offtakes.
3. Synchronize operation with interconnected power systems.
V. Conclusion (cont)

We need to make a leap beyond our past limitations, eliminate barriers at our borders, and secure a Regional Power Trade to help/create PEACE and PROSPERITY for all.
Thank You