Solar PV (Photo-voltaic) Embedded Generation (EG) General information.

City of Ekurhuleni Municipality allows embedded solar PV generators to be connected to the distribution grid. This document provides information on which systems are allowed to connect, EG capacity limitations, how to go about applying for permission to install such systems and as well as other general information on EG in the municipality.

What is a solar PV Embedded Generator (EG) system?

A Solar PV Embedded Generator mainly consist of solar panels, inverter/s, battery/s etc and the system is connected to the electricity distribution grid via a grid-synchronizing inverter (which converts the DC solar power to AC power). If a system is connected to the wiring on your premises, which is subsequently connected to the distribution network of the Municipality, such a system is called grid tied. Solar PV is the main technology type used however wind, biogas electricity, natural gas, hydro power, and diesel generators connected to the grid are also forms of embedded generation. This document only covers solar PV

Can I install Solar PV SSEG system without permission from the municipality?

No!. National legislation prohibits the connection of EG systems to the distribution grid (even if it is on the customer's side of the distribution board) without specific written permission from the municipality. Sometimes people think that PV systems connected to the wiring on the premises but that never reverse feed onto the municipal network are exempt. This is not correct – these systems require permission as well. The municipality is obliged to disconnect customers from the grid if they have unapproved, illegal systems.

How do I apply for permission to install a PV SSEG system?

The application forms for alternative power supply are available from Electricity Department offices and as well as on City of Ekurhuleni website (www.ekurhuleni.gov.za) under **"Forms".** The '***Requirements for Embedded Generation*** are detailed on the City's Embedded generation policy document also available on the website. The policy provides additional information and should be consulted when completing an application for EG installation.

Do I need permission to install a solar PV system that is not connected to the grid (off grid system)?

Permission from the municipal Electricity Department is **not needed** for systems that are not connected to the distribution grid (note that if it is connected to the wiring on your premises which is connected to the distribution network, this is still a grid-connected, or embedded generator). Off grid systems operate independent of the grid and there is no physical connection between the system and the grid and no EG capacity limitations applicable.

Which EG systems are allowed?

Systems need to comply with a range of technical criteria to be approved by the municipality. This ensures that safety and power quality problems on the grid are avoided (for example inverters must be certified according to the NRS097-2-1 standard, and systems need to comply with NRS097-2-3 criteria). Systems over 1000kVA generation capacity, and ones that are in specific locations on the distribution grid, may only be approved once detailed connection studies are conducted.

How long does it take to get an approval from the Municipality?

The Municipality will respond withing 10 working days.

Who can install a solar PV EG system?

The municipality only permits qualified electrical installers with added PV knowledge such as GreenCard accreditation to install EG systems. This ensures quality of installation and protects both the customer and the municipality. Local installers are encouraged to register – see www.pvgreencard.co.za. However only a qualified electrician with wireman's license can issue a certificate of compliance for the installation.

Which tariff will apply to a customer with Solar PV and can I sell excess electricity to the Municipality?

CoE has developed embedded generation feed in tariffs to compensate consumers exporting excess power to CoE grid by crediting their accounts. EG tariffs are included in the Municipality's schedule of tariffs published annually.

Is my meter compatible with embedded generator?

Electromechanical meters (a turning disk meter) is not compatible with embedded generation as the meter can turn in reverse when the EG is generating more electricity than needed and excess is exported back to the grid. This phenomenon unfortunately causes billing errors and it is undesirable. Prepaid meters installed by CoE are also not compatible with embedded generation as they decrement Kwh units left on the meter when there is electricity exported by the EG to the grid. The special meter required for embedded generation is a four quadrant automated meter reading type which is able to properly record electricity flow in both directions (Export and Import). The Municipality will install this type of meter for all approved embedded generators at customer's cost. However, if the customer decides to remain on prepaid metering, reverse power blocking mechanism must be installed to prevent malfunctioning of the prepaid meter.

For more information:

See EG Policy document.