

CEB MSDG Net-Metering Scheme I

The **CEB MSDG Net-Metering Scheme I** has been purposely designed to accommodate the numerous requests made in the CEB's call for Expression of Interest (**EOI/CPR/3898**) for Installation of Renewable Energy Technologies for Power Generation in June 2015.

The Scheme, **as an option**, has been expressly conceptualized for accommodating Prosumers' ([view definition of Prosumer Category](#)) MSDG projects in the CEB's grid with the intention to balance the interests of multiple stakeholders.

Among other concerns, due consideration has been given to the national grid absorption capacity for integrating intermittent renewable energy (RE) sources and committed intermittent renewable energy generation, both in operation and in the pipeline.

Under this Scheme, CEB intends to interconnect a **total of 10 MW MSDG RE projects**. Interconnection of MSDG RE projects shall be made strictly in accordance with the applicable Grid Codes ([download Grid Codes](#)) and conditions defined for the CEB MSDG Net-Metering Scheme I.

Note: Part of the allocated 10 MW capacity may also be used **to entertain SSDG requests** which do not qualify for the CEB 2015 SSDG Net-Metering Scheme.

Processing of applications for grid interconnection of RE projects, under the present Scheme, shall be made on the basis of **first-come, first-serve**. Priority for grid access will be given to projects submitted in the EOI/CPR/3898 and/or earlier, subject to Prosumers satisfying all applicable conditions of the Scheme.

An interested Prosumer, as from the date of the letter of invitation issued by the CEB, should submit full details of his/her project(s) together with the relevant application form **within a period of one month**.

A no-reply after the period of one month or a late reply from the prospective Prosumer shall be construed as a deferment of the Prosumer's RE project(s). Accordingly, the grid access shall be reallocated to in-waiting potential Prosumers in the same or other categories (SSDG, Greenfield MSDG, or Others), as appropriate.

By applying for the Scheme, a Prosumer thus confirm her/his commitment for the setting up of her/his RE project in accordance with the conditions set out for the CEB MSDG Net-Metering Scheme I.

In the following sections, important information on the CEB MSDG Net-Metering Scheme I is given. CEB's customers and the public at large are advised to **read carefully** the provided information.

What is the CEB MSDG Net-Metering Scheme I?

As part of a **pilot project**, under this Scheme, CEB plans to integrate a total cumulated capacity of **10 MW** of Medium-Scale Distributed Generation (MSDG) using renewable energy technologies (mainly solar photovoltaic and wind power generation technologies) in the Mauritian grid and **400 kW** in Rodrigues subject to network impact assessments.

The CEB MSDG Net-Metering Scheme I, designed under the principle of net-metering, has been officially opened on **02 May 2016**. The main aim of the Scheme is to offer the opportunity to medium-size power producers to benefit the grid interconnection facilities by interconnecting their RE MSDG installations into the grid. To the extent it will be technically and economically feasible, in order to assure non-discriminatory consideration, the **constrained grid access shall be shared equitably** among all prospective Prosumers.

In accordance with the net-metering principle, as formulated in this Scheme, Prosumers generating electricity using solar or wind energy source shall be able to offset their monthly energy imported from the grid with the energy, generated by their RE installations, exported to the grid, and bank (store) excess energy, if any, in the grid, in the form of kilowatt-hour (kWh) credits. Accumulated credits, not exhausted, shall be rolled forward for next billing periods.

Note: Application for the Scheme will be processed on the ***first-come, first-serve*** basis. However, as mentioned above priority for grid access will be given to projects submitted in the EOI/CPR/3898 and/or earlier.

Purpose of the CEB MSDG Net-Metering Scheme I

The CEB MSDG Net-Metering Scheme I, carefully conceptualized in the interest of the large majority of electricity consumers, shall promote further Government's Long Term Energy Strategy, which among others includes achieving the target of 35%, or even more, of renewable energy in the national electricity generation mix by 2025.

By designing and implementing this Scheme, the CEB reaffirms its commitment to support the development of renewable energy whilst, however, paying due consideration to its own financial sustainability, especially in the interest of its customers and the competitiveness of the nation at large.

How does the CEB MSDG Net-Metering Scheme I Work?

As mentioned above, under this Scheme, in each billing period, qualifying Prosumers shall be able to **offset** partly or fully the quantity of energy (kWh) imported from the grid with the energy, produced by their RE MSDG installations, exported to the grid.

In accordance with the proposed net-metering principle, in each billing period, prior to billing and invoicing of the Prosumer's electricity consumption, energy (kWh) imported shall be reduced by the balance of energy exported.

Net exported energy, if any, to the grid shall be credited to the Prosumer's electricity contract account. The balance carried forward shall be used to adjust energy transactions in successive billing period(s).

All Installations will be equipped with one production meter and one import/export meter.

Note: Prosumers are advised to verify regularly the meters so as to ensure consistency with statement of accounts and/or electricity bills.

What are the benefits of the CEB MSDG Net-Metering Scheme I?

Under the present CEB MSDG Net-Metering Scheme I, a Prosumer will experience the following benefits:

1. In accordance with the Net-Metering principle, prospective Prosumer will benefit from the quasi energy storage service of the grid at no cost; hence, **no additional investment in costly energy storage system (ESS) over the whole life of the RE project**. In many situations, for example during weekends, public holidays, early closure of business, etc., RE installations of Prosumers may generate electricity in excess. The excess energy generated would be lost if it was not stored. However, storing the excess energy unfortunately not only increases substantially the total lifecycle investment cost of the RE projects but equally exposes the Prosumers to other risks associated with energy storage system. Under the present Scheme, however, a Prosumer will be able to mitigate its exposure to financial, technological and/or operational risks associated with ESS; they will be able to generate their electricity and use the quasi energy storage service of the grid to store excess energy generated/exported for future uses, free of charge.
2. By entering into this Scheme, a Prosumer shall **reduce her/his monthly payment for electricity**. The savings on the electricity payments to the CEB shall payback the investment made in the acquisition of the renewable energy system. However, the recovery period of the investment made in the renewable energy system will vary depending on a number of factors, such as location of premises, quality of equipment, design of system, etc.

Note: Prospective Prosumers are strongly recommended to seek professional advice from technical and financial experts in the field of RE prior to investing in the RE system.

3. The Scheme provides a potential Prosumer the opportunity to mitigate risk exposure associated with electricity tariff increase. For the total expected quantity of energy generation from the RE system, the Prosumer will hedge, to some extent, its electricity expenditures against any possible electricity tariff increase; and this benefit will last for a period of 20 years (life of the Connection Agreement with the CEB).
4. With the RE system in operation, the Prosumer may benefit a degree of security in energy supply to its premises, subject to the RE installation being in compliance with the Grid Code requirements.

5. With regard to the investment in the RE system, a Prosumer can take advantage of **green loan facility** offered by some local banks; hence, improving the return on investment.

Note: Prospective Prosumers are advised to seek more information on financing facilities with financial institutions.

6. In addition to monetary gains, this Scheme gives prospective Prosumers, having the investment willingness and ability, an extended opportunity to **contribute in the preservation of the environment** by reducing the use of fossil fuels and also supporting the sustainable development of the power system by **contributing financially to manage the influence of intermittent RE projects** on the grid's daily operation and, to a lesser extent, **defer investment in additional power generation capacity**. The latter is however dependent on achieving a critical mass.

Conditions for Grid Interconnection of Prosumers' RE Installations under the CEB MSDG Net-Metering Scheme I

All the conditions, listed below, need to be satisfied prior to the interconnection of a Prosumer's RE installation into the CEB grid, under the present CEB MSDG Net-Metering Scheme I. All the stated conditions shall become effective upon the acceptance/acknowledgment by the CEB of a prospective Prosumer's application for the setting up of a grid-tie RE power generating system. Subsequently, as required and as appropriate, necessary action(s), in connection with the applicable conditions, shall be effected onto the eligible Prosumer's CEB electricity contract account.

Applicable conditions to be satisfied, under the CEB MSDG Net-Metering Scheme I, by a prospective Prosumer are as follows:

- After having taken due cognizance of active MSDG RE Scheme(s) available at the CEB, a prospective Prosumer duly **fills and submits** the relevant application form ([download application form](#)) with full details of the RE project.
- The Prosumer ensures that her/his RE system, at all times, fully complies with all requirements of the relevant applicable MSDG Grid Codes ([download the Grid Codes](#)) including amendments.

Note: For safety and quality reasons, Prospective Prosumers are strongly advised to seek the support of a qualified person in the field of RE technology prior to filling the application form.

- The premises where the RE system shall be installed has an active CEB electricity contract account in the name of the prospective Prosumer. Where required, necessary prior permission(s) and authorization(s) in written form are obtained by the Prosumer. CEB, as necessary, may request for relevant documentary evidence(s).
- The Prosumer provides a detailed electrical load survey of her/his premises, where the RE system will be installed, in the RE project details. Accordingly, the declared

load in the Prosumer's CEB electricity contract account(s), in the CEB's information system, is updated for billing purposes.

- Upon the submission of the duly filled application form, the Prosumer pays the appropriate processing fee ([view applicable processing fee](#)).
- The Prosumer's CEB electricity contract account, assigned to the premises where the RE system shall be / has been installed, is categorized in the appropriate Prosumer Category ([view definition of Prosumer Category](#)).
- The prospective Prosumer is not already benefitting grid access for the interconnection of an RE installation.
- The prospective Prosumer does not install a second RE installation after the commissioning of the present one on the same premises without the prior authorization of the CEB.
- The so-designed RE facility of the Prosumer, at the present stage, generates at most 30% of the total annual electricity consumption of the Prosumer. **Fulfilling this condition is extremely important to enable a large number of Prosumers, irrespective of their categories, to obtain grid access for interconnecting their respective RE installations. By so doing, in a spirit of collaboration for social and economic interests of the country, the grid stability and quality of electricity supply, among others, shall be preserved.**

Note: Any prospective Prosumer willing to install RE system to generate electricity above the mentioned 30% threshold, to the satisfaction of the CEB, should equip the RE system with an appropriate energy storage system (ESS).

- If the ESS is a battery energy storage system (BESS), its capacity should be at least 40% of the installed capacity of the RE system with an autonomy of at least 15 minutes at nominal rating.
 - For other types of ESS, the Prosumer should provide full technical detail of the ESS, specifying the capacity, energy storage autonomy, energy transfer rate, among others. The ESS should be able to mitigate fully the power output variability of the installed renewable energy generation system. Under mutual agreement, supported by a technical assessment of an independent expert, contracted at the cost of the Prosumer, the threshold above the 30% shall be determined.
- Until further notice, the electricity tariff applicable on a monthly basis to the Prosumer's electricity contract account is the same as the electricity tariff applicable to the Prosumer as an electricity consumer. The applicable electricity tariffs are given in the tariff Schedules of General Notice No. 2288 of 2010 ([View Tariffs](#)).

Note:

- The electricity tariff may be revised or restructured, as and when required; thereafter communicated by way of General Notice.
- The relevant applicable Minimum Charge is also payable when there is net-export of energy (kWh). The rate(s) for Running Charge is/are applied on the metered net energy.

- Surplus energy, if any, banked into the grid, may be set off against payment only upon closing of the Prosumer account or in exceptional cases upon mutual agreement. The compensation for the surplus energy shall be made at the overall marginal cost (MC) of production of conventional electricity generation for each unit traded. The MC shall be the latest estimated MC available.
- As remuneration for managing the RE facility in the grid, a non-negotiable monthly contribution ([view methodology for calculation of the monthly contribution](#)) is paid by the Prosumer to the CEB until the expiration of the contract.

Note:

- In the interest of the Prosumer, the monthly contribution, which is calculated on the basis of the actual installed capacity of the RE system, shall be adjusted on a pro-rata basis of the installed capacity with the actual metered maximum peak power output for the year of the RE system. The adjustment will be made at the end of each calendar year, provided the cycle of 12 billing periods is completed. The example hereunder is given as an illustration:

If the installed capacity of the RE system is 100 kWp DC and the metered peak power output for the year of the RE system is 85 kW, the total monthly contribution paid for the year will be reduced by 15%, i.e. the percentage difference. The equivalent amount of money will then be credited to the Prosumer electricity contract account for subsequent billing transactions.

- In respect of the annual adjustment, the Prosumer provides the CEB the web link for the downloading of the power output of the RE system. Where necessary, as and when required, the Prosumer shall give full access to the CEB for downloading data series directly from the inverter. The Prosumer provides the CEB a free copy of the operating software and application(s) for the data downloading.
- For administrative purposes and accounting practices, the payable minimum charge, other charges (TV licence, meter rental, telecommunication fees, etc.) and monthly contribution will not be offset against energy (kWh) credits.
- Following a notice from the CEB, the Prosumer gives full and free access to CEB officers to the RE installation and meters.
- The Prosumer satisfies all other billing requirements and pay all relevant charges and costs including the connection fee ([view applicable connection fee](#)).
- The Prosumer ensures that payments of all payable charges are made within given due dates to avoid disconnection of the RE system, including the electricity supply to the premises, from the grid. In case of default, failing to remedy after a period of cure of not more than 60 days, which is subject to change, as and when required, the Prosumer account will be permanently closed entailing also the cancellation of the Undertaker Permit and the Connection Agreement. Accordingly, the Prosumer will be removed from the Scheme.

- The installation of the RE system be completed within a period not exceeding twelve months, except in cases of force majeure, as from the date of the granting of the Undertaker Permit.
- The prospective Prosumer submits proof of order placed with supplier/manufacture within three months after being granted the permit as Undertaker.
- Upon commissioning of the grid interconnection of the Prosumer RE installation, all appropriate actions, whether tacit or not, associated with all the herein conditions are implemented with immediate effect.
- The prospective Prosumer agrees and signs a legally-binding Connection Agreement, in which all relevant matters pertaining to the continuous management of the grid interconnection of the Prosumer's RE installation and the Prosumer's electricity contract account are included, with the CEB prior to the commissioning of the grid interconnection of the Prosumer's RE installation. Failing to agree the Connection Agreement prior to the commissioning of the grid interconnection of the Prosumer's RE installation shall entail the immediate disconnection of the Prosumer's RE system from the CEB grid. For electrical safety reasons, as may be required, the disconnection may also involve the electricity supply to the Prosumer's premises.

Who is eligible for the CEB MSDG Net-Metering Scheme I?

All CEB's **non-Domestic Customers** willing to install a renewable energy system can apply for the Scheme. In accordance with the conditions of the Scheme, in order to ensure a standard practice, the size of the individual RE system shall be determined by the formula given hereunder.

$$RE_{Capacity} = \left\{ \sum_{m=1}^{m=12} C_m \right\} \div (CUF \times 8760) \times 30\%$$

Where,

C	is the periodic (monthly) electricity consumption (kWh) over a full year prior to the installation of the RE system or as shall be agreed by both parties.
RE_Capacity	is the installed capacity in kilowatt-peak DC of the renewable energy system.
m	is for period (1 to 12) or as shall be agreed by both parties.
CUF	is the average Capacity Utilisation Factor, taken as 18% for solar PV generation in Mauritius. The CUF for other RE technologies shall be subject for discussion.
8760	is the total number of hours in a year
30%	is the factor satisfying one of the conditions of the Scheme

Note: At the end of each year, provided meter readings data for at least 12 billing periods is available, CEB will make necessary adjustment to the CUF using actual measured data provided by the Prosumer. The measured data submitted shall be

validated with CEB's meter readings. A continuous monitoring will be effected so as to confirm the actual power output of the RE system.

Prosumers who are already registered under an existing CEB RE Scheme can apply for the CEB MSDG Net-Metering Scheme I, provided they terminate their existing Connection Agreement with the CEB.

Note: Application from prospective Prosumers who are in litigation with the CEB will not be accepted.

How to apply for the CEB MSDG Net-Metering Scheme I?

Please see details on the application process in the [Application tab](#).

- Note:**
- Given a number of technical issues to be addressed when filling the application form, Prosumers should seek the support of a qualified person in the field of RE when filling the form. Insufficient and incorrect information provided in the form may substantially delay the processing or non-consideration for further processing of the application.
 - Payment of the processing fee does not guarantee registration into the Scheme.

Where to get information on the CEB MSDG Net-Metering Scheme I?

Interested prospective Prosumers, wishing to benefit from the present Scheme, can obtain additional information on the Scheme, as follows:

- Search extensively the CEB website <http://ceb.intnet.mu/> . **This is highly recommended as prospective Prosumers will save valuable time and effort.**
- Email querymsdg@ceb.intnet.mu
- Contact the CEB Corporate Planning & Research Department on telephone numbers 404-2038 or 404-2045.

Where to submit application form?

The duly filled application form ([download application form](#)) together with all relevant requested documents, as per the checklist in the application form and the applicable Grid Code, should be submitted to the **CEB Corporate Planning & Research Department**, CEB Corporate Office, Rue du Savoir, Cyber City, Ebène.

Note: An application form will be accepted only after payment of required processing fee ([view applicable processing fee](#)).

Notification Reference, Date and Time

Upon acceptance of an application form, a notification with a reference number, date and time will be created in the CEB information system. A CEB officer will endeavor to contact the prospective Prosumer for follow up action at the earliest possible.

Note: Prospective Prosumers are requested to keep the original of the notification safely for reference purposes.

Important Advice to Prospective Prosumers

- Given technicalities and financial implications in setting up of renewable energy project, sufficient care should be exerted when soliciting third party's supports.
- Grid-tie RE projects need to be fully compliant with Grid Codes. To properly design your project, seek support from knowledgeable qualified people who shall be able to prepare not only the technical part but equally the financial assessment of your investment in the RE system. Keep regular contacts and work closely with the CEB.
- To avoid delays in the implementation of the project, ensure that all documentation, as per the checklist in the application form, together with the application form are submitted to the CEB Corporate Planning & Research Department. Application form submitted through other channels is not recommended.
- Securing the Undertaker Permit is a legal requirement prior to the setting up of the RE system. It is strongly advised that payment(s) for equipment for the RE system be initiated only after the Undertaker Permit has been granted.
- The RE system shall generate electricity, which by its very nature is dangerous. The safety of all people, directly or indirectly, involved in the setting up and continuous **safe operation of the RE system shall not be undermined at any cost and at any time**. It is also strongly advised not to intervene in the RE installation as this may be very dangerous and may even cause death. If needed, you may seek the support services of the CEB, who shall provide some useful guidance in this regard.
- The RE system is an investment which shall bring benefits. Therefore, it is necessary to ensure its security all over its life. This will enable maximizing the return on the investment. In addition, carrying out regular maintenance of your RE system, with the support of a technically qualified person or the supplier of the equipment, will also contribute in maximizing profit.
- Ensure full compliance, at all times, with the Grid Code and its amendments and the Connection Agreement for the interests of all concerned parties.
- Modification of the setup of the RE installation, without prior CEB's authorization, will result in an automatic disconnection of the installation from the CEB's network and cancellation of the Connection Agreement.