

**PHI/01/G33 "Philippines: Capacity Building to Remove Barriers to  
Renewable Energy Development" Project**

# **PROJECT DOCUMENT**

**3 October 2002**



UNITED NATIONS DEVELOPMENT PROGRAMME  
GOVERNMENT OF THE PHILIPPINES  
Project Document

**Project Number:** PHI/01/G33

**Project Title:** Philippines: Capacity Building  
to Remove Barriers to  
Renewable Energy  
Development

**Project Short Title:** Philippine Renewable Energy Project

**Starting Date:** 01/07/2002

**End Date:** 30/06/2007

**Management Arrangement:** National Execution  
**Designated Institution:** Department of Energy (DOE)

**Project Site:** Nationwide

**Beneficiary Country:** Philippines

**ACC Sector and Sub sector:** (5) Energy; (40) New & Renewable Sources of Energy  
**DCAS Sector and Sub sector:** (8) Energy; (47) New & Renewable Sources of Energy

**Government Sector and Sub sector:** Department of Energy  
**Primary Areas of focus/sub-focus:** (3) Promoting Environmental & Natural Resources  
Sustainability

**Secondary Areas of focus/sub-focus:** (21) Promotion of sustainable energy & atmospheric  
quality

**Primary type of intervention:** Programme Support

**Secondary type of intervention:** Programme Technical Support

**Primary target beneficiary:** Governmental Organizations

**Secondary target beneficiaries:** Private Sector

**LPAC review Date:** March 01, 2002

**Programme Officer:** Clarissa Arida, UNDP Manila

Summary of project inputs (in US\$) (As per attached budget)	
<b>UNDP/GEF</b>	5,143,048
<b>Co-Financing:</b>	
Government (in-cash):	3,050,000
Government (in-kind):	1,235,000
Other International	
(in-cash)	6,180,000
Private and NGO Sector	
(in-cash)	7,844,000
(in-kind)	312,000
<b>TOTAL</b>	<b>23,764,048</b>

**Brief Description:**

In order for the Philippines, a) to reduce a growing dependence forecast on fossil fuels; b) to meet ambitious targets for reliable, economic supplies of grid electricity; and, c) to realize widespread electrification and poverty relief in remote communities, new and renewable energy (NRE) sources of energy will have to be tapped over the next ten years. These are abundant throughout the country but relatively under-utilized. Innovative financing and market delivery mechanisms will play a central role in providing the capital and access to the market required to meet expansion targets. The UNDP-GEF PDF-B work that lead up to this proposal identified multiple barriers to the rapid market expansion of NRE. This project removes key market, policy, technical and financial barriers through a rationalized program.

*AM*

**Brief Description... Philippine Renewable Energy Project:**

The project components include: a) strengthening the capacity of the GOP agencies to enact and implement sound NRE policies; b) providing information for targeted audiences to build an NRE market; c) creating a "one-stop-shop" market service center for preparing and promoting NRE projects; d) increasing coordination among organizations concerned with NRE; e) assisting the market penetration of NRE in remote, off-grid communities by providing incentives for innovative market delivery and financing mechanisms; f) improving the quality of NRE technologies and systems through assistance with standard setting. The project has been designed to be complementary to ongoing and planned NRE and rural electrification sponsored by the GOP. In particular this capacity building project will lay important groundwork for future NRE-related projects in the country.

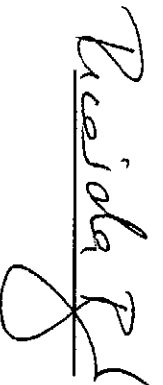
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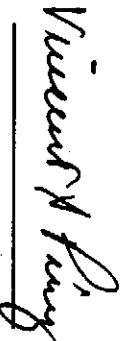
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## CONTENTS

LIST OF ACRONYMS.....	2
A. CONTEXT .....	5
A.1 DEVELOPMENT PROBLEM BEING ADDRESSED.....	5
A.1.1 Energy and NRE Sectors in the Philippines.....	5
A.1.1.1 NRE Contribution in the Philippine Energy Mix.....	5
A.1.1.2 Potential and Status of Renewable Energy.....	5
A.1.1.3 National Renewable Energy Priorities.....	6
A.1.2 Barriers to the Widespread Development, Application and Market Penetration of NRE.....	8
Institutional and Policy Barriers.....	9
Financial Barriers.....	9
Technical Barriers.....	9
Market Barriers.....	10
Information and Training Barriers.....	10
A.2 PREVIOUS EXPERIENCES AND LESSONS.....	10
A.3 DEVELOPMENT OBJECTIVE.....	11
A.4 NATIONAL STRATEGY TO ACHIEVE THE DEVELOPMENT OBJECTIVE.....	12
A.4.1 Links with Ongoing Initiatives.....	13
A.5 BENEFICIARIES.....	13
A.5.1 Direct Beneficiaries of the Project.....	13
A.5.2 Long Term Beneficiaries of the Project.....	14
A.6 REGULATORY FRAMEWORK.....	14
A.7 NATIONAL RESOURCES.....	15
B. STRATEGY FOR USE OF UNDP RESOURCES.....	16
B.1 PROJECT LINKAGE TO UNDP MANDATE.....	16
B.2 NEED FOR UNDP INTERVENTION.....	16
B.3 OBJECTIVES OF THE PROJECT.....	17
B.4 PROJECT COMPONENTS AND EXPECTED OUTCOME.....	17
C. IMMEDIATE OBJECTIVES, OUTPUTS, INDICATORS AND ACTIVITIES.....	18
C.1 COMPONENT NO. 1: NRE POLICY, PLANNING AND INSTITUTIONAL CAPACITY BUILDING.....	18
Immediate Objective:.....	19
Activities and Outputs.....	19
Activity 1.1 Establishment of an NRE Inter-Agency Committee.....	19
Output 1.1.....	20
Activity 1.2 Technical Assistance on NRE Bill.....	20
Output 1.2.....	21
Activity 1.3 NRE Policy Analyses.....	21
Output 1.3.....	23
Activity 1.4 NRE Planning Model.....	23

Output 1.4.....	25
Activity 1.5 Integrated Energy Planning.....	25
Output 1.5.....	26
Activity 1.6 NRE Policy Implementation Monitoring and Evaluation.....	26
Output 1.6.....	27

**C.2 COMPONENT NO. 2: NRE MARKET SERVICES INSTITUTIONALIZATION..... 27**

Immediate Objective.....	28
Activities and Outputs.....	28
Activity 2.1 Set-up a Market Service Center.....	28
Output 2.1.....	29
Activity 2.2 Preparation of MSC Business Plan.....	29
Output 2.2.....	30
Activity 2.3 Capacity Building for MSC Staff.....	30
Output 2.3.....	31

**C.3 COMPONENT NO. 3: NRE INFORMATION AND PROMOTION SERVICES..... 31**

Immediate Objective.....	31
Output and Activities.....	32
Activity 3.1 Conduct of NRE Resource Inventory.....	32
Output 3.1.....	33
Activity 3.2 Development of National NRE Database.....	33
Output 3.2.....	34
Activity 3.3 Integrated NRE Information Exchange Service.....	34
Output 3.3.....	36
Activity 3.4 NRE Website Development.....	36
Output 3.4.....	37
Activity 3.5 Consolidation of NRE Database.....	37
Output 3.5.....	38
Activity 3.6 NRE Advocacy and Promotion.....	38
Output 3.6.....	39
Activity 3.7 NRE Engineering Service Industry Development.....	39
Output 3.7.....	40
Activity 3.8 Green Energy Rating Program.....	41
Output 3.8.....	42

**C.4 COMPONENT NO. 4: NRE INITIATIVES DELIVERY AND FINANCING MECHANISMS..... 42**

Immediate Objective.....	44
Output and Activities.....	44
Activity 4.1 NRE Fund Establishment.....	44
Output 4.1.....	47
Activity 4.2 Assistance Services to Financing Applicants.....	47
Output 4.2.....	48
Activity 4.3 NRE Demonstration Promotion.....	48
Output 4.3.....	48
Activity 4.4 Selection of NRE Projects.....	48
Output 4.4.....	50
Activity 4.5 Monitoring and Evaluation of Project Sites.....	50
Output 4.5.....	51
Activity 4.6 Sustainable Program Design.....	51
Output 4.6.....	51

**C.5 COMPONENT 5. NRE TRAINING PROGRAM..... 51**

Immediate Objective.....	52
Activities and Outputs.....	54
Activity 5.1 Needs Assessment and Planning.....	54
Output 5.1.....	55

Activity 5.2 Design of the Training Activities.....	55
Output 5.2.....	56
Activity 5.3 Sustainable Training Design.....	56
Output 5.3.....	56
<b>C.6 COMPONENT 6: NRE TECHNOLOGY SUPPORT .....</b>	<b>56</b>
Immediate Objective.....	57
Activities and Outputs.....	58
Activity 6.1: NRE Standards Development.....	58
Output 6.1.....	59
Activity 6.2 NRE Technology Improvement Program.....	59
Output 6.2.....	60
<b>D. INPUTS.....</b>	<b>60</b>
<b>D.1 GOVERNMENT OF THE PHILIPPINES INPUTS.....</b>	<b>60</b>
<b>D.2 PRIVATE SECTOR INPUTS.....</b>	<b>60</b>
<b>D.3 OTHER DONOR INPUTS.....</b>	<b>60</b>
<b>D.4 GEF INPUTS.....</b>	<b>60</b>
<b>E. RISK AND SUSTAINABILITY.....</b>	<b>61</b>
<b>E.1 RISKS.....</b>	<b>61</b>
E.1.1 Inadequate Support from the GoP in Enacting Existing Policy.....	61
E.1.2 Inadequate Support of DOE.....	61
E.1.3 Lack of Participation of Private Sector.....	61
E.1.4 Inadequate or Inappropriate Direction Given to the MSC.....	62
<b>E.2 SUSTAINABILITY.....</b>	<b>62</b>
<b>F. MANAGEMENT.....</b>	<b>63</b>
<b>F.1 STAKEHOLDERS PARTICIPATION AND IMPLEMENTATION ARRANGEMENTS.....</b>	<b>63</b>
<b>F.2 IMPLEMENTATION ARRANGEMENT.....</b>	<b>65</b>
<b>G. MONITORING AND EVALUATION.....</b>	<b>66</b>
<b>H. LEGAL CONTEXT.....</b>	<b>67</b>
<b>I. WORK PLAN.....</b>	<b>68</b>
<b>J. BUDGET.....</b>	<b>68</b>

## LIST OF ACRONYMS

ABEP	Area Based Energy Planning
ADB	Asian Development Bank
ALGAS	Asia Least Cost GHG Abatement Strategy
APL	Adjustable Program Loan
ANEC	Affiliated Non-Conventional Energy Center
ARC	Agricultural Reform Community
BAPA	Barangay Power Association
BOI	Board of Investment
CAR	Cordillera Autonomous Region
CBRED	Capacity Building to Remove Barriers to Energy Development
CHP	Combined Heat and Power
CRREE	Center of Renewable Energy and Energy Efficiency
CPC	Community Power Corporation
DA	Department of Agriculture
DAR	Department of Agrarian Reform
DBP	Development Bank of the Philippines
DENR	Department of Environment and Natural Resources
DILG	Department of Interior and Local Government
DOE	Department of Energy
DOF	Department of Finance
DOST	Department of Science and Technology
DTI	Department of Trade and Industry
EC	Electric Cooperative (see also REC)
EED	Energy Efficiency Division (DOE)
ERA	Electricity Industry Reform Act of 2001
EIES	Environmental Improvement and Economic Sustainability
ENMAP	Energy Management Association of the Philippines
ERB	Energy Regulatory Board
ERDC	Energy Research and Development Center
ESMAP	Energy Sector Management Assistance Program
EUMB	Energy Utilization and Management Bureau
FINESSE	Financing Energy Services for Small Scale End-Users
GEF	Global Environmental Facility
GHG	Greenhouse Gases
GIS	Geographic Information System
GoP	Government of the Philippines
GTZ	German Technical Cooperation Agency
IACCC	Inter-Agency Committee on Climate Change
ICEE	Institute of Climate, Energy and Environment
IPP	Independent Power Producers
LBP	Land Bank of the Philippines
LGF	Loan Guarantee Fund
LGU	Local Government Units
LPAC	Local Project Appraisal Committee

MFF	Micro Finance Fund
MIMBFOE	Million Barrels of Fuel-Oil-Equivalent
MO	Manila Observatory
MOA	Memorandum of Agreement
MSC	Market Support Center
MSIP	Municipal Solar Infrastructure Project
MSP	Medium-Size Project
NEA	National Electrification Administration
NEDA	National Economic and Development Authority
NCED	Non-Conventional Energy Division
NGO	Non-Government Organizations
NPC	National Power Corporation
NRE	New and Renewable Energy
NREIAC	NRE Inter-Agency Committee
NREL	National Renewable Energy Laboratory (US)
NWRB	National Water Resources Board
ODA	Official Development Assistance
PASSHYDRO	Philippine Association for Hydro Development, Inc.
PCCI	Philippine Chamber of Commerce and Industry
PCCIC	Philippine Climate Change Information Center
PCLERD	Philippine Council for Industry and Energy Research and Development
PDF-B	Project Development Facility – Block B
PEI	Preferred Energy, Inc.
PEP	Philippine Energy Plan
PMO	Project Management Office
PNOC	Philippine National Oil Company
PO	People's Organizations
PPA	Power Purchase Agreement
PPF	Project Preparation Fund
PPM	Project Planning Matrix
PSC	Project Steering Committee
PSES	Philippine Solar Energy Society
PV	Photovoltaic
RRA	Rapid Rural Appraisal
REAP	Renewable Energy Association of the Philippines
REC	Rural Electric Cooperative
REN	Renewable Energy Network
RET	Renewable Energy Technologies
RESCO	Renewable Energy Service Company
R&D	Research and Development
Shell	Shell International Renewables Ltd.
SHS	Solar Home System
SIBAT	Sibot ng Agham at Teknolohiya (Wellspring of Science and Technology)
SPOT	Solar Power Technology Support Project
SPUG	Strategic Power Utilities Group
TESDA	Technical Education and Skills Development Authority
TA	Technical Assistance
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UP	University of the Philippines
USAID	United States Agency for International Development
WB	World Bank



## TABLE OF ENERGY UNITS AND CONVERSION FACTORS CONSTANTS, UNITS, AND CONVERSIONS METRIC PREFIXES

Metric Unit	Prefix/Symbol	Factor
atto (a)	10 <sup>-18</sup>	femto (f) 10 <sup>-15</sup>
pico (p)	10 <sup>-12</sup>	nano (n) 10 <sup>-9</sup>
micro (μ)	10 <sup>-6</sup>	milli (m) 10 <sup>-3</sup>
centi (c)	10 <sup>-2</sup>	deci (d) 10 <sup>-1</sup>
deca (da)	10	hecto (h) 10 <sup>2</sup>
kilo (k)	10 <sup>3</sup>	mega (M) 10 <sup>6</sup>
giga (G)	10 <sup>9</sup>	tera (T) 10 <sup>12</sup>
peta (P)	10 <sup>15</sup>	exa (E) 10 <sup>18</sup>

### Density Conversions

Methane: 1 cubic meter = 0.67606 kilogram  
 Carbon dioxide: 1 cubic meter = 1.85387 kilograms  
 Natural gas liquids 1 metric ton = 11.6 barrels = 1,844.2 liters  
 Unfinished oils 1 metric ton = 7.46 barrels = 1,186.04 liters  
 Alcohol: 1 metric ton = 7.94 barrels = 1,262.36 liters  
 LPG: 1 metric ton = 11.6 barrels = 1,844.2 liters  
 Kerosene 1 metric ton = 7.73 barrels = 1,228.97 liters

### Unit Conversions

1 kilogram = 2.205 pounds  
 1 metric ton = 1,000 kilograms  
 1 barrel (bbl) = 0.159 cubic meter  
 1 Liter = 0.1 Cubic Meter

### Energy Conversions For Various NRE Source To

#### MMBFOE

- 6644.9229 TJ      • Coal: 26 TC/TJ @ 98% oxidation
- 1587112.6 Gcal    • Oil: 20.2 TC/TJ @ 99% oxidation
- 6297662.6 Mbtu   • Natural Gas: 15.3 TC/TJ @ 100% oxidation
- 1845.8119 GWh

### MMBFOE = 1000 BFOE

Biomass: 1 MT Rice hull = 2.814 BFOE  
 1 MT Rice straw = 1.25 BFOE  
 1 MT Fuel wood = 2.56 BFOE  
 1 MT Charcoal = 4.8 BFOE  
 1 MT Bagasse = 2.18 BFOE  
 1 MT Cane straw = 1.25 BFOE

Micro-hydro: BFOE = KW\*2.685E-3\*H/D\*D/Y  
 Windpump: BFOE=2.16E-3\*H(m)\*Q(cum)  
 Power Sources(Solar, Wind): 68.493 MW = 1 MMBFOE  
 Municipal Waste: 34.25MW = 1 MMBFOE

### LOAD FACTORS

Plant Factors (Use And Load Factor) For Electricity Generation (Grid-Connected):

- Wind – 30%
- Coconut wastes/Bagasse CHP – 65%
- Municipal Solid Waste – 75%
- Ocean – 60% (rough estimate)
- Grid-tied PV – 15%
- Mini-hydro – 60%

Plant Factors (Use And Load Factor) For Electricity Generation (Off-Grid):

- Stand-alone PV – 15%
  - Small Wind Turbine Generator – 40%
  - Micro-hydro – 50%
- Other NRE Equipment Factor For Non-Power Applications:
- WIND-PUMP – 50%
  - SOLAR DRYER – 40%
  - Solar water heater – 50%

Biomass Equipment Factor (Use and Conversion Efficiency) for Non-Power Applications:

- Cook stove (improved) - 18%
- Cook stove (traditional) - 10%
- Others (boilers, kilns, furnaces, etc.) – 50%

### Emission Factors of Different Fuels and Other Energy Sources

- Diesel: 3.6 MT/kWh
- LPG: 3.07 MT/kWh
- Coal: 7.79 MT/kWh
- Oil: 6.9 MT/kWh
- PEP standard for all fuel types: 0.66 MT/kWh

## A. CONTEXT

### A.1 DEVELOPMENT PROBLEM BEING ADDRESSED

#### A.1.1 Energy and NRE Sectors in the Philippines

##### A.1.1.1 NRE Contribution in the Philippine Energy Mix

The use of fossil fuel dominates the Philippine energy mix. In 2000, it is estimated that about 58% of the country's total energy consumption (256.31 MMBFOE<sup>1</sup>) is supplied from imported oil and coal. Of the 42% indigenous energy used in the country, 28% comes from NRE excluding large-scale hydro and geothermal. The total NRE contribution is estimated at 72.12 MMBFOE. As in the past, fuel wood used mainly in households and commercial activities is the biggest NRE contributor followed by agri-wastes such as rice hull, coco wastes and bagasse, which are generally used for meeting both power and heat requirements in industries. Other NRE resources such as solar, wind and micro-hydro make up the NRE consumption mix (Table I).

TABLE I. NRE CONTRIBUTION IN THE PHILIPPINE ENERGY MIX, 2000\*

Energy Form	Volume (MMBFOE)	% Share
Fuel wood	40.29	55.9
Bagasse	10.68	14.8
Charcoal	4.56	6.3
Agri-waste	16.48	22.8
Others (Solar Wind etc.)	0.11	0.2
Total	72.12	100

\*In Million Barrels of Fuel Oil Equivalent, MMBFOE (Source: Philippine Energy Plan, 2000-2009)

##### A.1.1.2 Potential and Status of Renewable Energy

During the period 2001-2010, it is expected that there will be a rapid growth in energy use of about 60%. Forecasts predict that imported fossil fuels will still play a big role in the country's energy supply, but there will also be additional extraction of indigenous fossil fuels like natural gas. It is also projected that during the same period, the average annual growth rate of NRE consumption is about 5.5%. By 2010, the estimated NRE consumption in the country will be about 90.91 MMBFOE. Biomass fuels, mainly fuel wood, bagasse, rice hull and coconut residues will continue to account for the largest share of the demand for NRE. However, the annual growth rate in consumption will be in the use of wind, solar and micro/mini-hydro, in that order.

The forecast increase in NRE consumption until 2010 is based on the expectation of accelerated development of large-scale NRE systems generally suited for grid connection. This however, is in

<sup>1</sup> MMBFOE or Million barrels of fuel oil equivalent is the standard unit of measure of energy used by the DOE in the aggregation of different fuels and energy sources for its statistical and planning purposes. Said unit is based on the internationally acceptable "fuel equivalent" method in which the equivalence among different fuels is established vis-à-vis their relative heat contents. A given volume of a specific conventional fuel (barrels of fuel oil in the case of the Philippines) as a single unit to aggregate all fuels and other non-fuel energy sources. In the case of non-fuel sources of energy such as solar, wind, geothermal and hydro, fuel equivalence is determined by identifying the volume of conventional fuels being displaced that is converted to the common fuel equivalent. In this way, different forms of energy sources and applications (power or non-power) can be aggregated both supply-side and demand/consumption-side.

contradiction to the current thrust on off-grid NRE system applications. The commercial technologies expected to provide this increase include micro-, and mini-hydro, solar, wind turbine generators and their hybrids. The total installed capacity to be provided by NRE during the next 10 years is expected to reach about 410 MW. The NRE resource potential in the Philippines is very good but to date exploitation of these resources has been limited. Table 2 summarizes the potentials for NRE in the country, based on resource assessments in 1998 carried out under the Wind Energy Mapping Project conducted by NREL (National Renewable Energy Laboratory) and the USAID-funded Philippine Renewable Energy Project.

**TABLE 2: NRE POTENTIALS IN THE PHILIPPINES**

<b>NRE Resource</b>	<b>Potential</b>	<b>Utilization</b>	<b>Gap</b>
Wind	76 GW	100 kW and about 368 operating wind pumps	75.9 GW
Solar	Unlimited (162 W/m <sup>2</sup> average solar radiation)	500 kWp and about 400 solar thermal installations	Unlimited
Micro-hydro	28 MW	500 kW	27.5 MW
Mini-hydro	1,780 MW	82 MW	1,698 MW
Biomass	260 MW	Minimal	150 MW

Considering the current thrust of supporting off-grid NRE systems (in line with the goal of total electrification of all barangays in the country by end of 2004), it is forecast that the total NRE consumption will rise modestly to 95.91 MMBFOE by 2010. The additional consumption considers the utilization of NRE in off-grid power and non-power applications. In this regard, the average annual NRE consumption growth rate would be about 8%.

#### **4.1.1.3 National Renewable Energy Priorities**

As described in Presidential Decree No. 1068 (13 January 1977)<sup>2</sup>, new and renewable energy (NRE) resources are regarded as the energy resources that do not have an upper limit on the total quantity which can be used, are renewed on a regular basis, and whose renewal rate is so rapid that they are considered as available over an indefinite period of time. These include solar, wind, biomass, geothermal, hydro and ocean energy, and other emerging energy sources using new technologies such as fuel cells and hydrogen fuels. NRE systems refer to energy systems, which use NRE resources applying various energy conversion and/or utilization technologies. The NRE systems that are being supported by the Government of the Philippines (GoP) are the following:

- Biomass Energy Systems (Anaerobic Digestion, Direct Combustion, Gasification, Pyrolysis)
- Solar Energy Systems (Solar Photovoltaic Systems, Solar Water Heaters)
- Wind Energy Systems (Wind Turbine Generators, Water Pumping Units)
- Hydro Power Systems (Mini-Hydropower, Micro-Hydropower)
- Advanced NRE Systems (OTEC systems, Tidal Energy systems, Wave Energy systems, Current Energy system, Fuel-cell system and Hydrogen-based Fuel System)

NRE research, development and demonstration activities in the country started in the early 70's. Efforts in various facets of NRE development have been extensively pursued by the public sector. With meager resources, however, the government alone cannot sustain the development of the industry. Recent years

<sup>2</sup> PD 1068, in fact, specifically uses the term "non-conventional energy sources" to mean renewable energy sources and technologies and other new technologies which still require strong government support for full commercialization or utilization. This is to distinguish them from fully developed and commercialized renewable energy technologies such as geothermal, small-hydro (10-50 MW) and large-hydro (>50MW). Said technologies and sources are now referred to as "new and renewable energy" (NRE) sources and technologies.

have witnessed the limited growth in private sector participation in NRE development. There have been significant studies and projects which have been undertaken on this area, however, there still exist both substantive and procedural barriers in the country's policies and laws, which inhibit private sector participation and public-private sector partnership necessary for sustainable NRE development. This general assessment leads to the conclusion that effective private sector involvement and partnership with Government and other sectors of civil society can take place on a broad and commercialized scale only if these barriers are adequately addressed.

The UNDP/GEF project, Asia Least-Cost GHG Abatement Strategy (ALGAS), highlighted the important role the energy sector can play in reducing future greenhouse gas (GHG) emissions in the Philippines and identified renewable energy technologies (RETs) as a priority area in the country's GHG abatement strategy. Furthermore, the Philippines Agenda 21 identified the need to develop and utilize RETs 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 NRE.

Figure 1 below shows that economic growth with social equity and poverty alleviation is the macroeconomic goal of the Philippine Energy Plan (PEP). The PEP promotes energy as a major input to the process of achieving this goal since it opens up opportunities where economic activities may germinate and gain a permanent foothold. A basic tenet of the PEP is that electricity should be available nationwide to open up opportunities for income generation and the resulting poverty reduction. Both on-grid and off-grid areas must be electrified. Particularly for off-grid areas, electrification projects must be packaged with economic programs in coordination with relevant government agencies and sectors.

The national NRE policies are to:

- a) Pursue large-scale use of NRE systems;
- b) Enhance energy self-sufficiency through continuous exploration, development and exploitation of indigenous energy resources;
- c) Encourage greater private sector investment and participation in NRE activities; and,
- d) Promote NRE for off-grid electrification

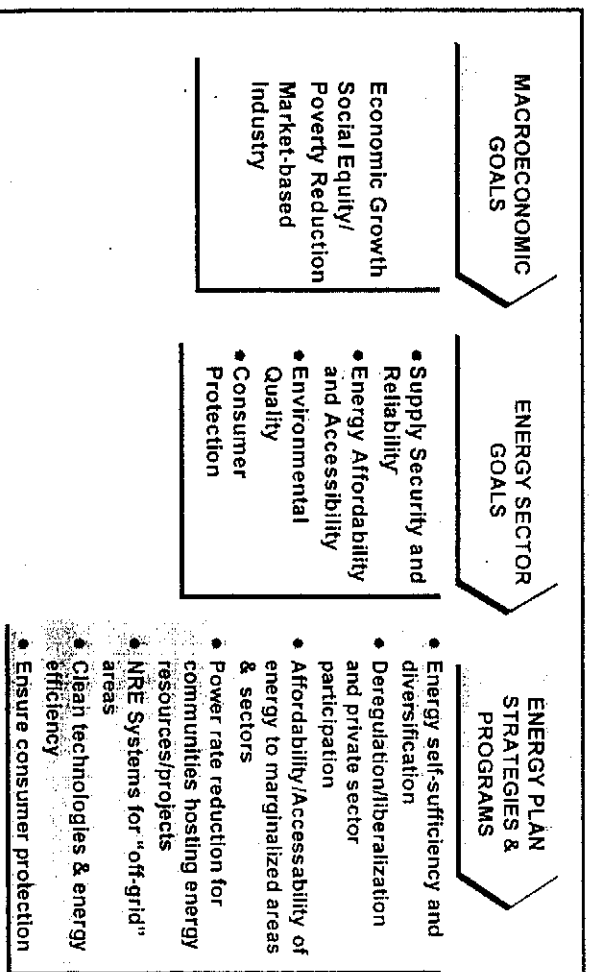


FIG. 1. THE PHILIPPINE ENERGY PLAN FRAMEWORK (Source: Philippine Energy Plan 2000-2009)

As of end 2000, about 80% of the total number of barangays (41,955) in the country have been electrified. Fifty percent of the remaining unelectrified barangays or about 4,152 have been initially identified to be suited for NRE electrification due to their distance from the main tapping point and low population density. The number of households in a barangay varies from a few tens to several hundreds.

The Non-Conventional Energy Division (NCED) under the Energy Utilization Management Bureau (EUMB) of the Department of Energy (DOE) is tasked to develop and manage a national New and Renewable Energy Program (NREP) for the acceleration of the development, promotion and commercialization of NRE systems.

The forecast increase in annual NRE consumption during the period 2000-2010 is in line with the objectives of assuring energy supply security, affordable energy prices, and energy infrastructure compatible with broader social and environmental objectives. However, due to lack of capacity and other persistent barriers/issues in the development of NRE in the country, the government's approach to achieving its NRE goals would remain as in the past ("business-as-usual scenario"), which is characterized by:

- Addressing NRE policy issues on a reactive basis as energy supply issues arise (i.e., non-proactive policy development)
- Dispersed market development services for NRE particularly in remote communities
- Inadequate support for meeting NRE development requirements of potential proponents
- Non-integrated NRE information data banking and dissemination
- Inadequate awareness raising and advocacy campaigns on NRE utilization
- Limited uptake of NRE project opportunities – mainly grid-connected NRE systems only
- Limited local NRE system manufacturing capacity upgrading
- Implementation of non-sustainable NRE systems
- Provision of subsidies for NRE system applications in rural areas
- Implementation of heavily technology-demonstration focused, donor-driven and sub-optimal in scale NRE projects.

Considering the experience from several large and small NRE that have been carried out in the country over the last two decades by both the public and private sectors, the present strategy of implementing projects/programs that are "on-off", donor-driven, of sub-critical mass, and lacking the financial or technical resources for sustained operation and maintenance, will not contribute significantly to NRE development. The true commercialization of NRE will remain elusive. Some of the previous and ongoing efforts done (involving the granting of subsidies to mainly "equipment demonstration" type projects), if continued, will keep distorting the market as well as consumer expectations and interests. NRE development will remain hindered by various policy, institutional, market, information, and financial and technical barriers. It should be noted that previous efforts to address some of these barriers were also saddled with problems that now add up to the barriers themselves.

#### **A.1.2 Barriers to Widespread Development, Application and Market Penetration of NRE**

Workshops, conferences, meetings and roundtable discussions have been conducted with different stakeholders in the Philippines including government agencies, NGOs, private sector, academe and financial institutions to identify and assess the various barriers to the widespread development, utilization and market penetration of NRE. The stakeholder consultations during the UNDP-GEF PDF-B exercise have further added to information reinforcing barrier identification. This points to the fact that while a good number of NRE projects had been implemented in the past, no concrete efforts have been undertaken to squarely address the barriers which until now continue to dampen efforts for more widespread use of NRE technologies.

Collectively, the barriers listed below may be referred to as any of the contributing factors or problems getting in the way of efforts to establish a favorable business environment for NRE to flourish. There is an active interplay of institutional, policy, marketing, financial and technical problems that impedes the development and commercialization of NRE in the country.

### ***Institutional and Policy Barriers***

- a) *Non-comprehensive development plan on NRE* - Despite the not-so-favorable experience in previous NRE initiatives, the government sticks to its policy of focusing on large-scale NRE projects in its energy development efforts. This is attributed to inadequate information on NRE, lack of an integrated development framework on NRE, and unclear role of stakeholders and their minimal participation in planning process. Relevant institutions in the energy sector and economic development have been pursuing their respective plans and programs on NRE in an uncoordinated manner as a result of the absence of an NRE development framework.
- b) *NRE projects are not directed towards sustainability and real market approach* - The government's NRE efforts show heavy reliance on technology-driven projects implemented by or for government agencies with little stimulation of private sector activity.
- c) *Lack of clear policies, appropriate legislations and incentives on NRE applications* - Specific regulatory and policy barriers to NRE in the country take the form of the absence of appropriate policies and incentives, and the existence of conflicting, vague or non-responsive policies. This has resulted to uneven playing field in the area of NRE. NRE finds itself competing in uneven playing field where there is no mechanism allowing for the inclusion of externalities in energy pricing. There is the issue of distortion in the price structure due to donations and subsidies, which unintentionally pose competition to the private sector.
- d) *Utility regulations are not favorable to renewable energy development* - The requirements to be complied with by NRE project investors/developers, including those set by National Power Corporation (NPC) for selling power to the grid, are very rigid. There is difficulty in establishing a power contract with Strategic Power Utilities Group (SPUG).

### ***Financial Barriers***

- a) *Difficulty in accessing traditional financing windows* - This barrier is specifically due to the limitations in project size, markets and balance sheets of project proponents. Project proponents are aware of the available financing schemes and they are also aware that they are not able to avail themselves of most of these NRE-unfriendly financing packages.
- b) *Lack of support from Government Banks* - Under the Financing Energy Services for Small Scale End-users (FINESSE) project, the Development Bank of the Philippines (DBP) is supposed to relax its lending procedures and terms for projects like those catering to NRE. However, the private sector in general still believes that more relaxed terms and conditions are needed and, consequently, there are few takers of the financing facility that DBP offers.

### ***Technical Barriers***

- a) *Lack of capacity in project packaging and presentation among NRE project proponents* - While there is a modest level of knowledge in doing technical and economic studies, there is inadequate capacity in packaging projects and in presenting bankable projects.

b) *Inadequacies in the area of NRE technology development* – In terms of development, NRE technologies are beset with the following inadequacies:

- Lack of competence - Local technicians and end-users are still largely unfamiliar with the application of NRE technologies.
- Lack of product standards, quality control measures, testing and verification - The quality of materials and other components of NRE technologies are not adequately monitored, allowing the entry of sub-standard equipment.
- Reliance on imports - The market for NRE is underdeveloped, thus making the local production of NRE products or components an unattractive investment opportunity.

### **Market Barriers**

- a) *Inadequate knowledge of NRE market conditions* - Unavailable and segregated information on NRE market conditions and status results in the lack of reliable technical information to showcase NRE systems.
- b) *Unsuccessful NRE delivery mechanisms* - Experiences in previous attempts to implement NRE delivery mechanisms have been beset with problems and have not succeeded in making the venture sustainable and replicable. Such problems have brought about bad impressions and false expectations to other potential markets.
- c) *Lack of private sector involvement in small to medium scale NRE projects* - In this regard, the government's rural electrification efforts have not fully and successfully taken advantage of NGOs and private developers to derive new and innovative approaches to NRE development that support countryside economic development.

### **Information and Training Barriers**

- a) *Non-availability of up-to-date and comprehensive NRE data* - The segregated, non-integrated data gathering system on NRE, and the inability of the NRE project developers to assess such data are hampering efforts not only to promote NRE but also to design effective NRE delivery systems.
- b) *Lack of success stories on sustainable NRE applications in the country* - This is a basic reason why market awareness is low and limited as there are few success stories that are known which are related to the technical and economic/financial sustainability of NRE projects.
- c) *Lack of technology extension to users and suppliers of NRE technologies* - Training programs on NRE have catered to the upgrading of the technology needs of government personnel (e.g. DOE, National Electrification Administration (NEA)) but not the technology and skills upgrading needs of the people who will operate NRE systems, particularly those in the rural areas.
- d) *Ineffective NRE Promotion and Advocacy Programs* - Despite the many activities that have been carried out in the past, there is still lack of users' and government decision-makers' awareness of NRE, particularly in local government units (LGUs).

## **A.2 PREVIOUS EXPERIENCES AND LESSONS**

The recently completed UNDP-GEF PDF-B work (and as cited in the PDF-B proposal of the World Bank) has identified the significant role of earlier and on-going bilateral and multilateral assistance in

supporting NRE project development. The UNDP-GEF PDF-B exercise found out that most of the previous and even the ongoing NRE initiatives have some drawbacks, constraints and limitations. These collectively highlight specific barriers not only to the development and commercialization of NRE in the country, but also to the implementation of interventions that would facilitate the country's NRE development efforts and the growth of the local NRE market/industry. Moreover, from these previous and ongoing projects are derived some important lessons learned and gaps identified. *Essential long-term interventions have been lacking to provide the policy framework, and the focused sustainable approach to barrier removal required in the Philippines at this juncture.*

With some notable exceptions, the on-going and proposed donor activities continue to be technology and region specific. Support is required to tie together national, and regional efforts to broaden the market base and support policy development that would create a conducive environment for the widespread commercial applications of NRE. More importantly, for those ongoing and planned projects that espouse capacity building, institutionalization and market barrier removal for NRE, this project is designed to complement and support their work. These complementary projects include:

- a) The World Bank's proposed GEF/PDF-B and long term Adaptable Program Lending (APL) finance program for rural electrification.
- b) The USAID/NREL project, which provides wide support for NRE technology development and resource information.
- c) UNDP/FINESSE project for developing the DBP's technical capability in evaluating NRE projects as well as a modest relaxed finance program for off-grid Village Power.
- d) ADB technical assistance to NEA and RECs to better link livelihood activities with provision of electricity.

Other completed, on-going and planned NRE projects have also been documented in the Project Brief.

### A.3 DEVELOPMENT OBJECTIVE

The project is related to the following development objective.

Development Objective	Indicators	Verifiers
The annual growth rate of GHG emissions from activities using fossil fuels is reduced through the removal of the major barriers to the development and widespread implementation of renewable energy applications to replace part of the current fossil fuel use in the Philippines.	A cumulative GHG emission reduction of 29,578,500 Metric tons of CO <sub>2</sub> is realized by the year 2010. (See ANNEX 1).	1. Documentation of annual data on fossil fuel and NRE utilization for power generation and industrial process heating from DOE. 2. Documentation of estimates of annual GHG emissions reduction from the replacement of fossil fuel by renewable energy in power generation and industrial process heating.

In addition, the project will also assist in extending the life of the country's fossil fuels, avoiding local air pollution and health hazards and creating domestic job opportunities.



The proposed GEF-supported alternative to the “business-as-usual” scenario in the area of NRE development and commercialization in the Philippines is intended to contribute in realizing the country’s sustainable development objectives and its goal of reducing the annual growth rate of GHG emissions through the promotion and facilitation of the widespread use of NRE. The project will build on the present capacity and existing NRE program of the government as well as on lessons learned from previous and ongoing NRE initiatives in the country. It will comprise a range of interventions that will address major specific policy, institutional, market, information, financing, and technical barriers that have persisted since the country embarked on NRE development in the 70’s.

The proposed alternative will bring about a modest increase in the utilization of NRE displacing fossil fuels, at least up to the year 2010. Beyond that, when the persistent barriers to NRE development and market penetration would have been removed, the share of NRE in the country’s energy mix will become more significant. The comparison of the NRE consumption in the baseline and alternative scenarios is shown below:

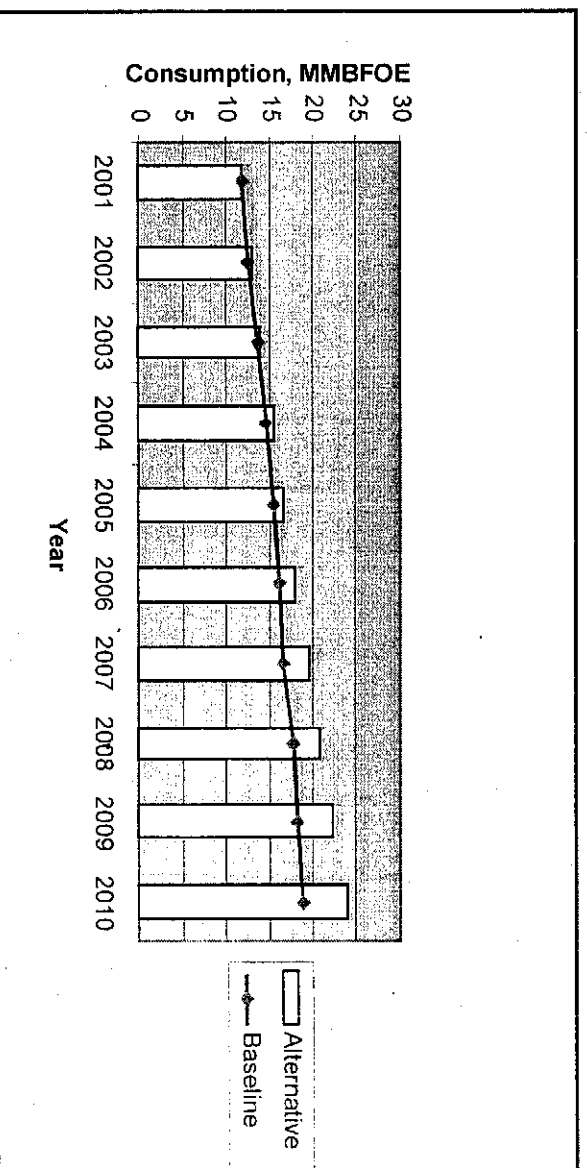


FIGURE 2. POTENTIAL INCREASE IN NRE CONSUMPTION DUE TO NRE SYSTEM ADDITIONS

With the NRE consumption in year 2000 as the basis, the “business-as-usual” efforts of the GoP in the NRE sector would bring about an increase of around 19 MMBFOE consumption of NRE by year 2010. The proposed GEF alternative will result in an estimated increase in NRE consumption of about 24 MMBFOE by year 2010. The details of these estimates are in ANNEX 1.

#### A.4 NATIONAL STRATEGY TO ACHIEVE THE DEVELOPMENT OBJECTIVE

An NRE support project is proposed for the Philippines to address the foregoing barriers that have persisted despite various government and private sector NRE projects in the past, to enhance the national capacity on integrated energy planning and to contribute to and coordinate with ongoing NRE activities. The Project will achieve these goals primarily by building capacity in three major areas: (a) Policy and planning; (b) Market preparation and implementation; and, (c) Indigenous technology development support.

#### **A.4.1 Links with Ongoing Initiatives**

This project complements the efforts of national, bilateral and multilateral funding agencies by providing capacity building assistance. Initiatives that will directly benefit from the project include the: (a) PDF-B work for the World Bank-GEF APL project; (b) ADB project on Rural Electrification Institutional Strengthening; (c) USAID/NREL project on renewable energy; and, (d) DOE NRE Bill. This UNDP-GEF project shall build capacity for both grid and off-grid market development mechanisms of both electricity and non-electricity NRE applications. The project objectives and corresponding activities support and do not duplicate the aforementioned initiatives. The DOE has the primary responsibility for coordination with these other initiatives.

The project has been designed taking into consideration the lessons learned from, and identified gaps in, previous and ongoing rural electrification projects in the country such as the WB/Japan PHRD I & II projects. For example, the results of, and identified gaps from, the NRE market and resource assessments of the PHRD I were the bases for the design of the related incremental activities that will be carried out in Component No. 3 of the CBRED Project.

#### **A.5 BENEFICIARIES**

The target beneficiaries of the projects can be divided into two groups. The first group comprises those that directly benefit from participating in the activities of the various project components. The second group comprises those that would benefit in the long term as a result of successful replication of the programs carried out under this project.

##### **A.5.1 Direct Beneficiaries of the Project:**

The following comprise institutional entities and industries that would directly benefit from the project:

- Government institutions such as the DoE, NEA, NPC, Philippine National Oil Company (PNOC), Department of Trade and Industry (DTI) and Department of Interior and Local Government (DILG) - Officials from these agencies will gain sufficient knowledge and experience in formulating necessary policies on the development and application of renewable energy through their active participation in seminars, coordination meetings, discussions, seminars and workshops throughout the project.
- Private sector NRE developers - The pilot financing and market delivery mechanisms for bringing NRE technologies to their intended users shall establish the viability of such mechanisms towards bigger opportunities for NRE projects in off-grid areas.
- LGUs and BAPAs – Local government units at the provincial and municipal levels and barangay level associations like BAPA (Barangay Power Association) stand to benefit from the technical, management and policy making seminars, meetings and discussions during the life of the project.
- Population in unelectrified barangays – As the intended users/market of the electricity to be generated from the NRE systems to be introduced, the unelectrified rural households stand to benefit by having access to electricity and the basic conveniences it brings such as good quality lightings, community services like street lighting and health care, access to media education and awareness and opportunities for income generating activities and additional employment.
- NRE system manufacturers/suppliers – The project will create a bigger market for suppliers of NRE system equipment such as turbines, solar PV systems and others.

- NRE consultants - The increased awareness of both private and government NRE project developers will likewise increase their need for professional advice from local consultants in the design, installation, maintenance and trouble shooting of NRE systems.
- Financial and banking institutions - These will appreciate the economic benefits of renewable energy projects and participate in implementing future NRE- based power and non-power projects in the country.

#### **A.5.2 Long Term Beneficiaries of the Project**

- Global environment - The greatest potential benefit of the project globally is in the long-term emission reduction potentials, which are basically indirect. More strategic reductions that the project will bring about is in helping reduce costs, remove barriers and expand markets for renewable energy in the Philippines and globally. Such developments are expected to produce far greater reductions in future GHG emissions.
- National economy - The benefit to the country will be in the form of hard currency savings on fossil fuel imports. Putting on the ground large-scale grid-connect and thermal NRE projects as well as small-to-medium size on-grid and off-grid units will generate employment opportunities and assist the poverty alleviation thrust of the government. Improved market penetration will also increase economic activities through private sector participation.
- NRE manufacturing industry – This will benefit from increased demand for NRE systems and equipment as a result of successful demonstration projects and greater awareness of target users.
- Private sector investors – They will have increased business opportunities resulting from a more NRE investor-friendly environment with improved fiscal and tax incentives, credit enhancement program and ready commercial markets that are viable for investment.
- Government planners and decision makers – With the policy making training, discussions and meetings throughout the life of the project, they will learn the value and benefits of espousing NREs and help generate long overdue legislative support in favor of accelerated NRE development.

#### **A.6 REGULATORY FRAMEWORK**

The present foreign currency crisis experienced by the Philippines is traceable to the needs of importers, including the players in the energy industry. With the ultimate objective of improving the country's US dollar reserves and balance-of-payments, and decrease its over-dependence on imported oil, a bill was filed in Congress in 1999 entitled "*An Act to Further Promote the Development, Utilization and Commercialization of New and Renewable Energy Sources and for Other Purposes*" (referred to as the NRE Bill). This bill seeks to provide the needed policy mechanisms for the development of NRE sources, such as solar, wind, biomass, geothermal, micro-hydro, and ocean energy, among others, to address the market failure of NRE projects, and to proposed institutional and financial incentives to encourage private sector investment.

It is still uncertain when this bill will be finally enacted into law. Effectively, the delay prevents the establishment of a much needed environment that provides a healthy interplay of the institutional, information, financial, market and technical issues essential to the growth of the NRE industry in the country. In the meantime, pending passage of this integrated bill into law, there exist general policies, policy statements and specific laws that are presently being utilized and applied to encourage and promote the use of NREs.

The **1987 Constitution** contains general policies and policy statements on the right to ecological security, energy resources development and utilization, private sector participation, poverty alleviation and national development. **Philippine Agenda 21** includes in its Energy Program the formulation of action plans to utilize NRE technologies and the provision of financing and fiscal incentives for NRE projects. The **Medium Term Development Plan** contains the economic development plan focusing on economic growth with social equity, with an active and interrationally competitive private sector as a primary vehicle in poverty alleviation. The **Philippine Environmental Code** provides that the government shall undertake an energy development program encouraging the utilization of invariant sources such as solar, wind and tidal energy consistent with environmental protection policies.

**Republic Act No. 7638** or **Department of Energy Act of 1992** mandates the formulation and implementation of a program for accelerated development of non-conventional energy systems and the promotion of its applications. The identified strategies to be employed by the DOE as contained in the **Philippine Energy Plan** include the liberalization, private sector participation, and accessibility of energy to marginalized areas, rate reduction for host communities and NRE systems for 'off-grid' areas.

**Executive Order (EO) No. 215, Allowing the Private Sector to Generate Electricity**, provides that private entities are allowed to construct and operate, among others, cogeneration units and electricity generating plants. **DOE Circular No. 2000-03-004**, implementing EO 215, provides policy reforms designed to streamline the accreditation process for NRE and provide opportunities for more private sector participation and investment in NRE development.

The DOE's '*O'Flaw*' Program sets the goal for total barangay electrification by 2006. Since about 4152 barangays cannot as yet be connected to the backbone grid, stand-alone power systems consisting of mainly NRE and small fossil-fired generators are proposed.

**EO 462 on ocean, solar and wind energy (OSW) resources**, as amended by **EO 232**, enables private sector participation in the exploration, development, utilization and commercialization of OSW resources for power generation and for other uses.

**RA 7156** or the **Mini-hydroelectric Power Incentive Act**, provides the framework for the development of mini-hydroelectric power generation and grants incentives to such developers.

**PD 1068**, as mentioned earlier, provides for the attainment of self-reliance in the country's energy requirements through, among others, the accelerated development of non-conventional alternatives such as solar, wind, tidal and biomass energy.

More recently, **RA 9136**, or the **Electric Power Industry Reform Act (EIRA)**, declares that, as a policy of State, socially and environmentally compatible energy sources and infrastructure shall be assured through the promotion and utilization of indigenous and NRE resources.

In spite of the above regulatory framework, however, NRE development continues to be viewed as slow and laden with barriers for accelerated development and widespread use. The general consensus among NRE stakeholders, therefore, is that the enactment of the integrated **NRE Bill** may have to be actively pursued to effectively accelerate the commercial development of NREs by the private sector.

## **A.7 NATIONAL RESOURCES**

The GOP and the private sector will put into the project both cash and in-kind contributions in order to help ensure success in project implementation. Specifically, the DOE shall be the overall lead agency in overseeing the effective and timely implementation of the project. A detailed organizational structure showing the different agencies and institutions to be involved is given in **ANNEX 3**. The state-owned

PNOC shall likewise lend its manpower resources to the project particularly in the aspect of institutionalizing a sustainable NRE market service center. The University of the Philippines' Solar laboratory shall be tapped for its years of experience in testing, installation and monitoring of solar photovoltaic systems. Renewable Energy Association of the Philippines (REAP), the national association of NRE suppliers and project developers, shall also be involved in the project. Likewise, LGUs, NGOs, and other community-based organizations shall likewise provide manpower support to the project. Government financing institutions, such as the DBP, shall allocate both internal and ODA funds for lending to potential project developers from both the private and public sectors.

For the five (5) year project implementation, the government shall put in a cash counterpart in the amount of Php 3.150 million and in-kind counterpart in the amount of Php 585 thousand. The local private and NGO sector shall put-in a cash counterpart of Php 7.844 million and in-kind counterpart in the amount of Php 462 thousand.

## **B. STRATEGY FOR USE OF UNDP RESOURCES**

### **B.1 PROJECT LINKAGE TO UNDP MANDATE**

Globally, UNDP aims at building capacity for sustainable human development within its program countries while ensuring national ownership of developmental goals, strategies, policies and programs at all levels. UNDP's mission is defined in the five key focus areas of poverty eradication, good governance, sustainable livelihoods, the advancement of women and the sustainable management of energy and environment resources. UNDP is one of the implementing agencies of the Global Environment Facility (GEF), which is a special-purpose fund that helps countries to translate global environmental concerns into national action.

The means for supporting sustainable human development must be consistent with the preservation and enhancement of the local, regional and global environment. Within the United Nations Framework Convention for Climate Change (UNFCCC), UNDP/GEF seeks ways to support low-carbon emission development paths, one being to remove barriers to renewable energy technology and thus to promote its sustainability. The UNDP/GEF is exploring opportunities that would enhance national capacities to make promising renewable energy technology available and commercially viable in the country.

### **B.2 NEED FOR UNDP INTERVENTION**

Workshops, conferences, meetings and roundtable discussions have been conducted with different stakeholders in the Philippines including government agencies, NGOs, private sector, academe and financial institutions to identify and assess the various barriers to the widespread development, utilization and market penetration of NRE. The stakeholder consultations during the UNDP-GEF PDF-B exercise have further added to information reinforcing barrier identification. Studies and technology-focused demonstration projects that were carried out in the country since the early 80's and lessons learned from these have pointed out the need to address the establishment and stimulation of an NRE market as an effective way of enhancing the development and widespread application of NRE systems. The private sector has expressed interest in advancing the development of NRE projects, but because barriers exist the large potential of NREs may not be realized. This points to the fact that while a good number of NRE projects had been implemented in the past, no concrete efforts have been undertaken to squarely address the barriers which until now continue to dampen efforts for more widespread use of NRE technologies. There exist both substantive and procedural barriers in the country's policies and laws, which inhibit private sector participation and public-private sector partnership necessary for sustainable NRE development.

During the PDF, stakeholders were extensively consulted and the project components in this project document were the outcome of suggestions from them, e.g. the creation of a one-stop shop for renewable energy project delivery and the need to establish standards for fast growing locally manufactured RETs such as the micro-hydro equipment.

As a signatory to the UNFCCC, the Philippines is availing of its rights to obtain incremental cost funding provided by the GEF for national projects that will bring about global environmental benefits like the CBRED Project. CBRED is a capacity building and technical assistance project, which is within the purview of the UNDP, which is an implementing agency of the GEF. The GoP acknowledges the UNDP's comparative advantage in these areas. Furthermore, the GoP and UNDP have been working and cooperating closely in implementing activities geared towards sustainable development in the Philippines. CBRED is a priority project of the country and UNDP's assistance in this GEF-assisted project will be instrumental in the widespread development and application of NRE in the country for rural electrification and consequently displacing part of the fossil fuels used in electricity production.

Without the removal of the barriers through the Project, the widespread application for example, of off-grid NRE-based power generation in rural areas and industrial use of NRE-based systems, are unlikely to take place. The UNDP intervention for the proposed initiative will be instrumental in assisting the Philippines to fully tap the potential of its NRE resource.

### **B.3 OBJECTIVES OF THE PROJECT**

In keeping with the GEF mandate, the overall goal of the project is the reduction of the growth rate of GHG emissions by removing the major barriers to and reducing the costs of development of renewable energy to replace fossil fuel use in the Philippines.

The project has been conceived therefore to remove major barriers by setting the following main objectives:

1. Strengthening of the capacity of the relevant GOP agencies to formulate, enact and implement sound NRE policies;
2. Enhancement of NRE data banking and provision of information on NRE for targeted audiences to build markets;
3. Enhancement of coordination among organizations concerned with NRE;
4. Assisting the market penetration of NRE in remote off-grid communities through the provision of incentives, and innovative financing and delivery mechanisms; and,
5. Improvement of the quality of, and knowledge and skills on, NRE technologies and systems.

### **B.4 PROJECT COMPONENTS AND EXPECTED OUTCOME**

To realize the achievement of the above-stated objectives, the proposed UNDP-GEF project will involve the implementation of six (6) major project components. These are:

- a) Component No. 1: NRE Policy, Planning and Institutional Capacity Building;
- b) Component No. 2: NRE Market Services Institutionalization;
- c) Component No. 3: NRE Information and Promotion Services;
- d) Component No. 4: NRE Initiatives Delivery and Financing Mechanisms;
- e) Component No. 5: NRE Training Program; and

D) Component No. 6: NRE Technology Support.

Each of the project components listed has been designed to undertake specific activities that address specific barriers and gaps that have remained even after many different NRE projects had been implemented in the past. Further, these have been designed to ensure that all objectives stated above are addressed.

C. IMMEDIATE OBJECTIVES, OUTPUTS, INDICATORS AND ACTIVITIES

C.1. COMPONENT NO. 1: NRE POLICY, PLANNING AND INSTITUTIONAL CAPACITY BUILDING

) This component will build on the existing policies of the government regarding NRE development and utilization, the proposed NRE Bill, as well as the GOP's rural electrification program. It aims to remove the policy and energy planning related barriers, as well as the institutional issues regarding the development and implementation of NRE initiatives in the country. Previous efforts to incorporate lessons learned from previous policy making and energy planning exercises failed to bring about changes in the type of policies and the kind of policy enforcement that would have brought about a conducive climate for NRE. One example is the proposed NRE Bill, which still remains a proposed legislation.

) Thus, the major efforts under this component will be the reformulation of the NRE Bill that aims to incorporate new policy and implementation strategies to support the accelerated NRE development. The goal is to provide leveled playing field for NRE projects to compete with conventional energy projects especially in the privatized and deregulated electricity industry in the country. The NRE Bill shall also seek to strengthen mechanisms for the development of an accelerated NRE program such as in the aspects of technology development, information dissemination, area-based NRE planning, and the provision of necessary fiscal and other non-fiscal incentives for NRE activities.

) The various studies on policy and market development that will be conducted under this component shall provide salient provisions that will be recommended for inclusion in the bill. Corresponding legislative lobbying shall also be undertaken to facilitate the immediate passage of the NRE Bill. Promotional support shall also be provided through Component 4 of the Project to gather critical mass support to the NRE Bill.

) To facilitate the multi-sectoral approach in policy making for the NRE sector, this component will establish the NRE Inter-agency Committee (NREIAC) to facilitate the integrated policy development, implementation and monitoring. The Committee will serve as technical working body with representatives coming from different NRE stakeholders including government, private sector and people's organizations. Among others, the NREIAC shall be tasked to formulate and implement policies that support the growth of the NRE industry. It will also monitor the impacts of policy implementations and coordinate the revisions or improvements of policies in accordance with the NRE goals and objectives of the country.

) Meanwhile, undertaking support activities on implementing innovative strategies for energy and electricity planning shall also enhance the capacity of the government. Said activities will address the need of various concerned agencies for various improved models and tools for integrated approach in energy planning and in planning for NRE market development. The NRE Planning model shall involve the development of enhanced tools in identifying techno-economic merits of potential electrification projects involving NRE technologies. Under this activity, a market simulation model shall also be developed to assist NRE proponents in designing and planning for NRE projects particularly in grid-electricity production and NRE-based electrification using market package approach.

On the other hand, the Integrated Energy Planning activity shall involve the formulation of planning framework that will integrate socio-economic and development goals in the developing plans and programs for NRE. Thus, the activity involves the development of integrated model for the conduct of systematic NRE planning. Also, an institutional framework shall also be established to facilitate the participation of other stakeholders in the NRE planning process such as the other related government agencies, the private sector and concerned NGOs as well as rural and community-based organizations.

**Immediate Objective:**

Immediate Objective	Success Indicator	Verifiers
Remove the policy and energy planning barriers and address the institutional issues regarding the development and implementation of NRE initiatives in the country.	<ol style="list-style-type: none"> <li>1. At least 3 NRE policies are resolved by NREIAC and upheld by PSC every year starting Year 1.</li> <li>2. Enhanced NRE Bill submitted to congress for legislation in Year 2.</li> <li>3. At least 50 legislators supported the passage of NRE Bill in Year 5.</li> <li>4. One (1) NRE Project Planning tool is developed.</li> <li>5. One (1) Integrated Energy Planning Model is developed and adopted by energy sector.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compendium of NREIAC resolutions.</li> <li>2. Annual PMO Policy M&amp;E Report.</li> <li>3. Proceedings of workshops on the use of NRE planning tools and models.</li> </ol>

**Activities and Outputs:**

**Activity 1.1. Establishment of an NRE Inter-Agency Committee**

This will involve the creation of an NRE Inter-Agency Committee (NREIAC) whose members represent the various key stakeholders/players in the area of NRE, that will-regularly coordinate and report on NRE policy issues related broadly to policies within the country's energy, industry and financial sectors. The Committee is tasked primarily with the monitoring of impacts of policy implementation and coordinates the revision and improvement of policies as necessary in accordance with the NRE goals/objectives of the country. To ensure the effective implementation of the full GEF project, the NREIAC's roles shall be broadened to provide overall guidance and direction. The NREIAC shall convene regularly to discuss the various issues affecting project implementation.

**Activity 1.1.1. Formation of NREIAC** - The DOE shall chair the NREIAC with representatives of NPC-SPUG, PNOC, NEA, NGO, private sector and National Economic Development Authority (NEDA) as permanent members (Annex 2). The presence of representatives from relevant agencies such as GFIs, Senate/House Committee on Energy, Philippine Council for Industry and Energy Research and Development (PCIERD), etc. in the NREIAC meeting shall also be sought in cases the matters being discussed are of relevance to the said agencies. The NREIAC shall meet every month to discuss implementation plans and provide recommendations on various project issues and concerns. The project shall ensure that there is a permanent representation among NREIAC members.

**Activity 1.1.2. Defining the functions of the NREIAC** - At the onset, the NREIAC shall serve as a technical working group, which will undertake the following tasks and functions relative to policy development, among others:

- Coordinate and report regularly on the various issues in the NRE sector.



- Monitor the policy performance of agencies involved in NRE and assess the impacts of such policies.
- Identify the various policy issues and the corresponding gaps that need further action.
- Based on the policy gaps identified, recommend policy studies to the Project Steering Committee (PSC), which will be established under this Project.
- Review TORs of the consultants for the policy component.
- Review results of the studies.
- Present policy recommendations to the PSC.
- Spearhead the conduct of policy forums, consultation meetings, etc.

The role of the Committee shall also be expanded to take the role of the overall body, which will supervise the implementation of the full GEF project. To ensure the success of the project, the NREIAC is expected to be involved in all facets of project implementation. Major findings and results of various studies shall be presented to the Committee for their concurrence or endorsement to the PSC. The PSC is a management level body comprising of representatives from DOE, NEDA, DENR-IACC and UNDP. The DOE shall chair the PSC.

**Activity 1.1.3. Mobilization and Operationalization of NREIAC** - The abovementioned roles and responsibilities shall be finalized by the NREIAC members themselves and shall be contained in the Memorandum of Agreement (MOA). The MOA will be executed by and between the DOE Secretary and NREIAC members, represented by their agency heads. The MOA shall serve as a binding agreement on the NREIAC's commitment to the project. Further, each agency head shall issue a Department Order designating their permanent official and alternate representatives to the Committee. The NREIAC shall operate within the 5-year period of implementation to provide guidance in the implementation of all the project components and activities.

### ***Output 1.1.***

NREIAC is established and mobilized. Through its regular and other special meetings, all activities under the Project are reviewed and given necessary advice and direction by the Committee. Through its meetings with the Project Steering Committee (PSC), the Committee has recommended to PSC various policy actions and project directions for eventual approval and implementation.

### ***Activity 1.2. Technical Assistance on NRE Bill***

This will involve the provision of technical advice in the review of, and formulation of relevant recommendations to the proposed NRE Bill. Consultations with different stakeholders particularly the private sector to capture their true sentiments about what major concerns to facilitate NRE development must be addressed by the bill including the impacts of the Electric Power Industry Reform Act (EIRA) and its implementing rules and regulations.

**Activity 1.2.1. Conduct of Stakeholders Consultation Meeting** - Regular consultation meetings shall be conducted with the various stakeholders in the NRE sector to solicit their comments on the bill. Among the agenda for discussion include the review of the specific provision of the EIRA and its relevance to the proposed NRE Bill. Provisions in the EIRA and its IRR which have direct relevance to NRE include universal levy for missionary electrification, ECs opening up unserved areas to qualified third party, alternative electric service for isolated villages, etc. Other potential programs and incentives to accelerate the growth of the NRE industry shall also be taken up during these meetings.

**Activity 1.2.2. NRE Bill Analysis and Recommendations** - After series of consultation meetings, proposed revision and additional provision shall be drafted. Since the PSC's representation is at the management level, their concurrence on the revised bill would make certain that the same shall be one of the priority bills among the legislative agenda being pushed by the energy sector. Further, the revision of the Bill shall also take into consideration the results of the policy studies, which will be conducted under Activity 1.3 of this project document. The reformulated version shall be presented to the NREIAC and PSC. Once favorably endorsed, the document shall be submitted to the Chair of the Energy Committee of the House of Representatives.

**Activity 1.2.3. Drafting of IRR** - Once the revised NRE Bill is already available, the Implementing Rules and Regulations (IRR) shall also be prepared. The early drafting of the IRR is consistent with the GoP practice of clearly stating the real intentions of each provision in the Bill. Thus, the drafting of IRR at an early stage will assist the NREIAC and the stakeholders appreciate on how the Bill, once enacted into law, will be implemented. It will facilitate communication with various stakeholders particularly the legislative body by providing clarity on the substance of the Bill so as to prevent misguided interpretations on its purposes. The IRR will also define the corresponding action plan on how the various provisions of the Bill shall be implemented. Once drafted, it is expected that the NREIAC with secretariat assistance from the Project Management Office (PMO) staff shall regularly update the IRR to incorporate possible changes in the contents of the NRE Bill.

**Activity 1.2.4. Lobbying by the DOE and NRE stakeholders** - The DOE and NRE stakeholders shall make the necessary lobbying for the inclusion of the draft NRE Bill in the list of priority bills at the government's legislative bodies. Meetings with the Energy Committee shall be regularly done to get the full support of the Chairman of the Energy Committee, House of Representatives, for him to sponsor and push the NRE Bill. Since the IRR has already been drafted, the project is in the better position in providing the merits of the Bill including the modalities on how its various provisions shall be implemented.

### **Output 1.2**

A revised NRE Bill containing salient provisions and features towards NRE development as well as its draft IRR are developed and duly approved by the NRE Stakeholders.

### **Activity 1.3. NRE Policy Analyses**

This output will involve the provision of technical advice in the review of existing NRE-related policies and regulations in the Philippines, as well as those from other countries, regarding energy resource development and utilization, with the aim at promoting and supporting NRE. It will also evaluate possible policy support activities and strategies that can be considered for NRE system project developers and investors. The output of the PDF-B component on Policy and Legal Framework for NRE Development shall be reviewed. Appropriate recommendations shall be summarized and prioritized according to readiness for implementation of action that needs to be taken to address the concerns.

**Activity 1.3.1 Conduct of policy studies** - Policy studies shall be conducted to cover the following areas:

- **NRE Electricity Policy Study.** The NRE Bill in its present state needs to be strengthened to give emphasis on the mechanisms that will allow entry of NRE projects in the restructured electricity market. Thus, new policies and regulations on the production and sales of electricity in the country under the restructured market structure shall be evaluated and

alongside, a set of specific policy support activities and mechanisms shall be recommended on how NRE power projects shall have access to the market. Under the present form of the IRR of EIRA 2001, a balance will be made between the quantity of electricity that will be obtained from the wholesale electricity spot market and from the long-term power supply bilateral contracts with IPPs and non-utility generators (NUGs). This is necessary to achieve the desired level of market reliability of the new structure. Thus, there is still a need to assess the possible applicability of the various mechanisms such as auctioned contracts, standard offer contracts, and guaranteed prices for NRE-based NUGs. This assessment will recommend whether said strategies can be modified to make them compatible with the new deregulated structure of the electricity sector. Further, the provisions on the Grid Code and Distribution Code shall also be reviewed. The salient features of EO 462 and the present IRR of EO 215 shall also be reviewed to identify those that can be incorporated in the Bill. New and innovative policy and market mechanisms for NRE shall likewise be analyzed such as the minimum renewable energy generation in the electricity sector, development of green marketing/pricing program, the institutionalization of green energy rating program, net metering/billing, among others. Costs and benefits analyses shall also be developed to provide clear economic justifications for the same. Meanwhile, relaxation of various environmental requirements to NRE power projects shall likewise be studied, whenever applicable.

- ***NRE Electricity Pricing Study.*** An electricity tariff pricing study for electricity generated using NRE shall be made. Various options for financial incentives to encourage NRE-based power projects, including capacity and energy payment and investment incentives shall be investigated and evaluated. The study shall also provide specific recommendations on the levels of each incentive measure. Successful experiences in other countries such as the investment tax incentives, production tax credits, property tax reductions, accelerated depreciation, and direct production incentives shall likewise be studied to determine their applicability and suitability in local electricity market. Thus, the pricing study shall take into consideration the present open market structure of the electricity sector as well as the various provisions of EIRA 2001 that have direct implications to power pricing. In conjunction with these, a model for electricity pricing with environmental impact costing will be developed. Also, the pricing study shall build on the results of existing studies conducted by WB and ADB on the environmental costs of various power generation technologies. While previous studies were all focused on conventional power generation technologies, study shall center on grid-connected NRE projects. The intention is to provide the key government agencies, particularly DOE and ERC, greater appreciation of the pricing issues on NRE power generation since this particular area has not been fully analyzed in the past. The study will therefore provide recommendations on specific provisions on the NRE Bill that will support innovative pricing strategies for NRE power projects vis-à-vis conventional technologies and shall complement the related provisions in EIRA 2001.

- ***NRE Power Generation Market Study.*** This involves the review of existing strategies on power projects and the development of innovative strategies for NRE-based power producers. The objective is to assist NRE-based NUGs as well as distributed power generators to compete in an open electricity market. It will include evaluating possible incentives for prospective investors, and appropriate terms and conditions for grid connection. Technology-related and regulatory issues such as intermittence of NRE supply, low availability level, and low capacity values of grid-connected NRE systems as well as market reliability issues shall as interconnection and power quality requirements and ancillary services requirements shall be properly studied to provide necessary recommendations in addressing the same. Other specific practices within the power sector, which are not applicable to NRE power projects

shall be likewise identified and evaluated to come up with specific provisions in the NRE Bill that will exempt NUGs and distributed generations from the same.

Many new developments have occurred since the drafting of the CBRED project brief. To ensure that the above policy studies are still relevant, the scope and methodology for the conduct of the said studies shall be presented first to the NREIAC for review and approval. The NREIAC shall determine if the said policy studies are critical to institute high impact reforms towards the wider utilization of NRE resources. Otherwise, the Committee shall recommend other studies, which will respond to the current needs of the sector. The Committee's recommendation shall be presented to PSC for their approval.

**Activity 1.3.2 Conduct of Stakeholders Consultation Meetings** - The results of the policy studies shall be presented to the different stakeholders for their comments and additional inputs. For each deliverable (e.g., inception report, draft report, final report, etc.) the stakeholders shall be consulted to solicit their inputs and comments. The project shall not accept the results of the study unless it has gone through the required consultative process. The project would like to make sure that the policy recommendations provided by the study would gain wider acceptance, particularly by the private sector.

### ***Output 1.3***

Various policy studies are conducted. Reports containing various policy recommendations are presented to and reviewed by the NREIAC. Said recommendations serve as among the inputs to the drafting and revisions of the NRE Bill and its IRR.

### ***Activity 1.4. NRE Planning Model***

In support of the government's power development and rural electrification program, the objective of this activity is to provide enhanced planning models that incorporate NRE in both rural electrification planning and power development program of the government. In the case of rural electrification planning, NEA has recently developed a planning model to determine the areas for on-grid and off-grid applications through the funding assistance of the World Bank. The Renewable Energy Systems Utilization for Rapid Growth of Electrification (RESURGE) model is a tool to evaluate renewable energy alternatives to such traditional grid extension. It compares various alternative technology options and project ownership structures to identify the most suitable technology and financing option for each electrification project. The model is advantageous to the analysts of NEA and ECs since it builds on their existing Rural Electrification Analysis (REA) software, which is based on spreadsheet platform. Spreadsheet-based calculations are considered easy to understand and user-friendly (REA and RESURGE models are based on Lotus and MS Excel spreadsheet applications, respectively). The model will be made available within the first semester of 2002. NEA has already conducted the first consultation workshop where comments and suggestions of the various stakeholders have been solicited to further enhance the model. The model shall be pilot tested in two ECs.

However, the RESURGE Model has its own limitations too. One of the main drawbacks of the RESURGE model is that only one electrification project (normally catering one barangay only) can be handled at a time. The process must be applied to about 8,000 remaining unelectrified barangays in the country to come up with a complete electrification plan. Managing data and handling the results of national electrification planning using the RESURGE model are therefore considered laborious. Also, the specific features of the NRE technologies which affect project design and financial viability such as intermittent NRE supply and benefits of distributed generation are not factored in the model. Further, the World Bank agrees that the RESURGE model also lacks necessary utilities such as in handling load forecasting.

DOE recognizes that there is no need to develop another planning model for NEA and ECs. However, it is also aware of the need to complement the RESURGE model with various software utilities to address its current limitations. There is also a need to develop a more project-specific model that will be suitable for other electrification proponents such as RESCOs, NGOs involved in electrification and other private entities. Said model should build on the RESURGE model of NEA and ECs to facilitate common understanding of project analysis results. There are also other software tools available for rural electrification planning such as the USAID-NREL's Homer and Vipor Model as well as the GTZ's EPRO Model for NRE-based projects. Other independent consultants and practitioners on rural electrification also employ their own specific design formats and software tools. The proliferation of these models and tools in electrification planning may induce barrier on communication and lack of confidence in the results of project studies and planning exercises conducted by different agents. Under these circumstances, there is a need to establish a framework rationalizing the applicability and limitations of the models and tools used for electrification planning and project design activities. The framework must facilitate clear understanding of results of studies made by different proponents. There is also a need to train the ECs and the concerned electrification proponents on the proper use of these models and tools.

On the other hand, another task of this activity is the development of market simulation model for power generation market. The model shall also be developed to assist NRE-based power producers in competing in an open electricity market. This activity is in conjunction with the market strategy study. The idea is to balance out the need for a comprehensive census of village-level information with the practical needs of the IPPs who are interested to pursue NRE-based power generation.

**Activity 1.4.1. Assessment and Upgrading of NRE Planning Models** - A study on various planning tools and models for electrification projects and simulation for the comparison of different project alternatives for barangay electrification shall be conducted. Said study shall develop a framework on the use of different rural electrification software tools including the RESURGE model. The goal is to provide recommendations on the available software tools and models suitable for different tasks and activities on rural electrification activities such as project design, program planning and analysis, etc. Focus shall be given on tools and models for off-grid rural electrification projects using NRE technologies. Upgrading of existing models shall also be undertaken when deemed necessary.

**Activity 1.4.2. Development of Power Generation Market Simulation Model for NRE Projects** - This involves the study of the various socio-economic, technical, and financial factors that affect the decision of NRE project developers in pursuing grid-connected NRE projects. Based on the verified parameters, a simulation model shall be developed to provide prospective indications of the available quantity and quality of NRE-based electricity that can be exported by the NRE-based NUGs to the open electricity market. Modeling of the electricity dispatch scheduling that will be prescribed by both the market and system operators of the wholesale electricity spot market shall be undertaken. Sources of necessary input data to the model shall be identified and baseline figures for key variable shall be established. Furthermore, the model shall likewise be made capable to assist NRE-based NUGs in assessing the potential of entering into a bilateral contract with registered power generating companies on the sales of NRE-based electricity.

Another capability of the simulation model will be the assessment of techno-economic feasibility of implementing market packages<sup>3</sup> for off-grid electrification. In this type of project, the developer shall assume the management of both generation and distribution of electricity using

<sup>3</sup> Based on the study conducted by the USAID in July 2001, "market package" is defined as a contiguous group of 10 or more unelectrified barangays such that traditional grid extension may prove to be techno-economically non-viable on the part of distribution utilities holding the franchise and that the provision of NRE-based mini-grids and distributed systems by another independent providers is deemed more appropriate.

combined NRE and conventional power technologies in providing electricity services to several un electrified barangays in the rural areas whose franchise right has been waived by the distribution utilities.

**Activity 1.4.3. Pilot-Testing and Conduct of Training on the Use of the Models -** Based on the recommendations from the previous activity, a training program shall be developed for the use of different software tools and models for rural electrification projects. Focus is given on those tools used in planning for off-grid projects using NRE systems. In particular, the design of the trainings that will be developed to identify target training participants. Training exercises shall be developed on the actual use of each model. Again, focus is given on trainings for use of RESURGE model and other software tools useful for the design and analysis of off-grid NRE electrification projects.

#### ***Output 1.4***

Different planning models used in off-grid NRE electrification projects are assessed. A framework on the rational use of these models is developed and implemented. Improvements on existing electrification models are made and several software utilities are developed to make the models more useful and practical in the conduct of electrification planning and project design. Accompanying field-testings are conducted to verify the improved models and utilities. Meanwhile, a market simulation model for NRE-based power producers is developed and field-tested. A training program for the said models is developed to form part of training activities under Component 5.

#### ***Activity 1.5. Integrated Energy Planning***

This activity will enhance support to NRE development efforts of the DOE through capacity building in the area of integrated energy planning. A review of the planning methods of DOE will be carried out and recommendations for integrating existing development policies/plans (e.g., technological, social and economic) as well as plans/programs in various sectors, related to NRE development and commercialization will be provided. Planning procedures of the DOE shall also be reviewed to develop institutional framework on how the contribution and participation of civil society particularly private sector and NGOs shall be included in the integrated planning exercise. The roles of NREIAC shall be further expanded to facilitate the establishment of the said mechanism. Evaluation and enhancement of existing planning models and forecasting tools will also be made to facilitate integrated planning.

**Activity 1.5.1. Planning review and assessment -** The initial tasks shall include the review of the existing planning methods as well as data gathering procedures being adopted by the DOE in NRE planning. Possible recommendations to improve the existing methods shall be submitted to DOE for consideration. The main objective is to assist the DOE staff in facilitating the conduct of NRE supply and demand forecasting, estimation of capital investment requirements, which are substantial inputs to the Philippine Energy Plan (PEP). The PEP is being updated annually, thus enhancing the present planning methods will be useful to the NRE sector.

**Activity 1.5.2. Development of NRE Integrated Energy Planning Model -** The succeeding tasks involve the identification of plans and programs of other agencies relative to NRE development and promotion. The idea is develop a model and other planning tools which will systematically incorporate DOE's and other agencies' plans on NRE. It is understood that the model shall go beyond basic lighting and shall be expanded to cover productive uses and community applications which are the priority concerns of other agencies, such as irrigation, water pumping, lighting for school buildings, cold storage facilities, vaccine refrigeration, among others. Furthermore, a framework for the integrated and participatory planning for NRE sector shall also be developed. The framework will define the delineation of roles of different

government agencies as well as the private sector and NGO groups in the entire NRE planning process. Thus, it shall also serve as a mechanism for the consolidation of planning input data coming from different government agencies and shall also provide ways on how information and forecasts of the private sector and other concerned entities shall be incorporated in the model.

**Activity 1.5.3. Pilot testing of NRE Integrated Planning Model** - Before fully adopting the model, the same shall be pilot tested and the results will be presented to the NREIAC. The Committee can assist in the validation of the assumptions made in the development of the model. Whatever recommendations provided during the NREIAC meeting shall be used in enhancing the model.

**Activity 1.5.4. Design of Trainings on Integrated Energy Planning Model** - Training shall be designed for agencies involved in the NRE planning process. The participants may include representatives from DOE (both NCED and Energy Planning and Monitoring Bureau staff), NEA, NPC-SPUG, Department of Agrarian Reform (DAR), DILG, Department of Agriculture (DA), and Department of Environment and Natural Resources (DENR), among others. Actual data and information shall be sought from these agencies to validate the results of the model.

### ***Output 1.5***

Integrated Energy Planning Model adopted by the DOE - A corresponding institutional framework on the conduct of integrated energy planning is likewise developed. A corresponding training on the use of IEP model is designed and undertaken under Component 5.

### ***Activity 1.6. NRE Policy Implementation Monitoring and Evaluation***

This activity entails the monitoring and evaluation of the impacts of the enforcement of policy, pricing and regulatory measures that are recommended and implemented in order to promote the use of NRE both for power and non-power applications. Lessons learned around issues such as incentive mechanisms, further barriers to market uptake, communication and policy strategies will be identified and appropriate action recommended.

**Activity 1.6.1. Definition of the Performance Monitoring Indicators** - This activity will entail the identification of the performance monitoring indicators being used in the enforcement of policy and regulatory measures. Existing indicators may not be relevant to NRE sector, thus analysis shall be done to identify which indicators can be used to assess the impact of various NRE related policies.

**Activity 1.6.2. Development of M&E Systems** - The development of M&E system will take into account the various performance monitoring indicators done in the past. The system shall include the following components, control mechanism, level of outputs based on policy interventions, degree of impacts, among others. It is very critical to pilot test the developed system with an existing policy to verify its usefulness.

**Activity 1.6.3. Presentation to NREIAC** - As provided in Activity 1.1 the NREIAC is tasked to monitor and assess the impacts of NRE related policies. Thus, once the M&E system is developed, the same shall be presented to the Committee to determine if the system is adaptable to the sector. Inputs and suggestions of the Committee shall be solicited to further enhance the M&E System.

## *Output 1.6*

M&E System for NRE policy implementation is developed and implemented by NREIAC.

### **C.2. COMPONENT NO. 2: NRE MARKET SERVICES INSTITUTIONALIZATION**

Most of the prospective project proponents (those who are convinced about the potentials and benefits of NRE) view NRE project development as a complex process, involving many steps and phases where the government institutions need to be consulted for approval. In the process, the project proponent inevitably encounters problems and barriers not only in the context of red tape and bureaucracy, but in terms of too many overlapping policies, rules and regulations. The "permitting issues" is only the initial barrier for the potential NRE investor/developer. There is also the issue of inconsistencies in guidelines/policies of the government agencies involved in the permitting process.

Many of the potential private investors perceive the setting up of NRE projects as a difficult task starting at the very beginning of registration and application process. Because of this, there is a sector-wide clamor for mechanism like the "one-stop shop" concept, where an investor will have to deal with a single agency only in order to facilitate the preparation and processing of necessary legal papers and permits required for an NRE project. Under this context, it is understood that permitting process remains the responsibility of the concerned government agencies.

This project component will mainly involve the creation of such "one-stop-shop" for NRE market services. This is in response to the NRE project developers' clamor for an expedited processing of their applications and proposals for permits to carry out NRE projects, and for assistance in project development particularly on the provision of necessary quality information needed in project design. The "one-stop-shop", which will be referred to as the Market Service Center (MSC), will be the focal point in the country for NRE market development and will serve to link private sector players to the government institutions particularly the DOE for the purpose of harmonizing expectations and mutual support. It will not be a government agency fully dependent on public funds. Rather, the MSC will be formulated as a quasi-private organization representing private sector, NGO and GoP interests. It will have a Board of Directors to be chaired by a representative of DOE and co-chaired by a representative of the private sector. It will, however, be made an integral component of the "One Stop Energy Investment Center" (OSEIC) that the DOE shall be creating to assist and facilitate private sector investments in the energy sector. This set-up will enable the MSC to access some funds from the OSEIC.

Thus, the major functions of the MSC will be the assistance to project proponents on the coordination with relevant government agencies including DOE to facilitate permitting process for the approval of NRE projects, the provision of NRE advisory and information services and the promotion of the financing mechanisms that will be supported by this Project. Specific to the latter, the MSC shall be tapped to undertake promotional activities to potential project proponents to avail the three (3) project funds that will be established under Component 4. It shall also provide assistance to the project proponents in coordinating the compliance of necessary documentary and permitting requirements related to the processing and approval of fund applications.

The DOE will supervise the MSC and provide policy oversight and guidance. The DOE may, after due consultations with stakeholders consider making the MSC a part of PNOC-ERDC where it could receive long term support and yet maintain close links with the private sector. On the other hand, DOE may also consider MSC to be turned over to private entities should the same be deemed more feasible towards the operational sustainability of the MSC in the long run. In such case, the roles of MSC shall be reviewed to ensure that the activities of MSC, after the turnover, shall not duplicate the functions of any government agency particularly DOE.



**Immediate Objective:**

Immediate Objective 2	Success Indicators	Verifiers
<p>Create and operationalize a 'one-stop-shop' to serve as the single agency where NRE project investors need to go to obtain all the legal papers and permits required for NRE projects.</p>	<ol style="list-style-type: none"> <li>1. MSC Business Profile and Business Plan approved by DOE in Year 2.</li> <li>2. At least 2 NRE projects packaged by MSC starting Year 3.</li> <li>3. At least 50 NRE clientele served by MSC starting Year 3.</li> <li>4. At least 50% of MSC operational costs can be financed by its income by the end of the Project.</li> </ol>	<ol style="list-style-type: none"> <li>1. Annual MSC Accomplishment Report.</li> </ol>

**Activities and Outputs:**

**Activity 2.1. Set-up a Market Service Center**

This activity will provide essential funding to set up a Market Service Center (MSC) and for equipping, staffing, operating and managing of the MSC during its incubation period. The center will represent the interests of the GOP, NGO and the private sector.

**Activity 2.1.1. Selection of MSC Coordinator and Board of Directors -** The qualifications of the MSC Coordinator including job description shall be drafted and shall be presented to the NREIAC. The same shall be finalized and will be published in widely circulated newspapers. A deadline shall be set in the submission of application. Review and short-listing of the prospective applicants shall be done by NREIAC. The short listed applicants will be subjected to interview by NREIAC prior to actual selection.

Both MSC Coordinator and NREIAC shall identify the composition of the Board of Directors (BoD). The composition of BoD shall be selected based on their capabilities to provide legal, financial, technical support to make the MSC a viable self-supporting organization. Invitation to the identified member agencies shall be drafted for them to identify their official representative to the Board.

**Activity 2.1.2. Selection of MSC Staff -** Initial activities during the establishment of the MSC include the development of an organization structure, staff/unit composition, overall functions, implementation arrangements, etc. The qualifications of the staff as well as job descriptions shall then be developed based on the functions of the MSC. The procedures enumerated above for the hiring of MSC Coordinator shall also be used in selecting the MSC staff. Each staff shall be given a work plan detailing their specific activities and milestones for a certain period. The work plan shall be updated annually through the conduct of a regular MSC strategic planning during first quarter of the succeeding years. Said work plan shall be submitted to PMO to validate if it conforms to the overall project target outputs. The MSC and PMO organizational structure is presented in **ANNEX 4**.

**Activity 2.1.3. Establishment of MSC Facilities and Equipment** - The MSC is envisioned to be a self-supporting organization, which can extend service and facilities to NRE developers. Given this mandate, the list of facilities and equipment necessary for its day-to-day operation shall be identified. The procurement of facilities and equipment shall be done based on the work plan or priority activities of the MSC.

### **Output 2.1**

MSC officers and staff are identified and hired. Functions for each organizational staff of MSC are defined. Facilities and equipment are also provided. MSC is mobilized to provide various forms of market service assistance to NRE clientele.

### **Activity 2.2. Preparation of MSC Business Plan**

The purpose of this output is to give the MSC the planning elements and goals to become self-sufficient in five years. To reach this goal the MSC must focus on identifying a market niche and on providing value for service through which it can sustain itself. The Business Plan must show exactly how the MSC shall perform within the next five years. It shows the risks and strengths of the Center, describes the market, outlines the long-term goals, and sets out the milestones to be reached. In short, the Business Plan should be able to provide an accurate and realistic description to measure and develop the business performance of the MSC. On the year 3 and onwards, MSC shall conduct annual planning workshop to review its strategies and programs as well as to study its sustainability after the completion of the Project.

**Activity 2.2.1. Development of Center Profile** - With the assistance of the BoD and MSC Coordinator, the proposed business profile of the MSC shall be drafted which will include the mandate, goals, roles, vision and mission of the organization. The Center Profile should be developed with the end in view of self-sufficiency. It shall contain business idea, the product or service it can offer and the target markets.

**Activity 2.2.2. Preparation of Operational and Business Strategies** - Before the operations and financial plans are drafted, the MSC shall conduct market survey analysis to determine its prospect in the sector. Target respondents would include students, researchers, NRE manufacturers, inventors, project developers, other government and private agencies, etc. The survey shall attempt to determine the target markets for MSC service, the conditions and trends in the NRE industry, areas of competition, existing prices of similar services, willingness to pay of the target markets, etc. The results of the survey will be used as basis in drawing up the appropriate business strategies, i.e., fee for service, membership, project packaging, training provider, etc., for the MSC to sustain its operation in the long run. The identified strategies will then be used formulate the operational plan of the Center for a period of 10 years. It is assumed that the GEF support to the operation of the MSC will progressively diminish on the fifth year of the project implementation.

**Activity 2.2.3. Preparation of Financial Plan** - A financial plan shall then be drafted after the operational plans have been laid down. One of the important aspects of financial plan is the financial forecast. The forecast should be realistic and plausible, highlighting the most important financial points. It is very important to do scenario building, such as worst-case, expected-case, and best-case forecasting to identify strategies given these different situations. Forecasting shall be done during the medium-term (5 years, with GEF assistance) and long-term (10 years; without GEF assistance). The Financial Plan shall highlight the most important financial breakdowns, namely: cash flow projection, profit and loss statement and balance sheet.

**Activity 2.2.4. Presentation of MSC Business Plan** - The Business Plan developed by MSC shall be presented to NREIAC for its endorsement to PSC. The NREIAC will ensure that the financial forecasts and marketing strategies to be used by MSC are realistic and the prices it offers will not be detrimental to the NRE industry.

**Activity 2.2.5. Operationalization of the Business Plan** - Once approved, the MSC shall operationalize the implementation of the said business plan. It shall develop work programs that will ensure the successful implementation of the strategies and business activities defined in the business plan. Also, MSC program planning shall be made annually to update its business plan. Starting year 3, the updating of the business plan shall include the concrete study on how the MSC operation shall be made sustainable. Decisions on whether the MSC shall be made a self-supporting entity outside the government control as well as the continuation of government support to its operation shall be addressed in the said planning activity.

## **Output 2.2.**

Business Plan for the MSC is formulated and approved by NREIAC and PSC. The same business plan is operationalized for implementation by the MSC.

### **Activity 2.3. Capacity Building for MSC Staff**

The objective of this output is to identify and enhance skill requirements of staff. This will involve the training of the MSC staff during the center's incubation period. The required training will be in line with the mandated roles of the MSC and would include, among others, information/database management and documentation and the provision of NRE advisory services. The latter would include aspects such as conduct of project techno-economic feasibility studies; preparation of agreements and contracts, including power purchase agreements, fuel supply, agreements, tender documents, as well as equipment, procurement and construction contracts; and arrangement of project financing package, including preparation of business proposals and loan arrangements. If applicable, on-the-job training shall be employed to facilitate skills transfer.

**Activity 2.3.1. Training Needs Analysis** - Prior to the conduct of training, needs analysis shall be done to assess the types of training that will be provided to the MSC staff. The training needs analysis shall link the individual competence with the role requirements of MSC staff. Among the items that will be looked into include level of education, knowledge, skills, background, previous experience, etc. These information shall be used in the design of the training program.

**Activity 2.3.2. Design of Training Program** - The training program shall be designed specifically to cater on the envisioned role of the MSC. However, other agencies, especially NREIAC member agencies, shall also be invited to participate in these capacity building activities. The training program design shall include the following: target participants, dates, training objectives, topics to be covered, resource persons, and audio-visual equipment required.

**Activity 2.3.3. Conduct of Training Program** - Training of MSC staff shall be done during the initial phase of its establishments. It is assumed that the focus of MSC during the first year will be in the areas of capacity building and organizational development. The training program shall be conducted not solely for MSC but would also include other agencies where such trainings are deemed appropriate. The MSC staff shall also attend other training program designed for this project (Component 5) and other training activities sponsored by the DOE or other NREIAC member agencies.

**Activity 2.3.4. MSC Staff Evaluation** - The performance of the MSC staff shall be evaluated annually to ensure the effectiveness of capacity development activities. Training gaps that will be identified in the course of the evaluation shall be used in modifying the design of the training program. Capacity building is very crucial to MSC, thus the project shall ensure that the staff are properly trained for them to provide the necessary service more effectively.

**Output 2.3.**

Capacity building for MSC staff is conducted. MSC is functioning as one-stop-shop for NRE developers.

**C.3. COMPONENT NO. 3: NRE INFORMATION AND PROMOTION SERVICES.**

This project component will address the information barriers that hinder the development and implementation of NRE system (electricity and non-electricity) projects in the country. These include technical information that are required in the conceptualization/design of potential NRE projects (e.g., wind speeds and other meteorological data, volume of biomass resources), and market information that are necessary in evaluating the economic/financial viability of NRE projects (e.g., electricity prices, fuel prices, electricity demand). The Philippines is an archipelagic country and because of the diverse geography as well as varying regional economic conditions, NRE information availability, accessibility and affordability are big issues that affect NRE development in these different areas in the country. Moreover, different target groups would require different kinds of information related to NRE.

Information on NRE may be substantially available in some offices in the government, the academe and in the private sector, but on the whole, are: (1) dispersed in various locations (no central catalogue or repository) and, (2) difficult to access. On the other hand, *internet search* has generally been catered to meet individual or institutional needs. Information dissemination on NRE is scant and irregular. There has been no mechanism to share and collaborate on information generation with others. The government energy agencies, specifically DOE-NCED, NEA and NPC, generate voluminous energy data and information, and they have that inherent advantage of easy access to a wide array of information, both local and international. However, the utility value of information collected and generated is low due to poor information management. Moreover, further processing and analyses of information into useful information packages are not given attention. The weak state of information sharing is reflected in the failed effort in 1998 by the Renewable Energy Network to develop an NRE information repository.

**Immediate Objective:**

Immediate Objective 3	Success Indicators	Verifiers
Establish a national NRE database containing resources data in forms that are useful, readily accessible and known to target clients such as potential private investors and policy makers.	<ol style="list-style-type: none"> <li>1. Consolidated NRE database linked to local and ASEAN databases fully operational and accessible through the web by end of the Year 5.</li> <li>2. NRE website fully operational by first half of year 3.</li> </ol>	<ol style="list-style-type: none"> <li>1. No.-of hits of the NRE website</li> <li>2. No. of satisfied users/clients of the NRE Information Exchange Service</li> </ol>

Thus, the design and implementation of the information dissemination and promotion program shall involve various innovative strategies to facilitate generation of useful database to various end-users, the expedient exchange of information using the internet, and utilization of tri-media for promo and outreach NRE campaign. These activities have an end-goal of facilitating growth of NRE market by enhancing the confidence of target end-users in making decisions on the use of NRE systems and by encouraging NRE

project developers and private investors to supply the needs of consumers with reliable and affordable energy services through NRE.

## **Output and Activities:**

### ***Activity 3.1. Conduct of NRE Resource Inventory***

This will involve the conduct of additional NRE resource assessments in the country to update and augment existing resource data that can be utilized by project developers/investors in conceptualizing and designing NRE projects. The idea is to assess the existing NRE resource database from different agencies and institutions in the country and identify the gaps on resource information vis-à-vis the needs of NRE project developers. Conduct of additional resource monitoring shall be undertaken for identified resource data gaps. Said additional resource data shall be housed at the MSC while an arrangement shall be made between MSC and other institutions for the exchange of the existing resource database. MSC therefore is expected to assist interested project developers and other parties in providing updated resource database for project site identification and development, among others.

**Activity 3.1.1. Resource data assessment and classification study** - Considering the huge scope of NRE sources that require resource assessment, the initial step is to identify specific NRE resources that will be prioritized under this activity. Prioritization shall be based on those resource data immediately needed by the project developers as well as by activities and projects directly providing contributions to the thrust of the government such as the O'flaw Program. This will be followed by the conduct of an inventory of existing resource monitoring results of priority NRE sources in different agencies and institutions. These may include but not limited to wind, solar, micro-hydro, and biomass. A consolidated list of different resource database shall be prepared to account for the agency or institution where the information is available, the geographical locations where the data are taken, the measured volume or strength of the resources, methodology used in data monitoring and measurement as well as the forms in which information are currently available. This activity will show the extent, form and quality of resource data for each of the priority NRE sources. MSC shall facilitate the establishment of arrangements to allow project proponents and other clientele in accessing said resource database and information lodged from different agencies and institutions.

**Activity 3.1.2. Identification of NRE Resource Database Gaps** - A study shall be made to identify priority NRE resources, which need additional resource assessment by the NRE project developers. Said study shall determine the specific locations and priority resources that will be covered by the additional resource monitoring. Among others, priority shall be given to the conduct of resource surveys in unelectrified barangays targeted under the *O'flaw* Program to support the immediate development of off-grid electrification projects using NRE systems in said areas. This will lead to the preparation of a list of priority sites for the conduct of the additional surveys.

**Activity 3.1.3. Planning and Conduct of Additional Resource Surveys** - A resource monitoring and measurement plan shall be developed for the conduct of additional surveys identified in the foregoing tasks. This involves the definition of scope of each activity and the identification of the specific institution or group, which will be hired to conduct the surveys. Additional resource monitoring equipment and devices shall be identified and procured in support of the said resource surveys activities. MSC shall serve as the keeper of the additional resource data that will be established this activity.

**Activity 3.1.4. Development of Sustainable Resource Inventory Program** - Once the updated inventory of NRE resource database is established, a continuing program for the expansion and regular updating NRE resource database shall be developed and implemented among participating institutions. The follow-up program shall include a 5-year plan for the conduct of additional surveys to cater the future resource data needs of project developers, which will start at the end of the Project. Specific activities as well as funding support, and the delineation of roles among different key agencies shall be included in the said program. DOE, through the MSC, will take the lead in implementing specific activities outlined in the said program.

### **Output 3.1**

An updated NRE resource inventory accessible to project developers and other interested clients is established. Arrangements among different institutions are also established for the integrated use of the said resource inventory by NRE clientele with MSC as the focal point.

### **Activity 3.2. Development of National NRE Database**

This will involve the design and development of an institutional mechanism for the establishment of a national NRE database system. The system will include information on NRE resources, NRE technologies and technology applications in the Philippines and in tropical countries as well as linkages with other NRE-related databases in the country. The NRE resource database generated by Activity 3.1 shall form part of the said database system.

Using the results of the completed PDF-B on information management, a listing of key institutions holding NRE-related information (to be called as database keepers) shall be prepared and validated. Said identified institutions shall provide inputs in the preparation of the listing of existing NRE-related database which will be included in the development of a national database system that will be managed by the MSC. The system will be a mechanism to consolidate all existing NRE-related database that will be made accessible to various NRE clientele. An arrangement between MSC and the identified database keepers shall be established to enable the said integration of database. The scope of the integrated database system will depend on what can be realistically done within the 5-year timeframe of the project.

**Activity 3.2.1. Consultation with Potential NRE Database-keepers** - A preparatory activity completed under the PDF-B has identified key agencies and institutions to form part of the national information network on NRE. These include, among others, the DOE-NCED, PCIC, UP Solar Lab, SIBAT-STROCC, PNOG, and REAP. Meetings and consultations with these institutions shall be continued to validate their existing databases and specialization in information service. Other potential institutions such as the DOE's twenty (20) Affiliated Non-Conventional Energy Centers (ANECs) and UPLB Biomass Laboratory, which shall also be consulted and considered. Said consultations shall facilitate the discussions on the proposed integration of existing NRE-related databases and information. Communications with NRE-related international agencies particularly those in the ASEAN region shall also be made to discuss collaboration on database and information linkage.

**Activity 3.2.2. Establishment of NRE Database-keepers Committee** - An agreement shall be established among these institutions to implement the national NRE database system that will allow the consolidation and integration of NRE databases. Under the said agreement, a committee shall be formed in which the participating agencies shall be designated as database keepers with the MSC as the focal point. Specifically, the agreement will bind the different database-keepers by defining the possible arrangements for the communal use of database among database-keepers, data access by the NRE clientele on the integrated database via MSC, as well as the promotion for

the effective use of the said system. Since access through the internet is the most practical approach, the agreement shall also enable the preparation of a plan and strategy for developing a unified, web-accessible database for NRE (see Activity 3.4). Programs and budgets shall be prepared to allow the database-keepers to upgrade their database to web-ready formats. Arrangements shall also be made with interested international institutions for the possible exchange of database and information related to NRE.

#### **Activity 3.2.3. Database Strengthening and Capacity Development of Database-keepers -**

Upon the signing of agreement for the establishment of the Data-keepers Committee, a program shall be developed and be immediately implemented to strengthen the capability of the database-keepers in aspects of information technology, database management and information service.

### **Output 3.2**

Key agencies holding NRE-related database useful to NRE clientele are identified and consulted. An agreement is established among these agencies for the integration of national NRE database and for the establishment of NRE database-keepers Committee. The integrated NRE database shall be accessible to NRE clientele through the internet.

#### **Activity 3.3. Integrated NRE Information Exchange Service**

This will involve the design and development of a program on NRE technology information exchange services to be spearheaded by the DOE through the establishment and implementation of the MSC. Other NRE Database-keepers Committee shall also take the pro-active roles in the implementation of the program. Information exchange service that will be developed under this activity shall not be limited to electronic data accessible through the internet. The national NRE database established in Activity 3.2 would be used to facilitate the integrated information exchange. Also, the NRE resource database included in the survey and inventory conducted in Activity 3.1 shall also form part of the overall information exchange system that will be developed under this activity. Other forms of information materials and mediums of information exchange shall be included in the integrated information exchange system.

Consultations through interview/survey instruments shall be undertaken to identify the information needs of the NRE stakeholders, particularly the NRE project developers. The priority NRE resource database identified and developed in Activity 3.1 shall also form part of the said information needs assessment. A prioritization of the data and information needed by the NRE sector shall be undertaken. The list of priority data and information shall be the basis of the design of the integrated national information management system. System design shall include, among others, the data and information classification, information storage and handling, modeling of the exchange system, the institutional framework for the implementation of the system, and the policies and guidelines on the generation and use of information included in the system. Thus, the exchange system shall enable the classification of data and information, interconnection of different database and information sources, assessment of the information quality, integrated access of information by target NRE clientele, among others. Also, system will be made consistent with the structure national NRE database that will be developed under Activity 3.2.

Once the system is developed, an integrated information dissemination program for NRE shall be formulated. The program shall involve the implementation, on a sustainable basis, of various activities to promote the effective and appropriate use of NRE data and information on the part of the target information end-users. Said program shall be implemented by the MSC through the supervision and oversight of the DOE.

**Activity 3.3.1. Assessment of Information Needs of NRE Clientele -** Building on the preparatory work under PDF-B, the priority clients of NRE information shall be identified to define the scope of the assessment work. A survey of data needs of the target clients shall be conducted. The survey will determine, among others, the specific types of priority NRE-related data needed by the target clients, the current sources of information, the modalities of accessing information and data, the format of the data and medium of accessing the same being preferred by each client group. The results of Activity 3.1 on the priority NRE resource database needed by the project developers shall be integrated in the final results of this task. The survey shall also take the opportunity to consult the target clients on the use of internet as the main medium for information services on NRE as well as their willingness to pay for various services. Consultations with the identified NRE database-keepers shall also be made on the types of information being requested by their own set of clients and end-users as well as their own policies in providing information services (see Activity 3.2).

**Activity 3.3.2. Inventory of Existing NRE Information and Database -** Based on the survey, a list of agencies and institutions holding or maintaining relevant database and information on NRE shall be prepared. In said exercise, it is expected that the database-keepers identified in Activity 3.2 shall be included in the list. The inventory of existing NRE resource database conducted in Activity 3.1 shall also be integrated in this study. Other international bodies and institutions particularly those in ASEAN countries shall also be considered. Meetings among these agencies shall be conducted to identify the existing NRE-related information. The MSC and the NRE Database-keepers Committee shall facilitate the conduct of said meetings. Information management styles of each agency such as the available form of the data (electronic or not), data storage (e.g. computers, library, etc.) and maintenance, and the methods of public access shall be assessed and consolidated. In the case of electronic databases, the memory size and the access performance of these databases shall also be specified. Given these, existing gaps on the information needs of the NRE clientele as well as the capacity building needs of the said agencies shall be identified. MSC will facilitate the generation of said information gaps through collaboration with the other database-keepers and concerned agencies.

**Activity 3.3.3. Design of the Integrated NRE Information Exchange System -** A national NRE information exchange system shall be designed and modeled based on the identified information needs of the NRE clientele as well as the inventory of the existing NRE database and information of various agencies and institutions. The system shall provide management for the consolidation, upgrading and maintenance as well as the dissemination of and access to NRE-related data and information. As much as possible, electronic databases to be included in the system shall be integrated through the use of the web internet. It shall also enable access to information and database of other international NRE-related organizations particularly those in the ASEAN region. The design of the system shall also provide the institutional framework that will consolidate the existing (and future) databases residing in different agencies for the integrated access by various NRE client groups. More importantly, the system shall have the capability to provide information services to NRE clientele. The best medium for the transfer and access of information or data shall be identified. A criterion shall be developed to classify which type of information shall be subject for "fee-for-service" policy. This is to ensure that the management and generation of additional useful information shall be made sustainable in the future. Said criteria shall include, among others, the information on the willingness and capacity to pay of target clients for the information services that will be offered under the said system. Results of the survey conducted in the previous tasks will be used in the development of the criteria and the conduct of actual classification.



**Activity 3.3.4. Information Exchange Program Design and Execution** - A program to implement the integrated information exchange system shall be formulated and executed. As mentioned earlier, the program shall be developed based on the policy of "fee-for-service" to ensure program expansion and sustainability. MSC will take the lead to implement the said program with DOE as the main oversight agency. Roles of the NRE database-keepers committee shall also be defined in the implementation plan, which will be developed for the program. Arrangements for the collection of fees in various exchange transactions shall be laid down to enable the sustainability of the program. A monitoring plan to assess the usefulness of the services shall be developed to ensure continuing improvement of the system and to identify other possible forms of information services that can be developed in the future.

### ***Output 3.3.***

The information and data needs of the priority NRE clientele are identified and validated. Inventory of existing information and data from NRE database-keepers and other information sources is made. An integrated information exchange system is developed with the MSC as the host institution. The system is fully modeled to serve as a network of information catering the types, forms, medium of exchange, and the access/relay points of NRE information and database needed by the target end-users. A program to implement the system is developed while the capacity of MSC is enhanced to manage the system operation of the same.

### ***Activity 3.4. NRE Website Development***

A website shall be designed and implemented to facilitate the integration of NRE-related databases. Said central NRE website shall be set-up at and maintained by the MSC. Both NRE database-keepers Committee and the MSC shall define the scope of transactions and the capabilities of MSC website particularly on the access of other database and information which will be disseminated by MSC for a fee. Capacity building for the staff of both MSC and other NRE database-keepers shall be implemented to enhance their skills in managing and maintaining the website. Also, a set of promotional activities including the conduct of users' trainings will be conducted to encourage target NRE clients in web PSC browsing and conducting e-commerce at the central website.

**Activity 3.4.1. Website Design, Implementation and Maintenance** - A list of information to be presented in the web PSCs of the website shall be prepared. Priority will be given to information and data useful to both NRE project developers and end-users. This is to optimize the promotion of the NRE projects with emphasis on the benefits that users will obtain when they visit the site. The website will be capable to provide various information and promotional services that will be undertaken by the MSC which include, among others, the access to database of other NRE data-keepers and information providers. It must be user-friendly and able to meet hardware and software requirements. Link with relevant databases in the country and possibly in the ASEAN region must be part of the web page design. Consideration should be given to preparing the site in more than one language. The design should be accessible to stakeholders for review.

The design of the MSC website shall involve preparation of its functional requirements, development of specifications for both software and hardware requirements as well as the formulation of maintenance requirements for the system. It will be made compatible to popular internet platforms such as Microsoft Internet and Netscape. Website shall then be implemented and documented following good programming styles and practices. A maintenance plan based on the agreed maintenance requirements of the website shall be developed to expected changes on the needs and demands of the target end-users, to update the contents of the web pages, ensure proper operation of the site and its protection from any form of corruption.

**Activity 3.4.2. Capacity Building of MSC for Website Maintenance** - A set of capacity building activities on the management and maintenance of the MSC website shall be conducted for both MSC and the other NRE database-keepers. This covers the conduct of end-users' trainings, website maintenance, and a development of users' feedback mechanisms for the improvement of the website, etc. A projected budgetary requirements for the sustainability of the central NRE website shall also be developed vis-à-vis planned expansion of its services.

**Activity 3.4.3. Promotion of the MSC Website** - A program to promote the use of the MSC website by target NRE data clients will form part of a larger program for integrated information exchange service (see Activity 3.3). MSC shall facilitate the promotional activities in consultation with and cooperation of other members of NRE Data keepers' Committee.

#### **Output 3.4.**

A central NRE website is designed and installed at MSC through the use of good programming styles and practices. Training programs for MSC on the contents updating and maintenance of the website shall be conducted. A promotional program including but not limited to the launching of the website and end-users' trainings shall be developed and implemented.

#### **Activity 3.5. Consolidation of NRE Database**

This activity focuses on the consolidation and management of electronic databases residing in NRE database-keepers as identified in Activity 3.2. To facilitate the implementation of the national NRE database, various NRE information residing in each NRE database-keeper shall be consolidated into a unified linked database. An NRE database management system shall be developed consistent with the integrated NRE information services system prepared under Activity 3.3. Said unified database shall be accessible to the public through central NRE website of MSC (see Activity 3.4). Said database shall be converted into web-accessible formats consistent with the requirements specification of the MSC website. The NRE Database-keepers Committee shall make agreements on the scope and limitations of the public access to the unified database.

As mentioned in Activity 3.2, the consolidation of the NRE database shall build on the results of the completed study under PDF-B. Thus, the unified database will include but not limited to the following: (1) NRE Policy and Planning database (NCED); (2) Rural Energy database (NCED and UP Solar Lab); (3) NRE R&D database (PNOC); (4) Private Sector services database (REAP); (5) NRE and climate change database (PCCIC); and, (6) Community based NRE opportunities (SIBAT-STRCC).

**Activity 3.5.1. Listing of NRE Database for Consolidation** - The NRE Database-keepers Committee shall prepare a shortlist of priority NRE information that will be consolidated and linked through the MSC website. Said list must be consistent with the priority information and data identified in Activity 3.3.2.

**Activity 3.5.2. Data Production/Reformatting** - NRE information prioritized for consolidation shall be produced into web-accessible formats. Suitable format for each database shall be identified to ensure leanness and efficiency of the resulting NRE database system. Reformatting of existing electronic information residing in the NRE database-keepers shall also be undertaken.

**Activity 3.5.3. Design of NRE Database Management System** - A database management system for the unified database shall be designed. The structure of the unified database shall be designed to include data classification, data structure and hierarchy, data relationships, and operations for sorting, searching, updating and expansions. The design of the system shall involve specifications of its functional requirements, software and hardware requirements and its

maintenance requirements. Among others, the design shall identify the most suitable database linking system which shall be adopted for the consolidation of the NRE databases from different NRE database-keepers as discussed earlier. Special mechanisms shall also be developed to make system accessible to target NRE clients through internet.

**Activity 3.5.4. Implementation of the Database Management System** - Based on the said design, the implementation of the system shall be undertaken and documented following good programming styles and practices. A maintenance plan based on the agreed maintenance requirements of the system shall be developed to expected changes on the needs and demands of the target end-users and to ensure the protection of the system from any form of corruption.

### ***Output 3.5***

NRE database from different NRE database-keepers shall be consolidated and reformatted according to the needs of the end-users. A consolidated NRE database management system is designed and implemented. System is made accessible through internet and available at the MSC website.

### ***Activity 3.6. NRE Advocacy and Promotion***

This activity aims to formulate and implement a public awareness program to support the overall NRE program. It shall develop strong consciousness of the government and the people on the benefits and advantages of NRE sources and technologies. It involves conduct of various promotional and information dissemination activities that will enhance the appreciation of various NRE stakeholders (both government and civil society) on the use of NRE.

Underlying information and education campaign (IEC) activities shall be made in line with the overall goal of NRE market development. Government decision-makers shall be encouraged to formulate policies and laws that will promote the use of NRE. Interests of the private sector shall be aroused to enable the flow of investments to NRE projects. LGUs, NGOs and other local organizations shall be encouraged to develop and formulate local and community-based projects using NRE systems. Target NRE consumers shall be also encouraged to use and utilize NRE sources and technologies.

Thus, the outreach and promotion program shall involve with the identification of the information needs of the various stakeholders as well as the formulation of various mechanisms for the dissemination of information. Said mechanisms shall strongly utilize tri-media whenever possible. The design of the program shall build on the earlier study completed under the PDF-B. The integrated information services system and the unified national NRE database system being managed by the MSC shall also form part of the overall promotional program. A 5-year work plan of activities for the outreach and promotion program shall be outlined and developed to establish a critical mass necessary for NRE market development. Said work plan shall delineate the roles of key government institutions including DOE, PIA, other government agencies, etc. It shall identify specific activities that will be implemented directly by the MSC.

**Activity 3.6.1. Scoping Study for the NRE Outreach and Promotion Program** - Starting with the review of the work on public awareness from the PDF-B, an outreach and promotion program using appropriate communication mechanisms (e.g., tri-media, conferences and site visits) shall be developed for target NRE markets. Said markets include, among others, the following: (1) Potential users such as off-grid communities, LGUs and RECs; (2) Potential proponents such as financiers, technology distributors, NGOs, ANECs; and, (3) Policy decision-makers in key government and legislative positions such as the DOE, NEA, the Energy Regulatory Commission (ERC), Congress, etc. Also using insights on the information needs of the NRE clientele gained in Activity 3.3, and the optimum communication mechanisms for the target audiences shall be

developed. Said tasks must define the scope and limitations of the NRE Promotion Program that will be conducted under the project. However, the program must also cover the additional promotional support needed by the other activities of the Project such as the MSC's website, the green energy rating program, the financial packages for local NRE manufacturers, the NRE training program, etc.

**Activity 3.6.2. Program Design and Development** - A program for NRE outreach and promotion shall be designed which involves the outlining of the set of activities that will be undertaken for each type of market audience. Each promotional or IEC activity under the program shall be defined by identifying the target audience, its size, the mechanism to be employed, responsible institutions, and the other modalities of the activity. A corresponding monitoring and evaluation system to measure success of each activity shall be developed. A work plan of activities shall be developed for the 5-year implementation of the program with corresponding budgetary requirements. The design of the program shall also provide recommendations towards its sustainability after the completion of the Project. The potential roles of the PLA shall also be fully considered in the program design.

**Activity 3.6.3. Program Implementation** - The outreach and promotion program shall be implemented in coordination with groups, agencies and institutions with existing networks such as the ANECs, REAP and Philippine Association for Hydro Development (PASSHYDRO). Participation of the LGUs (provincial and municipal), NGOs, civic organizations and community-based local organizations shall be sought in the implementation of the same.

**Activity 3.6.4. Monitoring and Evaluation** - Each program activity shall be fully monitored and reviewed to provide guidance in the overall implementation of the program. Said task shall adopt the M&E system discussed earlier. Program redirection shall be made whenever necessary.

### **Output 3.6**

An outreach and promotion program for NRE, which caters a set of target NRE audiences is developed and implemented for five years. Each activity is regularly monitored and reviewed using the M&E system developed for the program. A proposal to continue the program after its 5-year completion is formulated.

### **Activity 3.7. NRE Engineering Service Industry Development**

This addresses the lack of local expertise in the area of NRE engineering service. The development of such industry will address the need for an enhanced local expertise in the area of NRE technology that will support the NRE development efforts. It shall also develop stronger confidence and consumer protection on the part of the NRE end-users. The activity also includes the capacity building for energy consultants in providing consultancy service on NRE technology. While the MSC will be providing the market-related assistance/service to prospective NRE project developers/investors, this industry will provide the technical services associated with the design, installation and maintenance and troubleshooting of NRE systems.

In effect, the activity involves the design and implementation of a program for the capacity building of local engineering firms in providing technical services to NRE projects. This includes the conduct of trainings for local NRE engineering firms on NRE "system management" and the development of a registration program for the said firms. The registration program aims to provide greater end-user assurance on the quality of engineering services being provided by the local firms and service companies. MSC will be utilized to implement the program in cooperation with other key institutions and government agencies, particularly DOE.

**Activity 3.7.1. Identification of Engineering Service Capacity Strengthening Needs** - A needs assessment will be done to identify the specific capacity gaps of the local NRE engineering service firms. These include engineering firms involved in installation and repair of NRE systems as well as equipment and accessory fabricators such as the micro-hydro equipment manufacturers, solar PV-BOS fabricators, etc. The study will evaluate tools and procedures used by local NRE engineering service firms to identify specific areas where they need technical support. The evaluation process should point to specific steps that can be taken to enhance the engineering tools and practices they currently use. Thus, the study shall lead to the identification of inventory of the training needs of the local NRE engineering service firms and the necessary institutional and regulatory requirements for development of a registration program.

**Activity 3.7.2. Design of NRE Engineering Service Industry Program** - Based on the results of the previous task, a capacity building program for local NRE engineering firms and service companies shall be developed. Program activities shall cover the design of technical support to engineering firms and the development of the registration program for the same. Technical support activities cover the development of design tools on fabrication, installation and repair of NRE systems as well as the design and conduct of specialized trainings on the same. The registration program, on the other hand, shall involve the formulation of guidelines and activities for verification of capacities and issuance of certificates for registration of the engineering firms and service companies.

**Activity 3.7.3. Implementation of Technical Support Activities** - Once developed, the implementation of the technical support program shall be conducted. Assistance will be provided to firms through the development of design tools in the form of user-friendly guidebooks, manuals, calculation sheets and computation software. A special training shall be developed on the use of these technology tools. It also includes the design training and workshops for local NRE service firms to enhance their skills and knowledge to be able to provide better engineering support services. Based on their needs, training courses will be organized and conducted through Component 5. The trainings will focus on the design, installation and maintenance and trouble shooting of NRE systems.

**Activity 3.7.4. Implementation of the Registration Program** - The program involves the issuance of registration certificates to engineering firms and service companies whose capacities have been verified. Said registration program aims to promote the capabilities of the local NRE engineering service firms and not to delimit their operations and prospects. Both verification program and the process of certificate issuance developed in Activity 3.7.1 shall be consulted and promoted to existing NRE engineering firms for their approval. Said firms shall be invited and encouraged to undergo registration. Other local firms who wish to join the NRE industry shall also be encouraged to seek registration certificates. Registered firms will be promoted by the MSC using various mechanisms such as its website.

### ***Output 3.7***

A technical support program and a registration program for the development of local NRE engineering service industry is formulated and conducted. Said program is fully consulted with and approved by the target engineering firms and service companies engaged in NRE. Registration certificates are issued to engineering firms with proven capacities on NRE system management. Also, technical support services and training program are developed and implemented for the local NRE engineering firms.

### ***Activity 3.8. Green Energy Rating Program***

This is intended as a promotional activity to encourage utilization of NRE in relevant industries and by prospective NRE system developers and operators. The goal is to provide necessary recognition to both project developers and end-users that have had strong participation in various success NRE projects. This output is realized through the design of an environmental rating scheme that would be based, among others, on the magnitude of realizing the potentials for using NRE.

**Activity 3.8.1. Review of Existing Industry Energy Rating Activities** - This task will consolidate and review the available information regarding industry energy rating. The goal is to assess existing practices and methods (both local and international) in conducting industry energy ratings. Focus is given on the process of verification and evaluation (i.e., energy audits) of existing energy conservation activities in the country being implemented by the DOE as well as the activities conduct of the annual awards being given by the Energy Management Association of the Philippines (ENMAP) in the field of energy efficiency. From the review, the proposal for energy rating activity in the field of NRE utilization shall be developed.

**Activity 3.8.2. Development of Measurement and Verification Scheme** - Based on the study, a verification scheme shall be designed to evaluate existing NRE projects. Evaluation parameters and indicators for different types of NRE projects shall be identified and defined. A standard measurement and verification scheme shall be developed to assess NRE projects. Thus, a guideline for the conduct of measurement and verification activity for each type of NRE project shall be developed. Verifying institutions and agencies will also be identified and consulted for the design and conduct of the rating program.

**Activity 3.8.3. Formulation of the Rating Scheme** - A rating scheme shall be developed to establish a unified rating system for NRE projects. Higher rating points shall be given to those projects which have shown success and have given encouragement on the conduct and implementation of similar projects. The goal is to promote the replication of these projects by other end-users and project proponents in the country. Among others, weight will be given to the amount of useful NRE utilized or generated by the project and the benefits provided by the same. The rating scheme will be patterned after applicable and similar schemes implemented in the country as well as in other countries.

**Activity 3.8.4. Rating Program Development** - A program shall be developed for the implementation of the green energy-rating scheme. This includes the guidelines for the conduct of verification and measurement as well as the procedure for the rating schemes. Among others, the program shall provide an outline of activities for the issuance of the rating certificates to both NRE project developers and end-users. The institutional mechanisms for the implementation of the program shall also be formulated. The institutional framework for the program shall delineate the roles and responsibilities of key government agencies and private entities such as DOE, NEA, NPC-SPUG, REAP and PASSHYDRO such as in the aspects of promotion and identification of candidate projects, conduct of verification and measurement, issuance of certificates, etc. A scheme that will integrate the rating scheme to other accreditation programs in the country will be developed. Consultations to NRE stakeholders shall be conducted to present the proposed program and to gather necessary comments and suggestions prior to its implementation. A testing program shall be conducted to ensure that the implementation of the rating scheme shall be accepted and participated by the NRE sector.

**Activity 3.8.5. Program Implementation** - The DOE will be responsible for the implementation, monitoring and evaluation of the rating scheme. With the guidance provided by relevant government, NGO and private institutions (e.g, REAP and PASSHYDRO), DOE will implement

the rating scheme with the full support of the NRE industries. MSC will be utilized to promote the program and to receive nominations for candidate projects. The program will be made annually and successful projects identified under the program will be given necessary recognition or awards. The MSC will also be tasked to conduct promotional activities to successful projects.

### **Output 3.8**

The green energy rating program will be developed and implemented. Approval and participation of the NRE stakeholders are sought for the program. Various successful NRE projects are identified, recognized and promoted through MSC.

### **C.4. COMPONENT NO. 4: NRE INITIATIVES DELIVERY AND FINANCING MECHANISMS**

This project component will come up with financing mechanisms that will support NRE application projects involving the employment of NRE delivery mechanisms. A number of NRE service delivery projects will be financed using the funds that will be allocated for the financing schemes to showcase the applicability, viability and sustainability of both the financing and delivery mechanisms. The results and experiences derived from the supported NRE projects will be documented and disseminated. The success of the project implementations will demonstrate the effective and feasible process of designing, developing, implementing, and particularly financing, of NRE system projects. Successful NRE projects supported by the program would also demonstrate the technical and commercial viability of NRE systems in the country. This in turn is expected to facilitate increased interest and enhanced investments in future NRE system (both electricity and non-electricity) projects in the Philippines.

This project component will address the problems/issues surrounding the delivery of energy services (power and non-power) using NRE systems. Preparatory work has identified a number of financing and market delivery mechanisms by which NRE may be deployed. Market delivery mechanism refers to the means of bringing the technology and/or service to the intended users while financing mechanism refers to the means of providing financial assistance to the project in a manner suited to the requirements and capabilities of the developer and his intended users. Based on the NRE delivery mechanism assessments made during the PDF-B work, those that are promising include: (a) Fee for Service/Renewable Energy Service Company (RESCO) Model; (b) Concession Model; (c) Community-based/Village Power Systems; and (4) Lease/Lease-to-Own Model.

Experience from previous NRE power and non-power projects (and even those that got stranded during the planning stages) employing delivery mechanisms that include those mentioned above, shows that there are financial barriers that hinder the facilitation of the proposed delivery mechanisms. These barriers include:

- High cost of project preparation activities for NRE power and non-power applications in off-grid and remote locations;
- Absence of guarantee facility for small-scale NRE projects where proponents are inadequately capitalized and cannot provide sufficient collateral; and,
- Limited loan funds earmarked for NRE projects especially in off-grid areas

The CBRED will undertake the development and establishment of 3 separate funds that will address the 3 specific financing barriers to the facilitation of delivery mechanisms. These are:

- Project Preparation Fund (PPF) – This is intended to support the cost for NRE project preparation and packaging (including arrangement of main project financing).

- Loan Guarantee Fund (LGF) - The fund will overcome financing barriers in remote off-grid locations where projects lack a track record and require high levels of securitization as well as provide support to an increased number of proponents.
- Micro-Finance Fund (MFF) - This is intended as a financing mechanism for small power loans with relaxed terms for long-term borrowing for small barangays.

There will be three (3) sources of seed funds for this activity. One is the grant from the Dutch Government under the Environmental Improvement for Economic Sustainability (EIES) project, a joint collaboration of the DOE and the Ministry of Foreign Affairs of Netherlands. Under the EIES, a total of US\$ 6 million Dutch grant will be provided for installing 15,000 SHSs in Regions I, II and CAR. Another source would be part of the budget allocations of DOE for NRE demo projects. The third fund source is the GEF.

The PPF shall allow preparation (including arrangement of financing and PPAs) for a number of "delivery mechanism" NRE projects slated for development. Eligible projects will be selected on the basis of their use of financing and their proven commitment. Preliminary identification has been made of a number of possible projects awaiting development in the preparatory phase. The fund could be utilized for project preparatory activities like analysis and evaluation of wind data, wind turbine generator micro-siting, hydrologic investigation and analysis, detailed topographic surveys, geological and geo-technical investigation and hydraulic study. Depending on the market readiness, appropriate NRE projects will be eligible for financial assistance.

The PPF will provide conditional loan of up to 50% of the project preparation cost. The loan repayment mechanism which is proposed as a starting point of negotiations with the relevant banking/financial institution would stipulate that 30% of the loan would be repaid to the DOE if the preparatory activities came up with a finding that the project is non-viable, or the preparatory activities resulted in a viable project but the project could not be implemented within an agreed period because of financing difficulties, which could not be overcome with the assistance of the CBRED project. If the preparatory activities resulted in a viable project, 80% of the loan would be repaid. The PPF will be held and administered by an existing financial institution like the DBP. The MSC will facilitate the set-up of the PPF and ensure training for its proper administration. Part of the EIES grant money will form part of the PPF. The contribution from the GEF to the PPF is intended for supporting the non-solar energy projects (i.e., incremental projects) is US\$ 321,300. This incremental money from the GEF will be directly applied to project preparation of NRE projects with a combined capacity of 100 MW.

Meanwhile, the loan guarantees that will be made through the LGF are expected to spur lending to NRE project proponents by spreading risks among the guarantor(s), the lender and the borrower-proponent. The underlying premise is that ultimately the loan guarantee will not be needed because the lender will be convinced that the risks and transaction costs are reasonable and manageable. The Philippines has at least 3 existing loan guarantee mechanisms, namely: (a) Guarantee Fund for Small and Medium Scale Enterprises (GFSME); (b) Small Business Guarantee Fund Corporation (SBGFC); and, (c) Local Government Unit Guarantee Fund (LGUGF). The first 2 focus specifically on small to medium manufacturing activities and are not available for NRE projects. The LGUGF, while applicable for NRE has restricted access only to LGUs. A guarantee mechanism focused solely on NRE and mainly accessible to private sector and community interest, is recommended. The fund will overcome financial barriers in remote off-grid locations where projects lack a track record and require high levels of securitization.

Thus, the LGF is meant to provide guarantee to the loan that banking/financing institutions will provide to NRE project proponents. The GEF contribution to this fund will be used for partial guarantee of off-grid NRE projects (non-solar energy) with a combined capacity of 3 MW. The DOE will also contribute to the fund and will be a co-guarantor of the loans. Access to a partial guarantee can be the deciding factor in the financial viability of a project because it can reduce the risk to a level where the lender becomes



comfortable and is willing to accept the loan terms. The fund will be held in trust by the DOE but implemented and administered by a bank that will be appointed as fund manager. A Project Steering Committee will evaluate, screen and approve proposals for LGF. The fund manager processes approved guarantee applications with terms and conditions set by the PSC. Contributions to the LGF will come from the GEF, DOE and the Dutch Government (under the EIES). The GEF contribution (US\$ 1,606,500) will be used to guarantee for example the principal payments for an agreed period of time of the loans provided to the non-solar energy projects (incremental) that will be carried out under the demonstration program. The Dutch Government contribution is earmarked for the solar energy projects (specifically for solar energy projects in Regions I, II and CAR).

On the other hand, the MFF is intended as a financing mechanism for loans to small-scale power projects in remote barangays with relaxed terms for long-term borrowing. Micro finance entities (e.g. rural banks) that lend money to micro-enterprises (e.g. rural cooperatives) with the ultimate goal of poverty alleviation can be tapped to lend for NRE projects, inasmuch as energy generation and livelihood projects are complementary.

The MSC, in cooperation with the rural banking network in the country will evaluate project proposals, based on a set of eligibility criteria. The MFF will be managed and administered by the rural banks. The seed money contribution from the GEF is US\$ 535,500. This will be earmarked for community-based energy and/or village power projects that will utilize NREs other than solar energy, the total combined capacity of which is 500 kW.

MSC shall establish strong linkages with participating bank/s towards the promotion of the said funding mechanisms and the provision of assistance to project developers and other local organizations that wish to avail the said funds.

### Immediate Objective

Immediate Objective 4	Success Indicators	Verifiers
Remove the financing barriers and address issues on NRE project development and implementation by providing financial support to project developers in conducting projects that demonstrate innovative strategies and delivery mechanisms.	<ol style="list-style-type: none"> <li>1. PPF, LGF and MFF established by end of Year 2.</li> <li>2. Pipeline of projects supported by the three (3) Project funds developed in Year 3 and updated annually in Year 4 to 5.</li> <li>3. Implementation of NRE projects supported by the Project funds monitored starting Year 4.</li> <li>4. Sustainable Financing Program for NRE projects developed in Year 5.</li> </ol>	<ol style="list-style-type: none"> <li>1. Annual Status Report of PPF, LGF and MFF by the fund implementors.</li> <li>2. Annual Accomplishment Report by PMO.</li> <li>3. Proposal for the sustainable NRE Financing Program.</li> </ol>

### Output and Activities

#### Activity 4.1. NRE Fund Establishment

This will involve the establishment of three (3) fund mechanisms that will address the financing barriers to NRE projects. The PPF and LGF shall be established in either commercial banks or GFIs. In the case of micro-finance funds, both rural banks and existing NGOs with experience in micro-financing and micro-entrepreneurship shall be considered. The establishment of these funds shall be made consistent with the existing policies and guidelines of the financing system in the Philippines.

Thus, in the baseline scenario, the GoP (particularly the DOE) will continue to develop and implement NRE projects (mainly solar PV) with an "equipment demonstration" mentality. In the proposed alternative scenario, the GoP will be carrying out an NRE demonstration program that will integrate planned NRE projects including the EIES to showcase the design, development and facilitation of the implementation of sustainable NRE projects. Included In the program will be additional demonstration projects on other NRE applications (e.g., micro-hydro, biomass and wind). The 3 financing schemes that will be created will be used to support the design, implementation and sustainable operation of NRE projects employing any of the 4 identified delivery mechanisms. Whereas the Dutch grant will only cater for solar NRE projects, the GEF will be supporting other NRE systems.

The funds for the PPF and MFF will be loaned to eligible NRE projects as concessional loan. Project proponents who will avail of these loans are expected to payback an agreed percentage of the money they borrowed at an agreed time. The LGF money will only be used if the borrowers defaulted from paying the loan. Loan repayments and unused funds (e.g. loan guarantee) will later be used as seed money for an NRE fund that will support replication projects.

In one scenario, the establishment of the Project funds may be built on existing financing windows for NRE projects. In such case, focus will be on the design of the corresponding implementation and fund management guidelines so as to improve performance of the said existing windows such that the expectations for the funds shall be realized. Lessons from the previous efforts shall likewise be considered to ensure the greater chances of success for the Project Funds. For example, the PPF may consider scaling-up the existing similar funds, which has been established by DBP through the UNDP-FINESSE Project. In such decision, DBP must be willing to restructure its existing guidelines for PPRF to accommodate PPF and to reflect certain policy changes on fund management, which are hoped to improve performance. On the other hand, PPF may consider other possible implementors such as LBP. This will create a competition with DBP's existing mechanism for NRE project preparation. Since DBP has already an existing NRE Financing Program (NREFP), the financing institution where the PPF shall be established may also be required to establish a separate financing program for NRE projects to attract target proponents. Said competition is expected to benefit NRE project developers in the medium term through the possible reduction in loan interest rates due to competition. It is also noted that the PPF does not rule out the possibility of considering other financial institutions such as commercial banks as its fund conduit. The same applies for the LGF and MFF, which shall be implemented based on the successful mechanisms developed in the past such as the LGUGF and the Village Power Fund. However, the main difference to be applied in these Project Funds will be the greater levels of accessibility by interested NRE proponents to the same. Thus, various consultations initiated in the PDF-B shall be continued in the Project to ensure that the funds shall be established consistent with the timeline of the project implementation.

The activity includes the close consultations with the financing and micro-lending sector regarding the proposed establishment, the identification of specific financing institutions and agencies where the funding mechanisms shall be established, development of implementation and management guidelines for each of the funds mentioned above, and the capacity building of the identified implementing institutions in implementing the program as well as in reviewing and evaluating NRE project proposals. The purpose of the funds, the funding criteria, rules and guidelines for application and approval of proposals shall also be defined and established.

**Activity 4.1.1. Definition of Purposes, Scope and Limitations of the Funds** - This involves the definition of purpose, scope and limitations of the three (3) funding mechanisms that will be established under this activity. Specific activities to be supported by each fund shall be identified. The same activities shall also be assessed regarding their suitability for the assistance that will be extended by the said funds. The PPF shall be a mechanism to assist the NRE project proponents

in developing and packaging projects acceptable to the bankers and other financiers. Project packaging activities that will be financed by the PPF must enhance the confidence levels of the banks on both the NRE lender and the project. The LGF shall supplant collateral requirements to increase the confidence of the banks in financing NRE projects. MFF shall give focus on local institutions or group of end-users that will be engaged in small power business and livelihood projects using NRE systems. Furthermore, said Project funds shall prioritize projects and activities that will demonstrate innovative delivery mechanisms for NRE projects.

**Activity 4.1.2. Identification of Implementing Institutions** - A guideline shall be prepared for the selection of institutions that will implement the three (3) Project funds. Meetings and consultations shall be conducted with existing financial institutions (particularly GFIs) and other organizations to identify implementor/s of the said funds. Both the PPF and LGF shall be established in national commercial banks or GFIs, which will show interest and commitment to the same. On the other hand, the MFF may be established on existing institutions with strong capacity and experience in implementing micro-financing and micro-entrepreneurial activities. Potential rural banks and other community-based lending agencies shall also be identified. Thus, strong coordination with the financing and micro-lending institutions shall be conducted to get their interests and possible commitments to serve as fund conduits. A decision shall then be made to identify the bank/s and institutions where the fund mechanisms shall actually reside. Specific for PPF and LGF, arrangements shall also be made to get bank management approval for the establishment of the lending window specifically for NRE projects and investments that would be assisted by the PPF and LGF. For MFF, arrangements with the management of the implementing institution/s will be made to for possible co-financing of projects and lending that will be assisted by the MFF.

**Activity 4.1.3. Establishment of NRE Units for the Project Funds** - A core unit for the implementation of Project Funds shall be established within each implementing institutions. The NRE units for the Project Funds, shall provide assistance in the acceptance, processing, evaluation, screening and recommendation on approval of fund applications by NRE project proponents. A minimum staffing size shall be prepared by the said institution/s dedicated to management and administration of the funds. Office equipment and space shall also be provided to the core units.

**Activity 4.1.4. Capacity Building of Funds' Implementing Institutions** - Once an NRE core unit is established within each implementing institution, a capacity building, a capacity building and training program for each unit shall be designed to develop the necessary level of appreciation on NRE projects among the core staff and to enhance their technical skills on the administration and management of the Project funds. Underlying training activities of the NRE core units shall form part of the overall training program to be implemented under Component 5.

**Activity 4.1.5. Development of Implementing Guidelines and Management Arrangements** - Each fund mechanism shall also have its own implementing guidelines and management arrangements. Said implementation structure shall be made for each mechanism to define specific roles of the implementing institutions as well as the participation of other agencies and institutions involved in implementation of the funds. The guidelines shall also define the transfer and replenishment of the funds. Policies and strategies that will be followed in the implementation of the fund mechanisms shall be developed and approved by concerned entities. It will also include the strategies towards obtaining additional funds from potential donors in order to sustain and expand the said funds. The activity shall also define the guidelines for account management and monitoring, the standard procedures on the appraisal, review and approval of project proposals, the implementation set-up for project monitoring and credit investigations, repayment schemes, etc. Routing of documents for the application and approval of

projects shall be studied and standardized. At the onset, NRE unit or core group shall be established within the implementing institution to provide technical and management assistance in the implementation of the funds. A trust account shall then be created for the three (3) funds under the ownership of the DOE. Meetings and brainstorming with key officials of the identified institutions shall be undertaken to discuss the policies and guidelines that will be followed in the establishment and management of each Project Fund.

#### ***Output 4.1.***

The purposes, scope and limitations of the PPF, LGF, and MFF are defined. Implementing institutions for the said funds are identified. Institutional arrangements for the implementation of the funds shall be established. A core NRE unit for each institution shall be developed. A capacity building and training program for each core NRE unit is designed and forms part of the training program outlined in Component 5. Implementation structure and policy guidelines for the management of the funds are formulated and implemented.

#### ***Activity 4.2. Assistance Services to Financing Applicants***

This involves the promotion and assistance to target project developers for the availment of the three (3) project funds. Promotion activities involve announcements on the availability of the said funds for access of potential NRE project proponents as well as the publication of the corresponding guidelines for fund application and project packaging. Assistance shall involve the conduct of trainings on project packaging to enhance the capacity of the project developers in meeting the requirements and criteria of the said funds. MSC shall be fully involved in the publication and dissemination of the funding guidelines, conduct of trainings on project packaging, and processing of fund applications in support to the core group of the implementing institutions.

**Activity 4.2.1. Development of Guidebook on Funding Applications for the Project Funds -** It includes the development and reproduction of a guidebook on the processing of applications for the Project funds. Said guidebook shall contain the simplified procedure for fund applications based on the approved guidelines. The guidebook shall be disseminated to NRE stakeholders and potential project developers. Said guidelines shall also be published in leading newspapers.

**Activity 4.2.2. Consolidation of Various Financing Sources for NRE Projects -** In addition to Project funds, proponents will likely benefit from knowledge of other sources of project financing. Sources are varied and may include national banks, corporate or private interests, equipment suppliers and so on. This activity will actively seek alternate sources of project financing and further promote the services of the MSC as a financing broker. The output of this activity will be a databank of alternate project financing sources.

**Activity 4.2.3. Development of Guidebook on NRE Project Development -** Another guidebook shall be prepared for the conduct of project identification, development and packaging. Target readers of the same shall be the non-utility NRE project proponents to assist them in project packaging. Rather than being a prescriptive manual the guide should identify information requirements and sources of information at each step in the project development process. It should cover technical, legal, financial, financing and approvals issues. The compendium of NRE financing sources shall be included as appendix to the guidebook for reference.

**Activity 4.2.4. Strengthening of Capacity on NRE Project Packaging and Development -** A series of training activities shall be identified and designed to assist primarily the project developers in availing the Project funds. Said trainings shall focus on packaging of projects according to the approved guidelines of the funds and on developing strategies to meet the

funding criteria, both technical and financial. Said trainings shall form part of the overall training program to be undertaken in Component 5.

**Activity 4.2.5. Promotional Support to Project Funds** - Aside from above, other activities necessary for the promotion of the Project funds shall be developed and shall form part of the overall activities that will be undertaken under the program on NRE advocacy and promotion (see Activity 3.6). These may include the use of tri-media to inform target project proponents on the availability and requirements of the said funds for financing NRE projects.

#### **Output 4.2**

Promotional activities for the availment of the three (3) Project funds are identified and included for implementation under Activity 3.6. Guidebook on fund applications is published and disseminated. Another guidebook containing guidelines on NRE project development is published and disseminated. Trainings on project packaging and proposal enhancement are identified and included in Component 5. It is expected that these promotional and technical services shall lead to the number of project proposals that will be processed for the availment of the Project Funds.

#### **Activity 4.3. NRE Demonstration Promotion**

This involves the inventory of pipeline NRE projects that have received financial support from the three (3) Project funds. Said inventory shall provide the description of the projects as well as the status of project development and preparation. The objective is to gather interests and financial support from potential investors and donor agencies on the financing of pipeline projects developed under the Project funds. Meanwhile, MSC shall also develop and implement its own program to assist the implementing institutions of the 3 Project funds in promoting the same and to ensure an acceptable number of projects, which will be supported by the same.

**Activity 4.3.1. Database of potential NRE projects** - This activity will identify and catalogue potential NRE projects at various stages of project preparation. Projects may be off or on grid or non-electric generators. MSC shall actively solicit necessary information from various stakeholders of NRE projects. Said activity shall lead to the establishment of a database of NRE project portfolio for possible financing.

**Activity 4.3.2. MSC Assistance Promotion** - This involves the identification of various services that the MSC can provide to assist in the processing of applications for the availment of the Project funds. Focus of the assistance of MSC would on client sourcing. Said services may include assistance in meeting documentary requirements for each Project fund, the timely submission of proposal document to different implementing institutions, and the monitoring of the status of the same from the said institutions. Whenever possible, MSC shall also conduct seminars/workshops to elicit proposal submissions for each project funds by the NRE proponents. Said assistance of the MSC shall form part of the overall advocacy and promotion program outlined in Activity 3.6.

#### **Output 4.3.**

Database of the status of the potential NRE projects for funding support by different financing institutions and donor agencies are consolidated and monitored. Assistance to project proponents by the MSC in meeting documentary and other requirements of the designated implementing institutions of the Project Funds are outlined and undertaken. Said activities are expected to increase the number of project proposals that will be received by the implementors of the Project funds.

#### ***Activity 4.4. Selection of NRE Projects***

While Activity 4.1 focuses on the implementation guidelines which delineates the institutional setting for the establishment and operation of the 3 Project funds, this activity focuses on the establishment of the funding criteria, project eligibility requirements, and the procedure for the prioritization and selection of actual projects to be supported by each project fund on the short listing of projects and identification of priority projects prior to their appraisal and review. Selection and evaluation criteria shall be developed. Selection of project proposals for each Project fund shall be undertaken along with the principle of transparency. The selection criteria must ensure that the projects that will be assisted by each fund shall showcase innovative delivery mechanisms being promoted by the Project.

The number of solar PV projects that will be considered in the demonstration program will correspond to a total capacity equivalent to that of the planned 15,000 SHS installations under the EIES project. The number of incremental NRE projects (e.g., biomass, wind, micro-hydro) that will be showcased in the program will be limited according to each type of financing mechanism:

- Project Preparation Fund (PPF) – Total combined capacity of projects that will be demonstrated is 100 MW
- Loan Guarantee Fund (LGF) – Total combined capacity of projects that will be demonstrated is 3 MW (possibly 3 projects of 1 MW capacity each).
- Micro-Finance Fund (MFF) – Total combined capacity of projects that will be demonstrated is 500 kW. See Annex 6 for details.

**Activity 4.4.1. Development of the Funding Criteria for Each Fund** - A set of funding criteria shall be developed for three funding mechanisms. This involves both technical and financial requirements, which must be satisfied by the candidate projects for funding eligibility. It also includes additional requirements and documents needed by the implementing institutions consistent with the principles of good financial management strategies and due diligence practices. Said criteria and requirements shall be fully defined and documented. Consultation with NRE stakeholders shall also be conducted for their comments and suggestions on the same.

**Activity 4.4.2. Development of Rules and Guidelines for Applications and Funding Approval** - Each fund mechanism shall also have its own distinct rules and guidelines as to the aspects of receiving applications and approving project proposals. Standard requirements and procedures for the preparation of project documents shall be laid down. Evaluation process for the screening and prioritization of projects shall also be developed for each Project fund. The flow process of project appraisal, review and approval shall be defined. Timetable for each step of the project appraisal process shall be made.

**Activity 4.4.3. Project Selection and Approval** - Each criterion shall be applied to select projects that will be supported by the Project funds. Selection shall be made under documented and transparent conditions to ensure the validity of the process. The NRE core units of the fund implementors shall handle the evaluation and screening projects. Approval of the projects shall the responsibility of the body within the organization of the funds implementors in accordance with the guidelines established for the implementation of the Project funds. In some cases, the fund implementors shall make necessary communication with the DOE to jointly clarify and resolve issues on the approval of the fund applications. Meanwhile, the MSC shall provide assistance in coordinating the compliance of documentary and permitting requirements of the proposals with concerned agencies as well as in the monitoring for status of the processing of fund applications. Also, MSC shall provide support to the NRE units in meeting prospective and interested project proponents to avail of the Project Funds.

#### **Output 4.4**

A set of criteria for the selection of priority projects eligible for each Project fund is formulated and approved. Standard requirements as well as procedures for the evaluation, selection and approval of the projects shall be developed for each Project fund. A list of eligible projects to be supported by each fund is made and approved by concerned authorities.

#### **Activity 4.5. Monitoring and Evaluation of Project Sites**

The actual implementation of the projects that would receive financial support from the three (3) Project funds shall be monitored and reviewed. The idea is to measure the effectiveness of the assistance provided by the Project funds in designing or implementing successful delivery and financing mechanisms for various types of NRE projects and the packaging of the same. Indicators for the performance evaluation and the procedures in the conduct of monitoring and evaluation shall be developed and implemented. A system will be developed to define the institutional framework and the outline of activities for the conduct of the M&E of projects, which received funding support from the Project funds.

**Activity 4.5.1. Establishment of Performance indicators** - A set of results-based performance criteria shall be identified and defined to measure the effectiveness of the implementation of NRE projects supported by the 3 Project funds. Said criteria shall be consulted with the NRE stakeholders and will be approved by concerned authorities prior to adoption. Among others, the criteria shall include assessment of the expediency and timeliness of the entire project life-cycle from preparation up to actual operation as well as the technical and financial factors that measure success of project implementation. Weight shall also be given on the repayment of loans using the proceeds of the project.

**Activity 4.5.2. Development of Evaluation Framework** - Based on the set of performance indicators developed, a framework shall be developed for the conduct of the M&E activities. This includes, among others, the outline of activities that will be followed by the evaluation, the baseline conditions that will be set for each performance indicator and the procedure for measurement of the said indicators.

**Activity 4.5.3. Establishment of Monitoring and Evaluation Program** - Based on the approved framework, an M&E program shall be designed to identify activities as well as the proposed timeline for the same. Delineation of roles of different concerned agencies and institutions shall also be made.

**Activity 4.5.4. M&E Program Implementation** - Based on the approved program, on-site monitoring of projects shall be conducted. Evaluation of the projects shall compare actual measurements viz. baseline conditions targeted for the same. Results of the evaluation shall be fully documented for future reference.

**Activity 4.5.5. Funds Program Review and Revision** - In keeping with the findings of the M&E program, various recommendations shall be made towards the enhancement of the implementation structure of the Project funds. Said recommendations shall be considered and implemented to improve the financing program and to make necessary adjustments against the changing market and financing environments for NRE projects.

#### **Output 4.5**

An M&E program for the assessment of the projects supported by the three (3) Project funds is formulated and implemented.

#### **Activity 4.6. Sustainable Program Design**

Based on the lessons learned upon the implementation of the M&E system, a sustainable financing program for development and packaging of NRE projects shall be designed and implemented. Delineation of roles and responsibilities of different agencies and institutions shall be made for the implementation of the said follow-up program. Funding sources to ensure the sustainable implementation of the program shall also be identified and pursued.

**Activity 4.6.1. Overall Financing and Delivery Mechanisms Review** - Based on the results of the M&E program as well as the input of stakeholders, the overall effectiveness and viability of the three (3) Project funds as well as the delivery mechanisms supported by the same shall be reviewed. Remaining barriers and opportunities for the improvement and expansion of NRE financing shall be identified and assessed. In addition to the criteria used in the M&E system for the project sites (see Activity 4.5), the assessment of the financing program shall include parameters pertaining to the number of projects actually implemented viz. project pipeline developed, level of utilization of each project funds, collection rates and fund replenishment, various circumstances (problems, bottlenecks, etc.) occurred in the implementation of the funds, among others.

**Activity 4.6.2. Recommendations for Policy and Program Support** - Based on analysis made, a set of policy and program recommendations for the long-term financing support of NRE project development shall be developed. Said recommendations shall be submitted to concerned government agencies and institutions for consideration and eventual implementation. Said set of recommendations shall be presented in a form of a sustainable financing program outlining all necessary policy and financing activities as well as the necessary fund sourcing to support the implementation of the follow-up program.

#### **Output 4.6**

A program for sustainable financing of NRE projects is developed and proposed for consideration and approval of concerned authorities.

#### **C.5. COMPONENT 5: NRE TRAINING PROGRAM**

Capacity building activities, mainly through training on various aspects of NRE have been carried out in the past and are still being pursued in recognition of the continuing need to strengthen capacities to be responsive to the challenges at hand. Based on the assessments made during the PDF-B exercise, the major stakeholders in the country's NRE sector require capacity upgrading in the various aspects of NRE development and commercialization, particularly in the policy/regulatory, financial, market, technical and operational aspects. This project component will involve the implementation of a NRE Training Program that will address the capacity building needs of the various NRE stakeholders, and to improve training programs conducted in the past that were:

- **Project Based** - The various NRE training activities are primarily project-based and tend to be episodic and opportunistic. Training is a long and continuing process and as such, a plan or a



program is necessary to take care of this concern and to ensure sustainable and effective capacity enhancement activities for the NRE sector.

- **Inadequate Recognition of Multi-Sector Needs** - Past training programs largely benefited the government officials. The extension of such programs (local and international) to private sectors and NGOs is limited.
- **Donor Dependent with Minimal Local Participation** - Early training activities are totally donor driven; and even the technical inputs, identification of training areas and financial requirements are based on the donor recommendations.
- **Limited Scope of Capacity Building Focus** - Early training programs gave substantial focus on the technical aspect and technological developments of various NRE technologies.
- **Minimal Interfacing with External Expertise** - The earlier engagements of international experts in the national NRE affairs did not result to local empowerment but rather created vacuum. The foreign experts, then, tended to undertake the training tasks with very minimal interfacing with the national and/or local officials.

**Immediate Objective:**

Immediate Objective 5	Success Indicator	Verifiers
<p>The capacity of major stakeholders in the country's NRE sector in the various aspects of NRE development and commercialization, particularly in the policy/regulatory, financial, market, technical and operational aspects is upgraded.</p>	<ol style="list-style-type: none"> <li>1. At least 20 key government decision makers and legislators capacitated in NRE policy making and program management.</li> <li>2. At least 20 national government officials and staff capacitated in NRE planning and project management.</li> <li>3. At least 20 officials and technical staff of banking institutions capacitated in the appraisal and financing of NRE projects.</li> <li>4. At least 20 managers and technical staff of private sector, NGOs and LGUs provided with enhanced skills on NRE project development and management.</li> <li>5. At least 20 local end-users, technicians and artisans received skills in NRE project implementation and system management.</li> <li>6. A Sustainable NRE Training Program developed at the end of the Project.</li> </ol>	<ol style="list-style-type: none"> <li>1. Annual PMO Accomplishment Report.</li> <li>2. Compendium of NRE Training/Workshop Proceedings and Evaluation Sheets.</li> <li>3. Report/ Proposal for Sustainable NRE Training Program.</li> </ol>

The proposed NRE Training Program will include both in-country and foreign-implemented activities. The specific activities are based on the capacity enhancement needs identified during the PDF-B exercise and are considered vital to the success of the current thrusts and projects of the energy sector. Subsequent program review, assessment and planning may identify new activities and training areas, which the sector needs. **Table 3** and **Table 4** provide the initial scope of the program, which may either be reduced or be expanded once validated.

**Table 3. Proposed In-Country NRE Training (National Level)**

Activities	Duration	Target Participants	Number of Participants	Year
1. NRE Observational Tour	10 days	Congress, DOE, NEA, NPC, PNOC, NGO Rep, Private Sector Rep	10 - 15 Participants	Year 1-3
2. Technician Trainers' Training on NRE Systems	10 days	ECs/BAPAs, ANECs NGOs/Pos	25 - 30 Participants	Year 1-3
3. Training on Facilitation and Consensus Building	5 days	DOE, NEA, NPC-SPUG ANECs, NGOs/Pos	25 - 30 Participants	Year 2
4. Training on NRE Project Planning Tools and Integrated Energy Planning Models	10 days	DOE, NEA, NPC-SPUG ANECs, NGOs/POs, Project Developers, other Government Agencies	25 - 30 Participants	Year 2-3
5. Training on NRE Pricing	5 days	DOE, ERB	25 - 30 Participants	Year 2-3
6. Training on NRE Project Financing	5 days	DOE, FIs, intermediaries Private Investors	25 - 30 Participants	Year 1-2
7. Training on NRE Power Purchase Contracting and Negotiations	5 days	DOE, NPC, Project Developers	25 - 30 Participants	Year 3

**Table 4. Proposed In-Country NRE Training (Sub-National Level)**

Activities	Duration	Target Participants	Number of Participants	Year
1. Training on Basic Concepts on Rural Energization	5 days	ECs, BAPAs, LGUs, Communities Rural Banks/ Micro-credit Enterprises	3 Training Courses @ 30 participants/ course	Year 1 - 3
2. Training on NRE Project Management	5 days	ECs, BAPAs, LGUs Communities	3 Training Courses @ 30 participants/ course	Year 1 - 3
3. Renewable Energy Technicians' Training	10 days	ECs, BAPAs, Communities, LGUs	3 Training Courses @ 30 participants/ course	Year 1 - 3
4. Training on Renewable Energy Project Appraisal for Rural Financial Intermediaries	5 days	Rural Banks, Micro-credit enterprises	3 Training Courses @ 30 participants/ course	Year 1
5. Rural NRE Entrepreneurial Training	5 days	<i>O-llaw</i> Project, Proponents, NGOs/POs	3 Training Courses @ 30 participants/ course	Year 1 - 3
6. NRE System Design, operation and Maintenance	5 days	Engineering and Energy Consulting Firms	3 Training Courses @ 30 participants/ course	Year 1 - 2

Considering the capacity needs of the government for policy making and innovative planning activities, officials and staff of concerned government agencies shall be trained in the fields of policy development and analysis, NRE and electrification planning exercises, and sector teamwork and consensus building. Profit-oriented and mostly risk-averse banking/financial institutions in the country are also lacking in skills in the evaluation of NRE project proposals, and this is further aggravated by the fact that they are not yet fully supportive of NRE. Financial institutions including GFIs, commercial banks and rural banking institutions shall likewise be trained in NRE technology appreciation, NRE project appraisals, and NRE project financing. On the other hand, many NRE project proponents also lack knowledge in the preparation, packaging and presentation of their proposals. However, greater emphasis shall be given on the capacity strengthening of private sector in undertaking NRE projects and other business opportunities. Thus, greater number of participants from the private sector, NGOs, rural entrepreneurs, and community-based organizations shall be trained by special courses such as on NRE project management, business development, and NRE technology appreciation, among others.

There still remains a great deficiency in the number of NRE technical and skilled workers that can be mobilized to ensure the sustainability of the country's NRE programs. The existing NRE technical and skilled workers are commonly affiliated with the NRE suppliers, the ANECs, ECs, BAPAs and several NGOs that are managing community-based NRE facilities. Thus, training of community-based technicians on the NRE system management (i.e., operation, maintenance and simple repair/overhauling) shall be undertaken to support the said needs.

Emphasis is given to the need to conduct regional NRE training for technician's since it has been highlighted in many NRE projects in the past, particularly those which involved the installation and operation of NRE system hardware, that poor maintenance and lack of knowledge to operate and maintain such systems are among the main causes of the failure of such projects. Such training courses will not only cover the fundamentals of NRE but will focus substantially on the operation, maintenance and troubleshooting of NRE systems.

#### **Activities and Outputs:**

##### ***Activity 5.1. Needs Assessment and Planning***

This involves the conduct of training needs assessment of the various NRE stakeholders. Said assessment shall enable the prioritization of different types of training, seminars, workshops and/or conferences which will define the scope of the training program. Planning activities for the design of the training program shall also be undertaken prior to its implementation such as the identification of necessary resource speakers as well as the logistics for each training under the program.

**Activity 5.1.1. Scoping Study of the Training Program** - Using as a basis the work done in the PDF-B, this activity shall develop an inventory of training institutions, resource speakers and experts that will be involved in the conduct of the trainings under this component. Also, target agencies, institutions and other NRE stakeholders, which will be prioritized for capacity building shall be identified. Thus, the task shall lead to a comprehensive inventory of training institutions and NRE experts (trainers) as well as the target groups that will be trained under this component.

**Activity 5.1.2. Validation of Training Needs for the NRE Sector** - Based on the result of the previous task, the pre-identified training activities enumerated in **Table 3** and **Table 4** shall be validated vis-à-vis the actual needs of the target institutions and participants.

**Activity 5.1.3. Development of the Overall Training Program** - Based on the validations conducted in the foregoing tasks, a complete 5-year work plan of training activities shall be prepared. The work plan shall include details on the resources required, training institutions and potential resource speakers which will conduct and design the training, target participants, travel programs, teacher training requirements, etc. Budgeting for each training course shall also be prepared and submitted to DOE for consideration and approval. Meetings and consultations with concerned agencies and entities shall be made to gather suggestions on the same.

### **Output 5.1**

Training needs assessment is conducted. Trainings, seminars, workshops and/or conferences for each group of NRE clientele are identified. The 5-year training program to be undertaken under the Project is developed and approved by concerned entities.

### **Activity 5.2. Design of the Training Activities**

This involves the actual design of training activities that will be undertaken in the Project. Said activities shall be consistent with the trainings specified in the approved 5-year work plan developed in Activity 5.1. However, changes in the approved work plan such as the modalities of training participants, scheduling and the selection of venues may be permitted to make the implementation of the trainings more realistic and doable. Thus, the training design shall involve the validation of the course outline for each training, development of training modules and other educational materials, target clients per training, management of training logistics, activity scheduling, and the development of a unified M&E system for the trainings. Informational materials are consolidated into a database for conduct of future trainings.

**Activity 5.2.1. Design of Training Courses** - A design of course syllabus for each training shall be undertaken to specify the actual target participants, the actual resource speaker/s, and the teaching strategies to be adopted for each course, training duration, logistics needed (e.g., venues, travel arrangements for participants), among others.

**Activity 5.2.2. Design and Preparation of Training Materials** - Based on the training design, training materials shall be developed and reproduced. All materials must be prepared at least one month prior to the actual conduct of training. Also prior to the conduct of actual training, materials must be presented and pre-tested in a controlled training group possibly of teacher trainees and must be revised accordingly. Before actual delivery of trainings, trainers must be prepared to deliver the material. Also, monitoring and evaluation sheets shall be prepared as integral part of materials.

**Activity 5.2.3. Training Logistics Organization** - All arrangements for the logistics of the training activities shall be organized and coordinated at least one month in advance of the event. Strong coordination with the DOE, PMO and other training stakeholders shall be ensured.

**Activity 5.2.3. Conduct of Actual Training** - The actual training event must be conducted as planned. Any uncontrolled deviation in the plan must not greatly affect the prescribed objectives and schedule of the trainings.

**Activity 5.2.4. Training Monitoring and Evaluation** - Using the monitoring mechanism developed under Activity 5.1.3, each training event shall be evaluated from both perspectives of the participants and the teachers/resource speakers. A report incorporating all training materials and curriculum as well as the evaluation for each training activity must be prepared.

### **Output 5.2**

Training program comprising of the identified activities is developed and implemented. Monitoring and evaluation are conducted and documented for each activity undertaken in the training program. Documentation of each training conducted is consolidated to form part of the training database, which will be included in the NRE database system (see Activity 3.5).

### **Activity 5.3. Sustainable Training Design**

This activity involves the development of a sustainable follow-up program on human development for the NRE sector. Focus is given on the institutionalization of the said training activities in various academic and training institutions. Thus, a sustainable follow-up program shall be developed to ascertain the continuing human development trainings on NRE after the 5-year implementation of the project. Institutional framework, funding requirements and financing support for the program shall also be identified.

**Activity 5.3.1. Evaluation of the Training Program** - This task will include analysis and assessment of the whole training program based on the results of evaluation of each training conducted under Component 5. A result of the assessment and the corresponding recommendations shall be presented to all training stakeholders for their review and approval. Evaluation of the readiness of the identified training institutions including the MSC to implement NRE training curriculums shall also be undertaken.

**Activity 5.3.2. Sustainable Program Design** - Based on the foregoing evaluation, 5-year sustainable follow-up program for trainings of NRE stakeholders shall be developed. Focus of the program is to institutionalize NRE training courses in various academic and training institutions. Lessons identified from the evaluation of the trainings under the Project shall be the bases in identifying new strategies to ensure effective implementation of trainings and to expand training services to cater additional training clients. Institutional framework for the implementation of the follow-up program shall be developed. This involves the delineation of roles and responsibilities of different agencies and institutions such as DOE and the MSC shall also be outlined. Corresponding work plan of activities, financial requirements and fund sourcing activities for the follow-up program shall also be developed.

### **Output 5.3**

The entire training program is reviewed on a programmatic approach. A sustainable follow-up program is developed and proposed for consideration and implementation of concerned authorities.

## **C.6. COMPONENT 6: NRE TECHNOLOGY SUPPORT**

Previous NRE projects have been technology-driven and are basically designed with an "equipment demonstration" mentality where the main objective is installation and maintenance of a certain number of expensive NRE systems, most of them on PV technology. Many of these previous projects were not sustainable and did not last because the components failed to perform as per design and because the necessary capabilities of the local technicians to operate and maintain them were not factored in the project design. Sub-standard components, below-par performance and frequent breakdown could erode the users' confidence on NRE technology. In the past 15 years, many NRE systems failed because of misuse/abuse of the system by the user, poor quality of components used, poor workmanship, and lack of after-sales service infrastructure to sustain its utilization. A common problem of some of the NRE systems in the country is the premature failure of components after installation. These problems are

attributed to the proliferation of cheap products either locally fabricated or imported from developing countries and the lack of quality standards these products. The PDF-B exercise identified that absence of specific guidelines in the design and setting-up of the system is a serious issue and recommends the drafting of a National Standard for NRE to serve the requirements of the NRE industry. Such steps are supportive to the rural electrification program of the GoP, which opted for NRE as the appropriate energy technology to adopt for most remote areas.

NRE stakeholders collectively agree that the lack of standards for NRE systems and components is a barrier to the commercialization of NRE. Suppliers perceive the lack of standards as a hindrance in marketing good quality and reliable products because consumers by themselves cannot adequately understand and compare the specifications of the various products in order to make intelligent decisions for selection and purchase. Very often, price becomes the primary and sometimes the sole consideration, thereby allowing low-priced but lower-quality products to dominate the market. The resulting poor performance on these products gives negative perceptions regarding the NRE technology concerned, which oftentimes becomes difficult to rectify, thereby stunting further promotion of the technology to more users. Fair competition needs to be based on identifiable, clearly defined common references that are recognized by all players in the industry. An industry-wide standard in NRE will serve as the common language in technology development and commercialization.

A corollary to the lack of standards is the lack of testing, verification and quality control measures that makes enforcement of product standards almost impossible. There are also legitimate concerns regarding how efficient NRE system components are used in their applications. It should also be realized that while local manufacturers and suppliers of NRE system equipment are aware of the necessity to improve product quality, they do not have the capacity to produce or bring the level of quality of their products compared to that of imported units. In addition to knowing best practices in the manufacture and use of NRE system equipment, they need both technical and financial assistance in realizing these. The NRE equipment industry would need assistance in improving the quality and efficiency of locally made NRE products (e.g., wind pumps and windmills, small wind turbine/generators, mini/micro-hydro turbines, biomass boilers and furnaces/kilns).

This project component will address the identified technical barriers that hinder the promotion and implementation of projects that utilizes NRE for energy (electricity or non-electricity) purposes. The component shall prioritize NRE systems and equipment as well as small-scale, investor-type manufacturers that have greatest potentials for local market growth. This may include solar photovoltaic systems and micro-hydro systems, among others.

**Immediate Objective:**

Immediate Objective 6	Success Indicator	Verifiers
The upgrading of the quality and efficiency of locally manufactured NRE products is fully supported.	<ol style="list-style-type: none"> <li>1) Standards set for prioritized NRE system equipments and components in Year 3.</li> <li>2) An average of 5% improvement in the efficiencies of locally-made NRE system equipments and components achieved by Year 4.</li> <li>3) A total of 5 local NRE equipment manufacturers availing of the product improvement program by Year 5</li> </ol>	<ol style="list-style-type: none"> <li>1) Number of locally manufactured NRE systems equipment components subjected to performance evaluation.</li> <li>2) Approval and implementation of Product Standards for specific NRE Products</li> <li>3) Established and operational NRE Performance Testing Facility.</li> <li>4) Product Certification by DOE of selected NRE products locally manufactured</li> </ol>

## **Activities and Outputs**

### ***Activity 6.1 NRE Standards Development***

This involves the development of standards for priority NRE systems and equipment, which will be supported by the technology support program. Industry support will be sought to evaluate the present operating performance of representative samples of existing national NRE systems or components. Industry participation is key from the outset in order to gain their acceptance of standards in later activities. Output of the activity will be an evaluation of the NRE technologies with regard to performance and quality assurance. This activity will result in the delivery of useful inputs in the design of new NRE systems or expansion and in identifying potential improvements in the operation of existing NRE systems.

**Activity 6.1.1. Documentation of Best Practices on NRE System Development and Utilization** - Priority NRE systems and equipment that will be covered by the technical support program shall be made. A methodology for the assessment of the existing NRE systems and equipment shall be prepared. This includes procedures for drawing out samples of installations and systems, the parameters in assessing system performance, the procedures for the conduct of performance evaluation and testing as well as the identification of various testing equipment (including equipment and test service providers) needed for the assessment. Upon the approval of the said methodology, the procurement of testing equipment as well as the conduct of actual performance assessment shall follow. Based on the results of the said assessment, best practices on NRE system design and installation shall be identified and compiled according to criteria set for cost, system performance and/or quality.

**Activity 6.1.2. NRE Equipment/System Standard Setting** - This activity will continue on the technologies identified in Activity 6.1.1. Standards and best practices on the performance, design, manufacture, assembly and installation will be researched in-country and internationally. Based also on the results of the measurements conducted in Activity 6.1.1, a comparative analysis shall be conducted between existing systems and manufacturing practices and prevailing performance standards available. The analysis shall also include cost factors. The output of the activity will be a set of recommended designs and standards for NRE technologies and the corresponding testing and evaluation scheme for the measurement of the same.

**Activity 6.1.3. Development of Standards and Testing Program** - Based on the results of the foregoing activities, an industry-wide program to support standards development and the testing of selected NRE equipment shall be designed and implemented in consultation with various NRE stakeholders. Other necessary testing facilities not procured under Activity 6.1.1 shall be identified and obtained. Testing procedures shall also be developed for each priority equipment or technology.

**Activity 6.1.4. Establishment of National Standards and Prescribed Practices** - Meetings and consultations with concerned stakeholders particularly the local manufacturers and marketers of NRE systems and products shall be undertaken for the setting up of the performance standards, best practices and the recommended testing procedures. Registration of said standards and practices with concerned government institutions particularly the DTI's Bureau of Product Standards (BPS) shall be pursued. Once approved, a promotional program for the adoption and widespread use of the prescribed standards and best practices shall be developed and implemented. This may include dissemination of the standards and best practices on the internet and other government and industry channels.

## **Output 6.1**

Performance indicators for existing NRE equipment and systems are developed and measured. Existing in-country and international standards are reviewed. A national set of standards for NRE equipment and products are drafted, reviewed and approved by concerned authorities and the NRE stakeholders.

### **Activity 6.2. NRE Technology Improvement Program**

This activity involves the development of a financing support program for the improvement of manufacturing capabilities of NRE equipment and systems. The objective is to enhance the quality performance and cost of local NRE systems towards greater consumer protection. The various activities that will be funded by the program shall be identified. Implementing guidelines and criteria for fund eligibility shall be developed and implemented. Institutional framework for the program shall also be developed.

**Activity 6.2.1. Assessment of Capabilities and Needs of Local NRE Manufacturers -** Building on the results of the foregoing activities, the capabilities (technical, financial, and human resources) of the local NRE manufacturers shall be documented and assessed. These include the inventory of local manufacturers of priority NRE systems and equipment and the conduct of a study to evaluate the facilities, manufacturing practices and technical manpower capabilities of the identified firms. Based on the study, a set of recommendations shall be made towards the enhancement of the local NRE manufacturing capability. List of manufacturing improvement strategies and activities that will be prioritized for assistance shall be prepared and documented. Consultations with the stakeholders shall be undertaken to finalize the said list of strategies and activities.

**Activity 6.2.2. Design of Sustainable NRE Technology Development Program -** A support program will be designed to support manufacturers in which concessionary financing will be made available for selected activities. Implementing guidelines for the said financing support shall be developed. It includes the preparation of criteria for selection, policy for the said financing assistance, the guidelines on the acceptance of nominations and the selection procedures, etc. The list developed in Activity 6.2.1 shall be the main basis for selecting and approving applications for funding support. Consultation meetings on local manufacturers shall be conducted to gather their comments and suggestion on the program. Output will be a scheme for funding assistance to local NRE equipment manufacturers including eligibility criteria and funding guidelines.

**Activity 6.2.3. Program Implementation -** Selected manufacturers shall avail of the financing support that will be developed in Activity 6.2.2 to and implement improvements in their designs and production processes. The various improvement activities that will be financed by the program shall be documented for future evaluation.

**Activity 6.2.4. Monitoring and Evaluation -** An M&E system shall be developed for the assessment of the financing assistance program for NRE manufacturing improvements. The system shall define the parameters that will be used to assess the effectiveness of the assistance given to the local manufacturers in terms of production improvements. Procedure for the conduct of the measurement shall also be developed. Once developed, the M&E system shall be implemented to provide various recommendations towards the sustainability and future expansions of the program. Based on the said recommendations, a sustainable follow-up program shall be developed to provide financing assistance to the local NRE manufacturers.



### Output 6.2

The financing support program for local NRE manufacturers is formulated and implemented. Financing assistance is given to select manufacturing firms. An M&E system is developed and implemented. Various recommendations are made towards the sustainable implementation of the program. A sustainable follow-up program shall also be developed.

## D. INPUTS

### D.1 GOVERNMENT OF THE PHILIPPINES INPUTS

The GOP through its DOE will contribute to the CBRED project funds amounting to US\$ 2,835,000 (US\$ 2,650,000 in cash and US\$ 185,000 in kind). The PNOC will contribute US\$ 1,300,000 (US\$ 400,000 in cash, US\$ 900,000 in kind). The UP Solar Lab will provide US\$ 150,000 in kind. The detailed breakdown of the GOP contribution is summarized in **Annex 8B**.

### D.2 PRIVATE SECTOR INPUTS

Contributions from the private sector will come from REAP (US\$ 240,000 in kind), NGO & Community interests (US\$ 72,000 in kind), RESCOs and RECs (US\$ 7,844,000 in cash). (See **Annex 8C**)

### D.3 OTHER DONOR INPUTS

The Dutch Ministry of Foreign Affairs will provide US\$ 6,000,000 as part of the EISI Project. ADB will put in US\$ 100,000 in cash, FINESSE at US\$ 80,000 in cash. (See **Annex 8C**)

### D.4 GEF INPUTS

The costs for all of the incremental activities that will be carried out in each of the project components amount to US\$ 5,143,048. This is the amount to be provided by the GEF. The detailed breakdown of the GEF contribution is shown in **Annex 8A**. The summary of GEF inputs is given in **Table 5**.

**Table 5: Annual GEF Inputs to the CBRED Project (US Dollars)**

Expense Item	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>Staff and Contracts</b>						<b>1,391,353</b>
International Consultants	10,300	20,600	10,300	15,450	0	56,650
National Consultants	90,800	127,300	120,300	91,908	88,800	519,108
Administrative Support	22,800	27,000	27,000	27,000	27,000	130,800
Chief Technical Adviser	21,631	21,631	21,631	21,631	21,631	108,155
Subcontracted Services	175,000	205,000	100,000	55,000	41,640	576,640
<b>Training Costs</b>						<b>344,450</b>
Training Costs	85,690	135,190	90,190	13,190	20,190	344,450
<b>Project Implementation Costs</b>						<b>3,193,045</b>
Micro Capital Grants	260,000	1,239,800	860,000	278,500	25,000	2,663,300
Equipment & Sales	177,500	217,500	78,551	7,500	7,500	488,551
Sundries	5,000	5,000	4,000	4,000	4,000	22,000
Publication Subscriptions	2,000	2,000	1,794	1,700	1,700	9,194
Audit	2,000	2,000	2,000	2,000	2,000	10,000
<b>Travel Costs</b>						<b>214,200</b>
Mission Costs	26,700	19,400	26,400	12,100	12,100	96,700
Duty and Local Travel	15,000	15,000	15,000	15,000	15,900	75,900
UNDP Travel	5,400	5,400	12,700	5,400	12,700	41,600
<b>TOTAL</b>	<b>899,821</b>	<b>2,042,821</b>	<b>1,369,866</b>	<b>550,379</b>	<b>280,161</b>	<b>5,143,048</b>

## **E. RISK AND SUSTAINABILITY**

### **E.1 RISKS**

There is a range of risks associated with the success of the project. Primary amongst these is a lack of commitment amongst stakeholders. The implementation of the project shall involve the monitoring of these potential risks as well as other factors that may hinder the delivery of the expected project outputs. Risk management shall be "forward looking" and the monitoring and evaluation of activities and outcomes shall anticipate political, financial and institutional factors that may have potential impacts to the success of the project. Major risks for the project include the following:

#### **E.1.1 Inadequate Support from the GOP in Enacting Existing Policy**

The pending NRE Bill would be supportive of NRE market penetration. It targets GOP support for NRE both in remote and grid connected locations. The recently passed Omnibus Electric Power Industry Reform Bill calls for the deregulation of power generation in the country. It commissions government spending and activities to open the national grid to private generation sources. While nominally this practice is currently permitted, without a fully open market many barriers to NRE participation exist. An open market will encourage the competitive development of the Philippines' extensive NRE potentials particularly wind and hydro. However, uncertainties exist. The GOP has only recently come under a new administration and it is this administration that recently passed the Omnibus Electricity Reform Bill. Future passage of the NRE bill remains uncertain and depends on unknown priorities of the new administration. The project has addressed this risk by building capacity within the DOE and affiliates to analyze and formulate policy in support of sound NRE practice. Politicians will have access to current and well-formulated information to support decision-making. In the final analysis this project has not been designed to be dependent on any current or forecast changes to existing legislation. Passage of the NRE Bill would be supportive to the objectives of the project. *Status of Risk: Moderate*

#### **E.1.2 Inadequate Support of DOE**

As the chief executing agency, DOE is central to the success of the proposed project. Its support is critical in the formation of government interagency policy bodies, in the allocation of GOP counterpart funds and in providing access to information. There is a risk, despite good intentions, of bureaucrats' time not being available to carry out tasks related to the project. The DOE and its affiliates are stretched thin as extensive donor coordination and regular government responsibilities vie for their attention. As a participating stakeholder in formulation of the project the DOE have given their support for their roles in the project. This support will be bolstered by annual work plan commitments in which project activities are expected to appear. *Status of Risk: Moderate*

#### **E.1.3 Lack of Participation of Private Sector**

There is a risk that the private sector will not participate adequately in the project, particularly in the setting of standards, the enhancement of NRE technology and in investment in off-grid communities. Concerning the setting of standards industry associations have been consulted and are actively preparing to participate in the project. Concerning investment in NRE for remote communities there is a risk that the

barriers addressed by the project (lack of information, capabilities in project preparation, access to financing, defined market models) will not be enough to overcome investor reluctance. Other barriers such as the remoteness of the community, the lack of community support or unstable local politics may mean that the services of a MSC are not utilized or that there is a weak up-take on pilot projects. *Status of Risk: High*

#### **E.1.4 Inadequate or Inappropriate Direction Given to the MSC**

As proposed, the DOE will supervise the MSC, but may after due consultations with the stakeholders, consider putting the MSC under PNOC-ERDC, for purposes of sustainability and self-sufficiency. The MSC can reside in ERDC and partially be staffed with the existing ERDC personnel. The project will ensure that with the creation of the MSC, the essential skills in marketing, financial packaging and community organizing and development will be provided to its staff. The Center will have an unequivocal private sector focus serving the interests of private investors. However, given the historical development and mandate of ERDC, there is a risk that the market orientation will be lost. ERDC is a semi-government technology research organization without a strong background in energy markets. The benefit of the ERDC is that it provides some basis for growth and cost sharing as it is an existing organization, which is publicly funded. It is important that the MSC is directed by a strong Board with private sector representation, and its CEO have a strong background in marketing and project development. *Status of Risk: Moderate*

Other risks that may be faced by the project in the course of project implementation but which are not obvious at this point in time shall be properly addressed if and when they surface during the monitoring and evaluation process.

#### **E.2 SUSTAINABILITY**

This project is directed toward sustainability by supporting NRE delivery mechanisms and the private sector. It is working to improve the quality of NRE equipment used and produced in the Philippines. It supports marketing efforts and promotion widely in the Philippines in remote village and in industrial settings. It is showcasing financing and delivery mechanisms to overcome market barriers to the sustainable growth of sales of NRE equipment. These activities are directed toward building a sustainable market base for NRE product and service growth in the Philippines.

An important component of the project is the formation of the MSC in order to address market barriers particularly in remote locations. The MSC is not envisaged as a government agency, dependent on public funds. Rather the MSC will be formulated as a quasi-private organization representing private sector, NGO and GOP interests, and serve as a "one-stop-shop" for NRE market services, and the country's focal point for NRE market development. The goal of the MSC is to be largely self-supporting by the end of project support through implementation of a fee-for-service approach. During project implementation, the possibility of continued partial public support may also be explored during the development of the MSC's business plans.

The MSC will have a Board Of Directors to be chaired by a representative of the DOE and co-chaired by a representative of the private sector. It will be made an integral component of the "One Stop Energy Investment Center" (OSEIC) that the DOE will be creating to assist and facilitate private sector investments in the energy sector. The DOE will supervise the MSC and provide policy oversight and guidance. It is proposed to maintain the MSC's quasi-governmental nature to ensure its sustainability and self-sufficiency. The DOE may, after due consultations with stakeholders consider making the MSC a part of PNOC-ERDC where it could receive long term support and yet maintain close links with the private sector.

This project is proposing the use of funds to pilot financing and delivery mechanisms. These funds will be used judiciously to ensure proponent buy-in to and participation in the applications being assisted. The financial assistance will be provided on a concessional loan basis and will have to be repaid at an agreed period of time. Repayments will be revolved, i.e., utilized to finance other NRE projects in the future. GEF financial support will also for increasing the capacity of NRE stakeholders and project proponents/developers to become self-sufficient and to enhance the replicability of NRE projects.

The Project will facilitate the formulation and enforcement of policies and regulations regarding the use of NRE in the country. It will facilitate the review and improvement of electricity pricing policies, particularly concerning NRE-generated electricity to ensure the commercial viability of future NRE-based power projects. The proposed GEF-supported project is fully consistent with national policies and has been endorsed by the GoP. To sustain the momentum that will be generated by the initial project activities, the project will set up a financing mechanism for NRE system projects by providing financial assistance for the replication of the technologies that will be showcased by the demonstration schemes. It will also train the financial/banking institutions in financing NRE system projects to ensure continuity in the financing of future projects, as well as promote investment opportunities for potential investors in the Philippines. Furthermore, follow-up programs will be included in each project component with the primary intention of sustaining the impacts of the project. These efforts will ensure the financial sustainability and viability of the NRE system projects even after the completion of the GEF assistance.

The government policies and regulations that will be put in place and implemented through this project will influence growing interest not only in the unelectrified rural communities, but also in other NRE-related industries (e.g., wood, and agriculture) in developing and implementing NRE-based power generation and CHP. These and all other related efforts will ensure the institutional sustainability of this project.

## **F. MANAGEMENT**

### **F.1 STAKEHOLDERS PARTICIPATION AND IMPLEMENTATION ARRANGEMENTS**

In the recent PDF B exercise, a large number of stakeholders were consulted in the formulation of this proposal through participation in workshops and consultations. These stakeholders include government agencies, utilities, research institutions, and project developers working in the area of NRE, RESCOs, and some NGOs. The Department of Energy (DOE) is the central concerned government agency.

- a) The DOE was created to provide a central coordinating machinery and Cabinet-level advocacy for the implementation of energy policies and programs. R.A. 7636 placed in the hands of the DOE the supervision of major government agencies implementing energy programs, and outlined the government's vision of the energy sector to be free-market oriented and private sector dominated. Under the present structure, the DOE supervises three key government agencies for energy program implementation. These are: (1) National Power Corporation - the agency in charged with power generation and transmission; (2) National Electrification Administration - the agency in charged with rural electrification and supervision of electric cooperatives; and, (3) PNOC - the agency involved in energy exploration, development and energy research activities. The DOE is responsible for the preparation of the Philippine Energy Plan that embodies the totality of government objectives, policies, strategies, and programs for the sector. The macroeconomic parameters for the forecasts are derived from the NEDA and the Department of Finance. The Plan is submitted to regional and multi-sectoral consultations and thereafter to the Cabinet and Congress.

- b) The Energy Regulatory Commission (ERC), a quasi-judicial body responsible for determining the rates and other cost adjustments of the NPC, private and public electric utilities and electric cooperatives is an independent body directly attached to the Office of the President. The passage of the EIRA has expanded the mandate of ERC to promote competition, encourage market development, ensure customer choice and penalize the abuse of market power in the restructured electricity industry. There are other non-energy government agencies that influence energy policies or have direct supervision over the operations of energy agencies and the industry in general. These agencies where the DOE maintain linkages include the National Economic and Development Authority, the Department of Finance, and the DENR through the Environment Management Bureau.
- c) The Non-Conventional Energy Division (NCED) under the Energy Utilization and Management Bureau (EUMB) of the DOE is the focal point of all activities pertaining to NRE development and support activities. The NCED is charged with implementing the Department's program and services pertaining to development, promotion, commercialization and use of NRE systems. It coordinates and implements projects, programs, and activities geared for the overall development of renewable energy sector in the Philippines. The NCED oversees the administration and management of the Area-Based Energy Plan (ABEP) through the Affiliated Non-Conventional Energy Centers (ANECs) based in the country's leading agricultural colleges and Universities, of which there are 20 Centers at present. The NCED is also directly involved in the Barangay Electrification Program, specifically under the *O-Ilaw* Program that is implemented together with the NEA, NPC and PNOC. A Rapid Rural Appraisal of prospective barangays was conducted by NCED that determined the energy needs and other socio-economic indicators like employment, income level, and household expenditures. The NCED is expected to play an oversight role of the project and to ensure coordination and information sharing between this project and the other renewable energy initiatives under way in the country.
- d) The "Renewable Energy Network" (REN) is an assembly-of leaders, experts and major players in NRE and related fields with membership coming from the public and private sectors, non-government and people's organizations, financial and research community sectors. It is the only existing initiative to establish a sector-wide linkage/coordination body in the area of NRE. The setting up of the REN in 1998 is in response to the private sector's concern regarding the lack of coordination mechanism in the NRE sector.
- e) Government Financing Institutions such as the DBP has been trained in renewable energy lending and has given out several NRE project loans from both its in-house and Official Development Assistance funds. The Land Bank of the Philippines (LBP) on the other hand is interested to go into renewable energy lending but needs to be trained on the basics of NRE project evaluation and finance. It also has access to in-house and ODA funds. Together with rural banks, which would also need appropriate training and orientation, these institutions shall be tapped as sources of financing for actual projects for the different financing and market delivery mechanisms.
- f) Other stakeholders include other government agencies, NGOs, beneficiaries and private commercial sector firms. The main roles and mandates of these stakeholders are not necessarily directly related to energy, but also refer to energy in some of their broad development objectives. For example, the Department of Agrarian Reform (DAR) is the lead organization of the Solar Power Technology Support (SPOTS) Project to Agrarian Reform Communities (ARCs) that is aimed to uplift the living conditions of people in the Agrarian Reform Communities by providing solar home systems for selected agrarian beneficiary communities. In this case, the DOE is designated as one of the implementing institutions, specifically, as provider of technical services. The DOST is likewise involved in NRE through its various attached agencies and councils like

the Philippine Council for Industry and Energy Research and Development (PCIERD) whose role directly relate to research, development, demonstration and pilot scale implementation of some NRE projects.

- g) NGOs and other private sector organizations such as SIBAT, ICEE, and REAP are also directly involved through projects and activities relating to NRE. These organizations are involved in NRE through specific projects that these organizations undertake pursuant to their development goals.

## **F.2 IMPLEMENTATION ARRANGEMENT**

The project will establish a Project Steering Committee (PSC), to be chaired by a DOE Undersecretary. This will provide policy and technical advice to the project and will consist of representatives from the DOE, NEDA, DENR GEF Focal Point, IACC and UNDP (See Annex 2). The PSC will meet regularly during the project implementation. The PSC will function as the main recommending body for the execution of major decisions regarding the Project implementation and other related NRE activities. The PSC shall communicate with the Secretary of DOE for the official policy pronouncements and to render major decisions on issues concerning delineation of thrusts and directions of the different on-going projects being executed by different agencies and institutions. Said mechanism will facilitate consistency in policies and program directions within the NRE sector.

The DOE will be the executing agency for the proposed Project. The UNDP Country Office in Manila will undertake the GEF oversight. The day-to-day operational management of the Project will be the responsibility of the Project Management Office (PMO) based within the NCED of DOE. An NRE Inter-agency Committee (NREIAC) will be established to act as a technical group for overall guidance and approval of key program activities including fund commitments and co-financing arrangements. The NREIAC will consist of the Director of the EUMB of DOE, senior representatives from the NEDA, DOST, DENR, the power utilities, financing sector, NGOs, R&D institutions and industry associations.

The main role of NREIAC will be the development of policy mechanisms, the reformulation of the NRE Bill and policy coordination. However, its role shall later be expanded to provide overall guidance and advice in components of the Project to ensure that all activities being undertaken in the Project are within the framework of and supportive of the policy and programs envisioned by the committee. This will enable the programmatic approach for the implementation of the project and will lessen the burden of the DOE in executing the same.

Successful project execution will require close cooperation of the above-mentioned stakeholders. As executing agency, DOE will ensure the delivery of the project outputs and the judicious use of the project resources. The PMO will be responsible to the DOE and shall provide the mechanism and technical inputs necessary to integrate the results of the various activities. It will also ensure the satisfactory performance of the project members and contractors that will be directly involved in the project implementation. A Project Director along with a core of three (3) senior technical staff will be hired to make up the PMO. The PMO will be supported with local and international experts and subcontractors as and when needed to undertake project activities. ANNEX 4 provides the Terms of Reference (TOR) for the PMO and MSC personnel, as well as for the consultants and sub-contractors that will be hired in the project. DOE and other agencies will provide support staff, services and facilities.

The PMO will be responsible for the overall operational and financial management and reporting of the UNDP-GEF funds in accordance with financial rules and regulations for nationally executed projects. It shall closely coordinate on a regular basis with the implementors of other on-going projects to ensure strict execution of policy directions provided by the Project Steering Committee during its meetings. PMO's tasks include, but not limited to, the following:

- Coordination with the PMOs of other related on-going projects for the purpose of facilitating the implementation of top management's decision on delineation of project thrusts and direction;
- Preparation of work plans, budget, and TORs of consultants, trainers, and subcontractors;
- Monitoring and evaluation of progress of project activities;
- Arranging of regular review meetings and ensure effective coordination of project activities;
- Preparation and dissemination of project reports and other information materials. Specifically, information dissemination of project results shall take as one form the conduct of stakeholders' consultation meetings during which specific queries from stakeholders are clarified. This ensures the transparency of project implementation.
- Maintenance of books and records required for financial record-keeping and internal control;
- Submission of timely and accurate financial reports and progress reports to UNDP
- Provide technical and administrative support for the initial operation of the MSC.

Immediately after its formation, PMO shall submit a Project Manual detailing the system of operational procedures that it shall follow during the project implementation. NREIAC, with technical and secretariat support from the PMO, shall also be responsible for the streamlining of the administrative processes involved in the project management. This is to ensure that all activities are consistent and have direct contributions to the desired goals and target outputs of the Project. Also, PMO shall be responsible for the management and monitoring of potential risks during project implementation. PMO shall coordinate with NREIAC to identified risk potentials in all project components to undertake mitigating measures at the earliest time possible.

Meanwhile, an MSC Coordinator shall be hired to manage the establishment and operationalization of the MSC particularly during its incubation period. A separate Board of Directors headed by the DOE representative shall be formed to provide policy advice and oversight on the on the implementation of its functions and activities. Two (2) technical specialists and one administrative staff shall be hired exclusively for the initial staffing of the MSC. During its initial phase of operation, the MSC shall be placed under the oversight of the DOE.

Thus, the PMO shall support specific project activities to MSC that are deemed necessary to carry out its defined roles and functions on the overall management of the NRE industry. Considering the typical gestation period for obtaining GEF funding commitment, actual project development, evaluation and approval, it is anticipated that the project will kick-off by July 2002. It will operate for a period of 5 years concluding on 30 June 2007. ANNEX 5 shows the tentative schedule of project activities. A detailed project implementation plan will be formulated after the GEF's approval of the Project Brief.

## **G. MONITORING AND EVALUATION**

The project will be monitored and evaluated following UNDP-GEF rules and procedures. The Executing Agency will be required to prepare quarterly and annual work plans and to report to UNDP on progress in achieving targets. The Quarterly Progress Reports (QPRs) would provide a brief summary of the status of input procurement and output delivery, explain variances from the work plan, and present work-plans for each successive quarter for review and endorsement. These quarterly reports will include financial statements and the work plan for the subsequent quarter. Annual Progress Reports (APR's) would provide a more in-depth summary of work-in-progress, measuring performance against both implementation and impact indicators. APR's would inform decision-making by the Project Steering Committee, which would evaluate whether any adjustment in approach is required. A terminal report would be completed prior to the completion of the project detailing achievements and lessons learned.

The PMO, led by DOE will undertake continuous, self-monitoring. The Project's Logical Framework Analysis (see Annex 6) states all the success indicators or objectively verifiable indicators for each activity that will be carried out under this project. Meanwhile, the specific output indicators of the activities for each component as well as the key project impact indicators are given in Annexes 7A-7B. These indicators, which will be reviewed for their practicability and completeness prior to project implementation, are the parameters that have to be monitored by the DOE under this project. The annual growth in installed NRE systems in the country provides a clear indication of the realization of the project's purpose. As such, this is one parameter that has to be monitored and evaluated during the course of project implementation. The extent by which the GEF developmental goal is achieved can be evaluated from the monitored results. The forecast trend in energy supply and electricity generation patterns can be evaluated based on the monitored and reported results of the project. By the time of project completion, at least the NRE projects in the demonstration program (Component 4) will be in operation. Other indicators might involve the number of additional households, businesses, or other institutions with access to renewable power following the project's completion.

The overall M&E activities for the CBRED Project shall also include the conduct of periodic impact assessment of the various project activities. These involve, whenever appropriate, the incorporation of more specific indicators to measure the overall socio-economic impacts of the Project to the capacity building of the government and to the national economy. For example, various impact indicators such as income effects, improved education, enhanced community cooperation, etc. shall be included in monitoring rural-based and off-grid NRE projects to be supported by MFF. For on-grid NRE projects, social impact may include the job creation induced by the said activities. The various M&E activities such as Activity 1.6 (for policy impacts), Activity 3.6.4 (promo and outreach program impacts), Activity 4.5 (performance indicators of PPF, LGF and MFF), Activity 5.3.1 (training impacts) and Activity 6.2.4 (impacts of technology support program) will contribute to the verification and monitoring of impact indicators impact stated in Annex 7B. The DOE, UNDP-Manila and the PMO shall be responsible to the overall M&E framework for the CBRED Project and, together, will properly and holistically assess the various impacts and results of the project activities vis-à-vis the national socio-economic and other development goals of the country.

Quarterly work-plans will be prepared based on the overall project objectives and performance indicators. These will be used to measure performance. It is through these reports and meetings that the project approach and activities will be formally refined. The annual output indicators stated in Annex 7A and the specific impact indicators mentioned in Annex 7B shall be used in the said periodic reporting and performance evaluation activities.

The project will be subjected to two mandatory independent evaluations. The first evaluation will be conducted during the fourth quarter of year 3. A second and final evaluation will be scheduled upon project termination and UNDP, may, at its discretion, schedule additional independent evaluations if deemed necessary.

## H. LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance (SBAA) between the Government of the Republic of the Philippines and the UNDP, signed by the parties on 21 July 1977. The host-implementing agency shall, for the purpose of the SBAA, refer to the Government agency described in that agreement.

The following types of revisions may be made to this project document with the signature of the UNDP Resident Representative only, provided he or she is assured that the other signatories of the project documents have no objections to the proposed changes:



- Revisions in, or addition of, any of the attachments of the project;
- Revisions which do not involve significant changes in the immediate objectives, outputs, or activities of the project, caused by the rearrangements of inputs already agreed to or by cost increases due to inflation; and/or,
- Mandatory annual revisions, which rephrase the delivery of the agreed project outputs, or reflect increased expert or other costs due to inflation, or take into account agency expenditure flexibility.

## I. WORK PLAN

**ANNEX 5:** Project Schedule and Detailed Activities provides a Gantt chart for the project's implementation schedule. The project will be completed over a period of 5 years.

## J. BUDGET

The total estimated project cost is US\$ 23,364,048. **Table 6** summarizes the project cost details.

**Table 6: Project Budget (US Dollars)**

No.	Project Component Name	Baseline Cost	Incremental Cost	Total Cost
1	NRE Policy, Planning and Institutional Capacity Building	545,000	257,505	802,505
2	NRE Market Services Institutionalization	1,205,000	448,993	1,653,993
3	NRE Information and Promotion Services	520,000	616,595	1,136,595
4	NRE Initiatives Delivery and Financing Mechanisms	15,196,000	2,676,195	17,872,195
5	NRE Training Program	355,000	478,140	833,140
6	NRE Technology Support	400,000	665,620	1,065,620
<b>TOTAL</b>		<b>18,221,000</b>	<b>5,143,048</b>	<b>23,364,048</b>

## LIST OF ANNEXES

Annex 1	GHG Emissions Calculations Spreadsheets and Assumptions
Annex 2	Project Implementation Organizational Chart
Annex 3	PMO/MSC Organizational Chart
Annex 4	Terms of Reference
Annex 5	Schedule of Projects and Activities
Annex 6	Logical Framework
Annex 7A	Output Indicators
Annex 7B	Selected Project Impact Indicators
Annex 8A	CBRED Budgets
Annex 8B	Government Contribution Budget
Annex 8C	Other Contributions Budget
Annex 8D	Equipment Register
Annex 9	OFF Endorsement
Annex 10	LPAC Minutes of the Meeting
Annex 11	Results Framework (Based on Country SRF)

## LIST OF TABLES AND FIGURES

Table 1	NRE Contribution in the Philippines
Table 2	NRE Potentials in the Philippine
Table 3	Proposed in-country NRE Training (National Level)
Table 4	Proposed in country Training (Sub-National Level)
Table 5	Annual GEF Inputs to the CBRED Project
Table 6	Project Budget
Figure 1	The Philippine Energy Plan Framework
Figure 2	Potential Increase in NRE Consumption due to NRE System Additions

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Annex 5	Schedule of Projects and Activities
Annex 6	Logical Framework
Annex 7A	Output Indicators
Annex 7B	Selected Project Impact Indicators
Annex 8A	CBRED Budgets
Annex 8B	Government Contribution Budget
Annex 8C	Other Contributions Budget
Annex 8D	Equipment Register
Annex 9	OFP Endorsement
Annex 10	LPAC Minutes of the Meeting
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**ANNEX 1**  
**GHG EMISSIONS CALCULATION SPREADSHEETS AND ASSUMPTIONS**

<b>ON-GRID<sup>1</sup> NRE CALCULATIONS and GHG REDUCTIONS</b>												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>BASELINE SCENARIO (WITHOUT PROJECT)</b>												
Mini-hydro	-	0.38167	0.42333	0.45667	0.47500	0.54333	0.58167	0.62333	0.81333	0.81333	0.81333	5.92500
Wind	0.00178	0.00178	0.35802	0.36158	0.36247	0.71960	0.72050	0.72139	1.07852	1.07852	1.07852	6.48268
Ocean	-	-	-	-	-	-	0.26718	0.26718	0.26718	0.26718	0.26718	1.33590
Bagasse Cogen	0.07125	0.07125	0.07125	0.07125	0.11578	0.11578	0.11578	0.11578	0.11578	0.11578	0.11578	1.09544
Municipal Waste	-	-	-	0.22265	0.44530	0.44530	0.44530	0.44530	0.44530	0.48983	0.53436	3.47334
<b>Total MMBFOE</b>	<b>0.07303</b>	<b>0.45470</b>	<b>0.85260</b>	<b>1.11215</b>	<b>1.39855</b>	<b>1.82402</b>	<b>2.13042</b>	<b>2.17298</b>	<b>2.72011</b>	<b>2.76464</b>	<b>2.80917</b>	<b>18.31236</b>
Equivalent kWh	4.42557E+07	2.75546E+08	5.16677E+08	6.73962E+08	8.47523E+08	1.10535E+09	1.29103E+09	1.31682E+09	1.64839E+09	1.67537E+09	1.70236E+09	1.10973E+10
<b>NRE PROJECT INDUCED INCREMENTS IN MMBFOE</b>												
Mini-hydro	-	-	-	0.00357	0.00326	0.05350	0.05284	0.13492	0.13583	0.21840	0.21840	0.82074
Wind	-	-	-	-	0.31171	0.22265	0.48983	0.73029	0.64123	0.81935	0.99747	4.21254
Ocean	-	-	-	-	-	-	-	-	-	-	-	-
Bagasse Cogen	-	-	-	-	-	-	0.04453	0.04453	0.08906	0.08906	0.13359	0.40077
Municipal Waste	-	-	-	-	-	-	-	-	-	0.04453	0.08906	0.13359
<b>Total MMBFOE</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.00357</b>	<b>0.31497</b>	<b>0.27615</b>	<b>0.58720</b>	<b>0.90974</b>	<b>0.86612</b>	<b>1.17134</b>	<b>1.43852</b>	<b>5.56764</b>
Equivalent kWh	0.00000E+00	0.00000E+00	0.00000E+00	2.16579E+06	1.90874E+08	1.67349E+08	3.55844E+08	5.51303E+08	5.24870E+08	7.09835E+08	8.71746E+08	3.37399E+09
<b>MEASURABLE IMPACTS</b>												
<b>NRE Share Increase = Decrease in Share of Fossil Fuels</b>												
In MMBFOE	-	-	-	0.00357	0.31497	0.27615	0.58720	0.90974	0.86612	1.17134	1.43852	5.56764
In KTOE	-	-	-	0.51607	45.48215	39.87661	84.79190	131.36658	125.06813	169.14218	207.72297	803.96660
Equiv. Electricity ( GWh)	-	-	-	2.14435	188.98402	165.69229	352.32093	545.84452	519.67368	702.80682	863.11482	3,340.58142
<b>Equivalent Emission Reductions</b>												
6,900 MT/GWh (Oil as displaced)	-	-	-	14.79600	1,303.98971	1,143.27680	2,431.01441	3,766.32716	3,585.74837	4,849.36709	5,955.49229	23,050.01183
660 MT/GWh (PEP level 2000)	-	-	-	1.41527	124.72945	109.3569	232.53181	360.25738	342.98463	463.85250	569.65578	2,204.78374

**OFF-GRID<sup>2</sup> NRE CALCULATIONS and GHG REDUCTIONS**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>BASELINE SCENARIO (WITHOUT PROJECT)</b>												

<sup>1</sup> The consumption of NRE resources for grid-connected electricity in Barrels of Fuel Oil Equivalent (BFOE) were estimated using the following plant factors (accounts for both utilization factor and load factor): Wind: 30%; Coconut wastes/Bagasse Cogen: 65%; Municipal Solid Waste: 75%; Ocean Technologies: 60%; Grid-tied PV: 15%; Mini-hydro: 60%. It is further assumed that electricity generated by the said technologies are utilized on "as available" basis.

<sup>2</sup> The consumption of NRE resources for Off-grid electricity in Barrels of Fuel Oil Equivalent (BFOE) were estimated using the following plant factors (accounts for both utilization factor and load factor): Stand-alone PV: 15%; Small Wind Turbine Generator: 40%; Micro-hydro: 50%

Micro-hydro	0.01420	0.01540	0.01659	0.01779	0.01929	0.02078	0.02228	0.02377	0.02527	0.02676	0.02826	0.23039
Wind	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00308
Solar	0.01199	0.01777	0.02408	0.03097	0.03849	0.04427	0.04952	0.05430	0.05866	0.06264	0.06627	0.45897
<b>TOTAL MMBFOE</b>	<b>0.02647</b>	<b>0.03345</b>	<b>0.04096</b>	<b>0.04904</b>	<b>0.05806</b>	<b>0.06533</b>	<b>0.07208</b>	<b>0.07835</b>	<b>0.08421</b>	<b>0.08968</b>	<b>0.09481</b>	<b>0.69244</b>
Equivalent kWh	1.6040E+07	2.0271E+07	2.4820E+07	2.9718E+07	3.5182E+07	3.9589E+07	4.3678E+07	4.7483E+07	5.1030E+07	5.4347E+07	5.7455E+07	4.1962E+08
No. of Electrified Barangays	366	97	104	112	122	101	93	87	81	76	71	1,310
<b>NRE PROJECT INDUCED INCREMENTS IN MMBFOE</b>												
Micro-hydro	-	-	-	0.00120	0.00419	0.00807	0.01256	0.01764	0.02362	0.03110	0.03977	0.13814
Wind	-	-	0.00018	0.00053	0.00116	0.00561	0.01229	0.02120	0.03233	0.04569	0.06127	0.18026
Solar	-	-	-	0.00001	0.00035	0.00266	0.00527	0.00823	0.01153	0.01517	0.01916	0.06238
<b>TOTAL MMBFOE</b>	<b>-</b>	<b>-</b>	<b>0.00018</b>	<b>0.00174</b>	<b>0.00569</b>	<b>0.01634</b>	<b>0.03012</b>	<b>0.04707</b>	<b>0.06748</b>	<b>0.09195</b>	<b>0.12020</b>	<b>0.38078</b>
Equivalent kWh	0.0000E+00	0.0000E+00	1.0794E+05	1.0547E+06	3.4505E+06	9.9045E+06	1.8252E+07	2.8523E+07	4.0893E+07	5.5725E+07	7.2842E+07	2.3075E+08
No. of Electrified Barangays	-	-	2	22	27	74	95	117	141	169	195	842
<b>MEASURABLE IMPACTS</b>												
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL	
NRE Share Increase = Decrease in Share of Fossil Fuels												
In MMBFOE		-	0.00018	0.00174	0.00569	0.01634	0.03012	0.04707	0.06748	0.09195	0.12020	0.38078
In KTOE		-	0.02572	0.25131	0.82220	2.36007	4.34913	6.79658	9.74417	13.27825	17.35707	54.98451
Equiv. Electricity ( GWh)		-	0.10687	1.04424	3.41634	9.80640	18.07117	28.24065	40.48825	55.17277	72.12081	228.46748
Equivalent Emission Reductions												
3600 MT/GWh (Diesel as displaced)		-	0.38474	3.75925	12.29881	35.30303	65.05621	101.66634	145.75769	198.62196	259.63490	822.48293
660 MT/GWh (PEP level 2000)		-	0.07054	0.68920	2.25478	6.47222	11.92697	18.63883	26.72224	36.41403	47.59973	150.78854

<b>NON-POWER<sup>3</sup> NRE CALCULATIONS and GHG REDUCTIONS</b>												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>BASELINE SCENARIO (WITHOUT PROJECT)</b>												
Wind	0.00027	0.00028	0.00030	0.00032	0.00034	0.00036	0.00039	0.00042	0.00046	0.00050	0.00054	0.00419
Solar water heaters	0.01299	0.01575	0.01904	0.02288	0.02725	0.03216	0.03761	0.04359	0.05011	0.05717	0.06476	0.38330
PV telecoms	0.00061	0.00063	0.00066	0.00070	0.00074	0.00079	0.00085	0.00091	0.00096	0.00102	0.00108	0.00895
Industrial fuelwood	4.57272	4.80136	5.04142	5.29350	5.55817	5.83608	6.12788	6.43428	6.75599	7.09379	7.44848	64.96367
HH Fuelwood	39.61369	40.50025	41.34804	42.15708	42.92741	43.65904	44.28190	44.90958	45.54190	46.17864	46.81956	477.93710
Industrial waste	0.00639	0.00645	0.00652	0.00658	0.00665	0.00671	0.00678	0.00685	0.00692	0.00699	0.00706	0.07389
Animal Waste	0.12410	0.18762	0.25240	0.31845	0.38580	0.45446	0.52446	0.59581	0.66854	0.74267	0.81820	5.07252
<b>TOTAL MMBFOE</b>	<b>44.33077</b>	<b>45.51234</b>	<b>46.66838</b>	<b>47.79950</b>	<b>48.90635</b>	<b>49.98961</b>	<b>50.97987</b>	<b>51.99144</b>	<b>53.02488</b>	<b>54.08077</b>	<b>55.15969</b>	<b>548.44362</b>
Equivalent kWh	2.6864E+10	2.7580E+10	2.8281E+10	2.8966E+10	2.9637E+10	3.0294E+10	3.0894E+10	3.1507E+10	3.2133E+10	3.2773E+10	3.3427E+10	3.3236E+11
<b>NRE PROJECT INDUCED INCREMENTS IN MMBFOE</b>												
Wind	0.00000	0.00000	0.00002	0.00003	0.00007	0.00011	0.00026	0.00050	0.00082	0.00125	0.00306	0.00000
Solar water heaters	0.00000	0.00000	0.00268	0.00574	0.00967	0.01403	0.01941	0.02594	0.03440	0.04428	0.15616	0.00000
PV telecoms	0.00000	0.00000	0.00001	0.00008	0.00021	0.00037	0.00060	0.00091	0.00129	0.00174	0.00521	0.00000
Industrial fuelwood	1.17874	1.56265	1.95744	2.36220	2.77599	3.19137	3.61721	4.05360	4.50061	4.95834	30.15816	1.17874

<sup>3</sup> The consumption of NRE resources for Non-electricity applications in Barrels of Fuel Oil Equivalent (BFOE) were estimated using the following plant/system factors (accounts for both utilization factor and load factor): Biomass Equipment: Cook stove: 18% (improved); and 10% (traditional); Other biomass technologies: 50% (boilers, kilns, furnaces, etc.); Other NRE Equipment: Wind pump: 50%; Solar Dryer: 40%; Solar Water Heater: 50%

HH Fuelwood	-1.18843	-1.57477	-1.97225	-2.37994	-2.79694	-3.21576	-3.64534	-4.08581	-4.53725	-4.99979	-30.39626	-1.18843
Industrial waste	0.00000	0.00000	0.00000	0.00059	0.00125	0.00198	0.00279	0.00368	0.00467	0.00577	0.02073	0.00000
Animal Waste	0.09068	0.13738	0.18501	0.23357	0.28309	0.33357	0.38504	0.43750	0.49097	0.54547	3.12228	0.09068
<b>TOTAL MMBFOE</b>	<b>0.08100</b>	<b>0.12526</b>	<b>0.17292</b>	<b>0.22228</b>	<b>0.27334</b>	<b>0.32568</b>	<b>0.37997</b>	<b>0.43632</b>	<b>0.49551</b>	<b>0.55706</b>	<b>3.06934</b>	<b>0.08100</b>
Equivalent kWh	4.9086E+07	7.5907E+07	1.0479E+08	1.3470E+08	1.6565E+08	1.9736E+08	2.3026E+08	2.6441E+08	3.0028E+08	3.3758E+08	1.8600E+09	4.9086E+07

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
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#### MEASURABLE IMPACTS

RE Share Increase = Decrease in Share of Fossil Fuels

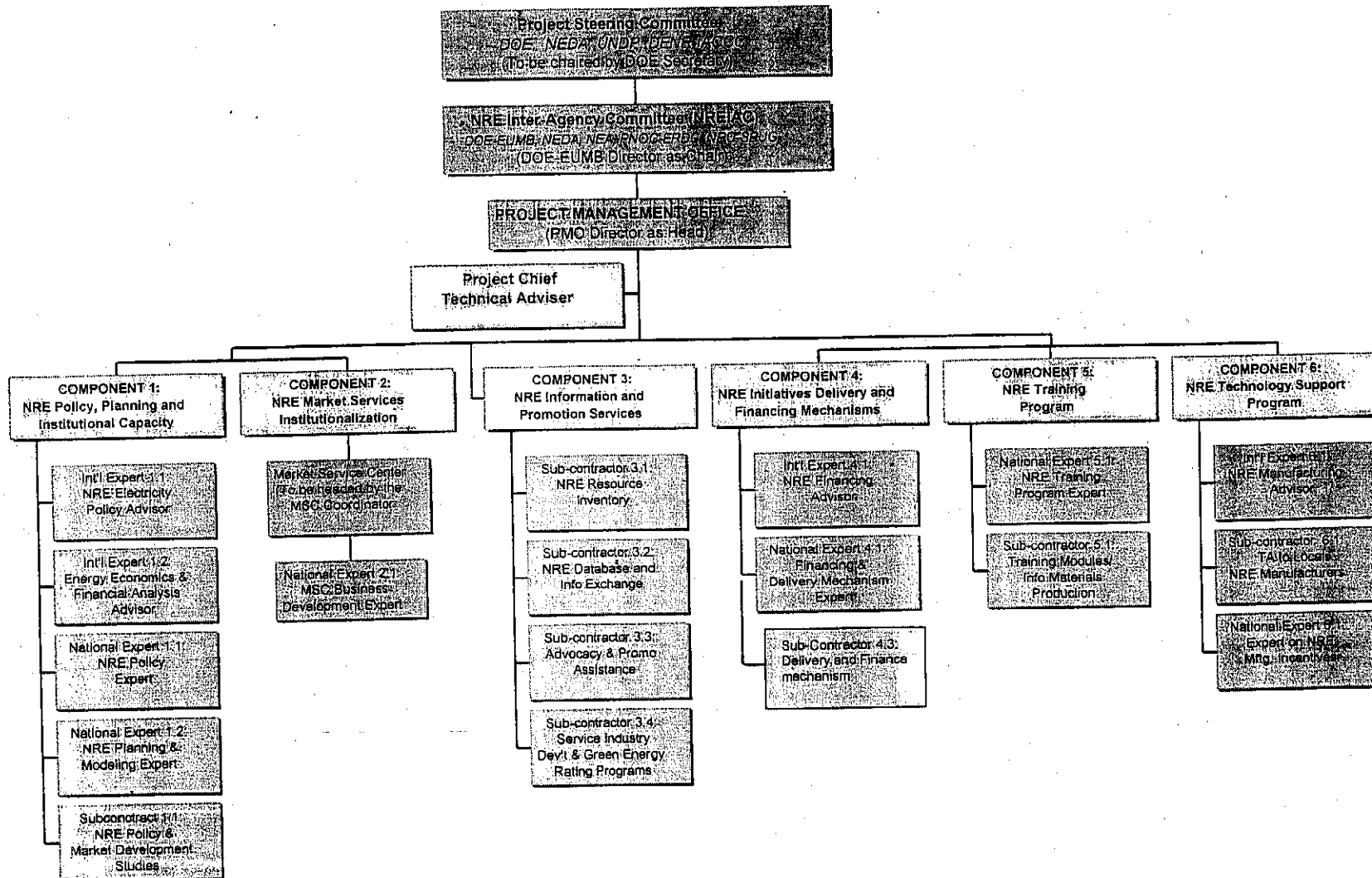
In MMBFOE (Solar, Wind)		0.00000	0.00000	0.00271	0.00586	0.00995	0.01451	0.02028	0.02735	0.03651	0.04726	0.16442
In MMBFOE (Biomass)		0.08100	0.12526	0.17020	0.21642	0.26339	0.31117	0.35969	0.40897	0.45901	0.50980	2.90491
In KTOE (Solar, Wind)		0.00000	0.00000	0.39188	0.84585	1.43672	2.09585	2.92772	3.94877	5.27133	6.82476	23.74288
In KTOE (Biomass)		11.69631	18.08753	24.57727	31.25140	38.03412	44.93243	51.93949	59.05548	66.28051	73.61465	419.46919
Equiv. Electricity ( GWh)		0.00000	0.00000	1.62833	3.51460	5.96976	8.70851	12.16505	16.40762	21.90303	28.35771	98.65461
<b>CO2 Emissions</b>												
3600 MT/GWh (Diesel as displaced) - Solar & Wind		0	0	5.8619878	12.65255	21.491128	31.350637	43.79418	59.06742	78.850915	102.08777	355.15659
3070 MT/GWh (LPG as displaced) - Biomass		149.20079	230.72869	313.51338	398.65013	485.17212	573.16856	662.55224	753.32542	845.48962	939.04563	5350.8466
660 MT/GWh (PEP level 2000) Total Non-power		32.07574	49.602911	68.474968	88.022919	108.24414	128.96952	150.46687	172.78172	196.2225	220.59561	1215.4569

#### GHG EMISSIONS REDUCTION SUMMARY

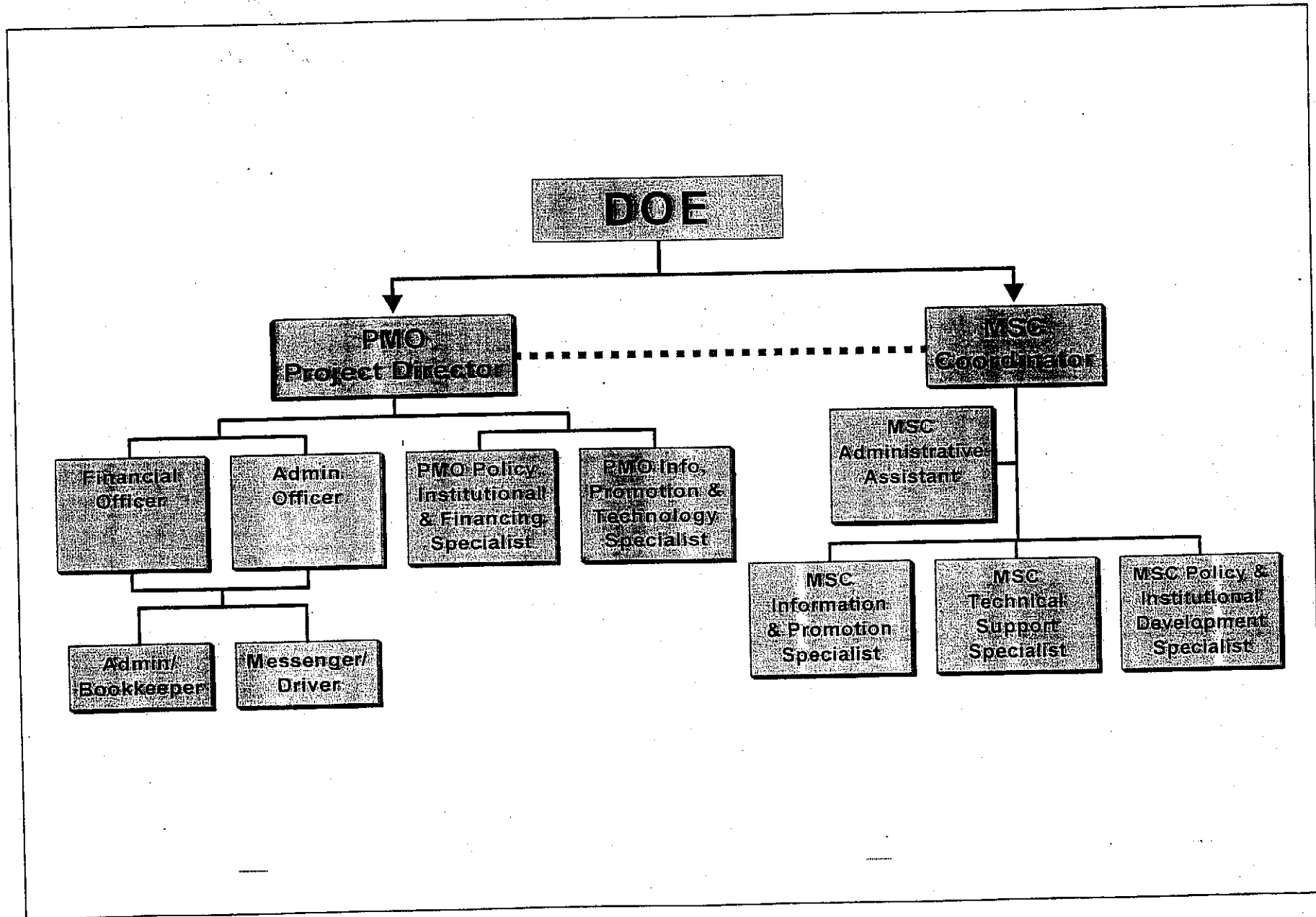
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>BASELINE GHG EMISSIONS ('000 MT CO<sub>2</sub>) (from PEP)</b>	75,903	76,253	81,265	88,588	95,535	105,224	113,595	122,344	126,479	135,536	1,020,722
<b>REDUCTIONS</b>											
ON-GRID (oil as displacement)	-	-	14.80	1,303.99	1,143.28	2,431.01	3,766.33	3,585.75	4,849.37	5,955.49	23,050.01
OFF-GRID (diesel as displacement)	-	0.38	3.76	12.30	35.30	65.06	101.67	145.76	198.62	259.63	822.48
<b>NON POWER</b>											
Solar & Wind (diesel as displacement)	-	-	5.86	12.65	21.49	31.35	43.79	59.07	78.85	102.09	355.16
Biomass (LPG as displacement)	149.20	230.73	313.51	398.65	485.17	573.17	662.55	753.33	845.49	939.05	5,350.85
<b>TOTAL REDUCTION IN ABSOLUTE TERMS ('000 MT CO<sub>2</sub>)</b>	<b>149.20</b>	<b>231.11</b>	<b>337.93</b>	<b>1,727.59</b>	<b>1,685.24</b>	<b>3,100.59</b>	<b>4,574.34</b>	<b>4,543.90</b>	<b>5,972.33</b>	<b>7,256.26</b>	<b>29,578.50</b>

TOTAL GEF PROJECT COST (US\$)	5,140,000.00
TOTAL GHG EMISSION REDUCTION IN 10 YEARS ('000 MT CO <sub>2</sub> )	29,578.50
Unit Abatement Cost (US\$/MTC)	0.63

# ANNEX 2. PROJECT IMPLEMENTATION ORGANIZATIONAL CHART



ANNEX 3. MO/MSO ORGANIZATIONAL STRUCTURE





**ANNEX 4**  
**TERMS OF REFERENCE**  
**FOR CONSULTANTS, PMO AND MSC PERSONNEL AND SUBCONTRACTS**

**A. INTERNATIONAL EXPERTS**

1. Chief Technical Adviser.
2. NUG Advisor.
3. Energy Economist.
4. Financial Advisor.
5. Manufacturer's Advisor.

**B. PMO PERSONNEL**

1. Project Director.
2. PMO Technical Specialist 1. Policy, Institutional, and Financing Staff.
3. PMO Technical Specialist 2. Information, Promo, Technical Services Staff.
4. PMO Finance Officer.
5. PMO Administrative Officer.
6. PMO Administrative Assistant.
7. PMO Messenger/Driver

**C. MSC Personnel**

1. MSC Coordinator.
2. MSC Technical Specialist 1. Info and Promo Staff
3. MSC Technical Specialist 2. Technical Support Staff.
4. MSC Technical Specialist 3. Policy and Institutional Development Staff.
5. MSC Administrative Assistant.

**D. NATIONAL EXPERTS**

1. NRE Policy Expert.
2. NRE Planning and Modeling Expert.
3. MSC Business Development Expert.
4. Training Program Expert.
5. Financing and Delivery Mechanisms Expert
6. Expert on Financial Incentives to NRE Manufacturers

**E. SUBCONTRACTS**

1. NRE Policy and Market Development Studies
2. NRE Resource Inventory
3. Database and Exchange Technical Assistance.
4. Advocacy and Promo Campaign TA.
5. NRE Engineering Service Industry Development and Green Energy Rating TA
6. Delivery and Financing Mechanisms Implementation TA
7. Technical Assistance to Local Manufacturers of NRE Equipment
8. Training Module/Informational Materials Production

**Terms of Reference for Consultants and Subcontracts**  
**INTERNATIONAL EXPERTS**

**POSITION: CHIEF TECHNICAL ADVISOR**

**Level of Effort:** 10 p-months over 5 years

**Scope of Work:**

To provide oversight and general direction through the Coordinator of the PMO on the Philippines CBRED project. The advisor will:

- Assist the Coordinator to liaise and coordinate with all stakeholders of the CBRED;
- Coordinate and advise on staff job descriptions and annual work plans for the PMO and the MSC;
- Coordinate and advise on all consultant, contractor and sub-contracts; initial terms of reference, quality and scheduling of outputs and deliverables;
- Advise on scheduling, budgeting and monitoring issues;
- Provide written advice and comment on technical / financial / extension issues;
- Advise on establishing and managing monitoring and evaluation programs for all aspects of the project;
- Coordinate with the PMO Coordinator to report on CBRED progress to the Appraisal and Monitoring Committees on a regular basis. Coordinate recommendations for revisions to the Project Outputs, Verifiable Indicators, Budget Allocations and Work plan;
- Advise on and monitor the achievement of self-reliance and capacity growth for those aspects of the Project where sustainability is of direct concern such as the MSC and the RE Database;

**Required Deliverables:**

- An inception report identifying key issues, tasks and schedules for the CBRED;
- In-country trip reports at the completion of each visit to the Philippines;
- Annual reports complete with strategies to address key issues to be addressed.

**Qualifications and Proven Experience:**

- Graduate in engineering or sciences preferably with post-graduate degree in economics, environment, or related fields;
- At least 10 years working in industry with at least 5 years of broad range of experience in the area of renewable energy;
- Proven project management and institutional development skills;
- At least 10 years of international development experience;
- Experience in the last 10 years with at least 2 of the following:
  - Project financing;
  - Project administration and management;
  - Rural extension and economic development;
  - Team capacity building;
  - Non-utility generation (NUG) development;
  - Training and capacity building for public and / or private sectors.

**Terms of Reference for Consultants and Subcontracts**  
**INTERNATIONAL EXPERTS**

**POSITION: NRE NUG ADVISOR**

**Level of Effort:** 1 p-month

**Scope of Work:**

A bill was proposed in Congress in 1999 entitled "*An Act to Further Promote the Development, Utilization and Commercialization of New and Renewable Energy Sources and for Other Purposes*" (referred to as the NRE Bill). It seeks to provide the needed incentives for the development of NRE sources, including solar, wind, biomass, geothermal, micro-hydro, and ocean energy, among others. Specifically, the NRE Bill proposes new policy measures that would address the market failure for NRE projects aside from other proposed institutional and financial incentives to encourage private sector investment. The CBRED is assisting further refinement of the NRE Bill by the creation of the NRE Inter-Agency Committee (NREIAC) under the Chair of NCED – DOE to permit multi-stakeholder review and analysis. The NREIAC will facilitate final recommendations for a new NRE Bill.

) The role of the New and Renewable Energy Non-Utility Generation Advisor shall be to provide policy advice to the NREIAC and to the PMO under the Director. The Advisor shall be required to provide input to the Committee and PMO in the form of a presentation and written report on issues and incentives for renewable energy Non-Utility Generators in particular with regard to NRE Policy, NRE Electricity Pricing, NRE Power Generation Studies, Power Purchase Agreements (PPA) and other pertinent aspects of the NRE Bill. It will be important to contribute an international experience providing the experience on NRE policy development from other national jurisdictions. This input will largely be based on recommendations and reflections on the work of the NREIAC and its consultants.

The consultant shall perform on a call-up basis under the direction of the PMO coordinator.

**Required Deliverables:**

Presentation and written report as specified by terms of reference.

**Qualifications and Proven Experience:**

- ) • An university graduate in law;
- Experience with the formulation of policy and legislation devoted to the promotion of NRE power and heat development by the private sector;
- Experience with energy policy development and regulatory issues in a developing country context;
- Experience and familiarity with technical, legal and institutional issues connected with NUGs;
- Experience and familiarity with the specification and negotiation of PPA for private power;
- Experience with renewable energy generating systems is preferred.

**Terms of Reference for Consultants and Subcontracts**  
**INTERNATIONAL EXPERTS**

**POSITION: NRE ECONOMIST / MODELLER**

**Level of Effort:** 1 p-month

**Scope of Work:**

The NEA, with funding assistance from the World Bank, has recently developed a planning model to determine the areas for on-grid and off-grid applications. The Renewable Energy Systems Utilization for Rapid Growth of Electrification (RESURGE) model is a tool to evaluate renewable energy alternatives to traditional grid extension.

The DOE will promote the practice of sustainable and integrated energy planning through the use of RESURGE and other modeling tools. Activities will include studies to scope available NRE-RE models including RESURGE and a review of DOE and other GOP development plans to produce an integrated planning model for the introduction of NRE through relevant sectors.

) Both RESURGE and Integrated Energy Planning will be subjects of extension and training under the CBRED.

The CBRED requires an Energy Economist/Modeler to provide guidance, advice and technical support for these activities. The Energy Expert will be responsible to the Director of the PMO.

**Tasks will include:**

- One visit to the Philippines at the inception of the work to gather research material and to meet with stakeholders;
- Close coordination with a local consultant providing planning and modeling expertise;
- Coordination with the PMO and DOE to provide written advice and recommendations as required.

**Required Deliverables:**

**Deliverables shall include:**

- ) • Published reports detailing the methods, findings, data and recommendations/ conclusions for the work specified;
- Capacity building and technology transfer of work undertaken;

**Qualifications and Proven Experience:**

- A graduate or post-graduate degree in energy economics or planning;
- At least 5 years of experience working on energy economic and planning issues in developing countries;
- Experience in modeling and planning of NRE systems on an integrated sectoral basis (including energy, transport, economic development, gender equity, poverty alleviation, agriculture and so on);

**Terms of Reference for Consultants and Subcontracts**  
**INTERNATIONAL EXPERTS**

**POSITION: NRE FINANCING ADVISOR**

**Level of Effort:** 2 p-months over 4 years

**Scope of Work:**

The Financial Advisor shall assist the MSC in the design and specification of three pilot funds, which will be set up to help overcome financial barriers in implementing NRE projects. As originally conceived these 3 funds are:

1. The Project Preparation Fund. A partial grant fund administered by an existing financial institution intended to assist NRE projects in doing final preparatory work to be finance-ready.
2. The Loan Guarantee Fund. A loan guarantee mechanism targeted at NRE loans in remote, off-grid locations administered by an existing financial institution in the Philippines.
3. The Micro Finance Fund. A loan fund aimed at remote community organizations with concessionary rates to finance NRE projects. Administered by rural banks or NGOs involved in micro-financing.

GEF will partly finance the said funds with major co-financing inputs from other cooperators of CBRED Project particularly DOE. The Funds will be dispersed through specifically developed "core groups" in existing financial institutions. The Funds will be promoted through the outreach activities of the MSC.

Working with the PMO and the MSC assistance is required in design and specification of the three programs in line with CBRED financial monitoring and financial institution's requirements. Program design must include:

- Definition of purposes, scope and limitations of funds;
- Criteria for the selection of fund implementors;
- Implementing Guidelines and Management Arrangements;
- Core Group capacity requirement criteria and training guidelines for administration of funds;
- Criteria for funding eligibility;
- Contractual obligations for each fund;
- MSC project management guidelines and training as well as a results-based framework for monitoring and evaluation of the Fund Programs. Advice will be required on Program promotion and training.

The consultant shall provide oversight and advisory services on the foregoing as well as:

- Promotion of the programs;
- Selection of projects for funding;
- Monitoring and evaluation of selected projects.

**Required Deliverables:**

A Report detailing the contributions and highlighting inputs of international expertise in the following:

- Framework for the Design of the 3 Project Funds
- Procedure and Criteria on the Selection of Fund Implementors for PPF, LGF and MFF
- MOAs, MOUs and other contractual obligations necessary to implement the Project Funds
- Training Program for the Implementation of 3 Project Funds developed and executed

**Terms of Reference for Consultants and Subcontracts**  
**INTERNATIONAL EXPERTS**

- Procedure and Criteria for the Selection of Fund Applicants for PPF, LGF and MFF
- M&E System and Implementation Guidelines for each Project Funds

**Qualifications and Proven Experience:**

- A university graduate in banking and finance, preferably with post-graduate degree specializing in Financial Management.
- Proven track record of experience in the design, development and management of successful financing schemes.
- Familiarity with the different financing issues related to NRE projects;
- 10 years of experience administering funding programs through banks or government agencies;
- Experience with international and rural development issues;

**Terms of Reference for Consultants and Subcontracts**  
**INTERNATIONAL EXPERTS**

**POSITION: NRE EQUIPMENT MANUFACTURING ADVISOR**

**Level of Effort:** 1 p-month

**Scope of Work:**

The CBRRED project is undertaking a range of activities to support the development of an indigenous NRE industry. Assistance is required from an international consultant to provide over-sight guidance in formulating the project subcomponents and in evaluating output as it becomes available. The three work components to be considered are the following:

*1. NRE Standard Setting*

NRE stakeholders collectively agree that the lack of standards for NRE systems and components is a barrier to the commercialization of NRE. Suppliers perceive the lack of standards as a hindrance in marketing good quality and reliable products because consumers by themselves cannot adequately understand and compare the specifications of the various products in order to make intelligent decisions for selection and purchase. A corollary to the lack of standards is the lack of testing, verification and quality control measures that makes enforcement of product standards almost impossible. As currently conceived the project is designed to:

- a) Assess Philippine NRE system operating performance and manufacturing/ installation practices and capabilities;
- b) Identify a minimum of 5 industry segments and technology systems where standard-setting would enhance market opportunities;
- c) Develop appropriate performance norms or standards for the manufacture, installation, operation and performance testing of these systems based on international best practice standards and local considerations;
- d) Specify test equipment and program specifications required for a national test program;
- e) Organize industry to accept and regulate the performance norms;
- f) Design a program to cost-share in the implementation of improvements to NRE systems designs and manufacture. Set up a monitoring program to chart the impact of the program and to provide accountability;
- g) When necessary identify and specify improvements to the design of equipment and systems;

*2. Capacity Building of NRE Engineering Firms*

This work supports a program for the capacity building of local engineering firms in providing technical services to NRE projects. The task includes the conduct of training for local engineering firms on NRE "system management" and the development of a registration program for the firms. The registration program aims to provide greater end-user assurance on the quality of engineering services being provided by the local firms and service companies.

*3. The Green Energy Rating Program*

This program is a promotional activity to encourage utilization of NRE in relevant industries and by prospective NRE system developers and operators. The Green Energy Rating program provides necessary recognition to both project developers and end-users that have had strong participation in various success NRE projects. This output is realized through the design of an environmental rating scheme that would be based on factors such as the contribution of NRE to total energy load.

**Terms of Reference for Consultants and Subcontracts**  
**INTERNATIONAL EXPERTS**

**Required Deliverables:**

- Proposed realistic, achievable/attainable standards for NRE system equipment/component manufacturing design standards and practices
- Proposed realistic, achievable/attainable standards for NRE system equipment/component performance
- Proposed realistic, achievable/attainable standards for NRE system equipment/component performance testing procedures
- Performance evaluation of locally made NRE system equipment/components
- Performance evaluation of local NRE system equipment manufacturing processes
- Recommended improvements on locally made NRE system equipment/components and manufacturing processes.
- Proposed capacity building program for NRE engineering firms
- Proposed procedures and implementation arrangements for the Green Energy Rating Program
- Others

**Qualifications and Proven Experience:**

- Qualified professional mechanical/electrical/chemical engineer;
- At least 10 years of proven experience project experience with NRE technology applications;
- At least 10 years of international development experience.



**Terms of Reference for Consultants and Subcontracts**  
**PMO PERSONNEL**

**POSITION: PROJECT DIRECTOR, PROJECT MANAGEMENT OFFICE (PMO)**

**Duration:** 5 years

**Location:** Manila

**Responsibilities:**

The CBRED Project is a multi-year multidisciplinary project designed to build the capacity for NRE delivery in the Philippines. The day-to-day operational management of the Project will be the responsibility of the PMO based within the NCED of DOE. A NRE Inter-agency Committee (NREIAC) will be established to act as a technical group for overall guidance and approval of key program activities including fund commitments and co-financing arrangements. It shall be the role of the PMO to undertake the following activities:

- Coordination with the PMOs of other related on-going projects for the purpose of facilitating the implementation of top management's decision on delineation of project thrusts and direction
- Preparation of work plans, budget, and TORs of consultants, trainers, and subcontractors;
- Assist DOE in the selection and hiring of other national professionals, administrative staff and subcontractors needed in the Project;
- Monitoring and evaluation of progress of project activities;
- Arranging of regular review meetings and ensuring effective coordination of project activities;
- Preparation and dissemination of project reports and other information materials. The primary goal of this activity will be to enhance the transparency of project implementation.
- Oversee the financial record-keeping and internal control management of the PMO and the Project as a whole;
- Submission of timely and accurate financial reports and progress reports to UNDP
- Provide technical and administrative support for the initial operation of the MSC.

The Director of the PMO will take responsibility for the management and administration of the CBRED. He or she will answer directly to the DOE and UNDP in the overall operation and management of the Project.

He or she will be ultimately responsible for the fiscal management of the project. He or she will manage a staff of up to 7 with multi-disciplinary capabilities in renewable energy technology, communications, financing, marketing and more. In this role the Director will be responsible for ensuring high staff performance and motivation. The Director will directly and indirectly manage and coordinate multifaceted local and international consultant contracts to ensure their timely completion and high quality. He or she will manage the monitoring and evaluation of both the overall project and its components. The Director will be responsible for ensuring that project objectives are being met in terms of budget and project outputs and must be prepared to recommend changes to the NREIAC to ensure that all outputs are realized over the project life.

The Director will be the primary project advocate and representative. In this role, he or she will meet regularly with stakeholders from the public, the renewable energy industry, Government of the Philippines and international donors to further project objectives.

## **Terms of Reference for Consultants and Subcontracts PMO PERSONNEL**

Specific responsibilities will include:

- Regular reporting to DOE and NREIAC on the status of the project activities;
- Synthesis of the works and outputs of consultants and subcontractors to identify potential issues and problems
- Chairing of the quarterly Project Monitoring Committee meetings;
- Preparation of quarterly financial and project progress reports;
- Preparation of annual project reports (APR) and others as required by the UNDP.

### **Qualifications and Experience:**

- A university graduate of social science, preferably in Business Administration or Economics.
- At least 10 years of proven track record of project management experience preferably in the area of energy;
- Senior management reporting skills;
- Excellent English communication skills, both written and verbal. Skilled presenter of ideas in one on one situations and in symposia;
- Proven track record of experience in successful contract management;
- A self-motivated individual with good leadership skills capable of planning, initiating and managing multi-disciplinary activities within the context of a multi-donor international project;
- An understanding of and links with the Philippines renewable energy project development community;

**Terms of Reference for Consultants and Subcontracts  
PMO PERSONNEL**

**POSITION:** TECHNICAL SPECIALIST (POLICY, INSTITUTIONAL AND FINANCING)

**Duration:** 5 years

**Location:** Manila

**Responsibilities:**

The Technical Specialist (Policy, Institutional and Financing) shall be directly responsible to the Director of the PMO. He or she will provide support in the smooth operation of the CBRED by being directly responsible for the oversight management of various aspects of the Project as required and for the regular monitoring and reporting of progress to the Director.

Notwithstanding this general requirement the Technical Specialist will be responsible for the oversight project management (including coordinating logistics, technical support, time/financial management, and quality control) for the following specific aspects of the project:

- NRE Policy, Planning and Institutional Capacity Building Component;
- NRE Initiatives Delivery and Financing Mechanisms Component;
- NRE Market Services Institutionalization.

The Technical Specialist shall assist the Director in staff capacity development, in concerns for the institutionalization and long term sustainability of all Components of the Project and in the monitoring and evaluation (including RBM reporting) of Project Components.

**Qualifications and Experience:**

- A university degree in a social science discipline (economics, business, communication, environment, etc.)
- Proven track record in project management, meeting deadlines, timely submission of acceptable deliverables and so on;
- Working knowledge of, or background in, at least one NRE resource in the Philippines, as well as in energy policy making, project financing mechanisms, business planning.

**Terms of Reference for Consultants and Subcontracts  
PMO PERSONNEL**

**POSITION:** TECHNICAL SPECIALIST (INFORMATION, PROMOTION, TECHNICAL SERVICES)

**Duration:** 5 years

**Location:** Manila

**Responsibilities:**

The Technical Specialist (Information, Promotion and Technical Services) shall be directly responsible to the Director of the PMO. He or she will provide support in the smooth operation of the CBRED by being directly responsible for the oversight management of various aspects of the Project as required and for the regular monitoring and reporting of progress to the Director.

Notwithstanding this general requirement the Technical Specialist will be responsible for the oversight project management (including coordinating logistics, technical support, time/financial management, and quality control) for the following specific aspects of the project:

- NRE Information and Promotion Services Component;
- NRE Training Program Component;
- NRE Technology Support Component.

The Technical Specialist shall further be responsible to the Director for establishing and maintaining project management criteria (e.g. establishing terms of reference, contractual obligations, quality control), and establishing and maintaining project reporting criteria.

**Qualifications and Experience:**

- A university degree in science or engineering;
- Proven track record in project management, meeting deadlines, timely submission of acceptable deliverables and so on;
- Working knowledge and background in the Philippines renewable energy industry;
- Proven track record of experience with training programs;
- Experience in at least one of the following – the Philippine renewable energy industry, technology specification / testing – database development / management – technology promotion and marketing.

**Terms of Reference for Consultants and Subcontracts**  
**PMO PERSONNEL**

**POSITION: PMO FINANCE OFFICER**

**Duration:** 5 years

**Location:** Manila

**Responsibilities:**

Responsible for the accuracy and appropriateness of disbursements; maintaining the set of books required according to UNDP accounting procedures, classifying and summarizing financial transactions of the project and the generation of required financial reports. Also responsible for ensuring that the other books of accounts such as subsidiary ledgers and special registers are kept up-to-date.

**Specific Responsibilities:**

1. Installs and implements the project's financial systems and procedures, in accordance with UNDP's existing guidelines on national execution;
2. Orients staff on the use of the project's financial systems and procedures;
3. Supervise the proper recording of financial transactions and submit a regular report on the project's financial status;
4. Certifies the correctness of journals, vouchers, bills, statement of accounts, trial balance, budget estimates and other financial statement and records;
5. Signs certification of the availability of funds and or allotment of expenses, vouchers and requisition for supplies, materials, etc.;
6. Consolidate and prepare annual and quarterly budgets and work plans, including the necessary budget revisions;
7. Establish a project account and ensure appropriateness and proper record keeping of transactions;
8. Supervise the preparation of payroll and general voucher of salaries, and other documentary requirements for disbursements;
9. Prepare updated reports on disbursements made by the project, and advise the Project Team on the overall financial status of the project.

**Qualifications and Experience:**

1. College graduate with background in Accounting.
2. Preferably Certified Public Accountant
3. One to three years experience in performing general accounting, financial monitoring and reporting and other related accounting tasks in a non-profit organization or donor institutions.
4. Working knowledge of integrated and/or specific accounting applications. (e.g. general ledger, accounts payable, financial reporting, etc.).
5. Good interpersonal and communication skills

**Terms of Reference for Consultants and Subcontracts  
PMO PERSONNEL**

**POSITION: PMO ADMINISTRATIVE OFFICER**

**Duration:** 5 years

**Location:** Manila

**Responsibilities:**

Within guidelines and limits of authority established by the policies of the project organizational structure, the Administrative Officer shall be responsible for providing administrative supervision to the project, supervising administrative staff and ensuring the smooth functioning of administrative systems under the project.

**Specific Responsibilities:**

1. Establish administrative systems and procedures consistent with UNDP's national execution mode, in the form of a Manual, for the guidance of project staff, consultants and subcontractors;
2. Maintain an active file of all personnel, consultants and subcontractors under the project;
3. Prepare and consolidate the travel plan, and procurement plan for the project;
4. Supervise the procurement requirements of the project, in accordance with UNDP guidelines;
5. Maintain an updated inventory of all supplies and equipment and prepare guidelines for the proper use and maintenance of office equipment and properties;
6. Make arrangements for the logistical requirements in training, workshops, and other Project activities;
7. Provide overall supervision to the administrative support staff, assistance to project staff, consultants and others in their overall administrative requirements.

**Qualifications and Experience:**

1. College graduate with background in Business Administration.
2. One to three years experience in related tasks in a non-profit organization or donor institutions.
3. Working knowledge of integrated and/or specific accounting applications. (e.g. general ledger, accounts payable, financial reporting, etc.).
4. Good interpersonal and communication skills

**Terms of Reference for Consultants and Subcontracts**  
**PMO PERSONNEL**

**POSITION: PMO ADMINISTRATIVE ASSISTANT**

**Duration:** 5 years

**Location:** Manila

**Responsibilities:**

Within guidelines and limits of authority established by the policies of the project organizational structure, the Administrative Assistant shall be responsible for providing administrative backstopping to the project, supervising all administrative staff and ensuring the smooth functioning of administrative systems under the project.

**Specific Responsibilities:**

1. Establish administrative systems and procedures consistent with UNDP's national execution mode, in the form of a Manual, for the guidance of project staff, consultants and subcontractors;
2. Maintain an active file of all personnel, consultants and subcontractors under the project;
3. Prepare and consolidate the travel plan, and procurement plan for the project;
4. Supervise the procurement requirements of the project, in accordance with UNDP guidelines;
5. Maintain an updated inventory of all supplies and equipment and prepare guidelines for the proper use and maintenance of office equipment and properties;
6. Make arrangements for the logistical requirements in training, workshops, and other Project activities;
7. Assist the project staff, consultants and others in their overall administrative requirements.

**Qualifications and Experience:**

1. College graduate with at least five years experience as Administrative Officer in any developmental project, experience with UNDP projects would be desirable;
2. Good interpersonal and communication skills.

**Terms of Reference for Consultants and Subcontracts  
PMO PERSONNEL**

**POSITION: PMO MESSENGER / DRIVER**

**Duration:** 5 years

**Location:** Manila

**Responsibilities:**

1. Ensure that the Project vehicle is maintained at good working conditions at all times
2. Secure safety of Project vehicle
3. Drive Project staff
4. Deliver / pick-up Project documents / materials
5. Extend support services during official functions like meetings, conferences, workshops, etc.
6. Arrange and monitor regular vehicle repair / maintenance jobs

**Qualifications and Experience:**

1. Holder of a professional driver's license
2. At least six years experience
3. Familiar with road routes in Metro Manila
4. Experience and working knowledge in the repair of vehicles



**Terms of Reference for Consultants and Subcontracts  
MSC PERSONNEL**

**POSITION: MARKET SERVICE CENTER (MSC) COORDINATOR**

**Duration:** 4.5 years

**Location:** Manila

**Responsibilities:**

The CBRRED Project is establishing a Market Service Center (MSC) to be the focal point in the country for NRE market development by providing information, expertise and access to sources of funds. It will not be a government agency fully dependent on public funds. Rather the MSC will be formulated as a quasi-private organization representing private sector, NGO and GoP interests. It will have a Board of Directors to be chaired by a representative of DOE and co-chaired by a representative of the private sector. It will be made an integral component of the 'One Stop Energy Investment Center' (OSEIC) that the DOE shall be creating to assist and facilitate private sector investments in the energy sector.

The Coordinator of the MSC will be challenged to provide the initiative for starting up and ensuring the long-term sustainability of this novel service organization. The Coordinator will answer directly to the Board of Directors. The Coordinator will be responsible for staffing the MSC, providing vision and direction to the staff and establishing the MSC as an important and valued component of renewable energy project development both in remote and non-remote settings. The position requires an excellent understanding of the range of barriers facing renewable energy project development from technical to non-technical.

The primary focus of the MSC, however, will be overcoming non-technical barriers and the Coordinator will be expected to direct the establishment of mechanisms to assist with an array of project preparation, project extension, education, promotion and financing services for renewable energy projects. The position requires someone with an entrepreneurial spirit who will direct the MSC to become self-sustaining within 5 years and who will develop a valued, high quality service for renewable energy project developers while nurturing that service ethic within the organization. The immediate challenge of a Coordinator will be to direct the creation of a long-term business plan for the MSC.

**Qualifications and Experience:**

- A recognized science or business degree;
- At least 10 years of experience in a senior marketing position within private industry;
- Experience with implementation and management of financing of large capital-intensive projects;
- Experience with or knowledge of rural development issues;
- Proven experience as a team builder and leader;
- Experience with the preparation of consultant contracts;
- Experience with or understanding of NUG issues and needs particularly as related to renewable energy project development;
- Excellent oral and written English communication skills;
- An understanding of and links with the Philippines renewable energy project development community is an asset;

**Terms of Reference for Consultants and Subcontracts  
MSC PERSONNEL**

**POSITION: MSC TECHNICAL SPECIALIST (INFORMATION AND PROMOTION)**

**Duration:** 4.5 years

**Location:** Manila

**Responsibilities:**

The Information and Promotion Specialist of the MSC will answer directly to the MSC Coordinator and be responsible for:

- The promotion of MSC services amongst existing and potential renewable energy project developers;
- The production of educational material relevant to overcoming in the main the non-technical barriers of renewable energy projects;
- The planning and programming of educational events aimed at technical and non-technical audiences to assist in overcoming in the main the non-technical barriers of renewable energy projects;
- The promotion of the CBRED Fund mechanisms to potential projects;
- Expanding the role of the MSC into new, profitable education and extension-oriented activities;

**Qualifications and Experience:**

- A relevant degree in mass communication or business;
- With working knowledge in IT management;
- Proven experience with rural development and NRE marketing and promotion issues;
- Proven experience with the planning and development of education material;
- Proven experience with rural extension and development projects;
- Ability to understand and communicate technical and financial issues to an audience;
- Background and experience with renewable energy applications;

**Terms of Reference for Consultants and Subcontracts  
MSC PERSONNEL**

**POSITION:** MARKET SERVICE CENTER TECHNICAL SPECIALIST (POLICY, INSTITUTIONAL DEVELOPMENT AND FINANCING)

**Duration:** 4 years

**Location:** Manila

**Responsibilities:**

The Technical Specialist will take the lead in promoting the financial components of NRE projects within the MSC. The purpose of this position is to work toward the removal of financial barriers to the deployment of renewable energy projects. The role of the policy, financing and institutional development specialist will be to:

- Identify barriers and opportunities for the financing of private sector NRE projects;
- Provide technical assistance in the promotion of PPF, LGF and MFF;
- Manage a team of staff and consultants to:
  - Develop a database of NRE financing including; - potential projects, - financing sources and requirements – grant funds sources and requirements; - sources of loan securitization
  - As a result of analysis of needs, develop extension material designed to facilitate the financing of NRE projects, which may include: case histories with lessons learned – project preparation guidelines and checklists – project feasibility models – power purchase agreement templates and so on;

The Technical Specialist will answer directly to the MSC Coordinator and in addition to project duties be responsible for:

- Capacity building of MSC staff on policy formulation and analysis, institutional capacity development and NRE financing.

**Qualifications and Experience:**

- A recognized science, business or economics degree;
- At least 10 years of experience in government or industry with a history of program formulation, implementation and management;
- Good oral and written English communication skills;
- Proven track record of experience with monitoring, evaluation and promotion of programs;
- Proven track record of rural development extension program implementations.

**Terms of Reference for Consultants and Subcontracts  
MSC PERSONNEL**

**POSITION:** MARKET SERVICE CENTER TECHNICAL SPECIALIST (TECHNICAL SUPPORT)

**Duration:** 4 years

**Location:** Manila

**Responsibilities:**

- Provision of technical advice to users of MSC services;
- Identification of technical information requirements and development of technical advice and information networks to meet those needs;
- Coordination with MSC team members in the delivery of the technical component of information outreach activities;
- Responsible for the planning and management of CBRED technical information projects to include *inter alia*:
  - NRE Resource inventories throughout the Philippines;
  - Development of an NRE National Database
  - NRE Website development
  - NRE Engineering service advancement
  - NRE Green Energy Rating Program

**Qualifications:**

- A university degree in engineering or sciences;
- At least 5 years working experience in the renewable energy industry with a broad experience in a range of NRE system technologies and grid/ off-grid applications;
- Good oral and written English communication skills;
- Proven track record of experience on technology transfer and capacity building for client groups;

**Terms of Reference for Consultants and Subcontracts**  
**MSC PERSONNEL**

**POSITION: MARKET SERVICE CENTER ADMINISTRATIVE ASSISTANT**

**Duration:** 4 years

**Location:** Manila

**Responsibilities:**

Within guidelines and limits of authority established by the policies of the project organizational structure, the MSC Administrative Assistant shall be responsible for providing administrative backstopping to the MSC.

**Specific Responsibilities:**

1. Establish administrative systems and procedures consistent with UNDP's national execution mode, in the form of a Manual, for the guidance of MSC staff, consultants and subcontractors;
2. Maintain an active file of all personnel, consultants and subcontractors under the project;
3. Prepare and consolidate the travel plan, and procurement plan for the project;
4. Supervise the procurement requirements of the project, in accordance with UNDP guidelines;
5. Maintain an updated inventory of all supplies and equipment and prepare guidelines for the proper use and maintenance of office equipment and properties;
6. Make arrangements for the logistical requirements in training, workshops, and other Project activities;
7. Assist the project staff, consultants and others in their overall administrative requirements.

**Qualifications and Experience:**

1. College graduate with at least five years experience as Administrative Officer in any developmental project, experience with UNDP projects would be desirable;
2. Good interpersonal and communication skills.

**Terms of Reference for Consultants and Subcontracts  
NATIONAL EXPERTS**

**POSITION: POLICY EXPERT**

**Level of Effort :** 6 p-months over 3 years

**Scope of Work:**

The role of the NRE Policy Expert shall be to assist in setting up and mobilizing the NREIAC and to provide policy advice to the NREIAC and to the PMO under the Director.

The NRE Policy Expert shall provide support to the NREIAC by providing supporting research and analysis as well as liaison with other experts and findings of the CBRED project. The contractor shall work closely with the NRE Energy Economist, the NRE Planning and Modeling Expert and the NRE NUG Advisor to assist them in directing their work and to interpret their findings in terms of policy for the NRE Policy Committee.

The consultant shall be required to review and make recommendations for changes to the proposed NRE Bill paying particular attention to current relevant energy legislation pertinent to the promotion of NRE including inter alia:

- the Electric Power Industry Reform Act (EIRA);
- EO 462 (as amended by EO 232) Enabling Private Sector Participation in the Exploration, Development, Utilization and Commercialization of Ocean, Solar and Wind Energy Resources for Power Generation and Other Energy Uses;
- EO 215 Allowing the Private Sector to Generate Electricity and amendments in DOE Circular No. 2000-03-004
- The 'O Ilaw' Program's goal for total barangay electrification by 2006.
- RA 7156, the Mini-hydroelectric Power Incentive Act,
- PD 1068 on Non-conventional Energy Resources

The consultant shall be responsible for establishing and if possible, implementing a monitoring and evaluation system to track the impacts of enforcement on policy, pricing and regulatory measures evolved through the NREIAC process. While answering directly to the Chair of the NREIAC the consultant shall be responsible to the Project Director of the PMO.

**Required Deliverables:**

1. Established and functioning NREIAC with the accompanying operational guidelines;
2. Reports and evaluations to the PMO as required by the NREIAC, the NRE Energy Economist, the NRE Planning and Modeling Expert and the NRE NUG Advisor;
3. A monitoring and evaluation system for NRE policy implementation using results-based management and monitoring principles. Performance indicators will be identified and an M&E system established within the PMO and NREIAC.

**Qualifications and Proven Experience:**

- An advanced university degree in a social science discipline such as law, environment, business;
- At least 10 years of proven experience with legal and policy issues in the Philippines (preferably in policy analysis and formulation);
- Knowledge of, or practice in, energy regulatory issues;
- Experience with NRE project development in the Philippines.

**Terms of Reference for Consultants and Subcontracts  
NATIONAL EXPERTS**

**POSITION: NRE PLANNING AND MODELLING EXPERT**

**Level of Effort :** 5 p-months over 3 years

**Scope of Work:**

The NEA, with funding assistance from the World Bank, has recently developed a planning model to determine the areas for on-grid and off-grid applications. The Renewable Energy Systems Utilization for Rapid Growth of Electrification (RESURGE) model, is a tool to evaluate renewable energy alternatives to traditional grid extension.

The DOE will promote the practice of sustainable and integrated energy planning through the use of RESURGE and other modeling tools. Activities will include studies to scope available NRE-RE models including RESURGE and a review of DOE and other GOP development plans to produce an integrated planning model for the introduction of NRE through relevant sectors.

Both RESURGE and Integrated Energy Planning will be subjects of extension and training under the CBRED.

The CBRED requires an NRE Planning and Modeling Expert to provide the following services.

- Coordination with, and provision of technical support to, international modeling and planning consultants working on the project;
- Conduct of a scoping study of project planning models including the RESURGE models for rural electrification;
- Design and field testing of a training package for the use of modeling in general and RESURGE in specifics for NRE planning;
- Review of NRE planning in various sectors for development and commercialization. An analysis of methods and recommendations for a model integrating NRE with other planning goals developed;
- Coordination with the PMO and DOE to provide written advice and recommendations as required.

**Required Deliverables:**

Deliverables shall include:

- Published reports detailing the methods, findings, data and recommendations/ conclusions for the work specified;
- Scoping study of NRE project planning models;
- Promotion and training materials (field tested) for NRE planning modeling; -
- Analysis and recommendations for integrated NRE planning approaches within the GOP.

**Qualifications and Proven Experience:**

- A university degree in an applied science, engineering or social science discipline;
- Proven experience in the modeling of energy related projects;
- Experience with national energy planning or other related planning issues;
- In-depth understanding of links between NRE and broad socio-economic planning issues.

**Terms of Reference for Consultants and Subcontracts  
NATIONAL EXPERTS**

**POSITION: MSC BUSINESS PLANNING AND DEVELOPMENT EXPERT**

**Level of Effort :** 5 p-months over 3 years

**Scope of Work:**

The CBERD Project is establishing a Market Service Center (MSC) to be the focal point in the country for NRE market development by providing information, expertise and access to sources of funds. It will not be a government agency fully dependent on public funds. Rather the MSC will be formulated as a quasi-private organization representing private sector, NGO and GoP interests. It will have a Board of Directors to be chaired by a representative of DOE and co-chaired by a representative of the private sector. It will however be made an integral component of the 'One Stop Energy Investment Center' (OSEIC) that the DOE shall be creating to assist and facilitate private sector investments in the energy sector.

An Expert is required to assist in the development of the MSC. There will be three components for which assistance is sought:

- development of a business plan for the MSC;
- staff capacity development needs analysis and program development;
- development of performance indicators and an M&E program.

The business plan for the MSC will be prepared with a view of ensuring its financial sustainability. Such a plan will chart the mandate and goals of the MSC, the roles and responsibilities of its personnel, its NRE market barrier removal activities and projected income statements. Emphasis will be placed on moving the agency to self-sufficiency within the project term through fee-for-services, memberships and other mechanisms. It is essential the business plan be developed through the interaction and cooperation of the MSC Board and its staff.

Specific steps in carrying out the business plan are:

1. Establish the mission, mandate and role;
2. Evaluate the market for this role throughout the Philippines:
  - What services are required?
  - By whom?
  - What will they pay?
3. Evaluate the current skills of the organization. Identify strengths and weaknesses.
4. Project income statements for 5 years.

Using the Business Plan as a framework the expert will be required to conduct a capacity building needs analysis of staff and Board to effectively implement the business plan. Included will be recommendations for a capacity development program. Again within the context of the business plan the expert will develop a M&E program to be implemented within the MSC. The plan will identify specific outputs and relate these to performance indicators.

**Qualifications and Proven Experience:**

- A degree in a commerce, business, finance discipline;
- Experience in business plan development
- Experience working with staff and Boards in the corporate sector;
- Excellent communication and facilitation skills.



**Terms of Reference for Consultants and Subcontracts  
NATIONAL EXPERTS**

**POSITION: TRAINING PROGRAM EXPERT**

**Level of Effort :** 6 p-months over 3 years

**Scope of Work:**

The CBRED is planning a series of training activities over its five-year life. The training activities will be national and sub-national in scope as shown in **Tables 3 and 4** of the project document. These tables are indicative of the scope of the training program but the precise extent of training will require verification at the commencement of the contract. An expert is required to work closely with PMO and MSC staff to design the training programs, identify and co-ordinate programs with appropriate training institutions, develop curriculum, and prepare course materials.

The design of the training programs should clearly identify the target student population, appropriate pedagogical approaches and systems for monitoring and evaluating the effectiveness of training. Training institutions should be selected for their ability and willingness to continue presenting course material integrated with ongoing programs. Trainers from the institute will be used to give courses and contract requirements will include in-depth training of trainers once curriculum is prepared. Once draft programs and curriculum are produced they should be field tested and evaluated for their effectiveness. Evaluation of draft curriculum should lead to significant improvement in a final polished version.

The expert shall ensure that each training program is evaluated both by teachers and students. These evaluations are to be evaluated and summarized with recommendations made for alterations to existing curriculum.

Training material should be developed to facilitate replication of training programs. With this in mind the contractor will be required to develop and maintain a compendium of all training programs developed in an easily accessible format. Curriculum, teacher instructions and program evaluations shall be maintained for all programs in a database.

**Required Deliverables:**

- Report on the Assessment of Training Needs of NRE Stakeholders
- Design and Implementation Work plan for the Comprehensive NRE Training Program;
- Institutional Framework and Contractual Obligations for the Implementation of the Program;
- Curriculum material in formats ready for reproduction;
- Instructor manuals for the conduct of the program;
- Monitoring and evaluation summaries and recommendations
- A database of training materials fully maintained.

**Qualifications and Proven Experience:**

- A degree in a teaching or communication discipline;
- Experience with design and execution of training programs;
- Experience with the design & production of training materials suitable for a range of post-secondary users;
- Understanding and/or experience with NRE;
- Excellent communication and facilitation skills.

**Terms of Reference for Consultants and Subcontracts  
NATIONAL EXPERTS**

**POSITION: FINANCING AND DELIVERY MECHANISMS EXPERT**

**Level of Effort:** 5 p-months over 3 years

**Scope of Work:**

The Financing and Delivery Mechanisms Expert shall assist the MSC by helping to design and transfer information related to three pilot funds, which will be set up to help overcome financial barriers in implementing NRE projects.

As originally conceived these 3 funds are:

1. The Project Preparation Fund. A partial grant fund administered by an existing financial institution intended to assist NRE projects in doing final preparatory work to be finance-ready.
2. The Loan Guarantee Fund. A loan guarantee mechanism targeted at NRE loans in remote, off-grid locations administered by an existing financial institution in the Philippines.
3. The Micro Finance Fund. A loan fund aimed at remote community organizations with concessionary rates to finance NRE projects. Administered by rural banks or NGOs involved in micro-financing.

GEF will partly finance the said funds with major co-financing inputs from other cooperators of CBRED Project particularly DOE. The Funds will be dispersed through specifically developed "core groups" in existing financial institutions. The Funds will be promoted through the outreach activities of the MSC.

Assistance of an Expert is required to design and specify the three programs in line with CBRED financial monitoring and financial institution's requirements. Program design will include:

- Definition of purposes, scope and limitations of funds;
- Criteria for implementing organizations;
- Implementing Guidelines and Management Arrangements;
- Core Group capacity requirement criteria and training guidelines for administration of funds;
- Criteria for funding eligibility;
- Contractual obligations for each fund;
- MSC project management guidelines and training as well as a results-based framework for monitoring and evaluation of the Fund Programs. Advice will be required on Program promotion and training.

The consultant will collaborate with the International NRE Financing Advisor in the execution of the above tasks and activities.

**Required Deliverables:**

- Framework for the Design of the 3 Project Funds
- Procedure and Criteria on the Selection of Fund Implementors for PPF, LGF and MFF
- Draft MOAs, MOUs and other contractual obligations effect the implementation of the Project Funds
- Training Program Design for the for the Implementation of 3 Project Funds developed and executed
- Procedure and Criteria for the Selection of Fund Applicants for PPF, LGF and MFF
- M&E System and Implementation Guidelines for each Project Funds

**Terms of Reference for Consultants and Subcontracts  
NATIONAL EXPERTS**

**Qualifications and Proven Experience:**

- A degree in business or commerce or law;
- 5 years of experience administering funding programs through banks or government agencies;
- Experience with international and rural development issues;
- Experience with NRE.

**Terms of Reference for Consultants and Subcontracts  
NATIONAL EXPERTS**

**POSITION: EXPERT ON FINANCIAL INCENTIVES TO NRE MANUFACTURERS**

**Level of Effort :** 1 p-month

**Scope of Work:**

NRE stakeholders collectively agree that the lack of standards for NRE systems and components is a barrier to the commercialization of NRE. Suppliers perceive the lack of standards as a hindrance in marketing good quality and reliable products because consumers by themselves cannot adequately understand and compare the specifications of the various products in order to make intelligent decisions for selection and purchase.

The CBRED project will assist in the strengthening of manufacturer capacities in the Philippines by funding a program for financing efficiency improvements in the processes/practices of local manufacturers of NRE system equipment/components. This activity involves the development of a financing support program for the improvement of manufacturing capability of NRE equipment and systems.

Assistance is required in designing the program. Program design will be carried out with full stakeholder participation. Design should include:

- Appropriate financial assistance mechanisms taking into account program sustainability, industrial incentives for commitment and so on;
- Activities, and technologies to support local NRE system equipment/component manufacturers;
- Implementing guidelines and criteria for fund eligibility;
- Institutional framework for the financing mechanism.

**Required Deliverables:**

1. Design of and Implementation framework for the Financial Assistance Program for NRE Manufacturers.
2. Compendium of Potential Financing Sources for NRE Manufacturers

**Qualifications and Proven Experience:**

- A graduate of degree in business and finance;
- At least 10 years of experience in designing financial assistance programs for manufacturers;
- With strong appreciation of financing incentives in designing, manufacturing and/or assembling NRE technologies in the Philippines;
- Proven experience in facilitation in stakeholder consultations.

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**TITLE: NRE POLICY AND MARKET DEVELOPMENT STUDIES**

**Scope of Work:**

The NREIAC of the CBRED Project requires assistance in surveying, documenting and analyzing NRE-related policies and regulations in the Philippines and in other appropriate countries. This work will contribute to ongoing deliberations on the strengthening the NRE Bill and in influencing Electricity policy to enhance the NRE contribution to the national energy supply. Output of the policy / regulation studies shall be a series of "issues and options" papers which will cover a range of policy concerns of the NREIAC. Issues of focus will be specified at the time of start-up of the work and will likely touch on some of the following:

- Enhancing NRE electricity production and sales;
- Structuring cost incentives for the sale of NRE electricity;
- Strategies for incentives to NRE-NUG entry into the electricity market.

A stakeholder consultation process is required whereby draft versions of the output papers are discussed with relevant stakeholders. An important component of each output will be the integration of stakeholder comments and concerns into the conclusions and recommendations of the papers.

The contractor will closely collaborate with the concerned international experts and national consultants, part in the execution of the above tasks and activities.

**Required Deliverables:**

1. A Study Report outlining and detailing the results and recommendations from the assessment of various policy mechanisms that will support the renewable power projects in the electricity market.
2. A Study Report containing the design of electricity tariff pricing mechanism for renewable power projects as well as the results and recommendations from the assessment for various costs, pricing and tariff issues related NRE-based power projects.
3. A Study Report containing the design of various financial incentives and other strategies for NRE projects as well as the results and recommendations from the assessment of various technical and regulatory issues on NRE-based power projects.
4. A Separate Report enumerating and justifying the various proposed provisions for possible inclusions to the NRE Bill, based on the results of policies studies

**Level of Effort:**

*Preliminary Budget: NRE Policy and Market Development Studies*

Item	Amount (in USD)		
	UNDP/GEF	Others*	Total
Personnel	26,000	13,000	39,000
Data Gathering/Documentation	19,500	0	19,500
Workshops	13,000	0	13,000
Travel	6,500	0	6,500
<b>Total Subcontract</b>	<b>65,000</b>	<b>13,000</b>	<b>78,000</b>

\*In-kind Support of DOE and PMO

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**Required Qualifications:**

1. Extensive experience in the analysis of the NRE sector in the Philippines, with proven track record of projects implemented in the following areas: energy policy formulation/development/implementation, energy policy support activities, strategies, instruments, etc.
2. Proven track record of research work involving design and implementation of market survey, survey evaluations and provision of recommendations on market development strategies, etc.
3. Credible skills in data collection, database development, and modeling
4. Knowledge of the use of econometric methodologies, forecasting, planning
5. Professional staff fluent in the English language

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**TITLE: NRE RESOURCE INVENTORY**

**Scope of Work:**

The goal of this work is to improve the quality and quantity of NRE resource information available in the Philippines.

The contractor shall conduct a multi phase program with the required output of successive phases being dependant on the findings of foregoing phase as follows:

- Phase I – Prioritization of Resource Data; Assess resource data requirements for NRE projects having primary development potential and / or being given development assistance. The O’Ilaw program for the electrification of remote barangay using NRE shall be an important criteria for resource data identification;
- Phase II – Assess state of Resource Data; Survey government, institutional and private agencies to determine the extent of NRE resource data currently available;
- Phase III – Analyze Data Gaps; based on the findings of Phase II assess the full extent of data requirements (physical measurements, temporal requirements, geographic locations) of specified NRE resource data not currently extant;
- Phase IV – Design Monitoring Program; Design an NRE resource monitoring program for the capture of data identified in Phase III. Such a program would consist of the identification of the:
  1. Scope of each monitoring activity;
  2. Terms of reference and budget for an agency to conduct the monitoring;
  3. Specification and cost of additional equipment required to provide long-term (5-year) monitoring of resources;
  4. Philippine organizations designated to be the recipients of data;
  5. Long-term (5-year) plans for the continuation and expansion of monitoring and resource data-base expansion amongst the organizations designated in 4.

**Required Deliverables:**

- Shortlist of Priority NRE Resource Database Needed by NRE Project Developers.
- Inventory of Existing NRE Resource Database in the Philippines
- Guidebook in the Conduct of NRE Resource Surveys and Assessment
- Conduct of NRE Resource Surveys
- Packaging and Integration of Comprehensive NRE Resource Database in the Philippines.

**Level of Effort:**

*Preliminary Budget NRE Resource Assessments*

Item	Amount (in USD)		
	UNDP/GEF	Others*	Total
Personnel	36,000	18,000	54,000
Data Gathering/Documentation	27,000	8,000	35,000
Workshops	18,000	0	18,000
Travel	9,000	4,000	13,000
<b>Total Subcontract</b>	<b>90,000</b>	<b>30,000</b>	<b>120,000</b>

*\*In-kind contribution by DOE, PMO and MSC.*

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**Required Qualifications:**

1. Extensive experience in the analysis of NRE resources, with proven track record of projects implemented involving quantification of data from as many as possible of the following NRE resources: solar, biomass, wind, municipal waste/sewage, wave/ocean, geothermal, etc.
2. Proven track record of research work involving measurement and evaluation of NRE resource potentials
3. Credible skills in field measurements, data collection, database development, and modeling
4. Knowledge of the use of methodologies for energy supply and demand forecasts
5. Professional staff fluent in the English language



**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**TITLE: NRE DATABASE AND DATA EXCHANGE TA**

**Scope of Work:**

The role of this contract shall be to lead the development of a national interlinked database of NRE information. Much of this information currently exists in national agencies identified in previous work vis-à-vis

- (1) NRE Policy and Planning database (NCED);
- (2) Rural Energy database (NCED and UP Solar Lab);
- (3) NRE R&D database (PNOC-ERDO);
- (4) Private Sector services database (REAP);
- (5) NRE and climate change database (PCCIC); and,
- (6) Community based NRE opportunities (SIBAT-STRCC)

Other data will be researched, analyzed and published outside of this contract. The contractor will be responsible for organizing relevant organizations with important data into a working group of "data-base keepers" ready to adapt, publish and share NRE data. Data capabilities and needs will be assessed and formats developed whereby important information can be readily accessed. Arrangements will be made for managing and up-dating databases based on the needs and capabilities of the participating agencies. The ultimate goal is to make information publicly web-accessible and this will be behind conceptual approaches to database formatting and presentations. The contractor will design and implement an NRE Database Website hosted by the MSC. Parallel strategies for making data publicly available should be developed recognizing that agencies will have differing capabilities in providing data electronically. The Specialist will work with the MSC training and publication specialists to develop a strategy for advertising and promoting the database to relevant users.

Specific tasks include:

1. Identify and organize key organizations holding NRE data. Identify data available, data gaps, data formats, and data readiness for electronic transfer, organizational capacity needs assessment and so on. Assess readiness to participate in a national NRE database development plan making these agencies "database keepers";
2. Assess information needs of NRE database users. Using various sources of information including surveys, other studies, reports from database keepers and so on, assess issues and recommend priority actions for NRE data needs. These should include inter alia: data requirements, data access points, willingness to pay, electronic access issues;
3. Design a national Integrated NRE Information Exchange System made up of database keepers and linked by a website. Identify activities and costs required to implement such a System including upgrading of priority data to electronic formats, capacity development of participating database gatekeepers and so on. The design should link other international sources of data and should be flexible. The system should be designed to meet the client needs identified in 2. and should not, as appropriate, rely solely on an integrated website.
4. Implement database upgrade amongst database keepers as required and assist in the development of database management programs as specified in the design;
5. Implement a national Integrated NRE Information Exchange Website. Create HTML files to accommodate the database system linking database keepers. Design and implement a Website promotion program that includes ensuring access through all major search engines.

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**Required Deliverables:**

- A national Integrated NRE Information Exchange needs analysis;
- A national Integrated NRE Information Exchange development strategy;
- A national Web-ready NRE Database network and Operations / training work plan;
- An operational NRE Website for the Database network.
- A national Database promotion program;

**Level of Effort:**

*Preliminary Budget NRE Database and Data Exchanges*

Item	Amount (in USD)		
	UNDP/GEF	Others*	Total
Personnel	20,000	15,000	35,000
Surveys/Operating Expenses	35,000	5,000	40,000
Workshops	7,000		7,000
Travel	3,000		3,000
<b>Total Subcontract</b>	<b>65,000</b>	<b>20,000</b>	<b>85,000</b>

*\*In-kind contribution by DOE, PMO and MSC.*

**Required Qualifications:**

1. Extensive experience in the design and development of energy databases
2. Proven track record of research work involving measurement and evaluation of NRE resource data analysis
3. Credible skills in field measurements, data collection, database development, website development and modeling
4. Knowledge of the use of methodologies for data documentation, abstracting of technology articles, preparation of project profiles
5. Professional staff fluent in the English language.

## Terms of Reference for Consultants and Subcontracts SUBCONTRACTS

### TITLE: ADVOCACY AND PROMOTION CAMPAIGN TA

#### Scope of Work:

The primary purpose of this activity will be to educate target groups about the activities CBRED will be carrying out in the Philippines. Many of these activities will be promoted through the MSC and the activity must support the staff. This activity will involve the development and implementation of outreach and promotion packages using appropriate communication mechanisms for target markets (e.g., print media, conferences and site visits) to: (1) Potential users such as off-grid communities, LGUs and RECs; (2) Potential proponents such as financiers, technology distributors, NGOs, ANECs; and, (3) Policy decision-makers in legislative positions such as the Congress.

The role of the contractor will be to:

- Assess the communication and promotion needs of the CBRED including the MSC identifying key target audiences;
- Design a strategy for communication and promotion that supports activities including inter alia:
  - MSC fund programs;
  - Training programs;
  - Manufacturer support programs;
  - Public information sessions;
  - Inventory and database programs;
  - Information and referral services;
  - And so on
- Prepare content appropriate for the mediums selected;
- Monitor and evaluate the effectiveness of communication and promotion strategies amongst the target audiences and with the different communication mediums.

On top of the above tasks and activities, the subcontractor shall also have a special assignment of developing an overall framework for NRE Promotion and Commercialization Program in the Philippines, taking into consideration all the information management, IEC and promotional activities that will be conducted under the CBRED Project.

#### Required Deliverables:

1. Validation of the Promotional and IEC needs of the various NRE sector.
2. IEC Program for NRE decision-makers and Key legislators.
3. IEC Program for the General Populace taking advantage of broadcast and print media.
4. Design and Implementation Work plan for NRE Outreach and Promotion Program.
5. Design and Initial Production-Run of Tri-media Informational Kits and other IEC Materials
6. Overall Framework for the Philippine Promotion and Commercialization Program in the Philippines in the medium term.

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

Level of Effort:

*Preliminary Budget NRE Advocacy and Promotion*

Item	Amount (in USD)		
	UNDP/GEF	Others*	Total
Personnel	25,000	10,000	35,000
IEC Materials Development and Initial Production Run	55,000	2,500	57,500
Workshops	5,000	0	5,000
Travel	5,000	5,000	10,000
<b>Total Subcontract</b>	<b>90,000</b>	<b>17,500</b>	<b>107,500</b>

\*In-kind contribution by DOE, PMO and MSC.

**Required Qualifications:**

1. Extensive and proven track record of experience in designing, developing and implementing advocacy and promotional campaigns/programs.
2. Proven track record of market research work for preparing advocacy and promotional campaigns
3. Credible skills in mass communications, public relations, etc.
4. Knowledge of the use of multi-media facilities for advocacy and promotional campaigns
5. Professional staff fluent in the English language

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**TITLE: NRE SERVICE INDUSTRY DEVELOPMENT AND GREEN ENERGY RATING TA**

**Scope of Work:**

This contract aims to implement promotional activities that will encourage project developers to develop NRE projects as well as end-users to maximize their utilization of NRE sources and technologies.

First, the NRE Engineering Service Industry Technical Assistance aims to design and implement a program for the capacity building of local engineering firms in providing technical services to NRE projects. The task includes the conduct of training for local engineering firms on NRE "system management" and the development of a registration program for the firms. The registration program aims to provide greater end-user assurance on the quality of engineering services being provided by the local firms and service companies. Specific tasks

1. Carry out a needs assessment to identify capacity gaps of the NRE engineering and service firms. Recommend training programs and the components of an NRE registration program;
2. Program design: Based on the findings of 1, design a capacity building program for support of engineering firms as well as the design of a registration program.
3. Implement programs.

On the other hand, the Green Energy Rating Technical Assistance aims to encourage utilization of NRE in relevant industries and by prospective NRE system developers and operators. The Program will provide necessary recognition to both project developers and end-users that have had strong participation in various success NRE projects. This output is realized through the design of an environmental rating scheme that would be based on factors such as the contribution of NRE to total energy load. Specific tasks include the following:

1. Develop a measurement, verification and rating scheme. By reviewing similar rating programs, as well as currently existing user information a measurement, verification and rating scheme will be developed.
2. Develop a Green Rating program. The program design should identify institutional responsibilities, budget allocations, incentives and awards, promotion programs and so on. Implementation of the program will be the responsibility of DOE;
3. Design a monitoring and evaluation program.

**Required Deliverables:**

1. Technology Support Program for NRE Engineering Service Industry
2. Registration Program for NRE Engineering Service Firms
3. Technical tools for NRE Engineering Service Firms
4. Scheme for Green Energy Rating of NRE Projects
5. Green Energy Rating Program for NRE Sector
6. An Overall Report detailing the pilot-testing results of the two programs and a proposal recommending and improved framework and procedural guidelines for the institutionalization of the same.

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

Level of Effort:

*Preliminary Budget: NRE Service Industry development and Green Energy Rating*

Item	Amount (in USD)		
	UNDP/GEF	Others*	Total
Personnel	20,000	10,000	30,000
Development and Initial Production of Design Tools	17,500	2,500	20,000
Data Gathering/Documentation	10,000	0	10,000
Workshops and Trainings	10,000	5,000	15,000
Travel	2,500	2,500	5,000
<b>Total Subcontract</b>	<b>60,000</b>	<b>20,000</b>	<b>80,000</b>

*\*In-kind Support from DOE, MSC and PMO.*

**Required Qualifications:**

1. Extensive experience in the operation and management of the engineering and client-based consultancy firms.
2. Good company background on Philippine regulatory framework relevant to consumer-protection and welfare.
3. With strong manpower skills in engineering aspects of NRE technologies.
4. With strong manpower skills on the design of result-oriented incentive programs on sustainable development
5. Can represent the government with the NRE sector on both aspects of industry regulations and participatory program development.
6. Professional staff fluent in the English language.

## Terms of Reference for Consultants and Subcontracts SUBCONTRACTS

TITLE: DELIVERY AND FINANCING MECHANISMS IMPLEMENTATION TA *A*

### Scope of Work:

The CBRED is creating three pilot funds, which will be set up to help overcome financial barriers in implementing NRE projects. As originally conceived these 3 funds are:

1. The Project Preparation Fund. A partial grant fund administered by an existing financial institution intended to assist NRE projects in doing final preparatory work to be finance-ready.
2. The Loan Guarantee Fund. A loan guarantee mechanism targeted at NRE loans in remote, off-grid locations administered by an existing financial institution in the Philippines.
3. The Micro Finance Fund. A loan fund aimed at remote community organizations with concessionary rates to finance NRE projects. Administered by rural banks or NGOs involved in micro-financing.

) GEF will partly finance the said funds with major co-financing inputs from other cooperators of CBRED Project particularly DOE. The Funds will be dispersed through specifically developed "core groups" in existing financial institutions. The Funds will be promoted through the outreach activities of the MSC.

International and local consultants will design and specify work plans for the three programs in line with CBRED financial monitoring and financial institution's requirements. Program design will include:

- Definition of purposes, scope and limitations of funds;
- Criteria for implementing organizations;
- Implementing Guidelines and Management Arrangements;
- Core Group capacity requirement criteria and training guidelines for administration of funds;
- Criteria for funding eligibility;
- Contractual obligations for each fund;
- MSC project management guidelines and training as well as a results-based framework for monitoring and evaluation of the Fund Programs. Advice will be required on Program promotion and training.

) A contract will be let to support the implementation of Funding Mechanisms. The contractor will be responsible for the following tasks:

1. Conduct a core group needs analysis within the identified institutions;
2. Core group training and capacity development;
3. Develop and publish a Guidebook on Funding Applications for Project Funds on how to apply for funds;
4. Develop and publish a Guidebook on NRE project Development for project proponents elaborating on steps required in project preparation for financing of NRE projects;
5. Develop a database of current NRE projects ready for funding under each of the three Fund programs;
6. Assist the MSC to monitor and evaluate projects funded under the program.

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**Required Deliverables:**

1. Capacity Building Program for the core group of each implementor of the Project Funds
2. Design of the Guidebooks for the Project Funds and the NRE Project Management
3. A Compendium of Potential Financing Windows for NRE Projects
4. Initial Production Run of the Guidebooks
5. A Database of pipeline NRE Projects supported by the Project Funds

**Level of Effort:**

*Preliminary Budget: Delivery/Financing Mechanisms Implementation*

Item	Amount (in USD)			Total
	UNDP/GEF	Others		
Personnel	25,000	10,000		35,000
Design and Initial Production Run of Informational Materials	15,000			15,000
Workshops and Consultation Meetings	7,500	2,500		10,000
Travel	2,500	2,500		5,000
<b>Total Subcontract</b>	<b>50,000</b>	<b>15,000</b>		<b>65,000</b>

*\*In-kind Support from DOE, MSC, PMO and Fund Implementors.*

**Required Qualifications:**

1. Strong familiarity with the financing sector and activities and the banking regulatory framework in the Philippines
2. Strong familiarity with the financing issues in the NRE sector in the Philippines
3. Strong appreciation of needs of the banking sector in the financing projects, particularly the SMI activities.
4. Strong appreciation of the needs of the project developers on the information they need in availing of bank loans and other financing assistance.
5. Highly-qualified manpower skills in implementation of innovative delivery mechanisms for NRE projects, both on-grid and off-grid
6. Professional staff fluent in the English language



**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**TITLE: TECHNICAL ASSISTANCE TO MANUFACTURERS OF NRE EQUIPMENT**

**Scope of Work:**

The goal of this contract is to ultimately improve the quality of NRE equipment manufactured and assembled in the Philippines. The contractor shall undertake a multi-step process to reach this end by supporting standards setting within the industry and implementing a program of technology testing and improvement. These steps include:

***1. Identify and coordinate with NRE equipment manufacturers. Assess Capabilities of NRE Equipment Manufacturers and Evaluate Performance of Philippine Manufactured Systems and Equipment;***

Identify and organize the Philippine NRE technology production industry to participate and cooperate in the technology improvement program. Identify technologies and industry sub sectors of priority for further development by establishing those industries currently with equipment operating in the field. Establish a framework for evaluating each of these NRE technologies / systems. This activity is designed to evaluate the current operating performance of existing NRE system installations in the country.

Assess existing Philippine NRE systems and components, both electricity and thermal production equipment, for operating performance and manufacturing/ installation practices and capabilities. This activity will result in the delivery of useful inputs in the design of new NRE systems or expansion, as well as identify potential improvements in the operation of existing NRE systems in relevant sectors of the national economy. Assess capabilities of those participating Filipino manufacturers of NRE components and systems. Identify issues that create a disadvantage for local manufacturers when competing with imported goods such as quality control and technical methods.

Consolidate current best practices in the utilization of NRE and application of NRE technologies both nationally and internationally.

The output of this activity will identify the issues and needs for about 5 industry segments and technology systems where standard-setting would enhance market opportunities. Recommendations will be made for potential improvements in equipment performance and manufacturing capability. Recommendations will also be made for assistance to manufacturers in improving the quality and energy performance of their equipment.

***2. NRE System Equipment Standards Setting***

Develop appropriate performance norms or standards for the manufacture, installation, operation and performance testing of these systems based on international best practice standards and local considerations. This will involve the development of appropriate performance (energy and quality) norms for major NRE system equipment such as the BOS of solar PV systems, biomass-based power generation equipment, wind turbine system components, micro-hydro components, etc. Part of this activity will be the consolidation of equipment performance and contractual standards based on relevant codes/standards in other countries and information that will be gathered from local NRE industry consultations.

Where necessary and practical specify a testing regime for selected equipment to measure and compare energy performance, maintenance requirements and so on. Specify test equipment and program specifications required for a national test program.

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

Developed standards will be presented to Industry association(s) and government agencies concerned with standard setting and testing. Technical support from the project will be provided if necessary, in government/industry deliberations concerning the setting of standards or regulations and the specification and performance of NRE system equipment used in the country. Stakeholder consultations will be an integral part of standard setting and testing program. The outcome of this activity will be finalized standards suitable for adoption by both industry (through industry associations) and government (through the DTI Bureau of Product Standards) as part of a National Standards program.

**3. Financial Assistance to Filipino NRE Equipment Manufacturers**

Design a program to cost-share in the implementation of improvements to NRE system designs and manufacture amongst the target industry established in Task 1. Establish criteria and management procedures for providing concessional loan funds to local industry to make improvements in the design or manufacture of locally made equipment and components. Set up a monitoring program to chart the impact of the program and to provide accountability. Implement the program and facilitate its transfer to CBRED personnel. Outcome of this task will be the implementation of a concessional funding program to Filipino NRE manufacturers.

- Program design report containing purposes, scope and limitations of funds and criteria for implementing institutions including outlines of contractual and management obligations. Recommendations for institutions made.
- Program implementation manual to contain; Fund application procedures, Core Unit capacity building and training program, recipient selection process and criteria, management systems for results-based framework program for monitoring and evaluation.
- Guidebook on the application for the funding program;
- Guidebook on the preparation of project designed for the funding program;
- Training program for MSC and CBRED personnel on NRE standards implementation and equipment labeling.

**Level of Effort:**

**Preliminary Budget: Technical Assistance to Manufacturers of NRE Equipment**

Item	Amount (in USD)			Total
	UNDP/GEF	Other*		
Personnel	30,000	10,000		40,000
Reproduction of Materials & Procurement of Other Gadgets	20,000	0		20,000
Workshops	5,000	2,500		7,500
Travel	15,000	2,500		17,500
<b>Total Subcontract</b>	<b>70,000</b>	<b>15,000</b>		<b>85,000</b>

\*In-kind Support from DOE, MSC and PMO.

**Required Qualifications:**

1. Strong manpower skills in the assessment of energy technologies and manufacturing practices (preferably NRE-related), equipment/device testing and engineering product development.
2. Strong management capability in industry-wide standards development, design and implementation in the Philippines
3. With manpower capability in the design of fund assistance to engineering firms and manufacturers.
4. Professional staff fluent in the English language.

**Terms of Reference for Consultants and Subcontracts  
SUBCONTRACTS**

**TITLE: REPRODUCTION OF TRAINING MODULES, PROJECT TOOLS AND INFORMATIONAL  
MATERIALS**

**Scope of Work:**

The CBRRED will provide aesthetic design for the high-volume reproduction of the various useful information materials, documents and software tools that will be generated from the various consultancy and contracting services from the CBRRED Project during its 5-year implementation. These include the following:

1. Training Modules
2. Software models in CD format
3. Database in CD format
4. Reports
5. Guidebooks
6. Information Kits

This technical assistance will assist all the project activities in reproducing ready-made materials available for dissemination and distribution to stakeholders, universities and other key institutions. Specifically, these materials would cater the needs of NRE project developers in undertaking various activities. The MSC and DOE will also use these materials in catering the informational requirements of NRE project developers as well as of other stakeholders. Further, this task will help the CBRRED project produce presentable project information materials can be reproduced during and after the Project.

**Level of Effort:**

Item	Amount (in USD)		
	UNDP/GEF	Other	Total
Personnel	20,000	15,000	25,000
Production and Reproduction	80,000		80,000
Total Subcontract	100,000		105,000

*\*In-kind support from DOE, MSC, PMO*

**Deliverables:**

High-quantity reproduction of aesthetically designed information kits and other materials for NRE clientele.

**Required Qualification:**

1. Strong manpower skills in the design, production and reproduction of various electronic and print materials.
2. Good track record in the field.

**ANNEX 5  
SCHEDULE OF THE PROJECT AND ACTIVITIES**



COMPONENT/ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>1. C1: NRE Policy, Planning and Institutional Capacity Building</b>																				
<b>1.1 Establishment of NRE Inter-Agency Committee (NREIAC)</b>																				
1.1.1 Formation of the NREIAC	█																			
1.1.2 Functions of NREIAC	█																			
1.1.3 Mobilization and Operation of NREIAC		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
<b>1.2 Technical Assistance on NRE Bill</b>																				
1.2.1 Conduct of Stakeholders' Consultation Meeting			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.2.2 NRE Bill Analysis and Recommendations			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.2.3 Drafting of IRR for the NRE Bill								█	█	█	█	█	█	█	█	█	█	█	█	█
1.2.4 Lobbying by DOE and NRE Stakeholders								█	█	█	█	█	█	█	█	█	█	█	█	█
<b>1.3 NRE Policy Analysis</b>																				
1.3.1 Conduct of Policy Studies			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.3.2 Conduct of Stakeholders' Consultation Meeting																				
<b>1.4 NRE Planning Model</b>																				
1.4.1 Assessment and Upgrading of NRE Planning Models			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.4.1 Development of Market Simulation Models for NUGs			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.4.2 Design of Trainings on the Use of the Models																				
<b>1.5. Integrated Energy Planning</b>																				
1.5.1 Planning Review and Assessment			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.5.2 Development of NRE Integrated Planning Model																				
1.5.3 Pilot-testing of NRE Integrated Planning Model																				
1.5.4 Design of Trainings on the Integrated Planning Model																				
<b>1.6 NRE Policy Implementation, Monitoring and Evaluation</b>																				
1.6.1 Development of Performance Monitoring Indicators			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.6.2 Development of M&E System																				
1.6.3 Presentation to NREIAC & Implementation																				
<b>2. C2: NRE Market Service Institutionalization</b>																				
<b>2.1 Set up a Market Service Center</b>																				
2.1.1 Selection of MSC Coordinator & Board of Directors	█																			
2.1.2 Selection of MSC Staff	█	█																		
2.1.3 Establishment of MSC Facilities and Equipment		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

COMPONENT/ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>2.2 Preparation of the MSC Business Plan</b>																				
2.2.1 Development of the Center Profile			■																	
2.2.2 Preparation of Operational and Business Strategies				■	■	■														
2.2.3 Preparation of Financial Plan				■	■	■														
2.2.4 Preparation of the MSC Business Plan				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2.2.5 Operationalization of the Business Plan								■	■	■	■	■	■	■	■	■	■	■	■	■
<b>2.3 Capacity Building for MSC Staff</b>																				
2.3.1 Training Needs Analysis				■	■															
2.3.2 Design of the Training Program				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2.3.3 Conduct of the Training Program								■	■	■	■	■	■	■	■	■	■	■	■	■
2.3.4 Evaluation							■													
<b>3. C3: NRE Information and Promotion Services</b>																				
<b>3.1 Conduct of NRE Resource Inventory</b>																				
3.1.1 Resource Data Assessment and Classification Study			■	■																
3.1.2 Identification of NRE Resource Database Gaps			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3.1.3 Planning & Conduct of Additional Resource Surveys												■	■	■	■	■	■	■	■	■
3.1.4 Development of Sustainable Follow-up Program																				
<b>3.2 Development of National NRE Database</b>																				
3.2.1 Consultation with Potential NRE Database-keepers				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3.2.2 Establishment of NRE Database-keepers Committee				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3.2.3 Capacity Strengthening of Database-keepers								■	■	■	■	■	■	■	■	■	■	■	■	■
<b>3.3 Integrated NRE Information Exchange Service</b>																				
3.3.1 Assessment of Information Needs of NRE Clienteles				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3.3.2 Inventory of Existing NRE Information and Database																				
3.3.3 Design of Integrated NRE Info Exchange System																				
3.3.4 Information Exchange Program Design and Execution																				
<b>3.4 NRE Website Development</b>																				
3.4.1 Website Design, Implementation and Maintenance																				
3.4.2 Capacity Building of MSC for Website Maintenance																				
3.4.3 Promotion of the NRE Website																				
<b>3.5 Consolidation of NRE Database</b>																				
3.5.1 Listing of NRE Database for Consolidation				■	■															
3.5.2 Data Production and Formatting																				
3.5.3 Design of NRE Database Management System																				
3.5.4 Implementation of the Database Management System																				

COMPONENT/ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>3.6 NRE Advocacy and Promotion</b>																				
3.6.1 Scoping Study for the Outreach and Promo Program																				
3.6.2 Program Design and Development																				
3.6.3 Program Implementation																				
3.6.4 Monitoring and Evaluation																				
<b>3.7 NRE Engineering Service Industry Development</b>																				
3.7.1 Identification of Engineering Service Capacity Needs																				
3.7.2 Design of the NRE Service Industry Dev't Program																				
3.7.3 Implementation of Technical Support Activities																				
3.7.4 Implementation of the Registration Program																				
<b>3.8 Green Energy Rating Program</b>																				
3.8.1 Review of Existing Industry Energy Rating Activities																				
3.8.2 Development of Measurement & Verification Scheme																				
3.8.3 Formulation of Rating Scheme																				
3.8.4 Rating Program Development																				
3.8.5 Program Implementation																				
<b>4. C4: NRE Initiatives Delivery and Financing Mechanisms</b>																				
<b>4.1 NRE Fund Establishment</b>																				
4.1.1 Definition of Scope and Limitation of the Funds																				
4.1.2 Identification of Implementing Institutions																				
4.1.3 Establishment of NRE Units for the Project Funds																				
4.1.4 Capacity Building of Implementing Institutions																				
4.1.5 Development of Implementing Guidelines, etc.																				
<b>4.2 Assistance Services to Financing Applicants</b>																				
4.2.1 Development of Guidebook on Fund Applications																				
4.2.2 Consolidation of Financing Sources on NRE Projects																				
4.2.3 Development of Guidebook on NRE Project Packaging																				
4.2.4 Strengthening of MSC Capacity on Project Packaging																				
4.2.5 Promotional Support to Project Funds																				
<b>4.3 NRE Demonstration Program</b>																				
4.3.1 Database of Pipeline NRE Projects																				
4.3.2 MSC Assistance Promotion																				
<b>4.4 Selection of NRE Projects</b>																				
4.4.1 Development of Funding Criteria for Project Funds																				
4.4.2 Development of Guidelines for Fund Applications																				
4.4.3 Project Selection																				

COMPONENT/ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	<b>4.5 Monitoring and Evaluation Program</b>																			
4.5.1 Establishment of Performance Indicators																				
4.5.2 Development of Evaluation Framework																				
4.5.3 Establishment of Monitoring and Evaluation Program																				
4.5.4 M&E Program Implementation																				
4.5.5 Program Review and Revision																				
<b>4.6 Sustainable Program Design</b>																				
4.6.1 Overall Financing and Delivery Mechanisms Review																				
4.6.2 Recommendations for Policy & Program Support																				
<b>5. C5: NRE Training Program</b>																				
<b>5.1 Design of NRE Training Program</b>																				
5.1.1 Scoping study for the Training Program																				
5.1.2 Training Needs Assessment and Validation																				
5.1.3 Design of the 5-Year Training Program																				
<b>5.2 Design of the Training Activities</b>																				
5.2.1 Design of Training Courses																				
5.2.2 Design and Preparation of Training Materials																				
5.2.3 Training Logistics Organization																				
5.2.4 Conduct of Actual Training																				
5.2.5 Training Monitoring and Evaluation																				
<b>5.3 Sustainable Training Design</b>																				
5.3.1 Evaluation of the Training Program																				
5.3.2 Sustainable Program Design																				
<b>6. C6: NRE Technology Support</b>																				
<b>6.1 NRE Standards Development</b>																				
6.1.1 Development NRE Standards and Best Practices																				
6.1.2 NRE Equipment/System Standard Setting																				
6.1.3 Development of Standards and Testing Program																				
6.1.4 Establishment of National Stds. & Prescribed Practices																				
<b>6.2 NRE Technology Improvement Program</b>																				
6.2.1 Assessment of Capacity Needs of NRE Manufacturers																				
6.2.2 Design of Sustainable NRE Technology Program																				

COMPONENT/ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
6.2.3 Program Implementation																				
6.2.4 Monitoring and Evaluation																				
<b>7. PROGRAM SUPPORT ACTIVITIES</b>																				
7.1 Hiring of PMO Director and Staff																				
7.2 Selection and Hiring of Consultants and Sub-contractors																				
7.3 Regular Overall Program Monitoring																				
<b>8. PROGRAM EVALUATION</b>																				

Legend:  project activity implementation with GEF intervention       follow-up/ continuing activity



**ANNEX 6: LOG FRAME ANALYSIS (LFA) – AS REVIEWED BY GEF COUNCIL MEMBERS**

**Log Frame Matrix: Project Framework Design**

Project Strategy	Objectively Verifiable Indicators	Means of Verifying Success	Assumptions
<b>A. Development Goal</b>			
1. The annual growth rate of GHG emissions from activities using fossil fuels is reduced through the removal of the major barriers to the development and widespread implementation of renewable energy applications to replace part of the current fossil fuel use in the Philippines.	1.1.1. The annual growth rate of GHG emissions from fossil fuel-based activities in the country is reduced by 29,578,500 MT CO <sub>2</sub> by the year 2010.	1.2.1. Documentation of annual data on fossil fuel and NRE utilization for power generation and industrial process heating from DOE.	1.3.1. Monitoring activities under the project on renewable energy utilization are fully supported.
		1.2.2. Documentation of estimates of annual GHG emissions reduction from the replacement of fossil fuel by renewable energy in power generation and industrial process heating.	1.3.2. Reports of estimates of GHG emissions reduction from various sources are consistent.
<b>B. Project Purpose</b>			
2.1 The overall capacity (technical, policy, planning, institutional, financial) in the country, both in government and the private sector, to develop, design and make use of the energy potentials of NRE resources is significantly improved.	2.1.1. The Project induces an average growth rate in NRE consumption of about 8% during the period 2001-2010.  The Project will also lead to increasing numbers of households, businesses, and institutions in remote, rural areas with access to renewably-generated electricity.	2.2.1. Documentation of the annual inventory of NRE system installed capacity from DOE.	2.3.1. Compliance of NRE users to the reporting requirements of the proposed Project to DOE.
		2.2.1a. Documentation of the number of industries that installed new NRE-based power generation facilities.	
		2.2.2. Annual energy balance report from the DOE.	

Project Strategy	Objectively Verifiable Indicators	Means of Verifying Success	Assumptions
<b>C. Project Outcomes</b>			
<b>1. NRE Policy, Planning and Institutional Capacity Building</b>			
1.1 Establishment of NRE Inter-Agency Committee (NREIAC)	* Interagency Committee meets regularly starting early 2002	Monitoring meeting schedules and attendance profiles	GOP buy-in to Interagency concept.
1.2 Technical Assistance on NRE Bill	* 2 workshops conducted in 2002. * Outcomes of the workshops are used for NRE policy formulation by 3 <sup>rd</sup> quarter 2002.	Attendance profiles Workshop proceedings and recommendations for the NRE Bill	GOP will involve relevant stakeholders in NRE policy
1.3 NRE Policy Analyses	Consultation meetings with relevant stakeholders and legislative members conducted during 2002-2003.	Minutes of consultation meetings	NRE remains a priority for the GoP.
NRE Electricity Policy Study	Findings of policy reviews and recommendations regarding NRE electricity policies completed by 1 <sup>st</sup> quarter 2003.	Study report	DOE and legislators support the study and will seriously consider the recommendations for the NRE Bill and other NRE-related issues.
NRE Electricity Pricing Study	Findings of pricing policy reviews and recommendations regarding NRE electricity pricing completed by mid-2003.	Study report	DOE and legislators support the study and will seriously consider the recommendations for the NRE Bill and other NRE-related issues.
NRE-based Power Generation Market Strategy	Findings of review of market development strategies for NRE-based power producers completed by 3 <sup>rd</sup> quarter 2003.	Study report	DOE and legislators support the study and will seriously consider the recommendations for the NRE Bill and other NRE-related issues.
1.4 NRE Planning Model	* More reliable NRE Planning model is used by NEA/RECs by mid-2003. * More systematic NRE planning starting 2004.	NRE Planning Model used by NEA and RECs	NEA and DOE support the development and utilization of a more reliable NRE planning model.
	Existing planning tools are updated and used to program NRE in Barangays by second half of 2003	Annual report of NEA	REC finds NRE technologies attractive.

Project Strategy	Objectively Verifiable Indicators	Means of Verifying Success	Assumptions
1.5 Integrated Energy Planning	Findings of energy planning methods and recommendations regarding capacity building on integrated energy planning completed by mid-2003.	Evaluation report	
	Enhanced energy planning models and forecasting tools completed by end 2002 and ready for use by DOE by mid-2003.	Energy Planning Model installed in DOE	
1.6 Policy Implementation, Monitoring & Evaluation	* Evaluation of the policy implementation and impacts starting 2004 and every year thereafter.	Documentation of policy impact analysis and recommendations for policy revisions/modifications.	NRE policy impact analysis is a regular activity of the DOE.
	Relevant recommendations on policy improvements are made and implemented by end of each year starting Year 3	Documentation of policy reviews and recommendations	NRE Bill includes provision of policy reviews on NRE issues.
<b>2. NRE Market Service Institutionalization</b>			
1.1 Set-up a Market Service Center (MSC)	MSC structure in place and operational by second half of 2002	Operational organizational structure	A Board of Directors and a CEO is selected to aggressively promote quality NRE market services.
	MSC is functioning as a fee-for-service agency by 2006	Annual Reports of the MSC	
1.2 Preparation of MSC Business Plan	MSC business plan is approved by Oct 2002.	Documentation of business plan	Project starts mid-2002
1.3 Capacity Building for MSC Staff	MSC staff are knowledgeable in the various aspects of NRE market services are providing such services by Jan 2003.	Documentation of staff training and staff time sheets	Staff NRE market service activities are monitored and recorded in time sheets
<b>3. NRE Information and Promotion Services</b>			
3.1 NRE Resource Inventory	Additional and updated NRE resource inventory data available to the public by mid-2003	Documentation on the resource inventory	Survey to cover areas not included in previous surveys.
3.2 National NRE Database Development	Components of a publicly accessible NRE database is resident in at least 6 agencies and is linked by a website by 2004, and used by NRE project developers and researchers.	Number of requests for data	Information can be readily assembled into database formats and keepers will allow public access.

Project Strategy	Objectively Verifiable Indicators	Means of Verifying Success	Assumptions
3.3 Integrated NRE Information Exchange Service	<ul style="list-style-type: none"> <li>▪ Mechanics for the information exchange set-up by end 2002</li> <li>▪ Request for information by other organizations (local and abroad) are served by 2003.</li> </ul>	<p>Documentation on the information service</p> <p>Documentation of information service requests and receipt</p>	Links with NRE-related agencies, NGOs and private sector in the country and abroad are established.
3.4 NRE Website Development	NRE website developed by second half of 2002 and fully operational by 2003.	Number of "hits" in the website	Project proponents are web conversant and the website is advertised widely.
3.5 Consolidation of NRE Databases	NRE databases and other related databases are included in the National NRE Database by 2004.	Updated National NRE Database	Agencies where NRE-related data reside will cooperate in the sharing of their data/information.
3.6 NRE Advocacy & Promotion	<ul style="list-style-type: none"> <li>• A continuous program of awareness-raising and promotion of NRE is in place by end 2002, and carried out every year thereafter.</li> </ul> <p>* Funds are continuously allocated by the DOE in the program</p>	<p>Documentation on the program</p> <p>DOE's annual budget allocation for the program</p>	The program will continuously be evaluated and improved based on findings and recommendations of the evaluation.
	Potential proponents are informed of NRE benefits starting 2003	Number of NRE promotion events. Attendance at the events. Breadth and relevance of NRE promotion material.	Media and promotional campaigns are properly designed and targeted.
3.7 NRE Engineering Service Industry Development	<ul style="list-style-type: none"> <li>• At least 10 engineering and energy consulting firms are registered as providers of NRE services by end 2003</li> </ul> <p>* Institutional and regulatory requirements for the industry are defined by mid-2003.</p>	<p>Company profiles of the NRE service providers</p> <p>* Documentation on institutional and regulatory requirements of the NRE industry</p>	NRE industry is regarded as a special industry, which will be governed by specific laws and provided special incentives.
3.8 Green Energy Rating Program	<ul style="list-style-type: none"> <li>• Guidelines for the rating program prepared by end 2002.</li> </ul> <p>* Rating program starts in mid-2003 and ratings given by end 2003</p>	<p>Documentation on the guidelines</p> <p>Documentation on the ratings</p>	Private sector views the program as an incentive to improve marketability and relevant government agencies support the program

Project Strategy	Objectively Measurable Indicators	Means of Verifying Success	Assumptions
<b>4. NRE Initiatives Delivery &amp; Financing Mechanisms</b>			
4.1 NRE Fund Establishment -Project Preparation Fund -Loan Guarantee Fund -NRE Micro Finance Fund	Funds established by 4 <sup>th</sup> quarter 2003 and implementing guidelines and fund management arrangements approved by 1 <sup>st</sup> quarter 2004.	Documentation on the approved mechanics and guidelines for each fund.	* Banks are familiar with all aspects of NRE project financing and implementation. * Arrangements with partner banks (for fund management) are completed. * Seed money contributions from EIES, GEF and DOE are confirmed.
4.2 Assistance Services to Finance Applicants	At least 25 applicants for each fund served/processed by the MSC each year starting 2004	Number of applications processed.	Preference given to projects that have already undergone pre-feasibility analysis.
4.3 RE Delivery & Financing Mechanism Demo Promotion	At least 50 applicants for each fund are received after the workshop.	Number of applications received.	Private sector is interested in availing of the loans provided under the financing schemes.
4.4 Selection Criteria & Selection of NRE Eligible Projects	Eligibility criteria for each fund are set and approved by end 2003.	* Documentation on the selection criteria * List of eligible projects	Preference given to projects that have already undergone pre-feasibility analysis.
4.5 Monitoring & Evaluation of each Demo Sites	At least 50 sites are monitored and evaluated each year starting 2005.	* Documentation on the monitoring and evaluation activities	The projects to be monitored are those in their 2 <sup>nd</sup> year of operation.
4.6 Financing & Delivery Mechanisms Review	Evaluation of the effectiveness and viability of the financing schemes and the delivery mechanisms completed by mid-2005	Documentation on the review.	

Project Strategy	Objectively Verifiable Indicators	Means of Verifying Success	Assumptions
4.7 Demo program Results Evaluation	* Evaluation of the demonstration program accomplishments completed by 3 <sup>rd</sup> quarter 2006 * Replication of NRE projects on both on and off-grid as well as electricity and thermal/mechanical applications with estimated aggregate capacity of at least 50 MW by 2006.	Documentation of the evaluation report. Number of NRE projects accessing financing.	Non-technical barriers are primary to the replication of NRE projects. Pilot mechanisms do not interfere with replication through the market place.
4.8 Sustainable Follow up Program Design	Follow-up program based on the evaluations and the creation of an NRE fund using loan repayments from the demo program completed by mid-2005.	Documentation of the program design	
5. NRE Training Program			
5.1 Design & Preparation of Training Materials	Training materials completed/updated 2 months before each training course.	Training materials	Capacity building needs of relevant stakeholders are already identified.
5.2 Organization of Training Programs & Study Tours	Organization and coordination completed at least 1 month before each study tour or training course.	Documentation of arrangements made.	
5.3 Conduct of Training Courses & Study Tours			
Study Tour: NRE Policy	10 government and corporate policy and decision makers completed the study tour by end 2002.	Number of study tour participants and documentation on the results of the study tour.	NRE remains a priority for the GoP and for relevant private sector groups and industries.
TC: NRE Trainers	25 NRE technology trainers accredited by DOE by end 2002	List of accredited NRE technology trainers and training course report.	The market demand for NRE will attract relevant target groups. Training the trainers will be successful in leaving NRE pedagogy in institutions.

Project Strategy	Objectively Verifiable Indicators	Means of Verifying Success	Assumptions
TC: Institutional Capacity Building	25 government and private sector personnel trained by end 2003.	Training course report	NRE is a priority for the GoP and relevant institutions (government and private) accepts the need for a coordinated effort towards NRE development.
TC: Rural Electricity Planning	25 NEA staff trained and applying the techniques/skills learned by end 2003	Training course report and documented "one-on-one" post-interviews of course participants.	NEA supports NRE-based power generation as part of its rural electrification program. The market demand for NRE will attract relevant target groups.
TC: Energy Pricing and NRE Electricity Pricing	25 DOE and ERB personnel trained and applying concepts learned by end 2003.	Training course report and documented "one-on-one" post-interviews of course participants.	NRE is a priority of the GoP and policies geared towards establishing "level playing field" are at least being worked out.
TC: NRE Project Financing	25 DOE and banking/financing sector personnel trained and providing support to CBRED by end 2003.	Training course report and number of trainees providing support to Component No. 4 implementation.	The market demand for NRE will attract relevant target groups.
TC: PPA Contracts and Negotiations	25 DOE/NPC personnel and prospective IPPs trained and applying concepts learned by 2004.	Training course report and documented "one-on-one" post-interviews of course participants.	The market demand for NRE will attract relevant target groups. Electricity market allows NRE-based power producers.
TC: Basic Concepts of Rural Electrification	One training course conducted each year starting 2002 for LGUs, BAPAs, ECs and rural banks till 2004	Training course reports.	The market demand for NRE will attract relevant target groups.
TC: NRE Project Management	One training course conducted each year starting 2002 for LGUs, BAPAs, ECs till 2004	Training course reports	The market demand for NRE will attract relevant target groups.
TC: NRE Technicians Training	At least 20 technicians recognized by DOE in Luzon, Visayas, and Mindanao each year starting 2002 till 2004.	List of recognized NRE technicians and Training course reports	Recognized NRE technicians are employed by NRE system operators.

Project Strategy	Objectively Verifiable Indicators	Means of Verifying Success	Assumptions
TC: NRE Project Appraisal for Rural Financial Intermediaries	One training course conducted each year starting 2002 for rural banks and micro-finance enterprises till 2004.	Training course reports	The market demand for NRE will attract relevant target groups. Concerns about risks associated with NRE projects is already reduced
TC: Rural NRE Entrepreneurial	One training course conducted each year starting 2002 for "O-IIaw" proponents, NGOs/Pos till 2004.	Training course reports	The market demand for NRE will attract relevant target groups. Concerns about risks associated with NRE projects is already reduced
TC: NRE System Design, Operation and Maintenance	At least 20 engineering and energy consultants as well as NRE system equipment manufacturers recognized by DOE to provide NRE services each year during 2002-2004.	List of recognized NRE consultants and NRE system equipment manufacturers and Training course reports	NRE Industry is supported by the government
5.4 Documentation & Database Development & Management	Database of training materials and evaluation report prepared by end 2003 and regularly updated each year.	Database installed at the DOE	
5.5 Training Program Review	First evaluation of training program results completed by 1 <sup>st</sup> quarter 2003 and evaluation carried out each year thereafter.	Documentation of review reports	
5.6 Training Program Results Dissemination	Training program evaluation report prepared and disseminated by mid-2003 and every year thereafter.	Training program evaluation reports	The market demand for NRE will attract relevant target groups.
5.7 Sustainable Follow up Training Program Design	Sustainable follow-up program based on the evaluations completed by mid-2004.	Documentation of follow-up program	GoP and private sector supports continuing education in the area of NRE.



Project Strategy	Objectively Verifiable Indicators	Means of Verifying Success	Assumptions
6. NRE Technical Support			
6.1 NRE System Utilization Best Practices	* Compendium of best practices completed and disseminated by mid-2003. * Best practices information included in NRE Database and Website by end 2004 and accessed by project developers and NRE users.	Documentation of best practices No. of access to database and no. of hits in website.	The market demand for NRE will attract relevant target groups to utilize the best practices.
6.2 RE Equipment Standard setting	National NRE system equipment standards established in 2004	Documented national standards	The industry is ready to set standards and become self regulating
6.3 Assessment of Capabilities of Local NRE Manufacturers	Assessment of capabilities (technical, financial and human resource) of leading local manufacturers completed by mid-2003.	Assessment reports	Local NRE equipment manufacturers will cooperate and willing to divulge information about their operations
6.4 Performance Evaluation of Locally produced NRE Equipment	Performance evaluation of selected locally made NRE equipment completed by end 2004.	Performance evaluation report.	Local NRE equipment manufacturers will cooperate and willing to divulge information about their operations.
6.5 Potential Improvement & Efficient Designs for Local NRE equipment manufacturing	Identified/verified improvements recommended to local manufacturers and arrangements for TA in employing improvements completed by mid-2005.	Documentation of identified improvements and recommended actions.	Industry market volume and profit margins justify significant improvements in equipment quality.
6.6 Financial Assistance to Local NRE System Equipment Manufacturers	* Financing scheme for funding assistance to local NRE equipment manufacturers (including eligibility criteria and funding guidelines) approved by mid-2005 * Selected manufacturers avail of loans and implement improvements in their design and/or production process.	Documentation of financing scheme (including eligibility criteria and scheme mechanics). List of equipment manufacturers benefited by the financial assistance.	* Industry market volume and profit margins justify significant improvements in equipment quality. * Loan terms are acceptable to local equipment manufacturers.
6.7 Sustainable NRE Research & Development	NRE R&D program supported by NRE equipment manufacturers completed by mid-2006.	Documentation of the program	Local equipment manufacturers expresses interest and financial support.

**ANNEX 7A: OUTPUT INDICATORS**

SUCCESS INDICATORS		2002	2003	2004	2005	2006	2007
<b>Component 1: NRE Policy, Planning and Institutional Capacity Building</b>							
<b>1.1 Establishment of NREIAC</b>							
	• Department Order establishing NREIAC	Aug. 2002	-	-	-	-	-
	• PSC established and made operational	Sept. 2002	-	-	-	-	-
	• No. of NREIAC resolution on NRE policies	3	3	3	3	3	3
	• Ave. percentage of attendance for NREIAC meetings	67%	67%	67%	67%	67%	67%
<b>1.2 Formulation of NRE Bill</b>							
	• NRE Stakeholders' workshop conducted	Oct. 2002	June 2003	-	-	-	-
	• Strategies for NRE Bill reformulation agreed by NREIAC	Dec. 2002	-	-	-	-	-
	• Synthesis of existing NRE Bill by NREIAC completed.	-	Feb. 2003	-	-	-	-
	• NRE Bill revised and ready for legislative lobbying	-	Oct. 2003	-	-	-	-
	• No. of lobbying groups lobbying for passage of NRE Bill	-	5	10	15	25	30
	• No. of legislators supporting NRE Bill	-	5	10	20	50	75
<b>1.3 NRE Policy Analyses</b>							
	• Scope of policy studies approved by NREIAC.	Oct. 2002	-	-	-	-	-
	• No. of policy studies approved by NREIAC.	3	-	-	-	1	-
	• No. of policy recommendations reviewed by NREIAC	-	15	-	-	5	-
	• No. of policy provisions included in the Revised NRE Bill	-	9	-	-	3	-
	• No. of policy study reports accepted by DOE.	-	-	3	-	-	1
<b>1.4 NRE Planning Models</b>							
	• No. of NRE-related project planning tools assessed.	-	5	-	-	-	-
	• No. of NRE-related planning tools enhanced.	-	3	-	-	-	-
	• No. of NRE-related planning tools developed/pilot-tested.	-	1	-	-	-	-
	• No. of NRE project developers adopting improved models/tools	-	5	10	25	30	40
<b>1.5 Integrated Energy Planning (IEP)</b>							
	• Institutional framework for IEP process approved by DOE	-	Mar. 2003	-	-	-	-
	• Multi-sectoral IEP model developed and pilot-tested.	-	Nov. 2003	-	-	-	-
	• No. of institutions agreed to participate in annual IEP	-	-	10	20	30	35

<sup>14</sup> Targets could either refer to the target completion date or the annual target value corresponding to a particular indicator.

SUCCESS INDICATORS		2002	2003	2004	2005	2006	2007
<b>1.6 Policy Implementation, Monitoring &amp; Evaluation</b>							
	• M&E System approved by NREIAC.	-	Feb. 2003	-	-	-	-
	• NRE Policy framework developed by NREIAC	-	July 2003	-	-	-	-
	• No. of NRE-related policies implemented.	-	3				
	• Percent increase in NRE MMBFOE induced by the Project	-	0%	0%	0.1%	0.25%	0.5%
	• Metric tons of CO2 reduction induced by the GEF Project	-					
<b>Component 2: Market Services Institutionalization</b>							
<b>2.1 Setting up of Market Service Center</b>							
	• MSC Organizational Structure approved by DOE.	Dec. 2002	-	-	-	-	-
	• No. of NRE projects packaged by MSC.	-	-	2	3	5	6
	• No. of NRE clientele assisted by MSC.	-	10	50	75	100	125
<b>2.2 Preparation of MSC Business Plan</b>							
	• MSC Business Plan approved by DOE.	-	Jan. 2003	-	-	-	-
	• No. of MSC services approved by DOE.	-	2	3	5	5	5
	• Percent of year-ahead MSC operation cost that will be financed through its previous-year generated income	-		5%	15%	30%	50%
<b>2.3 Capacity Building for MSC Staff</b>							
	• MSC Capacity Building Program approved by DOE.	Nov. 2002	-	-	-	-	-
	• No. of man-days of relevant trainings for MSC Staff	30	90	60	60	30	30
<b>Component 3: NRE Information and Promotion Services</b>							
<b>3.1 NRE Resource Inventory</b>							
	• Methodology for conduct of inventory approved by DOE.	Oct. 2002	-	-	-	-	-
	• Shortlist of Priority NRE resources accepted by DOE.	Dec. 2002	-	-	-	-	-
	• Percentage of existing NRE resource databases assessed.	5%	80%	100%	-	-	-
	• Percent completion of hardware procurement for NRE resource assessment and monitoring	10%	100%	-	-	-	-
	• Estimated MW of grid-based NRE resource potentials identified for resource assessment within Project period.	-	100	-	-	-	-
	• No. of barangays identified for site-specific NRE resource assessment within Project period.	-	500	-	-	-	-
	• Equiv. MW of grid-based NRE resource potentials assessed within the year.	-	25	50	25	-	-
	• No. of barangays assessed for NRE resource potentials.	-	150	300	50	-	-

SUCCESS INDICATORS		2002	2003	2004	2005	2006	2007
<b>Component 3: NRE Information and Promotion Services</b>							
<b>3.1 NRE Resource Inventory</b>							
• Methodology for conduct of inventory approved by DOE.	Oct. 2002	-	-	-	-	-	-
• Shortlist of Priority NRE resources accepted by DOE.	Dec. 2002	-	-	-	-	-	-
• Percentage of existing NRE resource databases assessed.	5%	80%	100%	-	-	-	-
• Percent completion of hardware procurement for NRE resource assessment and monitoring	10%	100%	-	-	-	-	-
• Estimated MW of grid-based NRE resource potentials identified for resource assessment within Project period.	-	100	-	-	-	-	-
• No. of barangays identified for site-specific NRE resource assessment within project period.	-	500	-	-	-	-	-
• Equiv. MW of grid-based NRE resource potentials assessed within the year.	-	25	50	25	-	-	-
• No. of barangays assessed for NRE resource potentials.	-	150	300	50	-	-	-
• Report on the Compendium of NRE Resource Database presented to NREIAC and accepted by DOE.	-	-	-	Dec. 2005	-	-	-
<b>3.2 National NRE Database Development</b>							
• Institutional set-up for NRE Database System approved by NREIAC and DOE.	Dec. 2003	-	-	-	-	-	-
• No. of potential database-keepers identified and assessed.	-	Jan. 2003	-	-	-	-	-
• No. of institutions participating as members of NRE Database-keepers Committee	-	5	6	6	6	6	8
<b>3.3 Integrated NRE Information Exchange Service</b>							
• Design and implementation plan of Integrated Information Exchange System approved by NREIAC and DOE.	-	June 2003	-	-	-	-	-
• No. of local institutions participating in the system	-	5	6	8	9	10	10
• No. of international institutions participating in the system	-	-	2	2	4	4	4
• No. of information exchange mechanisms implemented.	-	-	3	3	5	5	5
• No. of NRE clientele assisted by info exchange system.	-	-	50	100	100	100	100
<b>3.4 NRE Website Development</b>							
• Design and contents of the website approved by DOE.	-	July 2003	-	-	-	-	-
• Percentage completion of website design implementation	-	50%	100%	-	-	-	-
• Percent completion of hardware procurement for NRE website Facility	-	20%	100%	-	-	-	-
• No. of internet users browsed the NRE website.	-	-	50	75	100	100	100

SUCCESS INDICATORS		2002	2003	2004	2005	2006	2007
<b>3.5 Consolidation of NRE Database.</b>							
	• Agreement on the consolidation of NRE database signed by NRE database-keepers.	-	Mar. 2003	-	-	-	-
	• Percentage of total NRE databases reformatted/reproduced and consolidated.	-	15%	50%	100%	-	-
<b>3.6 NRE Advocacy and Promotion</b>							
	• Design and implementation strategies for NRE Outreach and Promotion program approved by NREIAC and DOE.	Dec. 2002	-	-	-	-	-
	• No. of institutions reached by IEC activities.	-	20	20	20	20	20
	• No. of potential end-users reached by IEC activities	-	250	500	500	500	500
<b>3.7 NRE Engineering Service Industry Development</b>							
	• Capacity Building Program for NRE-based engineering service firms approved by NREIAC and DOE.	-	Oct. 2003	-	-	-	-
	• Framework for the non-compulsory registration of NRE engineering service firms approved by NREIAC and DOE.	-	Dec. 2003	-	-	-	-
	• No. of local NRE engineering service firms applied for registration.	-	-	5	5	5	5
<b>3.8 Green Energy Rating Program</b>							
	• Design and implementation plan of the Green-E program approved by NREIAC and DOE.	-	Feb. 2003	-	-	-	-
	• No. of NRE end-users who received Green-E award	-	3	5	5	5	5
	• No. of NRE project developers who received Green-E award	-	3	5	5	5	5
<b>Component 4: NRE Initiatives and Financing Mechanisms</b>							
<b>4.1 NRE Fund Establishment</b>							
	• Institutional Set-up for the 3 Project Funds approved by NREIAC and accepted by DOE.	Dec. 2002	-	-	-	-	-
	• Percent of Project Preparation Fund utilized	-	5%	50%	75%	95%	95%
	• Percent of Loan Guarantee Fund utilized	-	5%	50%	75%	95%	95%
	• Percent of Micro-Finance Fund utilized	-	5%	50%	75%	95%	95%
	• Collection efficiency for PPF repayment	-	-	-	25%	50%	50%
	• Collection efficiency for LGF repayment	-	-	-	25%	50%	50%
	• Collection efficiency for MFF repayment	-	-	-	25%	50%	50%

SUCCESS INDICATORS		2002	2003	2004	2005	2006	2007
<b>4.2 Assistance Services to Finance Applicants</b>							
	• Framework for assistance to applicants of the project funds accepted by DOE.	-	Feb. 2003	-	-	-	-
	• No. of guidebooks on 3 Project Funds disseminated	-	-	100	100	100	100
	• No. of applications processed for PPF	-	-	5	5	5	5
	• No. of applications processed for LGF	-	-	2	2	2	2
	• No. of applications processed for MFF	-	-	8	8	8	8
<b>4.3 NRE Delivery and Financing Mechanism Demo</b>							
	• Program for Promotion of Funds approved by DOE.	-	May 2003	-	-	-	-
	• No. of project developers participated in the Promo Workshop for the 3 Project Funds	-	50	50	-	-	-
	• No. of project developers signified interest in PPF	-	-	10	10	10	10
	• No. of project developers signified interest in LGF	-	-	5	5	5	5
	• No. of project developers signified interest in MFF	-	-	15	15	15	15
<b>4.4 Selection of NRE Projects</b>							
	• Criteria and Procedure for selection of eligible fund applicants approved by NREIAC and DOE.	-	Aug. 2003	-	-	-	-
	• No. of fund applications approved for PPF per year	-	-	3	3	3	3
	• No. of fund applications approved for LGF per year	-	-	1	1	1	1
	• No. of fund applications approved for MFF per year	-	-	5	5	5	5
<b>4.5 Monitoring and Evaluation of Project Sites</b>							
	• Indicators and framework for M&E of projects approved by DOE.	-	-	Dec. 2004	-	-	-
	• No. of NRE projects monitored within the year	-	-	-	6	6	6
	• Percentage of NRE projects met performance standards.	-	-	-	50%	50%	50%
<b>4.6 Sustainable Program Design</b>							
	• Design of follow-up financing program approved by DOE	-	-	-	-	-	Mar. 2007
<b>Component 5: NRE Training Program</b>							
<b>5.1 Planning and Needs Assessment</b>							
	• 5-year training program approved by DOE	Sept. 2002	-	-	-	-	-
<b>5.2 Design of Training Activities</b>							
	• No. of training course designed and approved by DOE	13	-	-	-	-	-
	• Set of training materials and evaluation sheets developed and reproduced.	4	8	1	-	-	-

SUCCESS INDICATORS		2002	2003	2004	2005	2006	2007
<b>5.3</b>	<b>Conduct of Actual Training</b>						
	• No. of NRE policy decision makers and project developers participated in the "Observational Tour on NRE"	10	10	10	10	-	-
	• No. of trainers trained on "NRE Trainers' Training"	25	25	25	-	-	-
	• No. of trainers trained on "Facilitation & Consensus Bldg"	-	20	20	-	-	-
	• No. of project developers and technical staff of concerned institutions trained on "NRE Project Tools and "IEP Model"	-	20	20	20	-	-
	• No. of officials/technical staff from DOE, GFIs and other investment agencies trained on "NRE Project Financing"	20	20	20	20	-	-
	• No. of technical staff/officers from MSC, Project Fund implementors, and GFIs trained on NRE Project Appraisal	20	20	20	20	-	-
	• No. of DOE, NPC, ERC and NRE-based NUG/IPP trained on "NRE Pricing"	-	20	20	20	-	-
	• No. of DOE, NPC, ERC and NRE-based NUG/IPP trained on "NRE Power Purchase Contracting and Negotiations"	-	20	20	20	-	-
	• No. project developers, ECs, BAPAs, LGUs and NGOs trained on "NRE Project Management"	-	20	20	20	-	-
	• No. of entrepreneurs trained on "NRE Entrepreneurial Training"	-	20	20	20	20	-
	• No. of ECs, BAPAs, LGUs, rural FIs and NGOs' personnel trained on "Basic Concepts of Rural Electrification"	-	20	20	20	-	-
	• No. of technicians included in DOE inventory and trained on "NRE technicians training"	-	20	20	20	20	-
	• No. of NRE engineers, consultants included in DOE inventory and trained on "Rural NRE Systems Design, Operation and Maintenance"	-	20	20	20	20	-
	• No. of training reports accepted by DOE within the year	4	12	13	11	3	-
<b>5.4</b>	<b>Sustainable Training Design</b>						
	• Evaluation report of the training program	-	-	-	Dec. 2005	-	-
	• Sustainable training program accepted by DOE	-	-	-	-	Dec. 2006	-

SUCCESS INDICATOR		2002	2003	2004	2005	2006	2007
<b>Component 6. NRE Technology Support</b>							
<b>6.1 NRE Standards Development</b>							
	• List of NRE systems for standard setting accepted by DOE	-	Mar. 2003	-	-	-	-
	• Institutional framework for NRE standards development approved by NREIAC and DOE.	-	July 2003	-	-	-	-
	• Procedure for the assessment of NRE equipment, devices and systems adopted by DOE and related agencies	-	Oct. 2003	Jan. 2004	-	-	-
	• Percent completion of procurement of test equipment	-	20%	90%	100%	-	-
	• No. of local NRE systems, equipment and devices assessed within the year	-	3	5	2	-	-
	• No. of NRE-related standards and best practices identified for local benchmarking and adoption within the year	-	1	3	1	-	-
	• No. of monitored NRE systems, equipment and devices that met benchmark standards within the year	-	-	3	5	5	5
	• No. of NRE manufacturers, project developers, etc. adopting DOE-approved NRE standards and practices	-	-	5	19	15	25
<b>6.2 NRE Technology Support Program</b>							
	• Methodology for the assessment of local NRE manufacturing practices accepted by DOE	-	Aug. 2003	-	-	-	-
	• No. of local manufacturing practices assessed for efficiency improvement within the year	-	3	7	-	-	-
	• No. of innovative/improved procedures developed for adoption by local manufacturers within the year	-	3	7	-	-	-
	• Implementing guidelines for financing support to local manufacturing improvement program approved by DOE.	-	-	July 2004	-	-	-
	• No. of manufacturing firms provided with financial assistance to adopt improved procedures within the year	-	-	1	2	2	2
	• M&E for the adoption of improved NRE-related manufacturing procedures approved by DOE.	-	-	Dec. 2004	-	-	-
	• No. of monitored local manufacturing firms adopting improved NRE-manufacturing procedures	-	-	-	3	3	3
	• Sustainable follow-up program accepted by DOE	-	-	-	-	June 2006	-



ANNEX 7B: SELECTED PROJECT IMPACT INDICATORS

INDICATOR	TARGET
<i>Long-term Global Impacts</i>	
GHG emission reduction during the period 2001-2010	29.6 million metric tons of CO <sub>2</sub>
<i>Impacts to National Energy and Socio-economic Goals</i>	
Average growth rate in NRE consumption during the period 2001-2010	8%
Indigenous power generation capacity added from micro- and mini-hydro, solar, wind turbines, hybrids	410 MW by 2012
Number of households using NRE facilities during the period 2001-2010	15,000 households in 840 barangays
Number of households benefited by community facilities using NRE during the period 2001-2010	5,700 households in 320 barangays
Number of households benefiting from increased livelihood from NRE projects during the period 2001-2010	3,400 households in 190 barangays
<i>Impacts to National Capacity for NRE Development</i>	
Number of NRE-related policies enacted & implemented by the government	3 by 2003
Number of financial and non-bank institutions and agencies providing sustainable financing to NRE projects	8 by 2007
Number of institutions and potential end-users reached by IEC activities	2,350 by 2007
Number of NRE manufacturers, project developers, etc. adopting DOE-approved NRE standards and practices	64 by 2007
Number of NRE engineering service firms that have been assisted to comply with registration requirements	20 by 2007
Number of NRE end-users and project developers that received Green-E award	46 by 2007
Improvement in efficiency of locally-made NRE system equipment and components	5% by 2006
Number of local NRE equipment manufacturers availing of product improvement program	5 by 2007
Number of local technicians for community-based NRE projects that have been assisted to comply with accreditation.	80 by 2007
<i>Contributions to NRE Market Development</i>	
Cumulative capacity of NRE projects facilitated by Project Preparation Fund	100 MW by 2007
Cumulative capacity of NRE projects facilitated by Loan Guarantee Fund	3 MW by 2007
Cumulative capacity of NRE projects facilitated by Micro-Finance Fund	500 kW by 2007
Number of skilled NRE enterprises actively engaged in NRE grid-based power project development	12 by 2007
Number of skilled NRE enterprises actively engaged in NRE sales and/or service for off-grid community applications	40 by 2007
Number of skilled NRE enterprises actively engaged in NRE sales and/or service for off-grid household applications	40 by 2007
Number of households receiving NRE systems through micro-credit mechanisms.	1,000 by 2007



United Nations Development Programme  
 PHI/01/G33 "Capacity Building to Remove Barriers on Renewable Energy Development"  
 ANNEX "8A"

Main Source of Funds: 1G - Global Environment Trust Fund  
 Executing Agency : Department of Energy - Non-Conventional Energy Division (DOE-NCED)

Sbln	Description	Agency	Total	2002	2003	2004	2005	2006
<b>10 PERSONNEL</b>								
<b>11 Int'l Experts &amp; Consultants</b>		<b>DOE</b>						
1101	Chief Technical Adviser (Components 1 to 6)		Net Amount	108,155	21,631	21,631	21,631	21,631
			W/M	10.0	2.0	2.0	2.0	2.0
			Total	108,155	21,630	21,630	21,630	21,630
1102	Policy/NUG Advisor (Components 1)		Net Amount	10,300	10,300	0	0	0
			W/M	1.0	1.0	0.0	0.0	0.0
			Total	10,300	10,300	0	0	0
1103	Energy Economist (Component 1)		Net Amount	10,300	0	10,300	0	0
			W/M	1.0	0.0	1.0	0.0	0.0
			Total	10,300	0	10,300	0	0
1104	NRE Financing Advisor (Component 4)		Net Amount	20,600	0	10,300	0	10,300
			W/M	2.0	0.0	1.0	0.0	1.0
			Total	20,600	0	10,300	0	10,300
1105	Manufacturer's Advisor (Component 6)		Net Amount	15,450	0	0	10,300	5,150
			W/M	1.5	0.0	0.0	1.0	0.0
			Total	15,450	0	0	10,300	5,150
1199	<b>Line Total</b>		Net Amount	164,805	31,931	42,231	31,931	37,081
			W/M	15.0	3.0	4.0	3.0	3.0
			Total	164,800	31,930	42,230	31,930	37,080
<b>13 Admin Support Personnel</b>								
1301	PMO Finance Officer		Net Amount	36,000	7,200	7,200	7,200	7,200
			W/M	60.0	12.0	12.0	12.0	12.0
			Total	36,000	7,200	7,200	7,200	7,200
1302	PMO Admin Officer		Net Amount	36,000	7,200	7,200	7,200	7,200
			W/M	60.0	12.0	12.0	12.0	12.0
			Total	36,000	7,200	7,200	7,200	7,200
1303	PMO Admin Assistant		Net Amount	21,000	4,200	4,200	4,200	4,200
			W/M	60.0	12.0	12.0	12.0	12.0
			Total	21,000	4,200	4,200	4,200	4,200

		Total	2002	2003	2004	2005	2006
1304 Messenger/Driver	Net Amount	21,000	4,200	4,200	4,200	4,200	4,200
	W/M	60.0	12.0	12.0	12.0	12.0	12.0
	Total	21,000	4,200	4,200	4,200	4,200	4,200
1305 MSC Admin Assistant	Net Amount	16,800	0	4,200	4,200	4,200	4,200
	W/M	48.0	0.0	12.0	12.0	12.0	12.0
	Total	16,800	0	4,200	4,200	4,200	4,200
<b>1399 Line Total</b>	Net Amount	130,800	22,800	27,000	27,000	27,000	27,000
	W/M	288.0	48.0	60.0	60.0	60.0	60.0
	Total	130,800	22,800	27,000	27,000	27,000	27,000
<b>15 Duty and Local Travel</b>							
1501 NRE Policy, Planning and Institutional Capacity Building (Component 1)	Net Amount	10,000	2,000	2,000	2,000	2,000	2,000
	Total	10,000	2,000	2,000	2,000	2,000	2,000
1502 NRE Market Services Institutionalization (Component 2)	Net Amount	12,500	2,500	2,500	2,500	2,500	2,500
	Total	12,500	2,500	2,500	2,500	2,500	2,500
1503 NRE Information & Promotion Services (Component 3)	Net Amount	12,500	2,500	2,500	2,500	2,500	2,500
	Total	12,500	2,500	2,500	2,500	2,500	2,500
1504 NRE Initiatives Delivery and Financing Mechanisms (Component 4)	Net Amount	12,500	2,500	2,500	2,500	2,500	2,500
	Total	12,500	2,500	2,500	2,500	2,500	2,500
1505 NRE Training Program (Component 5)	Net Amount	15,900	3,000	3,000	3,000	3,000	3,900
	Total	15,900	3,000	3,000	3,000	3,000	3,900
1506 NRE Technology Support (Component 6)	Net Amount	12,500	2,500	2,500	2,500	2,500	2,500
	Total	12,500	2,500	2,500	2,500	2,500	2,500
<b>1599 Line Total</b>	Net Amount	75,900	15,000	15,000	15,000	15,000	15,900
	Total	75,900	15,000	15,000	15,000	15,000	15,900
<b>16 Mission Costs</b>							
1601 Project Advice Mission Cost (CTA)	Net Amount	60,500	12,100	12,100	12,100	12,100	12,100
	W/M	10.0	2.0	2.0	2.0	2.0	2.0
	Total	60,500	12,100	12,100	12,100	12,100	12,100
1602 Policy/NUG Mission	Net Amount	7,300	7,300	0	0	0	0
	W/M	1.0	1.0	0.0	0.0	0.0	0.0
	Total	7,300	7,300	0	0	0	0
1603 Energy Economic Mission	Net Amount	7,300	7,300	0	0	0	0
	W/M	1.0	1.0	0.0	0.0	0.0	0.0
	Total	7,300	7,300	0	0	0	0
1604 Financial Advise Mission	Net Amount	14,600	0	7,300	7,300	0	0
	W/M	2.0	0.0	1.0	1.0	0.0	0.0
	Total	14,600	0	7,300	7,300	0	0

Sp/ln	Description	Agency	Total	2002	2003	2004	2005	2006
1605	Manufacturer Advise Mission		Net Amount 7,000	0	0	7,000	0	0
			W/M 1.0	0.0	0.0	1.0	0.0	0.0
			Total 7,000	0	0	7,000	0	0
1606	Monitoring and Evaluation Mission		Net Amount 27,000	5,400	5,400	5,400	5,400	5,400
			W/M 5.0	1.0	1.0	1.0	1.0	1.0
			Total 27,000	5,400	5,400	5,400	5,400	5,400
1607	Midterm and Final Evaluation Mission		Net Amount 14,600	0	0	7,300	0	7,300
			W/M 2.0	0.0	0.0	1.0	0.0	1.0
			Total 14,600	0	0	7,300	0	7,300
1699	Line Total		Net Amount 138,300	32,100	24,800	39,100	17,500	24,800
			W/M 22.0	5.0	4.0	6.0	3.0	4.0
			Total 138,300	32,100	24,800.0	39,100.0	17,500	24,800.0
<b>17 National Professionals</b>								
1701	PMO Director		Net Amount 114,000	22,800	22,800	22,800	22,800	22,800
			W/M 60.0	12.0	12.0	12.0	12.0	12.0
			Total 114,000	22,800	22,800	22,800	22,800	22,800
1702	MSC Coordinator		Net Amount 81,000	9,000	18,000	18,000	18,000	18,000
			W/M 54.0	6.0	12.0	12.0	12.0	12.0
			Total 81,000	9,000	18,000	18,000	18,000	18,000
1703	MSC Information and Promotion Specialist		Net Amount 43,200	4,800	9,600	9,600	9,600	9,600
			W/M 54.0	6.0	12.0	12.0	12.0	12.0
			Total 43,200	4,800	9,600	9,600	9,600	9,600
1704	MSC Technical Support Specialist		Net Amount 38,400	0	9,600	9,600	9,600	9,600
			W/M 48.0	0.0	12.0	12.0	12.0	12.0
			Total 38,400	0	9,600	9,600	9,600	9,600
1705	MSC Policy and Institutional Development Specialist		Net Amount 38,400	0	9,600	9,600	9,600	9,600
			W/M 48.0	0.0	12.0	12.0	12.0	12.0
			Total 38,400	0	9,600	9,600	9,600	9,600
1706	PMO Policy, Institutional and Planning Specialist		Net Amount 48,000	9,600	9,600	9,600	9,600	9,600
			W/M 60.0	12.0	12.0	12.0	12.0	12.0
			Total 48,000	9,600	9,600	9,600	9,600	9,600
1707	PMO Info, Promo & Technical Support Specialist		Net Amount 48,000	9,600	9,600	9,600	9,600	9,600
			W/M 60.0	12.0	12.0	12.0	12.0	12.0
			Total 48,000	9,600	9,600	9,600	9,600	9,600
1708	NRE Policy Expert		Net Amount 21,000	7,000	7,000	7,000	0	0
			W/M 6.0	2.0	2.0	2.0	0.0	0.0
			Total 21,000	7,000	7,000	7,000	0	0

Sbj#	Description	Agency	Total	2002	2003	2004	2005	2006	
1709	NRE Planning & Modeling Expert		Net Amount	17,500	7,000	7,000	3,500	0	0
			W/M	5.0	2.0	2.0	1.0	0.0	0.0
			Total	17,500	7,000	7,000	3,500	0	0
1710	MSC Business Development Expert		Net Amount	17,500	7,000	7,000	3,500	0	0
			W/M	5.0	2.0	2.0	1.0	0.0	0.0
			Total	17,500	7,000	7,000	3,500	0	0
1711	Training Program Expert		Net Amount	21,000	7,000	7,000	7,000	0	0
			W/M	6.0	2.0	2.0	2.0	0.0	0.0
			Total	21,000	7,000	7,000	7,000	0	0
1712	Financing and Del Mechanisms Expert		Net Amount	17,500	7,000	7,000	3,500	0	0
			W/M	5.0	2.0	2.0	1.0	0.0	0.0
			Total	17,500	7,000	7,000	3,500	0	0
1713	Expert on Financial Incentives to NRE Manufacturers		Net Amount	13,608	0	3,500	7,000	3,108	0
			W/M	3.9	0.0	1.0	2.0	0.9	0.0
			Total	13,608	0	3,500	7,000	3,108	0
<b>1799</b>	<b>Line Total</b>		Net Amount	519,108	90,800	127,300	120,300	91,908	88,800
			W/M	414.9	58	95	93	85	84
			Total	519,108	90,800	127,300	120,300	91,908	88,800
<b>19</b>	<b>PROJECT PERSONNEL TOTAL</b>		Net Amount	1,028,913	192,631	236,331	233,331	188,489	178,131
			W/M	739.9	114.0	163.0	162.0	150.9	150.0
			Total	1,028,913	192,631	236,331	233,331	188,489	178,131
<b>20 SUBCONTRACTS</b>									
<b>21 Subcontract A</b>									
2101	NRE Policy and Planning TA		Net Amount	65,000	25,000	20,000	20,000	0	0
			Total	65,000	25,000	20,000	20,000	0	0
2102	NRE Resource Inventory		Net Amount	90,000	45,000	45,000	0	0	0
			Total	90,000	45,000	45,000	0	0	0
2103	Database & Exchange TA		Net Amount	65,000	40,000	25,000	0	0	0
			Total	65,000	40,000	25,000	0	0	0
2104	Advocacy & Promo Campaign TA		Net Amount	90,000	20,000	20,000	20,000	20,000	10,000
			Total	90,000	20,000	20,000	20,000	20,000	10,000
2105	Service Industry Development & Green Energy Rating		Net Amount	60,000	10,000	40,000	10,000	0	0
			Total	60,000	10,000	40,000	10,000	0	0
2106	Del/Financing Mechanisms Implementation		Net Amount	50,000	15,000	20,000	15,000	0	0
			Total	50,000	15,000	20,000	15,000	0	0
2107	Manufacturers of NRE Equip TA		Net Amount	56,640	0	15,000	15,000	15,000	11,640
			Total	56,640	0	15,000	15,000	15,000	11,640

Agency	Total	2002	2003	2004	2005	2006	
2108 Production of Training Modules/Project Info Materials	Net Amount	100,000	20,000	20,000	20,000	20,000	20,000
	Total	100,000	20,000	20,000	20,000	20,000	20,000
2199 Line Total	Net Amount	576,640	175,000	205,000	100,000	55,000	41,640
	Total	576,640	175,000	205,000	100,000	55,000	41,640
<b>29 SUBCONTRACTS TOTAL</b>	Net Amount	576,640	175,000	205,000	100,000	55,000	41,640
	Total	576,640	175,000	205,000	100,000	55,000	41,640
<b>30 TRAINING</b>							
<b>31 Fellowship</b>							
3101 NRE Observation Tour	Net Amount	50,000	20,000	20,000	10,000	0	0
	Total	50,000	20,000	20,000	10,000	0	0
2199 Line Total	Net Amount	50,000	20,000	20,000	10,000	0	0
	Total	50,000	20,000	20,000	10,000	0	0
<b>32 Group Training</b>							
3201 NRE Modeling Training	Net Amount	8,000	0	8,000	0	0	0
	Total	8,000	0	8,000	0	0	0
3202 NRE Trainers' Training	Net Amount	9,000	9,000	0	0	0	0
	Total	9,000	9,000	0	0	0	0
3203 Facilitation & Consensus Bldg Training	Net Amount	8,000	0	8,000	0	0	0
	Total	8,000	0	8,000	0	0	0
3204 Training on NRE Pricing	Net Amount	9,000	0	9,000	0	0	0
	Total	9,000	0	9,000	0	0	0
3205 Training on Project Financing	Net Amount	8,000	0	8,000	0	0	0
	Total	8,000	0	8,000	0	0	0
3206 Training on NRE PPA	Net Amount	8,000	8,000	0	0	0	0
	Total	8,000	8,000	0	0	0	0
3207 NRE Basic Concepts Training	Net Amount	18,000	6,000	6,000	6,000	0	0
	Total	18,000	6,000	6,000	6,000	0	0
3208 NRE Project Mgt. Training	Net Amount	22,500	7,500	7,500	7,500	0	0
	Total	22,500	7,500	7,500	7,500	0	0
3209 NRE Technicians' Training	Net Amount	20,000	7,000	7,000	6,000	0	0
	Total	20,000	7,000	7,000	6,000	0	0
3210 NRE Project Appraisal Training	Net Amount	22,500	0	15,000	7,500	0	0
	Total	22,500	0	15,000	7,500	0	0
3211 NRE System Design and Operation	Net Amount	8,000	0	8,000	0	0	0
	Total	8,000	0	8,000	0	0	0
3212 NRE Entrepreneurial Training	Net Amount	22,500	0	7,500	15,000	0	0

Sbln	Description	Agency	Total	2002	2003	2004	2005	2006
		Total	22,500	0	7,500	15,000	0	0
3213	NRE Bill Consultation Workshops	Net Amount	24,000	8,000	8,000	8,000		
		Total	24,000	8,000	8,000	8,000	0	0
3214	NRE Policy and Program Analysis Workshops	Net Amount	14,000	0	7,000	7,000	0	0
		Total	14,000	0	7,000	7,000	0	0
3215	Stakeholders' Consultation Workshop	Net Amount	21,000	7,000	0	7,000	0	7,000
		Total	21,000	7,000	0	7,000	0	7,000
3216	MSC Training	Net Amount	6,000	0	3,000	3,000	0	0
		Total	6,000	0	3,000	3,000	0	0
3217	PSC/NREIAC Meetings	Net Amount	50,000	10,000	10,000	10,000	10,000	10,000
		Total	50,000	10,000	10,000	10,000	10,000	10,000
3218	Other Meetings and Conferences	Net Amount	15,950	3,190	3,190	3,190	3,190	3,190
		Total	15,950	3,190	3,190	3,190	3,190	3,190
<b>3299</b>	<b>Line Total</b>	Net Amount	294,450	65,690	115,190	80,190	13,190	20,190
		Total	294,450	65,690	115,190	80,190	13,190	20,190
<b>39</b>	<b>TRAINING TOTAL</b>	Net Amount	344,450	85,690	135,190	90,190	13,190	20,190
		Total	344,450	85,690	135,190	90,190	13,190	20,190
<b>40</b>	<b>EQUIPMENT</b>							
<b>45</b>	<b>Local Procurement of Equipment</b>							
4501	Office & Project Equipment	Net Amount	190,000	100,000	90,000	0	0	0
		Total	190,000	100,000	90,000	0	0	0
4502	Network Comm. Equip. (e.g. computers, server)	Net Amount	113,000	20,000	70,000	23,000	0	0
		Total	113,000	20,000	70,000	23,000	0	0
4503	Test Equipment & Instrumentation	Net Amount	148,051	50,000	50,000	48,051	0	0
		Total	148,051	50,000	50,000	48,051	0	0
4504	O & M Supplies (Project Support)	Net Amount	37,500	7,500	7,500	7,500	7,500	7,500
		Total	37,500	7,500	7,500	7,500	7,500	7,500
<b>4599</b>	<b>Line Total</b>	Net Amount	488,551	177,500	217,500	78,551	7,500	7,500
		Total	488,551	177,500	217,500	78,551	7,500	7,500
<b>49</b>	<b>EQUIPMENT TOTAL</b>	Net Amount	488,551	177,500	217,500	78,551	7,500	7,500
		Total	488,551	177,500	217,500	78,551	7,500	7,500
<b>50</b>	<b>MISCELLANEOUS</b>							
<b>52</b>	<b>Reporting Costs</b>							
5201	Printing of Reports	Net Amount	9,194	2,000	2,000	1,794	1,700	1,700
		Total	9,194	2,000	2,000	1,794	1,700	1,700
<b>5299</b>	<b>Line Total</b>	Net Amount	9,194	2,000	2,000	1,794	1,700	1,700
		Total	9,194	2,000	2,000	1,794	1,700	1,700

Slip Description	Total	2002	2003	2004	2005	2006	
<b>53 Sundries</b>							
5301 Sundries	Net Amount	22,000	5,000	5,000	4,000	4,000	4,000
	Total	22,000	5,000	5,000	4,000	4,000	4,000
5302 Project Management Audit	Net Amount	10,000	2,000	2,000	2,000	2,000	2,000
	Total	10,000	2,000	2,000	2,000	2,000	2,000
<b>5399 Line Total</b>	Net Amount	32,000	7,000	7,000	6,000	6,000	6,000
	Total	32,000	7,000	7,000	6,000	6,000	6,000
<b>59 MISCELLANEOUS TOTAL</b>	Net Amount	41,194	9,000	9,000	7,794	7,700	7,700
	Total	41,194	9,000	9,000	7,794	7,700	7,700
<b>70 MICRO CAPITAL GRANTS</b>		0	0	0			
7101 Project Preparation Fund	Net Amount	321,300	260,000	61,300	0	0	0
	Total	321,300	260,000	61,300	0	0	0
7102 Loan Guarantee Fund	Net Amount	1,606,500	0	1,000,000	606,500	0	0
	Total	1,606,500	0	1,000,000	606,500	0	0
7103 Micro Finance Fund	Net Amount	535,500	0	178,500	178,500	178,500	0
	Total	535,500	0	178,500	178,500	178,500	0
7104 Finance Assistance to Local NRE	Net Amount	200,000	0	0	75,000	100,000	25,000
	Total	200,000	0	0	75,000	100,000	25,000
<b>7199 Line Total</b>	Net Amount	2,663,300	260,000	1,239,800	860,000	278,500	25,000
	Total	2,663,300	260,000	1,239,800	860,000	278,500	25,000
<b>79 MICRO CAPITAL GRANTS TOTAL</b>	Net Amount	2,663,300	260,000	1,239,800	860,000	278,500	25,000
	Total	2,663,300	260,000	1,239,800	860,000	278,500	25,000
<b>99 BUDGET TOTAL</b>	Net Amount	5,143,048	899,821	2,042,821	1,369,866	550,379	280,161
	W/M	739.9	114.0	163.0	162.0	150.9	150.0
	Total	5,143,048	899,821	2,042,821	1,369,866	550,379	280,161



**ANNEX 8B: Government Contribution Budget  
Project Budget Covering Government Contribution  
(In-cash and In-kind, US\$)**

Agencies	In-Cash	In-Kind	Total
<u>Component 1</u> I. DOE	295,000	70,000	365,000
<u>Component 2</u> II. DOE PNOC	0 400,000	105,000 900,000	105,000 1,300,000
<u>Component 3</u> III. DOE	460,000	0	460,000
<u>Component 4</u> IV. DOE	1,340,000	0	1,340,000
<u>Component 5</u> V. DOE	345,000	10,000	355,000
<u>Component 6</u> VI. DOE UP Solar Lab	210,000 0	0 150,000	210,000 150,000
<b>TOTAL</b>	<b>3,050,000</b>	<b>1,235,000</b>	<b>4,285,000</b>

**ANNEX 8C: Other Contributions Budget**  
**Project Budget Covering Other International Contribution Including Private Sector & NGO**  
**(In-cash and In-kind, US\$)**

Agencies	In-Cash	In-Kind	Total
<b>Other International Contribution:</b>			
<i>Component 1</i> ADB & FINESSE	180,000	0	180,000
<i>Component 4</i> Dutch Ministry of Foreign Affairs	6,000,000	0	6,000,000
<b>Private Sector &amp; NGO:</b>			
<i>Component 2</i> REAP	0	200,000	200,000
<i>Component 3</i> Manila Observatory Community NGO	0	30,000 30,000	30,000 30,000
<i>Component 4</i> RESCO Community NGO Rural Electric Coop.	7,450,000 0	0 12,000	7,450,000 12,000
<i>Component 6</i> REAP	394,000	0	394,000
	0	40,000	40,000
<b>TOTAL</b>	<b>14,024,000</b>	<b>312,000</b>	<b>14,336,000</b>

## ANNEX 8D. EQUIPMENT REGISTER

EQUIPMENT ITEM	No. of units	Unit Cost (US\$)	Total
<b>A. PROJECT EQUIPMENT</b>			
<b>1. Office Equipment (PMO &amp; MSC)</b>			
Desktop Computer	10	1,500	79,100
Laptop Computer	6	2,000	15,000
Laser Printer	3	1,000	12,000
Color Printer	3	1,200	3,000
Paper Copier	1	4,000	3,600
LAN/WAN cables and wirings	1	2,000	4,000
Windows Package (Corporate)	1	2,000	2,000
MS Office Package (Corporate)	1	1,500	1,500
AutoCAD Software Package (Corporate)	1	1,500	1,500
Project Vehicle (4X4)	1	35,000	35,000
<b>2. GIS Facility for Resource Assessment</b>			
GPS Unit	6	2,500	36,500
Radio Modem	3	2,000	15,000
Survey-type Antenna w/ cables	3	1,000	6,000
GIS Software Package	3	1,000	3,000
Desktop Computer	1	2,000	2,000
Laptop Computer	3	1,500	4,500
Digital Plotter	2	2,000	4,000
Digital Plotter	1	2,000	2,000
<b>3. Solar Resource Assessment</b>			
Pyranometer	3	2,500	18,300
Sunshine Hour Recorder	3	600	7,500
Pyrheliometer	3	2,500	1,800
Digital Rain gauge	3	500	7,500
<b>4. Micro-hydro Assessment</b>			
Micro-hydro Assessment	3	500	1,500
Magnetic Flowmeter	6	1,000	39,000
Cut-throat Flumes	6	500	6,000
Digital Planimeter	6	1,500	3,000
Altimeter	6	1,500	9,000
Electronic Transit	6	2,000	12,000
<b>5. Biomass Resource Assessment</b>			
Gas Analyzer	1	3,000	5,000
Bomb Calorimeter	1	2,000	3,000
<b>6. Wind Resource Assessment</b>			
Anemometer	3	1,800	2,000
Wind vanes	3	600	12,100
Data loggers	3	1,300	5,400
Wind Assessment Software Package	1	1,000	1,800
Modular Tower Unit (Package)	1	1,000	3,900
	3	1,000	1,000
			3,000

<b>B. NETWORK AND COMMUNICATION EQUIPMENT</b>				<b>113,000</b>
<b>1. Main Server for the NRE Website</b>				
Mini-computer	1	6,000	29,000	
Desktop Computer (High-powered)	2	2,500	5,000	
Laptop Computer	2	2,000	4,000	
LAN/WAN accessories, cables and wirings	1	10,000	10,000	
Laser Printer	1	1,000	1,000	
Color Printer	1	1,000	1,000	
Digital Plotter	1	2,000	2,000	
<b>2. Support Facilities for NRE Database-keepers</b>				
Desktop Computers (High-powered)	6	2,500	15,000	
LAN/WAN accessories, cables and wirings	6	5,000	30,000	
<b>3. NRE Website Browsing Centers (3 Regional Units)</b>				
Desktop Computer (High-powered)	6	2,500	15,000	
LAN/WAN accessories, cables and wirings	6	3,000	18,000	
Laser Printer	3	1,000	3,000	
Color Printer	3	1,000	3,000	
<b>C. TEST EQUIPMENT</b>				<b>148,051</b>
<b>1. System-specific Testing Tools</b>				
Solar PV Module Test Kit	2	15,000	30,000	
Solar PV Balance-of-System Test Kit	2	5,000	10,000	
Small Hydro Turbine Test Set-up	2	10,000	20,000	
Solar Water Heater Test Set-up	1	10,000	10,000	
Engine Test and Calibration Set	1	10,000	10,000	
Biogas Digester Test Set-up	3	5,000	15,000	
Wind Turbine Test Set-up	1	15,000	15,000	
<b>2. General Testing Tools</b>				
Machine Shop Tool Kit	1	5,000	5,000	
Automotive Tool Kit	1	2,051	2,051	
Combustion Test Set-up	1	10,000	10,000	
Dynamometer	1	10,000	10,000	
Power Measurement Kit	1	3,000	3,000	
Gas Flow Measurement Set-up	1	5,000	5,000	
Electronics Tool Kit	1	3,000	3,000	
<b>D. TOTAL EQUIPMENT COST</b>				<b>451,051</b>

ANNEX 9

GEF OPERATIONAL FOCAL POINT ENDORSEMENT



Republic of the Philippines  
Department of Environment and Natural Resources  
Visayas Avenue, Diliman, Quezon City, 1100  
Tel. Nos. (632) 929-6626 to 29 - (632) 929-6252  
929-6620 - 929-6633 to 35  
929-7041 to 43



11 September 2001

MR. TERENCE JONES  
Resident Representative  
United Nations Development Program  
NEDA sa Makati Bldg.  
Amorsolo St., Legaspi Village  
Makati City

Subject: Endorsement of UNDP-GEF Proposed "Philippines:  
Capacity Building to Remove Barriers to Renewable  
Energy Development Project"

Dear Mr. Jones,

The proposed "Philippines: Capacity Building to Remove Barriers to Renewable Energy Development Project" was prepared through consultations with large number of stakeholders under the PDF B preparatory assistance.

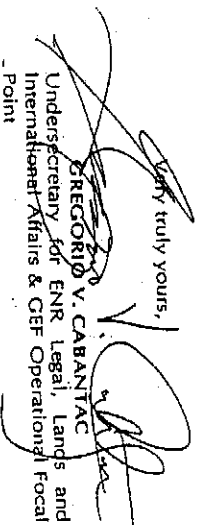
The proposed project generally aims to reduce GHG emissions by removing the major barriers and reducing costs of development of renewable energy, which were identified during the PDF B preparatory activities. In addition, it will assist the energy planning objectives in the Philippine Energy Plan and promote coordination with on-going NRE activities in the country.

In this regard, we are endorsing the proposed project to the UNDP for GEF assistance. The project will complement the on-going and planned efforts of the government and other entities in the development of the country's NRE by providing capacity building assistance. Likewise, it will lay the foundation for future RE-related projects in the country.

The UNDP has always been supportive of our projects for the GEF. We hope that this endorsement will once again be favorably considered.

Thank you and best regards.

Very truly yours,

  
GREGORIO V. CABANTAC  
Underscretary for ENR, Legal, Lands and  
International Affairs & GEF Operational Focal  
Point

*Let's Go Green!*

Annex 10

Local Project Appraisal Committee Meeting

Project Stakeholders' Consultation Meeting  
Hotel Intercontinental Manila, Ayala Center, Makati City,  
March 1, 2002

1. **Meeting Schedule and Composition of Participants.** The meeting was conducted on March 1, 2002 at Hotel Intercontinental, Makati City. It started at 8:30 a.m. and lasted at 12:00 noon. Invited participants include key government agencies such as DOE, NEDA, DENR-IACCC, project consultants and sub-contractors involved in the PDF-B activities, and representatives from UNDP-Manila, private sector, NRE industry associations, rural electric cooperatives, project developers, NGOs and other community-based organizations. **Attachment A** provides the actual list of participants who attended the meeting.
2. **Meeting Agenda.** The purpose of the meeting was to gather the different comments and suggestions of the major project stakeholders on the final draft of the CBRED Project Document prior to its submission to the UNDP Headquarter in New York within March. It also aimed at getting the full participation and support of the stakeholders during project implementation. Specific to the finalization of the project document, the goals of the meeting were as follows:
  - a) To assess whether the target objectives and expected outputs of the project can be realized within the timetable set for the same.
  - b) To make necessary refinements on descriptions of the specific activities by incorporating additional suggestions of the project stakeholders.
3. **Meeting Organization and Process.** Mr. Reuben E. T. Quejas of DOE hosted the meeting. Specific activities were arranged as follows: (i) Opening Remarks; (ii) Presentation of the PDF-B Activities; (iii) Presentation of the Full CBRED Project; (iv) Open Forum; (v) Project Next Steps; and, (vi) Closing Remarks. Consistent with UNDP-prescribed process of participatory consultation, the meeting participants were allowed to immediately raise their questions during presentations. The meeting also allotted more time on the conduct of the open forum (about one and a half hours) to give the participants the greater chances of explaining their viewpoints on the issues and concerns regarding the project.
4. **Opening Remarks.** Ms. Amelia Supetran of UNDP-Manila gave the opening remark for the meeting. She made a short introduction of the CBRED Project to the participants and mentioned that the meeting aimed at gathering the views and recommendations of the different project stakeholders on the final form of the detailed Project Document for the CBRED Project. She informed the participants of the approval of Project Brief for the Full Project last December 2002. She also mentioned the timeline for the submission of the CBRED Project Document to UNDP within the month of March and the proposed ceremonial signing of the said document among DOE, UNDP-Manila and DENR-IACCC by April 2002.
5. **Presentation of the Results of the PDF-B Activities.** Ms. Maiton Fernandez, Executive Director of ICEE and Project Co-Manager of the PDF-B Project, gave a short background on the preparatory works conducted for the formulation of the Full CBRED Project. In summary, she accounted that the PDF-B activities were conducted for almost two (2) years, which started last March 2000 and was completed last December 2001. She then summarized the ten (10) major PDF-B activities, which

aimed at identifying and designing strategies and specific activities needed to address the various barriers on NRE development in the Philippines. She also enumerated the specific barriers on policy, institutional, planning, information, financing, market development, delivery mechanisms and technology support which had been validated and assessed by the said activities. She concluded that the different activities and strategies that would be implemented under the Full CBRED Project were in fact the results of the findings of the PDF-B activities.

**6. Presentation of the Full GEF Project Summary.** DOE's Mr. Quejas presented the rationale, objectives and purposes, as well as a summary description of the Full GEF Project. He emphasized that the overall goal of the CBRED Project was to reduce the greenhouse gas emissions in the energy sector by replacing fossil use through the utilization of NRE sources and technologies. Consistent with the said objective, Mr. Quejas also explained that the purpose of the project was to remove the existing barriers to NRE development in the Philippines. Then, he also enumerated the six (6) project components that will be implemented in the Full Project and the corresponding barriers that they would address to facilitate the development of a market-based NRE industry in the country. Meanwhile, Ms. Felicissima Arriola of DOE gave the detailed discussion of the project components and the specific activities involved per component. She highlighted the specific activities, which would directly address the barriers on NRE development that the project aimed to remove. She emphasized that the identification of activities for GEF support was based on the results of the incremental cost analysis that was conducted in the preparation of the Project Brief for the CBRED Project. Then, Mr. Quejas completed the presentation of the Project by providing the details of the implementation arrangement of the project as well as the organizational structure of the Project Management Office (PMO) and the Market Service Center (MSC) that will be established during the implementation of the same.

**7. Open Forum and Discussion.** DOE's Mr. Quejas facilitated the open forum, which gave the participants enough opportunity to raise their comments and suggestions regarding the identified project activities and their viewpoints on the various issues involved in the implementation of the CBRED Project. Attachment B summarizes the major issues and suggestion raised during the meeting discussions.

**8. Project Next Steps.** UNDP's Ms. Clarissa Arida informed the participants of the next activities after the conduct of the project stakeholders' meeting. She explained that other concerned international agencies such as the GEF Secretariat, the UNFCCC, the GEF STAP, and the GEF Council as well as the World Bank had already reviewed the six (6) Project Components and necessary revisions had already been made to address the comments of the same. She mentioned that the suggestions of the sector would be used in the finalization of the Project Document and the minutes of the meeting would form part of the same. She added that after the finalization of the document, it would be submitted to UNDP New York for its final approval. Lastly, she explained that the expected start of project implementation would be on April 2002 while the initial activity would be the mobilization of the PMO and MSC officers and staff based on the UNDP-GOP National Project Execution Manual.

**9. Closing Remarks.** Director Francisco Benito of DOE-EUMB closed the meeting with his final remarks that the open forum had facilitated the NRE sector's constructive criticisms of the CBRED Project and enabled the different participants to provide further inputs on the implementation of the barrier-removal activities and strategies under the Project. He also enjoined the participants as well as those who would be fully involved in the Project to have closer look of the implications of the Electric Power Industry Act of 2001 in the NRE development particularly on the aspects of power generation and rural electrification. He also added that the sector must always be prepared on the other developments and should always be fully coordinated to ensure that the five-year implementation of the Project would really address the needs and concerns of the sector.

## Attachment "A". Meeting Participants and Secretariat

No.	Name	Position/Designation	Agency
<b>A. PARTICIPANTS</b>			
1.	Amelia Dulce Supetran	Senior Program Manager	UNDP
2.	Jana Grace P. Ricasio	Program Coordinator,	UNDP
3.	Clarissa C. Arida	Program Manager,	UNDP
4.	Napoleon Y. Navarro	Program Manager	UNDP
5.	Imee F. Manal	Program Manager	UNDP
6.	Morito Francisco	Program Assistant	UNDP
7.	Francisco A. Benito	Director, Energy Utilization Management Bureau	DOE
8.	Reuben E. T. Quejas	Chief, Non-Conventional Energy Division	DOE
9.	Felicesima V. Arriola	Supervising SRS	DOE-NCED
10.	Fortunato S. Sibayan	Supervising SRS	DOE-NCED
11.	Reynaldo V. Liganor	Supervising SRS	DOE-NCED
12.	Ma. Antonia V. Fernandez	Executive Director	ICEE
13.	Tomas Rizo	Manager	EDC-PNOC
14.	Joyceline S. Goco	Head Secretariat	IACCC-EMB-DENR
15.	Nelia Irorita	Director	NEA
16.	Victor Cada	General Manager,	Quezon II Electric Cooperative
17.	Angelito V. Angeles	Professor III	Central Luzon State University
18.	Eric N. Piedad	Manager	SHELL Renewables
19.	Dennis A. Linn	Senior EDS	NEDA
20.	Sonia E. Madamba	OIC - Power and Electrification Division	NEDA-Infra Staff
21.	Vic O. Roaring	Executive Director	REAP
22.	Victoria M. Lopez	Executive Director	SIBAT
23.	Ernie Valdeavilla	Gender Advisor	UNIFEM
24.	Jet Salvatierra	AVP-Window 3	DBP
25.	Eduardo Mandapat Jr.	Program Officer.	LBP
26.	Jesusa Tarun	Account Officer	LBP
27.	Arlene SM. Lafrades	Consultant	
28.	Laurie B. Navarro	President	AED
29.	Rosvid Sunico	Consultant	
30.	Hermingildo J. Bautista	Independent Consultant	
31.	Marcial Semira Jr.	Ind. Program Specialist	US-AEP
32.	Sejio Capareda	Project Leader	UP Biomass Lab
<b>B. MEETING SECRETARIAT</b>			
1.	Alice De Guzman	Senior SRS	DOE-NCED
2.	Rodelio T. Padrique	Senior SRS	DOE-NCED
3.	Ma. Teresa J. Daniels	SRS II	DOE-NCED
4.	Ma. Teresa C. Lizo	PMO Administrative Assistant/Bookkeeper	DOE-NCED



**Attachment "B". Issues and Suggestions vis-à-vis Responses  
Responses/Consensus**

<b>Issues &amp; Suggestions</b>	<b>Responses/Consensus</b>
1. It must be ensured that the GEF funds shall only finance those activities incremental to the existing and planned efforts of the NRE sector.	The activities identified for GEF assistance are based on the Incremental Cost Analysis done for the project. This ensured that the activities are incremental to boost baseline activities.
2. The creation of NREIAC should ensure the participation of the civil society and should not be confined to the government sector alone.	The creation of NREIAC shall seek permanent representatives from NGOs, NRE industry associations and private investors. Attendance of other entities such as LGUs, rural banks, and other concerned government agencies shall also be made in an on-call basis. The actual size of the NREIAC shall also be studied to ensure order and manageability.
3. At present, the Congress is already making consultations on the enhancement and possible passage of the NRE Bill. Thus, there is a need to fast-track the implementation of the project activities on NRE policy and planning to ensure that the various provisions of the NRE Bill shall be studied and enhanced to fully serve the interests of the NRE Sector. DOE should also take the lead in this endeavor.	The participants gave the overall support for the immediate approval of the Project Document for the CBRED Project to ensure immediate implementation of its activities. This will also avoid the possibility that the project activities would be overtaken by the new developments in the energy sector. DOE shall also take lead as the executing agency of CBRED Project. Other parallel activities such as DENR's proposed legislations on sustainable development shall complement the passage of NRE Bill.
4. Failure of the NRE activities in the country has been due to lack of NGO participation in both planning and project implementation.	The activities under the Full Project shall ensure the greater involvement and participation of the NGOs both on policy development, program planning and project implementation. Specific capacity building activities for NGOs and other community organizations are also integrated in the Project.
5. The rural perspectives within the project must be highlighted. The Project should provide direct benefits to the rural sector, particularly the poor households and small rural enterprises in the unelectrified areas.	As indicated in the Project Document, the poor households and small industries in the rural areas are the major beneficiaries of the Project. A table of socio-economic indicators has been included to monitor the project impacts in the rural sector such as on the provision of NRE-based energy services such as basic lighting and energy for livelihood activities.
6. The social impacts of the project on women population must be highlighted.	Since the project shall induce major impacts on the energy needs of the rural households, it shall therefore provide greater support to the improvement of the working and economic conditions of the women living in the rural areas. Another set of gender parameters/indicators is added in the project document for the monitoring of the project impacts to women population.

## Attachment "B". Issues and Suggestions vis-à-vis Responses (Continued)

Issues & Suggestions	Responses/Consensus
<p>7. The involvement of the project consultants must be rationalized. The consultants should only serve as referee or resource person. The actual conduct of activities must remain within the responsibility of the sector. For example, the formulation of project planning and integrated energy planning models in the project must ensure the greater involvement of government's technical officers and staff to enable actual capacity building and transfer of expertise. The consultants to be hired in the activity should only provide advice and expert recommendations on how the said activities shall be conducted.</p>	<p>DOE and UNDP agrees on the suggestion. Whenever possible, the officers and staff of key agencies and other entities shall be fully involved in the actual conduct of various policy studies, project planning, and modeling activities under the project to ensure capacity building and transfer of expertise.</p>
<p>8. The NRE sector must also be capacitated on technology monitoring. Establishment of the local manufacturing capability for commercial technologies such as solar photovoltaic panels and its balance of systems must also be studied. Local capabilities such as by the UP Material Science Department and the UP Solar Laboratory must be considered in the assessment of the same.</p>	<p>The Project focuses on the development and strengthening of the market-based NRE industry in the country. Technology monitoring and enhancement of local manufacturing capability are also included in the Project. Since manufacturing of sophisticated NRE equipment such as solar PV panels is highly capital-intensive, the decision for local manufacturing should be left on the discretion of the NRE investors once the market environment is already favorable for the same.</p>
<p>9. Specific on rural electrification, the Project should adopt the principle of the "Least Cost Approach" using the highest level of technology possible.</p>	<p>The formulation of NRE-based electricity planning model as well as the NRE market simulation model shall be undertaken to identify the suitability of different NRE systems and schemes in rural electrification and the feasibility of NRE technologies for power generation. Said models shall also be utilized to measure the actual size of the NRE market in the country using <u>least cost approach</u>.</p>
<p>10. Development of standards must complement the growth of the market for consumer protection. However, implementation programs for the standards development and labeling must be fully studied to ensure that it would not become another barrier to NRE project implementation.</p>	<p>Component 6 of the CBRED Project will undertake the development of standards for priority NRE technologies. The standards will be used to identify which specific manufacturing and product development improvements should be given financial assistance by the Project to enhance the performance of locally-manufactured NRE systems and devices.</p>
<p>11. Balance on resource availability should be considered in identifying NRE projects in rural barangays. For example, off-grid electrification projects in barangays with high biomass potentials should adopt biomass power systems instead of other technologies.</p>	<p>Identification of demonstration projects that will be supported by the CBRED Project shall take into consideration the local resource availability in the project sites. Conduct of resource assessment shall be made an integral part of the project development and packaging to ensure that appropriate technologies are employed vis-à-vis resources available in the project areas.</p>
<p>12. There must be uniform costing all NRE technologies that will be applied on different projects by all entities (government and private) in the country.</p>	<p>Component 1 of the CBRED Project shall address this issue by providing clear policies and guidelines on cost assessment and pricing of NRE technologies.</p>

ANNEX 11

**A. Part II. Results Framework (items marked are taken from the Country SRFs)**

<b>Intended Outcome as stated in the Country Results Framework:</b> Environment and Natural Resources (ENR) policies/framework, plans, strengthened, rationalised, effectively implemented.
<b>Outcome indicator as stated in the Country Programme Results and Resources Framework, including baseline and target.</b> Improved legislative, institutional and regulatory systems for the protection, regeneration and sustainable management of the environment
<b>Partnership Strategy</b>  The UNDP: (1) seizes opportunities provided by multilateral environmental agreements (MEAs) in the realization of policy measures; and (2) capitalizes on its network of government, private and non-government organizations to conduct advocacy and effect consensus on priority policies and frameworks. Specifically, UNDP partners with key agencies to move the environment and sustainable energy agenda forward and develop the corresponding regulatory and administrative systems. It partners with the Philippine Council on Sustainable Development (PCSD) to promote sustainable development at the national and local levels. It also partners with other UN agencies, multilateral and bilateral donors and NGOs on specific sectoral and thematic concerns.  The UNDP collaborates with key national agencies, regional and local government units, NGOs and the private sector to develop the core capacities of national and local government implementors and their partners as well as to set up the necessary mechanisms to improve ENR services and promote sustainable development at the local level.
<b>Project title and number:</b> PHI/01/G33 Philippines: Capacity Building to Remove Barriers to Renewable Energy Development (CBRED)

Intended Outputs	Output Targets for (years)	Indicative Activities	Inputs
<p>OUTPUT 1.2: REVISED NRE BILL AS WELL AS ITS DRAFT IRR DEVELOPED</p>	<p>Year 1:</p> <ul style="list-style-type: none"> <li>▪ Workshop on NRE Bill reformulation is conducted and documented by 3rd quarter of the year.</li> <li>▪ Scope and limitations of NRE Bill reformulation is approved by NREIAC by end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Workshop to synthesize the revised NRE Bill is conducted and documented by 2nd quarter of the year.</li> <li>▪ Revised NRE Bill made ready for lobbying at the Congress by 3rd quarter of the year.</li> <li>▪ Legislative lobbying commenced by 4th quarter of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Legislative lobbying for passage of NRE Bill continued.</li> <li>▪ IRR for the NRE Bill is drafted by end of the year.</li> <li>▪ Improvements on provisions of NRE Bill are documented.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Legislative lobbying for passage of NRE Bill continued and documented.</li> <li>▪ If any, improvement on NRE Bill is made and documented. Corresponding change in the IRR is also made when necessary</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ Legislative lobbying for</li> </ul>	<p>Activity 1.2.1 Stakeholders Consultation Meeting</p> <ul style="list-style-type: none"> <li>▪ Regular consultation meetings</li> <li>▪ Review of the specific provision of the Electric Power Industry Reform Act (EIRA) and its relevance to the proposed NRE bill</li> <li>▪ Review of the provisions of the Grid Code and Distribution Code</li> <li>▪ Discussions on the EO 462</li> <li>▪ Employing mechanisms to ensure wider utilisation of new and renewable energy</li> </ul> <p>Activity 1.2.2 NRE Bill Analysis and Recommendations</p> <ul style="list-style-type: none"> <li>▪ Revision of the NRE Bill will take into consideration the results of the policy studies conducted under activity 1.3 of the project document</li> </ul> <p>Activity 1.2.3 Drafting of IRR simultaneous to the development of the NRE bill</p> <p>Activity 1.2.4 Lobbying by the DOE and NRE stakeholders</p>	<p>Personnel and equipment for NRE Policy Planning and institutional capacity building as indicated in the budget tables. NRE Bill consultation workshops also indicated in the budget tables.</p>

Intended Outputs	Output Targets for (years)	Indicative Activities	Inputs
	<ul style="list-style-type: none"> <li>▪ passage of NRE Bill continued and documented.</li> <li>▪ If any, improvement on NRE Bill is made and documented. Corresponding change in the IRR is also made when necessary.</li> </ul>		
<p>OUTPUT 1.3: VARIOUS POLICY RECOMMENDATIONS REVIEWED AND PRESENTED TO THE NREIAC</p>	<p>Year 1:</p> <ul style="list-style-type: none"> <li>▪ DOE approves methodology for the conduct of the 3 studies by 3rd quarter of the year.</li> <li>▪ Consultation on NRE policy issues are conducted and documented.</li> <li>▪ NRE Policy recommendations are consolidated by end of the year.</li> </ul> <p>Year 2:</p> <ul style="list-style-type: none"> <li>▪ DOE and NREIAC review findings of the 3 studies during 2nd and 3rd quarter of the year.</li> <li>▪ Recommendations of the studies are incorporated in NRE bill reformulation.</li> <li>▪ Workshop to validate the results of the studies is conducted by end of the year.</li> </ul> <p>Year 3:</p> <ul style="list-style-type: none"> <li>▪ Final reports of the 3 studies submitted to and accepted by DOE.</li> </ul>	<p>Activity 1.3: NRE Policy Analyses</p> <ul style="list-style-type: none"> <li>▪ 1.3.1: Conduct of policy studies <ul style="list-style-type: none"> <li>- NRE electricity policy study</li> <li>- Electricity pricing study</li> <li>- NRE power generation market study</li> </ul> </li> <li>▪ 1.3.2: Conduct of Stakeholders consultation meetings</li> </ul>	<p>Technical experts such as the policy and institutional development specialist and subcontract agreements as indicated in the budget tables. Policy analysis workshop also indicated in the budget tables.</p>
<p>Output 1.4 Different planning models/tools for off-grid NRE electrification including the RESURGE model reviewed and assessed.</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ DOE approves methodology for the assessment of electricity planning models and tools by 3rd quarter of the year.</li> </ul>	<p>Activity 1.4: NRE Planning Model</p> <ul style="list-style-type: none"> <li>▪ 1.4.1 Assessment and upgrading of NRE Planning Models</li> <li>▪ 1.4.2 Development of power generation market stimulation model for NRE projects</li> <li>▪ 1.4.3 Pilot testing and conduct of training on</li> </ul>	<p>Technical expertise in planning and modeling is available. Equipment and personnel as indicated in the budget tables.</p>

Intended Outputs	Output Targets for (years)	Indicative Activities	Inputs
	<ul style="list-style-type: none"> <li>▪ Interim report on existing planning models based on consultations is submitted to DOE by end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Recommendations to enhance current project planning models and tools are presented to DOE by 2nd quarter of the year.</li> <li>▪ Beta-testing of improved electricity planning model/s is conducted by end of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ DOE accepts final report and software for the improved electricity planning models by 2nd quarter of the year.</li> <li>▪ Training workshop on the use of planning tools and models is conducted and documented by end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Use of improved planning models and tools by ECs and other project developers is monitored and documented.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ Use of improved planning models and tools by ECs and other project developers is monitored and documented.</li> </ul>	<p>the use of the models</p>	

Intended Outputs	Output Targets for (years)	Indicative Activities	Inputs
<p>OUTPUT 1.6 M&amp;E SYSTEM FOR NRE POLICY IMPLEMENTATION DEVELOPED AND IMPLEMENTED BY NREIAC</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Policy M&amp;E system is drafted and presented to NREIAC by end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ NREIAC approved the M&amp;E system by 2nd quarter of the year.</li> <li>▪ Overall NRE policy framework is drafted by NREIAC by 3rd quarter of the year.</li> <li>▪ Framework is presented by NREIAC to PSC for approval by end of the year</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Policy interventions made by NREIAC are documented every quarter of the year.</li> <li>▪ M&amp;E Report is submitted by NREIAC to DOE by end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Policy interventions made by NREIAC are documented every quarter of the year.</li> <li>▪ M&amp;E Report is submitted by NREIAC to DOE by end of the year.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ Policy interventions made by NREIAC are documented every quarter of the year.</li> <li>▪ M&amp;E Report is submitted by NREIAC to DOE by end of the year.</li> </ul>	<p>Activity 1.6 Monitoring and evaluation of the impacts of the enforcement of policy, pricing and regulatory measures that are recommended and implemented in order to promote the use of NRE both for power and non-power applications.</p> <ul style="list-style-type: none"> <li>▪ 1.6.1 Definition of the performance monitoring indicators</li> <li>▪ 1.6.2 Development of M&amp;E indicators</li> <li>▪ 1.6.3 Presentation to NREIAC</li> </ul>	<p>Technical expertise in policy and systems. Additional equipment and personnel as indicated in the budget tables.</p>
<p>Output 4.1 Three separate financing mechanisms to support NRE application</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Methodology for the establishment of the Project</li> </ul>	<p>Activity 4.1. Establishment of the NRE fund</p> <ul style="list-style-type: none"> <li>• 4.1.1 Definition of purposes, scope and limitation of funds</li> </ul>	<p>Project preparation fund, loan guarantee fund and micro finance fund as indicated in the budget</p>

Intended Outputs	Output Targets for (years)	Indicative Activities	Inputs
<p>projects established</p>	<p>funds is approved by DOE and presented to NREIC by 3rd quarter of the year.</p> <ul style="list-style-type: none"> <li>▪ Consultations with banking institutions and other entities for funds establishment are conducted and documented.</li> <li>▪ Institutions to implement the Project funds are approved by DOE at end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Agreements with fund implementors are executed by first quarter of the year.</li> <li>▪ Staff trainings for the NRE units of each fund implementor are conducted and documented.</li> <li>▪ Implementation set-up and management arrangements for each project fund are developed and approved by DOE at July of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Eligibility criteria and guidelines for project selection are established by 1st quarter of the year.</li> <li>▪ Funds launched and promoted by the 2nd quarter of the year.</li> <li>▪ Annual reports on the fund utilization status and improvements on funding guidelines are accepted by DOE at end of the year.</li> </ul> <p>Year 4-5:</p> <ul style="list-style-type: none"> <li>▪ Annual reports on the fund utilization status and improvements on funding</li> </ul>	<ul style="list-style-type: none"> <li>• 4.1.2 Identification of implementing institutions</li> <li>• 4.1.3 Establishment of NRE units for the project funds</li> <li>• 4.1.4 Capacity building of funds' implementing institutions</li> <li>• 4.1.5 Development of implementing guidelines and management arrangements</li> </ul>	<p>tables.</p>



Intended Outputs	Output Targets for (years)	Indicative Activities	Inputs
<p>Output 6.2 Financing support programme for local NRE manufacturers, M&amp;E system formulated and implemented.</p>	<p>guidelines are accepted by DOE at end of the year.</p> <p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Inventory of local manufacturers of priority systems and equipment completed by end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ A report on the assessment of local manufacturing capability is submitted to DOE by 2nd quarter of the year.</li> <li>▪ List of manufacturing improvement strategies for financial assistance is submitted to DOE by end of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Support program for manufacturers is developed and documented by end of the year.</li> <li>▪ DOE approves implementing guidelines for the provision of financing support by 2nd quarter of the year.</li> <li>▪ Financing assistance to selected manufacturing firms commenced by the end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Financing assistance given to selected manufacturing firm by mid of the year.</li> <li>▪ M&amp;E system developed and implemented by end of the year.</li> <li>▪ Sustainable follow-up program developed and documented by</li> </ul>	<p>Activity 6.2 NRE technology improvement programme</p> <ul style="list-style-type: none"> <li>▪ 6.2.1 Assessment of capabilities and needs of local NRE manufacturers</li> <li>▪ 6.2.2 Design of sustainable NRE technology development programme</li> <li>▪ 6.2.3 Programme implementation</li> <li>▪ 6.2.4 Monitoring and evaluation</li> </ul>	<p>Technical expertise of the manufacturer's advisor as indicated in the budget tables.</p>

Intended Outputs	Output Targets for (years)	Indicative Activities	Inputs
	end of the year. ■ Documentation of selected manufacturers benefiting from the financial assistance by end of the year.		

**B. Part II. Results Framework (items marked ( are taken from the Country SRFs)**

**Intended Outcome as stated in the Country Results Framework:**

Environment and Natural Resources services streamlined and sustainable development planning and implementation capacity strengthened

**Outcome indicator as stated in the Country Programme Results and Resources Framework, including baseline and target.**

Institutionalisation of the principles of SD in the preparation, implementation and management of national and local plans.

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
Output 1.1: NRE Inter-Agency Committee is established and mobilised.	<p>Year 1:</p> <ul style="list-style-type: none"> <li>▪ NREIAC is made operational by 2nd quarter of the year</li> </ul> <p>Year 1-5:</p> <ul style="list-style-type: none"> <li>▪ Monthly meetings are conducted and documented starting July 2002</li> <li>▪ NREIAC actions on implementation issues of the projects are documented</li> </ul>	<p>Activity 1.1 Establishment of an NRE Inter-Agency Committee</p> <ul style="list-style-type: none"> <li>▪ 1.1.1 Formation of NREIAC</li> <li>▪ 1.1.2 Definition of the functions of the NREIAC</li> <li>▪ 1.1.3 Mobilization and Operation of the NREIAC</li> </ul>	<p>Manpower from government agencies, equipment, technical support and technical experts such as the Chief technical adviser, policy/NUG advisor and energy economist as indicated in the budget tables. Stakeholder consultation workshops also indicated in the budget tables.</p>

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
Output 1.5 Integrated energy planning model adopted by DOE	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ DOE at accepts methodology for the integrated energy planning study by 3rd quarter of the year.</li> <li>▪ Interim report on the assessment of current NRE planning process is submitted to DOE by end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Consultations on integrated energy planning model development is conducted and documented.</li> <li>▪ Design of integrated energy planning model is submitted to DOE by end of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Workshop for the beta-testing of the planning model is conducted by 2nd quarter of the year.</li> <li>▪ DOE accepts final report and software for the integrated energy planning model at end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Use of the model by DOE and other entities is monitored and documented.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ Use of the model by DOE and other entities is monitored and documented.</li> </ul>	<p>Activity 1.5 Integrated Energy Planning</p> <ul style="list-style-type: none"> <li>▪ 1.5.1 Planning review and assessment</li> <li>▪ 1.5.2 Development of NRE integrated energy planning model</li> <li>▪ 1.5.3 Pilot testing of NRE integrated planning model</li> <li>▪ 1.5.4 Design of training on integrated energy planning model</li> </ul>	<p>Technical expertise of an energy economist, equipment and personnel as indicated in the budget tables.</p>
Output 2.1 Market Service Center (MSC) set up.	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ MSC Coordinator and other staff are hired by 2nd quarter of the year.</li> <li>▪ Board of Directors formed by end of the year.</li> <li>▪ MSC organizational structure is approved by NREIAC by end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ MSC operation is commenced by 1st quarter of the year.</li> <li>▪ Annual Report on the services</li> </ul>	<p>Activity 2.1 Set-up a Market Service Center</p> <ul style="list-style-type: none"> <li>▪ 2.1.1 Selection of MSC coordinator and Board of Directors</li> <li>▪ 2.1.2 Selection of MSC Staff</li> <li>▪ 2.1.3 Establishment of MSC Facilities and Equipment</li> </ul>	<p>Institutionalisation of NRE Market services as indicated in the budget tables.</p>

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<p>provided by the MSC is submitted to DOE by end of the year.</p> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ MSC continues to provide market services to various NRE clienteles.</li> <li>▪ MSC Annual Report is submitted to DOE at end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ MSC continues to provide market services to various NRE clienteles.</li> <li>▪ MSC Annual Report is submitted to DOE at end of the year.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ MSC continues to provide market services to various NRE clienteles.</li> <li>▪ MSC Annual Report is submitted to DOE at end of the year.</li> </ul>		

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
<p>Output 2.2 MSC Business Plan formulated, approved and implemented</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Consultations on the potential services of the MSC is conducted and documented during 3rd quarter of the year.</li> <li>▪ DOE approves short listed activities for the initial operation of MSC at end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ MSC Business Plan is drafted and submitted to NREIAC by 1st quarter of the year.</li> <li>▪ MSC Business Plan is finalized and presented to NREIAC for its approval by end of 2nd semester of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ In-house planning of MSC is conducted to revise its business plan by 1st quarter of the year.</li> <li>▪ Revised business plan of MSC is presented to and approved by NREIAC by start of 2nd quarter of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ In-house planning of MSC is conducted to revise its business plan by 1st quarter of the year.</li> <li>▪ Revised business plan of MSC is presented to and approved by NREIAC by start of 2nd quarter of the year.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ In-house planning of MSC conducted to revise its business plan by 1st quarter of the year.</li> <li>▪ Revised business plan of MSC is presented to and approved by NREIAC by start of 2nd quarter of the year.</li> </ul>	<p>Activity 2.2 Preparation of MSC Business Plan</p> <ul style="list-style-type: none"> <li>▪ 2.2.1 Development of Center profile</li> <li>▪ 2.2.2. Preparation of Operational and Business strategies</li> <li>▪ 2.2.3 Preparation of financial plan</li> <li>▪ 2.2.4 Presentation of MSC Business Plan</li> <li>▪ 2.2.5 Operation of the approved MSC Business plan</li> </ul>	<p>Technical expertise in business development and in financial incentives to NRE manufacturers as indicated in the budget tables</p>

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
Output 2.3 Capacity building for MSC staff conducted.	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Capacity building program for the MSC is approved and actual trainings commenced at the end of the year.</li> </ul> <p>Year 2-5</p> <ul style="list-style-type: none"> <li>▪ Trainings of MSC staff continued and documented.</li> </ul>	<p>Activity 2.3 Capacity Building for MSC staff</p> <ul style="list-style-type: none"> <li>▪ 2.1.3 Training Needs Analysis</li> <li>▪ 2.3.2 Design of the training programme</li> <li>▪ 2.3.3 Conduct of the training programme</li> <li>▪ 2.3.4 Performance Evaluation of MSC</li> </ul>	Training program expert as indicated in the budget tables.
Output 3.1 Updated and accessible NRE resource inventory established	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ DOE approves methodology for the conduct of the NRE Resource Inventory by 3rd quarter of the year.</li> <li>▪ Consultations on resource data needs conducted and documented.</li> <li>▪ List of priority NRE resource databases presented to NREIAC by November of the year.</li> <li>▪ Inventory of existing NRE resource databases is presented to NREIAC at the end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Work plan for conduct of additional NRE resource surveys is presented to NREIAC by March of the year.</li> <li>▪ Procurement of resource monitoring tools and software is completed by May of the year.</li> <li>▪ Actual conduct of resource survey is commenced by June of the Year.</li> <li>▪ Report of preliminary results of the additional surveys is submitted to DOE by end of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Conduct of additional resource surveys is completed by the end of the third quarter of the year.</li> <li>▪ Compendium of NRE resource databases is prepared and presented to NREIAC by the end of the year.</li> <li>▪ Both DOE and MSC accept additional</li> </ul>	<p>Activity 3.1 Conduct of NRE Resource Inventory</p> <ul style="list-style-type: none"> <li>▪ 3.1.1 Resource data assessment and classification study</li> <li>▪ 3.1.2 Identification of NRE resource database gaps</li> <li>▪ 3.1.3 Planning and conduct of additional resource surveys</li> <li>▪ 3.1.4 Development of sustainable resource inventory programme</li> </ul>	NRE information and promotion services as indicated in the budget tables.

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<p>resource databases in suitable format by October of the year.</p> <ul style="list-style-type: none"> <li>▪ Final report for NRE Resource Inventory is presented to NREIAC at the end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Updated compendium of NRE resource databases is presented by MSC to NREIAC at the end of the year.</li> <li>▪ Conduct of additional resource surveys shall be continued when necessary</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ Updated compendium of NRE resource databases is presented by MSC to NREIAC at the end of the year.</li> <li>▪ Conduct of additional resource surveys shall be continued when necessary.</li> </ul>		
Output 3.2. National integrated NRE database developed	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Consultation with potential NRE database-keepers are conducted and documented.</li> <li>▪ Institutional set-up for national NRE database is presented to NREIAC by end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Agreements for the establishment of the NRE Database-keepers Committee are made by 1st quarter of the year.</li> <li>▪ First annual meeting of NRE Database-keepers Committee headed by MSC is conducted by March of the year.</li> <li>▪ Scope of NRE database consolidation is approved by Committee by end of the year.</li> </ul>	<p>Activity 3.2 Development of a National NRE Database</p> <ul style="list-style-type: none"> <li>▪ 3.2.1 Consultation with potential NRE database keepers</li> <li>▪ 3.2.2 Establishment of NRE database keepers committee</li> <li>▪ 3.2.3 Database strengthening and capacity development of database keepers</li> </ul>	<p>Technical expertise of an information, promotion and technical support specialist as indicated in the budget tables.</p>



Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	Year 3-5: <ul style="list-style-type: none"> <li>▪ Capacities of NRE database-keepers are strengthened and documented.</li> <li>▪ Annual meeting of the NRE database-keepers Committee conducted and documented.</li> </ul>		
Output 3.3. Integrated NRE information exchange service designed and implemented	Year 1 <ul style="list-style-type: none"> <li>▪ DOE approves methodology for the establishment of the integrated system by November of the year.</li> <li>▪ Consultations for the integrated info system conducted and documented.</li> </ul> Year 2 <ul style="list-style-type: none"> <li>▪ Inventory of existing NRE information and exchange mechanisms is presented to NREIAC by June of the year.</li> <li>▪ Design of the Info exchange system design is presented to NREIAC by 3rd quarter of the year.</li> <li>▪ Agreements among participating agencies and institutions made by November of the year.</li> <li>▪ Info exchange program is presented to NREIAC by end of the year.</li> </ul> Year 3 <ul style="list-style-type: none"> <li>▪ Info dissemination activities conducted and documented.</li> <li>▪ Annual report on the results and evaluation of the info exchange program is submitted to DOE and presented to NREIAC at the end of the year.</li> </ul> Year 4 <ul style="list-style-type: none"> <li>▪ Info dissemination activities conducted and documented.</li> <li>▪ Annual report on the results and evaluation of the info exchange</li> </ul>	Activity 3.3 Integrated NRE Information Exchange Service <ul style="list-style-type: none"> <li>▪ 3.3.1 Assessment of information needs of NRE clientele</li> <li>▪ 3.3.2 Inventory of existing NRE-related information and database</li> <li>▪ 3.3.3 Design of the Integrated NRE information exchange system</li> <li>▪ 3.3.4 Information exchange program design and execution</li> </ul>	Subcontract agreement for a database and exchange TA as indicated in the budget tables.

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<p>program is submitted to DOE and presented to NREIAC at the end of the year.</p> <ul style="list-style-type: none"> <li>▪ Info dissemination activities conducted and documented.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ Annual report on the results and evaluation of the info exchange program is submitted to DOE and presented to NREIAC at the end of the year.</li> </ul>		
Output 3.4 Central NRE website in MSC developed and maintained	<p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Design of the website is presented to NREIAC by end of the year.</li> <li>▪ MSC facility for NRE website is procured by 1st quarter of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ NRE website for MSC is installed by 2nd quarter of the year.</li> <li>▪ Website trainings conducted by July of the year.</li> <li>▪ Website is launched by end of the year.</li> </ul> <p>Year 4-5</p> <ul style="list-style-type: none"> <li>▪ Website promotional activities are conducted and documented.</li> <li>▪ Annual report on website promotion and maintenance is submitted to DOE and presented to NREIAC by end of the year.</li> </ul>	<p>Activity 3.4 NRE website development</p> <ul style="list-style-type: none"> <li>▪ 3.4.1 Website design, implementation and maintenance</li> <li>▪ 3.4.2 Capacity building of MSC for Website maintenance</li> <li>▪ 3.4.3 Promotion of the MSC website</li> </ul>	Personnel and equipment as indicated in the budget tables.
Output 3.5 NRE database consolidated and reformatted to suit the end-users	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ DOE approves methodology for the consolidation of the NRE database by end of the year.</li> <li>▪ Consultations with NRE database-keepers are conducted and documented.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Scope of the database consolidation is</li> </ul>	<p>Activity 3.5 Consolidation of the NRE database</p> <ul style="list-style-type: none"> <li>▪ 3.5.1 Listing of the NRE database for consolidation</li> <li>▪ 3.5.2 Data production/reformatting</li> <li>▪ 3.5.3 Design of the NRE database management system</li> <li>▪ 3.5.4 Implementation of the database management system</li> </ul>	NRE resource inventory as indicated in the budget tables

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<p>presented to NREIAC by 1st quarter of the year.</p> <ul style="list-style-type: none"> <li>▪ Design of the NRE database management system is approved by the Committee and presented to NREIAC by end of the year.</li> <li>▪ Database reformatting and/or reproduction conducted and documented.</li> <li>▪ Database reformatting and/or reproduction commenced.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Implementation of the Database management system is completed by 2nd quarter of the year.</li> <li>▪ Database reformatting and/or reproduction continued.</li> <li>▪ 40% of database consolidation is attained by end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Database reformatting and/or reproduction continued.</li> <li>▪ 80% of database consolidation is attained by end of the year.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ Database reformatting and/or reproduction continued.</li> <li>▪ 100% of database consolidation is attained by end of the year.</li> </ul>		
<p>Output 3.6 Advocacy and promotion programme for NRE developed and implemented.</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ DOE approves methodology on the design of the NRE outreach and promotion program by 2nd quarter of the year.</li> <li>▪ Consultations with target clientele conducted and documented.</li> <li>▪ DOE approves outreach &amp; promo program by end of the year.</li> </ul> <p>Year 2</p>	<p>Activity 3.6 NRE Advocacy and Promotion</p> <ul style="list-style-type: none"> <li>• 3.6.1 Scoping study for the promotion programme</li> <li>• 3.6.2 Programme design and development</li> <li>• 3.6.3 Programme implementation</li> <li>• 3.6.4 Monitoring and evaluation</li> </ul>	<p>Advocacy and promotion campaign TA as indicated in the budget tables</p>

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<ul style="list-style-type: none"> <li>▪ Implementation of outreach &amp; promo program commenced by January of the year.</li> <li>▪ Actual promotion and IEC activities are conducted and documented.</li> <li>▪ M&amp;E report of the program execution highlighting various recommendations are presented to NREIAC at the end of the year.</li> </ul> <p>Year 3-4</p> <ul style="list-style-type: none"> <li>▪ Actual promotion and IEC activities are conducted and documented.</li> <li>▪ M&amp;E report of the program execution highlighting various recommendations are presented to NREIAC at the end of the year.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ A sustainable follow-up outreach and promo program is presented to NREIAC by 3rd quarter of the year.</li> <li>▪ M&amp;E report of the program execution highlighting various recommendations are presented to NREIAC at the end of the year.</li> </ul>		
<p>Output 3.7 Technical support programs and a registration programme for the development of local NRE engineering service industry developed and implemented.</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ DOE approves methodology for the consolidation of the NRE database by 3rd quarter of the year.</li> <li>▪ Results of the capacity needs of the local engineering service firms are presented to NREIAC by end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Listing of NRE-based engineering firms is conducted and documented by the end of the year.</li> <li>▪ DOE approves program of activities for the development of NRE engineering service industry by 3rd</li> </ul>	<p>Activity 3.7 NRE Engineering Service and industry development</p> <ul style="list-style-type: none"> <li>• 3.7.1 Identification of engineering service capacity strengthening needs</li> <li>• 3.7.2 design of NRE of NRE engineering service industry program</li> <li>• 3.7.3 implementation of technical support activities</li> <li>• 3.7.4 implementation of the registration programme</li> </ul>	

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<ul style="list-style-type: none"> <li>▪ quarter of the year.</li> <li>▪ Enhanced design tools for NRE engineering firms are developed by end of the year.</li> <li>▪ DOE approves guidelines for the conduct of registration program by end of year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Trainings on the use of the engineering tools conducted and documented by 1st quarter of the year.</li> <li>▪ Said design tools are disseminated to interested engineering firms by end of 2nd quarter of the year.</li> <li>▪ At least 5 engineering firms are registered by end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Dissemination of the design tools to interested engineering firms continued and documented by 2nd quarter of the year.</li> <li>▪ At least 10 engineering firms are registered by the end of year.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ Dissemination of the design tools to interested engineering firms continued and documented by 2nd quarter of the year.</li> <li>▪ At least 10 engineering firms are registered by the end of year.</li> </ul>		
Output 3.8 Green energy rating programme developed and implemented	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Methodology for the design and conduct of the green energy rating program is approved by DOE and presented to NREIAC by the end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Consultations on the design of the program conducted and documented.</li> </ul>	<p>Activity 3.8 Green energy rating system</p> <ul style="list-style-type: none"> <li>• 3.8.1 Review available information regarding industry energy rating</li> <li>• 3.8.2 Development of measurement and verification scheme</li> <li>• 3.8.3 Formulation of the rating scheme</li> <li>• 3.8.4 Development of rating program</li> </ul>	Service industry development and green energy rating as indicated in the budget tables.

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<ul style="list-style-type: none"> <li>▪ Program design for the conduct of the green energy rating is presented to NREIAC and approved by DOE by the 2nd quarter of the year.</li> <li>▪ DOE approves guidelines for the conduct of rating schemes by end of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Testing of the registration program conducted and documented by 1st quarter of the year.</li> <li>▪ Guidelines and mechanics of the program is finalized and approved by DOE at the 2nd quarter of the year.</li> <li>▪ Rating program is implemented and documented by end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Rating program is implemented and documented by end of the year.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ Rating program is implemented and documented by end of the year.</li> </ul>	<ul style="list-style-type: none"> <li>• 3.8.5 Implementation, monitoring and evaluation of rating scheme.</li> </ul>	
<p>Output 4. 2 Promotional activities and assistance to target project developers provided regarding the three project funds.</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Consultations with project developers on NRE financing needs are conducted and documented.</li> <li>▪ Program for the promotion of Project funds is approved by DOE and presented to NREIAC by end of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Guidebooks on fund applications and project packaging are developed by 2nd quarter of the year.</li> <li>▪ DOE approves MSC assistance in project packaging and in fund application processing by 3rd quarter of the year.</li> <li>▪ MSC activities on (i) promotion of</li> </ul>	<p>Activity 4.2. Assistance Services to Financing Applicants</p> <ul style="list-style-type: none"> <li>• 4.2.1 Development of guidebook on funding applications for the project funds</li> <li>• 4.2.2 Consolidation of various financing sources for NRE projects</li> <li>• 4.2.3 Development of guidebook on NRE project development</li> <li>• 4.2.4 Strengthening of capacity on NRE project packaging and development</li> <li>• 4.2.5 Promotional support to project funds</li> </ul>	<p>Technical expertise of a financial advisor as indicated in the budget tables.</p>

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<p>Project Funds; (ii) Assistance in project packaging; and, (iii) processing of fund applications are documented in its Annual Report.</p> <p>Year 3-5</p> <ul style="list-style-type: none"> <li>▪ At least 20 applicants for each fund processed by MSC by end of the year.</li> <li>▪ MSC activities on (i) promotion of Project Funds; (ii) Assistance in project packaging; and, (iii) processing of fund applications are conducted and documented in its Annual Report.</li> </ul>		
<p>Output 4.3 database of the status of the potential NRE projects for funding support by different financing institutions and donor agencies consolidated and monitored.</p>	<p>Year 2-3</p> <ul style="list-style-type: none"> <li>▪ Promo flyers for 3 Project funds are designed and produced by 3rd quarter of the year.</li> <li>▪ Promo workshop for Project fund on application is conducted and documented by 4th quarter of the year.</li> <li>▪ At least 20 potential applicants for the Project funds have signified expression of interests on fund application.</li> </ul> <p>Year 4-5</p> <ul style="list-style-type: none"> <li>▪ Promo flyers for the Project funds are reproduced and disseminated to target entities.</li> <li>▪ At least 20 potential applicants for the Project funds have signified expression of interests on fund application.</li> </ul>	<p>Activity 4.3 NRE Demonstration Promotion</p> <ul style="list-style-type: none"> <li>• 4.3.1 Establishment of a database of potential NRE projects</li> <li>• 4.3.2 Promotion of MSC Assistance</li> </ul>	<p>Database and exchange TA as indicated in the budget tables</p>
<p>Output 4.4 Criteria for the selection of priority projects formulated and approved</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Consultations and management meetings for the formulation of criteria and procedure on selection of eligible fund applicants are conducted and documented.</li> </ul> <p>Year 2</p>	<p>Activity 4.4 Selection of NRE Projects</p> <ul style="list-style-type: none"> <li>• 4.4.1 Development of funding criteria for each fund</li> <li>• 4.4.2 Development of rules and guidelines for application and funding approval</li> </ul>	<p>Technical advisory missions as indicated in the budget tables.</p>

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<ul style="list-style-type: none"> <li>▪ Criteria and procedure for the selection of eligible fund applicants for each Project funds is developed and approved by 1st quarter of the year.</li> <li>▪ Acceptance and evaluation of funding applications started by 4th quarter of the year.</li> <li>▪ Management meetings on the improvement of criteria and procedure for selection of fund applicants and conducted.</li> <li>▪ Acceptance, evaluation and approval of funds applications for NRE projects are conducted and documented by end of the year.</li> </ul> <p>Year 4-5</p> <ul style="list-style-type: none"> <li>▪ Acceptance, evaluation and approval of funds applications for NRE projects are conducted and documented by end of the year</li> </ul>	<ul style="list-style-type: none"> <li>• 4.4.3 Project selection and approval</li> </ul>	
<p>Output 4.5 M&amp; E program for assessment of the projects supported by the three project funds is formulated and implemented</p>	<p>Year 2</p> <ul style="list-style-type: none"> <li>▪ Consultations on the development of the M&amp;E system for the assessment of NRE demo projects are conducted and documented.</li> <li>▪ M&amp;E system is drafted and submitted to DOE for review by end of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ DOE approves M&amp;E system by 2nd quarter of the year.</li> <li>▪ At least 5 demo projects are assessed using M&amp;E system by end of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ At least 10 demo projects are assessed using M&amp;E system by end of the year.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ At least 15 demo projects are assessed using M&amp;E system by end of the year.</li> </ul>	<p>Activity 4.5 Monitoring and Evaluation of project sites</p> <ul style="list-style-type: none"> <li>• 4.5.1 Establishment of performance indicators</li> <li>• 4.5.2 Development of evaluation framework</li> <li>• 4.5.3 Establishment of a monitoring and evaluation programme</li> <li>• 4.5.4. Implementation of the M&amp;E program</li> <li>• 4.5.5. Review and revision of the funds programme</li> </ul>	<p>Monitoring and evaluation mission as indicated in the budget tables.</p>



Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
<p>Output 4.6 Programme for sustainable financing of NRE projects is developed and proposed for consideration and approval of concerned authorities.</p>	<p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Assessment of the NRE delivery and financing mechanisms program is conducted and documented.</li> <li>▪ Recommendations and findings for the design of the sustainable program on innovative NRE project delivery and DOE accepts financing mechanisms by end of the year.</li> </ul> <p>Year 5</p> <ul style="list-style-type: none"> <li>▪ DOE approves sustainable follow-up program on innovative project delivery and financing mechanisms by end of the year.</li> </ul>	<p>Activity 4.6 Design and implementation of a programme for development of NRE projects.</p> <ul style="list-style-type: none"> <li>• 4.6.1 Overall financing and delivery mechanism review</li> <li>• 4.6.2 Develop recommendations for policy and programme support</li> </ul>	<p>NRE initiatives delivery and financing mechanisms as indicated in the budget tables.</p>
<p>Output 5.1 Training needs assessment and identification of specific clientele for training, seminars, workshops and/or conferences conducted.</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ DOE accepts report on the validation of the training needs of NRE sector by July of the year.</li> <li>▪ DOE approves a 5-year work plan for the training program by 3rd quarter of the year.</li> </ul>	<p>Activity 5.1 Needs Assessment and Planning</p> <ul style="list-style-type: none"> <li>▪ 5.1.1 Scoping study of the training programme</li> <li>▪ 5.1.2 Validation of training needs for the NRE sector</li> <li>▪ 5.1.3 Development of the overall training programme</li> </ul>	<p>Group training as indicated in the budget tables</p>
<p>Output 5.2 Training programme comprising of the identified activities developed, implemented and monitored.</p> <p><i>Note: Design of each training include:</i></p> <ul style="list-style-type: none"> <li>a) Course Syllabus</li> <li>b) Participants</li> <li>c) Lecturers and Resource speakers</li> <li>d) Logistics</li> <li>e) Actual schedule</li> </ul> <p>Training materials</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ DOE approves design of each training course that will be conducted under the Project by the end of the year.</li> <li>▪ Training materials, and training evaluation sheets for each training course are prepared, pre-tested and submitted to DOE one (1) month before the each training course.</li> </ul>	<p>Activity 5.2 Design of the Training Activities</p> <ul style="list-style-type: none"> <li>▪ 5.2.1 Design of training courses</li> <li>▪ 5.2.2 Design and preparation of training materials</li> <li>▪ 5.2.2 Training logistics organisation</li> <li>▪ 5.2.3 Conduct of actual training</li> <li>▪ 5.2.4 Training monitoring and evaluation</li> </ul>	<p>Training on topics such as NRE pricing, project financing, NRE PPA, project management, basic concepts and project appraisal as indicated in the budget tables.</p>
	<p>Year 1-5:</p> <ul style="list-style-type: none"> <li>▪ NRE trainings are conducted and documented.</li> <li>▪ Annual Report on accomplishments</li> </ul>	<ul style="list-style-type: none"> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>▪ 1105 NRE training program (40.000)</li> </ul>

Intended Outputs	Output targets for (years)	Indicative Activities	Inputs
	<ul style="list-style-type: none"> <li>▪ and evaluation of the training program is submitted to DOE by end of the year.</li> </ul>		
<p>Output 5.3 Training programme reviewed using a programmatic approach</p>	<p>Year 4 and 5</p> <ul style="list-style-type: none"> <li>▪ Review of the overall training program is conducted and documented</li> <li>▪ Sustainable follow-up program is drafted and submitted to DOE by end of year 4 and 5.</li> </ul>	<p>Activity 5.3 Sustainable Training Design</p> <ul style="list-style-type: none"> <li>▪ 5.3.1 Evaluate the training program</li> <li>▪ 5.3.2 Develop sustainable follow-up training program</li> </ul>	<p>Training expert as indicated in the budget tables</p>
<p>Output 6.1 Performance indicators for existing NRE equipment and systems developed and measured; national set of standards for NRE equipment and products drafted, reviewed and approved vis-à-vis existing national and international standards.</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>▪ Consultations on NRE system standards and best practices are conducted and documented.</li> <li>▪ List of priority NRE technologies and systems for standards setting is approved by DOE by 3rd quarter of the year.</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>▪ A report on the compendium of NRE system standards and best practices is submitted to DOE.</li> <li>▪ Recommendations on improvement on designs and standards for NRE systems and projects are forwarded to DOE by end of the year.</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>▪ Program on standards development and testing of NRE systems is submitted to DOE by end of the year.</li> <li>▪ DOE approves procedure for the assessment of NRE equipment, devices and systems at 2nd quarter of the year.</li> </ul> <p>Year 4</p> <ul style="list-style-type: none"> <li>▪ Test equipment procured and actual performance assessment conducted by end of the year.</li> </ul>	<p>Activity 6.1 NRE standards development</p> <ul style="list-style-type: none"> <li>▪ 6.1.1 Document best practices on NRE system development and utilization</li> <li>▪ 6.1.2 NRE Equipment/System standard setting</li> <li>▪ 6.1.3 Develop standards and testing program</li> <li>▪ 6.1.4 Establish national standards and prescribed practices</li> </ul>	<p>NRE Observation tour as indicated in the budget tables</p>