



ELECTRICITY SERVICES

This application form for the connection of embedded generation is for small-scale embedded generators to be installed by residential, commercial or industrial customers. It is applicable to all forms of embedded electricity generation, including renewable energy and cogeneration.

Submit Completed Form to:

Customer Support Services: Area North		
Test & Metering Building Ndabeni Electricity Complex Melck Street NDABENI	Ndabeni Electricity Complex Melck Street NDABENI 7405	Telephone: (021) 5064819/20 Facsimile: (021) 5064836
or Customer Support Services: Area East		
Electricity Services Head Office Bloemhof Centre Bloemhof Street BELLVILLE	Private Bag X44 BELLVILLE 7535	Telephone: (021) 4448511/2 Facsimile: (021) 4448787
or Customer Support Services: Area South		
First Floor Wynberg Electricity Depot Rosmead Avenue WYNBERG	Wynberg Electricity Depot Rosmead Avenue WYNBERG 7800	Telephone: (021) 7635664/5723 Facsimile: (021) 7635687

Project Name:
Erf Number:
Physical Address:
Township / Suburb / Farm:
Postal Code:

Property Name and Location:

**Name and Account
Numbers of Property**

Owner:
(Only if embedded generation is to be connected with a City of Cape Town Electricity consumer's network)

First Name:		Last Name:		Title:	
Business partner number as per municipal account:			Contract account number:		

Property Owner Contact Details:

	Office	Mobile
Telephone number		
Facsimile number		
E-mail address		

Application Type

Residential	
Commercial/Industrial	
New	
Revised Application	
Upgrade existing system	
Change of Property Owner	
Other (specify)	

Planned Construction Schedule:

Projected construction start date	
Projected in-service date of embedded generator	

Mode of Embedded Generation:
(Tick appropriate box)

Energy from Embedded Generation to be used within a consumer's electricity network and no excess to be exported to City of Cape Town Electricity's distribution network	<input checked="" type="checkbox"/>
Energy from Embedded Generation to be used within a consumer's electricity network and excess to be exported to City of Cape Town Electricity's distribution network	<input type="checkbox"/>
Energy from Embedded Generation to be used solely for exporting to City of Cape Town Electricity's distribution network	<input type="checkbox"/>
Energy from Embedded Generation to be used solely for wheeling to third party through City of Cape Town Electricity's distribution network	<input type="checkbox"/>

Type of Prime Mover and Fuel Source for Embedded

Generation: e.g. Photo-Voltaic, Concentrated Solar Power, Small Hydro, Landfill Gas, Biomass, Biogas, Wind, Co-generation

Battery Storage

Yes		No	
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Type of Energy Conversion:

E.g. Synchronous Generator, Induction Generator, Inverter, Fuel-cell, Dyno set. (Include operating characteristics).

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Site Plan:

Latitude (dd mm sss)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">S</td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%; text-align: center;">°</td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%; text-align: center;">‘</td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%; text-align: center;">”</td> </tr> </table>	S			°			‘			”
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Longitude (dd mm sss)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">E</td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%; text-align: center;">°</td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%; text-align: center;">‘</td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%; text-align: center;">”</td> </tr> </table>	E			°			‘			”
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For commercial/industrial only (show location and dimensions of intended installation infrastructure in relation to the existing property point of connection and buildings.)											

Site Land Use Zoning:

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Preliminary Design¹:
(to be attached)

Circuit diagram and design showing major components,, proposed point of common coupling, isolating and interfacing devices with City of Cape Town electrical network, protection schemes, consumer network, operating characteristics, etc.	
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Earthing arrangements i.e. TN-C-S	
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Total Capacity of Embedded Generation (kVA and PF²):

(Attach schedule for each unit if more than one generation unit and location)

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¹ For guidance here, it is recommended that an installer/supplier be consulted.

² This will mainly apply to systems that make use of rotating machines e.g. wind power, hydro or diesel generators. For static power converters (e.g. inverters with a solar PV system), the power factor is generally 1 and the kWp of the system will be the same as the kVA.

Proposed Consumption and Generation Levels:
(Complete the table below)

Month	Estimated imported energy for the month (kWh) (Electricity bought from utility once SSEG is installed)	Estimated exported energy for the month (kWh) (Electricity generated by SSEG and not utilised for own use)	Estimated maximum instantaneous exported power (kVA)	Day of week that maximum power export occurs	Time of day that maximum power export occurs
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Total			N/A	N/A	N/A

Brief explanation of the reasons for the general load profile and electricity export profile as demonstrated above :

Make & model of key generating equipment:

Manufacturer:		
Model:		
Number:		
Phase:	Single	Three

Electrical Parameters of Embedded Generation³:

(All units in parallel, to be used for fault-level studies. Not all of these parameters apply to all modes of SSEG. Insert n/a if not applicable)

Rated voltage	Maximum MVAR limit	Inertia constant

Maximum peak short circuit current (A)	Single or multiphase

Neutral to earth resistance in ohms	Xd – Synchronous reactance in p.u.	X'd – Direct axis transient reactance in p.u.

³ Professional or reputable installer/supplier should provide. For static power converter-based systems (e.g. solar PV inverters) many of these electrical parameters do not apply.

X''d – Direct axis sub-transient reactance in p.u.	X2 – Negative sequence reactance in p.u.	X0 – Zero sequence reactance in p.u.

Electrical Parameters of generator and unit transformers⁴:

(Not all of these parameters apply to all modes of SSEG. Insert N/A if not applicable)

Voltage and power ratings	Winding configuration

Neutral earth resistor or reactors (NER / NECR impedance)

Positive and zero sequence impedances in p.u.	
R1	X1
R0	X0

Network Connection Point:

(In the case of applicant not being an existing consumer only, attach a single line diagram showing arrangement)

Protection Details⁵:

Method of synchronising: (Auto/Manual, make and type of relay, etc.)	
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Method of anti-islanding: (Details of scheme, relays to be used, etc.)	
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⁴ Professional or reputable installer/supplier should provide. For static power converter-based systems (e.g. solar PV inverters) many of these electrical parameters do not apply.

⁵ Professional or reputable installer/supplier should provide.

Method of generator control: (AVR, speed, power, PF, excitation system requirements etc. relays to be used)	
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Other main protection to be applied: (O/C, E/F, over/under voltage, over/under frequency, reverse power, back-up impedance, generator transformer back-up earth fault, HV breaker fail, HV breaker pole disagreement, etc.)	
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Recording of Quality of Supply devices	
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List of Regulatory Approvals, Requirements and Normative References⁶:

(Tick appropriate box or N/A)

	✓
Electricity Regulation Act, Act 4 of 2006 and Electricity Regulation Amendment Act, Act 28 of 2007	
Occupational Health & Safety Act, No. 85 of 1993 as amended	
South African Distribution Code (all parts)	
South African Grid Code (all parts)	
South African Renewable Power Plants Grid Code	
City of Cape Town Electricity Supply By-Law	
SANS 474 / NRS 057 : Code of Practice for Electricity Metering	
SANS 10142- Parts 1 to 4: The wiring of premises (as amended and published)	
NRS 048: Electricity Supply – Quality of Supply	
NRS 097-1 : Code of Practice for the interconnection of embedded generation to electricity distribution networks : Part 1 MV and HV	
NRS 097-2 : Grid interconnection of embedded generation : Part 2: Small scale embedded generation	

⁶ Note: It is the responsibility of the ECSA registered professional engineer/technologist to ensure compliance through their professional sign-off of the installed system in Appendix 1 – SSEG Installation Commissioning Report.

CLEARANCE BY OTHER CITY OF CAPE TOWN DEPARTMENTS

FUNCTION	SECTION	COMMENTS	NAME	SIGNATURE	DATE
Zoning/Subdivision/ Building Structure Plans	Planning and Building Development Management (Area offices)				
Noise impact assessment and ventilation	City Health Specialised Services 22 nd floor Cape Town Civic Centre (021) 4003781				
Air pollution and quality (Fuel burning)	City Health Specialised Services 246 Voortrekker Road VASCO (021) 5905200				

Note:

1. Electricity Services will require **prior** approval from these departments. Applications to connect to the grid will not be considered until all relevant approvals have been obtained.
2. Photovoltaic (PV) SSEG applications will require approval from only Planning and Building Development Management.

INSTALLER DETAILS

Installer:					
Accreditation/Qualification:					
Professional Registration:		Reg. No.			
Address:					
				Postal code:	
Contact person:					
Telephone no:	Office:		Mobile:		
Facsimile:	E-mail address:				

Any other additional information:

I request City of Cape Town to proceed with a preliminary review of this embedded generation interconnection application and I agree to pay the cost associated with completing this review, connection quotation and written consent of City of Cape Town.

I further consent to City of Cape Town providing this information to the National Transmission Company and other Distributors as required.

APPLICATION FOR THE CONNECTION OF EMBEDDED GENERATION Page 8

Application Completed By:

Name:	Title:

ECSA Registered Professional

Name:	Reg. no:	Registration category:
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(Note: Sign-off by an ECSA registered Professional is optional at application stage, however it is recommended that an ECSA registered professional engineer or professional technologist that is familiar with the technical details of the intended generation technology, complete this application form)

Signed (Applicant):

Date:

Signed (Property owner):

Date:

FOR OFFICE USE

Date Application Received:

Application Notification No.

Further Information Required (e.g. Competent Person detail required in terms of Occupational Health and Safety Act, General Machinery Regulations: Supervision of Machinery, Section 2):

YES / NO

Date Received:

More detailed studies Required (fault level, voltage rise, unbalance, flicker, harmonics, protection, etc.):

YES / NO

Date Complete:

Approved in Principle:

YES / NO

Date Applicant Advised:

Copy to System Control:

YES / NO

Date Completed:

Copy to Distribution District Installation Inspector:

YES / NO

Date Completed:

Copy to MV/HV Section for SSEG > 1kV:

YES / NO

Date Completed:

Appendix 1 – SSEG Installation Commissioning Report

The following SSEG Commissioning Report must be submitted for each installation, confirming compliance with the City's requirements.

Site Details	
Property address (incl. post code)	
Business Partner & Contract account numbers	
Contact Details	
SSEG property owner	
Contact person	
Contact telephone number	
SSEG Details	
Manufacturer and model type	
Serial number/s of inverter/s and independent disconnection switching unit/s (if not integrated into one of the components of the embedded generator)	
Serial number / version numbers of software (where appropriate)	
SSEG rating (kVA) and power factor (under normal running conditions)	
Single or three phase	
Maximum peak AC short circuit current (A)	
Type of prime mover (e.g. inverter or rotating machine) and fuel source (e.g. sun, biomass, wind)	
Location of SSEG within the installation	

Installer Details		
Installer		
Accreditation/Qualification		
Address (incl. post code)		
Contact person		
Telephone number		
Fax number		
E-mail address		
Information to be Enclosed		
Final copy of circuit diagram		
Inverter type test Certificate of Compliance and Test Report according to NRS 097-2-1, issued by accredited 3 rd party test house (not necessary if already provided).		
Factory setting sheet or other documentation showing that the inverter has been set according to NRS 097-2-1		
An electrical installation Certificate of Compliance.		
Signed contract for SSEG		
Operation and maintenance procedure		
Compulsory declaration – to be completed by ECSA registered Pr Eng or Pr Tech Eng		
The SSEG installation complies with the relevant sections of NRS 097-2-1.		
The loss of mains protection has been proved by a functional test carried out as part of the on-site commissioning, e.g. a momentary disconnection of the supply to the SSEG in order to prove that the loss of mains protection operates as expected.		
Protection settings have been set to comply with NRS 097-2-1		
Safety labels have been fitted in accordance with NRS 097-2-1		
The SSEG installation complies with the relevant sections of SANS 10142-1 and an installation certificate of compliance is attached.		
Reverse power blocking protection system installed and commissioned to prevent reverse power flow onto the distribution electricity network (where applicable)		
Comments (continue on separate sheet if necessary)		
Name:	Signature:	Date:
ECSA Professional Category:	Reg. No.	

Appendix 2 – SSEG Decommissioning Report

Site Details	
Property address (incl. post code)	
Business Partner account number	
Contract account number	
Telephone number	
SSEG details	
Manufacturer and model type	
Serial number/s of inverter/s and independent disconnection switching unit/s (if not integrated into one of the components of the embedded generator)	
SSEG rating (A)	
Type or prime mover and fuel source	

Decommissioning Agent Details		
Name		
Accreditation/Qualification		
Address (incl. post code)		
Certificate of Compliance Number (provide certified copy of the CoC which confirms that the SSEG has been disconnected effectively from the City's electricity distribution network).		
Contact person		
Telephone number		
Fax number		
E-mail address		
Name:	Signature:	Date: