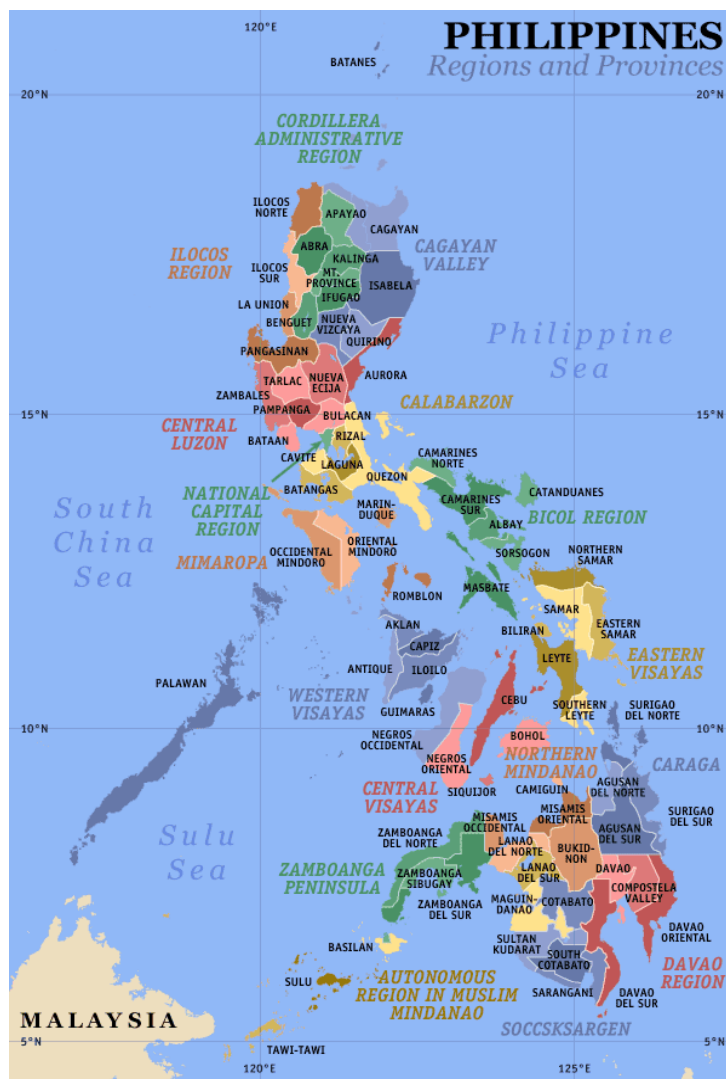


Project ACCESS

Sustainable Solar Market Packages



Project ACCESS implemented by The DOE in partnership with the MIRANT Foundation and with support from the World Bank and the Global Environment Facility (GEF).

Date: April 2006

Executive Summary

Background

The Government of the Philippines through its Department of Energy (DOE) has embarked on a number of comprehensive and innovative measures towards achieving the goal of 100% barangay electrification by 2008 and 90% household electrification by 2017. These measures include new approaches for the implementation of electrification projects in order to enhance sustainability.

Project features

The DOE is currently implementing the World Bank and Global Environment Facility-supported Rural Power Project (RPP) of which Project ACCESS, using a Sustainable Solar Market Packages (SSMP) approach is one component.

This project, in its first phase beginning April 2006, employs a new approach to the electrification of 55 barangays in five provinces, which implies electrification of about

3 700 households and other private establishments, close to 170 public facilities, e.g. barangay halls, health centres and schools, and more than 170 streetlights.

The SSMP concept recognizes that in order to provide solar photovoltaic (PV) electricity services to remote rural communities in a commercially viable way, the scale of the business operation must be sufficiently large to overcome the higher transactions costs of doing

business in remote areas, and risks must be manageable.

Hence, the SSMP approach utilises a combination of innovative instruments to achieve the electrification targets:

- *Clustering of barangays into commercially viable packages (SSMP packages) that will be bid out on a competitive basis;*
- *Each SSMP package will have a baseload from public facilities (ex. barangay halls, health facilities, schools, street lights);*
- *Innovative subsidies to develop the market and buy down the capital cost, i.e. improve affordability;*
- *Strong focus on after-sales service & continued marketing.*

Each successful SSMP contractor will have an obligation to install the PV systems for public facilities within six months and warrant their operation for a period of five years. The contractor is also obligated to market and sell on a commercial basis, solar PV systems to benefit at least 25 percent of households in each SSMP cluster within 18 months from contract signing.

Funding for public facilities

Public sector and donor resources will



Executive summary

fund PV systems for public facilities that will benefit the whole community.

Availability of subsidies

To support commercial sales to the private market, significant subsidy and financial assistance is provided. These include an output-based subsidy from the government of P4000-8000 (about \$80-160) per PV system, and output-based GEF financial incentive of \$1.50-2.50/Wp, depending on the size of the PV system.

Are there any other support facilities?

There is a Market Development Support Facility, which can provide cost-shared grants of maximum 50 percent, to support specific activities such as training and technical assistance to a participating company/eligible organization.

Size of PV packages

The aggregate PV power requirements for the public facilities range from 2.6kWp to 11.9 kWp with each facility requiring 110 to 440 Wp of power. Power for households and other establishments may require more than 70 kWp in the aggregate.

Who can participate?

All companies that have been accredited by the DOE for the RPP (i.e. Participating Companies) can participate in the SSMP and submit bids for the different SSMP clusters. Companies not already accredited by the DOE

can submit an application for accreditation simultaneously as submitting a bid for a SSMP package.

How will the tender process be?

The tender process is competitive and open to all bidders—foreign and national—that fulfil the eligibility criteria.

For the SSMP packages financed by the MIRANT foundation or any other private entity, the bidding process will commence with a pre-qualification stage and short-listing of bidders. For SSMP packages financed by a public entity there will be no pre-qualification stage.

Commencement of tender process

Over the next three months, Project ACCESS will invite bids to award contracts for five SSMP Packages in the provinces of Aklan, Lanao del Norte, Masbate, Northern Samar and Palawan. Each package comprises of 2 to 16 barangays for a total of 55 barangays.

How many SSMP packages (lots) can a company bid for?

A company can bid for as many SSMP packages as it has the financial, technical, and organisational capability to bid for.

How to obtain additional information?

For additional information on eligibility requirements, accreditation procedures, subsidy and other support schemes, SSMP market information or any other information related to Project ACCESS contact:

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Introduction

The Philippines is a country of 89 million people with 40 percent of the population living in rural areas. Even though the country has grown fairly steadily over the last couple of years, it will take a continued and sustained high growth path to make significant progress in poverty alleviation.

For the further economic development and growth of the country, access to modern energy in rural areas must be accelerated. The Department of Energy (DOE) has embarked on a number of comprehensive and innovative measures towards achieving the goal of 100% barangay electrification by 2008 and 90% household electrification by 2017. These measures include new approaches for the implementation of electrification projects in order to enhance sustainability, increased focus on public-private partnerships, innovative financing and subsidy schemes, and local participation and ownership.

Rural electrification is a pro-poor flagship programme of the DOE and it aims at improving the quality of life in rural areas through the provision of adequate, affordable and reliable energy services, in partnership with the private sector. It is now well established that provision of electricity to previously unelectrified locations stimulates growth of different economic activities, independent of whether it is used to provide higher quality lighting for rural homes or provide power for rural microbusinesses.

The Republic of the Philippines has received a grant from the Global Environment Facility (GEF), through the World Bank for the preparation for the implementation of the Rural Power Project (RPP) and has decided to apply part of this grant for part of these grant to Project ACCESS for the development of Sustainable Solar Market Packages (SSMP).

Hence, to achieve the electrification targets, Project ACCESS utilises a combination of new and innovative instruments and measures for financing and implementation and the project is in the first round expected to lead to the electrification of 55 barangays, more than 170 public facilities, and about 3,700 PV systems for households and other establishments.



Project concept and components

The underlying concept has been developed based on previous experiences with solar PV electricity in remote rural areas and the difficulties in making the market work. In order to overcome the transaction costs of doing business in remote areas and to create a commercially viable business, the SSMP concept recognises that the scale of the solar PV business operation must be sufficiently large. Hence, the SSMP employs the following enabling measures:

- *Clustering of barangays into commercially viable packages (SSMP packages) that will be bid out on a competitive basis;*
- *Each SSMP package will have a baseload from public facilities (ex. barangay halls, health facilities, schools, street lights);*
- *Innovative subsidies to develop the market and buy down the capital cost, i.e. improve affordability;*
- *Strong focus on after-sales service & continued marketing*

The two main components of the SSMP are:

- *To supply, market, install and maintain solar packages for public facilities*
- *To commercially sell, market and install a minimum number of solar systems (i.e. solar home systems (SHS)) for the private market.*

Through competitive tendering, one SSMP contractor for each cluster will be selected. However, one bidder (participating company) can win several clusters (lots).

Hence, each successful SSMP contractor will have an obligation to install the PV systems for public facilities within six months and warrant their operation for a period of five years. The contractor is also obligated to market and sell on a commercial basis, solar PV systems to benefit at least 25 percent of households in each SSMP cluster within 18 months from contract signing.



Funding sources, availability of subsidies and other support facilities

Public sector and donor resources will fund PV systems for public facilities that will benefit the whole community. The two main funding sources for public facilities are:

- *MIRANT Foundation or any other private organisation or company;*
- *ER1-94 funds.*

To support commercial sales to the private market, significant subsidy and financial assistance is provided. These include an output-based subsidy from the government and an output-based GEF financial incentive, depending on the size of the PV system, as presented below.

	<i>Government subsidy</i>		<i>GEF grant</i>	
Subsidy level	≥ 20 & ≤ 30 Wp	P8000/system	≥ 10 & ≤ 50 Wp	\$2.5/Wp
	> 30 & ≤ 50 Wp	P4000/system	> 50 & ≤ 100 Wp	\$1.5/Wp
			Public facilities	\$1.5/Wp up to \$450 per

- *Subsidies should be passed-on by the SSMP contractors to the end-users in the form of discounts, incentive/rebates or any other means approved by DOE.*
- *Each household/establishment is entitled to only one government subsidy.*
- *No grants/subsidies will be granted to installations that has already received grants from local and national government and/or foreign-assisted projects.*
- *Subsidies/grants will be made available to eligible photovoltaic products (meeting technical standards), subject to verification. A list of approved equipment can be obtained from the DOE-PMO.*
- *System upgrades will not be qualified for the subsidies/grants.*

In order to avail of the subsidies/grants a Memorandum of Agreement between the accredited company and DOE is required.

Subsidies will be paid upon verification of installations.

In addition, it is expected that Local Government Units (LGUs) will contribute towards meeting the cost of maintenance of public facilities.

There is also a Market Development Support Facility, which can provide:

- *Cost-shared grants of maximum 50 percent, to support specific activities such as training and technical assistance to a participating company/eligible organization to improve on:*
- *Financial management, contract management, accounting and auditing;*
- *Development of sales and after-service networks;*
- *Product development and quality control;*
- *Marketing (surveys, promotion, small demonstrations) and business development;*
- *Industry association / accreditation.*

In order to avail of support from the Market development Support Facility a proposal must be submitted to the DOE-PMO who will conduct an evaluation. For more information on this process – contact the DOE-PMO.

PV-packages

The aggregate PV power requirements for the public facilities range from 2.6kWp to 11.9 kWp with each facility requiring 110 to 440 Wp of power. Power for households and other establishments may require more than 70 kWp in aggregate.

In the bid documentation, technical specifications for solar PV systems for the following applications in barangay public facilities:

- *Barangay Hall energy services – lighting (indoor, outdoor and portable), public address/karaoke systems, computing, two-way radios, TV/DVD's and small appliances*
- *Health centre energy services – communication, lighting (indoor, outdoor and portable), ventilation and small medical appliances such as nebulisers*
- *Primary/elementary school energy services – lighting (indoor, outdoor and portable), audio-visual equipment, computing, and small appliances*
- *High school energy services – lighting (indoor, outdoor and portable), audio-visual equipment and small appliances*
- *Public lighting energy services – streetlights, path lighting, pier lighting, public areas such as basketball / drying areas*

The minimum array, battery, charge controller and inverter sizes are summarised in the table below.

<i>System</i>	<i>Array Wp</i>	<i>Battery Ah @ C₂₀x V</i>	<i>Charge controller A</i>	<i>Inverter VA</i>
Barangay Hall (A)	220	300 x 12V	20 A	200 VA
Health Centre (B)	220	300 x 12V	20 A	200 VA
Primary School (C)	150	200 x 12V	20 A	200 VA
High School (D)	220	300 x 12V	20 A	200 VA
Public Light (E)	110	150 x 12V	10 A	N/A

Information on Technical specifications, applicable standards and approved equipment can be obtained from the DOE-PMO.

Eligibility and tender process

All companies that have been accredited by the DOE for the RPP (i.e. Participating Companies) can participate in the SSMP and submit bids for the different SSMP clusters. Companies not already accredited by the DOE can submit an application for accreditation simultaneously as submitting a bid for one or several SSMP packages.

Information on accreditation requirements can be obtained from the DOE-PMO.

How will the tender process be?

The tender process is competitive and open to all bidders—foreign and national—that fulfil the eligibility criteria.

For the SSMP packages financed from a private source like the MIRANT foundation or any other private entity, the bidding process will commence with a pre-qualification stage and shortlisting of bidders. For SSMP packages financed through public funds there will not be a pre-qualification stage.

Bidders will be evaluated using pass/fail criteria.

Commencement of tender process

Over the next three months, Project ACCESS will invite bids to award contracts for five SSMP Packages in the provinces of Aklan, Lanao del Norte, Masbate, Northern Samar and Palawan. Each package comprises of 2 to 16 barangays for a total of 55 barangays.

How many SSMP packages (lots) can a company bid for?

A company can bid for as many SSMP packages as it has the financial, technical, and organisational capability to bid for.

Performance security

10 days after contract signature, the contractor must put up a performance guarantee of 30% of the contract sum. This performance guarantee is reduced over the duration of the contract as performance obligations are fulfilled. That is, after installation it goes down 10%, by 5% once the household targets are met, and 3% every year after installation if the maintenance obligations are met. So after 5.5 years, the remaining performance guarantee is zero.

10 days after installation, a warranty must be provided worth 15% of the contract sum. This goes down by 3% per year over 5 years.

The maximum security to be provided is just after installation, and it is $(30\% - 10\%) + 15\% = 35\%$

SSMP market potential and description of areas

For each SSMP cluster, it has been important to ensure that the private market (i.e. the market for SHS) is potentially large enough for a SSMP contractor to sustain its operations for five years and beyond. The public facilities provide the initial base load but it will be the private market that will make the business operations sustainable.

Fieldwork data collected between August and December 2005 has been used to estimate the market potential for SHS in the barangays covered by Project ACCESS.

Information from the field surveys included, but was not limited to, the number of households in each barangay, income distribution of



the households, current energy expenditures, availability of electricity in the barangay and the ownership of generators and current and previous experiences with solar PV systems, and interest of the residents in purchasing solar PV systems.

Using the data collected, the probability that a household's energy expenditures were equal to or greater than the monthly amortizations of the different SHS has been estimated. The number of households that could afford the monthly amortization was then assumed to approximate the potential demand for solar photovoltaic (PV) systems. This information was coupled with households expressed willingness to pay for and interest in obtaining SHS.

SSMP market potential and description of areas

For the first round of the SSMP, there are seven clusters from five provinces: Masbate, Aklan, N Samar, Palawan, and Lanao del Norte (Iligan). The SSMP packages are called:

- *SSMP Masbate: Aroroy*
- *SSMP Masbate: Mandaon*
- *SSMP Aklan*
- *SSMP N Samar*
- *SSMP Palawan: Bataraza*
- *SSMP Palawan: Quezon*
- *SSMP Iligan*

Estimates, based on the previously described fieldwork data, of the five-year potential market for SHS in all the SSMP clusters covered by Project ACCESS have been calculated. The aggregate result for all clusters is presented below. In the estimates, a modest population growth and conservative sales to neighbouring

	<i>20 Wp</i>	<i>40Wp</i>	<i>50Wp</i>	<i>75 Wp</i>	<i>Total</i>
Sales to current households	4956	2191	313	393	7853
Sales due to increase in no. of households	227	227	227	0	682
Sales due to sales to neighbouring barangays	1052	412	1031	115	2610
<i>Total</i>	6236	2830	1571	508	11145

barangays have been factored in.



Department of Energy

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