



APPLICATION FOR THE CONNECTION OF EMBEDDED GENERATION 1MW AND LARGER

General information

This application form is for the connection embedded generation greater than 1MW to the electricity network of Polokwane Local Municipality. The **Guideline for Municipalities on Processing Embedded Generator Applications 1MW and Larger** document of the municipality (hereinafter 'the Guideline') provides important information in this regard, including:

- technical compliance
- applicable standards
- environmental and other authorisations
- NERSA registration/licensing requirements.

This application form is for:

- All generator power sources (solar, wind, hydro, diesel etc)
- Embedded generators 1MW and larger
- Generators with or without self-consumption
- Generators intending to wheel power
- All customer categories (residential, commercial etc)

This application form is NOT for:

- Embedded generators of less than 1MW
- Generators in Eskom network areas
- Off-grid generators (where there is no point of supply)

Applications for generators under 1MW should use the SSEG application form.

It is recommended that this form is filled in by personnel familiar with the technical details of the intended generation technology.

There are two main parts in the application process prior to implementation permission:

1. The Applicant submits this application form and pays applicable application fees to enable the Municipality to assess the proposal, including undertaking any grid impact studies necessary (the Applicant may be asked to undertake these according to municipal specifications). The Municipality then submits a Cost Estimate Letter to the Applicant, which provides a non-binding estimate of the cost of connection and associated work, including any network strengthening necessary.
2. If the Applicant accepts this and pays the Budget Quote Fee, the Municipality then undertakes detailed studies necessary to provide a more accurate Budget Quote. On acceptance of the Budget Quote by the Applicant, contractual arrangements can proceed and design and construction work can begin.

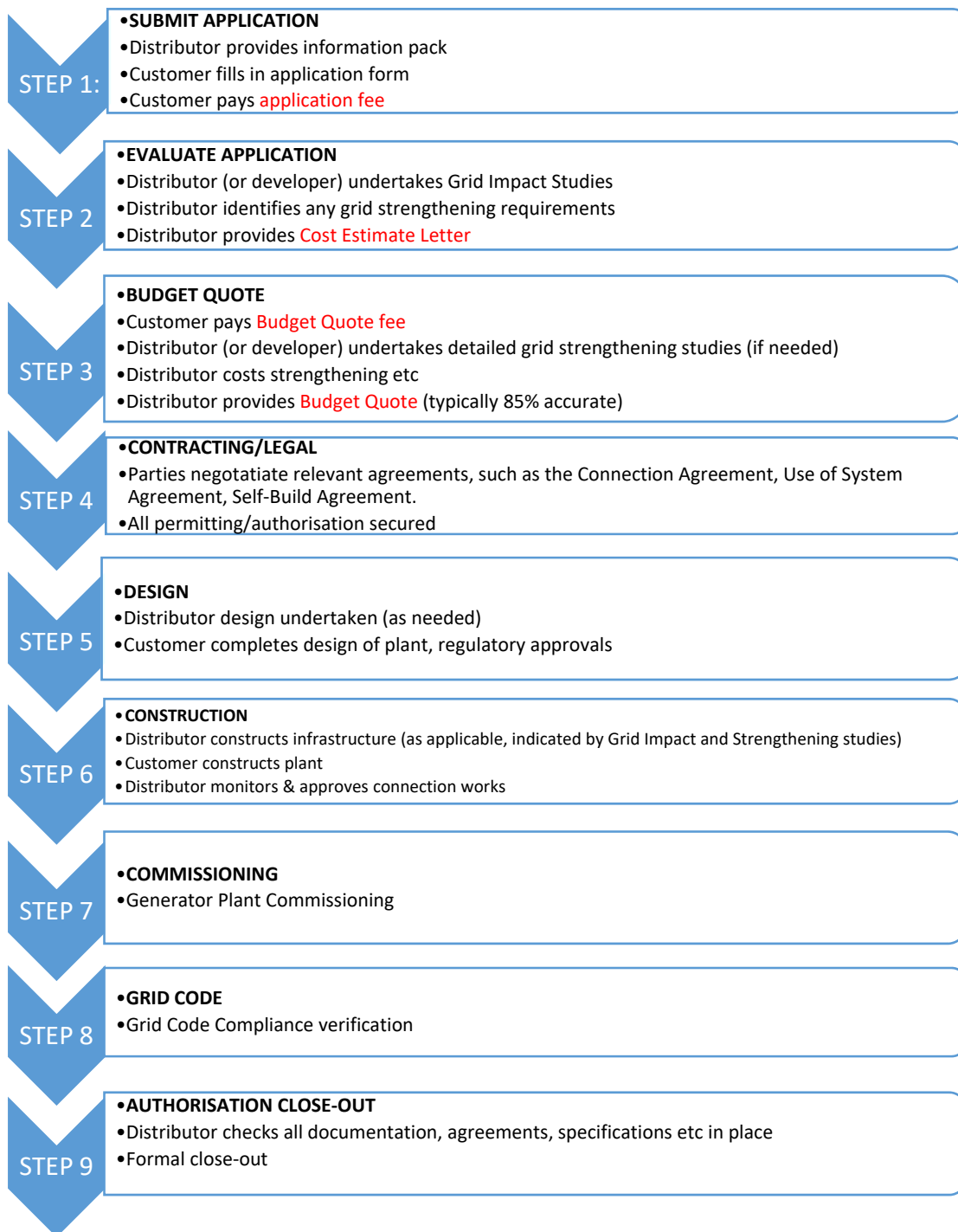
If the applicant does not yet have an electricity connection from the municipality, or requires an **increase in connection capacity**, a separate application for the new or increased capacity connection will need to be submitted together with this application form.

Fees:

Cost Estimate and Budget Quote Fees schedule should be requested from the municipality.



Summary of the application and project implementation process¹



¹ Further details are available in the *Guideline for Municipalities on Processing Embedded Generator Applications 1MW and Larger*

PLEASE NOTE: FAILURE TO PROVIDE ALL RELEVANT INFORMATION AS REQUIRED BELOW MAY LEAD TO DELAYS IN THE APPLICATION PROCESS

Generator overview information

Project Name:				Date:	
Nominal AC capacity of new generator (MW):					
If extension of existing generator (or N/A):	Existing AC capacity (MW):		New total (MW): (existing+new)		
	System type:	Solar PV:		Other generator (specify):	
Grid Connection mode (Tick appropriate):	Energy from generator to be used solely within the consumers electricity network and no excess power to be exported to Municipal electricity network at any time (i.e. reverse power blocking to be installed)				
	Energy from generator to be used within consumers electricity network and excess power to be exported to Municipal electricity network				
	All energy generated to be exported to the Municipal network (e.g. wheeling to a separate customer)				
	Other:				
Generation project description:	Provide details in 1 paragraph to give assessors a picture of the generator and site characteristics e.g. rooftop PV, ground mounted, land area, energy source, current use of land etc				
Site / Property Erf/farm/portion No:				Zoning:	
Physical address:					
	Postal code: <input type="text"/>				
Site GPS coordinates	Latitude (dd mm ss)	S <input type="text"/> <input type="text"/> <input type="text"/> ° <input type="text"/> <input type="text"/> ' <input type="text"/> <input type="text"/> ''			
	Longitude (dd mm ss)	E <input type="text"/> <input type="text"/> <input type="text"/> ° <input type="text"/> <input type="text"/> ' <input type="text"/> <input type="text"/> ''			
Land use permission: Indicate whether permission to use the land for generation purposes is in place (e.g. letter of consent from owner) – or state why not relevant					

Applicant and Property Information

Account Holder/Customer Details*

Name:		
Electricity Account No:		
Telephone Number:	Landline:	Mobile:
Email Address:		

* - if the applicant does not yet have an electricity connection, this should be stated above and an application for a new connection will need to be submitted together with this application form. Off grid systems where there is no point of supply from the municipality, do not need to apply for Municipal approval.

Applicant Details

Company Name:		
Relationship to customer:	(developer/consultant/installer/other...)	
Physical address:		Postal code: <input type="text"/>
Postal address:		Postal code: <input type="text"/>
Website:		
Contact Person:		
Telephone Number:	Landline:	Mobile:
Email Address:		

Construction Schedule*

Anticipated Construction Start Date:	Anticipated Commissioning Date:**
--------------------------------------	-----------------------------------

* - if system already installed (i.e. a retrospective application) – state 'existing system' under start date

** - if the generator is to be commissioning in phases, state date and kW for each phase

Existing Connection

NMD (MVA):	
Customer supply voltage:	

Embedded Generator Technical Information

Voltage of generator connection into customer's network (as relevant):

Estimated fault contribution from total generator installation (any existing + new):

Embedded Generator Specifications

(Note that some information may not be relevant to generator in question. Indicate NA if not applicable)

Manufacturer:	
Energy source:	
Rated MVA (e.g. Inverter/generator):	
Rated MW (e.g. Inverter/generator):	
Rated MWp (for solar):	
Rated Voltage AC:	
Max expected Voltage DC:	
Rated Power Factor:	
Inertial Constant:	
Maximum MVAR Limit:	
Neutral to Earth Resistance in Ohms:	
X_d – Synchronous reactance in p.u:	
X'_d - Direct Axis transient reactance in p.u:	
X''_d – Direct axis sub-transient reactance in p.u:	
X_2 – Negative sequence reactance in p.u:	
X_0 – Zero sequence reactance in p.u:	

Embedded Generator and Unit Transformer Specifications

Voltage and power ratings:	
Windings configuration:	
Neutral earth resistors or reactors:	
Positive and zero sequence impedances in p.u:	
R1:	
X1:	
R0:	
X0:	

Estimated Consumption and Generation Levels

Current electricity consumption from the municipality (average MWh/month)*	
Estimated output of generator (average MWh/month)	
Estimated future consumption from the municipality (average MWh/month)**	
Maximum export capacity (MVA)***	
Plant operating characteristics, operating and maintenance philosophy (generation profile – daily, weekly, annual, other relevant information regarding operating times, operating activities, outputs, import/export, downtime, maintenance regime etc)	

* - relevant to current customers

** - relevant to customers/generators with self-consumption

*** - this will be the same as the generator capacity for generators without self-consumption

Storage/hybrid technical information

Does the EG include storage capabilities? (tick appropriate):				✓
1) No storage				
2) Yes - <i>but only as standby power – cannot operate in parallel and feed onto the grid</i>				
3) Yes - <i>connected in parallel to EG – can feed onto the grid</i>				
4) Yes – <i>stand-alone energy storage installation (no EG)</i>				
For 3) and 4) above, complete the following:				
1) Size (Power/Energy) and technology of Energy Storage <i>(e.g. 5MW/20MWh L-Ion Battery)</i>	Max Charging:		MW	
	Max Discharging:		MW	
	Installed Storage Capacity:		MWh	
	Storage technology:			
2) Combined Facility Maximum Export Capacity (MEC) <i>(e.g. 75 MW PV and 40 MW BESS might result in max export of 50 MW and not the sum)</i>		MW	To be used for network thermal capacity check – Generation Scenario	
3) BESS ² application/use description <i>(What function will be played by the Storage? How will it be used? What is the charge-discharge philosophy?)</i>				
4) Energy Storage charging <i>(NB: to determine applicable criteria for capacity check when storage operates as a load)</i>	RE Generator only	Y/N	BESS load to be assumed = 0MW	
	Grid only	Y/N	Maximum charging load of the BESS to be assumed for load scenario capacity check	
	From both Renewable Energy Generator and Grid when required	Y/N	Maximum charging load of the BESS to be assumed for load scenario capacity check	

Layout and Preliminary design details:

1: Attach a **map of the facility** showing the generator location on the property, boundaries, immediate surrounds to the property/location, existing PoC and key electrical infrastructure, and other relevant details.

2: Attach a **preliminary circuit diagram and design** showing major components, proposed point of common coupling, isolating and interfacing devices with the municipal electrical network, protection schemes, customer electrical installation, earthing arrangements, etc.
If **storage is included in the facility**, this is to be included in the diagrams and design information provided.

² BESS - Battery Energy Storage System
EG 1MW and Larger - Application Form

Regulatory Requirements and Standards

(The *Guideline for Processing Embedded Generator Applications 1MW and Larger* document of the municipality provides further information of relevance)

The key standards, regulatory approvals, requirements and references that the installation needs to comply with are: *

✓

NRS 097-2 and NRS097-1 series (as published)	
South African Grid Codes	
South African Grid Code Requirements for Renewable Power Plants	
SANS 10142 Parts 1 to 4: The Wiring of Premises (as published)	
NRS 048: Electricity Supply: Quality of Supply	
NRS 047: Electricity Supply: Quality of Service	
NRS 057/SANS 474: Code of Practice for Electricity Metering	
Eskom standard 240-61268576 for generator design	

* - note that the latest versions of all of the above standards are applicable

NERSA registration/license

Does the system need to be registered with NERSA? (tick)	Yes	No	
Does the system require a license from NERSA? (tick)	Yes	No	

Other authorisations, clearances and approvals

In the stages prior to construction, various environmental, water, heritage or other authorisations may be necessary. Land rezoning may also be necessary. These are the responsibility of the customer and should be pursued timeously so as not to delay the process.

The *Guideline for Municipalities on Processing Embedded Generator Applications 1MW and Larger* document of the municipality provides further information in this regard.

Declaration

I request the Municipality to proceed with a preliminary review of this embedded generation interconnection application and I agree to pay the cost associated with completing this review, including costs to cover any studies necessary for such assessment. Upon receipt of a response and a Cost Estimate Letter from the Municipality I will have the opportunity to cancel or modify the application, or proceed to Budget Quote stage, which involves my paying a Budget Quote Fee.

I further consent to the Municipality providing this information to the National Electricity Regulator of SA (NERSA) and other Distributors as required.

I declare that this installation has been designed such that it complies with the regulatory requirements and standards applicable, and I acknowledge the conditions and processes outlines in the *Guideline for Municipalities on Processing Embedded Generator Applications 1MW and Larger* document.

Customer Sign-off:

_____	_____	_____
Name	Date	Signature

Applicant Sign-off:

_____	_____	_____
Name	Date	Signature

Return completed form to the relevant office, or e-mail address:

Office Name	Energy Services: Planning and Development	
E-mail:	wimpier@polokwane.gov.za dennism@polokwane.gov.za	
Telephone Number:	Landline: +27 15 290 2122	Mobile:
Physical address:	Mobile Office No.5, Civic Centre Polokwane Municipality Cnr Landdros Mare & Bodenstein St, Polokwane	
	Postal code:	0699

Attachment of this application checklist (tick)

Preliminary circuit diagram	
Map of the facility	

