



REGULATIONS FOR SMALL SCALE EMBEDDED GENERATION

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i. Guideline information

Guideline Title	Regulations for Small Scale Embedded Generation Pertaining to the St Francis Links Estate (hereinafter referred to as the "Estate").		
Document Version	V6	Document Status	Amended

Guideline Goals	The parallel connection of any generator to the Estate's electrical grid, however powered, has numerous implications for the Estate. It shall therefore be regulated and managed. The goals of the regulations are to: • Ensure the safety of the Estate's staff, the public and the user of the SSEG installation. • Mitigate the impact of the physical presence of the SSEG installation on neighbours (e.g., visual, noise). • Mitigate the impact on the quality of the Estate's electricity supply, as well as metering and billing issues. • Promote growth in the SSEG industry by creating a conducive environment for growth.
Intended outcome	The purpose of this document is to give each stakeholder relevant guidance regarding the Estate's SSEG rules, regulations, tariffs and application process.
Scope	This document covers: • The connection of SSEG to the Estate's electrical grid only. • Installations smaller than 1MW peak. • On-grid (grid tied and grid limited) and off-grid SSEG installations. • Installations for "self-consumption" only. This document does not cover: • Wheeling regulations. • Inverter testing regulations and procedures.
Defining small scale embedded generation	Small-scale embedded generation (SSEG) refers to power generation under 1MW/1000kW, which is located on residential, commercial or industrial sites where electricity is also consumed. SSEG is in contrast to large-scale generation units that generate large amounts of power, typically in the multi-Megawatt range. The majority of the electricity generated by a SSEG should be consumed directly on site. Times shall arise when generation exceeds consumption and typically a limited amount of power is allowed to flow in reverse - from the Customer onto the Estate's electrical grid. A SSEG Customer therefore generates electricity on the Customer's side of the Estate's electricity meter.

ii. Glossary & Definitions

The Estate	St Francis Links incorporating the St Francis Links Homeowners Association NPC and the Links Golf Club (RF) Limited.
The Estate Management	The individual/s responsible as appointed to act on behalf of the Estate (including, but not limited to the electrical services manager, Estate design review committee and building control officer).
Alternating current	The flow of electrical energy that follows a sine wave and changes direction at a fixed frequency (i.e., it 'alternates'). Most residential and commercial users of electricity require alternating current.
Direct Current	The flow of electrical energy in one constant direction. Direct current is typically converted to alternating current for practical purposes as most modern users of electricity require alternating current.
Anti-Islanding	The ability of a SSEG installation to disconnect the generator instantly and automatically from the Estate's electrical grid whenever there is a power outage in the Estate's electrical grid, thus preventing the export of electricity to the Estate's electrical grid from the SSEG. This is done primarily to protect the Estate's electrical grid workers who may be working on the grid and who may be unaware that the grid is still being energized by the SSEG.
Bi-directional meter	A meter that separately measures electricity flow in both directions (import and export)
Cogeneration	The sequential or simultaneous generation of multiple forms of useful energy (usually mechanical and thermal) in a single, integrated system.
Customer	In the context of this document, Customers who also generate shall be referred to as "Customers", although in effect they are "Customer/generators".
Generating capacity	The maximum amount of electricity, measured in kilovolt Amperes (kVA), which can flow out of the generation equipment into the Customer's alternating current wiring system. This is therefore the maximum alternating current power flow which can be generated.
Grid-tied	A SSEG that is connected to the Estate's electrical grid either directly or through a Customer's internal wiring is said to be "grid-tied". The export of energy onto the Estate's electrical grid is possible when generation exceeds consumption at any point in time.
Inverter	A power device that converts direct current to alternating current at a voltage and frequency which enables the generator to be connected to the Estate's electrical grid.
Isolated	A section of an Estate's electrical grid which is disconnected from all other possible sources of electrical potential is said to be isolated
Load profile	The variation of the Customer's rate of electricity consumption (or demand) over time.
Low Voltage	Voltage levels up to and including 1 kV. (1kV= 1000 Volts)
Medium Voltage	Voltage levels greater than 1 kV up to and including 33 kV.
Net Customer	A net Customer is someone who purchases (imports) more kWh of electricity than they export (sell) it over any 12-month period.
Pr Eng or Pr Tech Eng or Pr Techni Eng	This refers to a professional engineer, professional technologist or professional engineering technician who is registered with the Engineering Council of South Africa (ECSA).
Reverse power flow	The flow of energy from the Customer electricity installation onto the Estate's electrical grid (i.e., export) as a result of the instantaneous generation exceeding the instantaneous consumption at the generation site in question.
Reverse power flow blocking	A device which prevents power flowing from an embedded generator back onto the Estate's electrical grid.
Small Scale embedded generator	A small-scale embedded generator for the purposes of these guidelines is an embedded generator with a generation capacity of less than 1000 kW (1MW).
Stand-alone generator/off-grid generator	A generator that is not in any way connected to the Estate's electrical grid. Export of energy onto the Estate's electrical grid by the generator is therefore not possible.

iii. Abbreviations

AMI	Advanced Metering Infrastructure
ECSA	Engineering Council of South Africa
kVA	kilo-Volt Ampere (unit of apparent electrical power, often similar in magnitude to kW)
kW	kilo-Watt (unit of real electrical power)
kWp	kilo-Watt peak (the rated peak output of solar PV panels)
LV	Low Voltage
MV	Medium Voltage
MVA	Mega-Volt Amperes (1000 kVA)
NERSA	National Energy Regulator of South Africa
NMD	Notified Maximum Demand
PV	Photovoltaic
SSEG	Small Scale Embedded Generation/Generator
VAT	Value Added Tax

1. Indemnity, Legal Requirements & Curtailment

1.1. Illegal Connections to the Estate's electrical grid

No generation equipment may be connected to the Estate's electrical grid without the express consent of the Estate Management.

Failure to obtain this consent constitutes an offence which could lead to penalty levies.

Furthermore, the installation may also be in contravention of the Occupational Health and Safety Act, for which punitive sanctions also apply.

Customers found to have illegally connected SSEG to the Estate's electrical grid (either before or after their electricity meter) shall be instructed to have the installation disconnected from the Estate's electrical grid at their cost. A Certificate of Compliance issued by a registered electrical contractor shall be required as proof of such disconnection.

Should the Customer fail to have the SSEG disconnected from the Estate's electrical grid, the Estate's Technical Services Department shall disconnect the electricity supply to the property.

Customers wishing to connect SSEG legally to the Estate's electrical grid shall be required to follow the normal application procedure as detailed in these regulations. No exemption from any of the Estate's requirements shall be granted for "retrospective applications".

In addition, Customers wishing to connect SSEG legally to the Estate's electrical grid shall be required to ensure that illegal wiring forming part of the electrical installation is disconnected and that the installation is safe.

1.2. Generation Curtailment

In the event of operating conditions resulting in the Estate's electrical grid parameters not meeting statutory minimum quality-of-supply standards, it may become necessary to impose peak generation limits on embedded generator installations. It is expected that these limitations would be of a temporary nature, applied only during abnormal system conditions or low load periods.

1.3. Right to adapt rules and regulations

In the event of changes in the energy landscape, relevant rules, regulations, policies, laws and standards, it may become necessary to implement changes to these regulations and the rules, regulations, bylaws and policies that it references.

1.4. Right to deny access

It is essential that all Customers wishing to install a SSEG system, regardless of generation capacity, complete the relevant sections of the application process in full, and that written approval is received from the Estate Management before system installation commences. The Estate needs to ensure that, amongst other considerations, the SSEG installation can be accommodated on the Estate's electrical grid and that the total SSEG capacity of the Estate's electrical grid has not been exceeded. Equipment should not be purchased prior to obtaining written approval from the Estate as approval is not guaranteed and the Estate shall not be held liable for equipment expenses where approval is denied.

2. General Regulations - Small Scale Embedded Generators

Although the SSEG rules and regulations for residential and commercial and industrial Customers are different, certain sections of the Estate's rules and regulations are overarching. This section covers important considerations in terms of the Estate's SSEG rules and regulations that apply for all Customers including residential, commercial and industrial Customers who wish to connect a SSEG system, with generation capacity smaller than 1 MW (1000 kW)¹, to the Estate's electrical grid.

2.1. Registered Professional Sign off

Until SANS 10142-Part 3: *The Wiring of Premises – Embedded Generators* and SANS 10142-Part 4: *The Wiring of Premises – Direct Current and PV* are published, all SSEG projects shall be signed off by a registered professional engineer / technologist and a Certificate of Compliance shall be issued.

This requirement will, however, be waived for a Solar PV installation with a generating capacity up to and including 15 kVA if the Installer is accredited with the South African Photovoltaic Industry Association (SAPVIA) as a Registered Green Card Installer. The Installer shall also on completion issue the Property Owner (Customer) with both a digital and physical document that details all the specifications of the PV system as well as a checklist to confirm that all the required installation steps have been completed to the required standards. A copy of this documentation will be provided to The Estate for record purposes.

In all instances the Electrical Contractor, who will issue the electrical Certificate of Compliance, shall be in attendance during and not only at the end of the installation to also monitor the installation to ensure it complies with the relevant electrical technical standards, which will also take into account SANS 10142-1-2 EDI: Additional Special Requirements for Low Voltage Small Scale Embedded Generator Installations Connected in Parallel to the Normal Electrical Supply, which is currently still in draft format.

2.2. Testing of Inverters

Until such time as a SABS mark is issued for inverters, the Estate shall require proof in the form of test certificates and of type tests having been successfully carried out by a third-party testing authority certifying compliance of the inverters with the requirements of the Estate and NRS097-2-2 .

2.3. All generators shall be nett Customers

All SSEG installations shall consume more energy than they produce on a consecutive 12-month period. This stipulation is in response to the National Energy Regulator of South Africa (NERSA) requiring Customers that produce more energy than they consume on a consecutive 12-month period.

2.4. Generating licence

Existing legislation requires that anyone generating electricity "not for own use" shall obtain a generating license from the National Energy Regulator of South Africa. A 1MW SSEG installation feeding back onto the Estate's electrical grid while continuing to purchase more energy from the Estate than it feeds back onto the grid in a consecutive 12-month period is classified as electricity generation "for own use" and does not require a generating license from the NERSA².

¹ Anyone wanting to connect 1 MW or greater shall not be able to connect under the conditions of these regulations. In addition, a generating licence or exemption letter from NERSA shall be required before connection is considered.

² As there is no clarity regarding generation, both for 'own use' and 'not for own use', that is less than 1MW and that continues to consume more energy than they produce on a consecutive 12-month period, an installation that fulfils these criteria does not need a licence.

If a NERSA generation licence is required, then it is the Customer's responsibility to interact with NERSA. The Estate may be required to report to NERSA on a regular basis regarding all Estate electrical grid connected generation and disconnect generators that are not adhering to regulations.

2.5. Decommission of a SSEG system and transfer/change of ownership

The Estate requires notice of any SSEG system which has been decommissioned. The system shall be removed at the Customers' cost and a decommissioning report filed in the form set out in Annexure D. If transfer/change of ownership takes place a new certificate of compliance is required and a new Supplemental Contract in the form set out in Annexure A shall be signed, if required by the Estate, or alternatively the SSEG system shall be decommissioned.

2.6. Islanding / Anti-Islanding installations

Grid-tied inverters are generally not designed to operate in "islanded mode" where the SSEG installation supplies power to a portion of the Customer's electrical grid during a general power outage. Should the inverter have this facility, it shall be effectively isolated from the Estate's electrical grid during operation (as is legally required of any standby generator).

If the SSEG installation is to be configured as a standby supply after islanding from the Estate's electrical grid, the SSEG installation shall be connected to the existing internal wiring of the property. A registered person in terms of the Electrical Installation Regulations (2009) shall install the generator and issue a Certificate of Compliance to the owner if the generator is to be connected to the existing internal wiring of the property. Requirements of SANS 10142-1 – Clause 7.12 (Alternative supplies (including low voltage generating sets, installations, etc.)) apply. A fire safety and emergency shut off switch shall be installed where the SSEG installation is to be configured as a standby supply after islanding.

2.7. Off-grid system

Standalone generators (not connected to the Estate's electrical grid in anyway) shall not be permitted at this stage, but this may be reviewed in the future.

2.8. Adaption of electrical installation

All Customers wishing to participate in the SSEG tariff shall adapt their electrical installations in such a way that metering is accommodated in a meter kiosk in the road reserve. This does not apply where an acceptable meter box or meter room already exists on the street-front property boundary. If no kiosk exists or there is no room for the meter in an existing kiosk, a meter kiosk shall be installed in the road reserve at the Customer's cost. Only in cases where there are extremely narrow or no footways, thereby precluding the installation of a meter kiosk, shall Customers be required to provide metering accommodation on the street-front property boundary. Such a meter box shall face outwards and be locked with a standard Estate lock.

2.9. Load Profile Management

The SSEG tariff has been structured in such a way that Customers shall find it most beneficial, from a financial and practical point of view, to ensure that they utilise as much of the generated electricity as they can and avoid or minimise reverse power flow.

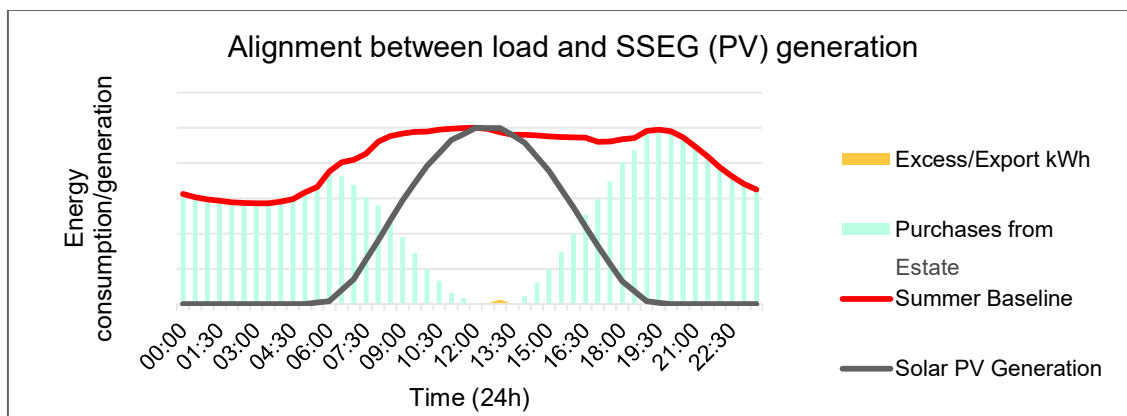


Figure 1: Load profile management - alignment between load profile and SSEG (PV) generation.

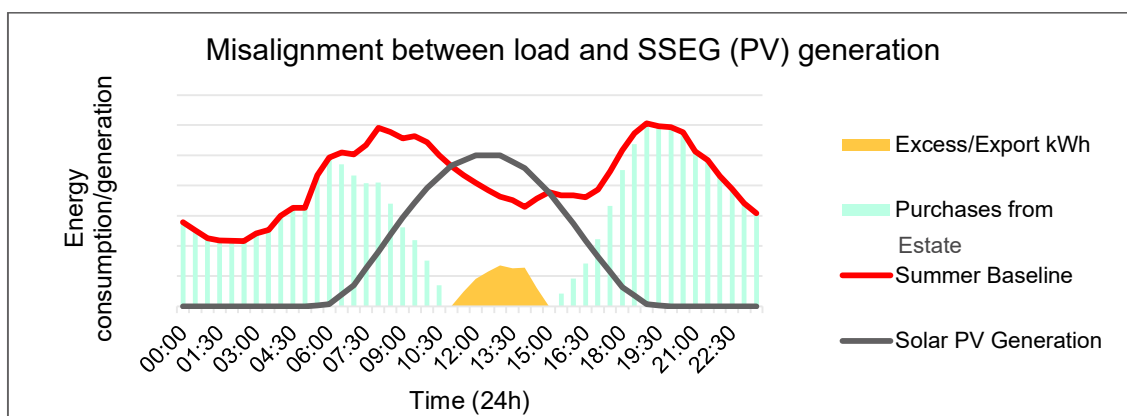


Figure 2: Load profile management - Misalignment between load profile and SSEG (PV) generation.

2.10. Grid Studies

Should the generation site not meet the criteria for a simplified utility connection for an LV connected SSEG system in terms of NRS 097-2-3, an Estate electrical grid study may be necessary and shall be carried out at the Applicant's / Customer's cost.

2.11. Applicable technical standards

Most of the technical requirements for SSEG are covered in the following standards and guidelines (note that these do not necessarily cover all requirements for small scale embedded generation):

1. NRS 097-2: *Grid interconnection of embedded generation: Part 2 SSEG*
2. *South African Renewable Power Plant Grid Code*

2.12. Additional applications to be considered

2.12.1. Planning and Building Development Management

At plan submission stage or in the event of an existing dwelling then prior to commencement of the SSEG installation, building plans and photos, where relevant, including an engineer's endorsement, shall be provided to the Estate Management that indicates the dimensioned position of the SSEG installation on the roof/s of the building/s, in plan / section (when necessary) and side elevation, with the height shown, measured

perpendicularly on the roof at the location of the plant.³ As a rule the SSEG installation shall not project higher than the roof ridge.

2.12.2. Health and Air Quality Approvals

The Air Quality and Mechanical Engineering (Noise) Units do not need to be consulted with SSEG applications where diesel fuelled mechanical engine generator are not part of the installation. Should a mechanical engine which burns fuel or generates noise be incorporated in the installation, such applications should be referred to the Estate Management (refer to section 3.12.13 of the Design Guidelines – generators).

2.12.3. Environmental Approvals

A residential SSEG installation does not require Environmental Approval unless it exceeds the electricity generation threshold mentioned.

2.13. Who pays for what?

The Customer is responsible for paying for the following:

- The supply and installation of meters (if required)
- Specialist Estate electrical grid studies (if required)
- Any changes required to the Estate's electrical grid upstream of the connection point as a result of the SSEG installation (subject to the clause mentioned in section 2.8)
- Specialist tests that are required, e.g., inverter testing

Such tests and studies shall be called for at the Estate's discretion.

³ PV systems installed on the ground – This will only be allowed for commercial properties, when layout plans shall also to be submitted and as a general rule, but not limiting, the panel(s) in its installed position shall not project more than 2.1 metres above the natural/finished ground level. For other installations at commercial properties, such as Wind, a separate clearance document will be required.

3. Residential Regulations - Small Scale Embedded Generators

3.1. Generation size limitations

The following SSEG size limitations are derived from NRS 097-2-3 for Shared LV connections.

Table 1: SSEG size limitations - NRS 097-2-3 for Shared LV connections

Service connection				
No.of Phases*	Service Circuit Breaker Size (A)	Maximum Total Generation Capacity** SSEG export to the grid (kVA)	Maximum Inverter Capacity (kVA)	Maximum Battery Charging Current Limit (A) per Phase from the Grid***
1	60	5 (21,7 A)	13,8	15
3	60	15 (21.7 A/phase)	41,6	15

* Customer to check main circuit breaker on distribution board to determine whether it is a single- or three-phase connection. A single-phase connection will generally have a single pole main circuit breaker and a three-phase connection a triple pole main circuit breaker. If in doubt, consult an electrician.

** Maximum total Generation Capacity refers to the total output capacity of the generator for export to the grid at the Point of Connection (POC). For solar PV systems in particular, this refers to the maximum kVA output of the inverter to the grid as limited either by hardware or software (password protected) settings. The Customer will allow access to the inverter's communication system by a representative of the Estate to from time to time check that the limits of the settings of the kVA export are not exceeded where this is applicable. The communication system of the municipal metering system will also be used to monitor this.

*** Maximum battery storage capacity is not defined, but maximum battery charging current limits are according to these values.

The generator size limits in Table 1 apply to normal residential connections on a shared Low Voltage (LV) network.

If SSEG Generation Capacity is 5kVA or less, a single-phase inverter can be installed even if the Customer has a three-phase connection. However, it is the responsibility of the Customer to ensure that the load is balanced across all three phases and the difference in installed capacity between phases may not exceed 5kVA per phase. A qualified electrician, engineer or technologist should be consulted in this regard.

In the case of a residential PV installation, it is a requirement that the installation shall include battery storage to a minimum of 5kWh's. The reason for this is to reduce the peak kVA load on the grid and therefore the inverter shall be programmed to maximise this requirement. It also provides the benefit to the Customer that standby power will be available during grid power outages such as load shedding by Eskom.

3.2 Generation Capacity Categories

The residential generation capacity categories are as follows:

3.2.1 Grid-tied SSEG

- Inverter Maximum Total Generation Capacity for export to the grid is in accordance with Table 1.
- Maximum inverter capacity is limited to the circuit breaker size of the Customer's service connection as per Table 1.

3.2.2 Grid-tied Hybrid SSEG

- Inverter Maximum Total Generation Capacity for export to the grid is in accordance with Table 1.
- Maximum inverter capacity is limited to the circuit breaker size of the Customer's service connection as per Table 1.
- Battery capacity is unlimited, but minimum is 5kWh.
- Maximum Battery Charging Current Limit is 25% of the circuit breaker size of the Customer's service connection as per Table 1. This limit must be specified on the inverter's serial number plate or if software adjustable, the setting must be password protected.
- If essential loads are interconnected with the grid, a compulsory external automatic change-over switch must be provided. The switch must comply with SANS 10142-1, Section 7.12.5 and SANS/IEC 60947-1: Low Voltage switchgear and control gear – Part 6-1: Multiple function equipment – Transfer switching equipment. The switch shall be installed external to the inverter.

3.2.3 Standby SSEG (Interconnected with electrical installation)

Type 1: Passive standby UPS utilised as standby hybrid SSEG.

- Maximum inverter capacity is limited to the circuit breaker size of the Customer's service connection as per Table 1.
- Battery capacity is unlimited, but minimum is 5kWh's.
- Maximum Battery Charging Current Limit is 25% of the circuit breaker size of the Customer's service connection as per Table 1. This limit must be specified on the inverter's serial number plate or if software adjustable, the setting must be password protected.
- No export allowed.
- Compulsory external automatic change-over switch to comply with requirements given above.

Type 2: Alternative supply

- Maximum inverter capacity is limited to the circuit breaker size of the Customer's service connection as per Table 1.
- Battery capacity is unlimited, but minimum is 5kWh's.
- No charging from the distribution network allowed.
- No export allowed.
- Compulsory external automatic change-over as per requirement given above.

3.3 Metering

3.3.1 Estate's electrical grid connection with reverse power flow blocking protection

Customers wanting to connect a SSEG system to the Estate's electrical grid without being compensated for reverse power flow shall be required to install reverse power flow blocking protection to prevent reverse power flow onto the Estate's electrical grid and a SSEG tariff will apply. These Customers will use a conventional meter.

3.3.2 Estate's electrical grid connection with reverse power flow/ feed-in to the Estate's electrical grid

Residential Customers installing SSEG who wish to feed excess generation into the Estate's grid shall have a bi-directional SSEG approved meter. The Estate shall provide and install the requisite meters at the Customer's cost. Conventional credit meters are not allowed to run backwards. If for some reason Customers are moved off the SSEG tariff (either by their own doing or by Estate's mandate) they shall be required, at

their own cost, to install reverse power flow blocking protection. They shall also forfeit any expenditure incurred in purchasing the bi-directional SSEG approved meter.

3.4 Small Scale Embedded Generation Tariff

The applicable SSEG tariff is the Embedded Generation Tariff for Domestic Customers and comprises of:

- **A Basic Levy per month**
This is somewhat higher compared with the same levy for Customers with conventional meters without SSEG, to consider the reduced portion of the income on energy sales used to maintain the same peak supply capacity (Amps) from the Estate's electrical grid (see 3.3.1 below). There are different levies for single and three phase Customers.
- **Electricity consumption (energy) rates for kWh consumed (imported)** as per the same inclining block tariff applied to Customers with conventional meters without SSEG.
- **Electricity Feed-in (energy) rate for kWh exported into the Estate's electrical grid (excess generation)** at a kWh rate lower than the consumption rate and is based on the average between Eskom's Ruraflex Low Season Standard and Peak rates. These Customers will be fitted with a bi-directional meter. This rate is not applicable to Customers who will not export power and use a conventional meter.

The tariffs applied by the Estate, with the exception of the SSEG tariff, are the same as those applied by Kouga Municipality incl. VAT.

In determining the monthly bill, the total monetary value of the exported power will be deducted from the value of the imported power, but the balance will never result in the Consumer being paid out (credit balance carried over to the following month) and nett metering will apply (refer clause 2.3) over a 12-month period starting 1 October and ending 30 September of each year.

If, however, a Customer becomes SSEG Customer in between these months, the nett metering period will be from the month the installation becomes operative to 30 September. Thereafter the annual rolling period will be followed.

3.4.1 Network cost (R/Amp – based on capacity)

It shall be ensured that the fixed costs associated with maintaining and operating the Estate's electrical grid are recovered through appropriate levies (Basic Levy). In the long term, these fixed costs may even increase due to SSEG as the Estate's electrical grid needs to manage bi-directional flow.

3.4.2 Service Levy

It shall be ensured that the fixed costs associated with providing a retail service network (metering, billing, Customer call centre) are recovered through appropriate fixed levies to be included in the Basic Levy.

3.4.3 Energy Levy (c/kWh)

It shall be ensured that the variable cost associated with the volume of energy consumed is recovered through appropriate levies. This is billed on a per kWh basis on an inclining block basis.

3.4.4 Feed-in rate (c/kWh)

The SSEG system may avoid certain costs for the Estate and the Customer will be compensated through an export credit rate (Purchase Price) for any measurable reduction of cost to the Estate (energy cost/purchases).

3.4.5 Billing Period

The monthly Basic Levy along with levies for consumption and credits for feed-in, where applicable, shall be billed monthly. Tariffs are determined annually by the Estate.

3.4.6 Increased Costs

The Estate accepts no responsibility should the Customer's electricity bill increase due to changes in the tariff structure. It is up to the Customer to ensure that they understand the financial implications of having a SSEG system installed.

3.4.7 Example Tariff

Although the Estate's financial year is from 1 October to 30 September, the tariffs are for the period 1 July to 30 June to coincide with the Kouga Municipality's financial year since their tariffs are used, except for the SSEG tariff.

The current SSEG tariffs (July 2021 to June 2022) are as follows:

Single Phase Customers (60 Amps)

Basic Levy:	R495-00 (R305-00) / month		
Energy Levies:	Block 1:	0 – 50 kWh	R1.162/kWh
	Block 2:	51 – 350 kWh	R1,517/kWh
	Block 3:	351 – 600 kWh	R2.165/kWh
	Block 4:	In excess of 600 kWh	R2,605/kWh
Feed-in Rate:	R1.019/kWh (only applicable to Customers exporting power)		

Three Phase Customers (60 Amps)

Basic Levy:	R1 388.00 (R854-00) / month		
Energy Levies:	Block 1:	0 – 50 kWh	R1.162 /kWh
	Block 2:	51 – 350 kWh	R1.517 /kWh
	Block 3:	351 – 600 kWh	R2.165 /kWh
	Block 4:	In excess of 600 kWh	R2.605 /kWh
Feed-in Rate:	R1.019/kWh (only applicable to Customers exporting power)		

The non-SSEG tariff Basic Levy is shown in brackets. The import kWh charges are the same for non-SSEG and SSEG.

The Estate's HOA is not registered for VAT, so the above rates are nett values.

4 Commercial and Industrial Regulations - Small Scale Embedded Generators

The current process does not include for such Customers, but this will be considered by the Estate Management if an application is required. The conditions below serve as a guideline.

4.3 Generation size limitations

Systems over 1MW (1000kW) will not be catered for in the regulations.

All LV commercial and industrial Customers planning to install SSEG systems under 1MW shall comply with the sizing limitations specified in NRS 097-2-3.

MV Customers planning to install SSEG systems under 1MW may require a bespoke engineering study to determine the impact of the proposed SSEG system size on the Estate's electrical grid.

4.4 Metering

Metering for Customers connected to an MV network shall be of the 3 phase 4 wire method type.

4.4.1 Estate's electrical grid connection with reverse power flow blocking protection

Metering for Customers wanting to connect a SSEG systems to the Estate's electrical grid without being compensated for reverse power flow shall be required to install reverse power flow blocking protection to prevent reverse power flow onto the Estate's electrical grid. These Customers will use a conventional meter.

4.4.2 Estate's electrical grid connection with reverse power flow/ feed-in to the Estate's electrical grid

Customers installing SSEG who wish to export power shall have a bi-directional (four quadrant) SSEG approved meter. The Estate shall provide and install the requisite meters at the Customer's cost. Conventional credit or prepayment meters are not allowed to run backwards. If for some reason Customers are moved off the SSEG tariff (either by their own doing or by Estate's mandate) they shall be required, at their own cost, to install reverse power flow blocking protection. They shall also forfeit any expenditure incurred purchasing the bi-directional SSEG approved meter.

4.5 Embedded Generation Tariffs

The tariffs will be determined on the same basis as the tariffs for Residential Customers.

APPLICABLE LEVIES PAYABLE TO THE ST FRANCIS LINKS HOMEOWNERS ASSOCIATION NPC as at 8 May 2023 (may change without prior notice)

Review and commissioning	R4 040.00 (once-off)
<i>applicable if the estate's electrical engineer has reviewed the application, whether the client decides to install or not</i>	
Special Tariff	R 208.00 (monthly in addition to basic levy)

5 Residential Small Scale Embedded Generation Application Process

The *application for the connection of embedded generation* form shall be completed for all forms of embedded electricity generation, including renewable energy and cogeneration. Annexure B contains this application form. This form deals with applications for approval for all SSEG installations. Should tariff or metering changes be required for the SSEG installation, the general application form for new or modified connections shall also be completed.

- **Step 1: Complete *application for the connection of small scale embedded generation* form and the general application form for new or modified connections.**
 - The Estate requires that the application form/s be signed by the property owner.
 - Details of the proposed installer, who needs to be approved and pre-registered with the Estate, shall also be provided.
 - The property owner will need support from the proposed installer or a registered professional in completing the *generation and embedded generation application form*.
 - Submit complete set of detailed plans.
- **Step 2: Submit completed application form/s and attachments.**
 - Form/s shall be submitted to the Estate Management.
- **Step 3: Installation commencement upon approval from the Estate**
 - After due consideration of the application, the Applicant shall be informed in writing whether the application has been successful.
 - Once notified of a successful application, the Applicant may commence installation, but not before a formal site handover has taken place.
 - Rejected applications may be modified and resubmitted.
- **Step 4: Commissioning and documentation to be submitted to the Estate Management.**
 - Commissioning of the system shall be undertaken by a registered professional, who shall complete and sign off the *SSEG Installation Commissioning Report* as per the example contained in Annexure C.
 - In addition to the Commissioning Report, the following documentation shall also be completed:
 - Final copy of circuit diagram.
 - Inverter Type Test - The inverter type test certification requirements are specified in the NRS 097-2-1. Type testing is to be undertaken by a 3rd party test house such as Bureau Veritas, KEMA or TÜV Rhineland. Inverter suppliers should be asked to provide the necessary certification before the equipment is purchased. A list of inverters which have been shown to comply with the Estate's requirements is included under Annexure E.
 - 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 as per SANS 10142-1.
 - Operation and Maintenance Procedure – installation responsibilities after commissioning.
 - All completed documentation shall be submitted to the Estate Management.
- **Step 5: Inspection of installation if necessary**
 - The Estate shall inspect the installation if required and at the Estate's discretion.
- **Step 6: Approval granted to connect to the Estate's electrical grid and generation commences**
 - If all of the above is satisfactory, the Estate shall install the necessary meters, where applicable.
 - Approval to connect SSEG to the Estate's electrical grid shall be provided by the Estate Management to the Customer, in writing, together with any operation and decommissioning requirements deemed necessary.
 - Once this is done, the change to the tariff shall be implemented where applicable.
- **Step 7: Repeat the process in the case of SSEG capacity expansion**
 - Should an expansion or a change to the system be required, a new application shall be completed.