

Philippines Rural Power Project

**OPERATIONS MANUAL FOR THE
OFF-GRID SOLAR PV SUBCOMPONENT**

**Department of Energy
Project Management Office**

Revised 18 November 2009

TABLE OF CONTENTS

1. Solar PV Subcomponent.....	2
2. Accreditation of Interested Organizations.....	2
3. Support to PCs and Customers	3
4. Procurement by PCs and Technical Standards	4
5. Grant and Subsidy for Solar PV Systems.....	5
6. Grant and Subsidy Eligibility Criteria.....	7
7. Procedures for Payment of GEF Grants and Government Subsidies	7
8. Market Development Support Facility.....	9

List of Annexes

Annex 1	Business Plan, Financial Statements and Other Documents
Annex 2 A	Obligations of Participating Companies
Annex 2 B	Draft Memorandum of Agreement for Participating Companies
Annex 3	General Requirements and Specifications for Solar Home Systems
Annex 4	Specifications for Solar Lanterns
Annex 5	Implementing Guidelines for the Market Development Support Facility
Attachment 1	Application Form
Attachment 2	Draft MDSF Agreement for PCs
Attachment 3	Incubator Project
Attachment 4	Draft Incubator Agreement

List of Forms

PV Form 1	PV System Warranty Card
PV Form 2 A	Customer Acceptance of Installation – Solar Home Systems
PV Form 2 B	Customer Acceptance of Installation – Solar Lanterns
PV Form 3	GEF Grant and Government Subsidy Request Form
PV Form 4	PV System Verification Form
PV Form 5	PV Module Purchases Report
PV Form 6	Product Configuration and Price List

1. Solar PV Subcomponent

The off-grid solar PV subcomponent of the World Bank/Global Environment Facility (GEF) - financed Rural Power Project (RPP) involves the commercial dissemination PV systems suitable for single homes or establishments, or for institutional and community applications. The Project Management Office at the Department of Energy (DOE-PMO) will select qualified private entities including distribution utilities – private investor-owned and electric cooperatives, non-governmental organizations (NGOs), micro finance institutions (MFIs) and similar entities to participate in the Subcomponent with provision of grants, technical assistance (TA) and market development support to encourage effective and productive undertakings on rural and missionary electrification. Both the GEF grants and Government subsidies are used to catalyze the creation of a market for renewable energy technologies (RETs), and to make the costs affordable to consumers, respectively. The amounts of grant and subsidy described in this Operations Manual for the Off-grid Solar PV Subcomponent apply to the first phase of the RPP (APL 1) and are governed by the provisions of the GEF Trust Fund Grant Agreement.

2. Accreditation of Interested Organizations

The DOE-PMO conducts a review process and accredits entities interested in marketing solar PV systems under the Rural Power Project. Such entities, which may include private companies including distribution utilities – private investor-owned and electric cooperatives, non-governmental organizations (NGOs), micro finance institutions (MFIs) etc, are designated as Participating Companies (PCs), and are responsible for selling PV systems (such as RPP-compliant solar home systems and solar lanterns for households and larger systems for public facilities) in accordance with the RPP Solar PV Subcomponent requirements. Subject to compliance with procedures described below, PCs are eligible to receive GEF grants and pass-through Government subsidies from DOE-PMO. PCs may also avail of term loans for incremental permanent working capital or capital expenditure for their solar PV business from the Development Bank of the Philippines (DBP). Participation in RPP is market based, and is open to a broad spectrum of entities noted above, provided they meet the eligibility criteria set by the DOE-PMO. Interested entities must first signify their desire to participate in RPP by writing the DOE-PMO, which will be followed by discussions and documentation. Entities deemed qualified are then subjected to an accreditation process.

Accreditation signifies that the entity is financially viable, markets products that meet RPP technical standards, has the ability to provide after sales service and follows sound PV retail business practices. However, eligibility to receive GEF grants and/or Government subsidies is contingent on the eligibility of the specific activity carried out by the entity, the sale of only RPP-accredited PV products and compliance with other RPP requirements as set in this Operations Manual.

Summary of steps in the Accreditation Process

- An offer to participate in the Solar PV Subcomponent is submitted to DOE-PMO. The application includes (a) Company Profile, (b) Business Plan, (c) Audited Financial Statements/Reports and (d) list of RPP-compliant PV products that are to be marketed as per outline given in **Annex 1**.
- DOE-PMO evaluates the applicant's qualifications, and may seek additional information.

- If found qualified, the DOE and the entity then sign a Memorandum of Agreement (MOA) indicating the entity's agreement to abide by the requirements of RPP, and thereby becoming a Participating Company (PC) that is eligible to receive GEF grants, pass-through Government subsidy and technical assistance in accordance with the terms given in the Operations Manual for the Solar PV Subcomponent. The obligations of a PC and a draft MOA are given in **Annex 2 A** and **Annex 2 B** respectively.
- Entities that are awarded contracts under Project ACCESS/Sustainable Solar Market Packages (SSMP) approach or distribution utilities – private investor-owned and Electric Cooperatives, and similar entities that have entered into a MOA with DOE for off-grid electrification using solar PV shall be deemed to have fulfilled all requirements for accreditation and will therefore be automatically qualified as PCs under RPP without the need for any other documentary requirements.

General Requirements for making an Application

- The applicant should have a business plan acceptable to DOE-PMO that demonstrates that the entity has:
 - a market development plan including target customers, adequate coverage of proposed service area, physical distribution network, consumer financing arrangements etc.
 - made arrangements to grow its business, say by expanding its service network or by increasing its marketing efforts in existing market areas
 - a financial plan demonstrating that the applicant's operations would be commercially viable, with explicit disclosure of sources of external funding (such as equity infusion, commercial borrowings, grants etc)
 - a satisfactory consumer protection plan as required by RPP, including a returns policy, warranties, money back guarantee applicable within a stipulated period and adequate after sales networks
 - adequate arrangements for staffing, including trained technicians.
- The entity should identify the products that it will initially market. The products and components should meet the technical standards specified by RPP, and supported by relevant documentation.
- Submit audited financial statements that demonstrate that the entity is financially sound.

To maintain accreditation the PC shall maintain a reliable documentation and information system and internal quality controls which shall be subject to verification by DOE-PMO from time to time.

3. Support to PCs and Customers

Financial Assistance

Most end users need credit financing to purchase PV products. Likewise, PCs need finance for working capital. For this purpose, RPP has a World Bank-funded line of credit, which is managed by the Development Bank of the Philippines (DBP). PCs may obtain incremental permanent working capital loans under this facility. Likewise, providers of consumer loans to purchasers of PV systems may obtain refinance for loans disbursed. These providers of consumer finance may be micro-finance institutions, NGOs, etc. that may approach DBP directly or through another financial intermediary.

On the other hand, the PC may itself decide to offer consumer financing, and avail of the credit facility for this purpose, subject to approval by DBP. A variety of consumer financing models is permissible.

In addition to credit facilities, GEF grants (financial incentives) and Government subsidies are available under RPP, as described in Section 5 below.

Consumer Protection

To provide protection to users of solar PV products obtained under RPP, the DOE-PMO maintains several safeguard measures that include the following:

- Only products that meet RPP-defined technical standards may be marketed
- All products carry a warranty as stipulated by DOE-PMO (PV Form 1: PV System Warranty Card)
- In addition, the customer is entitled to a money back guarantee should he/she wish to return the product within 30 days for whatever reason (PV Form 1, section 5)
- A defined procedure on how to register complaints is in place, with DOE-PMO acting as the contact point of last resort
- DOE-PMO carries out random post-installation technical and physical verifications
- The above information and procedures are documented in the User's Manual that is given to the customer at the time of sale or installation. In addition, the terms of the warranty are usually printed on the reverse side of the customer's copy of the Customer Acceptance of Installation.

4. Procurement by PCs and Technical Standards

The World Bank's Procurement Guidelines will govern the procurement of goods by PCs. In the case of solar home systems, solar lanterns and components, procurement shall be done independently by each PC, following established commercial practices acceptable to DOE-PMO. These products are essentially off-the shelf items and prices are easily verifiable.

All components, and the solar PV product as a whole, should comply with technical specifications and standards adopted by RPP. The general requirements and specifications for solar home systems (SHS) and components are given in **Annex 3**.

RPP adopts the PVRs 11A - Portable Solar Photovoltaic Lanterns Design Qualification and Type Approval of PV GAP, or an equivalent standard, for accreditation of solar lanterns. As indicated in **Annex 4**, DOE-PMO may amend standards from time to time based on experience gained and to suit ground realities. However, solar lanterns will cease to be supported by RPP, the cut off date for submitting complete and valid claims being 30 October 2009, except in the case of prior commitments recognized by DOE-PMO (SSMP 1 and SSMP 2 – KEPCO 136 contracts).

PCs shall have their PV systems and components (all identified by make and model) reviewed and approved by DOE-PMO before they are marketed. For this purpose PCs will submit to DOE-PMO the specifications of the components and details of system configuration along with test reports showing compliance with RPP standards. More details are given in Annex 3 (for SHS) and Annex 4 (for lanterns).

To avoid duplication of effort in testing, DOE-PMO will (i) selectively accept components or products approved for use in other projects, and (ii) accept Manufacturer's Self Compliance Certificates that confirm that the component has the same design and operating principles as the reference component previously accepted by DOE-PMO. More specifically, the said Manufacturer's Self Compliance Certificate will confirm that the component to be accredited uses the same (i) production processes and construction methods, (ii) materials and (iii) quality control procedures as the previously accepted reference component during manufacture.

PCs may wish to introduce new products quickly to the market by seeking 'provisional accreditation' pending full testing as per RPP requirements. Based on information received and independent verifications, DOE-PMO may at its discretion issue such 'provisional accreditation' to products that are already undergoing tests to prove compliance with RPP technical standards. Such 'provisional accreditation' shall be time bound, and the GEF grant and/or Government subsidy released with retrospective effect only upon full accreditation, subject to other standard compliance requirements.

Since the pass through of the Government subsidy to the end user of SHS or lantern is monitored by DOE-PMO, PCs are required to identify the systems (complete configurations) to be marketed with suitable identification codes, and disclosure of normal and discounted selling prices before and after the Government subsidy respectively. A suitable format for presenting this information is given in PV Form 6 – Product Configuration and Price List.

DOE-PMO does not monitor the usage of the GEF grant by PCs, as it is up to the PC to decide on its application.

5. Grant and Subsidy for Solar PV Systems

GEF Grants and/or Government subsidies are available to PCs for eligible PV products sold to consumers, subject to audit and verification of the installations on a random basis. As these grants and subsidies are meant to be one-time assistance to end users, upgrades shall not qualify for grants.

PV products sold by PCs under other grant-assisted programs are eligible for the GEF grants and Government subsidies offered by RPP subject to the following conditions:

- Compliance with RPP requirements including reporting and verification, technical and service standards etc.
- Reasonable payment by the consumer. This is to ensure that the consumer has a sense of ownership and a stake in the sustainability of the system. A minimum reasonable payment would be of the order of 10% of the market price of the system or equivalent to the avoided expenditures for similar energy services.
- Contracts must be based on fair market prices. To avoid 'double dipping', the PC shall prior to initiating sales disclose the pricing structure to the DOE-PMO for its review, who will verify that the pricing is no higher than normal sales under the RPP program.
- Issuance of a 'no objection' letter by DOE-PMO based on the above.

GEF Grant

The GEF grant is intended for market development and expansion activities, and hence, it is left to the PCs' discretion as to what part, if any, is passed on to the end-users.

- *PV Systems for use by Individual Households/Single Establishments*

The following rates will continue to apply in respect of valid and complete claims received by DOE-PMO until 15 December 2009:

For solar home systems with module ratings in the range 20 to 50 Wp: US\$2.50 per Wp;
for more than 50 and up to 100 Wp: US\$1.50 per Wp.
for units larger than 100 Wp there is no GEF grant.

For solar lanterns, the GEF grant is US\$2.50 per Wp for modules having a rating in the range 10 Wp to 50 Wp. It will be noted that lanterns are small units that seldom have modules exceeding 15 Wp capacity. Also, as noted in Section 4 above, lanterns will cease to be supported by RPP after 30 October 2009, except those sold under prior commitments approved by DOE-PMO.

The following revised rate will apply for claims received by DOE-PMO after 15 December 2009, including 'incomplete' claims previously submitted to DOE-PMO that are awaiting processing:

The GEF grant will be a single band of US\$2.00 per Wp for solar PV systems in the 10 to 100 Wp range. As before, there will be no grant for solar home systems with less than 20 Wp or more than 100 Wp capacity. The revised rate will apply to all claims received after the said date, including sales under previously executed SSMP contracts.

- *Community Applications*

PV arrays for applications such as battery charging stations, schools, health clinics and other social/public institutions, community water supply (solar pumps), etc are eligible for a GEF grant of US\$1.50 per Wp up to a maximum of US\$450 per installation.

Government Subsidy

The Government subsidy is available to end-users who are un-energized households, which include un-electrified households in electrified barangays.

The subsidy amounts for solar home systems are:

- SHS with module capacities in the 20 to 30 Wp range: PhP 8,000 per system;
- SHS with module capacities more than 30 Wp and up to 50 Wp: PhP 4,000 per system;
- No subsidy is available for systems larger than 50 Wp.

In the case of solar lanterns, the subsidy is PhP 1,500 per lantern. However, as noted previously, RPP will cease to support lanterns after 30 October 2009.

It is required that the Government subsidy is passed on in full by the PC to the end-user, in the form of a price discount. The PC subsequently seeks reimbursement from DOE-PMO by providing evidence through appropriate documentation that will include the Customer Acceptance of Installation. The DOE-PMO maintains a monitoring system to ensure that selling prices are reasonable, and that the Government subsidy is fully passed on to the end-users as intended.

6. Grant and Subsidy Eligibility Criteria

Eligible Customers/End-users

GEF Grant: Eligible customers are individual households, shops and other businesses, public institutions (health clinics, schools, other social institutions, etc.) and community groups that obtain the PV system under cash or credit terms (loan, lease, hire purchase etc) or any other scheme (such as fee for service).

Government Subsidy: Eligible customers are un-energized households that obtain the PV system under cash or credit terms (loan, lease, hire purchase etc) or any other scheme (such as fee for service).

The GEF grant and/or the pass-through Government subsidy may be claimed only once in respect of an end user or beneficiary, who is given the option to decide on the type of product (SHS or lantern) that best suits his/her needs and circumstances.

In the event of multiple purchases by a single end user, only one product will qualify for the GEF grant and/or Government subsidy.

Multiple procurements by a single PC under special schemes such as fee for service will qualify for the GEF grant and/or Government subsidy (depending on the financing plan), as long as the end users are identified, distinct and different.

A PV system that received the grant or subsidy will not qualify for another grant or subsidy should it be resold to another customer subsequently, as the product is no longer new and the initial price discount is already embedded in the subsequent resale price.

Eligible Sales and Dates

Eligible sales are those made to final end users after the effective date of the MOA between the PC and DOE.

7. Procedures for Payment of GEF Grant and Government Subsidy

The PC shall submit its first request to DOE-PMO for the payment of GEF grant and Government subsidy after at least thirty (30) eligible installation/sales have been completed. Thereafter, requests may be made in batches of reasonable volume to minimize transaction costs, or periodically (say quarterly).

Upon receipt of claims, DOE-PMO will carry out a due diligence on documentation furnished, and seek clarifications if necessary, prior to processing of GEF grant and/or reimbursable subsidy claims.

Before making the very first payment to a PC, the DOE-PMO will carry out a Verification of at least 30 installations or sales made by the PC. The verification will include quality of installation and workmanship, use of RPP-accredited components, availability of User's Manual, Warranty Card and a copy of Customer Acceptance of Installation with the end-user and an assessment of the training provided to the end-user. If found to be compliant with RPP requirements, the grant and subsidy request is then processed, subject to other validation checks described below. If non-compliant, the PC will be required to carry out rectification work, and provide evidence of the same. After the initial

payment of grant and/or subsidy, DOE-PMO will conduct random verifications as an on-going parallel activity while the PC continues with its marketing of PV products.

The detailed procedure is as follows:

- The customer obtaining a solar home system or solar lantern signs the PV System Warranty Card (**PV Form 1**), and the Customer Acceptance of Installation (CAI). The CAI (**PV Form 2**) gives details of the PV system including the serial number of the PV module, the owner's name, address and other details and provides the basis for recognizing a sale.
- The PC submits a Grant and/or Subsidy Request to the DOE- PMO giving information on customers and PV system details using the format given in **PV Form 3**. The PC must certify with the request that the PV systems or any component thereof have not received grants or subsidies from other programs, or attach DOE-PMO's 'no objection letter' as noted in Section 5 above. Copies of the CAI should be attached to the payment request, although DOE-PMO may adopt different documentation and validation procedures once the grant and subsidy administration is fully computerized.
- DOE-PMO performs a Verification of at least thirty (30) systems reported by each company to confirm sales and ensure compliance with RPP requirements (such as quality of installation, use of accredited products and completeness of documentation given to the consumer) before authorizing the grant or subsidy payment for the first time. DOE-PMO shall use its discretion in selecting this sample, which may be picked from one or more early claims submitted by the PC. Sample format for PV System Verification is given in **PV Form 4**.
- DOE-PMO also verifies that the modules reported as sold came from the shipment of a manufacturer or supplier that markets products accredited by RPP. This verification procedure validates serial numbers at the point of entry to prevent payment of multiple grants or subsidies, as well as to check on the origin of the product. PCs are required to submit to DOE-PMO a PV Module Purchases Report (using the format given in **PV Form 5**) together with copies of shipping/supplier's documents as soon as goods are received by the PC. The Report will detail the source of supply, make, model, capacity (Wp), serial number and date of receipt for each consignment or batch. The shipping/supplier's documents attached will include the serial numbers of the PV modules, and PCs should ensure that their suppliers understand this requirement. The DOE-PMO may decline subsidy and grant payments if satisfactory documentation is not furnished.
- DOE-PMO maintains databases of (i) technically certified components as well as complete system configurations, (ii) module serial numbers obtained from supplier's documents, and (iii) customer ID and module serial numbers obtained from Customer Acceptance of Installation certificates. These are used to validate compliance with technical standards and eliminate duplication of claims.
- After the verification of 30 units sold by a PC, DOE-PMO or a consultant appointed by DOE-PMO will carry out random verifications of reported sales or installations on a continuous basis. This will be a parallel and independent activity not linked to the processing of payment for any particular batch of claims. However, based on findings of the verifications, if suitable explanations and/or remedial measures are not effected to the satisfaction of DOE-PMO within a prescribed period, further processing of payments to the PC will be suspended and DOE may then proceed to take suitable action under the provisions of the MOA.

- Based on the above DOE-PMO authorizes disbursement of the GEF grant and/or Government subsidy payments to the PC.

8. Market Development Support Facility

The Market Development Support Facility (MDSF) provides cost-shared grant assistance to organizations to carry out activities that improve their business and market development capabilities under RPP. The MDSF Implementing Guidelines (**Annex 5**) provide information on (i) Eligible organizations, (ii) Eligible activities and expenditures, (iii) Evaluation criteria, approvals and agreements, (iv) Amount of support, and (v) Disbursement procedure.

MDSF is not limited to the Solar PV Subcomponent of RPP.

MDSF encourages new approaches and innovations in business development, and special incentives are available for such activities that are perceived to carry a higher than normal risk. An example is the **Incubator Project** outlined in Attachment 3 of the MDSF Implementing Guidelines.

Unlike in the case of the GEF grant (financial incentive) and Government subsidy, the MDSF beneficiaries need not necessarily be Participating Companies.

DOE-PMO – 18 November 2009