SWARTLAND MUNICIPALITY

DEPARTMENT ELECTRICAL ENGINEERING SERVICES

APPLICATION FOR CONNECTION OF EMBEDDED GENERATION

General information

This application form is for:

- All generator power sources (solar, wind, hydro, diesel etc)
- Embedded generators up to 1MVA
- Generators with self-consumption
- All customer categories (residential, commercial etc)

This application form is NOT for:

- Generators >1MVA
- 'Pure' generators / IPPs (no self-consumption)
- Generators wanting to wheel power
- Generators in Eskom network areas
- Off-grid generators

This application form is for the connection of embedded generation to the electricity network of **Swartland** Municipality. The *Requirements for Embedded Generation* document of the municipality provides important background regarding the municipality's conditions for generators.

Applications that fall within the 'Simplified Connection Criteria' as specified in the NRS097-2-3 are likely to be approved by the municipality. Applicants should familiarise themselves with these criteria to avoid delays (refer to the municipality's 'Requirements' document). Systems that exceed these criteria may require grid impact studies before their approval is considered. The municipality will advise if such studies are required after this application form is submitted. For systems not covered by this form, engage with the Municipality separately for more information. In addition, some systems may need to be registered with NERSA (refer to the Requirements document).

It is recommended that this form is filled in by personnel familiar with the technical details of the intended generation technology. 'Competent person' sign-off of the Commissioning Report is mandatory, but such sign-off is not required at the Application stage.

If the applicant does not yet have an electricity connection, an application for a new connection will need to be submitted together with this application form.

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

SECTION A: Applicant, Property and Installer 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.*

Property ERF No:		
Physical address:		Postal code:
Site GPS coordinates	Latitude (dd mm ss)	S ° ‘ ˇˇ
	Longitude (dd mm ss)	E ° ‘ ˇˇ

Existing Connection Details

Existing main switch:	Current (A):		Phases (tick):	Single		Three
NMD (kVA) (non-residential):						
Customer supply voltage (tick):	LV (230 or 400V):		MV:		Other:	

Installer Details

Company Name:		
Dept of Labour and Employment registration no:[1]		
List any professional memberships, certifications:		Reg Number:
Physical address:		Postal code:
Postal address:		Postal code:
Website:		
Contact Person:		
Telephone Number:	Landline:	Mobile:
Email Address:		

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

Anticipated Construction Start Date:		Anticipated Commissioning Date:	

[1] Note that installations need to be done or supervised by registered persons

SECTION B: Embedded Generator Technical Information

Embedded Generator (EG) System Details

Project/Owners Name:				
Nominal AC capacity of generator (kVA):				
System type:	Solar PV:		Other (specify):	
If solar PV (tick):	Rooftop		Ground mounted	

Total AC capacity of EG (kVA and PF) (inverter capacity if solar PV):	kVA[2]: PF[3]:		If solar PV: Total PV panel (nameplate) capacity (kWp):	
Type of energy conversion[4]:				
Manufacturer (if PV, fill in for inverter):				
Model (if PV, fill in for inverter):			Quantity:	
Number of Phases[5] (tick):	Single Phase		Three Phase	
Voltage of generator connection into customer's network:				
Earthing arrangements e.g. TN-C-S, TN-C, TN-S:				
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			
	Other (specify)			
Export power (if exporting): (kVA):	Maximum export capacity			
Method of control of max export power (e.g. hardware, software settings etc):				

[2] *Note that if storage is included in the EG configuration and is set up in such a way that it can contribute additional export onto the grid, such output must be included in this figure.*

[3] *This will mainly apply to systems that make use of rotating machines and/or transformer type power converters e.g. wind power, hydro, battery connected inverters or diesel generators. For transformer-less static power converters (e.g. inverters with a solar PV system), the power factor is generally unity and the kW of the system will be the same as the kVA.*

[4] *e.g. synchronous generator, induction generator, static inverter, fuel-cell, dyno set. Will typically be an inverter for residential SSEGs.*

[5] *see NRS097-2-3 for phase balancing requirements*

Embedded Generator (EG) Protection Details

EITHER: NRS097-2-1 certification must be produced (inverters **must** have such certification)	
NRS097-2-1 test certificate is attached to this application (tick) :	
OR: fill in the below -	
Method of synchronising (auto/manual, make and type of relay, etc.)	
Method of anti-islanding (details of scheme, relays used, etc.)	
Method of generator control (AVR, speed, power, PF, excitation system requirements etc. relays to be used)	
Other main protection to be applied (O/C, E/F, over/under voltage, over/under frequency, reverse power flow, back-up impedance, generator transformer back-up earth fault, HV breaker fail, HV breaker pole disagreement, etc.)	

Storage (e.g battery)

Does the EG include storage capabilities? (tick appropriate):			
No storage			
Yes *(but only as standby power – cannot operate in parallel and feed onto the grid)*			
Yes *(connected in parallel to EG – can feed onto the grid)*			
Storage capacity (kWh):		Maximum AC charging current (Amps)[6]:	
Method of control of max charging current (e.g. hardware, software settings etc):			
If connected in parallel via separate storage inverter - Specify anti-islanding arrangements (e.g. NRS097-2-1 certificate)[7]:			

Preliminary design details:

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.

Estimated Consumption and Generation Levels

Current electricity consumption/month (average kWh/mth)	
Estimated average output of generator/month (average kWh/mth)	

[6] *Per phase - Measured on the AC terminals of the power conversion equipment*

[7] *See 'Requirements' document for anti-islanding requirements regarding storage*

SECTION C: Regulatory Requirements and Standards

List of regulatory approvals, requirements and references that the installation will comply with:

(note that the latest version of all of the below standards are applicable)

	✓
NRS 097-2 : Grid interconnection of embedded generation: Part 2: Small scale embedded generation (NRS097-2-1 and NRS097-2-3)	
SANS 10142-1 and SANS 10142-1-2: The wiring of premises (as amended and published)	

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	

Clearance by other Municipal departments (only if needed – see 'Requirements document)

Section	Comments	Name	Signature	Date
Buildings/Planning department				
Environment (noise pollution)				
Health (air pollution – burning fuels)				

Notes:

1. *Electricity department will require **prior** approval from this department if necessary (see 'Requirements' document to determine if necessary). Applications to connect to the municipal electrical grid will not be considered until necessary approval has been obtained.*
2. *Photovoltaic (PV) SSEG applications require approval from Planning and Building Development Management if:*
   a) *Roof top installations: PV panel(s) in its installed position projects more than 1.5m, measured perpendicularly, above the roof and/or projects more than 600mm above the highest point of the roof;*
   b) *Installations on the ground: PV panel(s) in its installed position projects more than 2.1 metres above the natural/finished ground level.*

SECTION D: 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 and obtaining written consent of the Municipality, though such costs are unlikely except if grid studies are required. Should such grid studies be required, a quotation for such work will be provided beforehand, giving me the opportunity to cancel or modify the application should I wish to do so.

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 requirements laid out in the latest version of the Municipality's *Requirements for Embedded Generation* document. I agree not to interconnect and operate this proposed SSEG system without written approval from the Municipality to do this.

FUTHER CONSENT: for the processing of personal information in terms of the Protection of Personal Information Act, Act 4 of 2013 ('POPIA')

I hereby authorise Swartland Municipality to use, review and process any personal information (as defined in POPIA) provided in this form in support of the application made hereby.

I understand my right to privacy and the right to have my personal information processed in accordance with the conditions for the lawful processing of personal information and hereby give my consent to the Swartland Municipality to collect, process, store and distribute relevant personal information where the Municipality may be required to do so, solely in respect of this application, and to dispose of such personal information as required by law, on the understanding that the Municipality:

- implements reasonable security safeguards designed to protect personal data from loss, misuse, alteration, destruction or damage; and
- takes steps to limit access to personal data to those officials who need to have access to it.

Name:……Signature: …….. Date: ……

Acceptance of Terms and Conditions

I, the Customer (Account Holder), acknowledge that I have read and understood the General Terms and Conditions: Contract for Connection of Embedded Generator and that by signing this application form, I agree to be bound by the General Terms and Conditions: Contract for Connection of Embedded Generator, should approval for the Embedded Generator be granted by the municipality. A copy of the General Terms and Conditions: Contract for Connection of Embedded Generator can be found on the Municipal website or is obtainable from the Electricity Department offices on request. Any amended terms and conditions found on the aforementioned website will form part of the terms and conditions of the General Terms and Conditions: Contract for Connection of Embedded Generator, to which terms I, the Customer, agree to be bound. The information provided in this Application Form also will form part of the General Terms and Conditions: Contract for Connection of Embedded Generator.

Customer (Account Holder) Sign-off:

Name: ……. Signature: ……. Date: …….

Installer Sign-off:

Name: ……. Signature: …… Date: …….

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

Electrical Engineering Services Physical address: Electrical Engineering Services Department 1st Floor PEP Stores Building Corner Piet Retief / Hill Str Malmesbury 7299	E-mail: SSEG@swartland.org.za Telephone Nr: 022 487 9400

Attachment to this application checklist (tick)

Preliminary circuit diagram showing major components, proposed point of common coupling, isolating and interfacing devices with Swartland electrical network, protection schemes, consumer network, operating characteristics etc.	
Type test Certificate of Compliance and Test Report according to NRS 097-2-1, issued by accredited 3rd party test house (all inverters must have this) Or An indication that the proposed Inverter appears on the list of approved Inverters as displayed on the Municipality's website.	