In the Name of Allah,
the Most Compassionate, the Most Merciful

د افغانستان برېښنا شرکت

Presentation to South Asia Regional Initiative for Energy Integration (SARI/EI)

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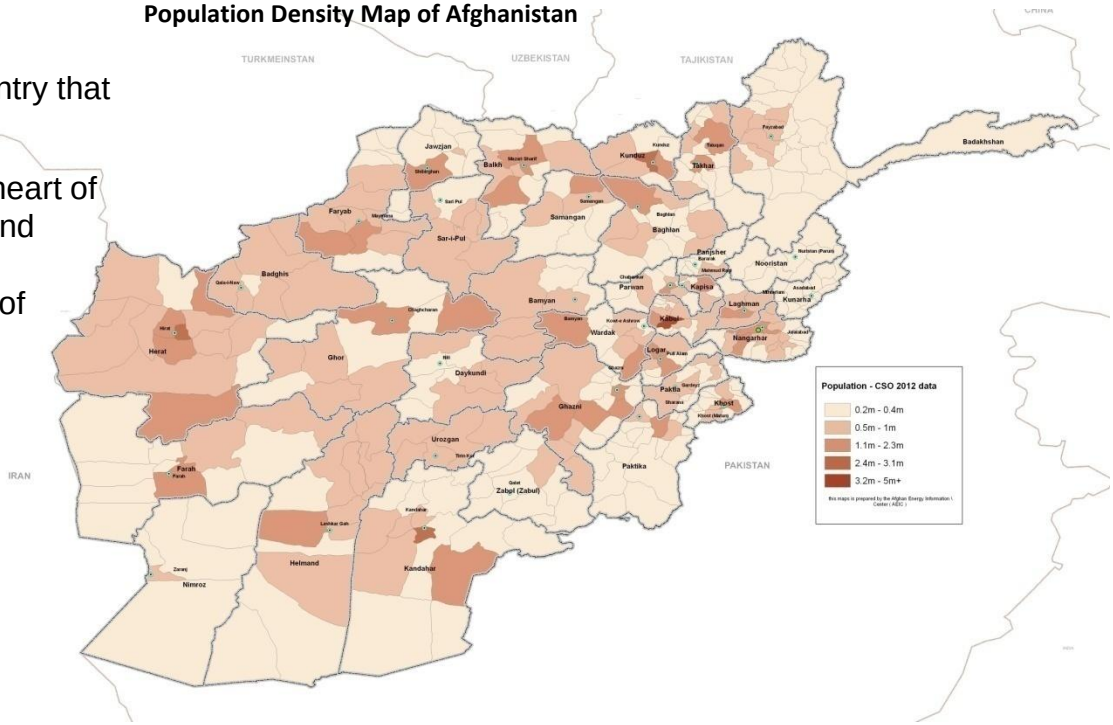
Presentation Outlines

- Afghanistan Geography & Population
- DABS Vision & Overall Strategy Overview
- Afghanistan Energy Resources Potential
- Afghanistan Electricity Status
  - Generation
  - Transmission
  - Distribution
- National Grid System Development Plan
  - Development of Domestic Sources of Energy

Afghanistan Geography and Population

- Afghanistan is a landlocked and mountainous country that is usually designated as being located in South Asia
- It is sometimes described as being the center or heart of Asia, connecting South and East Asia with Central and Western Asia. Kabul is the capital and largest city of Afghanistan. Strategically located at the crossroads of major trade routes.
- Total Area: 647,500 km2 (250,000 sq mi)

Population Density Map of Afghanistan



Country	Total Population Urban and Rural			Urban			Rural		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Afghanistan	25500.1	13044.4	12455.7	6074.2	3127.7	2946.5	19425.9	9916.7	9509.2

DABS Vision

Provide safe and reliable power at reasonable rates to facilitate national economic growth with integrity, transparency and efficiency within Afghanistan

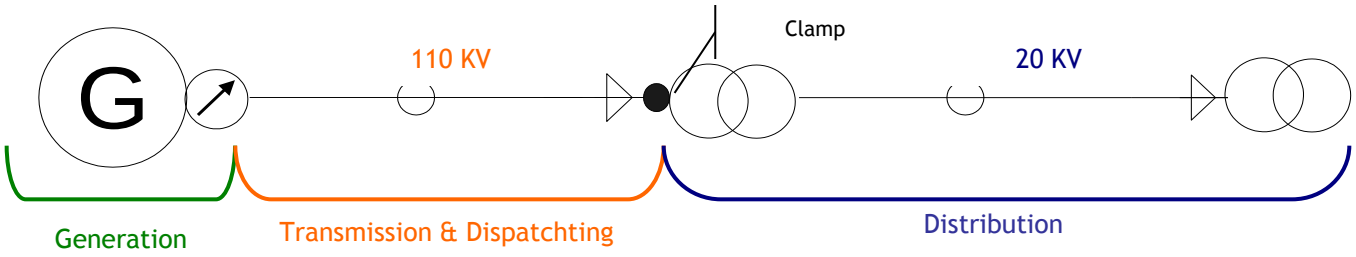
DABS Overall Strategy Overview

- 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 and to Improve power availability, reliability and quality (voltage and frequency)
- Improve customer billings and collections and sustainability of the DABS enterprise
- Better Leadership / Donor Coordination in the Sector

- DABS operating as a commercial corporation with headquarters in Kabul and regional hubs working as profit/costs centers and responsibile for Generation , Transmission and Distribution of Electricty for the 34 provinces of Afghanistan

DABS divided into three Divisions:

- Commercial Division, overseen by the Chief Commercial Officer (CCO)
- Administration and Finance Division, overseen by the Chief Financial Officer (CFO) and
- Technical Division, overseen by the Chief Operating Officer (COO).



Afghanistan Energy resources Potential

- Hydro power potential: 23,000 MW (large, medium, small dams and micro hydro power plant)
- Natural gas: 60 billion cm approx.
- Petroleum : 12 million tons
- Coal reserves : 100 million tons (in different locations throughout the country (establishing the precise quantities and qualities require further studies)
- Solar and wind potential: (222849-66726 MW)

Status of Afghanistan Electricity

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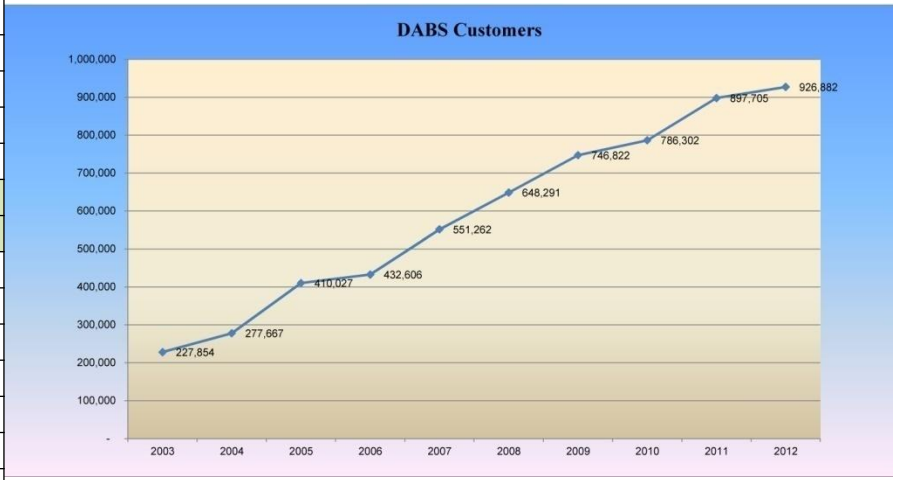
♦ Generation :

Summary of Existing Overall Generation and Imports Capacity

Grid Connected	Capacity (MW)	
	Operating	Installed
Hydro	180	240.4
Thermal	200	200
Diesel Generators	45	67.67
Power Imports	545	669
Subtotal Grid	970	1177.07
Off Grid	**Capacity (MW)**	
	Operating	**Installed**
Hydro	10.3	18
Micro Hydro	33	33
Thermal	0	0
Diesel Generators	50	74.7
Solar	6.7	6.7
Power Imports	28	32
Subtotal off Grid	128	164.4
Total	**1098**	**1341.47**

Total number of electricity customers is about 909065 representing 36% of the country population.



Status of Afghanistan Electricity

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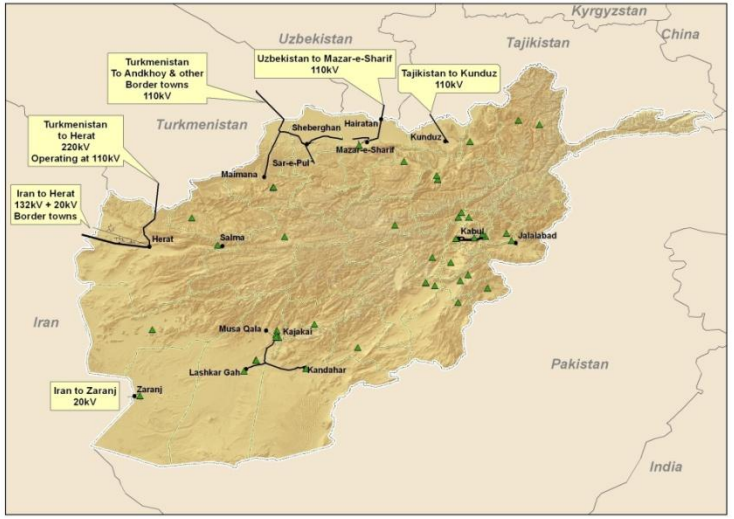
♦ Transmission

- From Uzbekistan 300 MW from 220 KV line for Kabul City and other provinces.
- From Turkmenistan:
  - 80 MW from 110 KV line to Andkhoy, Jawzjan, Saripul, and Maymana
  - 76 MW from 220 KV line (used at 110 KV) to Herat and Rubat Sangi
- From Tajikistan 25 MW from 110 KV line to Kunduz
- From Islamic Republic of Iran:
  - 90 MW through 132 KV double circuit TL to Herat and Ghorian substations
  - 10 MW through 20 KV single circuit to Herat
  - 20 MW through 20 KV double circuit to Nimroz



North East Power System 220 kV Line

Length of Transmission Lines			
	Line Length KM		
Line Voltage KV	Existing	Planned	Total
35	122.32		122.32
110	1127	1225.2	2352.2
132	148	45	193
220	608.5	1993	2601.5
500		967	967
Total	2005.82	4230.2	6236.02

Distribution

There are a grand total of 1154.9 MVA distribution capacity with voltage ratio of 20/15/6 KV in the country which available capacities in the distributions zones are :

- Kabul distribution network 597.6 MVA
- Jalalabad 19 MVA
- Mazar-e-Sharif 111.2 MVA
- Faryab 70 MVA
- Jawzjan 27.5 MVA
- Sar-e Pule 17 MVA
- Kunduz 50 MVA
- Kandahar 50 MVA
- Helmand 39 MVA
- Herat 185 MVA
- Kabul City distribution network is the largest network which energy requirements is about 300MW in summer peak and 400 MW in Winter peak

National Grid System Development Plan

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❑ Development of Domestic Sources of Energy

❑ Under Afghanistan National Grid System Development Plan the Afghanistan Ministry of Energy & Water prepared a general plan to electrifies Afghanistan from domestic sources of Energy during 3 to 12 Years with a total capacity of 2437 MW . .

Under Plan Energy Infrastructure Projects From 3 to 12 Years					
Phase	**Project**	**Province**	**Project Type**	**Irrigation Land**	**Capacity (MW)**
1	Shah Toot DAM	Kabul	Irrigation	2543	1.2
1	Gambari DAB	Kunar	Energy /Irrigation	35000	45
1	Sarobi 2 HPP	Kabul	Energy		180
1	Kajakai HPP	helmand	Energy /Irrigation	100000	150
1	Kama HPP	Nangarhar	Energy /Irrigation	18000	45
1	Gulbahar HPP	Panjsher	Energy /Irrigation	54000	120
1	Kelagai HPP	Baghlan	Energy /Irrigation	45277	60
1	Bakhshabad	Farah	Energy /Irrigation	138500	27
1	Dala DAM	Kandahar	Irrigation	36000	0
1	Kokcha HPP	Takhar	Energy /Irrigation	132,000	45
1	Khan abad 2 HPP	Kunduz	Energy		10.4
Total 1 Phase				561320	683.6
2	Qali Momai HPP	Badakhshan	Energy		445
2	Baghdara HPP	Kapisa	Energy		210
2	Kunar (SAGI) HPP	Kunar	Energy	0	300
Total 2 Phase				0	955
3	Kunar (Shall) HPP	Kunar	Energy	0	798
Total 3 Phase				**0**	**798**
	Total			**561320**	**2437**

Thank You

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