



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD



FREQUENTLY ASKED QUESTIONS

ABOUT SMALL-SCALE EMBEDDED GENERATION
(SSEG) IN CAPE TOWN

1. WHY SHOULD I REGISTER MY SSEG SYSTEM?

All SSEG systems must be authorised by the City of Cape Town before installation to ensure they are safe and legal. An SSEG system such as solar PV is not an appliance that you just plug into a wall socket; it is an electrical generator that impacts your home's electrical system and the entire electrical grid. Therefore, it is essential that the people operating the network know about all the generators. Visit www.capetown.gov.za/ApplyforSSEG to learn more about the new, faster online application portal.

The primary reasons for requiring authorisation are:

✔ SAFETY:

Non-compliant SSEG systems could electrocute City personnel if electricity feeds into a grid that is believed to be off. Poorly installed systems can also cause household fires and insurers may not cover damages if the installation is not authorised.

✔ GRID MANAGEMENT:

Electrical infrastructure becomes constrained as more SSEG systems are connected, even if the systems do not feed back. For example, when the sun sets and

homes using solar PV suddenly start using grid electricity, this impacts the network due to the rapid change of load and scale of solar PV users. Furthermore, the quality of electricity is compromised if SSEG infrastructure does not meet strict power quality requirements.

✔ LEGISLATION:

Registration is legally required in terms of the City of Cape Town Electricity Supply By-Law, 2010 and ensures the safety of anyone who comes into contact with the PV system or the grid itself. The Occupational Health and Safety Act states the property owner carries the responsibility for the safety of the electrical installation on the property. Furthermore, the National Energy Regulator of South Africa (NERSA) requires reporting of all embedded generation.

To register your system for authorisation, follow the application procedure as detailed in the City's Requirements for Small-scale Embedded Generation. Failure to obtain this consent constitutes an offence which could lead to the issuing of an unauthorised SSEG fee and/or electrical disconnection in terms of the City of Cape Town Electricity Supply By-Law 2010.

2. WHICH SYSTEMS NEED TO BE REGISTERED?

All SSEG systems in the City of Cape Town supply area, including battery systems, need to be registered and authorised. The majority of SSEG systems in the City are rooftop solar PV systems, however, small wind turbines, biogas and small hydro can also be forms of SSEG. Solar PV geysers (with panels) that are used to power electric geysers will also need to be registered.



3. WHICH SYSTEMS DO NOT REQUIRE AUTHORISATION AND WHAT ARE THE EXCEPTIONS?

The following systems are not considered SSEG and do not require SSEG authorisation:

- ☑ Solar water heaters that use the sun's thermal energy to heat water directly (e.g. through flat plate collectors or evacuated tubes).
- ☑ Plug-in portable (trolley) inverters that are powered and protected by a plug circuit as an appliance to supply small loads (security systems, lights, computer, TV, life support systems, etc.), these are not wired to the distribution board and may not use fixed mounting solar PV panels.

Exception I: If the plug-in portable (trolley) type inverter is wired to the distribution board, a grid-tied battery only SSEG application to the City is required.

Exception II: If the plug-in portable (trolley) type inverter is wired to the distribution board, and includes fixed mounted PV panels, a grid-tied hybrid SSEG

application to the City is required.

- ☑ Alternative supplies in terms of SANS 10142-1, Section 7.12, which includes diesel/petrol generators, are required to be authorised via the City's Application for the Connection of a Standby Supply GEN/ELEC 1.

Exception: If alternative supply includes solar PV generation for such installation, a grid-tied SSEG application to the City is required.

- ☑ Commercial and industrial large UPSs with batteries connected to the electrical supply of buildings provided for the clean (pure sine wave) and an alternative power supply to sensitive electronic equipment in accordance with IEC/SANS 62040 suite and SANS 10142-1, Section 7.12.

Exception: If solar PV generation is required for this installation, an application to the City is required.

4. DOES MY EXISTING BATTERY ONLY SYSTEM NEED TO BE AUTHORISED?

Any new (installed after 1 October 2023) battery only system (no solar PV) must be grid-tied i.e. it will need to use a City-approved inverter and have ECSA registered professional sign-off.

you received from a qualified electrician will cover your system. You do not need to have your system retrospectively authorised.

If you have an existing UPS/battery only system that was installed and commissioned before 1 October 2023, the Electrical CoC

5. WHY IS THE CITY OF CAPE TOWN ONLY ALLOWING GRID-TIED SOLAR PV AND BATTERY EMBEDDED GENERATION SYSTEMS?

The primary reasons for the shift to treat all SSEG systems as grid-tied are as follows:

- ✔ The City is moving towards a future grid for all – where customers use and generate electricity as part of an integrated network. Grid-tied systems make this possible and enable customers to be ready for future changes in technology and processes.
- ✔ Previously, standby and off-grid SSEG systems were permitted, provided they were wired correctly and could never operate in parallel to the grid. In reality, the vast majority of these systems were not wired correctly, and systems claiming to be standby/off-grid were in fact operating as grid-tied systems, posing power quality issues and safety risks on the homeowner, the network and City Staff. To minimise these risks, the City now treats all SSEG systems as grid-tied, in line with international best practice that, for properties with an utility electrical supply connection, treats all electrical power conversion equipment

installations as grid-tied.

- ✔ Applications for standby/off-grid SSEG systems often contained incorrect and inaccurate technical information, and did not reflect how the system was actually installed. Because the equipment used in these installations was not approved, these applications required extra verification by our staff to ensure they were correctly installed and operating safely, significantly holding up the registration process and delaying authorisation.

Additionally, there has been an exponential increase in applications received. Only allowing standard grid-tied systems streamlines the SSEG application process, speeds up authorisation and promotes a safe and legal SSEG industry.

6. CAN I APPLY FOR AN OFF-GRID OR STANDBY SOLAR PV SYSTEM?

No. Off-grid and standby solar PV systems are no longer permitted on properties with City of Cape Town electrical connections. Many solar PV systems using non-approved inverters are not correctly wired, posing risks to the safety and integrity of the network and significantly slowing down the registration process.

In an effort to make SSEG approvals faster and safer, since 1 October 2023, all new

solar PV and/or battery systems are treated as grid-tied and must use City-approved inverters, have professional sign-off and be authorised before switching on.

Systems which have already been authorised will remain valid, and pre-October 2023 applications for standby/off-grid systems will still be processed, but priority will be given to grid-tied systems using City-approved inverters.

7. WHY DO BATTERY ONLY SYSTEMS REQUIRE AUTHORISATION?

As with standby/off-grid solar PV hybrid systems, battery only systems that are claimed to be standby are negatively impacting the network. While these systems should be wired to be independent of the electricity grid, the majority of these systems are wired directly into the distribution board as grid-tied systems. This has a negative impact on the low voltage network, particularly after load-shedding events, where cold load pick-up issues cause local area trips and extended power outages.

For these reasons, the City of Cape Town has taken the view that battery and inverter systems must be treated in the same way as solar PV systems, and be configured as grid-tied systems.

8. WHAT DOES IT COST TO REGISTER?

The registration and authorisation process is free. However, some installers may charge you to complete the registration process. Ensure that your quote includes all the relevant items for a compliant system.

9. WHAT IS THE NEW ONLINE SSEG AUTHORISATION PROCESS AND HOW DO I APPLY?

To improve the authorisation process for solar PV and/or battery systems, all applications for small-scale embedded generation must be done via the Energy Services Application platform on the City of Cape Town's e-Services portal.

- ☑ increase transparency on an application's progress and status;
- ☑ automate the issuing of Permission to Install (PTI) letters for certain application types.

Benefits of using this system:

- ☑ reduce turnaround times for faster authorisations;

For more information on how to apply for authorisation to install an SSEG system, visit www.capetown.gov.za/ApplyForSSEG

10. WHY ARE THE CITY'S SSEG METERS SO EXPENSIVE?

Customers wishing to feed excess generation back onto the grid need to have an Advanced Metering Infrastructure (AMI) bi-directional meter installed to measure the feedback and credit the customer accordingly. These meters must meet a number of rigorous technical specifications. The City is finalising the procurement of a significantly cheaper single-phase AMI meter. The meters will be made available once the City completes the procurement and testing phase.

11. WHY MUST I USE A CITY-APPROVED INVERTER?

The City maintains and publishes a list of NRS 097-2-1 approved inverters. Inverters must adhere to these requirements to ensure the safety of residents and municipal workers and to maintain the integrity of the grid. This is particularly the case for anti-islanding, i.e. when the network goes down, the inverter disconnects and does not feed electricity onto the grid. The City has reviewed the certification and test reports of the inverters on the list to verify their compliance. Systems using non-approved inverters will not be authorised.

12. HOW IS EV CHARGING DEALT WITH?

For electric vehicles (EVs), fork lifts, golf carts, etc., charging infrastructure is classified as equipment connected to the electrical connection that draws power. It is therefore considered an appliance and not a grid-tied embedded generator. The battery storage element is in the vehicle itself. If the electronic conversion equipment is grid-tied (normally external to the vehicle), then it shall comply with NRS 097-2-1 up to under 1MW and EEB705 for above.

13. HOW WILL MY ELECTRICITY TARIFF CHANGE IF I CHOOSE TO GO ONTO THE RESIDENTIAL SSEG TARIFF?

There are a number of elements that make up your electricity tariff:

The following items stay the same for all residential customers on the Home User Tariff (SSEG or non SSEG customers):

☑ A monthly network access and administration charge that appears on your rates account. This is to cover the cost of maintaining the electrical infrastructure.

☑ Block 1 (0 – 600 kWh) and Block 2 (600.1+ kWh) electricity consumption charges for kWh (or “units”) consumed.

The following items are specific to the Residential SSEG Tariff users:

☑ A monthly AMI Administration fee.

☑ The customer benefits through a rate per kWh at which the City will purchase exported excess generation i.e. SSEG Feed-in Tariff.

☑ The customer benefits through an additional SSEG feed-in incentive tariff (available until 2025).

Customers on the SSEG tariff are billed and credited monthly.

CCT SSEG Tariffs (23/24 FY)	Price	Home User	Home User SSEG No Export	Home User SSEG With Export
SSEG Application Fee	Free of charge		Free	Free
Block 1 (0-600kWh)	268.33 c/kWh (excl. VAT)	X	X	X
Block 2 (600.1 kWh)	370.92 c/kWh (excl. VAT)	X	X	X
SSEG Feed In Tariff	87.00 c/kWh (excl. VAT)	-	-	X
SSEG Feed in incentive	25.00 c/kWh (excl. VAT)	-	-	X
Network Access and Admin charge	R 219.21 per month (excl. VAT)	X	X	X
AMI Meter (This is a quotable fee for the replacement of the meter)	R 9 137.83 (excl. VAT, once off)	-	-	X
Residential AMI Administration Fee	R4.92 per month excl. VAT	-	-	X

14. WHAT IS THE BASIS FOR CALCULATING THE FEED-IN TARIFF?

The current SSEG feed-in tariff is based on the avoided cost of electricity purchased from Eskom on the Megaflex time-of-use tariff. From our metering system, we are able to determine how much electricity is fed into the grid and at what times of day. As almost

all SSEG is solar PV, most reverse power flow occurs during standard or off-peak periods during the 9 months of the low demand season. With this data, we can determine the total avoided cost of electricity from Eskom and create an appropriate tariff.



15. I AM A CITY CUSTOMER AND I WANT TO SELL EXCESS ELECTRICITY TO THE CITY, WHAT DO I DO?

If you would like to feed in excess electricity to the City's network, follow these steps:

	Commercial customers	Residential customers
Step 1	Install a grid-tied solar PV system with a <u>City-approved inverter</u> . Installers must <u>apply to the City to authorise</u> the system for grid connection before it is installed. The City provides authorisation free of charge , however installers may charge a fee to complete this service on the customer's behalf.	
Step 2	Meter changes and an additional AMI Access fee may be applicable. Cost is quoted during authorisation process if applicable.	City will install an AMI meter at the customer's expense: <ul style="list-style-type: none"> • Meter: 2023/24 R9 137.83 excl. VAT • Monthly meter reading fee: 2023/24 R4.92 /month excl. VAT
Step 3	Customer placed on the applicable <u>Non-residential SSEG tariff</u> .	Customer moves to or remains on the <u>Home User tariff</u> .
Step 4	Electricity fed into the grid will be measured and credited to customer's monthly municipal account at 77.49c/kWh + 25c/kWh incentive. This credit is offset against the customer's monthly municipal account.	Electricity fed into the grid will be measured and credited to customer's monthly municipal account at 87c/kWh + 25c/kWh incentive. This credit is offset against the customer's monthly municipal account.
Step 5	Cash for Power: Customers with remaining credit after the offset will be paid out once the amount exceeds R5000 . Payments will be held back until the credit reaches this amount, and paid out on a monthly basis. To apply, follow the necessary supply chain management processes outlined in section 1.9 of the <u>Requirements for SSEG</u> and <u>email</u> us your application.	Cash for Power: Customers with remaining credit after the offset will be paid out once the amount exceeds R1000 . Payments will be held back until the credit reaches this amount, and paid out once a year. Submissions are currently closed but will reopen soon. Look out for updates on the City's channels.

Please note:

1. The amount of energy a customer can sell back to the City is **limited by the size of the system they have been authorised by the City to install**, which is limited by the size of their connection to the City grid.
2. The City is in the process of procuring a cheaper, single-phase AMI meter. These will be made available once the City completes the procurement and testing phase, in 2024. Until then, we cannot give any indication of cost.
3. You can now apply for SSEG authorisation using the new Energy Services Applications online platform on e-Services for a faster and more transparent application process. Visit www.capetown.gov.za/ApplyForSSEG for more information.

16. DO I ONLY NEED AN ELECTRICIAN TO GET MY SYSTEM AUTHORISED?

No, a suitably qualified electrician must issue the CoC for any electrical installation, this includes the AC rewiring of the premises for solar PV and/or battery installations. In addition, ECSA professional sign-off is required for the commissioning of the SSEG installation.

In an effort to make SSEG approvals faster and safer, since 1 October 2023, all new solar PV and/or battery systems are treated as grid-tied and must use City-approved inverters, have professional sign-off and be authorised before switching on.

The following applies:

Until such time as:

- ✓ The relevant parts of SANS 10142 (The Wiring of Premises) are updated and published, and
- ✓ Accredited embedded generation installation and commissioning electricians/technicians exist,

all embedded generation systems installed on the City's grid must be certified as complying with the City's requirements as follows:

- ✓ An ECSA-registered professional engineer, ECSA-registered professional engineering technologist or certified engineer (electrical engineer with a Government Certificate of Competency) may certify industrial, commercial and residential SSEG installations.
- ✓ An ECSA-registered professional technician may only certify residential SSEG installations.

It is recommended that you use a reputable installer who is accredited with a relevant industry association and has experience with the City's authorisation process. Always request an electrical CoC on completion for your own safety.

BE SAFE: GET YOUR SOLAR PV SYSTEM AUTHORISED

**The City actively supports embedded generation.
By law, all systems must be authorised before installation.**

Protect your household from electrical shocks and fires from illegally connected systems.

Minimise risk of injury or death from severe shocks to electricity staff working on the grid.

Maintain power quality and load management. Pay for your use of the grid.



**CONNECTING WITHOUT AUTHORISATION IS
ILLEGAL AND DANGEROUS**

All solar PV and/or battery systems must be authorised by the City of Cape Town before switching on.

- Failure to comply could result in the disconnection of the electricity supply to the property.
- Solar water heaters do not require authorisation.

Go to www.capetown.gov.za/solarPV

If you are looking for more information to support you, the [Rooftop Solar PV: Guidelines for Safe and Legal Installations in Cape Town](#) will help you make informed decisions about what type of solar PV system to install, evaluate your prospective service providers and understand all the key requirements before, during and after installation.

For all relevant solar PV information, please visit www.capetown.gov.za/solarpv