In The Name of Allah

Islamic Republic State of Afghanistan

Ministry of Energy and Water

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Part 1

Afghanistan's Energy Sector

Energy Sector Goal

* Afghanistan's Energy Sector Strategic goal is to provide sustainable power supply, at affordable prices, and in an environmentally sound manner, for economic growth, and to improve living standards.
* MEW aim is to deliver sufficient electric power to meet Afghanistan's needs of the economic growth rate of 9% per annum.

Afghanistan Power Generation

* Power generation in Afghanistan is mainly hydro based.
* Thermal generation has reduced in the last three years and, in total, local generation has remained constant in the range of 800 to 1000 GWh.
* In 2011, Afghanistan imported 2250 GWh, amounting to 73% of its overall electrical energy demand. The imports originate from: Iran (22%), Tajikistan (4%), Turkmanistan (16%) and Uzbaksitan (57%).
* In 2010 - 682,454 customers and in 2011 - 809,335 customers, have been supplied electricity from grid.

Energy Supply History

Year	2006	2007	2008	2009	2010	2011
Hydro [GWh]	644	755	617	835	910	801
Thermal GWh]	213	211	197	93	101	39
Import [GWh]	432	609	752	1,155	1,572	2,246
Total [GWh]	1,289	1,575	1,566	2,083	2,583	3,086

Renewable Energy

* The sources of Renewable Energy in Afghanistan are; hydro, biomass, geothermal energy, solar and wind.
* Local generation from renewable energy in Afghanistan is dominated by hydro power plants (MHP).
* Currently Afghanistan is utilizing around 63 MW of its energy from Renewable Energy sources mainly MHP and Solar

Afghanistan's Energy Situation

* Only 28% of households are connected to power supply systems.
* Average residential consumption is comparatively high in the main load centers, like Kabul, with slightly more than 3000 kWh, in provinces is quite low, ranging from 178 kWh/a in 2010 in Ghor province to 551 kWh/a in Laghman province in the lowest segment.
* Residential consumptions is expected to reach an average consumption level of 1400 kWh/a for the residential sector in 2020 in main load centers, & in the range of 900 kWh/a to 1200 kWh/a in provinces.
* Peak demand in 2032 is expected to stand at around 3500 MW.
* To achieve the goal of providing power supply for whole country, Afghanistan needs a total investment of $10,065m.

Technical and Commercial losses

* Technical and commercial losses are extremely high in Afghanistan. with total losses of 45% of net demand - 15% Technical and commercial losses account for 30%
* To reduce the losses a target for commercial losses of 8% in 2032, and technical losses by 10% in 2028 been considered.
* The load factor is one of the most critical issues in the demand and load forecast for Afghanistan. In Kabul, the load factors for 2010 and 2011 amount to 56% and 53% respectively. it is assumed that the load factor increases over time by one percentage point per annum until it reaches 60% in 2023 and remains at this level thereafter.

Energy Efficiency and Demand Side Management

* A distinction has been planned to be made between regions with low and high electrification rates. In regions with low electrification rates, most DSM and EE measures will be balanced by an increased number of consumers that are connected to the same generation capacity. In regions with higher connection rates, DSM and EE might actually help to reduce the required generation capacity.
* Electricity consumption in Afghanistan is dominated by residential consumers.

Policy and Regulation

Sector Policy

* Direct policies and regulations
* Make maximum use of domestic resources
* Initiate sector regulation
* Promote private sector participation and investment in the electricity sector
* Encourage the expansion of access to underserved and rural communities
* Stimulate the rational use of Renewable sources of energy

Part 3

Challenges and Recommendations

Challenges and Recommendations

No	Challenges	Recommendations
1	Lack of attention concerning rural electrification	Strengthen and prioritize supply to rural areas
2	High-dependency on imported fuel and power	Promote national resource usage
3	Lack of national generation capacity	Improve availability of national power through regional cooperation
4	High technical and commercial losses	Provide technical environment and enforce legal framework
5	Lack of technical expertise	Enhance the skill-set of Afghan Engineers
6	Investment in new capacity or energy infrastructure	Alternative supplies such as renewable energy must be considered
7	Lack of polices and programs for rural electrification	Sound institution frame work and polices should be promoted

Thanks