UNDERSTANDING POWER LOADSHEDDING IN ZAMBIA

INFOGRAPHIC

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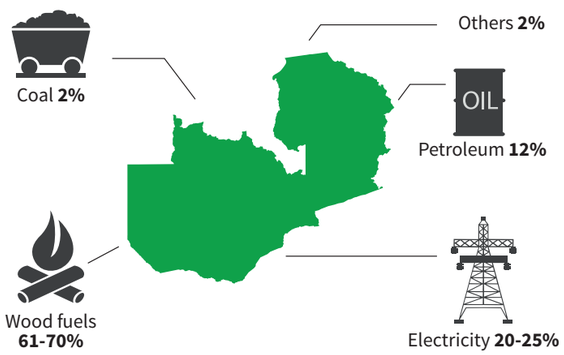
Economic growth is synonymous with availability of energy and the ability of a country to meet its wider development objectives is largely determined by access to reliable energy. Electricity is a valuable input into all sectors of the economy and as such remains an important asset if the country is to develop to desired levels.

THE ZAMBIAN CASE

ENERGY USE IN ZAMBIA



- Power Demand has outstripped supply
- On average, 25% of the country have access to electricity.
- According to the Ministry of Finance, Zambia's economy has been growing at an average of 5% per annum over the past 10 years.

CAUSES

The maximum power deficit the country faces is estimated at 560MW

- There was Poor rainfall experienced during the 2014/2015 rain season.
- This resulted in the low water levels in the reservoirs.
- ZESCO has been compelled to reduce generation at its major power stations resulting in a national capacity deficit of 560 Megawatts and this has led to load-shedding.

WHAT ARE THE EFFECTS?

Schools
Hospitals
Homes
Industries
Mining
Agriculture

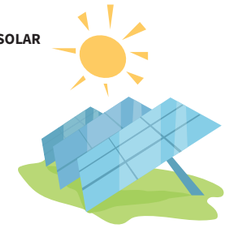
The recent countrywide load-shedding is negatively affecting businesses, hospitals, schools, households, industries and national productivity as a whole. The mines, as largest consumers of electricity will also be negatively affected in terms of production, ultimately resulting in reduced copper and minerals export.

UNDERSTANDING RENEWABLE ENERGY

HYDRO

WIND

SOLAR



GEOTHERMAL

- Renewable energy is energy generated from natural resources (such as sunlight, wind, rain, and geothermal heat), which are naturally replenished.
- Zambia is endowed with various sources suitable for generation of renewable energy but the nation does not have a policy on Renewable Energy.
- Currently, energy in the country is largely derived from hydropower and this has not adequately satisfied the increased demand.
- The renewable energy sector presents a viable alternative to compliment the existing hydropower generation.

Zambia currently holds an estimated 40 % of the entire Southern African region's water bodies which the country has not fully utilized for various economic ventures such as power generation, agricultural irrigation, industry and manufacturing sectors.

ALTERNATIVE SOLUTIONS: Availability and potential for utilisation of renewable energy sources and technologies in Zambia: Understanding alternative (renewable) sources

Renewable Energy	Opportunities/ Use	Resource Available
Solar	Thermal (water heating) Electricity (water pumping, lighting, refrigeration)	6-8 sunshine hours on average per day.
Wind	Electricity for Mechanical use (water pumping)	Wind speeds Averaging 3-5 m/s
Biomass	Electricity generation Heating and cooking	Animal waste, Agro waste, industrial waste, sawmill waste
Biofuels	Ethanol for blending with gasoline to power vehicles and machinery	Agricultural crops: - Sugarcane, sweet sorghum, corn, Jatropha
Geothermal	Electricity generation Thermal and lighting	Hot-springs distributed across the country

Source: Adapted by Policy Monitoring and Research Centre (PMRC) 2015, from the National Energy Policy (NEP), 2008.

CONSTRAINTS

1. There are insufficient incentives for private sector investments in the energy sector due to lack of renewable energy feed-in-tariff and prevailing non cost-reflective electricity tariffs.
2. Due to the unattractive tariffs, the Zambian electricity sector is largely dominated by ZESCO through single buyer model.

RECOMMENDATIONS

A broader mix of energy and independent power producers are needed to meet growing national demand and industrial development.

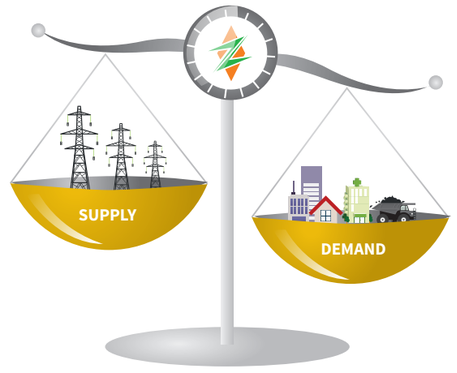
1. PMRC urges the government to create incentives for private sector's participation in Renewable Energy Technologies (RETs) especially in rural areas.
2. Tax incentives for local contractors procuring RET into the countries need to be put in place so as to promote investment even at micro level and create employment.
3. PMRC urges Government to establish feed-in tariffs as a policy tool for encouraging development of renewable energy technologies. Feed-in tariffs thus essentially subsidize renewable energy generation to make them cost-competitive.
4. PMRC recommends that the Government urgently develop a renewable energy plan that will guide the development and implementation of renewable energy sources so as to provide a rich energy mix for Zambia.
5. Government should scale up investments in non-hydro power sources in view of ZESCO's frequent load-shedding around the country.

ZESCO

Zambia Electricity Supply Corporation (ZESCO) supplies electricity needs in the country predominantly from hydro generation (Hydro generates power by harnessing the power of moving or falling water to produce mechanical/electrical energy).

WHAT IS LOAD-SHEDDING?

Power load shedding is defined as a deliberate shutdown of electric power (electricity) in a part or parts of a power-distribution system, generally to prevent the failure of the entire system when the demand strains the capacity of the system.



SUPPLY VS DEMAND

Zambia's economy has been growing at an average of 5% per annum over the past 10 years and this growth rate has certainly been matched if not exceeded by the growth in demand for electricity.

Adding to this, new settlements have been established as well as new businesses, industries and new mines in North Western Province.

Electricity demand in Zambia outweighs supply especially during peak hours.