

ASIAN DEVELOPMENT BANK

TAR: OTH 36259

TECHNICAL ASSISTANCE

(Financed by the Danish Cooperation Fund for Renewable Energy and
Energy Efficiency in Rural Areas)

FOR THE

RENEWABLE ENERGY AND ENERGY EFFICIENCY PROGRAM

FOR THE PACIFIC

April 2003

ABBREVIATIONS

ADB	–	Asian Development Bank
CDM	–	Clean Development Mechanism
GEF	–	Global Environment Facility
ITE	–	international technical expert
NTE	–	national technical expert
PDMC	–	Pacific developing member country
PEPP	–	Pacific Energy Policy and Plan
PICCAP	–	Pacific Islands Climate Change Assistance Program
PIREP	–	Pacific Islands Renewable Energy Project
PREFACE	–	Pacific Rural Renewable Energy France-Australia Common Endeavour
PREGA	–	Promotion of Renewable Energy, Energy Efficiency, and Greenhouse Gas Abatement Projects
TA	–	technical assistance
TOR	–	terms of reference

NOTE

In this report, "\$" refers to US dollars.

This report was prepared by D. Ponzi.

I. INTRODUCTION

1. The Pacific islands region has a high degree of ecosystem and species diversity and is very vulnerable to a wide range of natural and environmental disasters. The region also has a high degree of economic and cultural dependence on the natural environment with an extraordinary diversity of cultures and languages, traditional practices, and customs centered on the marine and coastal environment. The Pacific islands, except for Papua New Guinea, are among the world's smallest and most remote states, and generally have isolated populations living in very low concentrations.

2. Only a few Pacific island communities have access to modern energy sources, and those with access rely heavily on imported fossil fuels. An estimated 70% of the people in Pacific developing member countries (PDMCs) have no access to electricity.¹ For those with access to electricity and transportation, imported petroleum products account for approximately 80% of primary commercial energy consumption. Half the imported petroleum products are consumed by the transport sector and 40% is used in diesel-fired power generation units. Renewable energy, mostly mini-hydro, contributes less than 10% of commercial energy use.

3. A fact-finding mission to Fiji Islands and Samoa was undertaken in May 2002. The mission met with senior government officials, representatives of bilateral and multilateral agencies, and senior staff of major regional agencies,² to discuss the regional technical assistance for the Renewable Energy and Energy Efficiency Program for the Pacific.³ The TA framework is presented in Appendix 1.

II. ISSUES

4. Access to modern forms of energy is an essential prerequisite for economic development and poverty reduction as well as a key determinant of the quality of life and the level of social development. While few data are available on the welfare impacts of different kinds of interventions in the energy sector, development practitioners agree on the links between energy and poverty reduction. The priority for the poor is the satisfaction of their basic human needs, such as food; employment; and access to health, education, housing, water, and sanitation. To meet these needs, access to modern, reliable, and affordable forms of energy is crucial. Therefore, one of the main challenges for a developing country is to increase energy availability in a cost-effective way.

5. The cost of providing energy is very high because consumers are dispersed and domestic markets are small. Despite the high cost, however, consumption of energy is expected to increase as PDMCs develop and modernize. In some of the less developed countries, such as Kiribati, Papua New Guinea, Solomon Islands, Timor-Leste, Tuvalu and Vanuatu, it is imperative, in order to improve access to basic services, to increase availability of modern energy supply. The outer island communities are the most disadvantaged because of their remote and isolated locations. The cost of conventional energy in these countries is 3-4 times that in PDMC capital cities, and is higher than in neighboring industrialized countries such as Australia and New Zealand. Because the level of energy consumption depends on the

¹ Forum Secretariat. 2001. Communiqué of the 30th Pacific Islands Forum, Nauru. ForSec: Suva, Fiji Islands.

² Regional bodies consulted include South Pacific Regional Environment Programme (SPREP), South Pacific Applied Geosciences Commission (SOPAC), Secretariat of the Pacific Community (SPC), Forum Secretariat, University of the South Pacific (USP), World Meteorological Organization (WMO).

³ The TA is included in the 2003 regional TA program and the TA first appeared in *ADB Business Opportunities* (Internet edition) on 13 June 2002.

available energy services and their affordability, energy supply costs are critical for poverty alleviation.

6. In almost all PDMCs, renewable energy sources in the form of hydropower, wind, solar, biofuel, geothermal, ocean thermal, and wave/tidal energy hold high potential for contributing to sustainable development. This is particularly true in the remote rural areas, as renewable energy will reduce the dependence on fossil fuel for power generation and transportation. Greater use of renewable energy use, coupled with improved energy efficiency, offer PDMCs a major avenue toward meeting their energy requirements. In addition, as most of the islands are well endowed with a good renewable resource base, renewable energy technologies are potentially highly competitive with conventional energy, especially when environmental externalities are factored into the analysis.

7. Through the past 3 decades, many funding agencies have provided substantial technical and financial support to renewable energy and energy efficiency projects in the Pacific region, but in a rather fragmented and discontinuous way. Most initiatives were implemented as top-down, supply-driven demonstration/pilot projects, with the environmental benefits usually representing the main, and often the only, justification. While the establishment of appropriate institutional arrangements as well as a suitable enabling policy and private sector environment was identified as an important priority area, most of the projects had poorly designed non-priority project components. Additional reasons for project failures are (i) unrealistic and often too ambitious project goals and objectives; (ii) immediate objectives and outputs too far-fetched and generalized; (iii) project activities and objectives often incompatible with existing policies, socioeconomic structures, and sociocultural traditions; (iv) lack of appreciation of local capacities and opportunities, as well as proper analysis of constraints and limiting factors with respect to the local private sector, household level participation, and local public and private institutions; (v) grant-funded supply of project equipment with resulting low sense of ownership; and (vi) insufficient support to improve policy frameworks at the country level.

8. The many remaining issues include: (i) insufficient understanding and awareness of the potentials of renewable energy and energy efficiency resources; (ii) inadequate institutional capacities and technical expertise to plan, manage, and maintain renewable energy and energy efficiency programs; (iii) the absence of a clear market-based policy, legislation, and regulatory framework; (iv) a lack of confidence in renewable energy and energy efficiency technologies by the main stakeholders due to the very limited success of technology demonstration programs; (v) limited policy commitment and financial support to the sector; and (vi) over-reliance on external aid-funded projects.

9. The main programs currently under implementation incorporate some of the lessons learned from past projects. Among these are two recent initiatives, the Pacific energy policy and plan (PEPP) developed by the Committee of Regional Organizations of the Pacific (CROP)⁴ and the Pacific Islands Renewable Energy Project (PIREP) supported by the United Nations Development Programme (UNDP) and Global Environmental Facility (GEF). PIREP⁵ builds on work undertaken under the Pacific Island Climate Change Assistance Program (PICCAP) and aims at supporting regional and national interventions that remove barriers to renewable energy development and facilitate promotion, use, and commercialization of renewable technologies

⁴ The CROP Energy Working Group comprises Pacific Islands Forum Secretariat (FORSEC), Pacific Power Association (PPA), Secretariat of the Pacific Community (SPC), South Pacific Applied Geoscience Commission (SOPAC) South Pacific Community (SPC), University of the South Pacific (USP) and the United Nations Development Programme.

⁵ PIREP covers 14 countries and has a duration of 18 months with a budget of US\$840,000. Implementation started in August 2002.

through the establishment of a suitable enabling environment. The South Pacific Applied Geoscience Commission (SOPAC) also implements a number of energy and renewable energy programs in: (i) energy resource assessment (wind, biomass, ocean-based resources, and geothermal); (ii) energy conservation, efficiency, and demand-side management; and (iii) energy and environment education through a new postgraduate course in wind energy at the University of South Pacific (USP). Another ongoing program is the Pacific Rural Renewable Energy France-Australia Common Endeavour (PREFACE).⁶ Its goal is to increase utilization of Renewable Energy sources, in particular solar photovoltaic and wind energy, through the development of country-level sustainable financial and management arrangements. Finally, since 2001, the Asian Development Bank (ADB) with cofinancing from the Government of the Netherlands, is implementing in the Asia-Pacific region a TA for promoting renewable energy, energy efficiency, and greenhouse gas abatement projects.⁷ The TA supports renewable energy and energy efficiency development through among others, removal of policy and institutional barriers; preparation of renewable energy and energy efficiency country strategies, programs and work plans; generation of a pipeline of investment projects for consideration for financing; and development of financial schemes.

10. This TA will build on the results of PIREP, PREFACE, the ADB TA (footnote 7), and other projects in the region by supporting the establishment in two PDMCs of an appropriate environment for the development of a demand-driven and private-sector-based energy market. The TA, by focusing on removing barriers and allowing fair competition in only two PDMCs, will use a systematic, medium-term and in-depth assistance approach, in which the use of renewable energy and energy efficiency will be a major pillar. In this way, the TA will address most of the current constraints to development of renewable energy and energy efficiency, (para. 8) and will support the ultimate goal of significantly increasing PDMCs' rural community access to commercially viable energy services.

III. THE TECHNICAL ASSISTANCE

A. Purpose and Output

11. The purpose of the TA is to help create an environment that will enable the development of a market-based rural energy sector, in which mature renewable energy and energy efficiency applications play a key and increasing role. This process will involve the development of the required policy, legal, and institutional framework. The TA will also facilitate mobilization of external financing by building a pipeline of potential renewable energy and energy efficiency projects for funding/cofinancing by ADB, GEF, and/or other sources.

12. The outputs in the two selected PDMCs will include (i) review of, consultations on, and dissemination of lessons from past renewable energy and energy efficiency assistance in the Pacific; (ii) an action plan for the adoption of appropriate policies, institutional arrangements, legal/regulatory measures, and financial schemes including venture capital, as well as private sector and household-level incentive mechanisms for promoting commercially viable renewable energy and energy efficiency services; (iii) a training needs analysis and training curricula for private and public sector key players in the two PDMCs; (iv) a pipeline of projects for funding by ADB, GEF, and/or other relevant financing sources; and (v) based on outcomes and progress made in the two selected countries, final consultations and dissemination of lessons learned

⁶ PREFACE, a program implemented by SPC and started in 2000 is jointly funded by France and Australia, and has a 3-year duration with a budget of A\$3 million.

⁷ ADB. 2001. *Promotion of Renewable Energy, Energy Efficiency, and Greenhouse Gas Abatement Projects (PREGA)*. Manila. (Samoa is the only PDMC participating in the PREGA project.)

from the TA to other PDMCs with a focus on establishing policy frameworks, building capacity, and replicating/disseminating good practices.

B. Methodology and Key Activities

13. Through the provision of technical support to the national implementing agency and a high level TA steering committee in each of the two participating PDMCs, the TA will introduce an effective approach for creating a policy environment enabling a demand-driven private sector market for rural energy services. In relation to this, the TA will develop local capabilities in the necessary policy, institutional, and legal/regulatory reforms. To avoid overlapping activities and replication of past mistakes, the TA will conduct, during inception, a comprehensive stocktaking of prior and ongoing related to renewable energy and energy efficiency initiatives in the region, as well as closely coordinate, during the implementation period, with other ongoing programs. During inception, the TA will establish solid links with existing country-level committees, working groups, and country teams, such as PICCAP country team, PIREP country teams, etc. Moreover, to ensure continuity and momentum of progress, the TA will generate a pipeline of rural energy projects based on renewable energy and energy efficiency, for possible financing by ADB, GEF, and/or other sources, even before termination of the TA. To ensure full commitment and TA success, the selected PDMC governments will prepare and issue a Cabinet-approved development policy letter on renewable energy and energy efficiency before activities start at the country level. This document will demonstrate the relevant governments' willingness and commitment to (i) give high priority to the TA and take ownership of its approach and methodology, (ii) designate a national implementation agency to coordinate TA activities, (iii) constitute a high-level TA steering committee with representation from all relevant stakeholders, and (iv) provide counterpart staff and other inputs in kind.

14. The TA activities are those required to achieve TA outputs as given in paragraph 12, plus, development of appropriate institutional arrangements, necessary regulatory and legal framework, and a system of financing schemes targeted at both private sector and household end-users. Details of key activities are given in Appendix 2.

C. Cost and Financing

15. The total cost of the TA is estimated at \$750,000. ADB will administer an amount of \$600,000 to be financed on a grant basis from the Danish Cooperation Fund for Renewable Energy and Energy Efficiency in Rural Areas. The two participating PDMCs will provide \$150,000 equivalent as counterpart financing. Detailed cost estimates and financing arrangements are presented in Appendix 3.

D. Implementation Arrangements

16. The TA will be executed by ADB over an estimated 24-month period, to commence in June 2003 and be completed by May 2005. ADB's Pacific Department will be responsible for overall coordination of TA implementation, and the ADB's Renewable Energy, Energy Efficiency and Climate Change (REACH) Committee will provide advisory guidance. A National implementing agency will implement TA activities in each participating PDMC.

17. The TA will be implemented in two phases.

18. The inception phase (4 months) will include: (i) review of past and ongoing initiatives related to Renewable Energy and Energy Efficiency in the region (PIREP, PREFACE, PREGA, etc); (ii) development of selection criteria, selection of the two participating PDMCs, and

preparation and Cabinet endorsement of a development policy letter on renewable energy and energy efficiency; (iii) preparation of a pipeline of renewable energy and energy efficiency projects for funding/cofinancing by ADB/GEF/CDM, and/or other sources, to follow up on the outcomes of this TA; (iv) in each participating PDMC, support for the identification of the national implementing agency, the establishment of the TA steering committee, and the selection of the national technical expert (NTE); and (v) preparation of and agree on detailed TA implementation plans and work programs. Each PDMC selected to participate in the TA will have confirmed in writing to ADB that it does not object to its participation in the TA, including to its participation to the financing of the TA as described in paragraph 15.

19. The main implementation phase (20 months) will include: (i) implementation of all key activities listed in paragraph 14 and Appendix 2; (ii) proactive participation in related national and regional workshops to disseminate information pertinent to renewable energy and energy efficiency, exchange of good practices and analytical work results, and collaboration on specific activities; (iii) facilitation of continued financing for renewable energy and energy efficiency projects after TA completion; and (iv) by the end of TA implementation, dissemination of lessons learned via a regional workshop and a non technical publication.

20. TA implementation will be assisted by a team of international (17 person-months) and domestic consultants (36 person-months), recruited through a consulting firm. The consultants will include (i) one international technical expert, (the Team Leader) with expertise in renewable energy and energy efficiency energy policy in small island countries, (ii) two short-term international technical experts, with expertise in developing financing models and designing and introducing technical norms and certification schemes, and (iii) two national technical experts (NTEs), 18 person-months per PDMC (36 person-months total), with experience in rural, renewable energy and energy efficiency energy projects. The two NTEs will be recruited after selection of the two participating PDMCs, and subject to ADB's approval. Staff from the national implementing agencies will also support TA implementation. In addition, one assistant project manager (12 person-months), with expertise in energy, environment, and managing and coordinating ADB TA projects will be recruited by ADB in the Philippines, to assist in overall project management and implementation. All consultants will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for the engagement of domestic consultants. Outline terms of reference for the consultants as well as reporting requirements are presented in Appendix 4. Given the innovative approach, methodology, and Terms of Reference, required for effective TA implementation, the consulting firm will be selected through the full technical proposal and the quality- and cost-based selection methods.

IV. THE PRESIDENT'S DECISION

21. The President, acting under the authority delegated by the Board, has approved ADB administering technical assistance in an amount not exceeding the equivalent of \$600,000 to be financed on a grant basis by the Danish Cooperation Fund for Renewable Energy and Energy Efficiency in Rural Areas for the Renewable Energy and Energy Efficiency Program for the Pacific, and hereby reports this action to the Board.

TECHNICAL ASSISTANCE FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Goals</p> <p>1. Rural populations in the Pacific Developing Member Countries (PDMCs) have access to commercially viable energy services using mature renewable energy and energy efficiency applications.</p> <p>Purpose</p> <p>1. Create an environment conducive for a demand-driven and private sector based market for rural energy services in two PDMCs with Renewable Energy and Energy Efficiency playing a major role.</p> <p>Outputs</p> <p>1. A comprehensive stocktaking and lessons</p>	<p>By year 2017, i.e. about 10 years after attainment of Purpose:</p> <p>a. At least 50% of rural and outer islands population in two PDMCs have access to affordable modern forms of energy.</p> <p>b. Significantly increased number and enhanced productivity of small and medium enterprises in rural communities.</p> <p>c. Increased energy consumption by rural population does not correspondingly increase PDMC's dependency on imported energy.</p> <p>By May 2007, i.e. within 2 years of successful delivery of all outputs</p> <p>(i) Appropriate policies and strategies, institutional arrangements, and a regulatory and legal framework for creating a demand driven, private sector-based market place for rural energy services are in place; and</p> <p>(ii) sufficient institutional and organizational capacity exists at all relevant levels.</p> <p>By end of TA (2005)</p> <p>(i) Stocktaking report completed and included in</p>	<ul style="list-style-type: none"> • Records on energy use in rural areas • National economic and private sector development reports • Records of government's imports of energy • Asian Development Bank (ADB) project post-evaluation report and Country Strategy and Program Update inputs • Policy documents from relevant ministries. • Evidence that appropriate institutions are formally established. • Evidence that regulatory and legal framework models have been developed and adopted. • Evaluation reports from training sessions. • Asian Development Bank (ADB) Technical Assistance (TA) completion report • ADB Review mission • Progress in inception activities. 	<ul style="list-style-type: none"> • PDMCs are willing to initiate the necessary supporting policy and institutional reform programs. • Political commitment to allow private sector to play a major role in provision of rural energy services. • All major renewable energy and energy

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>learned review in the renewable energy and energy efficiency sector.</p> <p>2. Policy measures conducive for commercialization and privatization of delivery of rural energy services are developed. Adoption of action plan for the establishment of the proposed policy framework.</p> <p>3. Appropriate institutional arrangements developed. Adoption of related action plan.</p> <p>4. Regulatory and legal framework prepared and possibly adopted. An action plan prepared for adoption.</p> <p>5. A detailed concept and modalities for initiation of appropriate financing schemes have been prepared.</p>	<p>the inception report.</p> <p>(ii) A “Renewable Energy Development Policy Letter” is issued before end of inception phase.</p> <p>(iii) Target PDMC governments have adopted an action plan for the establishment of appropriate and conducive policies and strategies.</p> <p>(iv) Identification of a national implementation agency and establishment of TA steering committee in each participating PDMC.</p> <p>(v) Appropriate institutional arrangements are developed in public and private sectors.</p> <p>(vi) Adequate industry associations are established.</p> <p>(vii) Regulatory and legal frameworks and related action plan have been developed and adopted.</p> <p>(viii) Financing schemes prepared and agreed among all key stakeholders.</p> <p>(ix) Memorandum of Understanding on modalities of financing mechanisms between</p>	<ul style="list-style-type: none"> • Quality and coverage of the inception report. • Development policy commitment letter • TA progress reports and ADB review mission reports • Policy decisions by target PDMC governments. • Evidence that specific institutions, agencies, and associations have been established. • Tangible regulatory and legal framework models are developed. • Concept papers for financing mechanisms. • Training Needs Analysis, curricula and training evaluation reports completed. 	<p>efficiency stakeholders and institutional players share and learn main lessons from the stocktaking exercise.</p> <ul style="list-style-type: none"> • Private sector perceives the project as beneficial and profitable. • Clients will pay for modern energy services. • Cooperation of local industries • Minimal bureaucratic hindrances and delays. • Sufficient political will.

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>6. Training needs assessment, curricula, and facilitation of training conducted.</p> <p>7. Prepare a pipeline of projects for energy services based on renewable energy and energy efficiency in the two targeted PDMCs.</p> <p>8. Dissemination of lessons learned.</p>	<p>mechanisms between renewable energy and energy efficiency industries, and local financial institutions.</p> <ul style="list-style-type: none"> • Training Needs Analysis, curricula and training evaluation prepared. <p>(x) Projects outline for at least two major renewable energy and energy efficiency based rural energy projects in each target PDMC, including preparation of concept papers and Project Development Financing-Block B proposals.</p> <p>(xi) Proactive participation in regional workshops and seminars.</p> <p>(xii) Workshop session at end of TA period.</p>	<ul style="list-style-type: none"> • Project concept papers and Project Development Financing-Block B Proposals prepared. • Workshop proceedings and presentations. • Continuity of process toward financing/cofinancing by ADB/Global Environment Facility/Clean Development Mechanisms of pipeline projects. • Project management progress reports. • ADB project/TA postevaluation reports. • ADB TA completion report. • ADB review missions. 	
<p>Activities</p> <p>1. Preparation of stocktaking review.</p> <p>2. Policy strategies and incentives:</p> <p>a. Prepare and issue development policy commitment letter.</p> <p>b. Develop and describe</p>	<p>(Times are indicated as months from project start date)</p> <p>a. Start: M1 (Inception) Complete: M3 Responsibility: NIA</p> <p>b. Start: M5 Complete: M12 Responsibility: NIA/TA Steering Committee</p> <p>c. Start: M1</p>	<ul style="list-style-type: none"> • ADB quarterly project performance reports. • TA inception report. • TA consultants progress reports. • TA interim report. • Close supervision of ADB staff. 	<ul style="list-style-type: none"> • Target PDMC governments give genuine priority to the projects rationale; take ownership over its approach and methodology; and cooperate actively in its implementation by allocating the necessary human, organizational, and

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>objectives and modalities of new policy interventions.</p> <p>c. Direct assistance to the policy/strategy development process.</p> <p>d. Definition, formation and initiation of working groups to substantiate and implement the various elements in the overall national policy/strategy.</p> <p>e. Ensure conformity of policy measures with eligibility criteria's of renewable energy and energy efficiency and climate change funding mechanisms (ADB/GEF/CDM and others).</p> <p>3. Establishment of an appropriate institutional framework:</p> <p>a. Identify and organize relevant local industries in a branch organization.</p> <p>b. Establish or reform essential public and semi-public institutions to pilot and provide technical and financial support to the emergence and sustainable operation of a commercial market for rural energy services.</p> <p>4. Regulatory framework establishment:</p> <p>a. Develop technical norms and standards for equipment and systems.</p> <p>b. Develop codes of practice for installation, operation, maintenance, and servicing of equipment.</p> <p>c. Develop certification scheme for practitioners, for individuals (technicians,</p>	<p>Complete: M24 Responsibility: TA</p> <p>d. Start: M5 Complete: M8 Responsibility: NIA</p> <p>e. Start: M8 Complete: M12 Responsibility: TA</p> <p>f. Start: M4 Complete: M6 Responsibility: NIA (TA)</p> <p>g. Start: M5 Complete: M20 Responsibility: NIC</p> <p>a. Start: To be determined (TBD) during inception Complete: TBD during inception Responsibility:</p> <p>b. Start: TBD during inception Complete: TBD during inception Responsibility: TBD during inception</p> <p>a. Start: M4 Complete: M6 Responsibility:</p> <p>b. Start: TBD DI Complete: TBD DI Responsibility: TBD DI</p> <p>c. Start: TBD during</p>	<ul style="list-style-type: none"> • TA consultants final report. • ADB mission reviews. <p>To be determined during inception</p> <p>To be determined during inception</p> <p>To be determined during inception</p> <p>To be determined during inception</p> <p>To be determined during inception</p> <p>To be determined during inception</p> <ul style="list-style-type: none"> • ADB quarterly project performance reports. • TA inception report. • TA consultants' progress reports. 	<p>financial resources.</p> <ul style="list-style-type: none"> • Private sector industries perceive the opportunity in the market and are willing and have the capacity to engage. • Local financial institutions perceive the business aspects and engage proactively in the development of financing mechanisms. • Target PDMC governments give genuine priority to the projects' rationale, take ownership over its approach and methodology, and cooperate actively in its implementation by allocating the necessary human,

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>engineers, planners, etc) and for industries (suppliers).</p> <p>d. Prepare legal norms for the institutional linkages (sales and service contracts, loan agreements, etc), in order to instill confidence between the various stakeholders and investors.</p> <p>5. Financing schemes development:</p> <p>a. Assess the financial barriers facing the private industry and the end users of energy services</p> <p>b. Conceptualize sustainable financing mechanism for private sector, that are based on normal commercial business relations between private ventures and financial institutions.</p> <p>c. Conceptualize micro-credit schemes for end-users.</p> <p>d. Discuss and agree financing concepts with financial sector.</p> <p>6. Capacity building:</p>	<p>inception Complete: TBD during inception Responsibility: TBD during inception</p> <p>d. Start: TBD during inception Complete: TBD during inception Responsibility: TBD during inception</p> <p>a. Start: To be determined during inception Complete: To be determined during inception Responsibility: To be determined during inception</p> <p>b. Start: To be determined during inception Complete: To be determined during inception Responsibility: To be determined during inception</p> <p>c. Start: To be determined during inception Complete: To be determined during inception Responsibility: To be determined during inception</p> <p>d. Start: To be determined during inception Complete: To be determined during inception Responsibility: To be determined during inception</p>	<ul style="list-style-type: none"> • TA interim report. • Close supervision by ADB staff. • TA consultants final report. • ADB mission reviews. <p>To be determined during inception</p> <p>To be determined during inception</p> <p>To be determined during inception</p> <p>To be determined during inception</p> <p>To be determined during inception</p>	<p>organizational and financial resources.</p> <ul style="list-style-type: none"> • Private sector industries perceive the opportunity in the market and are willing and have the capacity to engage. • Local financial institutions perceive the business opportunities and engage proactively in the development of financing mechanisms. • Target PDMC governments give high priority to the rationale, take ownership over its approach and methodology, and cooperate actively in its implementation by allocating the necessary human,

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>a. Training needs assessment in private and public sectors.</p> <p>b. Develop curricula</p> <p>c. Identify and contract appropriate training institutions and trainers.</p> <p>7. Prepare a pipeline of ADB/GEF renewable energy and energy efficiency initiatives for ADB/GEF funding:</p> <p>a. Identify and outline appropriate projects</p> <p>b. Prepare project Concept Papers in close consultations with Global Environmental Facility Focal Points and energy projects country teams in each target PDMC</p> <p>c. Prepare Project Development Financing-Block B proposal for each project.</p> <p>8. Disseminate activities</p> <p>a. Synchronize activities with impending ADB/GEF/CDM project</p>	<p>a. Start: M1 Complete: M4 Responsibility: TA</p> <p>b. Start: To be determined during inception Complete: To be determined during inception Responsibility:</p> <p>c. Start: To be determined during inception Complete: To be determined during inception Responsibility: To be determined during inception</p> <p>a. Start: To be determined during inception Complete: To be determined during inception Responsibility: To be determined during inception</p> <p>b. Start: To be determined during inception Complete: To be determined during inception Responsibility: To be determined during inception</p> <p>c. Start: M22 Complete: M24 Responsibility:</p> <p>a. Start: To be determined during inception Complete: To be determined during inception</p>	<ul style="list-style-type: none"> • ADB quarterly Project Performance Reports. • TA inception report. • TA consultants' progress reports. • TA interim report. • Close supervision of ADB staff. • TA consultants' final report. • ADB mission reviews. <p>To be determined during inception</p> <p>To be determined during inception</p> <p>To be determined during inception</p> <p>To be determined during inception</p>	<p>organizational and financial resources.</p> <ul style="list-style-type: none"> • Private sector industries perceive the opportunity in the market and are willing and have the capacity to engage. • Local financial institutions perceive the business aspects and engage proactively in the development of financing mechanisms.

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>b. Participate in workshops and seminars</p> <p>c. Workshop session at end of project.</p> <p>Inputs</p> <ul style="list-style-type: none"> • \$600,000 • \$150,000 • International Consultants • Domestic Consultants • Assistant TA manager • ADB Staff (TA project manager) 	<p>determined during inception Responsibility: To be determined during inception</p> <p>b. Start: To be determined during inception Complete: To be determined during inception Responsibility: To be determined during inception</p> <p>c. Start: To be determined during inception Complete: To be determined during inception Responsibility: To be determined during inception</p> <ul style="list-style-type: none"> • ADB (Danish Cooperation Fund for Renewable Energy and Energy Efficiency in Rural Areas) • Participating PDMCs • 17 person-months • 36 person-months • 12 person-months • 4 person-months 	<p>To be determined during inception</p> <p>To be determined during inception</p> <ul style="list-style-type: none"> • Consultants progress reports Inception report Midterm report Interim report Final Report TA review missions 	<ul style="list-style-type: none"> • Timely disbursements, and PDMC support • Competent consultants with demonstrated ability hired

TECHNICAL ASSISTANCE KEY ACTIVITIES

The Technical Assistance (TA) will implement the following activities:

- (i) The TA will prepare, discuss, and disseminate lessons from the past through a stocktaking review of past renewable energy and energy efficiency assistance in the Pacific.
- (ii) The TA will develop and prepare an action plan for the adoption of an appropriate policy framework, including a system of incentives promoting commercialization and privatization of renewable energy and energy efficiency services. Toward this goal, the TA will (a) during the inception phase, assist the participating Pacific developing member countries (PDMCs) to prepare and issue a development policy letter on renewable energy and energy efficiency; (b) develop and identify objectives and modalities of new policy interventions; (c) provide direct assistance to the policy/strategy development process, as requested and required by the countries; (d) facilitate definition, formation, and initiation of working groups responsible to substantiate and implement the new policy directions; and (e) ensure conformity of policy measures with eligibility criteria of renewable energy and energy efficiency and climate change funding/cofinancing sources, such as, Asian Development Bank (ADB), Clean Development Mechanism (CDM), Global Environmental Facility (GEF), and others.
- (iii) The TA will develop and prepare an action plan for the establishment of appropriate institutional arrangements by (a) facilitating, establishing, or reforming essential public and semi-public institutions to pilot and provide technical and financial support to the emergence and sustainable operation of a commercial market for renewable energy and energy efficiency services; and (b) identifying and organizing relevant local renewable energy and energy efficiency services and manufacturing industries in a central organization/network, which will represent the private sector. The industries association will, among other things, share with government agencies the responsibility for developing institutional, regulatory, and legal frameworks and mechanisms.
- (iv) The TA will develop and prepare an action plan for the adoption of the necessary regulatory and legal framework by supporting (a) development of technical norms and standards for equipment and systems; (b) development of codes of practice for installation, operation, maintenance, and servicing of equipment and services; (c) development of certification schemes for practitioners that are individuals (technicians, engineers, planners, etc) or industries (suppliers); and (e) preparation of legal models/formats covering the supply-demand institutional linkages (sales and service contracts, loan agreements, etc).
- (v) The TA will develop a system of financing schemes targeted at the private sector and household end-users by (a) assessing financial barriers constraining investment decisions and facing the private sector and end-users of energy services; (b) establishing sustainable financing mechanisms for the private sector, based on standard commercial business practices between private ventures and financial institutions; (c) developing microcredit schemes for end-users; and (d) consulting and reaching consensus on all proposed financing aspects with the finance and banking sector.

- (vi) The TA will support capacity building and training development through: (a) preparation of the training needs analysis of the key private and public sector stakeholders; (b) curriculum development; and (c) identification of appropriate training institutions and trainers.
- (vii) The TA will prepare a pipeline of renewable energy and energy efficiency projects to be potentially funded by ADB/GEF/CDM or other funding sources, by (a) identifying and outlining, during inception, an appropriate pipeline of projects; (b) preparing project profiles/concept papers in close consultation with ADB staff as well as with ADB country program officers and GEF/CDM focal points in each target PDMC; and (c) preparing GEF block B grant applications and/or other required initial project preparation documents to follow-up on other funding sources opportunities.
- (viii) The TA will consolidate and disseminate lessons learned by (a) working in parallel and sharing approaches with ongoing renewable energy and energy efficiency and other rural energy TA programs and projects, (b) proactively participating in relevant workshops and seminars during the TA implementation period, (c) organizing and holding a final TA workshop session to share TA results and lessons with other PDMCs, and (d) preparing and distributing an ADB publication with all major lessons from TA implementation including a projects pipeline for future funding.

COST ESTIMATES AND FINANCING PLAN
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Item	Total Cost
A. Asian Development Bank^a	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	320,000
ii. Domestic Consultants	132,000
b. International and Local Travel	30,000
2. Reports, Communications, and Publications	8,000
3. Regional Seminars and Workshops	30,000
4. Contingencies	80,000
Subtotal (A)	600,000
B. PDMC Financing^b	
1. Remuneration and per diem of counterpart staff	90,000
2. Administrative Support	60,000
Subtotal (B)	150,000
Total	750,000

PDMC = Pacific developing member country

^a Financing by the Danish Cooperation Fund for Renewable Energy and Energy Efficiency in Rural Areas

^b Each of the two participating PDMCs financing 50% of the amounts indicated.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Scope of Work

1. The Technical Assistance will be implemented by six consultants: one international consultant (team leader); one domestic consultant locally recruited in the Philippines (assistant project manager); two domestic consultants (one national technical expert [NTE] in each participating Pacific developing member country [PDMC]); and two short-term international consultants (financial expert and norms and standards expert). The TA is divided in two phases: inception and implementation. Key TA activities are described in Appendix 2.

2. The international consultants will be responsible for all the outputs included in the Terms of Reference (TOR), and in the key activities listed in Appendix 2. They will coordinate preparation and finalize (i) the inception report (including detailed TOR, activities, revised TA framework, TA reports outlines, and work plan) by the end of week 4; (ii) the midterm report (including the stock taking report) by the end of month 8; (iii) the second midterm report by end of month 16; and (iv) the final report by the end of month 23. Report outlines will be discussed and agreed upon with the Asian Development Bank (ADB) TA project specialist at TA implementation start-up. Outlines of the midterm reports and the final report will be agreed upon during inception.

3. During the inception phase, the TA will primarily focus on five activities: (i) stocktaking of prior and ongoing initiatives related to renewable energy and energy efficiency in the region (Pacific Islands Renewable Energy Project, Pacific Rural Renewable Energy France-Australia Common Endeavor, etc); (ii) develop selection criteria and select the two target PDMCs; (iii) assist the selected PDMCs to develop and issue a development policy letter on renewable energy and energy efficiency; (iv) in close coordination with the existing country level energy projects team (e.g. PIREP energy country team), establish an effective project implementation structure within the national implementing agency in each PDMC and develop detailed project implementation plans and arrangements; (v) recruit the 2 NTEs for the two participating PDMCs, and (vi) identify and prepare an initial pipeline of appropriate renewable energy and energy efficiency projects for funding by ADB, Global Environmental Facility (GEF), Clean Development Mechanism (CDM) and other funding sources. The inception phase will last for 4 months. In relation to technology choices, a holistic approach should be adopted while avoiding any bias toward solar photovoltaic, wind, biomass, grid extension, or any other particular technology. The applicable type of technology to meet this goal should be chosen freely from site to site, based on a lifetime least-cost analysis that weighs all relevant technologies against each other, and with due consideration for major issues such as sustainable operation and maintenance mechanisms, existing and planned infrastructure; financing schemes and subsidies; and economic, environmental, and social impacts at both local, national, and global level.

4. The implementation phase (20 months) will include all the TA activities remaining to realize the necessary set of policies and workable delivery mechanisms for providing commercially viable rural energy services. Further, in preparing the projects pipeline for funding by ADB/GEF/CDM and other sources, the TA will, within the first few months of the implementation phase, produce concept papers and Project Development Financing-Block B proposals for such projects. The succeeding ADB/GEF/CDM funded projects are to tentatively commence 3-4 months prior to termination of the TA, which will allow a period of parallel operation, with synchronization and handing-over of lessons learned. Sustainability of project outputs is further secured via a workshop by the end of the TA period.

5. TA implementation will be assisted by a team of international (17 person-months) and domestic (36 person-months) consultants, recruited through a consulting firm, and consisting of

(i) one international technical expert (ITE), team leader, with expertise in renewable energy and energy efficiency policy in small island countries, institutional arrangements, regulatory and legal frameworks, and private sector participation; (ii) two short-term ITEs, with expertise in developing financing models and designing and introducing technical norms and certification schemes; and (iii) two NTEs, (18 person-months per PDMC, 36 person-months total), with experience in rural energy, renewable energy and energy efficiency projects and comprehensive knowledge of relevant national policies, institutional arrangements, and private sector aspects. The two NTEs will be recruited after selection of the two participating PDMCs, and subject to ADB's approval. Staff from the implementing agencies will also support TA implementation. In addition, one assistant project manager (12 person-months), with expertise in energy, environment, and managing and coordinating ADB TA projects will be recruited by ADB in the Philippines to assist in overall TA management and coordination of TA implementation. All consultants will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for the engagement of domestic consultants. Given the level of innovativeness required for effective TA implementation, with respect to approach, methodology and TORs, the consulting firm selection process will follow the full technical proposal and the quality- and cost-based selection methods.

B. Terms of Reference

1. International Consultants (17 person-months)

a. Renewable Energy and Energy Efficiency Economist and Policy Specialist (Team Leader)

6. The specialist will do the following:

- (i) Manage and coordinate overall TA implementation by preparing and completing TA reports as required (inception, midterm, interim, and final); developing a structure of work for the two phases of the TA, including work plans, timelines, and detailed cost estimates; briefing stakeholders on the TA implementation (ADB, development partners such as United Nations Development Programme (UNDP) and GEF, and regional organizations such as the Council of Regional Organizations of the Pacific-Energy Work Group (CROP-EWG); South Pacific Regional Environment Programme (SPREP); and South Pacific Applied Geosciences Commission (SOPAC) consulting and working with the national implementing agency and the TA steering committee in the two target PDMCs.
- (ii) Review and analyze previous and ongoing Renewable Energy and Energy Efficiency activities to take stock of progress achieved and lessons learned regarding technology use, program replication, and sustainability of inputs and outputs; and identify market, policy, financial, and technical barriers to renewable energy and energy efficiency technologies, especially taking into account the Pacific Islands Renewable Energy Project (PIREP) and its initial progress.
- (iii) Based on the results of the review, develop specific requirements and criteria for selecting target PDMCs for this TA, and consult with country-level energy agencies, other energy projects country teams and national GEF focal points on the TA approach. Based on the consultations, validate inputs and finally propose two participating countries to be selected for implementation of the TA.
- (iv) Identify and select an NTE in each participating PDMC and comprehensively introduce them to the TA and their specific roles and responsibilities. Develop detailed implementation plans and arrangements.

- (v) Together with the NTEs, assist the two participating PDMCs to develop and issue a development policy letter on renewable energy and energy efficiency manifesting the countries' commitments to (i) give genuine priority to the TA's rationale and take ownership over its approach and methodology, (ii) designate an appropriate national implementation agency to coordinate TA activities, (iii) constitute a TA steering committee with representation from all relevant stakeholders, and (iv) provide counterpart contributions.
- (vi) Directly and through the NTE, introduce the national implementation agency and the TA steering committee in the selected PDMCs to a conceptual approach to the creation of an environment enabling a market for rural energy services that is demand-driven and based on the private sector, and guide the PDMCs, through the development and implementation of an appropriate action plan in the process of adapting the approach to local socioeconomic and cultural conditions.
- (vii) Directly and through the NTE, enhance local capability within the national implementing agency and the TA steering committee in developing and implementing the action plans for the necessary policy reforms, institutional measures, and regulatory legal frameworks.
- (viii) Prepare a needs assessment and detailed TOR for the short-term ITE on financing mechanisms.
- (ix) Prepare a needs assessment and detailed TOR for the short-term ITE on development of technical standards and certification schemes.
- (x) In close consultations with national GEF focal points, Pacific Islands Climate Change Assistance Program (PICCAP) country teams, and other energy projects country teams, identify project opportunities, outline and prepare concept papers and Project Development Financing-Block B proposals, and help prepare (including initial financial and economic analysis) an appropriate pipeline of renewable energy and energy efficiency projects for financing/cofinancing by ADB/GEF/CDM and other funding sources.
- (xi) Coordinate a final workshop to present, discuss, and disseminate lessons and good practices from TA implementation.
- (xii) Other tasks as developed and agreed during inception.

b. Renewable Energy and Energy Efficiency Financing Schemes Specialist

7. The specialist will do the following:

- (i) In the target PDMCs, prepare an overview of the financial sector's relevance to the energy market and identify commercial banks with relevant experience and/or potential to participate in (a) microfinancing schemes for end-users (rural and outer islands banks with wide spread network of branches), and (b) a financing scheme for private sector small and medium enterprises.
- (ii) Review and analyze experience from previous and ongoing similar financing schemes, including progress achieved and lessons learned from addressing market, policy, and financial barriers.
- (iii) Together with the NTE, conduct qualitative and quantitative analyses of (a) the financial capability and willingness to pay for energy services by the targeted rural populations (end users); and (b) the financial capability and readiness to invest in expansion of business and business areas by local renewable energy and energy efficiency industries.
- (iv) Develop a microfinancing scheme for end users, based on normal commercial lending principles. If special incentives are deemed necessary, they will be

designed as narrowly targeted and time-limited cross-subsidies, and must have a clear phase-out plan.

- (v) Develop a financing scheme for small and medium enterprises engaged in supplying rural energy services. The scheme will be targeted to hardware suppliers of renewable energy and energy efficiency technology, and to operators of energy service companies in build, own and operate (BOO) concession-like arrangements.
- (vi) Develop and implement with an appropriate fund manager the concept of a credit guarantee fund to mitigate some of the perceived commercial and technical risks that the involved financial institutions are facing (risk sharing).
- (vii) Oversee and guide the preparation of draft specimens for agreements between the parties of the two or more financing schemes (borrowers, banks, fund managers, national implementing agencies, TA steering committees, etc.).
- (viii) Prepare comprehensive documentation on the financing models (possibly also in the form of a training manual).
- (ix) Other tasks as developed and agreed during inception.

c. Renewable Energy and Energy Efficiency Technical Standards Specialist

8. The specialist will do the following:

- (i) Prepare an overview of international, national, and regional renewable energy and energy efficiency technology standardization initiatives.
- (ii) Guide a broad-based technical committee (chaired by the national bureau of standards or similar organization) in developing and adopting appropriate technical standards for equipment and systems for renewable energy and energy efficiency.
- (iii) Introduce certification schemes for practitioners in renewable energy and energy efficiency equipment, system and service delivery.
- (iv) Introduce the concept of mandatory warranty on supplied renewable energy and energy efficiency equipment and systems, including reassignment of manufacturers warranty from importers/suppliers to end-users.
- (v) Provide guidance in preparing codes of practices for installation, daily operation and maintenance, and periodical servicing of equipment and systems based on renewable energy and energy efficiency.
- (vi) Introduce the concept of ethical standards in the industries association, to help instill confidence in end-users and raise overall industry performance.
- (vii) Compile an overview of the developed technical standards, codes of practices, and certification schemes.
- (viii) Other tasks as developed and agreed during inception.

2. Domestic Consultants

a. Assistant TA Manager

9. The assistant TA manager will do the following:

- (i) Assist the ADB staff (TA manager) and the consultants team leader with their duties, and the preparation, compilation, and editing of the TA inception, midterm, and final reports.
- (ii) Review and analyze previous and ongoing activities related to renewable energy and energy efficiency to take stock of progress and lessons learned regarding

technology use, program replication, and the sustainability of the systems installed. Identify any remaining gaps. Identify market, policy, financial, and technical barriers to energy efficiency penetration, taking into account types of technologies used, including hybrid systems.

- (iii) Assist the ADB Staff (TA manager) and the consultants team leader as the contact person for the TA of the national implementing agency and the TA steering committee in the participating PDMCs.
- (iv) Ensure conformity of project implementation with regulations and common practices for similar ADB TA projects.
- (v) Help prepare and implement the final workshop.
- (vi) Other tasks as developed and agreed during inception.

b. Two National RE and EE Technical Experts

10. The experts will do the following:

- (i) Assist the team leader to identify and outline appropriate projects for the succeeding ADB/GEF/CDM funded initiatives.
- (ii) Together with the team leader, assist the PDMCs to develop and issue a development policy letter on renewable energy and energy efficiency.
- (iii) Identify private sector industries for activities related to renewable energy and energy efficiency.
- (iv) Oversee the establishment of an effective national implementing agency to coordinate and implement TA activities.
- (v) Oversee and assist the national implementing agency to establish a TA steering committee with representation of all relevant stakeholders.
- (vi) Proactively assist the national implementing agency and TA steering committee in general planning and undertaking of their responsibilities under the TA.
- (vii) Provide an interface between key stakeholders, beneficiaries, government, departments of energy, etc., having a renewable energy mandate and energy working groups, Pacific Islands Climate Change Assistance Program country teams, energy projects country teams, and others to facilitate coordination of TA implementation.
- (viii) Help prepare and implement the final workshop and its dissemination activities.
- (ix) Other tasks as developed and agreed during inception.