

PROJECT IDEA NOTE (PIN)

Name of Project: Disseminating Solar lamps and Efficient Cook Stoves in Pacific Island Countries

Date finalized: May 2012

Description of size and quality expected of a PIN

Basically a PIN will consist of approximately 5-10 pages providing indicative information on:

- the type and size of the program
- its location
- the anticipated total amount of GHG reduction compared to the “business-as-usual” scenario (which will be elaborated in the baseline later on at PoA DD and CPA DD level)
- Duration of the program and crediting period of the CPAs under the Program
- the estimated CER price in US\$/ton CO₂e reduced
- the financial structuring (indicating which parties are expected to provide the project’s financing)
- the project’s other socio-economic and environmental effects/benefits

While every effort should be made to provide as complete and extensive information as possible, it is recognised that full information on every item listed in the template will not be available at all times for every project.

A. Program Description, Type, Boundary and Schedule

<p>Objective of the Program <i>(Describe the policy/measure or stated goal that the PoA seeks to promote)</i></p>	<p>The domestic energy supply for the vast majority of rural households in Pacific Island Countries is limited to kerosene lamps for lightning and open fire systems wherein woody biomass is burnt for cooking.</p> <p>The Programme of Activity (PoA) aims to replace kerosene lamps with portable solar lightning systems and inefficient open fire cooking system with efficient cook stoves. The program will be rolled out initially in four Pacific Island Countries, namely: Papua New Guinea (PNG), Solomon Islands, Fiji and Vanuatu.</p>															
<p>Program Description and Proposed Activities <i>(About ½ page)</i></p>	<p>The proposed PoA will be implemented and coordinated by Green Power.</p> <p>Significant energy access gap exists concerning electricity and/or petroleum fuel access in PNG, Solomon Islands, Vanuatu and Fiji. These countries are almost completely dependent on imported fossil fuels for meeting their energy needs. There is a large potential for renewable energy resources to supply electricity to rural households. Solar based systems represent the most environmentally friendly and cost-effective means of providing electricity to those living in rural communities or regions in these countries.</p> <p>Under the project activity portable solar based devices – for lighting and mobile phone charging will be distributed in rural areas. These products are described as Pico-solar ('pico' meaning very small), consisting of a solar panel and a combination LED (Light Emitting Diode) light and in-built battery. These small systems are compact, robust, affordable, and are considered ideal for rural environments.</p> <p>A large number of people, especially in Pacific Island countries, still use woody biomass as the main source of fuel for cooking in open fires. Open fires are not only inefficient, but they produce smoke which is harmful to health and present a burn risk to children. The inefficiency of open fires results in large amounts of wood being burned, contributing to deforestation, and hard work for the women and children collecting it.</p> <p>Under the project the inefficient cooking system will be replaced with improved stoves which are carefully designed to be more efficient in burning wood and getting heat to the cooking pots, and so reduce the amount of wood required to cook a meal. Improved combustion also reduces the amount of smoke that is produced.</p> <p>The proposed PoA targets distribution of solar lamps as below:</p> <table border="1" data-bbox="715 1798 1334 2016"> <thead> <tr> <th>Country</th> <th>Total Solar Lamps</th> <th>Distribution period</th> </tr> </thead> <tbody> <tr> <td>Vanuatu</td> <td>20,000</td> <td>4 years</td> </tr> <tr> <td>PNG</td> <td>1,000,000</td> <td>9 years</td> </tr> <tr> <td>Solomon Islands</td> <td>100,000</td> <td>9 years</td> </tr> <tr> <td>Fiji</td> <td>100,000</td> <td>9 years</td> </tr> </tbody> </table>	Country	Total Solar Lamps	Distribution period	Vanuatu	20,000	4 years	PNG	1,000,000	9 years	Solomon Islands	100,000	9 years	Fiji	100,000	9 years
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Technology to be Employed <i>(Describe in not more than 5 lines)</i>	<p>The programme uses home based solar lightning systems known as “pico solar” for lightning and mobile charging and efficient cook stoves called rocket stoves for cooking. Depending on model the Solar lamps have a life from 3 years – 7 years.</p> <p>The rocket stoves are designed by Aprovecho Research Center (ARC). For 25 years, ARC has been a world leader in the scientific development of improved cook stoves. These stoves use 40-50% less fuel than an open fire and burn 50-70% cleaner than an open fire.</p>															
Type of Program																
Greenhouse gases targeted CO ₂ /CH ₄ /N ₂ O/HFCs/PFCs/SF ₆ <i>(mention what is applicable)</i>	CO ₂															
Boundary of the Program																
The boundary for the PoA in terms of a geographical area	Vanuatu, Fiji, PNG , Solomon Islands															
Duration of the Program																
Starting Date	June 2013															
Duration/Length	28 years															
Program Coordinating/managing Entity																
Name of the Coordinating Entity	Green Power															
Confirm that the program is a voluntary action by the coordinating/managing entity	Yes program is a voluntary action by Green Power and is not required by law in any of the country where program will be implemented															
Organizational category <i>(private entity or public entity)</i>	Private Entity															
Summary of the relevant experience and capability of the Coordinating Entity <i>(Describe in not more than 5 lines)</i>	Green Power is ‘for trading’ arm of Vanuatu Renewable Energy and Power Association (VANREPA); a non profitable organization. Green Power is actively involved in distributing and implementing renewable technologies. It now plans to expand similar activities in other Pacific Island Countries.															
Operational /management arrangements																
Operational and management arrangements between the coordinating entity and the participating organisations	The PoA is a voluntary action being coordinated and managed by Green Power, the coordinating entity. Green Power will be investing, operating and managing the proposed PoA To widen the reach of the programme Green Power will also work closely with other agencies/organizations willing to be CPA implementer or willing to invest and/or involve in distribution and/or operate similar activities in Vanuatu, Fiji, PNG, and Solomon Island. The roles and responsibilities of Green Power and other organizations will be elaborated for each CPA at CPA-DD stage.															

Expected Schedule	
Earliest Program starting date <i>Month/Year in which PoA will be operational</i>	June 2013
Expected first year of CER delivery	2014
Lifetime of the CPAs <i>Number of years</i>	10 years
For CPAs: Expected Crediting Period <i>7 years twice renewable or 10 years fixed</i>	10 years fixed

B. Methodology and Additionality of the Programme of Activities

<p>Sector Background Please describe the laws, regulations, policies and strategies of the Host Country that are of central relevance to the proposed project, as well as any other major trends in the relevant sector (e.g. any law/regulation on waste disposal or renewable energy targets)</p>	<p>While the Pacific Island Countries (PICs) are all unique, they have certain similarities given that they are small island nations. In general, small islands have small populations and in many cases these small islands are scattered over hundreds and sometimes thousands of kilometers of sea. In these countries more than two-thirds of the population lives in rural areas with limited access to modern energy services.</p> <p>According to the International Energy Agency (IEA) access to energy services is a key component of alleviating poverty and an "indispensable element of sustainable human development. In the PICs there is a significant problem with energy poverty in rural areas. For such regions where people are living in darkness solar lighting and mobile charging systems and improved cooking systems offer the promise of rapid and radical transformation.</p> <p>Petroleum products are and will remain the major source of energy for the region for a long time to come. Changes in their availability, quality and cost therefore have a significant impact on small island economies. Urgent action to develop and invest in effective clean energy programmes is necessary, both to improve the ability of PICs to withstand and adapt to economic shocks, as well as to contribute to wider efforts on climate change mitigation and adaptation.</p> <p>The programme is not intended to run under a public incentive scheme, nor is it required by law.</p>
<p>Description of a typical CPA (activities and measures to be covered, e.g. a MSW site or multiple MSW sites in a city)</p>	<p>A typical CPA under the programme will be implemented in single country and will consist of the distribution and installation of solar lightning systems and improved cook stoves in rural households in the host country.</p>
<p>Eligibility criteria for CPAs (Define the eligibility criteria for inclusion of a project activity as a CPA under the PoA, which shall include, as appropriate, criteria for demonstration of additionality of the CPA, and the type and/or extent of information that shall be provided by each</p>	<p>The eligibility criteria for inclusion of a project as a CPA under the PoA are :</p> <ul style="list-style-type: none"> • The CPA should involve distribution and installation of solar lightning systems and/or improved cook stoves in rural household. • The specification of the equipment distributed shall be as described in the technology section above. • Be located within the geographical boundary of one o the following countries – Vanuatu, Fiji, PNG and Solomon Island.

<p>CPA in order to ensure its eligibility)</p>	<ul style="list-style-type: none"> • Meet the applicability requirements of all the relevant CDM methodologies - AMS III.AR. version 02 EB 65 and AMS II.G version 03 EB 60 • CPA should involve distribution of solar lamps/cook stoves only to households • In case of project implementer other than Green Power, have a cooperation agreement with Green Power that governs the SSC-CPA's participation in the PoA. The roles and responsibility of the CME and the CPA implementer will be defined in CPA-DD. • The CPA shall demonstrate additionality as per latest version of Guidelines for demonstrating additionality of Micro-scale project activities (Please refer additionality section below). • A record keeping system shall be developed for each CPA under the PoA as described in Annex 3 of EB 65. • Each CPA shall have a system/procedure to avoid double accounting. • Establish procedures for De-bundling check for the CPAs. • Develop provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA. • Each CPA shall have a start date after the commencement of PoA validation.
<p>Methodology (to be applied by all the CPAs)</p>	<p>For Solar Lamps:</p> <p><i>Type III :Other Project Activities</i> <i>Category:</i> III.AR¹ – Substituting fossil fuel based lighting with LED/CFL lighting systems (Version 02, EB 65) Sectoral Scope : 02</p> <p>For efficient cook stoves:</p> <p><i>Type II : Energy Efficiency Improvement Projects</i> <i>Category:</i> II G² – Energy efficiency measures in thermal applications of non-renewable biomass (Version 03, EB 60) Sectoral Scope : 03</p> <p>The above combination of methodology for PoA will require prior approval from UNFCCC. In case the above methodology combination is not approved the proposed PoA will be split into two PoAs.</p>
<p>Baseline Scenario PoAs must result in GHG emissions being lower than “business-as-usual” in the Host Country. At the PIN stage questions to be answered are at least:</p> <ul style="list-style-type: none"> • Which emissions are being 	<p>CO₂ is the targeted emission reductions by the project activity.</p> <p>Access to energy services has been identified as a necessary prerequisite for sustainable development, since it can lead to improvements in household health, education and income levels. Pacific island countries face a particularly difficult challenge in expanding rural energy services. As a</p>

1

http://cdm.unfccc.int/filestorage/G/E/O/GEOL6YVZA4K73J0M1R982CUFQXDIBS/EB%2065_repan26_AMS-III.AR_ver02.pdf?t=a1p8bTF6eDA4fDDSwH9IdJ4SJOFG-iBGn-Ij

2

http://cdm.unfccc.int/filestorage/M/L/D/MLDN960OH41VWJPCZ23ERFUQT5BAGX/EB60_repan21_AMS-II.G_ver03.pdf?t=bTh8bTF6d2xvfDCEzEnjTIUJr1KZfbycfP

<p>reduced by the proposed PoA?</p> <ul style="list-style-type: none"> • What would the future look like without the proposed PoA? (About ¼ - ½ page) 	<p>result of their unique geographical characteristics, where long distances separate sparsely populated areas, and markets are too small to achieve cost savings through economies of scale in electricity production, the cost of supplying electricity to rural areas is very high. Although most Pacific island countries are almost completely dependent on imported fossil fuels for meeting their energy needs, there is a large potential for affordable and reliable energy services to achieve sustainable development and poverty reduction in the region.</p> <p>In the absence of this PoA the baseline scenario would be continued usage of kerosene lamps for lightning and inefficient open fire system for cooking. The increased efficiency of the stove and reduced kerosene usage will reduce carbon emissions to the atmosphere as well as reduce harmful emissions known to have negative health impacts. As a result of the programme thousands of rural households with improved energy services will have better living standards and hence better productivity.</p>
<p>Additionality Please demonstrate that in the absence of the CDM either: (i) the proposed voluntary measure would not be implemented, or (ii) the mandatory policy/regulation would be systematically not enforced and that non-compliance with those requirements is widespread in the country/region, or (iii) that the PoA will lead to a greater level of enforcement of the existing mandatory policy /regulation. This shall constitute the demonstration of additionality of the PoA as a whole;</p>	<p>Currently there are no regulations or incentive schemes in all the targeted countries under the PoA.</p> <p>Project additionally will be demonstrated as per “Guidelines for demonstrating additionally of Micro-scale project activities” EB 63 (version 3)”.</p> <p>For Solar Lamps: As per the paragraph 4 of the guidelines: Other project activities Type III project activities that aim to achieve emission reductions at a scale of no more than 20 ktCO₂e per year, are additional if any one of the following conditions is satisfied:</p> <p>(a) The geographic location of the project activity is an LDC/SIDS or special underdeveloped zone of the host country as identified by the government before 28 May 2010; (b) The project activity is an emission reduction activity with both conditions (i) and (ii) below satisfied: (i) Each of the independent subsystems/measures in the project activity achieves an estimated annual emission reduction equal to or less than 600 tCO₂e per year; and (ii) End users of the subsystems or measures are households/ communities /SMEs.</p> <p>For Efficient cook stoves: As per the paragraph 3 of the guidelines: Energy Efficiency project activities that aim to achieve energy savings at a scale of no more than 20 gigwatt hours per year are additional if any one of the conditions below is satisfied: (a) The geographic location of the project activity is in LDC/SID or special underdeveloped zone of the host country identified by the Government before 28 May 2010; (b) The project activity is an energy efficiency activity with both conditions (i) and (ii) satisfied; (i) Each of the independent subsystems/measures in the project activity achieves an estimated annual energy savings equal to or smaller than 600</p>

	<p>megawatt hours; and</p> <p>(ii) End users of the subsystem or measures are households /communities/ SMEs</p> <p>According to the United Nations, Fiji, Solomon Islands, PNG and Vanuatu are all classified as Small Island Developing State (SIDS)³. Further Solomon Islands and Vanuatu are also classified as Least Developed Country (LDC). Each CPA under this PoA is expected to fall within the limits of micro-scale guidelines referred above.</p>
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C. Real Case CPA - Description, Type, Boundary and Schedule

Title of the CPA	Disseminating Solar lamps and Efficient Cook Stoves in Vanuatu
Description of the CPA (Describe in not more than 5 lines)	<p>The CPA involves distribution and installation of solar lightning systems and improved cook stoves in rural households in the Vanuatu. The CPA will involve distribution of solar lightning systems known as “pico solar” for lightning and mobile charging and efficient cook stoves called rocket stoves for cooking.</p> <p>The CPA aims at distributing 20,000 solar lamps over a period of 5 years and 4500 cook stoves over a period of 3 years. The CPA will be implemented by Green Power and the distribution of lamps and cook stoves shall begin in early/mid 2013. (Details on islands where the lamps/stoves will be distributed will be provided at CPA-DD stage.</p>
Greenhouse gases targeted CO ₂ /CH ₄ /N ₂ O/HFCs/PFCs/SF ₆ (mention what is applicable)	CO ₂
Boundary of the CPA	
The boundary for the CPA in terms of a geographical area	The CPA involves distribution and installation of solar lightning systems and improved cook stoves in rural households in Vanuatu.
Crediting Period of the CPA	
Starting Date	01/01/2014
Duration/Length	10 years
Entity/individual responsible for the CPA	
Name	Green Power
Role of the Entity/individual	CPA implementer (investor as well as responsible for distribution of lamps/stoves and also project monitoring.
Organizational category	Private Entity
Eligibility of the CPA (Justify why the CPA is eligible to be covered under the PoA)	<p>The CPA is eligible under the proposed PoA because :</p> <ul style="list-style-type: none"> • The CPA involves distribution and installation of solar lightning systems and improved cook stoves in rural household of Vanuatu. • The equipment/devices that will be distributed under the CPA meet the technology specification of equipment/devices covered under the proposed PoA. • The CPA is located within the geographical boundary of Vanuatu. • The CPA meets the applicability requirements of all the relevant CDM methodologies - AMS III.AR. version 02

³ <http://www.un.org/special-rep/ohrlls/sid/list.htm>

	<p>EB 65 and AMS II.G version 03 EB 60</p> <ul style="list-style-type: none"> • The CPA involves distribution of solar lamps/cook stoves only to households. (The details shall be provided in CPA-DD). • The CPA is additional as per latest version of Guidelines for demonstrating additionality of Micro-scale project activities (Please refer baseline & additionality section below). • A record keeping system will be developed for this CPA. • The CPA will not involve double accounting. • The CPA is not a de-bundled component of another project. • Green Power is aware of and has agreed that their activity in Vanuatu is being subscribed to the PoA. • The CPA will have a start date after the commencement of PoA validation.
<p>Baseline & Additionality Please demonstrate that in the absence of the CDM, the proposed CPA will not be implemented.</p>	<p>In the absence of this CPA the baseline scenario would be continued usage of kerosene lamps for lightning and inefficient open fire system for cooking.</p> <p>Currently there are no regulations or incentive schemes in Vanuatu to implement this CPA. CPA additionality will be demonstrated as per “Guidelines for demonstrating additionality of Micro-scale project activities” EB 63 (version 3)”.</p> <p>For Solar Lamps: As per the paragraph 4 of the guidelines:</p> <p>Other project activities Type III project activities that aim to achieve emission reductions at a scale of no more than 20 ktCO₂e per year, are additional if any one of the following conditions is satisfied:</p> <p>(a) The geographic location of the project activity is an LDC/SIDS or special underdeveloped zone of the host country as identified by the government before 28 May 2010;</p> <p>(b) The project activity is an emission reduction activity with both conditions (i) and (ii) below satisfied:</p> <p>(i) Each of the independent subsystems/measures in the project activity achieves an estimated annual emission reduction equal to or less than 600 tCO₂e per year; and</p> <p>(ii) End users of the subsystems or measures are households/ communities /SMEs.</p> <p>For Efficient cook stoves: As per the paragraph 3 of the guidelines: Energy Efficiency project activities that aim to achieve energy savings at a scale of no more than 20 gigwatt hours per year are additional if any one of the conditions below is satisfied:</p> <p>(a) The geographic location of the project activity is in LDC/SID or special underdeveloped zone of the host country identified by the Government before 28 May 2010;</p> <p>(b) The project activity is an energy efficiency activity with both conditions (i) and (ii) satisfied;</p> <p>(i) Each of the independent subsystems/measures in</p>

	<p>the project activity achieves an estimated annual energy savings equal to or smaller than 600 megawatt hours; and</p> <p>(ii) End users of the subsystem or measures are households /communities/ SMEs.</p> <p>The solar lamps distributed under this CPA are expected to achieve 640 tCO₂ emission reductions per annum. The cook stoves distributed under this CPA are expected to achieve energy savings of less than 20 GWh savings.</p> <p>According to the United Nations, Vanuatu is classified both as a Small Island Developing State (SIDS) and also classified as Least Developed Country (LDC). Hence the CPA is additional as per Guidelines for demonstrating additionally of Micro-scale project activities.</p>																						
Expected Schedule																							
Earliest CPA starting date <i>Month/Year in which the plant/project activity will be operational</i>	01/01/2014																						
Estimate of GHG Abated/ CO₂ Sequestered <i>In metric tons of CO₂-equivalent, please attach calculations</i>	<p>Annual (if varies annually, provide schedule): <u>3,790</u> tCO₂-equivalent</p> <p>Up to and including 2012: <u>NA</u> tCO₂-equivalent</p> <p>Up to a period of 10 years: 37,900 tCO₂-equivalent</p> <p>Up to a period of 7 years: <u>NA</u> tCO₂-equivalent</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Emission Reduction (tCO₂e)</th> </tr> </thead> <tbody> <tr><td>2014</td><td>1,605</td></tr> <tr><td>2015</td><td>3,210</td></tr> <tr><td>2016</td><td>4,496</td></tr> <tr><td>2017</td><td>4,496</td></tr> <tr><td>2018</td><td>4,496</td></tr> <tr><td>2019</td><td>4,176</td></tr> <tr><td>2020</td><td>3,856</td></tr> <tr><td>2021</td><td>3,856</td></tr> <tr><td>2022</td><td>3,856</td></tr> <tr><td>2023</td><td>3,856</td></tr> </tbody> </table>	Year	Emission Reduction (tCO ₂ e)	2014	1,605	2015	3,210	2016	4,496	2017	4,496	2018	4,496	2019	4,176	2020	3,856	2021	3,856	2022	3,856	2023	3,856
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No double-counting Confirm that the CPA is neither included in any other PoA nor registered as a CDM project	At present there are no CDM projects or PoA registered in Vanuatu. Hence the CPA will not involve double-counting of emission reductions.																						

D. Finance

D1. Finance at PoA Level

Total Cost Estimate	
Subsidies/incentives to the CPAs (if any)	NA
Management/operational costs	NA
CDM transaction costs (PDD preparation, validation, registration etc)	This will be covered by Green Power under their budget.
Total costs at PoA level	NA

Sources of Finance to Be Sought or Already Identified	
Public Funding and ODA (In case public funding is used a confirmation that official development assistance is not being diverted to the implementation of the PoA)	No ODA is involved in this CPA

D2. Finance of the Real Case CPA

Total Estimated Costs	
Capital investment	US \$300,000
Management/coordinating costs	US \$ 50,000
Operational costs	NA
Other costs	NA
Total	US \$350,000
Sources of Funding	
Equity	Green Power is currently looking for an equity investor.
Carbon finance (confirmed or estimated CER sales revenue, price per CER)	Estimated CER revenue -US\$ 303,200 – US\$ 379,000 assuming US\$8 - US\$10 price per CER
Public fund (indicate whether public fund is used for the CPA or not. If yes, confirm whether any Official Development Assistance has been diverted for the implementation of this CPA)	No Public funding is involved in this CPA.

E. Expected Environmental and Social Benefits (In Programmes of Activities CDM, Environmental Analysis can be conducted at PoA level or CPA level, subject to decision by the Coordinating/managing entity and the national regulations)

As per current Environment regulations the PoA/CPA does not require any EIA in the target countries. The local Benefits from use of Solar Lamps:

- ✓ Reduces greenhouse gas emissions through a reduction in fossil fuel use.
- ✓ Improves indoor air quality

Local Benefits from use of efficient cook stoves:

- ✓ Reduces indoor air pollution.
- ✓ Reduced deforestation and degradation of forests and associated impacts on biodiversity and ecosystem services.
- ✓ Reduced soil erosion and nutrient loss.
- ✓ Reduced risk of flooding.

Socio-Economic Effects from use of Solar Lamps:

- ✓ Improves /enables evening study. Hence improves literacy.
- ✓ Decreases group alcoholism and other drug abuse as with electricity availability at home people are incentivized to spend more time at home.
- ✓ Stems urban migration.

- ✓ Extends the productive work day.

Socio-Economic Effects from use of efficient cook stoves:

- ✓ Reduced poverty, as the efficient wood stove reduces annual expenditure on cooking fuels.
- ✓ Provide very poor households with effective, low cost means of improving livelihood security.
- ✓ Use 40-50% less fuel than an open fire hence people spend less time collecting firewood or less money buying firewood.
- ✓ Reduced exposure of firewood collectors (mainly women) to hazards in remote areas
- ✓ Reduced burns and injuries from cooking.
- ✓ Conserves foreign exchange with reduced expenditure on petroleum products
- ✓ People will be trained to individually own and maintain the devices.
- ✓ Reduced cooking and wood collection time; householders can spend more time on other household tasks, as well as schooling and supervising children.