



REPUBLIC OF ZAMBIA

MINISTRY OF ENERGY AND WATER DEVELOPMENT

MINISTERIAL STATEMENT ON THE POWER DEFICIT

BY

HON. DORA SILIYA, M.P.,

MINISTER OF ENERGY AND WATER DEVELOPMENT

NOVEMBER, 2015

Mr. Speaker,

I thank you for giving me an opportunity to update the nation through this August House on the current status of the power crisis in the country.

As Hon. Members may be aware, generation of electricity in Zambia is predominantly from three main hydropower stations, namely Kafue Gorge, Kariba North Bank and Victoria falls. These three power stations currently account for 95% of the total electricity supply.

Due to the below average rainfall during the 2014/2015 rain season, water inflow into the reservoirs has not been adequate enough to meet the national power requirement until the end of 2015. For example, the lake is at 6m below previously recorded levels in the same rainfall periods of past years. Hydrological Simulation has shown that the lake level will be about 1 to 2m above the Minimum Operating Level of 475.5m at the end of the hydrological year at the current reduced generation levels.

In response, the Zambezi River Authority, after carrying out hydrological modelling, reviewed water allocation to the two utilities (ZESCO and ZESA, the Zimbabwean national utility) for hydropower generation from 45 billion to 33 billion cubic metres for the period March - December, 2015 in order to allow generation to last till the next rain season. This reduced water allocation led to an initial shortfall in power generation of about 560 MW in July of this year.

However, both ZESCO and ZESA had to further reduce their water usage such that the current power deficit stands at 700 MW.

Kariba North Bank Power Station, with an installed capacity of 1,080 MW, is producing at 429 MW while Kafue Gorge with an installed capacity of 990 MW is producing at 540 MW. Victoria Falls is a run-of-the- river power plant with no water storage facility, with an installed capacity of 108 MW but generating at below 80 MW capacity.

The increase in the deficit from 560 MW to 700 MW has resulted in increased hours of load management to safeguard the power infrastructure. Load Management is basically the distribution of limited power at different times to different areas, since it can't be supplied all at once. This is what is commonly referred to as load shedding.

Mr. Speaker,

The House would recall that when the load shedding programme began, ZESCO used to load shed an average of 8 hours. However, due to public outcry, the load shedding schedules were revised to about 5 and 6 hours for the domestic users. However, due to the need to reduce generation further, load shedding has reverted back to an average of 8 hours or even more in some cases.

It is worth noting that the load shedding is being undertaken to ensure that generation of power is kept at reduced levels to allow the water in the reservoirs to last till the next rain season. If load shedding is not done at these reduced generation levels, there will be an imbalance in the supply and demand equation, which would lead to damage of the power infrastructure.

Mr. Speaker,

It is also worth noting that the rain forecast for 2016 indicates normal to below normal rainfall and according to the simulations for next year, the two utilities have been allocated 20 billion cubic metres of water for power generation.

This entails therefore that, in order to maintain power generation up to the 2017 rain season, ZESCO needs to generate at lower levels than the 2015 levels. In fact, power generation would have to reduce by a further 300 MW leading to a power deficit of 1000 MW by the end of December, 2015. If any over-generation by the two utilities continues into 2016, coupled with the predicted below normal rainfall for 2016, there may be no power generation at Kariba by end of October 2016.

You may further wish to know that it would take up to 3 years of normal rainfall to fill the Kariba dam.

Mr Speaker,

Allow me to address two issues that have been brought out in the public domain as the reason for the power deficit:

1. That the PF government is exporting the power to raise money for the 2016 elections and
2. Substandard machines have been installed at Kariba.

I would like to dispel these notions and any other notions that may be out there as false. The power deficit is due to reduced water levels in the reservoirs. I recently received photos of the current status of water at the Victoria Falls which is upstream of the Kariba Dam. The photos showed that there was no water flowing over the falls. This is part of the evidence that there is very little water in the Zambezi and Kafue rivers to support power generation as per the installed capacity.

This August House may wish to know that Zambia hosted the 20th Anniversary celebrations of the formation of the Southern African Power Pool (SAPP) on 5th November, 2015. Being new to the sector, I was keen to engage Chief Executive Officers of the 12 SAPP electricity utilities as well as the SAPP Coordination Centre located in Harare on the status of power supply in the region.

These interactions revealed to me that most, if not all SADC countries that are SAPP members (12 in all) are experiencing a severe shortage of power

supply in the order of 8,000 MW. While load shedding is a new phenomenon in Zambia, a number of SADC countries have been grappling with this challenge for a few years now. The region will only be able to have surplus power supply by 2019.

Mr. Speaker,

In view of the foregoing, government has taken the following immediate measures:

(a) Immediate term – effective September 2015

This comprises of emergency power purchase as follows:

1. The government through ZESCO limited has contracted 148 MW emergency power from Aggreko. This power, which is from a gas power plant in Mozambique, started flowing on Wednesday 9th September 2015 and is being delivered daily from 06:00 hours to 22:00 hours. The cost for this power is us\$13.1 million per month. However, from 1st January, 2016 to 31st December, 2016, it is expected that this emergency power supply by Aggreko will drop to 40 MW as the company had earlier committed 108 MW to other customers.

2. In order to bridge the gap of this reduced supply, 200 MW will be imported from Karpowership of Turkey. This power will be from a Power ship that will be docked at the port of Nacala in Mozambique.
3. Government has further advertised for the procurement of an additional 200 MW emergency power from four (4) inland thermal (diesel, HFO, etc) power plants. It is planned that this power be availed as from the first quarter of 2016.

Mr. Speaker,

Managing the power deficit would require concerted efforts from the general public as the situation is affecting every citizen of this country. Therefore, on the demand side, immediate measure will include:

1. A massive exercise by ZESCO and Government to sensitize the public to use power efficiently through:
 - a. Implementation of the switch and save measure by switching off all electrical appliances and lights that are not in use at each time of the day;
 - b. Migration from the ordinary (incandescent) bulbs to the Compact Fluorescent Lights (CFLs) and Light Emitting Diodes (LED) bulbs;
 - c. Use of Solar Water Geysers and
 - d. Use of alternatives like LPG for cooking and heating purposes

2. We are negotiating with a firm to manage the migration of the country from incandescent bulbs to CFLs and LED bulbs
3. My Ministry will provide a policy shift to support this migration through financial and non-financial measures

These plans for emergency imports will only be actualized if government will be able to raise the required resources to supplement what ZESCO is able to pay. The total cost for all these immediate interventions is expected to cost about US\$ One billion in the coming two years.

b. Short term – from mid-December, 2015

For the period between December, 2015 to June, 2016 the ministry expects to increase power generation by 720 MW through the following power projects:

1. Itezhi tezhi hydro power project with an installed capacity of 120 MW at a cost of US\$250 million and is being developed under a consortium of ZESCO limited and TATA Africa Limited. The first unit of 60 MW for the project is scheduled to be commissioned in December 2015 and the second unit in January, 2016.
2. Maamba coal fired power project with an installed capacity of 300 MW. This is a Joint Venture between Nava Bharat Plc of Singapore

and ZCCM-IH at a cost of US\$690 million. The project is scheduled to be commissioned in June 2016.

3. The ministry has embarked on a process to procure 300 MW from about 8 solar projects while the Industrial Development Corporation (IDC) is procuring 100 MW.

c Medium term measures – effective November 2016.

In the medium term, we intend to add more generation through the following projects:

1. Ndola Energy Phase II (heavy fuel oil) – 50 MW, expected to be commissioned in early 2017.
2. Chavuma mini hydro – 14 MW. Sino Hydro Corporation will develop this project, expected to be commissioned before the end of 2017.

d Long term measures – 2017 - 2025

In the long term, the following projects are planned to be implemented:

1. Solar energy projects – at least 300 MW at various sites
2. Batoka project – 1,200 MW (total for Batoka is 2,400 MW). The Zambezi River Authority is structuring the Project. Updating of the feasibility study is still on-going to determine the investment model and cost.

3. Kafue Gorge Lower – 750 MW at a cost of US\$2 billion. EPC contract signed and mobilization should commence soon.
4. The Luapula river hydropower scheme consists of the Mambilima and Mombututa falls sites with a combined capacity of 1,000 MW (shared with DRC). The two Governments have since signed an Inter-Governmental Memorandum of Understanding to develop these projects
5. EMCO coal fired power plant – 340 MW based in Sinazongwe
6. Western Power Company is in the process of developing the 60 – 80 MW Ngonye Falls power station in the Sioma District of Western Province
7. Other projects involve the uprating of the already existing Zesco small hydro plants such as Lunzua (from 0.75 to 14.8 MW), Lusiwasi (12MW to 86 MW) and Musonda falls (5MW to 10MW) in Muchinga Province
8. Government recently signed an implementation Agreement with CEC for the development of the 40 MW Kabompo Power Project

The total for the envisaged long term projects is a minimum of 3,000 MW.

Mr. Speaker,

As a Ministry we are also exploring the possibility of bridging the financing gap for a number of ZESCO projects that have stalled. We are also going to cancel the concessions for projects that have failed to take-off, so that they

may be offered to those who are serious about investing in the energy sector.

Mr. Speaker,

Zambia's economy is growing and demand for electricity has been growing in tandem. This economic growth will have to be imbedded in the medium and long term plans that government is undertaking.

However, all these expanded generation projects would need to be anchored on an expanded transmission network within the country and regional expansions and it is for this reason that government is keen to support the regional interconnection programmes that are underway such as the Zambia Tanzania Kenya interconnector. We also expect to spend about US\$ 2 billion in rehabilitating and expanding the grid to the last mile so that it is able to take the extra load to be generated in the future.

For the present, in view of the current critical situation, I would like to inform our citizens that the success of our interventions during this crisis, in the immediate term, will also be determined by how much rainfall we receive during the 2015/2016 rainy season. There is a possibility of increased load shedding in 2016. If this happens, it will be beyond human control. Government on its part is doing everything possible to normalize the situation.

I thank you Mr. Speaker