



CITY OF CAPE TOWN | ISIXEKO SASEKAPA | STAD KAAPSTAD

THIS CITY WORKS FOR YOU

ELECTRICITY SERVICES

APPLICATION FOR THE CONNECTION OF EMBEDDED GENERATION

Page 1

Submit Completed Form to:

Customer Support Services : North		
Test & Metering Building Ndabeni Electricity Complex 1 Melck St Ndabeni Cape Town	Ndabeni Electricity Complex 1 Melck St Ndabeni MAITLAND 7405	Telephone: (021) 5064819/20 Facsimile: (021) 5064836
or Customer Support Services : East		
Block A Bloemhof Centre Bloemhof Street Bellville	Private Bag X44 BELLVILLE 7535	Telephone: (021) 9187058/669 Facsimile: (021) 9187088
or Customer Support Services : South		
First Floor Wynberg Electricity Depot Rosmead Avenue Wynberg Cape Town	Wynberg Electricity Depot Rosmead Avenue WYNBERG 7800	Telephone: (021) 7635664/93 Facsimile: (021) 7628029

Name of Applicant:

Electricity Business Partner Account Holder and Number:

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

Name:	<input style="width: 85%;" type="text"/>
No:	<input style="width: 85%;" type="text"/>

Applicant Contact Person details:

Name	<input style="width: 85%;" type="text"/>
Telephone number	Office
	Mobile
Facsimile number	<input style="width: 85%;" type="text"/>
E-mail address	<input style="width: 85%;" type="text"/>

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Project Name and location:

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Construction Schedule:

Projected construction start date	
Construction power requirements	
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 excess to be exported to City of Cape Town Electricity's distribution network	<input checked="" 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"/>

Energy Source for Embedded Generation:

e.g. Coal, Gas, Bagasse, Hydro, Wind, Photo-Voltaic, etc.

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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:

(Tick appropriate box)

Site plan to show scaled map with existing services	<input checked="" type="checkbox"/>
Future site development plans	<input type="checkbox"/>

Land Use Zoning:

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Preliminary design:

Design show generators, transformers, 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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Total Capacity of Embedded Generation (kVA and PF):
 (Attach schedule for each unit if more than one generation unit)

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Total Export Generation Capacity (kVA and PF):
 (Maximum power intended for export into City of Cape Town Electricity's distribution network)

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Make & model of generating unit:

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Electrical Parameters of Embedded Generation:
 (All units in parallel, to be used for fault-level studies)

Rated voltage	Maximum MVAR limit	Inertia constant

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

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 transformers:

Voltage and power ratings	Winding configuration

Neutral earth resistor or reactors

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

Expected consumption of electricity:
 (Details to be clarified with City of Cape Town)

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Network Connection Point:

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

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Protection Details:

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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Method of anti-islanding: (Details of scheme, relays to be used, etc.)	
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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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Has a Power Purchase Agreement been entered into with a recipient (Required before connection to Distribution System):

(If YES, supply details)

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	TOTAL	EXPORT
Proposed Generation Power Level: (During periods defined by Eskom's Megaflex Tariff)	Peak Periods <input style="width: 100px; height: 20px;" type="text"/> kW	<input style="width: 100px; height: 20px;" type="text"/> kW
	Standard Periods <input style="width: 100px; height: 20px;" type="text"/> kW	<input style="width: 100px; height: 20px;" type="text"/> kW
	Off-Peak Periods <input style="width: 100px; height: 20px;" type="text"/> kW	<input style="width: 100px; height: 20px;" type="text"/> kW

	TOTAL	EXPORT
Proposed Total Monthly Energy Generation: (Attach schedule if monthly generation is not consistent, e.g. linked to availability of prime energy source)	<input style="width: 100px; height: 20px;" type="text"/> kW	<input style="width: 100px; height: 20px;" type="text"/> kW

Has Incentive Capital Funding Been Obtained For This Installation:
(State source(s) and amount)

Has a subsidy been granted for production of energy from this installation:
(State source(s) and amount)

List of Regulatory Approvals, Requirements and Normative References: (Tick appropriate box or N/A)	
Electricity Regulation Act, Act 4 of 2006 and Electricity Regulation Amendment Act, 2006	<input checked="" type="checkbox"/>
Department of Environmental Affairs & Tourism in terms of Environment Conservation Act, No. 73 of 1989 and National Environmental Management Act, No. 107 of 1998, (as amended)	<input type="checkbox"/>
Explosives Act, No. 26 of 1956 as amended	<input type="checkbox"/>
Occupational Health & Safety Act, No. 85 of 1993 as amended	<input type="checkbox"/>
South African Distribution Code (all parts)	<input type="checkbox"/>
South African Grid Code (all parts)	<input type="checkbox"/>
IEC 62271-100: High voltage alternating current circuit breakers	<input type="checkbox"/>
IEEE 1547.1, IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems	<input type="checkbox"/>
NRS 029 : Current transformers for rated a.c. voltages from 3,6kV up to and including 420kV	<input type="checkbox"/>
NRS 030 : Electricity distribution – Inductive voltage transformers for rated a.c. voltages from 3,6kV up to and including 145kV for indoor and outdoor applications	<input type="checkbox"/>
NRS 031 : Alternating current disconnectors and earthing switches (above 1000V)	<input type="checkbox"/>
NRS 037-1 : Telecontrol Protocol for stand-alone remote terminal units.	<input type="checkbox"/>

NRS 048-2 : Electricity Supply – Quality of Supply Part 2 : Voltage characteristics, compatibility levels, limits and assessment methods	
NRS 048-4 : Electricity Supply – Quality of Supply Part 4 : Application guidelines for utilities	
NRS 054 : Rationalized User Specification – Power Transformers	
NRS 057-4 : Electricity Metering Part 4 : Code of Practice	
NRS 097: Grid interconnection of embedded generation	
SANS 1019 : Standard voltages, currents and insulation levels for electricity supply	
IEC 60068-2-1 : Environmental Testing – Part 1 Cold	
IEC 60068-2-2 : Environmental Testing – Part 2 Dry Heat	
IEC 60068-2-30 : Environmental Testing – Part 30 Damp heat, cyclic (12h + 12h cycle)	
IEC 60255-30 : Electrical relays Part 3 : Single input energizing quantity measuring relays with dependent and independent time	
IEC 60255-6 : Electrical relays Part 6 : Measuring relays and protection equipment	
IEC 60255-21 : Electrical relays Part 21 : Vibration, shock, bump and seismic tests on measuring relays and protection equipment (all sections)	
IEC 60255-22 : Electrical relays Part 22 : Electrical disturbance tests for measuring relays and protection equipment (all sections)	
SANS IEC 60529 : Degrees of protection provided by enclosures (IP Code)	
SANS IEC 61000-4 : Electromagnetic compatibility (EMC) : Test and measurement techniques (all sections)	

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 Cape Town Civic Centre, 22 nd Floor 021-4003781				
Air pollution and quality (Fuel burning)	City Health Specialised Services 246 Voortrekker Road, Vasco 021-5901419				

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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 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 Completed By:

Name:	Title:

Date:

Signed: _____

FOR OFFICE USE

<p>Date Application Received: <input style="width: 100%; height: 20px;" type="text"/></p> <p>Further Information Required: <input style="width: 100%; height: 20px; text-align: center;" type="text" value="YES / NO"/></p> <p>Load Flow Analysis Required: <input style="width: 100%; height: 20px; text-align: center;" type="text" value="YES / NO"/></p> <p>Fault Level / Protection Grading Study Required: <input style="width: 100%; height: 20px; text-align: center;" type="text" value="YES / NO"/></p> <p>Approved in Principle: <input style="width: 100%; height: 20px; text-align: center;" type="text" value="YES / NO"/></p> <p>Copy to System Control: <input style="width: 100%; height: 20px; text-align: center;" type="text" value="YES / NO"/></p> <p>Copy to Area Engineering Support: <input style="width: 100%; height: 20px; text-align: center;" type="text" value="YES / NO"/></p>	<p>Application Reference No. <input style="width: 100%; height: 20px;" type="text"/></p> <p>Date Received: <input style="width: 100%; height: 20px;" type="text"/></p> <p>Date Complete: <input style="width: 100%; height: 20px;" type="text"/></p> <p>Date Complete: <input style="width: 100%; height: 20px;" type="text"/></p> <p>Date Applicant Advised: <input style="width: 100%; height: 20px;" type="text"/></p> <p>Date Completed: <input style="width: 100%; height: 20px;" type="text"/></p> <p>Date Completed: <input style="width: 100%; height: 20px;" type="text"/></p>
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