



**MOIRA MUKUKA**

LEGAL PRACTITIONERS

**Self-Generation – Alternative Reliable Power  
for Commercial and Industrial Consumers**

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## THE RATIONALE

According to the Energy Regulation Board (ERB), mines, manufacturing, agriculture and real-estate or property sectors have consistently been the highest consumers of electricity in Zambia over the years. The mining sector alone consumes approximately 50% of all the power generated in Zambia.

High energy consumer sectors across Africa, particularly in East and West Africa are aggressively pursuing alternative power sources to reduce their reliance on grid power supplied by national utilities. This transition by consumers from relying on power supplied by utility companies to generating their own power can be attributed to several factors.

The high cost of tariffs by utility companies, demand for stable and reliable supply and the desire to enhance their 'green credentials' are all contributing factors to how consumers approach their power needs.

In the specific case of Zambia, the ERB has yet to publish the Cost-of-Service-Study, which will reveal the true cost of power generation in Zambia and what cost-reflective tariffs should look like. Based on the sentiments expressed by the Government and ZESCO in particular, the tariffs currently paid by Zambian consumers are not cost-reflective and require an upward adjustment for sustainability, in order to attract more investors.

## THE ALTERNATIVE MODEL

The emerging trend, in view of the challenges associated with grid power, is the development of captive generation or self-generation power solutions. Captive power is essentially the concept of generating power on-site, ie, where the power is to be consumed, using sources such as solar, wind, diesel, etc. The most widely used source however is solar energy. This is mainly achieved by the construction of roof-top solar systems, but these can also be ground-mounted, depending on the circumstances and availability of space, among other considerations. It must be noted that captive power or self-generation can work for both grid-connected and off-grid establishments.

## MODEL STRUCTURING

There are several financing and implementation models for self-generation or captive power generation including the following:

Direct Purchase;  
Power Purchase Model; and  
Leasing Model.

Parties may also develop hybrid models that best fit their operational needs.

### DIRECT PURCHASE

In this model, the consumer owns and finances the project. The main advantage of this model is that the consumer is also the owner of the power system and can enjoy all of the benefits without having to share them with a third party, such as an independent power producer ("IPP"), as is the case in other models.

A disadvantage of this model is that the consumer bears the full risk of the project, including operational and maintenance risks, unless otherwise agreed with the EPC contractors who installed the plant. ERB licensing and other regulatory approvals would generally be the consumer's responsibility.

### POWER PURCHASE MODEL

Under the Power Purchase Model, an IPP develops the plant at the consumer's premises and enters into a power purchase agreement ("PPA") with the consumer. The consumer pays for the power generated and consumed on site at an agreed tariff approved by ERB. The amount paid by a consumer therefore varies from month to month depending on the consumption in a particular month.

In the case of consumers with seasonal or fluctuating consumption patterns such as hotels, lodges and schools, the parties may agree to a minimum amount to be paid during the low consumption periods.

The IPP would generally be responsible for obtaining licensing and regulatory approvals under this model.

## **LEASING MODEL**

In the leasing model, the IPP owns the plant, installs it at the premises of the consumer and the two parties enter into a lease agreement where the consumer rents the plant and uses the electricity produced by the plant.

The difference between the leasing model and the PPA model is that in the PPA model, the consumer pays for the power consumed while in the leasing model, the consumer pays for use of the plant and then uses the power generated by the plant.

As owner of the plant or project, the IPP bears the maintenance risk under this model. At the end of the rental period, the consumer may or may not have the option to purchase the plant. The responsibility of obtaining regulatory approvals from ERB would be on the IPP.

## **LAND CONSIDERATIONS**

A key consideration for captive power generation is ownership of the land or building on which the plant is to be installed. The intended consumer of the power may not necessarily be the owner of the land or premises on which the plant is to be installed.

A land lease agreement for the installation of the plant is therefore required, whether or not the consumer is also the owner of the land or premises. Where the consumer is not the owner of the land, a lease agreement with the landowner would be required before installing the power plant. A legal due diligence on the land is therefore an essential process to be undertaken before project implementation.

## **LICENSING REQUIREMENTS**

In terms of licensing, the same regulatory requirements that apply to conventional power plants apply to captive power plants. An overview of the current licensing regime is available at: <https://www.moiramukuka.com/new-licensing-requirements-for-power-generation/>

The licensing procedures generally involve obtaining approval to conduct a feasibility study, obtaining a

construction permit and obtaining a licence to generate electricity.

Zambia would do well to emulate South Africa which recently raised the threshold for the amount of electricity that can be generated for self-consumption without the need for licensing requirements from 1MW to 100MW.

Currently, the threshold for self-generation in Zambia without the need for ERB licensing is 250kW. Increasing this threshold would encourage more investment in off grid captive power generation and would reduce the burden on ZESCO. It would also guarantee stable and reliable supply for commercial and industrial consumers who require reliable supply for uninterrupted production.

## **PROSPECTS**

By embracing self-generation, high power consumers are likely to reduce their long-term operational costs, contribute to ESG objectives, and pave the way for net metering, in which excess power from a private installation is fed into the grid and credited back when needed at a later date or time.

Mines, property developers, manufacturers, industries, and other high power consumers have an opportunity to take decisive action and consider captive or self-generation as part of their operational models.

We can guide you through the regulatory requirements either as a consumer or developer of captive power generation.



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