

PROJECT IDEA NOTE (PIN)

Name of Project: **Fiji Tourism Energy Efficiency Investment Project**

Date Submitted: **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 project
- its location
- the anticipated total amount of greenhouse gas (GHG) reduction compared to the “business-as-usual” scenario (which will be elaborated in the baseline later on at Project Design Document (PDD) level)
- the suggested crediting life time
- the suggested Certified Emission Reductions (CERs)/Emission Reduction Units (ERUs)/Verified Emission Reduction (VERs)price in US\$ or €/ton CO₂e reduced
- the financial structuring (indicating which parties are expected to provide the project’s financing)
- the project’s other socio-economic or 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. PROJECT DESCRIPTION, TYPE, LOCATION AND SCHEDULE

<p>OBJECTIVE OF THE PROJECT <i>Describe in not more than 5 lines</i></p>	<p>The objective of the project is to implement energy efficiency upgrades and retrofits in hotels (including resorts) in Fiji. Given the prominence of tourism to Fiji’s economy, significant benefits can be achieved from changing Fiji into a low carbon tourism destination and showing leadership and a model for other Pacific and Small Island Nations. Also energy conservation can have significant impact to Fiji’s economy it will make energy more readily available and cheaper for domestic commodity production.</p>
<p>PROJECT DESCRIPTION AND PROPOSED ACTIVITIES <i>About ½ page</i></p>	<p>WWF South Pacific has initiated an energy efficiency programme in tourism sector in Fiji. The programme aims at working with the tourism sector to identify solutions to increase energy efficiency in hotels and resorts and reduce impacts on the environment. The programme is being developed by WWF in collaboration with tourism building owners and occupiers across Fiji, and builds on the low carbon tourism initiative between the Fiji Government and the Fiji Islands Hotel and Tourism Association.</p> <p>The proposed Project will upscale the energy efficiency promotion activities being implemented by WWF. It will involve the replacement of inefficient technologies, such as lighting, chillers and air conditioning with energy efficient technologies and measures in buildings in Fiji’s hotel sector. At present at least 24 hotels are expected to participate in this project.</p> <p>The installation and commissioning of energy efficient technologies and measures, including investment, will be undertaken by the hotel owners or their agents with guidance from the project proponent (WWF). Inefficient devices/equipment will be collected at time of installation.</p> <p>Adequate record keeping systems and processes will be in place to ensure the capture of necessary data on the replacement, including: capacity and other technical specifications of baseline equipment replaced; capacity and other technical specifications of new equipment installed; date of supply of equipment; number of pieces of equipment distributed; and unambiguous identification of the recipient of the equipment (e.g. electricity supplier Customer Identification Number).</p> <p>Devices/equipment replaced will be securely stored and destroyed/recycled in a manner that allows for third party verification. All equipment distributed under the project, in addition to recording specifications, will be marked for clear unique identification as part of the program.</p> <p>The implementation of the proposed project will achieve CO₂ emission reductions by reducing electricity consumption through the implementation of the energy efficiency measures.</p>
<p>TECHNOLOGY TO BE EMPLOYED¹ <i>Describe in not more than 5 lines</i></p>	<p>Energy efficient lighting may include fluorescent tubes, CFLs, LEDs, and IRC lamps and may involve simple up-lamping, a change of luminaires, or a complete lighting system redesign.</p> <p>Energy efficiency measures for chillers, refrigeration and air conditioning systems may include Variable Speed Drives, Electronic Expansion Valves, Building Management Systems, or system replacement. It is envisaged that technologies chosen under the project activity will provide proven quality and reliability appropriate for the purpose and climate.</p>

¹Please note that support can only be provided to projects that employ commercially available technology. It would be useful to provide a few examples of where the proposed technology has been employed.

TYPE OF PROJECT	
Greenhouse gases targeted CO ₂ /CH ₄ /N ₂ O/HFCs/PFCs/SF ₆ <i>(mention what is applicable)</i>	<p>The project boundary is the physical geographical location of each energy efficiency measure installed. The technologies and measures installed are energy efficient in comparison to those replaced and thereby reduce electricity consumption.</p> <p>The electricity supplied by the grid(s) is (in part) fossil fuel based. Therefore, indirect GHG emissions (CO₂-e) associated with electricity generation from grid-connected fossil fuel fired power plants are reduced.</p> <p>Off-grid installations are predominantly diesel-fuelled and therefore similarly GHG emissions associated with diesel combustion are reduced. Savings of other gases are deemed negligible.</p>
Type of activities Abatement/CO ₂ sequestration	Demand side abatement
Field of activities <i>(mention what is applicable)</i> See annex 1 for examples	3e. Other Energy Efficiency
LOCATION OF THE PROJECT	
Country	Fiji
City	Hotel buildings in all areas in Fiji, either grid-connected or off-grid, on the main or outer islands, will be eligible to participate in the project.
Brief description of the location of the project <i>No more than 3-5 lines</i>	Hotels in Fiji.
PROJECT PARTICIPANT	
Name of the Project Participant	World Wildlife Fund for Nature South Pacific (WWF)
Role of the Project Participant	<ul style="list-style-type: none"> a. Project Advisor and Coordinator b. Owner of the emission reductions c. Seller of the emission reductions
Organizational category	<p>WWF</p> <p>e. Non-Governmental Organisation</p>
Contact person	Monica Patel
Address	4 Ma'afu Street, Suva, Fiji
Telephone/Fax	<p>Mobile: +679 992- 8061</p> <p>Tel: +679 331-5533</p> <p>Fax: +679 331-5410</p>
E-mail and web address, if any	<p>mpatel@wwf.panda.org</p> <p>mpatel@wwfpacific.org.fj</p>
Main activities	WWF has been present in the South Pacific since 1995 working to protect the

<i>Describe in not more than 5 lines</i>	region's exceptionally rich marine biodiversity, which is threatened by human activity. Most of their work is conducted in the Fiji Islands, with office based in Suva with mission to ensure that the richness and resilience of Pacific island ecosystems are managed and conserved in harmony with the aspirations and sustainable development needs of people.
Summary of the relevant experience of the Project Participant <i>Describe in not more than 5 lines</i>	WWF works with governments, communities and corporations on projects and partnerships to conserve biological diversity, ensure that the use of renewable natural resources is sustainable, and promote the reduction of pollution and wasteful consumption.
EXPECTED SCHEDULE	
Earliest project start date <i>Year in which the plant/project activity will be operational</i>	2012
Estimate of time required before becoming operational after approval of the PIN	Time required for financial commitments: Time required for legal matters: To be confirmed Time required for construction:
Expected first year of CER/ERU/VERs delivery	2013
Project lifetime <i>Number of years</i>	10 years
For CDM projects: Expected Crediting Period <i>7 years twice renewable or 10 years fixed</i>	10 years fixed
Current status or phase of the project <i>Identification and pre-selection phase/opportunity study finished/pre-feasibility study finished/feasibility study finished/negotiations phase/contracting phase etc. (mention what is applicable and indicate the documentation)</i>	Feasibility Study Finished. Design of commercial structures underway. WWF has also initiated discussion with ADB Future Carbon Fund to buy CERs that will be generated from the project. PDD is currently being developed for the project.
Current status of acceptance of the Host Country	Yet to apply for "Letter of No Objection" from DNA
The position of the Host Country with regard to the Kyoto Protocol	Has the Host Country ratified/acceded to the Kyoto Protocol? <u> YES,1998 </u> Has the Host Country established a CDM Designated National Authority / JI Designated Focal Point? <u> YES , 2002 </u>

B. METHODOLOGY AND ADDITIONALITY

<p>ESTIMATE OF GREENHOUSE GASES ABATED/ CO₂ SEQUESTERED <i>In metric tons of CO₂-equivalent, please attach calculations</i></p>	<p>Annual (if varies annually, provide schedule): <u> 4,847 </u> tCO₂-equivalent Up to and including 2012: <u> 0 </u> tCO₂-equivalent Up to a period of 10 years: <u> 48,473 </u> tCO₂-equivalent Up to a period of 7 years: <u> NA </u> tCO₂-equivalent</p> <p>Refer Appendix 1 for schedule and assumptions.</p>
<p>BASELINE SCENARIO CDM/JI projects 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 reduced by the proposed CDM/JI project? • What would the future look like without the proposed CDM/JI project? <p><i>About ¼ - ½ page</i></p>	<p><u><i>Which emissions are being reduced by the proposed CDM/JI project?</i></u></p> <p><i>Project activity will lead to reduction in CO₂ emissions.</i></p> <p><u><i>What would the future look like without the proposed CDM project?</i></u></p> <p>Without the proposed CDM project, the emissions associated with energy use from lighting, chillers and air conditioners would not decrease from the baseline scenario. There are a number of well-documented barriers to the uptake of energy efficient technologies including: high initial price of purchase; lack of consumer information on, and confidence in, the benefits of energy efficient technologies; and consumer bias to replacing “like with like” technologies. These barriers limit “autonomous” replacement of more efficient equipment, particularly in developing countries.</p> <p>Given the above barriers prohibit “autonomous” replacement of more efficient equipment, the other potential driver in shifting the baseline scenario to a more efficient one is mandatory policy or regulation that introduces some form of energy performance standards on lighting, chilling or air conditioning products and effectively “bans” inefficient technologies. Currently no such policies are in place in Fiji. In addition, these policies are unpopular and problematic in developing countries as they pass the economic burden for upgrading technologies to the users (who may have limited capacity to pay) and also if introduced they are seldom systematically enforced.</p>
<p>ADDITIONALITY Please explain which additionality arguments apply to the project:</p> <p>(i) there is no regulation or incentive scheme in place covering the project (ii) the project is financially weak or not the least cost option (iii) country risk, new technology for country, other barriers (iv) other</p>	<p>Currently there are no regulations or incentive scheme in place covering the project in Fiji.</p> <p>It is envisaged that the demonstration of additionality will be done by justifying that the proposed project activity is ‘First of its Kind’ in the host country. Further project additionally can be demonstrated as per “Guidelines for demonstrating additionally of Micro-scale project activities” EB 63 (version 3)”. As per the paragraph 3 of the guidelines:</p> <p>Energy Efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year are additional if any one of the conditions below is satisfied:</p> <ul style="list-style-type: none"> (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; <ul style="list-style-type: none"> (i) Each of the independent subsystems/measures in the project activity achieves an estimated annual energy savings equal to or smaller than 600 MWh; and (ii) End users of the subsystem or measures are households

	<p style="text-align: center;">/communities/ SMEs</p> <p>According to the United Nations, Fiji is classified as Small Island Developing State (SIDS)². Hence proposed project, which is having energy savings of tune of 7.5 GWh is considered to be automatically additional as per the above EB guidelines.</p> <p>Additionality can further be demonstrated by investment analysis / barrier analysis. There are a number of well-documented barriers to the uptake of energy efficient equipment, including: high initial price compared to existing less efficient technologies; lack of consumer information and believe of benefit; and prevailing practice is a consumer bias to replacing “like with like” technologies. These barriers limit “autonomous” replacement of more efficient equipment, particularly in developing countries.</p>
<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.</p> <p>Please in particular explain if the project is running under a public incentive scheme (e.g. preferential tariffs, grants, Official Development Assistance) or is required by law. If the project is already in operation, please describe if CDM/JI revenues were considered in project planning.</p>	<p>The Fiji electricity grid, operated by the state-owned utility Fiji Energy Agency (FEA), operates across the islands of VitiLevu, Vanua Levu and Levuka (Ovalau). Fiji, like any other country in the region, is heavily dependent on imported fuel to meet a major component of its energy demand. As such, it is vulnerable to the continuous fluctuation of world crude oil prices.</p> <p>There is a lack of energy conservation and efficiency planning, guidelines and effective implementation programmes in Fiji. The energy conservation and energy efficiency programmes being initiated by Department of Energy are active but lacks more drive to make them work. One of the missing links is a plan that sets out incentives, guidelines and procedures that will effectively achieve 10% reduction in electricity consumption from the FEA grid consumers. Excluding energy efficiency measures contribution, the overall electricity consumption within FEA network is estimated to increase by 4% per annum. Should a 24-hour electricity supply is made available in remote areas, it is expected that the rural area electricity consumption will increase by 1% per annum in the next 15 years. In a business as usual scenario, it is expected that FEA will continue to meet the additional demand by increasing the contribution from thermal generation. Hence, an increase in fossil-based generation share and greenhouse gas emissions. It is noted, that a significant demand of Heavy Fuel Oil (HFO) is envisaged for the next 15 years, and GHG emissions from this fuel is higher than diesel fuel. It is apparent that there is more energy conservation and energy efficiency potential within the FEA grid connected consumers. The project is not intended to run under a public incentive scheme, nor is it required by law.</p>
<p>METHODOLOGY Please choose from the following options:</p>	<p>The project is covered under the following approved CDM methodology</p> <p><i>Type:</i> II. Energy Efficiency <i>Category:</i> II.C³ – Demand - Side Energy Efficiency Activities for specific Technologies.(Version 13, EB 48) Scope Number: 03</p>

²<http://www.unohrlls.org/en/sids/44/>

³<http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X>

C. FINANCE

TOTAL CAPITAL COST ESTIMATE (PRE-OPERATIONAL)	
Development costs	US\$ 25,000 (Feasibility studies, resource studies, etc.)
Installed costs	Difficult to estimate at this stage due to broad potential range of technologies and measures eligible under the project.
Land	US\$ 0 million
Other costs (please specify)	Carbon program administration costs
SOURCES OF FINANCE TO BE SOUGHT OR ALREADY IDENTIFIED	
Equity/Debt Name of the organizations, status of financing agreements and finance (in US\$ million)	Carbon program administration: funded by WWF Equipment purchase & installation: funded by hotel owners / operators Monitoring equipment purchase / hire & installation: funded by building owners / operators WWF aims to incentivize the hotel owners to participate in the programme by sharing a portion of the carbon revenues. The sharing structure will be based on the amount of carbon savings the hotel contributes minus the administrative cost.
Debt – Long-term Name of the organizations, status of financing agreements and finance (in US\$ million)	To be decided if any
SOURCES OF CARBON FINANCE	
INDICATIVE CER/ERU/VER PRICE PER tCO₂e <i>Price is subject to negotiation. Please indicate VER or CER preference if known.</i>	US\$ 8 – 10 (Indicative price range only). The project is also eligible for registration under Gold Standard and may apply for the same.
TOTAL EMISSION REDUCTION PURCHASE AGREEMENT (ERPA) VALUE	
A period until 2012 (end of the first commitment period)	US\$ 0
A period of 10 years	US\$ 387,800-484,700

D. EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS

<p>LOCAL BENEFITS E.g. impacts on local air, water and other pollution.</p>	<p>Abatement of greenhouse gases and other airborne pollutants from fossil fuel power generation through avoided electricity usage.</p>
<p>GLOBAL BENEFITS Describe if other global benefits than greenhouse gas emission reductions can be attributed to the project.</p>	<p>The project will be a “flagship” project showcasing the potential use of Carbon revenues in Fiji and the Pacific, thereby stimulating development of similar programs.</p>
<p>SOCIO-ECONOMIC ASPECTS</p>	
<p>What social and economic effects can be attributed to the project and which would not have occurred in a comparable situation without that project? Indicate the communities and the number of people that will benefit from this project. <i>About ¼ page</i></p>	<ul style="list-style-type: none"> ▪ An estimated 24 individual hotel owners / users will save money on their electricity bills through reduced use of electricity. ▪ Significantly reduce national electricity demand and stress on energy infrastructure, thereby delaying expenditure in future generation capacity, reducing blackouts and immediately “freeing up” electricity for other uses. ▪ The project will include an education component. This education component will aim to raise awareness of the benefits of energy efficiency. ▪ The project will result in a significant transfer of technology. Whilst the technologies may not be new, uptake by consumers remains relatively low due to their comparatively high cost. ▪ The tourism and related sectors will benefit through the move towards ecotourism and related marketing benefits.
<p>What are the possible direct effects (e.g. employment creation, provision of capital required, foreign exchange effects)?</p>	<ul style="list-style-type: none"> ▪ There will be direct employment created in-country in the distribution and installation phase of the project. ▪ There will be direct employment opportunities in-country as a result of the 10 year annual monitoring and verification processes.
<p>What are the possible other effects (e.g. training/education associated with the introduction of new processes, technologies and products and/or the effects of a project on other industries)?</p>	<ul style="list-style-type: none"> ▪ There will be carbon project capacity-building opportunities as the project is developed and implemented. ▪ There will be technology supply opportunities. ▪ There will be training and education programs.
<p>ENVIRONMENTAL STRATEGY/ PRIORITIES OF THE HOST COUNTRY A brief description of the project’s consistency with the environmental strategy and priorities of the Host Country <i>About ¼ page</i></p>	<ul style="list-style-type: none"> ▪ The Fiji Department of Energy recognizes the value of energy efficiency and has policies and/or campaigns in place to encourage consumers to use energy efficiently. The Department of Energy’s Strategic Action Plan states that a key strategy of their current and future activities is to “increase efforts to create energy efficiency and conservation awareness and encourage energy efficiency in all sectors.” ▪ The state-run Fiji Energy Agency (FEA) recognizes the value of energy efficiency and provides energy saving tips to consumers. ▪ The Fiji Government recognizes that “Fiji must move onto a path of low-carbon growth by improving its energy efficiency”. ▪ The project is consistent with, and will reinforce, support and enact the host country’s energy efficiency policies.

ANNEX I – CER Estimation and Assumptions

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Energy Savings	MWh		7,555	7,555	7,555	7,555	7,555	7,555	7,555	7,555	7,555	7,555	75,550
-Lighting	MWh		3,120	3,120	3,120	3,120	3,120	3,120	3,120	3,120	3,120	3,120	31,200
-Stand Alone Air Con	MWh		1,048	1,048	1,048	1,048	1,048	1,048	1,048	1,048	1,048	1,048	10,480
- Chillers & Refrigeration	MWh		3,348	3,348	3,348	3,348	3,348	3,348	3,348	3,348	3,348	3,348	33,480
Carbon savings	tCO2		4,847	4,847	4,847	4,847	4,847	4,847	4,847	4,847	4,847	4,847	48,470
On grid	tCO2		4,243	4,243	4,243	4,243	4,243	4,243	4,243	4,243	4,243	4,243	42,429
Off grid	tCO2		604	604	604	604	604	604	604	604	604	604	6,044

INPUT	VALUE	UNIT	SOURCE
Energy Saving Calculations - Lighting			
Lighting energy savings possible - all survey hotels	1300	MWh / year	Energy Survey conducted for this project
Number of hotels who completed survey	10	hotels	Energy Survey conducted for this project
Average lighting saving per hotel	130	MWh / hotel / year	Possible lighting savings in survey / no. of hotels in survey
Number of hotels participating	24	hotels	Estimate only. To be updated as hotels sign up
Energy Saving Calculations –Chillers			
Proportion of energy used for chillers& refrigeration	62%	%	Holiday Inn Energy Audit conducted by FEA
Average electricity used in hotel	1500	MWh /year	Based on survey results & Holiday Inn using 20% on lighting
Electricity used for chillers& refrigeration	930	MWh /year	Holiday Inn Audit result and Electricity used in hotel
Average saving (%)	15%	%	Estimate only. Range of measures with different savings would be used

Average saving (MWh)	139.5	MWh /year	Calculation: Average saving x electricity used for chillers
Number of hotels participating	24	hotels	Estimate only. To be updated as hotels sign up
Energy Saving Calculations - Key card control on individual room air conditioners			
Energy Saving % available from key card control	25%	% of air con load to rooms	Range of studies including American Council for an Energy Efficient Economy
Indicative savings in Holiday Inn Audit	3%	%	Holiday Inn Energy Audit conducted by FEA
Average energy used in a Fiji hotel	1500	MWh /year	Based on survey results & Holiday Inn using 20% on lighting
Savings from key cards	45	MWh / hotel / year	
Number of hotels participating	24	hotels	Estimate only. To be updated as hotels sign up
Carbon Calculations			
Grid emission factor - Fiji	0.624	tCO ₂ /MWh	Registered Fiji CDM project
Diesel Generation Systems	0.8	tCO ₂ /MWh	Average value – Retscreen
Proportion of hotels on-grid	90%	%	WWF estimate of 80 - 90%. 90% taken to be more conservative