

United Nations Development Programme
GLOBAL ENVIRONMENT FACILITY



To: Mr. Kenneth King
Assistant CEO **Date:** 14 July 1999

Attention: Program Coordination

From: Rafael Asenjo
GEF Executive Coordinator

Subject: **Submission of Project Brief: Philippines: Palawan New and Renewable Energy and Livelihood Support Project**

Enclosed is a project brief for **Philippines: Palawan New and Renewable Energy and Livelihood Support Project** submitted to UNDP by the Center for Renewable Resources and Energy Efficiency (CRREE). Please note that the project has been endorsed by the GEF national operational focal point in the Philippines.

In accordance with the operational guidance for the preparation and approval of medium-sized projects, we are submitting this to the GEF Secretariat for action by the Chief Executive Office (CEO). We understand that the Secretariat will recommend to the CEO that the project be submitted to the Council for approval, that it be returned for revision or that it not be developed further.

We are simultaneously circulating copies to UNEP/GEF, World Bank/GEF, STAP and the FCCC Convention Secretariat for comments to the GEF Secretariat. We expect to receive these comments within 15 working days. Therefore, we look forward to receiving the CEO's decision on or before 4 August 1999, but understand that the project will not be formally approved, even if the CEO has endorsed it, until the Council has reviewed it within the following 15-day period, namely by 25 August 1999.

Thank you and best regards.

cc: Ahmed Djoghlaif, UNEP
Lars Vidaeus, World Bank
Madhav Gadgil, STAP
Rohit Khanna, UNEP/GEF
Mark Griffith, UNEP/STAP
Michael Zammit Cutajar, UNFCCC
Kevin McGrath, UNDP Philippines
Nandita Mongia, RBAP/GEF-UNDP

Medium Sized Project - Request for GEF Funds

A PROJECT SUMMARY

PROJECT IDENTIFIERS	
1. Project Name: Palawan New and Renewable Energy and Livelihood Support Project	2. GEF Implementing Agency: UNDP
3. Country in which the project is to be implemented: Philippines	4. Country eligibility: Ratified UNFCCC in 2 August 1994
5. GEF focal area(s): Climate change.	6. Operational programme: #6- Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs.
<p>7. Project linkage to national priorities, actions plans and programmes:</p> <p>The province of Palawan has enacted the Strategic Environmental Plan, which provided guidelines for protection of the environment and the natural resources of Palawan in the context of its economic development. The Governor's office of Palawan has formulated the Palawan Provincial Energy Master Plan (1997-2021) with the goal of increasing electricity supply from its current 25 MW to 250 MW in 2021. Currently, only 35% of the barangays (district unit, about 50-200 households per barangay) are electrified in Palawan, the Provincial Energy Master Plan has set a target to electrify all the barangays by the year 2021.</p> <p>At present, great opportunities to promote renewable energy exist in Palawan. Both the provincial and the municipal governments in Palawan are highly committed to developing renewable energy in Palawan to provide electric power services to the households without access to electricity. Particularly, the provincial government is expecting to receive a substantial amount of revenues from the production and sales of natural gas in Palawan, which is anticipated to start in the year 2002. Therefore, it is important to demonstrate the viability of a sustainable and commercial RESCO (Rural Energy Service Company) delivery mechanism of renewable energy systems, build capacities for the local government, and increase public awareness of renewable energy at this juncture. After the project is completed it is expected that the provincial government will spend a large portion of the anticipated revenues from natural gas on renewable energy development, and the RESCO will be able to extend the renewable energy services to entire Palawan and other parts of the Philippines.</p> <p>At the national level, the President of the Philippines has stated that the use of new and renewable and indigenous sources of energy is the direction that energy development in the Philippines will take. The President's ERAP program (Energy Resources for the Alleviation of Poverty) aims to attain a 90% barangay level electrification nationwide by the year 2004, compared to the present 72% electrification rate. Although some of the unelectrified barangays can be connected by grid extension, a large number of those isolated barangays are expected to utilize renewable energy technologies for electrification.</p> <p>Philippines Agenda 21 identified the need to develop and utilise renewable energy technologies as the country's priority strategy. The National Action Plan on Climate Change proposed the gradual shift from the current fossil fuel-dominated energy mix towards renewable energy.</p>	
8. GEF national operational focal point and date of country endorsement: Department of Environment and Natural Resources, Endorsed: October 1998.	
PROJECT OBJECTIVES AND ACTIVITIES	
9. Project rationale and objectives: The project is aimed to reduce the long-term growth of GHG emissions through removing barriers to commercial utilization of renewable energy systems to substitute for the use of diesel generators in Palawan.	<p>Indicators:</p> <ol style="list-style-type: none"> 1. Increased installation and sustained demand for renewable energy systems in Palawan; 2. Decreased diesel consumption in Palawan; 3. Commercial operation of renewable energy systems by the Rural Energy Service Company (RESCO)

<p>10. Project outcomes: By the end of the project there will be:</p> <ol style="list-style-type: none"> 1. Increased capacity and recognition of renewable energy and RESCO at the local government level; 2. A range of financial incentives established; 3. A revised Provincial Energy Master Plan; 4. Increased public awareness of renewable energy systems and RESCO; 5. Increased information and services provided to potential investors in renewable energy; 6. A commercial and sustainable RESCO delivery mechanism set up to provide renewable energy services in Palawan; 7. A risk-sharing mechanism established to buy down the risks for the RESCO. 	<p>Indicators:</p> <ol style="list-style-type: none"> 1. Pre-defined targeted stakeholders trained leading to increased interest in and funding allocation on renewable energy from local governments; 2. Increased share of renewable energy in the revised Provincial Energy Master Plan; 3. Increased public interest and demand for renewable energy systems; 4. The RESCO will provide reliable renewable energy services on a commercial basis; 5. Cost reduction in renewable energy systems; 6. Increased consumers' capability to pay from the economic activities of renewable energy services; 7. Increased installation of renewable energy systems to all the un-electrified households.
<p>11. Project activities to achieve outcomes:</p> <ol style="list-style-type: none"> 1. Build Capacity for Local Government Units and Rural Electric Co-operatives (\$150,000 of which \$100,000 from GEF); 2. Public Awareness Campaign on Renewable Energy (\$100,000 of which \$50,000 from GEF) 3. Establish a Renewable Energy Development Center (\$350,000 of which 250,000 from GEF); 4. Design a Risk Sharing Mechanism to Support RESCO (\$1,850,000 of which \$250,000 from GEF). 	<p>Indicators:</p> <ol style="list-style-type: none"> 1. Pre-defined targeted stakeholders trained leading to increased government interest in funding allocation to renewable energy systems; 2. A range of financial incentives provided to RESCO; 3. Increased share of renewable energy in the revised Provincial Energy Master Plan; 4. Increased public interest and demand for renewable energy systems; 5. Increased information and services available to the potential investors; 6. Strengthened link between local governments, RESCO, and local communities; 7. The RESCO will provide reliable renewable energy services on a commercial basis; 8. Cost reduction in renewable energy systems; 9. Increased consumers' capability to pay from the economic activities of renewable energy services; 10. Increased installation of renewable energy systems to all the un-electrified households.
<p>12. Estimated Budget: GEF: \$750,000 Co-financing: \$300,000 from Palawan provincial government; \$1,400,000 from Shell; \$100,000 from UNDP TRAC</p>	
<p>13. Information on Project Proponent: Center for Renewable Resources and Energy Efficiency (CRREE)</p>	
<p>14. Information on proposed executing agency (if different from above):</p>	
<p>15. Date of initial submission of project concept: November 1998</p>	
<p>INFORMATION OF INSTITUTION SUBMITTING THE BRIEF</p>	
<p>16. Project identification number: PHI/99/G</p>	
<p>17. Implementing agency contact person: Nandita Mongia, Regional GEF Coordinator for Climate Change, RBAP</p>	

18. Project linkage to implementing agency programme: In its effort to protect and regenerate the environment, UNDP's Country Cooperation Framework (UNDP-CCF) for the Philippines supports environmental and ecological reforms that can be implemented by the national government, local governments and communities. UNDP will also support institutionalizing approaches and methodologies implied by policy interventions that integrate environment into strategies at all levels. The development of small-scale renewable energy systems for rural development is one of the strategies of the UNDP-CCF to alleviate poverty in the rural areas such as the province of Palawan.

The proposed project also supports the Philippine Agenda 21 (PA21), the country's blue print for sustainable development. PA21 identified as one of its priority strategies to be pursued, the development and utilization of renewable energy technologies and promotion of environmentally-friendly alternatives such as solar, wind and biomass. The proposed project in Palawan is an attempt to provide the needed energy services in rural areas through action by the provincial government and civil society partners and the communities. It will likewise pursue electrification in rural areas through capacity building of the local government units and private sector partners in promoting environmentally sound and renewable energy systems coupled with enhancing economic opportunities for the poor. The project will also attempt to integrate the promotion of renewable energy as a major strategy in Palawan's Energy Master Plan.

UNDP currently supports energy-related programmes and projects, which complement the proposed project in Palawan. These include a technical assistance project to the Development Bank of the Philippines (DBP) for Financing Energy Services for Small-Scale Users (FINESSE) project. The FINESSE project promotes utilization of renewable energy sources by encouraging greater private sector investment and participation. FINESSE also develops and strengthens the technical capability of the DBP in the evaluation and management of renewable energy projects, and generates a pipeline of renewable energy projects for financing. Palawan is included as one of the project sites for FINESSE where potential renewable energy project were identified for possible financing by the DBP. UNDP will continue to support local government units in Palawan through other existing and proposed programmes on environmental management and poverty alleviation.

B PROJECT DESCRIPTION

RATIONALE AND OBJECTIVES

Project Objectives: This project is aimed to reduce the long-term growth of greenhouse gas (GHG) emissions through removing barriers to commercial utilization of renewable energy power systems to substitute for use of diesel generators in Palawan. This project is intended to demonstrate the viability of the RESCO (Rural Energy Service Company) delivery mechanism of renewable energy systems, and economic activities of productive use of renewable energy services for rural communities.

Project Rationale: Palawan has 425 barangays (district unit, about 50-200 households per barangay), with a total population of 654,000. Only 35% of the barangays are electrified, and there are at least 50,000 households without access to electricity in Palawan.

The Governor's office of Palawan has formulated the Palawan Provincial Energy Master Plan (1997-2021) which has set up the goal of increasing electricity supply from its current 25 MW to 250 MW in 2021, and the target of electrifying all the barangays by the year 2021. Under current Energy Master Plan, however, more than 95% of future expansion of electricity capacity will come from diesel generators. The growing dependence on fossil fuels to provide electric power services in Palawan will not only generate a substantial amount of GHG emissions, but is not necessarily an economically viable option as well. Most of the households in Palawan, particularly in Northern Palawan where a majority of people do not have access to electricity at present, are scattered on isolated islands. The transport costs of diesel fuel are high, and grid extension to remote communities is not economically viable.

Palawan has abundant renewable energy resources, including solar, wind, hydro, and biomass resources. Because of the existence of a large number of barriers encompassing policy, institutional, information, finance, marketing, and technical in character, the applications of renewable energy are insignificant in Palawan at present.

Currently, there exist great opportunities to promote renewable energy. Both the provincial and municipal governments in Palawan are highly committed to developing renewable energy in Palawan to provide electric power services to the households without access to electricity now. Particularly, recent explorations found that the largest natural gas reserves in the Philippines are located in Palawan. The provincial government is expecting to receive a substantial amount of revenues from the production and sales of natural gas in Palawan, which is anticipated to start in the year 2002. The expected revenues from the natural gas will increase the current budget of the provincial government by more than ten times. In addition, two experienced and reputable international RESCOs, Shell International Renewable Ltd. and Community Power Corporation (CPC), expressed great and serious interests to set up RESCO service centers in Palawan to provide renewable energy services to the entire Palawan province.

Therefore, it is important to demonstrate the viability of a sustainable and commercial RESCO delivery mechanism of renewable energy systems, as well as build capacities for the local government units (LGU) and increase public awareness of renewable energy. Thus, after the project is completed, it is expected that the provincial government will spend a large portion of the expected revenue from natural gas on renewable energy development, and the RESCO will be able to extend the renewable energy services to entire Palawan and other parts of Philippines.

At the national level, the President of the Philippines has stated that the use of new, renewable and indigenous sources of energy will be the preferred direction to be taken in the up-coming years by Philippines energy sector. The President's ERAP program (Energy Resources for the Alleviation of Poverty) aims to attain a 90% barangay level electrification nationwide by the year of 2004, from 72% electrification rate at present. Although some of the unelectrified barangays can be connected by grid extension, a large number of those isolated barangays are expected to utilize renewable energy technologies to be electrified.

Philippines Agenda 21 identified the need to develop and utilise renewable energy technologies as the country's priority strategy. The National Action Plan on Climate Change proposed the gradual shift from the current fossil fuel-dominated energy mix towards renewable energy.

Rationale for GEF Financing: Without this project, the future expansion of electricity supply would likely come primarily from diesel generators, and a large portion of the anticipated revenues from natural gas will be spent on installation of diesel generators. Renewable energy would likely continue to play an insignificant role in rural electrification in Palawan.

The widespread adoption and operation of renewable power systems in Palawan is hindered by a large number of policy, institutional, information, financing, market, and technical barriers. This project, in line with GEF Operational Programme No. 6, will remove these barriers, thereby leading to wide-scale commercial operation of renewable energy systems to replace diesel generators and to provide electric power service to the unelectrified households. The result will be a big cut in diesel consumption and imports, as well as a large reduction in Palawan's CO₂ emissions. This project will serve as a model for the RESCO delivery mechanism of renewable energy systems, which charges a fee for the electricity services it delivers, at the national level and other developing countries with similar situations.

Local Interests: In addition to the global environmental benefits to reduce GHG emissions, this project also offers substantial local benefits. This project can reduce Palawan's oil imports and utilize indigenous and environmentally friendly energy resources to provide energy services to remote communities. Utilization of renewable energy also can reduce the local health and environmental hazards from the use of petroleum products.

Particularly, this project will demonstrate a village power model to promote economic activities of productive use of renewable energy services, such as ice-making in fishing villages, eco-tourism, and fruit drying, to generate income for the livelihood support of the local communities. These activities would, in turn, help the communities to be able to pay for the electricity services received. In addition, this project will also promote private sector involvement in rural electrification in Palawan.

Replication Potential: Without this project, the majority of the 50,000 households would use diesel generators for rural electrification. As a result of the replication made possible by this project after removing the key barriers, the RESCO would extend the renewable energy services beyond the 50,000 non-electrified households to the entire Palawan province. Thus, at least 4 million gallons, or 15 million litres, of diesel consumption would be reduced, US\$4.5 million would be saved from oil imports, and 12,000 tons of carbon emission reduced. In addition, the commercial operation of renewable energy systems by the RESCO delivery mechanism would have a wider replication potential in other remote islands and areas of the world.

CURRENT SITUATION

Current Situations in Palawan: is an island consisting of one main island and some 1,700 islands and islets. It has a land area of 1,489,655 km² and a population of 654,000. An average per capita income is around \$200. It has been called the last frontier of the Philippines because of its inaccessibility and resultant lack of development. The provincial government has a demonstrated commitment to environmental concerns. It is the first and the only province in the Philippines designated as a protected natural reserve.

Palawan is currently heavily dependent on import of petroleum products, which provide almost 100% of the provincial electricity supply. The two major electricity generating companies, National Power Corporation (NPC, a national government agency) and Paragua Power Company (an independent power producer in Palawan), have a total installed capacity of 20 MW of diesel generators. There are two private rural electric cooperatives responsible for electricity distribution – PALECO in South Palawan and BISELCO in North Palawan. Most of the unelectrified households are located in the North, where there are many isolated islands. The nationally regulated buyback prices between the electricity generating companies and the rural electric cooperatives are way below the economic costs of diesel generation, hence, both NPC and the IPP are operating the diesel generators at a loss.

Renewable Energy Resources: Palawan has rich renewable energy resources. The recently completed Wind Energy Resources Atlas of the Philippines by National Renewable Energy Laboratory (NREL) determined that Palawan has some of the highest potential wind energy in the Philippines with 3,000 to 5,000 MW of potential wind energy, compared to the total energy demand in Palawan of 250 MW by the year 2021. In addition, Palawan also has abundant solar, hydro, and biomass resources, with an average solar insolation of 1000 Watt/m².

Ongoing and Previous Efforts: There has been very few national and foreign assistance to promote renewable energy development in Palawan, partly because of the remote location and inaccessibility of Palawan province. PALECO has had a solar battery charge program for 10 households on the island of Dumarán in Palawan, with grant from the NPC. The Dutch government has funded a solar eco-tourism project for the resorts in El Nido of Palawan, and Spanish government funded a Philippine Rural Reconstruction Movement project to install 200 households with a solar system for 2 lights and a small appliance (radio, fan, etc.) in El Nido. These two projects primarily targeted one site in Palawan - El Nido, and did not put in place a strong and viable mechanism for sustainability and replication.

GEF/UNDP recently submitted a PDF B project proposal regarding capacity building to remove barriers to renewable energy in the Philippines. One of its components is to identify renewable energy delivery mechanisms appropriate to the different situations in the country. However, as Palawan under the proposed project is very different from the rest of the country in terms of level of economic development, geographic location and accessibility (see more in Current Situations on Palawan), a suitable renewable energy delivery scheme is crucial to the successful promotion of renewable energy for productive use in the region. In this connection, this project cannot be substituted by, but complement with that barrier removal project of national scope.

Barriers to Renewable Energy Systems in Palawan: Based on preliminary assessments, the critical barriers to renewable energy deployment in Palawan can be described as following:

- 1) *Limited capacity of the local government to formulate renewable energy policies.* The Local Government Units (LGU) have limited capacity to formulate incentive policies to encourage investment in renewable energy, and limited knowledge about private sector involvement in delivering rural electrification services. In addition, LGUs have limited capabilities to strengthen renewable energy deployment in the Provincial Energy Master Plan.
- 2) *Lack of awareness of the renewable energy systems and its potential among decision-makers, entrepreneurs, and households.* The main reason that diesel generators are chosen as the primary scheme for rural electrification is that the policy-makers, entrepreneurs, and households know little about renewable energy systems and its potential.
- 3) *Lack of information about renewable energy resources, technologies, and market.* The current understanding of the quantity and distribution of renewable resources and data analysis for renewable resource assessment is largely inadequate. This limited information on renewable energy resources poses a serious constraint to future investment in renewable energy technologies (RET). In addition, there is a lack of technical/economic information about RET, RET market, and barangay socio-economic situations for potential investors.
- 4) *Lack of expertise to conduct feasibility studies and market surveys.* Few professionals, local entrepreneurs, and potential investors have the expertise to conduct feasibility studies and market surveys for renewable energy installation, as well as identify market opportunities for productive use of renewable energy services.
- 5) *Lack of maintenance services for the renewable energy systems.* Most of the renewable energy systems installed to date have already broken down and/or been abandoned, due to a lack of proper maintenance and after-sale services. There is a lack of sustainable institutional framework to provide reliable maintenance services after installation, and few local technicians have the expertise and experience of installation and maintenance.
- 6) *Lack of sustainable and commercial delivery mechanism.* Currently, the rural electric cooperatives (REC), the private electricity distribution companies financed by National Electricity Administration (NEA), are responsible for rural electrification. However, the RECs primarily rely on limited government financing from NEA, thus, they have limited funding and capability to provide electricity services to a large number of non-electrified households. In addition, most of the private renewable energy companies in Philippines are only involved in sales of renewable energy equipment, rather than delivering renewable energy services (such as maintenance services). There lacks a sustainable delivery mechanism to provide reliable financing, installation, operation, and maintenance services of renewable energy systems to local communities.
- 7) *Lack of appropriate financing mechanism for rural electrification.* Renewable energy systems have a high up-front cost, making it unaffordable to low-income households. Currently, rural electrification is primarily financed through government funding, which is very limited compared to the need. Low-income households lack credit histories, as well as capital and credit warranties. The financial institutions lack experience in both renewable energy projects and micro-finance management.

Due to the above barriers, without this project, more diesel generators would be built to provide rural electricity for the 50,000 unelectrified households. The expansion of electricity services would be very slow because of the limited government funding. When the expected revenues from natural gas are generated, the Palawan government would likely spend most of it on the expansion of diesel generators. Thus, renewable energy would continue to play an insignificant role in rural electrification in Palawan. Without GEF support, a great opportunity to introduce commercial RESCO delivery mechanism for renewable will be missed. The renewable energy systems will remain unaffordable, and the maintenance and after-sale services would remain poor or non-existent.

EXPECTED PROJECT OUTCOMES, WITH UNDERLYING ASSUMPTIONS AND CONTEXT

The proposed project would be considered successful if a Rural Energy Service Company, which charges a fee for the electricity services it delivers, is established in Palawan as a sustainable institutional framework for renewable energy deployment. The RESCO will provide the most appropriate renewable energy technology for the specific situations at each non-electrified barangay in Palawan, and link renewable energy services with livelihood support activities to allow the local communities to generate income, with the assistance from this project. This delivery model would be replicated to the other parts of Palawan and Philippines after the GEF project is completed.

One of the effective delivery mechanisms for renewable energy that has been tested in other countries around the world and contemplated to be likely to succeed in Palawan is the "provision of a fee-for-service utility company, rather than through the sale of hardware". Such an approach would require that the utility retains ownership and maintains the small-scale systems installed at its customers' premises. Trained staff would visit the customers regularly to maintain the systems, carry out maintenance as needed and collect the service fee. The aim of the service fee would be the recovery of the utility's operating costs plus a capital recovery charge. A headquarters office would manage the accounts, the inventory of spares, training and procurement. This project aims to set up and strengthen Rural Energy Service Company to efficiently undertake the functions of a utility company.

The RESCO delivery mechanism considered under this project has its unique characteristics compared to those tested in other countries. First, this project will promote the economic activities of productive use from renewable energy services, so that the local communities can generate incomes to be able to pay for the electricity services received. Second, the RESCO under this project will be service-oriented, rather than technology-oriented. That is, the RESCO will deliver a range of renewable energy services, depending on the resources availability, economics of the technology options, and communities needs, rather than only focus on solar home systems. The success of this model in Palawan and its replication in Philippines and other countries can accelerate the bulk purchases of renewable energy systems in the world market, lead to a reduction in the costs of renewable energy systems globally, thus mitigate more quantities of GHG emissions.

Specifically, the expected project outcomes would be as following:

1. *Increased awareness of renewable energy systems.* Public demand for the renewable energy systems will be increased. This will be a result of the project's awareness and information campaigns to all the key stakeholders. The local government units (LGU), rural electric

cooperatives (REC), entrepreneurs, NGOs, and local villagers will have raised information and awareness of renewable energy systems, its benefits for rural electrification, RESCO concept, and productive use of renewable energy services. In addition, they are exposed to the success of the RESCO operation of the renewable energy systems for rural electrification.

2. *Increased information and services of renewable energy for potential investors.*

- 1) The Renewable Energy Development Center to be set up under this project will help identify the opportunities of economic productive use of renewable energy services;
- 2) The Center will provide the services to conduct renewable energy resource assessment, and the renewable resources data and mapping will be available;
- 3) The Center will provide services to conduct feasibility studies and market surveys, and publish a list of barangays with their social-economic situations that are candidates for RESCOs;
- 4) The Center will provide technical backup for design, installation, operation, and maintenance of renewable energy systems;
- 5) This will provide a solid information foundation for future investment in renewable energy technologies after the project is done.

3. *A commercial and sustainable RESCO set up to provide renewable energy services.*

- 1) The RESCO will be able to charge and collect a fee to recover their full economic costs, including the capital recovery charge;
- 2) The local government units and rural electric co-operatives will have an increased recognition and support to the RESCO;
- 3) The provincial government will provide a range of financial incentives to the RESCO;
- 4) The risk-sharing mechanism designed under this project will buy down the risks to support the RESCO at initial stage, so that the RESCO will be able to extend their renewable energy services to all the un-electrified households in Palawan;
- 5) The RESCO will provide a range of appropriate renewable energy technologies, and link the renewable energy services with livelihood support activities for the local communities;
- 6) The costs of renewable energy systems will drop, and consumers' capability and willingness to pay for the renewable energy services will increase;
- 7) The local RESCO staffs are capable of providing reliable installation and maintenance service to the community.

ACTIVITIES AND FINANCIAL INPUTS NEEDED TO ENABLE CHANGES

This project is specifically designed to remove the policy, institutional, information, financing, market, and technical barriers to the commercialisation of renewable energy systems in Palawan. To achieve this objective, this project consists of four activities. Each activity is briefly described below.

Activity No. 1 – Build Capacity for the Local Government Units (LGU) and Rural Electric Co-operatives (REC) (Cost \$160,000 of which \$110,000 from GEF)

This activity will 1) provide training to the LGU and REC in renewable energy technologies, its potential benefits, and private sector's role in delivery mechanisms of renewable energy systems; and 2) provide technical assistance to LGU officials to formulate financial incentive policies to encourage the investment in renewable energy and revise the Palawan Energy

Master Plan. This activity is intended to raise awareness and strengthen institutional capability for LGU and REC to promote renewable energy in Palawan, and directly removes barrier No 1.

The first component will hold workshops and seminars to provide training and disseminate information to LGU and REC in 1) technical/economic aspects of renewable energy technologies (RET); 2) the potential benefits of RETs for rural electrification; 3) successful experience and lessons learned of renewable energy development in other countries; 4) private sector's role in delivery mechanisms of renewable energy systems with an emphasis on the RESCO concept; and 5) productive use of renewable energy services.

Palawan provincial government is expecting to receive a substantial amount of revenues from natural gas starting in 2002. Such a training program can increase the awareness and information of renewable energy technologies among LGU, enhancing the capacity of provincial government to spend a large portion of the anticipated revenues from natural gas on renewable energy development, rather than diesel generators as currently planned. In addition, such a training program can build capacities for the LGU officials who are responsible for information dissemination to the public, and thus lay the foundation for the public awareness campaign in Activity 2.

In addition to the LGU officials, the RECs that are currently in charge of rural electrification are also important players. The RESCO, interested in setting up stand-alone renewable systems for rural electrification, need permits from the REC under the condition that the REC do not have plan to extend the grid to the area within 5-10 years, because all the areas are under the franchise of RECs. Thus, this component will raise REC's awareness and recognition of RESCO, so that REC will support the RESCO installation of renewable energy systems within their franchise. On the other hand, the RESCO also needs to ensure the REC that RESCO will move out the area once the REC extend their grid line.

Furthermore, currently the LGU and REC regard rural electrification as their official mission, not appreciating the role the private sector can play in operating renewable energy systems on a commercial basis, and they are not familiar with the options of different delivery mechanisms for renewable energy systems including RESCO. Hence, this component aims to remove this barrier, so that the LGU and REC will recognise the role of RESCO, and fully support the RESCO that charges a fee for the electric service it delivers.

The second component will build capacities for the LGU officials to formulate a range of financial incentive policies to support the potential investors in renewable energy systems, with a focus on RESCOs. This component will first review and assess current investment criteria and guidelines for renewable energy investment in Palawan, including a) investment application procedure, and competitive bidding procedure; b) import duties; c) taxes; d) issue of licenses; and e) land acquisition. Then, this component will provide technical assistance to the provincial government to formulate a range of financial incentives for the RESCO, with a focus on tax holidays, zero import duties, and simplified approval procedures.

In addition, this component will provide technical assistance to the provincial government to revise the Provincial Energy Master Plan to promote renewable energy deployment. Although the provincial government is highly committed to renewable energy development and intends to revise the Energy Master Plan to promote renewable energy, it lacks the know-how. Therefore, this component will provide technical assistance to the provincial government, on the basis of the renewable energy resource assessment and market analysis in Activity 3, to

increase the share of renewable energy in the future electricity supply for the Palawan Energy Master Plan.

Activity No. 2 – Public Awareness Campaign on Renewable Energy (Cost \$110,000 of which \$55,000 from GEF)

This activity will conduct a public awareness campaign to disseminate information on renewable energy for rural electrification and the RESCO concept. The public awareness campaign will include 1) renewable energy technologies; 2) RET benefits for rural electrification; 3) RET resources potential; 4) RESCO concept; and 5) potential opportunities of economic activities of productive use from renewable energy services. The awareness programme will be implemented to ensure that a wide range of concerned stakeholders are fully informed about above issues, and will be tailored to target the following groups: villagers, school teachers, NGOs, public-service workers, entrepreneurs, and potential investors.

It is envisaged that this programme will consist of campaigns through comic printings, posters, brochures, radio broadcasts, and video tapes etc. The public awareness campaign will be conducted through the Promotion Component Office under the Special Program Service within the provincial government, which has a dissemination and promotion network through municipal government offices. This activity will also organise several regional study tours for the local entrepreneurs and the heads of un-electrified barangays to the pilot renewable energy systems set up by the RESCO for awareness raising campaign within Palawan. This activity directly removes barrier No. 2.

Activity No. 3 – Strengthen the capacity of CRREE ((Cost \$350,000, of which \$250,000 from GEF, \$50,000 from UNDP, and \$50,000 from LGU)

This activity will strengthen capacities and provide financial support to the NGO -- **Center of Renewable Resources and Energy Efficiency (CRREE)** for extending its activities in Palawan. CRREE will work through its Renewable Energy Cell (hereafter as "Cell") to be set up in Palawan to ensure its interface between the local government, RESCO, and local communities. This Cell will provide 1) market strategies for opportunities of economic productive use from renewable energy services; 2) feasibility studies and market surveys, as well as the socio-economic situations of a list of barangays that are candidates for the RESCO; 3) renewable energy resource assessment, as well as renewable resource data and mapping; 4) technical backup, particularly design, installation, operation, and maintenance of renewable energy systems; and 5) a list of local partners for RESCOs.

This Cell could be housed in the Economic Enterprise Department under the Special Program Services within the provincial government, which gives advice to local communities on business opportunities for livelihood support. The Cell will be managed and administrated by the CRREE in collaboration with Palawan Government, UP Solar Lab, and other NGOs. It will select some existing professional staff with technical expertise from the CRREE, University of Philippines (UP) Solar Lab, the Affiliated Non-Conventional Energy Center (ANECs) in Palawan under Department of Energy in Philippines, and the Economic Enterprise Department under LGU.

The Cell will play an important role to link the RESCO with local communities in Palawan by helping the local communities and the RESCO to identify the opportunities of economic productive use from renewable energy services, and providing renewable energy resources and

market information to the RESCO. On the other hand, the Cell will also play an active role to build public-private partnership by bringing the RESCO with the local governments together. Thus, this activity will build a solid institutional framework to bridge the missing link between local government, RESCO, and local communities by providing valuable information and competent services related to renewable energy to the RESCO, and directly remove barriers No. 3, 4 and 5.

This activity is designed to help achieve these goals. It will provide technical, business, socio-economic, and resource assessment training for the staff selected for the Cell, and will develop business plans to ensure the financial sustainability of the initiative.

First, this activity will provide technical assistance to the Cell's staff by sharing experiences and lessons learned in other countries around the world as regards the productive use of renewable energy services, as well as capabilities to identify such market opportunities. The goal is to provide advisory services to help the local communities as well as the RESCO to identify the potential opportunities for productive use of renewable energy services, such as ice-making for the fishing villages, eco-tourism, health clinics, fruit/crop drying, water pumping, and etc. The Economic Enterprise Department under the provincial government will provide valuable inputs and information.

This activity will provide training to the Cell's staff in feasibility studies and market surveys. This is done through training workshops and on-the-job training. The market survey will investigate the consumers' capability and willingness to pay, consumers' current monthly expenses on kerosene, fuelwood, agriculture wastes, benzine, candles, and batteries for household energy use (baseline energy expenses); consumers' income, as well as potential opportunities for productive use of renewable energy services. In addition, this activity will publish the market information for the RESCO. This component will directly remove barriers No. 3 and 4.

Next, this activity will seek both to provide training for the Cell's staff in renewable resource assessment techniques and to establish a database of renewable energy resources to facilitate future replication. With regard to the former activity, staff from the Cell will be trained in resource data collection, processing and analysis, site selection, as well as feasibility study. This activity will also overview and summarise the previous assessments of the renewable energy resource data in Palawan. In conjunction with the training, this activity will also undertake renewable energy resource monitoring at a number of selected sties. The purpose is a) to provide a strong information foundation of renewable energy resources data for future investment in Palawan to remove the information barrier, and b) to provide on-the-job training for the Cell's staff in acquisition and analysis of the renewable energy resource data to remove the expertise barrier. The availability of renewable resource data is a prerequisite to the future replication of investment in renewable energy systems in Palawan, therefore, this component is crucial to facilitate future replication, and directly removes barrier No. 3.

In conjunction with the model renewable energy systems, the Cell's staff will be trained in how to design, install, operate, and maintain the renewable energy systems. They will also be trained to be trainers in this domain. This will create skilled staff capable of installation and maintenance of renewable energy systems, of providing training to other local technicians, and of providing technical back up. This component directly removes barrier No. 5.

Finally, this activity will help the Cell's staff to compile a list of potential local partners and provide matchmaking services for the RESCO that needs local partners for co-operation.

In addition to the training program, this activity will also help the Cell to develop business plan to ensure the financial sustainability of the initiative, because the Cell is expected to become financially independent by the end of the project.

Activity No. 4 – Design a Risk Sharing Mechanism to Support the Rural Energy Service Company (Cost \$1,865,000 of which \$265,000 from GEF)

This activity will design for a risk-sharing mechanism to buy down the risks for RESCO installation of renewable energy systems in Palawan at the initial stage, when the costs of renewable energy systems are high and consumers' capabilities to pay are low. The risk-sharing subsidies are expected to gradually decline over time, on the assumptions that the costs of renewable energy systems will drop with the growing economies of scale, and the consumers' capability and willingness to pay for renewable energy services will increase with the income generated from the productive use.

This activity will provide technical assistance to the provincial government to set up a risk-sharing scheme to help buy down the risks for the RESCO at the initial stage, and fulfil government's mission for rural electrification. First, this activity will propose and evaluate all the possible schemes, including cost-sharing in initial investment, subsidy on the local distribution line if needed, subsidy on the tariff, tax holiday, etc. Then, this activity will choose a most appropriate risk-sharing mechanism or a combination of mechanisms for the Palawan government and the RESCO. This will require international expertise and experience, wide consultation with the RESCO and provincial government, as well as the national expertise. The goal is to design a gradually declining risk-sharing mechanism to support the commercial-oriented RESCO delivery scheme for renewable energy at initial stage, rather than provide long-term subsidies.

Initially, the GEF grant will provide the funding for the selected risk-sharing mechanism to test the selected scheme. The RESCO, Shell International Renewables Ltd. (Shell) and Community Power Corporation (CPC), plan to first connect 1000 households with renewable energy systems as pilot systems for the their first Service Center to be set up in Palawan, to reach an economy of scale. Thus, GEF funding will demonstrate how the selected risk-sharing mechanism works to buy down the risks for the pilot systems. By the time this project is completed, the provincial government is expected to have started receiving large revenues from natural gas. The local government will be in a position to adopt the demonstrated risk-sharing mechanism to support the RESCO operation.

In addition to designing the risk-sharing mechanism, this activity will also provide technical assistance to the local government to formulate and publish a RESCO Decree that the government will allow the RESCO to charge a fee for the services delivered, and the level of the service fee will be set up by the market forces, not regulated by the government.

This activity is crucial to ensure the financial viability and sustainability of the RESCO, and directly removes barriers No. 5, 6, and 7.

SUSTAINABILITY ANALYSIS AND RISK ASSESSMENT

Sustainability

From a technical standpoint, unlike the previous renewable energy programs, one of the key objectives and activities of this project is to support the RESCO delivery mechanism, which will provide reliable installation and maintenance services to the consumers to ensure the technical sustainability of the renewable systems. The RESCO (Shell/CPC) has demonstrated technical expertise and experience in installation and maintenance of renewable energy systems. This project will also develop local technical capacity to install and maintain the renewable energy systems, through the technical training of trainers for the Renewable Energy Development Center. The project will also help create a sustainable demand for renewable energy through the public awareness program. These efforts should ensure the long-term sustainability of renewable energy technology in Palawan.

From a financial standpoint, the project will ensure the RESCO can charge and collect a fee to recover its full operational and maintenance costs, including capital recovery charge. This project will help the local government to formulate financial incentives to the RESCO, design a risk-sharing mechanism to financially support the RESCO, and directly provide financial support to buy down the risks for the RESCO at the initial stage. From the consumers' perspective, this project will provide technical assistance to identify opportunities for economic use of renewable energy services, so that the local communities can generate incomes to be able to pay for the electric power services. All these efforts will ensure the financial sustainability and viability of the RESCO after the project is done.

From an institutional standpoint, one of the key objectives of this project is to support RESCO as a sustainable institutional framework to deliver renewable energy services. The project will also build a sustainable institutional framework – Renewable Energy Development Center – to act as an interface between the local government, RESCO, and local communities. In addition, this project will also build capacities to the LGU and REC. All these efforts will ensure the institutional sustainability after the project is done.

Risks

The project has the following risks associated with it. These are discussed along with the method to mitigating the risks:

1. **Financial Viability of the RESCO.** Because most renewable energy technologies have a high up-front capital investment cost, and consumers' capability to pay in Palawan is low, the commercial operation of the RESCO may not be self-sustaining, and may not be able to replicate its operation in other parts of Palawan. The project will ensure the RESCO can charge and collect a fee to recover its full operational and maintenance costs, including capital recovery charge. This project will help the local government to formulate financial incentives to the RESCO, and provide funding to buy down the risks for the RESCO at the initial stage. This project will also help identify opportunities for economic use of renewable energy services. As a result, the costs of renewable energy systems will drop with the growing economies of scale, and consumers' capability to pay will increase with the income generated from the productive use. All these project activities will ensure the financial sustainability and viability of the RESCO after the project is completed. Therefore, this is a moderate risk.

2. **Institutional Risks:** A major component of this Project is Institutional Capability building. This entails increasing the information and awareness levels of government officials of new and renewable energy from the technical to the policy levels. The Provincial Government of Palawan is embarking on a comprehensive energy development program over a 20 year period with the goal of increasing their energy production from its current 25 megawatts to 250 megawatts. It is not the common practice in the Philippines for the Provincial Government to develop its own Energy Master Plan but significant revenues expected from natural gas royalties make it imperative in this case. Provincial Government's experience and expertise in this area is limited particularly in the area of new and renewable energy. This is reflected in the current Palawan Energy Master Plan, which minimally incorporates new and renewable energy. The Project seeks to minimize institutional risks in developing and implementing the Palawan Energy Master Plan by providing local and international expertise for consultation and implementation.

C STAKEHOLDER INVOLVEMENT AND SOCIAL ASSESSMENT

Stakeholder involvement

The project stakeholders include provincial government, municipal and barangay level governments, national government, local communities, rural electric cooperatives (PALECO and BISELCO), Center for Renewable Resources and Energy Efficiency (CRREE), University of Philippines Solar Lab, Shell International Renewables Ltd, Community Power Corporation, local NGOs, local entrepreneurs, and academia. A strong stakeholder involvement is essential to the success of this project. The approach to this is described in detail in Section E, "Public Involvement Plan".

Social Assessment

The project will have significant positive social implications. This project will utilize indigenous and environmentally friendly energy resources to provide electricity services to people currently without access to electricity in remote islands and areas, and promote livelihood support activities from the renewable energy services. In addition, renewable energy technologies can greatly reduce Palawan's oil import, and mitigate the health and environmental hazards posed by the consumption of petroleum products. Thus, this project can improve people's livelihoods and living conditions in Palawan.

D PROJECT IMPLEMENTATION PLAN

Institutional Arrangement:

The Center for Renewable Resources and Energy Efficiency (CRREE) will be the lead agency in project coordination and implementation along with the University of the Philippines Solar Laboratory, which will provide the technical expertise. CRREE and UP Solar Lab will work in partnership with the Provincial Government of Palawan who will provide logistical as well as financial support. Staff from the Provincial Government will be seconded to the project, along with material support such as office space, use of equipment and transportation. The Provincial Government shall also play a key role in implementation of the technical capability building of internal staff.

The project will last for 3 years (12 Quarters).

Activities	1	2	3	4	5	6	7	8	9	10	11	12
1. Build Capacity for LGU and REC	x	x	x	x	x	x	X	x				
2. Public Awareness Campaign		x	x	x	x	x	X	x	X	x	x	x
3. Establish Renewable Energy Development Center	x	x	x	x								
4. Design Risk Sharing Mechanism to Support RESCO					x	x	X	x	X	x	x	x

E PUBLIC INVOLVEMENT PLAN

Stakeholder identification and participation

The barriers to renewable energy cannot be removed without a high degree of participation from all stakeholders listed above. With stakeholder participation, renewable energy will receive wide recognition and support. The project is to be implemented by CRREE. The project stakeholders and their specific roles are described below:

1. Provincial Government of Palawan – Provincial Government of Palawan will provide logistical as well as financial support. Staff from the Provincial government will be seconded to the project, along with material support such as office space, use of equipment and transportation. The Provincial Government shall also play a key role in implementation of the technical capability building of internal staff.
2. Local Government Unit – This refers to local governments at the Mayor and Barangay levels. In the municipalities, townships and barangays, the project will be involved in the LGU participation will encompass planning, implementation and assessment through a consultative process.
3. NGO and local community – A key NGO or local, community-based organization will be identified to assist primarily in the development and implementation of the public awareness and productive-use components of the project. The NGO or local group will provide input in assessing the awareness level and attitude towards electrification and new and renewable energy in particular to determine the type(s) of public awareness campaign to be developed. They will also assist in identifying the types of productive-use projects to undertake and the appropriate group or organization to undertake the project.
4. Private Sector – The Project will be working in conjunction with Shell Renewables, Inc. and Community Power Corporation in establishing a Renewable Energy Service Company (RESCO) in Palawan. The project will also identify and consult with other private companies providing new and renewable energy products and services in Palawan to determine barriers and identifying possible interventions (e.g., policy, lack of awareness or misunderstanding).
5. National Government - The National Government through the Department of Energy will be involved in this project through its National Center for Renewable Energy. The purpose is to monitor and document the project, its activities and methodology for national dissemination and application if proven to be successful and appropriate.

Information dissemination and consultation

As one of the barriers to renewable energy is lack of information, one of the aims of the project is to disseminate information through public awareness campaigns and the Renewable Energy Development Center.

The project involves a large number and broad cross-section of people, particularly through the public awareness campaigns. This gives the opportunity to consult fully with representatives of all stakeholders.

Social and participation issues

The project will be beneficial to the poor. In particular the widespread application of renewable energy resulting from the project should have a positive impact on vulnerable groups, through the following mechanisms:

- babies and children will benefit from the convenient form of energy – electricity, and the reduced local air pollution from fossil fuels;
- sick and elderly people will benefit from the convenient form of energy – electricity, and the reduced local air pollution from fossil fuels;
- women will spend less time going to the market to buy kerosene and less time collecting wood.

F BUDGET

This budget only covers the incremental costs. All figures are in thousands of US dollars.

Component	GEF	UNDP TRAC	Palawan Govt.	Total
Personnel ¹	100	70	10	180
Subcontracts ²	440	0	0	440
Training	120	0	0	120
Equipment		20	100	120
Travel	40	10	0	50
Evaluation mission	30	0	0	300
Miscellaneous	20			20
Total	750	100	110	960

1. Personnel include hiring project manager, international consultants, and national consultants.
2. Subcontracts will be given to a) formulate financial incentives; b) revise Energy Master Plan; c) conduct feasibility studies; and d) design and implement risk-sharing mechanisms.

G MONITORING AND EVALUATION PLAN

The project will be monitored and evaluated in line with UNDP rules and procedures. Annual Performance Reports will be prepared and discussed through with the project executing agency and the project staff. This discussion culminates in annual Tri-partite Review meetings, leading to specific recommendations to improve project impact and implementation. In addition, at least one formal evaluation will be held in the final six months of the project. \$30,000 has been allocated to support monitoring and evaluation.

The project team will undertake continuous, self-monitoring. At the outset, the project team in consultation with UNDP, CRREE, and other concerned stakeholders will prepare detailed and measurable performance indicators for the overall project. These performance indicators will be assessed each six months.

Based on the overall project objectives and these performance indicators, quarterly work plans will be prepared. These will indicate how the quarter's activities contribute to the overall objectives. Performance indicators will then be prepared for each quarter. This will be used to measure performance. In addition, this monitoring will be used to continuously refine the project approach and activities.

Annexes:

Annex 1 Incremental Cost Assessment

**Annex 2 Palawan New and Renewable Energy and Livelihood Support Project -
Project Planning Matrix**

**Annex 3: Letter of Endorsement - Department of Environment and Natural Resources
Republic of Philippines**

Annex 1: INCREMENTAL COSTS ASSESSMENT

Introduction

The proposed project is substitutional aims to remove barriers to commercial utilisation of renewable energy to substitute for use of diesel generators in Palawan. This project seeks to establish a renewable-energy-based commercial Rural Energy Service Company that charges a fee for the electricity services delivered as a sustainable institutional framework in Palawan, for replication in other parts of Philippines. A series of activities will remove the policy, institutional, information, market, financing, and technical barriers to the commercialisation of renewable energy systems for rural electrification in Palawan.

Baseline

The baseline consists of what the Government would do without GEF support. Without this project, the Palawan government plans to greatly expand rural electricity services with diesel generators in Palawan. Under the current Provincial Energy Master Plan, more than 95% of the future expansion of electricity capacity from 1997 to 2021 will come from diesel generators. The process to provide rural electricity services to the non-electrified households will be very slow, due to the limited government funding. When the expected revenues from natural gas come by the year 2002, the Palawan government will spend most of it on the expansion of diesel generators. These diesel generators would emit more than 12,000 tons of carbon per year. The use of petroleum products will continue to pose health and environmental hazards to the local communities. The private sector involvement in rural electrification will continue to be neglected.

The renewable energy systems will remain unaffordable for most households. Most of the renewable energy systems installed under the grant or aid program will remain abandoned, due to lack of maintenance and after-sale services. Renewable energy will continue to play an insignificant role in rural electrification in Palawan.

Global Environment Objective

The GEF project will support activities that remove barriers to renewable energy systems in Palawan. Hence, renewable energy will become commercialised, and consequently play a larger role in rural electrification as a result of the replication made possible by this project. If the 50,000 non-electrified households will all utilise renewable energy, assuming an annual electricity consumption of 800 kWh each household and 10 kWh electricity generated from each gallon of diesel from the diesel generators, then, at least 4 million gallons, or 15 million litres of diesel consumption will be cut. At a diesel price of 30 cent/litre in remote islands of Palawan, this will save US\$4.5 million from oil import. Assuming that diesel has a heating value of 43 GJ/ton and the carbon emission factor of diesel is 20.2 tC/TJ, then, annual carbon emissions will be reduced by at least 12,000 tons. In addition, the commercial operation of renewable energy systems by the RESCO delivery mechanism would have a wider replication in other remote islands and areas of the world.

In addition to reduced diesel consumption, there would be less fuelwood, straw, and kerosene burned for household energy use, thus, more CO₂ emissions would be cut. These are difficult to quantify, but are minor compared to the reduced CO₂ from diesel combustion.

Alternative

In the alternative GEF project, a commercial and sustainable Rural Energy Service Company would be set up to provide renewable energy services to the non-electrified households in Palawan. This project will test a unique RESCO model that has never been tested before. The RESCO under this project will be service-driven, rather than technology-driven. That is, it will provide the most appropriate renewable energy services to the local communities and link renewable energy services with economic livelihood support activities for the local communities. As a result of the financial incentives and the risk-sharing mechanisms provided to the RESCO, with the technical and financial support through this project, the costs of renewable energy systems are expected to drop with growing economies of scale and the consumers' capability and willingness to pay are expected to increase with the income generated from the economic activities of the renewable energy services.

In addition, the local government and rural electric co-operatives will have increased awareness and capacity to support renewable energy and RESCO. Public demand for the renewable energy systems will be increased. A sustainable institutional framework – Renewable Energy Development Center – will be established to act as a bridge between the local government, RESCO, and local communities, as well as provide valuable information and competent services to the RESCO.

Compared to the baseline, the RESCO under the alternative GEF project will provide more and environmentally friendly electricity services sooner, better and more reliable maintenance services to renewable energy systems, and affordable financing for installation of renewable energy systems. Particularly, the RESCO will improve people's livelihood through economic activities from renewable energy services. The provincial government will spend most of the foreseen revenues from natural gas to support and buy down the risks for renewable energy systems. Renewable energy will play a larger role in rural electrification in Palawan. At least an annual 12,000 tons of carbon emissions will be avoided. A series of substitutional activities, as follows, will ensure that barriers are removed:

Activity No. 1 – Build Capacity for the Local Government Units and Rural Electric Co-operatives (Cost 160,000, of which \$110,000 from GEF and \$50,000 from LGU)

This activity will raise the awareness of LGU and REC about renewable energy and RESCO concept, as well as strengthen the capacity of LGU to formulate financial incentives to the RESCO and revise the Provincial Energy Master Plan. This activity will directly remove barrier No. 1. Under the baseline, the Palawan government intends to revise the Provincial Energy Master Plan to increase the share of renewable energy in the future electricity supply, but there is a lack of know-how. The provincial government will provide \$40,000 (in-kind) to cover the baseline costs to revise the Energy Master Plan, and GEF funding is used to provide technical assistance to the revision to promote renewable energy deployment in Palawan as an add-on incremental activity. Without GEF support, other components of this activity would not happen, so this is an incremental activity.

Incremental costs associated with this activity total \$120,000, of which \$110,000 from GEF and \$10,000 from LGU (in-kind). This will cover the costs to hire international and national consultants, hold training and participatory workshops/seminars, and provide subcontract to formulate the financial incentives as well as revise the Provincial Energy Master Plan. The in-

kind contribution from LGU (\$10,000) covers the salary of LGU officials who participate in the training workshop and policy formulation.

Activity No. 2 – Public Awareness Campaign on Renewable Energy (Cost \$105,000, of which \$55,000 from GEF and \$50,000 from UNDP)

Public awareness programmes will be implemented to ensure that a wide range of concerned stakeholders are fully informed about renewable energy, its benefits, RESCO concept, and potential for productive use of renewable energy services. It is envisaged that these programmes will consist of study tours, comic printings, posters, brochures, radio broadcasts, and video tapes etc. This activity will directly remove barrier No. 2. Without GEF support, no related activity would take place and so all costs are incremental. Incremental costs associated with this activity total \$105,000, of which \$55,000 from GEF and \$50,000 from UNDP TRAC. This will cover the costs for material preparation, producing, and printing, capacity building and financial support to the Promotion Component Offices under LGU to disseminate information on renewable energy, travel costs, and organisation of a series of regional study tours within Palawan.

Activity No. 3 – Strengthen the capacity of CRREE (Cost \$350,000, of which \$250,000 from GEF, \$50,000 from UNDP, and \$50,000 from LGU)

This activity will strengthen capacities and provide financial support to the NGO - CRREE for extending its activities in Palawan. CRREE will work through its Renewable Energy Cell (“Cell”) to be set up in Palawan to ensure its interface between the local government, RESCO, and local communities.

This activity directly removes barriers No. 3, 4, and 5. Without GEF support, no such activity would take place, so all costs are incremental. The incremental costs associated with this activity are estimated at \$350,000, of which \$250,000 from GEF, \$50,000 from LGU, and \$50,000 from UNDP TRAC.

The GEF funding will cover: 1) a subcontract to Shell Renewables and CPC to provide on-the-job training to the Cell’s staff to conduct feasibility studies, market surveys, and resource assessment (\$100,000); 2) intensive training workshops in renewable energy technologies, business management, socio-economic surveys, and resource assessment techniques (\$120,000); 3) a TA subcontract in market strategies of productive use from renewable energy services (\$30,000); and 4) Cell’s staff salary for three years (\$20,000). The UNDP TRAC funding will cover: 1) model renewable energy equipment (solar panels, BOS, a small-scale wind turbine, a small-scale hydro generator, and a small-scale biomass gasifier) for training and demonstration purpose at the Cell, as well as computers for database management and office suppliers for the Center (\$20,000); and 2) staff salary for three years (\$30,000). The LGU will provide \$50,000 (in-kind) for the office space within the building of Economic Enterprise Department under the provincial government.

Activity No. 4 – Design a Risk Sharing Mechanism to Support RESCO (Cost \$1,865,000 of which \$265,000 from GEF, \$200,000 from LGU, and \$1,400,000 from Shell)

This activity will provide technical assistance and financial support to set up a risk-sharing mechanism to buy down the risks for RESCO installation of renewable energy systems in Palawan at the initial stage, when the costs of renewable energy systems are high and

consumers' capabilities to pay are low. The risk-sharing subsidies are expected to gradually decline over time, on the assumptions that the costs of renewable energy systems will drop with the increasing economies of scale, and the consumers' capability and willingness to pay for renewable energy services will increase with the income generated from the productive use. The goal is to design a gradually declining risk-sharing mechanism to support the commercial-oriented RESCO delivery scheme for renewable energy at the initial stage, rather than provide long-term subsidies. This activity is designed to ensure the financial viability and sustainability of the RESCO, and will directly remove barrier No. 5, 6, and 7.

Without GEF support, the local government would not be able to design such a risk-sharing mechanism. This project will provide technical assistance to help the local government to evaluate, negotiate with the RESCO, and finally choose a most appropriate risk-sharing mechanism for Palawan and enable the RESCO to provide renewable energy services to all the non-electrified communities. This is an incremental activity, and the incremental cost associated with it is estimated at \$100,000 from GEF, which will cover the cost for a subcontract.

The provincial government's expected revenues from natural gas, however, will not start flowing until the year 2002, and the current budget of the provincial government is very limited. Thus, this project will use GEF grant to first test the selected risk sharing mechanism, to support the first 1000 renewable energy power connections for the RESCO. The incremental costs that are the differences between the costs of the renewable energy systems to be installed and the baseline consumers' energy expenditure are estimated to be \$165,000, for three years at a gradual declining scale over time.

After this project is completed in three years, the local government will start receiving the revenues from natural gas production. They will then be able to continue to provide financing to buy down the risks for the RESCO based on the demonstrated risk-sharing mechanism. At the same time, the consumers are expected to have increased incomes from the economic activities of the renewable energy services, with the support through this project, thus consumers' capability and willingness to pay for the renewable energy services will increase. Hence, the amount of subsidy for the first 1000 connections will dramatically drop after the first three years. Thus, the local government funding can adopt the model demonstrated in this project to support the RESCO to extend their services to the entire Palawan.

In addition to the investment risks due to the high initial capital cost and low capability to pay, the RESCO also faces another risk of installing renewable energy systems within the franchise of REC. For example, the RESCO may identify and install a small-scale biomass gasifier system as the most appropriate technology to provide electricity to one specific un-electrified barangay, then the RESCO needs to build a local distribution line within the barangay. Later, when the REC decides to extend their grid to this area, the RESCO will have to move out this area. Thus, the RESCO not only needs to design a movable renewable system, but also they have to undertake the risks to build extra distribution lines. To mitigate this risk, the local government will provide \$50,000 to the RESCO to cover the costs for the local distribution lines for the village-scale renewable energy systems, if needed.

In sum, the total incremental cost is estimated to be \$315,000, of which \$265,000 from GEF and \$50,000 from LGU. GEF grant will cover the costs for a TA subcontract to design the risk-sharing mechanism for Palawan (\$100,000) and provide funding to buy down the risks for the initial 1000 renewable connections by the RESCO (\$165,000). The LGU funding will cover the

costs for the distribution lines that the RESCO build for their village-scale renewable energy systems.

The baseline costs are estimated to be \$1,550,000, of which \$1,400,000 from Shell International Renewables and \$150,000 from LGU. Shell will invest \$1,400,000 in renewable energy systems for the first 1000 household connections at its first Service Center in Palawan. Furthermore, one of the key objectives of this project is to promote the productive use of renewable energy services, to demonstrate the viability of livelihood support activities from the sustainable energy supply. Hence, the local government will provide \$150,000 concessional loans to the local entrepreneurs and/or the local communities to support the identified economic productive use that becomes possible from the renewable energy services.

Incremental Costs Matrix

	Baseline	Alternative	Increment (Alternative - Baseline)
Global environmental benefits	<p>The future expansion of electricity capacity will continue to come from diesel generators, leading to about 12,000 tons of carbon emitted per year from diesel combustion;</p> <p>Renewable energy for rural electrification remains insignificant.</p>	<p>The renewable energy systems can significantly cut diesel consumption, and reduce GHG emissions. Less CO2 would be emitted from wood, straw, as well as kerosene burning;</p> <p>Renewable energy power systems will play a larger role in rural electrification, and become commercialised in Palawan;</p> <p>The costs of renewable energy systems will drop.</p>	<p>12,000 tons of carbon per year emitted from diesel combustion would be cut, and CO2 emissions from wood, straw, and kerosene burning would be reduced;</p> <p>Large-scale commercialisation of renewable energy systems for rural electrification would be achieved in Palawan;</p> <p>The RESCO delivery mechanism can serve as a model for replication in Philippines and other countries.</p>
Domestic benefits	<p>The rural electrification process will be very slow;</p> <p>The LGUs do not have the capacity to promote and finance renewable energy;</p> <p>The use of petroleum products poses local health and environmental hazards;</p> <p>Renewable energy systems remain abandoned due to lack of maintenance.</p>	<p>People's livelihood will be improved through the productive use of renewable energy;</p> <p>The RESCO will provide renewable energy services to all the non-electrified households;</p> <p>LGU will have increased capacity to support renewable energy;</p> <p>Diesel consumption would be reduced, so the expenditure on import of petroleum products would be saved;</p> <p>The local health and environmental impacts would be improved;</p> <p>Increased public interests and demand for renewable energy in Palawan;</p> <p>Improved renewable energy information would become available.</p>	<p>People's livelihood will be improved through the productive use of renewable energy;</p> <p>The RESCO will provide more electricity services sooner;</p> <p>4 million gallons (or 15 million litres) of diesel consumption can be reduced, and US\$4.5 million can be saved from diesel import;</p> <p>The local health and environmental impacts would be improved;</p> <p>A sustainable institutional framework – Renewable Energy Center – will build the bridge between LGU, RESCO, and local communities;</p> <p>Increased public demand for renewable energy in Palawan.</p>

(Continued)

Activity	Baseline Costs	Alternative Costs	Incremental Costs
1. Build Capacity for LGU and REC	\$40,000 from LGU (in-kind)	\$160,000	\$120,000: \$110,000 from GEF \$10,000 from LGU (in-kind)
2. Public Awareness Campaign on Renewable Energy	0	\$105,000	\$105,000: \$55,000 from GEF \$50,000 from UNDP
3. Strengthen the capacity of CRREE	0	\$350,000	\$350,000: \$250,000 from GEF \$50,000 from UNDP \$50,000 from LGU (in-kind)
4. Design a Risk Sharing Mechanism to Support RESCO	\$1,550,000: \$1,400,000 from Shell \$150,000 from LGU (cash)	\$1,865,000	\$315,000: \$265,000 from GEF \$50,000 from LGU
Monitoring and Evaluation	0	\$30,000	\$30,000 from GEF
Reporting & Miscellaneous	0	\$40,000	\$40,000 from GEF
TOTAL	\$1,590,000: \$1,400,000 from Shell (cash) \$190,000 from LGU (\$150,000 cash and \$40,000 in-kind)	\$2,550,000: \$750,000 from GEF; \$100,000 from UNDP TRAC; \$300,000 from Palawan Government (\$200,000 cash and \$100,000 in-kind) \$1,400,000 from Shell (cash)	\$960,000: \$750,000 from GEF; \$100,000 from UNDP; \$110,000 from LGU (\$50,000 cash and \$60,000 in-kind)

Annex 2: Palawan New and Renewable Energy and Livelihood Support Project – Project Planning Matrix

Summary	Objectively Verifiable Indicators	Means/Sources of Verification	Important Assumptions
<p>Development Goal The project is aimed to reduce the long-term growth of CO₂ emissions through removing barriers to commercial utilization of renewable energy systems to substitute for the use of diesel generators in Palawan.</p>	<ol style="list-style-type: none"> 1. Decreased diesel consumption for rural electrification; 2. Increased annual installed capacity and share of renewable energy power systems for rural electrification; 3. Increased income of villagers from livelihood support activities of renewable energy use; 4. Commercial operation of renewable energy systems by the Renewable Energy Service Company (RESCO) 	<ol style="list-style-type: none"> 1. Data of diesel consumption for rural electrification from surveys and calculations 2. Data on annual installed capacity and share of renewable energy systems for rural electrification from surveys 3. Data on villagers' income and capability to pay for the renewable energy services from surveys and bill collections 4. Consumers' satisfaction of the services delivered by RESCO through consumer surveys 	<ol style="list-style-type: none"> 1. The Rural Electric Co-operatives are willing to allow the RESCO to provide renewable services within their franchise 2. The RESCO is able to charge and collect a fee for the renewable energy services delivered to cover its costs within existing legal and policy framework 3. Renewable energy services can be provided for productive use; 4. Reliable data from surveys and reports
<p>Project Purpose</p> <ol style="list-style-type: none"> 1. To reduce GHG emissions; 2. To promote commercialization of renewable energy for rural electrification to replace diesel; 3. To reduce consumption and imports of petroleum products; 4. To promote commercial operation of renewable energy systems by RESCO; 5. To improve people's livelihood through productive use of renewable energy; 6. To reduce local health and environmental impacts from diesel consumption 	<ol style="list-style-type: none"> 1. Increased installation and share of rural electrification by renewable energy 2. Decreased diesel consumption and import for rural electrification; 3. Commercial RESCO set up to deliver renewable energy services to all the non-electrified households in Palawan; 4. Increased income of villagers; 5. Reduced local air pollution from diesel consumption 	<ol style="list-style-type: none"> 1. Data on annual installed capacity and share of renewable energy systems for rural electrification from surveys 2. Data of diesel consumption and import for rural electrification from surveys and calculations 3. Number of non-electrified villages using renewable energy services through surveys 4. Consumers' satisfaction of the services delivered by RESCO 5. Data on villagers' income and capability to pay for the renewable energy services from surveys and bill collections 6. Reduced local air pollution from measurements 	<ol style="list-style-type: none"> 1. The Rural Electric Co-operatives are willing to allow the RESCO to provide renewable services within their franchise 2. The RESCO is able to charge and collect a fee for the renewable energy services delivered to cover its full costs within existing legal and policy framework 3. Renewable energy services can be provided for productive use; 4. There is high demand for RESCO services; 5. Reliable data from surveys and reports

Outputs			
<ol style="list-style-type: none"> 1. Increased capacity and recognition of renewable energy and RESCO at the local government level; 2. A range of financial incentives established; 3. A revised Provincial Energy Master Plan; 4. Increased public awareness of renewable energy systems and RESCO; 5. Increased information and services provided to potential investors in renewable energy; 6. A commercial and sustainable RESCO delivery mechanism set up to provide renewable energy services in Palawan; 7. A risk-sharing mechanism established to buy down the risks for the RESCO. 	<ol style="list-style-type: none"> 1. Increased interests in and funding allocation on renewable energy from local governments; 2. Financial incentive policies established for renewable energy developers; 3. Increased share of renewable energy in the revised Provincial Energy Master Plan; 4. Increased public interest and demand for renewable energy systems; 5. Easy access to information and local contacts for renewable energy developers; 6. Increased technical backup available to operators of renewable energy systems; 7. Financial self-sustaining of the RESCO 8. The RESCO will provide reliable renewable energy services on a commercial basis; 9. Cost reduction in renewable energy systems; 10. Increased consumers' capability to pay from the economic activities of renewable energy services; 11. Increased installation of renewable energy systems to all the non-electrified households. 	<ol style="list-style-type: none"> 1. Data on funding allocation from local governments; 2. Financial incentive policies for renewable energy; 3. Revised Provincial Energy Master Plan; 4. Data on annual installed capacity and share of renewable energy systems for rural electrification from surveys 5. Number of non-electrified villages using renewable energy; 6. Increased investment in renewable energy from private sector; 7. Consumers' satisfaction of the services delivered by RESCO through consumer surveys; 8. Less renewable energy systems broken down; 9. The balance sheet of the RESCO 10. Costs of renewable energy systems; 11. Data on villagers' income and capability to pay for the renewable energy services from surveys and bill collections 	<ol style="list-style-type: none"> 1. The RESCO will be able to charge and collect a fee to recover their full economic costs 2. The expected revenues from natural gas will come 3. The financial incentive policies and Provincial Master Plan will be implemented and will not change 4. Improved information and services on renewable energy will promote investment in renewable energy systems from the private sector 5. Renewable energy services can be provided for productive use; 6. The demand for rural electrification services and consumers' satisfaction will determine the fees charged and quality of the services delivered by the RESCO 7. Trained technical staff will remain in position 8. The costs of renewable energy systems will drop with the increasing economy of scale 9. Reliable data from surveys and reports

<u>Activities</u>			
<ol style="list-style-type: none"> 1. Build Capacity for Local Government Units and Rural Electric Co-operatives 2. Public Awareness Campaign on Renewable Energy 3. Establish a Renewable Energy Development Center 4. Design a Risk Sharing Mechanism to Support Renewable Energy Service Company (RESCO) 	<ol style="list-style-type: none"> 1. Increased government funding allocation to renewable energy systems; 2. A range of financial incentives provided to RESCO; 3. Increased share of renewable energy in the revised Provincial Energy Master Plan; 4. Increased public interest and demand for renewable energy systems; 5. Increased information and services available to the potential renewable energy developers; 6. Strengthened link between local governments, RESCO, and local communities; 7. The RESCO will provide reliable renewable energy services on a commercial basis; 8. Financial self-sustaining of RESCO; 9. Cost reduction in renewable energy systems; 10. Increased consumers' capability to pay from the economic activities of renewable energy services; 11. Increased installation of renewable energy systems to all the non-electrified households. 	<ol style="list-style-type: none"> 1. Data on funding allocation from local governments; 2. Financial incentive policies and revised Provincial Energy Master Plan; 3. Data on annual installed capacity and share of renewable energy systems for rural electrification from surveys 4. Number of non-electrified villages using renewable energy; 5. Increased consumer confidence of renewable energy power systems for rural electrification through consumer surveys 6. Increased investment in renewable energy from private sector; 7. Consumers' satisfaction of the services delivered by RESCO through consumer surveys; 8. The balance sheet of the RESCO 9. Costs of renewable energy systems; 10. Data on villagers' income and capability to pay for the renewable energy services from surveys and bill collections 	<ol style="list-style-type: none"> 1. Consumers' willingness and capability to pay is high enough to cover the full economic costs of RESCO 2. The expected revenues from natural gas will come 3. Trained staff will remain in position 4. Improved information and services on renewable energy will promote investment in renewable energy systems from the private sector 5. Renewable energy services can be provided for productive use; 6. The demand for rural electrification services and consumers' satisfaction will determine the fees charged and quality of the services delivered by the RESCO 7. The costs of renewable energy systems will drop with the increasing economy of scale 8. Reliable data from surveys and reports

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25 September 1998

MS. SARAH TIMPSON
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UNDP MANILA	
FILE NO.	PRO-20/ma:sc/Proj.
SEP 07 1998	
ACTION	
<i>[Signature]</i> DRA/RSU	

Dear Ms. Timpson,

We are pleased to endorse herewith a proposal from the Provincial Government of Palawan for GEF Medium Sized Grant entitled "Palawan Renewable Energy and Livelihood Support Project". The Project is to be undertaken in cooperation with the Center for Renewable Resources and Energy Efficiency (CREE).

We have reviewed the concept paper and believe that it has potential for GEF support. We have forwarded some of our initial comments in order to strengthen the proposal and to fill in other important information required by GEF. We have likewise advised the proponent to prepare a proposal for MSP following the prescribed format. Attached is a copy of our preliminary comments on the proposal.

At this point, we would like to seek your assistance in securing GEF eligibility ruling on the concept paper.

Thank you and regards.

Very truly yours,

ELMER S. MERCADO
Undersecretary and
GEF Operational Focal Point

cc: Governor Salvador P. Socrates
Mr. Antonio de Castro, CREE

Undersecretary Ben-hur C. Salcedo
Department of Energy

The Secretariat, Interagency Committee on Climate Change