Containerised Microgrids
and Eskom's offering

Eskom Distribution powering small communities

The Containerised Microgrid (CMG) defined

A Microgrid is a small self-sufficient power system that can supply electricity as a lone source, and it can also be connected to the national grid. The power system can be remotely operated and monitored, ensuring continuous availability of supply to customers.

Eskom is using Containerised Microgrids (CMGs) powered by Solar Photovoltaics (PVs). All the electricity generation, distribution, and storage equipment for the CMG is housed in a shipping container, hence the name.

What are the benefits of Containerised Microgrids?

- **CMGs are locally designed, produced, and implemented.** Asserting Eskom's contribution to stimulating the economy, is an important aspect for the National Industry Programme (NIP) and job creation.
- All the equipment for power generation is packed into the container, **making the entire unit compact and easy to transport.**
- All units are **assembled at Eskom premises** and carried via a truck to site for installation and commissioning. Their **installation time is less than a month** if reticulation infrastructure is in place.
- There is no need for new servitudes (the purchasing of land for the installation of infrastructure), which usually causes major delays in electricity supply efforts.
- CMGs have a low ecological footprint. Therefore, the Environmental Impact Assessment (EIA) is unlikely to be disapproved, an important aspect in accelerating Eskom's drive to universal access.
- Containerised Microgrids are not a one size fits all solution. Once a customer's needs have been identified, the Containerised Microgrid is scalable and **custom-made to match the load** (an electrical load is an electrical component or portion of a circuit that consumes active electric power, such as electrical appliances and lights inside the home).

What characterises a Containerised Microgrid?

The Containerised Microgrids' capacity is customised to suit customer needs, characterised by the following:

- Standalone container
- Battery bank
- Inverters
- Wiring and cabling
- Switchgear, relays, and telecommunications
- Cooling fan
- Fire extinguishing mechanism

How does the Containerised Microgrid generate power?

Power is generated from Solar PVs panels that are mounted on the side and roof of the container. The minimum size of the power output is 30KW and a container has the capacity of up to 2MW output, depending on the customer size. All the batteries are charged from the Solar PVs.

CMG *assembly line*

1 **Welding & Spraying**
Welding of inside and outside brackets, cable racks and aux mounting points. Spraying and branding of product.

2 **Mechanical Structures**
Construction of PV structures and battery racks.

3 **Electrical Assembly**
Assembly of AC, DC, and Control boards. Pre-wire-bundling for containers.

4 **Container Assembly**
- PV & battery structures installation
- AC, DC and Control boards installation
- Wire bundling installation
- Security devices installation
- System configuration
- System commissioning
- Container prep for shipment

Who can use a Containerised Microgrid?

Microgrids offer a high degree of configurability (the ability to modify and extend a system while it is running), suited for different scenarios that can assist with offering network resilience and system flexibility by managing load imbalances. Individual system components for power generation, storage, and control can be customised to meet a specific network or customer need including but not limited to:

- Local rural and un-electrified customers
- Green energy markets
- Municipalities
- Spatial development zones
- Privately-owned businesses
- Residential estates
- National Parks and Reserves
- Hospitals and Clinics

Why is Eskom offering their customers Containerised Microgrids?

This solution ensures that customers that need to be electrified are connected quickly, as there are no servitudes and lengthy delays in the connection process. Containerised Microgrids can as well assist in supplying power to customers during loadshedding, using the power system as a backup mechanism. Additionally, this solution assists in strengthening existing and occasionally constrained infrastructure.

Social Engineering and Customer education

For all communities to benefit and flourish once they are powered up, Eskom ensures people are well informed on the safe use of electricity, and steps to take in case of a contact incident. Users are also educated on how to use Microgrid power sparingly to avoid overloading the system.

Who can you contact for information on Microgrids?

All interested potential customers and those who want additional power on an existing line are encouraged to contact Eskom for a Microgrid installation.

For enquiries: microgrids@eskom.co.za

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