DA AFGHANISTAN BRESHNA SHERKAT

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

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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.

AFGHANISTAN CROSS BORDER INTERCONNECTIONS & EXPECTED BENEFITS
TRANSMISSION OF ELECTRICITY THROUGH AFGHANISTAN.

I. INTRODUCTION

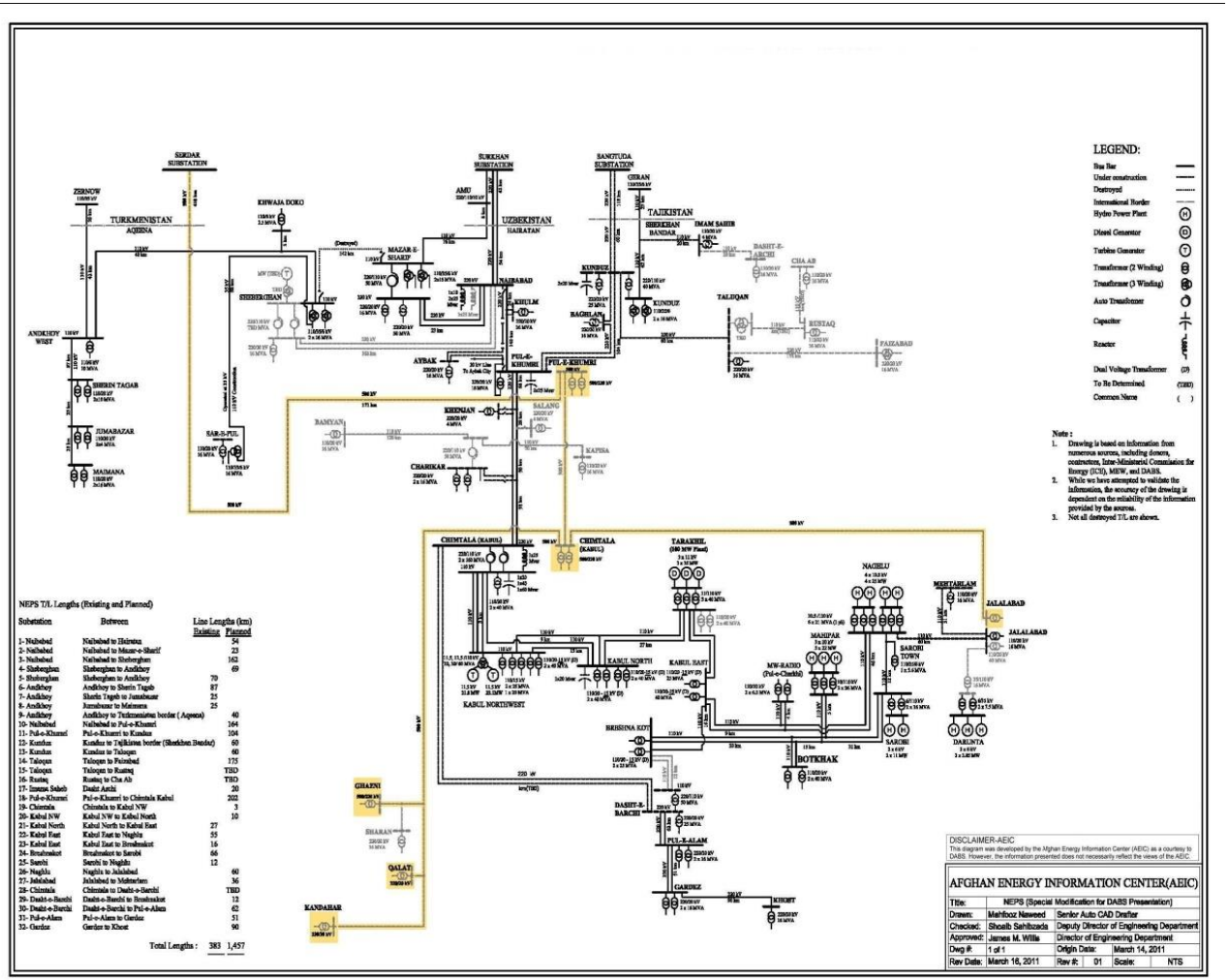
Despite 30 year of war, the Afghan Electricity sector has been developed considerably, some figures are:

- ✓ 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.



برشنا

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TRANSMISSION OF ELECTRICITY THROUGH AFGHANISTAN.

Content

AFGHANISTAN CROSS BORDER INTERCONNECTIONS & EXPECTED BENEFITS TRANSMISSION OF ELECTRICITY THROUGH AFGHANISTAN.

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.
- ✓ Despites these developments, more challenges are to be faced to achieve a secure power market.

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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
TRANSMISSION OF ELECTRICITY THROUGH AFGHANISTAN.

II. AFGHANISTAN POWER INTERCONNECTIONS

AFGHANISTAN CROSS BORDER INTERCONNECTIONS & EXPECTED BENEFITS
TRANSMISSION OF ELECTRICITY THROUGH AFGHANISTAN.

II. Afghanistan Power Interconnection

- **CURRENTLY INTERCONNECTIONS:**

Countries	Currently/Expansion	Afghan Infrastructure Ownership
Uzbekistan	AC 220 kV	GoIRA
Tajikistan	AC 220kV	GoIRA
Iran	AC 132kV	GoIRA
Turkmenistan	AC 110kv	GoIRA
	System Reinforcement AC 500kV	

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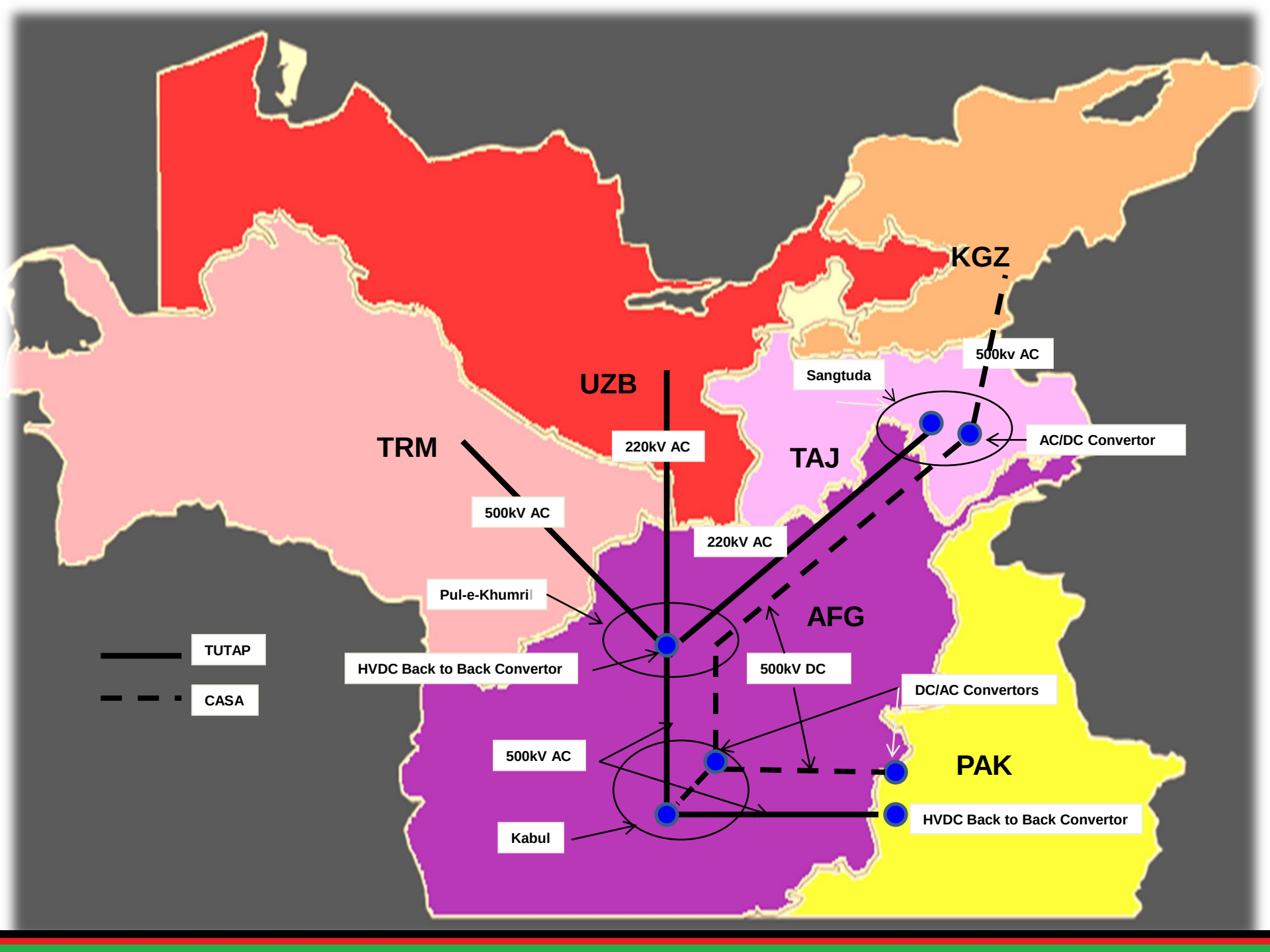
II. Afghanistan Power Interconnection (cont.)

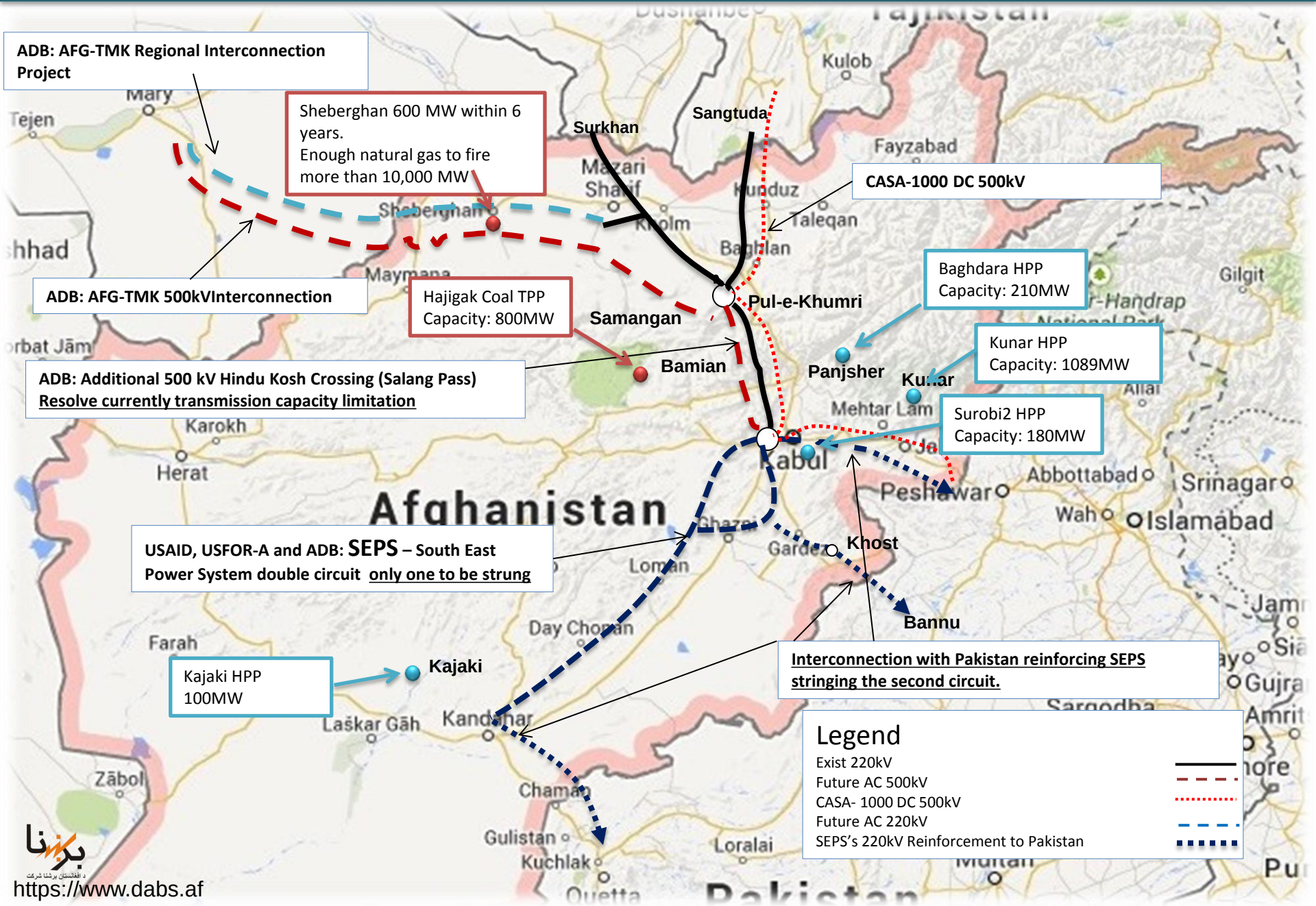
- **FUTURE CROSS BORDER POWER TRADE – CASA1000:**

Countries

- Kyrgyzstan
- Tajikistan
- Afghanistan
- Pakistan


KGZ
500kv AC
Sangtuda
UZB
AC/DC Convertor
TRM
220kV AC
TAJ
500kV AC
220kV AC
Pul-e-Khumri
AFG
TUTAP
HVDC Back to Back Convertor
500kV DC
CASA
DC/AC Convertors
500kV AC
PAK
HVDC Back to Back Convertor
Kabul

Afghanistan Transmission and Generation Expansion Plan - Possible Interconnection with Pakistan by Reinforcing SEPS' 220 kV



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AFGHANISTAN CROSS BORDER INTERCONNECTIONS & EXPECTED BENEFITS
TRANSMISSION OF ELECTRICITY THROUGH AFGHANISTAN.

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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IV. CASA-1000 (cont.)

- Developed Strategies:
  - ❖ Creation of CASAREM - **C**entral **A**sia **S**outh **A**sia **R**egional **E**lectricity 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 benefits Afghanistan

1. Strengthen Legal and Institutional Capacity.
2. Transit fees and/or electricity offtakes.
3. Synchronize operation with interconnected power systems.
4. Expansion of the Afghan own Power System.
5. Energy Security: Afghans protecting the power grid infrastructure.
6. Political and social stability – Private Investors involvement .

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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