

Energising energy planning

David Claassen, Zest WEG Group

While policymakers continue to grapple with the dire shortage of electrical energy in sub-Saharan Africa, the private sector has an important role to play in shouldering some of this burden. Large centralised base-load energy projects have long planning and execution cycles and require large capital investments.

In addition, they are all accompanied by extensive transmission infrastructure requirements to connect the source of power to the consumer. At times, this can overshadow the cost of the power station, alone.

For this reason, there is a strong motivation for more decentralised energy generation models that see the decoupling of buildings and industries from national grid networks, bringing the source of energy closer to the consumer. These projects can

be delivered quickly, are more cost effective and easier to manage in their execution stages.

While there are a number of examples of the implementation of these projects on the continent, there is still much to be done to see more of them. There is a need to refine existing energy policies and frameworks that pave the way for the introduction of more Independent Power Producers (IPPs) to the African energy landscape and, just as importantly, allow them to export excess power that they generate to the national grids.

The European Union has made significant progress in the field and is a sound example of exactly what can be achieved on the continent by accepting so-called 'disruptive' trends in conventional energy planning.

Interest shown in smart grid infrastructure reveals a growing realisation on the continent that base-load projects need to be complemented by more mini grids and embedded generation solutions to meet Africa's electrification targets.

There are some interesting trends that show proactive steps are being taken in this

direction, and that energy consumers are in a position to play an important role as future generators of energy, over-and-above relinquishing their reliance on centralised power stations.

In South Africa, for example, participants in the property sector, including large Real Estate Investment Trusts, are taking a longer term view of the energy landscape in the country, and are well aware of the fact that the rolling blackouts in the country will return once economic conditions recover. Many of these companies have or are in the process of implementing vast roof top solar photovoltaic (PV) projects.

One of the limitations of these projects is the high costs associated with their sophisticated storage systems that keep them operating when ultra violet radiation levels are inadequate. With as much as 60% of these systems exposed to volatile exchange rates, the high risks associated with implementing more solar PV solutions can be a major inhibitor to the introduction of more solar roof top projects in the country.

This is exactly why ZestWEG Group engineers have been approached to design cost effective hybrid systems that rely on the free fuel available from solar, but replace costly



storage systems with diesel generators. An abundance of diesel fuel in the region makes the diesel generator one of the most reliable forms of back-up supply in the region.

The quality of the fuel has also been steadily improving, allowing for the introduction of generators that incorporate the latest clean engine technologies from European-based original equipment manufacturers.

The company is keeping a close eye on the role that gas plays on the East Coast of Africa, considering that gas is not only cost effective, but also a cleaner burning fuel, in line with the sustainability objectives of both the public and private sectors.

ZestWEG Group is already a prominent player in the region, having designed and installed generation solutions for the Tanzanian mining industry. This includes a 60 MW diesel generator solution for a flagship gold mining project in the region.

More recently, it designed and is in the execution phase of a 14 MW diesel power station in Mozambique on behalf of a large

graphite mining company. The company has also been tasked with the control and distribution of the 100 000 litres of diesel the power station will consume a day. Mozambique continues to show significant potential as an emerging gas hotspot on the continent, complementing its significant coal finds, and strategically positioning itself as a future energy hub in the larger Southern African Power Pool. Zest WEG Group is involved in a large gas related IPP project in West Africa that relies on gas as a fuel source, complementing a host of other power-related projects it has undertaken in the mining region of the continent.

South Africa also shows promise as an emerging gas player, but it will take a long time for the country to harness these resources considering the significant investment required to develop the infrastructure.

However, the 'lower hanging fruits', such as the abundance of methane gas produced at landfill sites and waste water treatment works in the country, are sufficient to generate much needed electricity.

Zest WEG Group has sound experience harnessing this resource having already undertaken such a project on behalf of Johannesburg Water at its Northern Treatment Works. These co-generation and embedded generation initiatives point towards a very different energy landscape on the continent in the future.

Eventually, we may not just see an inter-connected Africa that is powered by large regional power plants. It is inevitable that the continent will have a flexible grid system that also relies on small and smart power producers that generate energy for their own needs, while strengthening supply with their excess production.

Enquiries: Kirsten Larkan.
Email marketing@zestweg.com



David Claassen.

