



Global Environment Facility

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May 31, 2007

Dear Council Member,

UNDP, as the Implementing Agency for the project, *Namibia: Barrier Removal to Namibian Renewable Energy Programme (NAMREP), Phase II*, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with UNDP procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by the Council in August 2006, and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by UNDP satisfactorily details how Council's comments and those of the STAP have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.theGEF.org. If you do not have access to the Web, you may request the local field office of the World Bank or UNDP to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

cc: Alternates, Implementing Agencies, STAP



REQUEST FOR CEO ENDORSEMENT UNDER THE GEF TRUST FUND


GEFSEC PROJECT ID: 2256
IA/ExA PROJECT ID: 3062, Proposal ID: 00046489
COUNTRY: Namibia
PROJECT TITLE: Barrier Removal to Namibia
 Renewable Energy Programme (NAMREP) – Phase II
GEF IA/ExA: UNDP
OTHER PROJECT EXECUTING AGENCY (IES): MME
DURATION: 3 Years (PHASE 1); 3 Years (PHASE 2)
GEF FOCAL AREA: Climate Change
GEF STRATEGIC OBJECTIVES: CC-2 (access to local
 sources of financing) CC-4 (productive uses of
 renewable energy)
GEF OPERATIONAL PROGRAM: OP-6
COUNCIL APPROVAL DATE: 24 June 2006
COUNCIL APPROVED AMOUNT*: USD 2,6 mil
CEO ENDORSEMENT AMOUNT*: USD 2,6 mil
EXPECTED AGENCY APPROVAL DATE: April 2007
**EXPECTED SUBMISSION DATE OF MID-TERM
 REPORT:** November 2008
EXPECTED GRANT CLOSING DATE: December 2009
**EXPECTED SUBMISSION DATE OF TERMINAL
 EVALUATION/ PROJECT COMPLETION REPORT:**
 November 2009

FINANCING PLAN (\$)		
	PPG**	Project*
GEF Total	N/A	2,600,000
Co-financing	<small>(Provide details in Section d): Co-financing)</small>	
GEF IA/ExA	N/A	0
Government	N/A	855,000
Others	N/A	6,781,000
Co-financing Total	N/A	7,636,000
Total	N/A	10,236,000
Financing for Associated Activities If Any: N/A		

* For multi-focal area projects, indicate agreed split between focal area allocations
 ** May refer also to previous PDF grants
 *** Projects that are jointly implemented by more than one IA or ExA

FOR JOINT PARTNERSHIP***		
GEF PROJECT/COMPONENT (\$)		
UNDP (Agency Name)	100	
(Agency Name)	(Share)	(Fee)
(Agency Name)	(Share)	(Fee)

Approved on behalf of the UNDP. This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for CEO endorsement.


 Frank Pinto
 Executive Coordinator
 UNDP/GEF
 Date: 26 April 2007

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UNDP Project Document

Government of Namibia

United Nations Development Programme

Global Environment Facility

**PIMS 3062 NAM 10(Namibia) 00045670 (Proposal number) 00054005 (Project number) CC FSP:
NAMREP II**

Barrier Removal to Namibian Renewable Energy Programme (NAMREP) Phase II

Brief Description

The NAMREP project aims to (a) improve livelihoods and income generation opportunities of rural people by providing them access to off-grid solar energy technologies (for lighting, radio/TV, water pumping, small electric tools and refrigeration) and (b) reduce the dependency of increasingly expensive imported fuels by promoting solar water heating (to the household, and institutional and commercial sectors) and solar water pumping in the agricultural sector through the removal of barriers capacity and institutional barriers, public awareness and social acceptability barriers, and financial and technical barriers. Thus NAMREP will also contribute to climate stabilization by reducing or avoiding CO₂ emissions in the order of 233,700 tonnes of CO₂ (over a 15-year period).

The project is implemented in two phases. The first phase, which is almost completed, has focussed on technical assistance to achieve barrier removal including considerable capacity building in government, NGOs, finance and other sectors, institutional development, reduction of financial barriers, building public awareness and technological barrier reduction. These activities have paved the way for an accelerated implementation of the solar technologies stimulated by financing schemes for appropriate product delivery mechanisms in the second phase. The first phase started in 2004 for a 2.5-year period until 2006 and has received USD 2.6 million from GEF. The proposed Phase II will start by the end of 2006 and continue for another 2.5 years. The total budget is an estimated US\$ 16.44 million (Phase I: US\$ 6.21 million, Phase II: US\$ 10.20 million) with US\$ 2.6 million solicited now from GEF to cover incremental cost of Phase II (US\$ 2.6 million have been received for Phase I in 2003).

The project outcomes are five-fold and will focus on: (1) capacity building in the public and private sectors and in NGOs, (2) establishing a framework of policies, regulations and action ins support of renewable energy and off-grid electrification, (3) increased public awareness and social acceptability of solar energy technologies, (4) Appropriate financing and product delivery schemes set up and expanded and (5) learning, evaluation and adaptive management.

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Acronyms

APR-PIR	Annual Project Report – Project Implementation Report
APIR	Annual Project Implementation Review
AWP	Annual Work Plan
BW	Bank Windhoek
C/B	Cost Benefit
CO ₂	Carbon Dioxide
CART	Centre for Applied Research and Technology
CPD	Country Programme Document
CPAP	Country Programme Action Plan
CP	Country Programme
CTA	Chief Technical Advisor
DRFN	Desert Research Foundation of Namibia
DKK	Danish crown
DANIDA	Danish Development Agency
DRR	Deputy Resident Representative
ECB	Electricity Control Board
ERP	Expenditure Report
FE	Final Evaluation
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GRN	Government of Namibia
HQ	Head Quarter
IW	Inception Workshop
IR	Inception Report
IT	Information Technology
kWh	kilowatt-hour
MAWRD	Ministry of Agriculture, Water and Rural Development
MME	Ministry of Mines and Energy
M&E	Monitoring and Evaluation
MWTC	Ministry of Works, Transport and Communication
MDGs	Millennium Development Goals
MYFF	Multi-Year Funding Framework
MET	Ministry of Environment and Tourism
Mt	Metric Ton
MWh	Mega watt-hour
MTE	Mid-Term Evaluation
MoE	Ministry of Education
MoU	Memorandum of Understanding
MW	Megawatt
N\$	Namibian Dollars
NAMWATER	Namibian Water Corporation
NAMPOWER	Namibian Power Corporation
NPC	National Planning Commission
NDC	Namibia Development Corporation
NAMSTA	Namibian Solar Technicians Association
NAMREP	Barrier Removal to Namibian Renewable Energy Programme
NCSA	National Capacity Self-Assessment
NHE	National Housing Enterprise
NPM	National Project Manager
NPD	National Project Director
NGO	Non-Governmental Organization

NEX	National Executing Modality
OGEMP	Off-Grid Energisation Master Plan
PE	Premier Electric
PoN	Polytechnic of Namibia
PMU	Project Management Unit
PAC	Project Advisory Committee
PAPI	Project Assistant Policy Implementation
PATI	Project Assistant Technology and Information
PAEA	Project Assistant Economics and Administration
PAFA	Project Assistant Finance and Administration
PSC	Project Steering Committee
PS	Permanent Secretary
PVP	Photovoltaic water pump
RDE	Royal Danish Embassy
RE	Renewable Energy
REDs	Regional Electricity Distributors
REEE	Renewable Energy and Energy Efficiency
REEEI	Renewable Energy and Energy Efficiency Institute
ROAR	Report Oriented Annual Result
RC	Regional Coordinator
REEECAP	Renewable Energy and Energy Efficiency
RET	Renewable Energy Technology
RCU	Regional Coordinating Unit
SENSE	Sustainable Energy Namibian Society
SET	Solar Energy Technology
SHS	Solar Home System
SRF	Solar Revolving Fund
SWH	Solar Water Heater
SMEs	Small Medium Enterprises
SPR	Standard Project Report
SE	Solar Energy
TV	Television
ToR	Terms of Reference
TTR	Terminal Tripartite Review
TPR	Tripartite Review
UN	United Nations
UNAM	University of Namibia
UNFCCC	United Nations Framework Convention on Climate Change
UNDAF	UN Development Assistance Framework
UNDP	UN Development Programme
UNDP CO	UN Development Programme Country Office
USD	US dollar
US\$	US dollar
UNESCO	United Nations Education Scientific Cultural Organization
VAT	Value-Added Tax
W	Watt
W _p	Peak Watt
WVTC	Windhoek Vocational Training Centre

SECTION I: Elaboration of the Narrative

PART I: Situation Analysis

Context and global significance

1. Namibia is a sparsely populated country, with a land area of 824,269 km² and a population of only 1.8 million. It is a lower middle-income country with a GDP per capita close to USD 1,800. However, this figure masks a skewed income distribution and a majority of the population, particularly those in rural areas, continues to live in conditions of relative poverty.
2. The power sector is in the process of reform and power distribution is now in the hands of Regional Electricity Distributors (REDs). According to the 2005 Rural Electrification Master Plan, only 1/3 of Namibia's population has access to electricity (67% for urban areas and 10% for rural areas). Of Namibia's 2,855 rural settlements (260,000 households) about 2,400 are not electrified. Some 131 settlements are officially designated as off-grid by the Master Plan, meaning that some 27,000 households will not have access to the national grid for at least 20 years.
3. Namibia's growing economy will require energy services to facilitate this growth. Other important consideration relates to the impact of energy usage and production on the environment. Much of the current conventional energy consumption relies on non-renewable hydrocarbon fuels of finite quantity, which have to be fully imported to Namibia.
4. The growing need for power for lighting, refrigeration and cooking is currently not being met using grid electricity. Where this need is met, it is done through the use of relatively expensive and fossil-based alternatives such as diesel, paraffin, candles, coal and fuel wood. Given the low rural incomes, coupled with the rising cost of grid electrification, the decreasing value of the Namibian dollar and the dispersed nature of non-electrified settlements, grid expansion deep into rural areas is not a viable option. South Africa is rationalising its power industry and may raise the price of power exports to Namibia, so the government has indicated the possibility of sharp rises in the power tariffs in the near future. All these factors have a number of implications. Firstly, massive investments are required for the grid to reach the rural populations, but the government is lacking these funds. Secondly, the likelihood of low electricity consumption levels will jeopardise cost recovery on grid connections in remote rural areas.
5. According to Namibia's First National Communication to the UNFCCC (2002), Namibia is a net absorber of greenhouse gases. CO₂ removals (in forests and other biomass stocks) equalled 5.7 million tonnes. Of the total emissions of 1.8 million tonnes of CO₂ the energy sector contributed practically all.

Threats, root causes and barriers analysis

6. Without NAMREP Phase II, to implement and consolidate the mitigating recommendations to the barriers identified in Phase I, the following challenges would continue in Namibia:
 - Capacity barriers: general scarcity of human capacity and resources in the private sector, NGOs and in government institutions to identify, design, appraise, manage, advocate and implement sustainable energy projects
 - Institutional and policy barriers: no optimization in ministries' and agencies' recurrent and capital expenditures over full-cycle costs taking RETs into account

- Public awareness and social acceptability: lack of information on benefits of RETs in comparison to other technologies for social and productive uses
 - Financial barriers: High first-cost of RETs and lack of well-marketed, affordable and easily accessible financing schemes for purchase, installation and maintenance for RETs.
 - Technical barriers: Non-existence of norms, standards and codes of practice for performance, manufacturing, installation and maintenance of RETs.
7. The above situation will not only have substantial implications for local communities and the national economy, but will lead to negative global environmental impacts, as the main sources of energy, whether grid connected or isolated, will continue to rely on fossil fuel based sources.
 8. Namibia has one of the best solar regimes in Africa with sunshine available throughout the year. The solar technologies with most scope in Namibia are solar home systems (SHS) – mainly for households and institutional lighting and electrical appliances use; solar water heaters (SWH) – mainly for water heating in households and institutions and photovoltaic pumps (PVP)- mainly for water pumping for communal and commercial farming. There are several companies in Namibia that provide solar energy systems. In addition, one manufacturer produces solar cookers.
 9. Since the start of NAMREP Phase I in 2004, a market for solar energy technologies (SETs) has begun to develop. But the more widespread application of these technologies is hampered by a number of capacity, institutional, technical, financial, information and cultural barriers. NAMREP Phase I has mitigated some of these barriers though not yet fully removed, hence this is what Phase II would focus on.

Institutional, sectoral and policy context

10. The Ministry of Mines and Energy (MME) facilitates and regulates the responsible development and sustainable utilization of these resources. Within the Ministry, the Energy Directorate is responsible for renewable energy research and implementation of renewable energy projects. At present renewable energy is on an unequal footing with conventional fuels and electricity. Key institutional challenges include the establishment of an adequate policy and planning framework, development of human resources and public awareness, adequate financing schemes and improved cooperation between ministries and public institutions on renewable energy.

Stakeholder analysis

11. NAMREP tries to establish effective partnership arrangements for implementation of PV, SWS and PVP technologies with the relevant stakeholders as listed in paragraph 1.4 of Section A, such as the RE entrepreneurs and technicians, financial institutions, stakeholders from the national and local government and, last but not least, the end-users of the technologies. A detailed list of stakeholders is given in paragraph 1.4 of section A.
12. NAMREP Phase I has established effective partnership arrangements for implementation of PV, SWS and PVP technologies with RE entrepreneurs and technicians, financial institutions and stakeholders from the national and local government. NAMREP encourages the establishment of RE associations, e.g., a Sustainable Energy Namibian Society was formed early 2006 with NAMREP support. NAMREP works with financial institutions, such as the Bank of Windhoek and MME's Solar Revolving Fund, on financial mechanisms and with entrepreneurs to look at reduction of investment cost in RET equipment. The National Housing Enterprise (public) and private housing developers have expressed interest in including solar water heating in the houses they develop. Particularly the solar water heater component of the demonstration project will be undertaken in collaboration with these developers and will require inputs from the commercial and development banks to provide financial instruments as part of mortgages or as dedicated loans.

13. NAMREP will cooperate with the REEE Institute, which is a newly established networking organisation on renewable energy and energy efficiency (REEE) at the Polytechnic of Namibia, aiming at coordination and promotion of activities in the area of renewable energy and energy efficiency. DANIDA will provide co-financing support through the REEECAP project that is complementing NAMREP. REEECAP itself will work closely with two NGOs, namely the Desert Research Foundation and the Habitat Research Centre.
14. The Ministries dealing with water supply, health, education, public works, police, and agriculture, all have infrastructural development programmes that provide energy services such as lighting, refrigeration, water-pumping, warm water supply, which could be undertaken using SETs. As such the involvement of the ministries is essential if the project is to successfully integrate the use of solar energy technologies throughout the public sector. The regional electricity distributors (REDs) are involved in the provision of rural electricity and the breadth of their extension of technical and administrative infrastructure throughout Namibia will also contribute to a successful outcome of the project.
15. An Advisory Committee is established for both projects with participation of key stakeholders (including other relevant line ministries, such as MAWRD, education and health, and the National Planning Commission, as well as representatives from private sector and NGOs). This not only ensures cooperation between the two projects but also stakeholder engagement in the projects' execution.

Baseline analysis

16. In the baseline scenario, grid extension and diesel generators for off-grid power supply will continue to be the standard approach of the government, although at low coverage at the rural level, because of the vastness of Namibia's rural areas and the increasingly large cost of power generation and importation. Despite its potential, solar energy in Namibia will continue to be underdeveloped, not only with substantial implications for local communities and the national government, but also for the global environment in terms of contribution to greenhouse gas emissions.
17. In the baseline scenario, the energy situation in Namibia will continue to be characterized by the following aspects:
 - Households and/or communities will have no access to financial resources to develop their locally available solar energy sources and families will remain dependent on the use of inefficient technology (such as candles and batteries for lighting) as energy sources in rural communities or adopt fossil fuel based technologies (such as diesel generators). This has the consequence of limiting evening activities to a minimum and reducing opportunities for income generation or improvements in the quality of education, health, and public service delivery (all of which are significantly improved by a suitable supply of electricity).
 - Few government resources will be directed to SET investment, and the majority of available resources will be dedicated to conventional grid extension. Private investment in renewable energy will not occur because (a) solar energy systems are not perceived as an attractive investment, (b) the regulatory and institutional arrangements promoting solar energy to be distributed are not in place, (c) the market demand for SETs remains small and (d) of the lack of adequate financing availability for SETs.

PART II: Strategy

Project Rationale and Policy Conformity

18. The activities proposed under NAMREP will remove important barriers to the adoption of renewable energy technologies for off-grid applications (solar home systems and solar water pumping) and of solar water heaters, including information, technical, institutional, policy-regulatory and financial barriers. NAMREP is fully

consistent with the GEF Operational Programme 6, 'Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs'.

19. The project will contribute to the following GEF Strategic Priorities:
 - CC-2, 'Increased Access to Local Sources of Financing for Renewable Energy and Energy Efficiency'
 - CC-4 ' Productive Uses of Renewable Energy'
20. The total CO₂ reduction directly attributable to the proposed GEF initiative is 233,700 tonnes of CO₂ over 15 years. Total GEF investment is US\$ 5.2 million, hence the unit abatement cost of the GEF intervention will therefore be 22 US\$ per tonne of CO₂. The indirect CO₂ emission reduction due to replication is an estimated 2.1 million tCO₂.
21. In the alternative scenario, GEF resources will result in leveraging financial and human resources from government, private sector, financial institutions, NGOs and end-users that will be used to implement activities, aiming at lowering the technical, capacity, financial and institutional-policy barriers. This will allow the expanded use of solar and other sustainable energy services and in the longer run to a noticeable market transformation.
22. The original USD 5,2 million, 5-year NAMREP project was split into 2 phases of 2,5 years duration each. The project document and budget for the first phase (USD 2,6m) was endorsed by the GEF CEO in 2003. Subsequently, implementation of phase I activities started in 2004 and will go up to the end of 2006. An independent evaluation of the progress in Phase I was carried out in February 2006 (NAMREP mid-term evaluation). The report recommends that, given the satisfactorily performance of Phase I, NAMREP should be extended into a second phase. This current submission to the work programme of the June 2006 council is for phase II of the NAMREP project, requesting another USD 2,6 million to remove the remaining market barriers. The proposed Phase II will start by the end of 2006 and continue for another 2.5 years.
23. In line with UNDP's adaptive management approach and GEF's learning culture adjustments to the implementation strategy and monitoring framework (including indicators) have been made at 2 critical stages during implementation of phase I. Firstly, at the beginning of phase I the logframe was revised and SMART indicators were designed based on the originally proposed indicators. The new set of indicators allows quantitative measurements of progress and forms the basis of regular data collection during project implementation. After the finalization of the indicators a baseline market survey was commissioned to collect data that is relevant with regard to the selected indicators. The second adjustment to NAMREP was made after the independent evaluation came up with a number of recommendations. These recommendations have been carefully considered and shape the design of the phase II strategy as presented in this proposal. For example: The independent evaluation recommends that Phase II of NAMREP should focus more on the implementation of financing modalities and developing the product supply chain (SET supplier/importer – rural-based solar business end-user) with targeted capacity strengthening activities and financial support mechanisms (supply side). More attention should also be given to development of the rural market for energy services, especially productive uses of energy (demand side). The project strategy for phase II is build around those recommendations.
24. Key achievements of phase I as documented in the evaluation report are as follows: Phase I has prepared the ground by building technical, institutional, policy-making and entrepreneurial capacities and awareness raising. Quote from the evaluation report: *"Regarding NAMREP's performance our conclusion is that the project has performed highly satisfactorily in capacity building and awareness creation as well as in financial barrier removal, but marginally satisfactorily in the policy-institutional barrier removal activities (although due to factors outside the scope of direct influence of NAMREPs' PMU, such as the delay in establishing the REEE Institute).... If this dynamism continues in 2006, the evaluation team believes strongly that the Phase I of the*

project will have performed more than satisfactorily. Therefore, NAMREP should be continued in a follow-up Phase II with a clear focus on implementation of financing and technology delivery and maintenance modalities.” As also reported in the evaluation report NAMREP has been very successful in restructuring the Solar Revolving Fund (SRF) and setting up a financing scheme with a commercial Bank.

25. Phase II will continue to address the capacity, awareness and policy-institutional barriers, but will focus on supporting innovative loan and grant mechanisms that will be extended through the Solar Revolving Fund (SRF) of the Ministry of Mines and Energy (MME), the Namibian banking sector (such as Bank Windhoek) and parastatal institutions (such as the development bank Agribank and the housing delivery agent Namibian Housing Enterprise). The SRF provides soft loans for solar energy technologies (SETs). Loans awarded by the SRF have risen to 345 annually (in 2005) compared to 52 annually in average over the last 3 years after the restructuring of the SRF. In Phase I of NAMREP, an MoU was signed between MME and Bank Windhoek in which the bank provides a credit line for small solar energy entrepreneurs as well as personal loans for PVP, SHS and SWH at attractive interest rates, made possibly by the partial guarantee provided by MME to the bank. The SRF and Bank Windhoek credit schemes are described briefly in Annex D. In Phase II these credit schemes will be scaled up with GEF support and replicated to other financial institutions.
26. NAMREP aims at expanding the use of SET's in three principal markets, namely:
 - SETs that substitute an existing conventional energy service, such as SWH for the provision of hot water, replacing electric geysers, and PVP in commercial farming, replacing diesel pumps;
 - SETs for the off-grid rural markets, such as SHS and PVP in farming households to provide a new modern energy service for social uses (lighting, radio/TV) and productive uses (farming, small rural businesses, cold beverage shops);
 - PV applications (SWH, PVP and SHS) in public institutions (e.g. schools, clinics, and police posts) for lighting, radio/TV, refrigeration and telecommunications.
27. Regarding the first market, Phase II will continue to raise awareness on the benefits of using solar water heaters (in public institutions and electrified households) and PVP for commercial farming vis-à-vis conventional solutions and electric geysers). Here, the issue is substitution of an already existing energy services (electric geysers and diesel-powered water pumps) with sustainable energy options (solar water heaters and solar PV pumps). The public or private building owner and commercial farmers need to be convinced that SWHs and PVPs are cost-effective technologies and, where the initial investment cost is a barrier, need to be helped with a commercial loan facility, such as by the SRF or Bank Windhoek schemes.
28. Special attention will be given in Phase II in developing the rural market for solar energy technologies. In the past some demonstration projects were implemented with very limited impact. The bulk of the market for SETs will have to build around commercial activities with the private sector engaging in sales and after-sales. First, it is important to strengthen the supply chain from SET supplier (mainly based in Windhoek) to locally based technicians and small solar energy entrepreneurs down to the end user. This implies providing technical and entrepreneurial training to rural-based technician to expand their services into small solar energy businesses that sell SETs to a local market they now well and by providing a maintenance service of sufficient quality. This supply chain needs to be backed up with appropriate credit facilities for supplier and rural solar entrepreneur and by facilitating interactions between SET supplier and the rural-based solar entrepreneurs. Second, it is important not only to remove barriers to the penetration of solar technology (supply side) but of barriers to the development of the market for social and productive uses of renewable energy (demand side) as well. Here the first cost barrier is of particular importance. Most rural people cannot easily afford any of the modern energy technologies (neither cash nor conventional loan schemes), but social acceptability will be higher if SETs generate income, by linking up with productive activities (such as the use of PV in agriculture, e.g. productivity increases by solar-powered irrigation or small rural enterprises, e.g., cottage industries, small shops, *shebeens*).
29. The third market is formed by the public sector that has to optimise its recurrent and capital expenditures over full life-cycle cost with full considerations for SET options, such as SWH in urban and rural public buildings

(e.g., in school hostels and clinics) and PV application in rural services (education, clinics, police stations, communications).

30. It is important that potential users of these SETs, whether government, community, wealthy or poor individuals see financial benefits from the use of the technologies from day one and be able to access finance so that they can *feel* first cost reduction benefits from day one of the installation of their solar system. Similarly it is important for suppliers, financiers and technicians to see improved sales and increased financial benefits as a result of financial barriers being removed to their enterprises.

Project Goal, Objective, Outcomes and Outputs/activities

31. The mid-term evaluation recommends rationalising the original list of 6 components (NAMREP Phase I) into 4 components (1. capacity building, 2. policy-institutional, 3. awareness and social acceptability and 4. financing and product delivery schemes) plus adding a new component on learning, evaluation and adaptive management. Therefore, the proposed project for phase II has 5 main components each composed of 1 outcome, several outputs and associated activities that will contribute to the removal of the identified barriers. The *outcomes* of the NAMREP project phase II, and the associated *outputs*, are listed below:

Outcome 1: Built capacity in public and private sectors¹ and in NGOs

- 1.1 Training programmes for public and private sector and NGOs have been established and executed
- 1.2 Decentralized RET companies are adequately supported
- 1.3 Vocational and training centres are capacitated and providing technical training on SETs

Outcome 2: New policies, laws, regulations and actions in support of renewable energy are in place

- 2.1 Policy and regulatory frameworks for renewable energy and off-grid electrification are formulated
- 2.2 Government ministries and public institutions finance and implement solar technologies and projects
- 2.3 The REEE Institute is established at the Polytechnic of Namibia and functioning well

Outcome 3: Increased public awareness and social acceptability amongst stakeholders

- 3.1 Comparative information on cost and benefits of SETs is developed
- 3.2 Increased knowledge of SETs among potential end-users and national and regional decision-makers. Feasibility of introducing the 'SETs Kit for the Poor' explored.
- 3.3 Active networks or associations of stakeholders are in place
- 3.4 Information Kit documenting appropriate and inappropriate appliances for RETs/SETs

Outcome 4: Appropriate financing and product delivery² schemes set up and expanded.

- 4.1 The Solar Revolving Fund (SRF) has been scaled up and expanded
- 4.2 Financing schemes through (semi)-commercial financing institutions for customers and solar entrepreneurs have been set up and/or scaled up

Outcome 5: Learning, evaluation and adaptive management

- 5.1 **Monitoring and evaluation**
- 5.2 Lessons learned are documented and disseminated

¹ As a result of the appraisal meeting, it was recommended to mainstream issues of gender and HIV/AIDS which can have negative impacts on capacity building efforts.

² As a result of the appraisal meeting, it was recommended that the issue of affordable access by the poorest of the poor shall be prioritized and facilitated through the financial schemes.

Project Indicators, Risks and Assumptions

32. Key indicators of success for the project include those listed below. NAMREP's Logical Framework has been revised at the beginning of phase I and then again during the design of phase II with updated indicators for project performance and impacts, reflecting the experiences gained in Phase I. As much as possible indicators used in phase I will also be used in phase II thus assuring consistent tracking of impacts over a longer time span.

Environmental:

33. Avoided emissions of greenhouse gases due to the application of SETs and reduced dependence on imported electricity and fossil fuels from South Africa. Direct reduction in CO₂ emissions is an estimated 233,700 tCO₂

Market:

Substantial increase of sales of SETs

Economic and social:

34. Enhanced livelihood and income generating opportunities in rural communities
Energy and cost savings for public institutions, urban households and commercial farmers
Empowerment of local solar technicians and enabling them to set up small solar businesses

Capacity building, awareness creation and knowledge dissemination:

35. Strengthened capacity in the operation, maintenance and after-sales services on solar technologies
Strengthened capacities of stakeholders from government, private sector and NGOs in identifying, promoting, marketing and investing in solar energy technologies
Strengthened capacity of training institutes to provide courses on solar energy technologies
Increased awareness and acceptance by the end-users of SETs for social and productive uses

Policy-institutional:

36. An enabling policy and regulatory framework with consolidated plans for the promotion of renewable energy and off-grid electrification
Adoption of 'rules of the game' (codes of practice, norms and standards) by the private sector and the Government
Willingness of decision-makers to base decisions on SETs on the knowledge acquired

Financial:

37. Strengthening and capitalisation of affordable credit schemes for small solar entrepreneurs and for customers in public and private financial institutions
A strategy to reduce the first cost barrier of SETs is in place

38. Important project assumptions are:

Fuel and power prices will slowly go up
Long-term financial and political support of the Government and its institutions, in particular MME
Active interest of end-users in acquiring SETs

39. During the project design stage, project risks have been closely analysed and mitigation strategies have been incorporated. However, while the project is designed to minimize these risks, some issues are not entirely within the project's control but may affect project implementation. These risks are listed below.

Policy-institutional:

40. Despite the looming power shortage, renewable energy fails to become a Government priority
While co-financing from MME for the direct interventions of NAMREP is assured, the sustained long-term contribution and larger-scale expansion of the Government's financial resources for renewable energy and off-grid electrification fails to materialize

Social, market and financial:

41. Due to the remote location and low population density, SETs may be difficult to supply and maintain in Namibia's rural areas, access to financing for remote communities may be difficult, while the markets for products and services of the productive uses of energy may be too small or situated too far away from other markets
The interest of PV suppliers and financial institutions to develop the rural PV market by cooperating with local agents (technicians, small solar entrepreneurs) may shift to other markets

Expected global, national and local benefits

42. The increased sales of solar energy technologies (SETs) due to NAMREP's intervention will result in the avoided greenhouse gas emissions of approximately 233,700 tons of CO₂-equivalent over the lifetime of the SET installations (15 years). An estimate of the indirect impact of this project, resulting from replication (continuously growing sales of SETs after the project's end) is in the order of 2.1 million tonnes of CO₂.
43. Removal of barriers to the more widespread use of SETs will also provide the private sector with the incentive to improve their services and rural-based solar technicians to extend or set up new small and medium-sized enterprises (SMEs) for the sale of SETs. This will benefit rural people in that they will have access to environmentally clean electricity services without the long wait for the arrival of grid-connected power and that it helps them to set up small RE SMEs that will contribute to 'black empowerment'. Urban customers will have access to solar water heaters that will help them to save on their electricity consumption.
44. In addition to bringing these global and local benefits, the project is consistent with Namibia's development priorities. It will increase the use of the indigenously available solar energy resource and decrease dependency in imported power (or imported fuels to generate that power) required to meet current and future additional power demand.

Country Ownership: Country Eligibility and Country Drivenness

45. Namibia is eligible for GEF financing and ratified the UN Framework Convention on Climate Change (UNFCCC) on the 16th May 1995.
46. One effort to address UNFCCC priorities was the launch of Namibia's First National Communication to the UNFCCC in 2002, which established a GHG inventory and identified and vulnerability issues and policy measures. In Namibia, the Ministry of Environment and Tourism (MET) coordinates the formulation, implementation, and follow up of the national environmental policies and programs. MET acts as both the UNFCCC focal point and the GEF Operational and Political Focal Point. The proposed project is relevant to the on-going MET climate change programme, in particular to its efforts to develop a national mitigation plan and support the development of technologies that reduce GHG emissions, including renewable energy technologies (RETs).
47. In the White Paper on Energy Policy (1998) the Government of Namibia recognises the importance of renewable energy in improving access to energy in rural areas (rural households, businesses, public services and water supply) as well as in generating electricity for the grid and the more rational use of electricity in buildings and for water heating, as is explained in more detail in paragraph 1.2.
48. Both the Country Programme Document (CPD) and Country Programme Action Plan (CPAP) 2006-2010 of the Government of Namibia and UNDP identify key challenges in meeting Vision 2030 and the Millennium Development Goals (MDGs) and is based on UNDP's Multi-Year Funding Framework (MYFF) 2004-2007, while the outcomes are linked with the UN Development Assistance Framework (UNDAF) for Namibia 2006-2010. The CP has a component on 'energy and environment for sustainable development' and one of its

outcomes is ‘promoting biodiversity, renewable energy technologies and environmental education’ with ‘barriers to the delivery of solar and biomass energy systems removed’ as an output. The CPAP refers to MYFF outcome 10, ‘clean energy technologies promoted through energy efficiency, renewable energy and technology demonstrations’.

Sustainability

49. Institutional Sustainability: To ensure sustainability of the project results upon completion of the project, MME, the new REEE Institute and also the new Sustainable Energy Namibian Society (SENSE) will continue to play the role of prime movers in policy formulation and planning as well as promotion and implementation of renewable energy activities in Namibia. By attaching middle-level managers and technicians to the PMU and seconding MME staff to the PMU the project shall have trained a pool of experts whom the MME, REEE Institute and the private sector may re-deploy for their own long-term renewable energy activities. There are various options for the continuation of the PMU at the end of this project, for example, the unit may continue in MME, it may be taken over by the REEE Institute or staff will go to private and non-governmental organisations. Appropriate decisions would be made before the end of the project.
50. Institutional mechanisms for this continuity are provided through the steady flow of funds into capacity building, awareness raising and other barrier removal activities that creates an enabling environment in which the market for solar energy services can thrive, driven by the demand in the urban areas (solar water heaters) and rural areas (solar home systems and solar water pumping).
51. Financial Sustainability: The foundation for financial sustainability has been laid in phase I through the restructuring of the SRF and the signing of a MoU with a commercial bank (Bank of Windhoek) putting in place a credit guarantee scheme. During NAMREP phase I, the SRF has been completely restructured which resulted in an increase of loans for the purchase of SHSs, PVPs and SWHs of approximately 700%³. This is considered a key achievement in order to overcome the high first cost barrier. The restructured SRF needs to be further supported during phase II to ensure long-term financial sustainability of the fund. The success of the SRF is resulting in rapid “decapitalization”. The demand for loans cannot be met. Sufficient capital is provided to meet the rapidly increasing demand for loans Provide technical advice and contribute to capitalization so that these have sufficient working capital. Activities under outcomes 4 of the phase II proposal suggest to continue strengthen the SRF technically and financially. After the end of phase II the SRF would continue to operate as a revolving fund using funds from the recovered loans to award new loans to customers. Annex D describes in some more detail the success story of the SRF. In the long run, the energy shops and commercial banks’ services will substitute the need for a SRF. A long-term exit strategy need to be explored during the implementation of the recently completed Off-Grid Energisation Master Plan (OGEMP) for Namibia, which recommends a national approach to sustainable energy services for customers in off-grid, pre-grid and grey areas. OGEMP considers the approach of ‘energy shops’, which will sell and avail, among other things, a broad range of renewable energy technologies and appliances. These would be available to households and businesses of all income levels within the 13 administrative regions. As part of the exit strategy, scaling-up financial mechanisms and strengthening more commercial banks to provide and include RETs in the normal banking business, will be crafted to serve the growing customer base, which ultimately also substitute the need for the SRF.
52. In addition to the restructured SRF another financing scheme has been set up during phase I to address the financing barrier and ensure long-term financial sustainability. A MoU was signed in February 2006 between MME and the Bank of Windhoek in which the bank provides a credit line for small entrepreneurs as well as

³ Average number of loans awarded by the SRF per annum between 2001 and 2004 was 52; since April 2005 372 loans have been awarded.

personal loans for PVP, SHS and SWH at attractive interest rates, made possible by the partial guarantee provided by MME to the bank. In Phase II these credit schemes will be scaled up with GEF support and replicated to other financial institutions such as the development bank Agribank and the housing delivery agent Namibian Housing Enterprise. Activities under outcome 4 of the phase II proposal and annex D describe this in more detail.

53. SET Market Sustainability: NAMREP will provide business support services for the private sector, especially the development of rural-based solar technicians into small entrepreneurs (RE SMEs). These RE SMEs are an essential link in the supplier/RE SME/end-user chain, by providing products and services in the rural market that they know well. Thus sustainability essentially lies in the stimulation of market mechanisms that allow the penetration of SWH and PVP as a least-cost alternative for electric geysers and diesel pumps and of PV as an off-grid electrification option.
54. In addition to strengthening credit schemes and making these more affordable for (rural) low-income groups, NAMREP will focus on productive uses of energy in rural areas. Additional income generated at the local level will allow end users to pay more easily for the energy services provided by SETs, while development of the productive use itself will improve the livelihoods of rural households.

Replicability

55. The replicability of the project hinges on the project's ability to clearly demonstrate the financial and social benefits of solar energy. While Phase I focused on removing barriers through capacity building, institutional strengthening, policy planning, public awareness and information dissemination, the strategy of Phase II will shift to transforming the market by creating a favourable enabling environment (including an appropriate policy and regulatory framework for RET and off-grid energy and) and promotion of affordable financial guarantee and loan schemes for RETs. Private entrepreneurs can then seize the opportunity of a transforming market and take over the investment process to develop win-win models in which end users have willingness to pay for the initial investment and cost of maintenance of the RETs. Thus, NAMREP project focuses on developing and facilitating market-oriented financing and product delivery modality that will allow stakeholders to invest in renewable energy. It is expected that not only PV suppliers (based in Windhoek), but especially their agents, the small RE entrepreneurs based in the rural areas, will expand their business and that more rural-based technicians will develop their services into a viable solar energy business.
56. Finally, the replication of the project's results will be promoted through active dissemination and lessons learned. NAMREP actively works on information dissemination and public awareness enhancement activities, in the form of public exhibitions, multi-media presentations, dissemination of public information, and conduct of training courses, seminars and workshops. This means also that the project will engage in an active dialogue with similar GEF and non-GEF projects, particularly in Southern Africa, to both share the Namibian experience and learn from others.

PART III: Management Arrangements

57. The proposed Phase II will build on efforts carried out through the NAMREP Phase I project and other initiatives in Namibia, incorporating their lessons learned and experiences.
58. Some lessons learned from the above-mentioned projects can be summarized as follows:
 - Decentralized energy projects should be based on local energy needs and enhance end-user involvement at the planning and design stage. Local conditions, potential energy uses and social context should determine the choice of technological options. Local participation, including financial participation to, at minimum, cover operational and maintenance costs, is essential to the success of technology promotion;

- Projects need to go beyond technology demonstration towards building an enabling environment at local, national and regional levels, which is essential to increase private sector participation. This also includes infrastructure and capacity building for distribution, installation, maintenance and operation of renewable energy technologies (RETs);
 - New funding and financing approaches, involving the private sector, need to be developed to ensure that projects influence the development of sustainable markets for RE technologies. This is essential both to ensure the sustainability of individual projects and to leverage private sector finance capital for new initiatives that replicate project benefits;
 - The design of renewable energy projects that promote productive activities need to have a clear understanding of the productive use potential in the beneficiary community, to ensure adequate energy supply and financial viability;
 - Increased attention should be paid to social issues during project site selection to ensure that project benefits reach all segments of rural society, alleviate poverty and decrease economic and social disparities;
 - Off-grid power projects must be integrated in a broader and well-conceived rural development and national electrification strategies.
59. NAMREP Phase II will build upon these initial experiences and achievements, especially in its components on financing and implementation mechanisms, to make best use of the knowledge and expertise already available. The envisaged NAMREP activities will put in place conditions for replication of a variety of pilot activities, by promoting a policy, regulatory and market context favourable for the continued development of solar energy services.

Project management

60. The second phase of the Project will be implemented over a period of three years beginning in early 2007. Project activities will be executed by the MME with the support of UNDP as the GEF Implementing Agency following National Execution Modality (NEX). As the Government executing agency, the MME will be responsible for project coordination and management, monitoring adherence to the work plan, and final delivery and attainment of the project objective which forms the basis for project execution. The MME and UNDP will channel the funding contributions to the Project Management Unit (PMU) through the request for direct payment or advance payment modality, whichever is appropriate.

Project Steering Committee (PSC)

61. The highest decision making body for the project remains the **Project Steering Committee (PSC)** which will be chaired by the Permanent Secretary (PS) of MME and will meet on a quarterly basis. The UNDP DRR will serve as the alternate chairperson, and will assume this function in the absence of the PS. The PSC will include the PS, the director and deputy director of Energy, UNDP, the National Project Manager (NPM), Chief Technical Advisor (CTA), the GEF Operational Focal Point, ECB and any other person, nominated by the PSC and approved by the Chairperson. NPM would serve as Secretary of the PSC. The PSC role will be:
- To supervise and approve the appointment of technical staff
 - To supervise project activities that are coordinated by the Project Management Unit (PMU) through monitoring its progress and analyzing reports
 - To review and approve work plans and financial plans/reports
 - To provide direction for project implementation

Project Advisory Committee (PAC)

62. A Project Advisory Committee (PAC) will be established as the principal consultative body and will meet quarterly during the implementation of NAMREP Phase II. The PAC will have participation key stakeholders (including other relevant line ministries (such as agriculture, education, gender, rural development, health, works and transport, and the national planning commission, as well as representatives from private sector and NGOs). In order to ensure cooperation and collaboration between NAMREP and REEECAP, the PAC will be jointly organised by REEECAP and NAMREP with the Project Directors or Managers co-chairing the meetings. NAMREP will cooperate with the REEE Institute, which is a newly established networking organisation on renewable energy and energy efficiency (REEEI) at the Polytechnic of Namibia, aiming at coordination and promotion of activities in the area of renewable energy and energy efficiency. DANIDA will provide co-financing support through the REEECAP project that is complementing NAMREP. REEECAP itself will work closely with two NGOs, namely the Desert Research Foundation and the Habitat Research Centre.
63. The PAC will have the following roles:
- Provide strategic advice to the PMU/MME on the implementation of project activities to ensure the integration of activities with poverty alleviation, MDGs, national development plan three and sustainable development objectives
 - Ensure coordination/complementarities between the Project and other ongoing energy and renewable energy activities in the country
 - Ensure inter-agency coordination
 - Ensure full participation and involvement of stakeholders in project activities
 - Provide technical backstopping to the project

Project Management Unit (PMU)

64. The Project Management Unit (PMU) will continue to be located within the MME; and shall be responsible for day-to-day implementation of all project activities, including direct supervision of those activities that maybe contracted to consultants. The structure and composition of project management in Phase II is refined to meet the Phase II strategy – focusing on actual implementation and monitoring; as well as to ensure administrative efficiency. The PMU will be chaired by the MME Director of Energy acting as National Project Director (NPD) under the direct supervision of the NPM who will coordinated all day-to-day activities of the PMU and has the highest decision-making at PMU level. A Chief Technical Advisor will support the PMU and MME by being responsible for upstream RE policy and technical aspects and inputs as well as quality control of the outputs in his/her capacity as technical advisor to the PMU, MME and REEEI. The PMU will also be assisted by a MME-seconded Project Assistant, project assistants following project outcomes; and an office assistant. In addition, a Project Assistant: Finance and Administration will be based at the UNDP CO to provide day-to-day implementation support services for NAMREP as well as to backstop the smooth processing of payments. Individual or group of experts will be hired to provide strategic and part-time support for some key outputs to the PMU from time to time on short term contracts. The TORs for these will be the responsibility of the NPM with technical support of the NPD and CTA who will be responsible for reviewing and providing technical clearance to the work of consultants including quality check and control for the associated products and deliverables.
65. The PMU will mainly comprise of the followings (detailed TORs are included in Part III):
- **National Project Director (NPD):** Director of Energy Directorate
 - **National Project Manager (NPM)** – in-charge of co-ordinating the day-to-day management and operations of the project. *Reporting to the NPD. Project Management expert.*
 - **Chief Technical Advisor (CTA)** – in-charge of upstream RE, technical and policy advisory and monitoring services to the PMU, MME and REEEI. *Reporting to the NPM and NPD. Energy expert.*

- **Project Assistant: Policy Implementation (PAPI)** - assist the PMU in policies, laws, regulations and actions in support of renewable energy implementation. This PMU member will be seconded by the MME.
 - **Project Assistant: Technology and Information (PATI)** – assist the PMU in all public awareness and social acceptability activities and the operation of the PMU IT systems. *Tertiary Graduate.*
 - **Project Assistant: Economics and Administration (PAEA)**– assist the PMU on financing and product delivery schemes set up and expansion; as well as other RE market growth stimulation initiatives. *Tertiary Graduate.*
 - **Project Assistant: Finance and Administration (PAFA)** – assist the PMU in the day to day financial systems management and project finances disbursements. This PMU member will be based at the UNDP CO in the event of the PMU operating under the RDP mechanism Administrative *and accounting experience with advance knowledge of ATLAS system.*
 - **Office Assistant: Transport, Logistics and Clerical Services** - assist the PMU with all transportation, messenger, clerical and event preparations services. *Driving experience. Secondary Education.*
66. In order to ensure close coordination among relevant GEF projects and co-financing projects, the PAC will include and invite the co-financiers and project coordinators from other GEF projects. In particular managers of the DANIDA supported REECAP will be invited to all PSC and PAC meetings, and workshops. The PMU will also share progress reports and all other relevant documents with other GEF projects. Furthermore, it will participate actively in the activities of other projects where applicable.
67. UNDP will be accountable to GEF for project delivery and will have ultimate responsibility for supervising project monitoring, guiding implementation activities and contracting staff if requested by the MME. UNDP will provide technical backstopping and it will monitor adherence to the work plan. UNDP will participate in project implementation and stakeholder’s consultations as well as contribute to the strategic running of the project.
68. NAMREP is promoting effective partnership arrangements for the implementation of solar energy technologies with the relevant stakeholders, such as RE entrepreneurs and technicians, financial institutions, stakeholders from the national and local government and, last but not least, the end-users of the technologies. Relevant stakeholders include:
- *Government ministries and institutions:* Ministry of Mines and Energy, Ministry of Environment and Tourism, National Planning Council, Ministry of Finance, Ministry of Agriculture, Water and Rural Development, Ministry of Trade and Industry, Ministry of Higher Education, Training and Employment, Ministry of Works, Transport and Communications, Ministry of Women Affairs and Child Welfare, Solar Revolving Fund (managed by Konga Investments), Regional Councils
 - *NGOs and parastatals:* Gobabeb Training and Research Centre, Desert Research Foundation of Namibia, Namibia Nature Foundation, Ibis, Namibia Wildlife Resorts, NamWater, Telecom Namibia, Habitat Research and Development Centre, Agribank, Electricity Control Board, NamPower, Regional electricity distributors, National Housing Enterprise
 - *Capacity building organizations:* Polytechnic of Namibia, University of Namibia, Windhoek Vocational Training Centre
 - *Financial institutions:* NedBank, Bank Windhoek, First National Bank
 - *Donor agencies:* Denmark, Finland, UNDP
 - *Private sector and individuals:* Private housing developers, RE suppliers (e.g., Solar Age, Soltec, NEC), RE technicians, Namibian breweries, Engineering and consultant bureaus (CSA, EmCon, Craddle)
 - *Users* (households, building owners, communal farmers, commercial farmers)
69. NAMREP Phase I has established effective partnership arrangements for the implementation of PV, SWS and PVP technologies with RE entrepreneurs and technicians, financial institutions and stakeholders from the national and local government. NAMREP has encouraged the establishment of a renewable energy association and in 2006 the Sustainable Energy Namibian Society (SENSE) was formally established. NAMREP works pro-actively with financial institutions, such as the Bank of Windhoek and MME’s Solar Revolving Fund, on financial mechanisms and with entrepreneurs to look at the reduction of investment cost in RET equipment.

70. In Phase II, NAMREP will continue to cooperate with the REEE Institute, which is a newly established networking organisation on renewable energy and energy efficiency at the Polytechnic of Namibia with the objective of coordination and promotion of activities in the area of renewable energy and energy efficiency. DANIDA provides co-financing support through the REEECAP project that is complementing NAMREP. REEECAP is implemented by the Polytechnic of Namibia and focuses on (a) strengthening the capacity of REEE Institute, (b) efficient use of energy in low-cost housing and (c) capacity building on renewable energy, energy efficiency and rural development. REEECAP was scheduled to run in parallel with NAMREP Phase I, but only started operating in 2006. Although administration of the REEECAP and NAMREP projects is separate, NAMREP and REEECAP will liaise closely and harmonise execution of activities. REEECAP itself will work closely with two NGOs, namely the Desert Research Foundation and the Habitat Research Centre.
71. The Ministries dealing with water supply, health, education, public works, police, and agriculture, all have infrastructural development programmes that provide energy services such as lighting, refrigeration, water-pumping and warm water, which could be undertaken using SETs. As such the involvement of the ministries is essential if the project is to successfully integrate the use of solar energy technologies throughout the public sector. The regional electricity distributors (REDs) are involved in the provision of rural electricity and the breadth of their extension of technical and administrative infrastructure throughout Namibia will also contribute to a successful outcome of the project.
72. The National Housing Enterprise (public) and private housing developers have expressed interest in solar water heating in the houses they develop. Private banks, such as Bank Windhoek, are actively contributing to the project by means of the implementation and marketing of financial instruments for purchasing SETs and supporting solar entrepreneurs.
73. NAMREP and REEECAP will liaise closely and harmonise execution:
- The Project Directors and/or project managers of REEECAP and NAMREP sit in each other's Project Steering Committee
 - An Advisory Committee is established for both projects with participation of key stakeholders (including other relevant line ministries, such as MAWRD, education and health, and the National Planning Commission, as well as representatives from private sector and NGOs). This not only ensures cooperation between the two projects but also stakeholder engagement in the projects' execution.
74. Namibia's UNDP Country Office is fully committed to assist Namibia in facilitating access to sustainable energy services to rural poor. The frameworks for UNDP activities in sustainable energy in Namibia are the Country Programme Plan (CPP) and Country Action Plan (CPAP) 2006-2010. NAMREP is an essential component in the operationalization of these strategies, which mention 'barriers to the delivery of solar and biomass energy systems removed' as one of the outputs. Finally, the proposed project is fully compatible with UNDP's mandate in assisting developing countries in reaching the Millennium Development Goals, particularly MDG-7 (environmental sustainability).
75. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent -- and separated from the GEF logo if possible, as UN visibility is important for security purposes."

PART IV: Monitoring and Evaluation Plan and Budget

76. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF. The Logical Framework Matrix in Annex 1 provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. These will form the basis on which the project's Monitoring and Evaluation system will be built.

77. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

Kick-off, Phase 2

78. A *Phase 2 Kick-Off Workshop* will be conducted by the full project team with the the Project Advisory Committee (and Project Steering Committee and the UNDP-CO, to which other relevant stakeholders as mentioned and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate.

79. A fundamental objective of this Kick-Off Workshop will be to assist the project team to finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

80. Additionally, the purpose of the Workshop will be (i) to discuss the roles and complementary responsibilities of the PSC, PAC, UNDP CO and RCU staff vis-à-vis the project team (in order to clarify for all each party's responsibilities during the project's implementation phase); (ii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the combined Annual Project Report (APR-PIR) as well as the Phase 2 final evaluation. Equally, the Kick-Off Workshop will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings and (iii) discuss the Terms of Reference for project staff (as needed).

Monitoring responsibilities and events

81. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the first AWP. Such a schedule will include: (i) tentative time frames for Steering and Advisory Committee meetings and (ii) project related Monitoring and Evaluation (M&E) activities.

82. *Day to day monitoring* of implementation progress will be the responsibility of the National Project Manager, based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

83. The Project Manager and the CTA will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Phase 2 Kick-Off Workshop with support from UNDP-CO and assisted by the UNDP-GEF Regional Coordinating Unit. The targets of the logframe for the first year implementation progress indicators together with their means of verification will be fine-tuned at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

84. Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Initiation Workshop and tentatively outlined in the indicative Impact Measurement Template (see Table 2). The measurement, of these will be undertaken through subcontracts or retainers with relevant institutions or through specific studies that are to form part of the projects activities.
85. *Periodic monitoring* of implementation progress will be undertaken by the Project Steering Committee through monthly meetings and UNDP CO through quarterly meetings with Fundación Solar or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.
86. UNDP Country Office and UNDP-GEF RCU staff can conduct, as appropriate, visits to the project and project that have field sites to assess first hand project progress. Any other member of the Project Steering Committee can also accompany, as decided by the Committee. A Field Visit Report will be prepared by the CO and circulated no less than one month after the visit to the project team, all PSC members and UNDP-GEF.
87. *Annual Monitoring* will occur through the Annual Project Report (APR). The APR-PIR will highlight policy issues and recommendations for the decision of the PSC participants. The Project Coordinator also informs the project participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

Project reporting; learning and knowledge sharing

88. The National Project Manager in conjunction with the CTA and UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (e) are mandatory and strictly related to monitoring, while items (f) and (g) has a broader function and the frequency and nature is project specific to be defined throughout implementation.

a) Annual Work Plan (AWP). A detailed First Year/Annual Work Plan (AWP), divided in quarterly time-frames detailing the activities and progress indicators, will guide implementation during the first year of the project. This AWP would also include the dates of specific field visits and support missions from UNDP CO or RCU staff or Technical Advisors. The AWP will also include the detailed project budget for the year, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame. The AWP will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related (co-financing) partners, as needed. In addition, a section will be included on progress since the kick-off of Phase 2 and an update of any changed external conditions that may effect project implementation. When finalized the AWP will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the AWP, the UNDP Country Office and UNDP-GEF's Regional Coordinating Unit will review the document.

b) Annual Project Report (APR-PIR)⁴. The APR was a UNDP requirement, while the PIR (Project Implementation Review) was an annual monitoring process mandated by the GEF. These were combined in one report (APR-PIR) to facilitate central oversight, monitoring and project management. It is a self-assessment report by project management to the CO on the project's outcomes and impacts (see also Box 1), providing inputs to the CO reporting process, as well as forming a key input to the UNDP/GEF M&E Unit, which analyzes the APR-PIRs by focal area, theme and region for common issues/results and lessons.

⁴ The APR (Annual Project Report) was a UNDP requirement, while the PIR (Project Implementation Review) was an annual monitoring process mandated by the GEF, and that are now combined to facilitate central oversight, monitoring and project management.

Box 1 Impact measurement

Impact indicators, such as given in the table below, will be drawn from the Logframe Matrix and are related to the measurement of global benefits achieved by the project rather than project implementation progress. They will be fine tuned and detailed in the Inception Workshop) and will be in accordance with the APR-PIR impact measurement template.

Project Impact Metrics for Climate Change Indicators

CC Performance Indicator	Impact Metric
Annual CO2 reduction	Emissions avoided (Mt CO2/year) ¹ during PIR reporting period
Cumulative CO2 reduction	Emissions avoided (Mt CO2) ¹³ since start of project
Market transformation	Number of markets that the project has influenced, developed or transformed
Improvement of awareness and understanding of technologies among producers and users	Type of instrument (e.g. capacity building, etc.)
	Number of people reached with the instrument
	Replication effects triggered by the instrument
Annual electricity production from grid-connected or off-grid (for rural projects)	RE sources that were installed under influence of the project and MWh/year produced
Annual installed RE capacity	MW/year installed
Cumulative installed RE capacity	MW installed since project start
Income generation	Number of people with improved income as a result of project intervention
Development of sectoral policies, laws and regulations that support project goals	Adoption/creation/enactment of new policies and legislation for on-grid renewables
	Scope of influence (e.g. regional, national, etc.)
Expansion of business and supporting services for renewable energy	Number of additional businesses with project-related purposes (e.g., RE SMEs emerged for RE services and products provision)
Increase of financing availability and mechanisms	Financing modality (e.g. microfinance, credit risk facility, commercial credit, etc.)
	Newly accessible lending volume for applications targeted by project (\$)
	Annual volume of investments (\$) in RE capacity installation as a direct result of the project
	Cumulative volume of investments (\$) in RE capacity installation as a direct result of the project

c) *Quarterly Progress.* Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office (and forwarded to the UNDP-GEF RCU) by the Project Coordinator.

d) *Periodic Thematic Reports.* As and when called for by UNDP(-GEF) or PSC, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP will allow reasonable timeframes for their preparation by the project team.

e) *Project Terminal Report.* During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs, objectives met (or not achieved!) of the Project, as well as lessons learnt and structures and systems

implemented. It will also lay out recommendations for any further steps that need to be taken to ensure sustainability and replicability of the Project's activities.

f) Technical Reports. Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APR-PIRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

g) Project Publications. Project Publications will form a key method of crystallizing and disseminating the results, achievements and impacts of the Project. These publications are informational texts on the activities and achievements of the Project, in the form of journal articles, multimedia publications, etc. These publications can be based on Technical Reports or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Project or Technical Reports merit formal publication, and will also (in consultation with UNDP, the government and other relevant stakeholder groups) plan and produce these Publications in a consistent and recognizable format. Project resources will need to be defined and allocated for these activities as appropriate and in a manner commensurate with the project's budget.

89. Results from the project will be disseminated through a number of existing information sharing networks and forums. The project will participate, as relevant and appropriate, in UNDP and GEF sponsored knowledge networks, organized for staff working on activities that share common characteristics. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on-going process and communicating such lessons is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

Independent Evaluation

90. The project will be subjected to An independent Final Evaluation will take place three months prior to the project's termination date and will focus on the same issues as the mid-term evaluation (of NAMREP, i.e. de final evaluation of Phase 1, which was carried out in February 2006) and, in addition, will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this Final Evaluation will be prepared by the UNDP CO, based on guidance from the UNDP-GEF RCU.

Audit clause

91. The Government will provide the UNDP Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

TABLE 1: INDICATIVE MONITORING AND EVALUATION WORK PLAN AND CORRESPONDING BUDGET

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team Staff time</i>	Time frame
Kick-Off Workshop (KW)	<ul style="list-style-type: none"> ▪ Project Manager ▪ UNDP CO ▪ UNDP GEF RCU 	5,000	Within first two months of project start up
Annual Work Plan	<ul style="list-style-type: none"> ▪ Project Manager and Team ▪ UNDP CO ▪ UNDP-GEF RCU 	None	Immediately following KW and every year
Measurement of Means of Verification for Project Logical Framework Indicators (at kick-off of Phase 2 and at the end)	<ul style="list-style-type: none"> ▪ Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members 	After KW Indicative cost 150,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	<ul style="list-style-type: none"> ▪ Oversight by Project Manager and CTA 	To be determined as part of the Annual Work Plan's preparation. Indicative cost xxxx	Annually prior to APR/PIR and to the definition of annual work plans
APR-PIR	<ul style="list-style-type: none"> ▪ Project Team ▪ UNDP-CO ▪ UNDP-GEF 	None	Annually
PSC and PAC meetings	<ul style="list-style-type: none"> ▪ Project Manager ▪ UNDP CO 	None	Following Project KW and at least four times a year
Technical reports and project publications	<ul style="list-style-type: none"> ▪ Project team ▪ Hired consultants as needed 	20,000	To be determined by Project team and UNDP CO
Final Evaluation (external)	<ul style="list-style-type: none"> ▪ Project team, ▪ UNDP-CO ▪ UNDP-GEF RCU ▪ External Consultants (i.e. evaluation team) 	30,000	At the end of project implementation to be conducted in 2008
Terminal Report	<ul style="list-style-type: none"> ▪ Project team ▪ UNDP-CO ▪ External Consultant 	None	At least one month before the end of the project
Lessons learned	<ul style="list-style-type: none"> ▪ Project team ▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc) 	9,000	Yearly
Audit	<ul style="list-style-type: none"> ▪ UNDP-CO ▪ Project team 	2,000	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	<ul style="list-style-type: none"> ▪ UNDP Country Office ▪ UNDP-GEF Regional Coordinating Unit (as appropriate) ▪ Government representatives 	18,000	Yearly
TOTAL INDICATIVE COST (Excluding project team staff time and UNDP staff and travel expenses)		US\$ 234,000	

Learning and Knowledge Sharing

92. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums, such as UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics and that largely function on the basis of an electronic platform. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned.
93. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identifying and analyzing lessons learned is an on-going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end, a percentage of project resources will need to be allocated for these activities.

PART V: Legal Context

94. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Namibia and the United Nations Development Programme, signed by the parties on July 15, 1977. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.
95. The UNDP Resident Representative in Namibia is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:
 - a) Revision of, or addition to, any of the annexes to the Project Document;
 - b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
 - c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
 - d) Inclusion of additional annexes and attachments only as set out here in this Project Document

SECTION II: STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENT

PART I: Incremental Cost Analysis

Project background

96. The main objective of this initiative is to put mechanisms in place that will create a favourable environment for private entrepreneurs to seize the opportunity of a transformed market and take over the investment process ensuring sustainability and replicability in the longer term. The implementation of the project will not only improve the commercial attractiveness of solar energy technologies. It will also transform the market through capacity building, institutional strengthening, public awareness and information dissemination, provision of financial incentives, technical standardization and the implementation of successful SET delivery, maintenance, ownership and financing models.
97. The project also aims to (a) improve livelihoods and income generation opportunities of rural people by providing them access to off-grid solar energy technologies (for lighting, radio/TV, water pumping, small electric tools and refrigeration) and (b) reduce the dependency of increasingly expensive imported fuels by promoting solar water heating (to the household, and institutional and commercial sectors) and solar water pumping in the agro-commercial sector. This can be achieved through the removal of capacity, institutional, public awareness and social acceptability, financial and technical barriers. The project incremental costs (to GEF) include these barrier removal activities as well as funding the incremental costs associated with management and dissemination of experiences and lessons learned. Five main groups of activities have been designed to remove the identified barriers to increased and sustained development of small-scale solar energy applications. The incremental costs related to the removing the barriers identified and summarized in the Incremental Cost Matrix.

Incremental cost assessment

Baseline

98. In the baseline scenario, grid extension and diesel generators for off-grid power supply will continue to be the standard approach of the government, although at low coverage at the rural level, because of the vastness of Namibia's rural areas and the increasingly large cost of power generation and importation. Despite its potential, solar energy in Namibia will continue to be underdeveloped, not only with substantial implications for local communities and the national government, but also for the global environment in terms of contribution to greenhouse gas emissions.
99. In the baseline scenario, the energy situation in Namibia will continue to be characterized by the following aspects:
- Households and/or communities will have no access to financial resources to develop their locally available solar energy sources and families will remain dependent on the use of inefficient technology (such as candles and batteries for lighting) as energy sources in rural communities or adopt fossil fuel based technologies (such as diesel generators). This has the consequence of limiting evening activities to a minimum and reducing opportunities for income generation or improvements in the quality of education, health, and public service delivery (all of which are significantly improved by a suitable supply of electricity).
 - Few government resources will be directed to SET investment, and the majority of available resources will be dedicated to conventional grid extension. Private investment in renewable energy will not occur because (a) solar energy systems are not perceived as an attractive investment, (b) the regulatory and

institutional arrangements promoting solar energy to be distributed are not in place, (c) the market demand for SETs remains small and (d) of the lack of adequate financing availability for SETs.

Project Goal

100. The goal to which the project contributes is *“to increase affordable access to sustainable energy services thus contributing to climate stabilization by reducing or avoiding CO₂ emissions and improving livelihoods and income generation of rural people”*.

GEF Alternative

101. In the alternative scenario, GEF resources will result in leveraging financial and human resources from government, private sector, financial institutions, NGOs and end-users that will be used to implement activities aiming at lowering the technical, capacity, financial and institutional-policy barriers mentioned before. This will allow the expanded use of solar and other sustainable energy services and in the longer run to a noticeable market transformation.
102. The project is implemented in two phases. The first phase focussed on technical assistance to achieve barrier removal including considerable capacity building (in government, NGOs, finance, and other sectors), institutional development, reduction of financial barriers, building public awareness, and technological barrier reduction. These activities have paved the way for an accelerated implementation of the solar technologies impelled by financing schemes for appropriate product delivery mechanisms in the second phase. The first phase started in 2004 for a 2.5-year period until 2006. The proposed Phase II will start by the end of 2006 and continue for another 2.5 years.

Systems boundary

103. The geographical boundary of the proposed full-sized project is the national territory of Namibia, covering both urban and rural areas.

Summary of costs

104. The total cost of the proposed GEF alternative is US\$ 16,446,000, which divided in two phases:
- Phase I: US\$ 6,210,000, in which GEF finances the incremental cost of US\$ 2.6 million
 - Phase II: US\$ 10,200,000, in which GEF finances the incremental cost of US\$ 2.6 million
105. The co-financing of both Phases of NAMREP consists of cash contributions of US\$ 10.42 million, coming from the Government (MME), donors and private banks as well as a Government in-kind contribution valued at US\$ 200,000.

Global benefits

106. The increased sales of solar energy technologies (SETs) due to NAMREP's intervention will result in the avoided greenhouse gas emissions of approximately 233,700 tons of CO₂-equivalent over the lifetime of the SET installations (15 years). An estimate of the indirect impact of this project, resulting from replication (continuously growing sales of SETs after the project's end) is in the order of 2.1 million tonnes of CO₂.

INCREMENTAL COST MATRIX FOR NAMREP - PHASE II

	BASELINE	ALTERNATIVE	GEF INCREMENT
OUTCOME 1			
Built capacity in public, private sectors and NGOs			
1.1 Training programmes for public and private sector and NGOs have been established and executed	Private and public sector capacity for quality intervention with regard to SETs will be low, especially in rural areas	Increased human and institutional capacity to sustain a SE programme in Namibia	Staff from private sector, government officials and NGOs appropriately trained; Rural technicians have been trained to provide acceptable quality services
1.2 Decentralised RET companies are adequately supported	Suppliers and financial institutions will not join forces to build up a functioning supplier – rural technician/SME – end user chain Cash sales of SETs (as is currently the case) will continue without much growth, supplemented by small donor-funded demonstration projects	Local technicians have been strengthened into (emerging) RE businesses that focus on rural clients, selling SETs and providing after-sales service	Provide training on technical aspects and business planning for local solar technicians and small RE entrepreneurs
1.3 Vocational and training centres are capacitated and providing technical training on SETs	Vocational training on SETs is weak or non-existing	Technology knowledge and human resource base on the installation of SETs, monitoring and after-sales services has been improved	Assist training centres with capacitating through provision of earmarked courses
COST	US\$ 0	GEF: US\$ 210,000 Co-financing: \$ 315,000 (REEECAP)	GEF: US\$ 181,000 Other: US\$ 315,000 (REEECAP)
OUTCOME 2			
New policies, laws, regulations and actions in support of renewables are in place			
2.1 Policy and regulatory frameworks for RE and Off-Grid Electrification	Planning, let alone policy-making regarding SETs will not take place; Standards and codes of practice regarding SETs will not be developed	Recommendations from RE and Off-Grid Plans are inputs into policy dialogue on RE; PV standards and codes of practices are formalised in a regulatory framework	RE Action and Off-Grid Master Plan are formulated; PV standards and codes of practice have been formulated or strengthened
2.2 Government ministries and public institutions finance and implement solar technologies and projects	RE consideration will hardly be incorporated into planning; Initiatives on rural energy, RE and electrification will be uncoordinated	Solar energy related activities are integrated into national and sectoral development plans, including the allocation of funding for their implementation	Assessments on how SETs can be made part of sectoral and national policy and planning; Decision-makers plan in a more integrated manner regarding renewable energy
2.3 The REEE Institute is established at the Polytechnic of Namibia and functioning well	REEE Institute strengthened, but without involvement in MME planning and policy-making	REEE Institute substantially strengthened and ready to take over non-core activities from MME	REEE Institute substantially strengthened, in coordination with PMU

	BASELINE	ALTERNATIVE	GEF INCREMENT
COST	US\$ 200,000 <i>(MME)</i>	GEF: US\$ 181,000 Co-financing: \$ 538,750 <i>(REEECAP, MME)</i>	Total GEF: US\$ 181,000 Other: US\$ 338,750 <i>(REEECAP)</i>
OUTCOME 3 Increased public awareness and social acceptability amongst stakeholders			
3.1 Comparative information on demand for and costs and benefits of SETs is developed	Neither reliable data on costs and benefits of SETs (vs. conventional alternatives), nor comprehensive data on demand for energy services in rural areas and SETs in general exists	Technical and costs comparisons between SETs and conventional options are available and updated as well as info on demand for energy services and opportunities for social and productive energy uses in rural areas	Analysis and surveys are carried out to determine technical characteristics and costs of SETs and their application potential in urban and rural areas
3.2 Increased knowledge of SETs among potential end-users and national and regional decision-makers	Limited PR activities take place by MME and RET suppliers, but most consumers are not fully aware of the potential of utilising SETs as a means of saving money or as a means for development and income generation; National and regional decision-makers are not sensitised with respect to the role of SETs in electrification, energy savings and rural development	Increased awareness with end users on costs and benefits, where to source SETs and how to finance them (thereby creating a necessary condition for increased acceptance and uptake of SETs; Increased awareness and changed perceptions with key decision-makers (hereby creating a basis for the policy framework building of Component 2)	To develop targeted awareness and information packages for decision-makers and end-users and organise appropriate ways of delivering these packages
3.3 Active networks or stakeholder associations in place	Various stakeholders in the RE sector share information on an occasional basis	The SE sector joins forces to organise and lobby for activities that could assist the sector as a whole	Provide assistance for setting up a renewable energy association or society in Namibia
COST	US\$ 60,000 <i>(MME)</i>	GEF: US\$ 275,900 Co-financing: \$ 222,500 <i>(REEECAP, MME)</i>	GEF: US\$ 275,900 Other: \$ 162,500 <i>(REEECAP)</i>
OUTCOME 4 Appropriate financing and product delivery schemes set up and expanded.			
4.1 The Solar Revolving Fund (SRF) has been scaled up and expanded	The success of the SRF is resulting in rapid “decapitalization”. The demand for loans cannot be met.	Sufficient capital is provided to meet the rapidly increasing demand for loans	Provide technical advice and contribute to capitalization
4.2 Financing schemes through (semi)-commercial financing institutions for customers and solar entrepreneurs have been set up and/or scaled up	Financial institutions have difficulty or not interested in providing loans for SETs; Limited funds are available for end-users and rural RE businesses	Financing mechanisms for end-users are available (for social and productive uses) as well as for rural-based small RE entrepreneurs	Design, testing and scaling up with GEF support of viable financing mechanisms with existing financial institutions

	BASELINE	ALTERNATIVE	GEF INCREMENT
COST	US\$ 500,000 (SRF, MME)	GEF: US\$ 1,302,000 Co-financing: \$ 6,126,000 (Finnish, MME, SRF, RE schemes with banks)	GEF: US\$ 1,302,000 Other: US\$ 5,626,000 (Finnish loan: \$ 3,626,000; RE schemes with banks: \$ 2,000,000)
OUTCOME 5 Learning, evaluation and adaptive management			
5.1 Monitoring and evaluation	Limited capacity available in MME to develop, design and monitor a solar energy programme	Increased capacity in MME to sustain a SE programme in Namibia; Evaluation of the impact of NAMREP's intervention (impacts have been measured)	PMU/MME staff trained on-the-job to undertake SE project activities; Design and study of baseline and target value of indicators (e.g., CO ₂ reduction, SET market development, social and income generation impacts), serving as a annual monitoring and evaluation tool
5.1 Lessons learned are documented and disseminated	No structured learning and dissemination activities; Limited ability to learn and exchange info within and outside Namibia	Lessons learned, especially on the financial and delivery mechanisms, provide a basis for policy-making on RETs; Improved understanding on the potential of RETs in electricity supply and in rural development	Lessons learned documented and a dissemination mechanism is in place
COST	US\$ 0	Total: US\$ 2,638,700	GEF: US\$ 302,100
Project management	US\$ 95,000 (MME)	GEF: US\$ 329,000 Co-financing: \$ 433,750 (REEECAP, MME)	GEF: US\$ 329,000 Other: US\$ 338,750 (REEECAP)
Total project	<i>Without the project, the energy sector development will continue to be based on fossil fuels (diesel, grid electricity). Off-grid rural communities will lack access to modern energy sources</i> <i>Annual sales are 190 SHS, 100 PVP and 115 SWH systems; Baseline emissions avoided due to SET sales is 95,350 tCO₂ (over 15 years)</i>	<i>Directly resulting from NAMREP, a path for sustainable market penetration with SETs will emerge;</i> <i>Total sales over GEF's duration of 5 years are: SHS: 3604, PVP: 784 and SWH: 1511 with a combined CO₂ emission avoidance of at least 233,660 tCO₂ (over a 15-year period)</i> <i>2,100,000 tons of CO₂ will result indirectly from project replication.</i>	<i>With a clear mandate to promote initiative including positive global impact, GEF is supporting a valuable effort to integrate global climate change and national development and energy security aspects.</i> <i>The availability of affordable credit (in combination with awareness campaigning), the following systems are installed annually in 3 years, (2006-2009): SHS: 885; PVP: 95 and SWH: 312 with a combined CO₂ emission avoidance of 138,310 tCO₂ (over a 15-year period)</i>
Total cost	US\$ 855,000 (MME)	GEF: US\$ 2,600,000 Co-financing: \$ 7,636,000 (Finnish, RE bank, MME, SRF, Danida-REEECAP)	GEF: US\$ 2,600,000 Other: US\$ 6,781,000 (Finnish, bank RE schemes, REEECAP)

BASELINE AND EMISSION REDUCTION CALCULATIONS

Assumptions:

<i>SET system</i>	<i>Emissions avoided</i>	
	<i>(tCO2/year)</i>	<i>Price (US\$, 2004)</i>
- 50 W SHS	0.191	1,100
- 660 W PVP	2.524	9,000
- 200 I SWH	8.545	1,950

Source: UNDP-GEF project document NAMREP (Phase 1)

Emission calculation - baseline

<i>SET system</i>	<i>Total sales over 5-year period</i>	<i>Annual GHG avoidance (tCO2/a)</i>	<i>GHG avoidance over 15 years (tCO2)</i>
- SHS	950	181	2,722
- PVP	500	1,262	18,930
- SWH	575	4,913	73,701
Total		6,357	95,352

Source sales data: Baseline study NAMREP, Consulting Service Africa (2005)

Emission calculation - GEF increment

<i>New credit available for SETs</i>	<i>Amount (US\$) (2004-2008, Phase I +II)</i>	<i>Comment</i>
<i>New credit schemes</i>		
SRF	1,300,000	New SRF loans (apart from baseline loans)
RE schemes with BW & other banks	2,000,000	
Finnish loan for off-grid electrification	3,000,000	
GEF micro-credit	1,000,000	In support of SRF and RE schemes
Total	7,300,000	

Assumption: the availability of new or expanded credit schemes leads to higher sales of SETs (in addition to baseline sales)

<i>SET system</i>	<i>Price (US\$, 2004)</i>	<i>Total amount of loans in new credit schemes</i>	<i>Average system price (US\$)</i>	<i>Number of systems sold</i>
- 50 W SHS	1,100	2,920,000	1,100	2,654
- 660 W PVP	9,000	2,555,000	9,000	284
- 200 I SWH	1,950	1,825,000	1,950	936
Total		7,300,000		

<i>SET system</i>	<i>Total sales in new credits schemes</i>	<i>Annual GHG avoidance (tCO2/a)</i>	<i>GHG avoidance over 15 years (tCO2)</i>
- SHS	2,654	507	7,603
- PVP	284	717	10,748
- SWH	936	7,997	119,959
Total		9,221	138,310

Calculation of direct emission reduction of GEF alternative

<i>SET system</i>	<i>Total sales in periods 2004-2008</i>	<i>Annual GHG avoidance (tCO2/a)</i>	<i>GHG avoidance over 15 years (tCO2)</i>
- SHS	3,604	688	10,325
- PVP	784	1,979	29,678
- SWH	1,511	12,911	193,659
Total		15,577	233,662

Calculation of indirect emission reduction of GEF alternative

<i>SET system</i>	<i>Market potential</i>	<i>Annual GHG avoidance (tCO2/a)</i>	<i>GHG avoidance over 15 years (tCO2)</i>
- SHS	9,000	1,719	25,785
- PVP	5,000	12,620	189,300
- SWH	15,000	128,175	1,922,625
Total		142,514	2,137,710

PART II: Logical Framework Analysis

Table 3: Logical Framework

PROJECT STRATEGY (Objectives, outcomes, outputs)	Baseline Indicator	Mid-term Indicator (End of Phase I)	Final Indicator (End of Phase II)	Sources of verification	Assumptions/risks
<p>GLOBAL GOAL To increase affordable access to sustainable energy services thus contributing to climate stabilization by reducing or avoiding CO₂ emissions and improving livelihoods and income generation of rural people</p>	<ul style="list-style-type: none"> ▪ The country is unable to take full advantage of its solar energy potential. ▪ Based on the annual sales figures of SETs given below, the baseline of CO₂ emissions avoided in 2004-2008 will be 6,360 tCO₂ annually (or 95,350 tCO₂ over the 15-year lifetime of the systems) 	<ul style="list-style-type: none"> ▪ Consumption of kerosene for lighting in households that use PV has been reduced ▪ Consumption of diesel by commercial farmers that have installed PVP has been reduced ▪ Consumption of grid electricity by households and building owners that have installed a SWH has been reduced 	<ul style="list-style-type: none"> ▪ Consumption of kerosene for lighting in households that use PV has been reduced ▪ Consumption of diesel by commercial farmers that have installed PVP has been reduced ▪ Consumption of grid electricity by households and building owners that have installed a SWH has been reduced ▪ Based on the annual sales figures of SETs given below, the baseline of CO₂ emissions avoided in 2004-2008 will be at least 15,580 tCO₂ annually (or 233,670 tCO₂ over the 15-year lifetime of the systems) 	<ul style="list-style-type: none"> ▪ Supplier survey ▪ End-user survey ▪ Sales reports from suppliers ▪ NAMREP reports and project files ▪ Official statistics 	<ul style="list-style-type: none"> ▪ Government does actively support SETs ▪ Private sector businesses are eager to expand ▪ Financial sector is willing to get involved with providing credit schemes ▪ End-users are willing and able to adopt new technologies ▪ Fuel prices and power tariffs will go up but not change dramatically
<p>DEVELOPMENT OBJECTIVE To promote the delivery of commercially, institutionally and technically sustainable energy services by solar energy, including solar electricity production (for</p>	<ul style="list-style-type: none"> ▪ Number of systems sold annually is on average 358 (2001-2003) broken down as follows: 210 (SHS), 102 (PVP) and 45 (SWH) ▪ PV market continues with slow growth 	<ul style="list-style-type: none"> ▪ Number of systems sold has increased to 1392 in 2006 which is a 400% increase broken down as follows: 836 (SHS), 324 (PVP) and 232 (SWH) ▪ PV market growth 	<ul style="list-style-type: none"> ▪ Number of systems sold in 2009 has increased to 3580 which is 10x of the baseline year. Break down as follows: 1900 (SHS), 380 (PVP) and 1300 (SWH) ▪ Impacts of NAMREP on end-users: 	<ul style="list-style-type: none"> ▪ Supplier survey ▪ End-user survey ▪ Sales reports from suppliers ▪ NAMREP reports and project files ▪ Government reports ▪ Official statistics 	<ul style="list-style-type: none"> ▪ Government does actively support SETs ▪ Private sector businesses are eager to expand ▪ Financial sector is willing to get involved with

PROJECT STRATEGY (Objectives, outcomes, outputs)	Baseline Indicator	Mid-term Indicator (End of Phase I)	Final Indicator (End of Phase II)	Sources of verification	Assumptions/risks
off-grid lighting, radio, TV, water pumping, and refrigeration) and solar water heating to the household, institutional, commercial, and agricultural sectors	<ul style="list-style-type: none"> Most off-grid rural households do not have access to modern energy services 	picks up (as evidenced by increased loan applications under SRF)	<ul style="list-style-type: none"> Number of people/households affected Number of social services affected Number of people with improved income 		<ul style="list-style-type: none"> providing credit schemes End-users are willing and able to adopt new technologies Fuel prices and power tariffs will go up but not change dramatically
OUTCOME 1 Built capacity in public and private sectors and in NGOs	<ul style="list-style-type: none"> Only 4 main suppliers of SETs that are all based in Windhoek 	<ul style="list-style-type: none"> Increase in RET suppliers by 600% 	<ul style="list-style-type: none"> RET businesses outside Windhoek have increased at least 1000% Level of end-user satisfaction with installation and after-sales service increased by 50% Rate of reported system faults has decreased with 30% Turnover of RET suppliers increases 	<ul style="list-style-type: none"> Survey amongst and reports from solar technicians/small RE entrepreneur End-user survey 	<ul style="list-style-type: none"> Technicians and staff is willing to be trained Willingness suppliers to work with rural-based technicians Willingness of technicians to develop their business
1.1 Training programmes for NGOs, public and private sector have been established and executed	<ul style="list-style-type: none"> No training programmes for personnel and technicians 	<ul style="list-style-type: none"> Some 25 personnel from government, NGOs involved in RET activities as well as 35 solar technicians have been trained 	<ul style="list-style-type: none"> Some 35 personnel from government, NGOs involved in RET activities as well as 50 solar technicians have been trained 	<ul style="list-style-type: none"> Data and reports from the training programmes NAMREP project files 	<ul style="list-style-type: none"> Technicians and staff is willing to be trained
1.2 Decentralised RET companies are adequately supported	<ul style="list-style-type: none"> Only around 6-9 technicians/small RE companies are based outside Windhoek 	<ul style="list-style-type: none"> At least 25% of all technicians that participated in at least one training workshop have set up or improved their services into small RE businesses; 	<ul style="list-style-type: none"> At least 50% of all technicians that participated in at least one training workshop have set up or improved their services into small RE businesses 	<ul style="list-style-type: none"> Survey amongst and reports from solar technicians/small RE entrepreneurs NAMREP project files 	<ul style="list-style-type: none"> Willingness of SET suppliers to work with rural-based solar technicians Demand for SET services is sufficient to make a small RE business viable

PROJECT STRATEGY (Objectives, outcomes, outputs)	Baseline Indicator	Mid-term Indicator (End of Phase I)	Final Indicator (End of Phase II)	Sources of verification	Assumptions/risks
1.3 Vocational and training centres are capacitated and providing technical training on RETs	<ul style="list-style-type: none"> No vocational training centre is providing training specifically on RETs 	<ul style="list-style-type: none"> One vocational training centre (WVTC) has a curriculum on RETs 	<ul style="list-style-type: none"> At least two training centres are capacitated to offer training on RETs 	<ul style="list-style-type: none"> Reports the vocational training institutes NAMREP project files 	<ul style="list-style-type: none"> Training centres are willing to set up a curriculum on RETs
OUTCOME 2 New policies, laws and regulations and actions in support of RETs are in place	<ul style="list-style-type: none"> Apart from MME's support to SRF and some demonstration projects, there are no real policy measures 	<ul style="list-style-type: none"> Policy dialogue (seminars, meetings), based on RE Action and Off-Grid Master plans 	<ul style="list-style-type: none"> At least three new policy-regulatory measures have been introduced (e.g. White Paper on RE, provision of access to electricity with RETs to schools; clinics and main government institutions in off-grid areas; making SWH compulsory for new public building in urban and rural areas that consume hot water; setting RET and/or off-grid targets in national power supply; definition of incentives for SETs; PV irrigation in agricultural programmes) 	<ul style="list-style-type: none"> Official government documents NAMREP project files Project files from NAMREP and REEECAP projects 	<ul style="list-style-type: none"> Government is amenable to change and willing to institute reforms to level the playing field for SETs
2.1 Policy and regulatory frameworks for RE and off-grid electrification are formulated	<ul style="list-style-type: none"> No plans for RE and off-grid electrification No standards or codes of practice 	<ul style="list-style-type: none"> RE Strategic Action Plan formulated Off-Grid Master Plan formulated 	<ul style="list-style-type: none"> At least two policy measures have been introduced Guidelines on standards and codes of practices are developed 	<ul style="list-style-type: none"> Official government documents NAMREP project files 	<ul style="list-style-type: none"> National and regional decision-makers are willing to base decisions on the knowledge required on costs and benefits of SETs
2.2 Government ministries and public institutions finance and implement solar	<ul style="list-style-type: none"> Apart from MME, no ministry or public institution promotes or implements SETs 	<ul style="list-style-type: none"> Consultations with ministries and public institutions (workshop, meetings) 	<ul style="list-style-type: none"> SET-based features/projects are integrated in the plans of at least two ministries or institutions 	<ul style="list-style-type: none"> Official government documents and ministry budgets NAMREP project files 	<ul style="list-style-type: none"> Sectoral decision-makers are willing to base decisions on the knowledge required on SETs

PROJECT STRATEGY (Objectives, outcomes, outputs)	Baseline Indicator	Mid-term Indicator (End of Phase I)	Final Indicator (End of Phase II)	Sources of verification	Assumptions/risks
technologies and projects			<ul style="list-style-type: none"> An inter-sectoral coordination structure on RET is proposed 		and are willing to cooperate
2.3 REEE Institute (at Polytechnic of Namibia, PoN) is established and functioning well	<ul style="list-style-type: none"> No REEE Institute 	<ul style="list-style-type: none"> A REEE Institute is set up and performing some of its functions 	<ul style="list-style-type: none"> The REEE Institute is fully functioning and has taken over some non-core functions from MME 	<ul style="list-style-type: none"> Reports from REEECAP Reports from REEE Institute and PoN NAMREP project files 	<ul style="list-style-type: none"> Danish-supported REEECAP project gets implemented MME continues to give political and financial support to REEE Institute
OUTCOME 3 Increased public awareness and social acceptability amongst stakeholders	<ul style="list-style-type: none"> Little awareness and understanding among decision-makers in public and private sector and amongst end-users Number and type of households (income groups) purchasing SETs 	<ul style="list-style-type: none"> Number of sales and/or loan applications for SETs per type of customer and per type of SET (SHS, PVP, SWH or PV refrigerators) 	<ul style="list-style-type: none"> Number of sales and/or loan applications for SETs per type of customer 	<ul style="list-style-type: none"> Supplier survey End-user survey NAMREP project files 	<ul style="list-style-type: none"> Market actors and survey respondents are willing to provide this information
3.1 Comparative info on demand for energy services and costs and benefits of SETs is collected and developed	<ul style="list-style-type: none"> No comprehensive and comparative data on demand for (off-grid) energy services in rural areas No comparative data on costs and benefits (C/B) of SETs 	<ul style="list-style-type: none"> Study on C/B of SWH Study on C/B of PVP Study/survey on the market for off-grid energy services and C/B of social and productive uses of SETs 	<ul style="list-style-type: none"> Updated information on: <ul style="list-style-type: none"> C/B of SWH C/BPVP C/B of social and productive uses of SETs (SHS, PVP, PV refrigeration) in rural areas 	<ul style="list-style-type: none"> Technical reports describing the results of the studies/surveys NAMREP project files 	<ul style="list-style-type: none"> Market actors and survey respondents are willing to provide this information
3.2 Increased knowledge of SETs among national and regional decision-makers and end-users	<ul style="list-style-type: none"> No dissemination campaigns and no workshops or meetings on SETs 	<ul style="list-style-type: none"> 4,000 people have been reached through dissemination campaigns 300 people have been reached through workshops and meetings Number of decision-makers briefed on SETs 	<ul style="list-style-type: none"> 8,000 people have been reached through dissemination campaigns 600 people have been reached through workshops and meetings At least 40 on-site demonstrations of SET systems conducted Number of decision- 	<ul style="list-style-type: none"> Materials produced for educational and public awareness NAMREP project files and records from awareness campaigns 	<ul style="list-style-type: none"> Willingness of decision-makers and private people to invest time in attending

PROJECT STRATEGY (Objectives, outcomes, outputs)	Baseline Indicator	Mid-term Indicator (End of Phase I)	Final Indicator (End of Phase II)	Sources of verification	Assumptions/risks
			makers briefed on SETs		
3.3 Active networks or associations in place	<ul style="list-style-type: none"> No RET network in place 	<ul style="list-style-type: none"> Sustainable Energy Namibian Society (SENS) has been established 	<ul style="list-style-type: none"> SENS is fully functional Number and percentage of PV suppliers, NGOs and other organisations participating in SENSE 	<ul style="list-style-type: none"> SENS reports NAMREP project reports 	<ul style="list-style-type: none"> Willingness of SET stakeholders to cooperate
OUTCOME 4 Appropriate financing and product delivery schemes set up and expanded.	<ul style="list-style-type: none"> Solar Revolving Fund, MME's financing modality, is operational but not functioning well High first cost of SETs 	<ul style="list-style-type: none"> Number and type of lending schemes Number of loans granted and lending volume; repayments of loans 	<ul style="list-style-type: none"> Number and type of lending schemes Number of loans granted and lending volume; repayments of loans A strategy to reduce first cost is in place 	<ul style="list-style-type: none"> End-user survey Government documents Reports from financial institutions NAMREP project files 	<ul style="list-style-type: none"> Government is willing to provide subsidy and fiscal incentives Full participation of public and private lending institutions
4.1 The Solar Revolving Fund (SRF) has been scaled up and expanded	<ul style="list-style-type: none"> 82 loans awarded per year 	<ul style="list-style-type: none"> 300 loans awarded per year 	<ul style="list-style-type: none"> 300 loans awarded per year 	<ul style="list-style-type: none"> SRF files 	<ul style="list-style-type: none"> Government is willing to provide long-term subsidy on the cost of systems
4.2 Financing schemes through (semi)-commercial financing institutions for customers and solar entrepreneurs have been set up and/or scaled up	<ul style="list-style-type: none"> No commercial financing schemes in place 	<ul style="list-style-type: none"> Financing modalities in place for personal loans (SRF, Bank Windhoek) and for small RE entrepreneurs (Bank Windhoek) 	<ul style="list-style-type: none"> Existing schemes (SRF, BW) have been capitalised and scaled up An exit strategy for SRF has been formulated and approved New schemes with at least two banks have been established (incl. Bank Windhoek) At least one scheme with a development bank to develop RETs and PUE 	<ul style="list-style-type: none"> Reports from bank and fund managing institutions NAMREP project files 	<ul style="list-style-type: none"> Full participation of public and private lending institutions
OUTCOME 5 Learning, evaluation and adaptive management	<ul style="list-style-type: none"> Number of staff working in MME on RETs is small (3-4 people) No monitoring and evaluation and 	<ul style="list-style-type: none"> Number of lessons learned and dissemination activities 	<ul style="list-style-type: none"> Number of staff working in MME and REEE Institute on RETs Number of lessons learned and dissemination activities 	<ul style="list-style-type: none"> NAMREP project files Lessons learned reports 	<ul style="list-style-type: none"> Successful implementation of all the activities in the previous components

PROJECT STRATEGY (Objectives, outcomes, outputs)	Baseline Indicator	Mid-term Indicator (End of Phase I)	Final Indicator (End of Phase II)	Sources of verification	Assumptions/risks
	extraction of lessons learned				
4.1 Monitoring and evaluation	<ul style="list-style-type: none"> ▪ Limited human resources in MME to implement RE promotional projects 	<ul style="list-style-type: none"> ▪ PMU established in MME and functioning ▪ Baseline study/survey ▪ Project progress reports ▪ Mid-term evaluation 	<ul style="list-style-type: none"> ▪ PMU staff absorbed in MME or REEE Institute ▪ End-of-project study ▪ Project progress reports ▪ Terminal evaluation 	<ul style="list-style-type: none"> ▪ NAMREP project files 	<ul style="list-style-type: none"> ▪ MME provides adequate co-financing
4.2 Lessons learned have been documented and disseminated	<ul style="list-style-type: none"> ▪ No lessons learned are documented and disseminated 	<ul style="list-style-type: none"> ▪ NAMREP Quarterly and other publications ▪ Experiences from at least 3 other countries in the region have been monitored and/or incorporated 	<ul style="list-style-type: none"> ▪ NAMREP Quarterly and other publications ▪ Experiences are shared with at least 3 countries/GEF projects in the region 	<ul style="list-style-type: none"> ▪ Lessons learned reports and papers ▪ NAMREP project files 	<ul style="list-style-type: none"> ▪ Willingness and time o actors in other countries to actively share information

Table 4: Indicative outcomes, outputs and activities

CPAP 4.10.: Promoting Bio-diversity, conservation and renewable energy technologies and environmental education.				
MYFF Outcome 10: Clean energy technologies promoted through energy efficiency, renewable energy and technology demonstrations/leapfrogging to reduce emissions				
Outcomes	Intended Outputs	Output Indicators	Indicative Activities	Inputs (USD)
Outcome1: Built capacity in public and private sectors and in NGOs	1.1 Training programmes for public and private sector and NGOs have been established and executed	<ul style="list-style-type: none"> ▪ RET businesses outside Windhoek have increased at least 1000% ▪ Level of end-user satisfaction with installation and after-sales service increased by 50% ▪ Rate of reported system faults has decreased with 30% ▪ Turnover of RET suppliers increases 	1.1.1 Provide business planning support and training on PV 1.1.2 Series of RET marketing and advocacy workshops 1.1.3 Training activities for local government, NGOs and NGOs and communities on development of social and productive uses of RE	210,000 (GEF)
	1.2 Decentralized RET companies are adequately supported	<ul style="list-style-type: none"> ▪ Some 35 personnel from government, NGOs involved in RET activities as well as 50 solar technicians have been trained ▪ At least 50% of all technicians that participated in at least one training workshop have set up or improved their services into small RE businesses 	1.2.1 Assist rural-based RE entrepreneurs to develop stronger links with RE suppliers, end-users and with financial institutions	
	1.3 Vocational and training centres are capacitated and providing technical training on SETs		1.3.1 Support the development of study materials and courses at a REEE Institute and vocational and training centres and support training of trainers 1.3.2 Make a synopsis of donor-funded and/or RE-related courses and educational opportunities abroad	
Outcome2: New policies, laws, regulations and actions in support of renewable energy are in place	2.1 Policy and regulatory frameworks for renewable energy and off-grid electrification are formulated	<ul style="list-style-type: none"> ▪ At least three new policy-regulatory measures have been introduced ▪ At least two policy measures have been introduced ▪ Guidelines on standards and codes of practices are developed ▪ SET-based features/projects are integrated in the plans of at least 	2.1.1 Engage MME policy-makers and Government decision-makers in a policy dialogue 2.1.2 Assist in the development of Namibian of a regulatory framework 2.1.3 Assessment and design of a long-term (sustainable) subsidy scheme	181,000 (GEF)

	2.2 Government ministries and public institutions finance and implement solar technologies and projects	<p>two ministries or institutions</p> <ul style="list-style-type: none"> An inter-sectoral coordination structure on RET is proposed The REEE Institute is fully functioning and has taken over some non-core functions from MME 	<p>2.2.1 Assess life-cycle economic cost and benefits of RETs and identification of niche areas for the inclusion of RE into national policies</p> <p>2.2.2 Support and convince the Government institutions to adopt policies that promote the use of SETs and optimise their budget expenditures</p> <p>2.2.3 Promote effective cooperation between line ministries on RE projects</p>	
	2.3 The REEE Institute is established at the Polytechnic of Namibia and functioning well		2.3.1 Offer advisory services for the strengthening of the REEE Institute	
Outcome3: Increased public awareness and social acceptability amongst stakeholders	3.1 Comparative information on cost and benefits of SETs is developed	<ul style="list-style-type: none"> Number of sales and/or loan applications for SETs per type of customer Updated information on: <ul style="list-style-type: none"> C/B of SWH C/BPVP C/B of social and productive uses of SETs (SHS, PVP, PV refrigeration) in rural areas 8,000 people have been reached through dissemination campaigns 600 people have been reached through workshops and meetings At least 40 on-site demonstrations of SET systems conducted Number of decision-makers briefed on SETs SENSE is fully functional Number and percentage of PV suppliers, NGOs and other organisations participating in SENSE 	3.1.1 Update comparative information on costs and benefits of SETs	275,900 (GEF)
	3.2 Increased knowledge of SETs among potential end-users and national and regional decision-makers		<p>3.2.1 Provide targeted awareness and information packages for decision-makers in</p> <p>3.2.2 Preparation and dissemination of an outreach and awareness campaign on the usefulness of SETs</p> <p>3.2.3 Organisation of general awareness campaigns on PVPs</p> <p>3.2.4 Organisation of general awareness campaigns on SWHs</p>	
	3.3 Active networks or associations of stakeholders are in place		<p>3.3.1 Support the functioning of networking organisations</p> <p>3.3.2 Regularly informing stakeholders on RE progress by means of the NAMREP <i>Quarterly Review</i> newsletter</p>	

Outcome4: Appropriate financing and product delivery schemes set up and expanded.	4.1 The Solar Revolving Fund (SRF) has been scaled up and expanded	<ul style="list-style-type: none"> ▪ Number and type of lending schemes ▪ Number of loans granted and lending volume; repayments of loans 	4.1.1 Technical advice on operating the SRF	1,302,000 (GEF)
	4.2 Financing schemes through (semi)-commercial financing institutions for customers and solar entrepreneurs have been set up and/or scaled up	<ul style="list-style-type: none"> ▪ A strategy to reduce first cost is in place ▪ 300 loans awarded per year ▪ Existing schemes (SRF, BW) have been capitalised and scaled up ▪ An exit strategy for SRF has been formulated and approved ▪ New schemes with at least two banks have been established (incl. Bank Windhoek) ▪ At least one scheme with a development bank to develop RETs and productive uses 	4.1.2 Provision of financial resources so that the demand for loans can be met	
Outcome5: Learning, evaluation and adaptive management	5.1 Monitoring and evaluation	<ul style="list-style-type: none"> ▪ Number of staff working in MME and REEE Institute on RETs ▪ Number of lessons learned and dissemination activities ▪ PMU staff absorbed in MME or REEE Institute ▪ End-of-project study ▪ Project progress reports ▪ Terminal evaluation ▪ NAMREP Quarterly and other publications ▪ Experiences are shared with at least 3 countries/GEF projects in the region 	4.1.2 Technical support to and, if necessary, capitalisation credit lines under agreement with Bank Windhoek	302,100 (GEF)
	5.2 Lessons learned are documented and disseminated		4.2.2 Conclusion of similar agreements and capitalisation of SE credit schemes with other interested banks	
Project management			4.3.3 Conclusion of an agreement and capitalisation of SE credit schemes with development banks for RETs productive applications	329,000 (GEF)

SECTION III: Total Budget and Work plan

Award ID:		00045670								
Project ID:		00054005								
Award Title:		PIMS 3062 Namibia: Namibia Renewable Energy Programme (NAMREP) Phase II								
Business Unit:		NAM10								
Project Title:		PIMS 3062 Namibia: Namibia Renewable Energy Programme (NAMREP) Phase II								
Implementing Partner (Executing Agency)		Ministry of Mines and Energy (MME)								
GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount 2007 (USD)	Amount 2008 (USD)	Amount 2009 (USD)	Total (USD)	See Budget Note:
Outcome 1: Built capacity in public and private sectors and in NGOs	MME	62000	GEF	72100	Contractual Services - Companies	25,000	50,000	20,000	95,000	1.1
				71200	International Consultant	10,000	20,000	0	30,000	1.2
				71600	Travel	20,000	10,000	5,000	35,000	1.3
				71400	Contractual Services -Individuals	15,000	16,400	18,600	50,000	1.4
					TOTAL OUTCOME COST	70,000	96,400	43,600	210,000	
Outcome 2: New policies, laws and regulations and actions in support of RETs are in place	MME	62000	GEF	71200	International Consultant	0	5,000	5,000	10,000	2.1
				71600	Travel	5,000	15,000	5,000	25,000	2.2
				72100	Contractual Services - Companies	0	15,000	10,000	25,000	2.3
				71400	Contractual Services -Individuals	22,000	35,000	39,000	96,000	2.4
				74200	Audio Visual and Printing Production Costs	5,000	10,000	10,000	25,000	
	TOTAL OUTCOME COST	32,000	80,000	69,000	181,000					
Outcome 3: Increased public awareness and social acceptability amongst stakeholders	MME	62000	GEF	71400	Local consultant	5,000	3,000	2,000	10,000	3.1
				71600	Travel	10,000	7,000	3,000	20,000	3.2
				72100	Contractual Services - Companies	40,000	20,000	15,000	75,000	3.3
				71400	Contractual Services -Individuals	30,000	50,000	60,900	140,900	3.4
				74200	Audio Visual and Printing Production Costs	10,000	10,000	10,000	30,000	3.5
	TOTAL OUTCOME COST	95,000	90,000	90,900	275,900					
Outcome 4: Appropriate financing and product delivery schemes set up and expanded.	MME	62000	GEF	72100	Contractual Services - Companies	5,000	5,000	0	10,000	4.1
				71400	Contractual Services -Individuals	32,000	35,000	35,000	102,000	4.3
				72600	Grants	595,000	595,000	0	1,190,000	4.2
					TOTAL OUTCOME COST	632,000	635,000	35,000	1,302,000	

Outcome 5: Learning, evaluation and adaptive management	MME	62000	GEF	71200	International Consultant	0	10,000	20,000	30,000	5.1
				71400	Contractual Services - Individuals	30,000	45,000	59,100	134,100	5.2
				71600	Travel	10,000	20,000	10,000	40,000	5.3
				72100	Contractual Services - Companies	10,000	20,000	26,000	56,000	5.4
				74100	Professional Services	5,000	6,000	6,000	17,000	5.5
				74200	Audio Visual and Printing Production Costs	5,000	10,000	10,000	25,000	5.6
				TOTAL OUTCOME COST		60,000	111,000	131,100	302,100	
Project Management Unit	MME	62000	GEF	72100	Contractual Services - Companies	12,000	10,000	8,000	30,000	1
				71400	Contractual Services -Individuals	50,000	90,000	115,000	255,000	2
				74500	Miscellaneous Expenses	2,000	2,000	2,000	6,000	3
				74200	Audio Visual and Printing Production Costs	6,000	7,000	5,000	18,000	4
				71600	Travel	2,000	3,000	5,000	10,000	5
				71400	Local consultant	0	5,000	5,000	10,000	6
				TOTAL MANAGEMENT COST		72,000	117,000	140,000	329,000	
				TOTAL PROJECT COSTS		961,000	1,129,400	509,600	2,600,000	

**Summary of
Funds¹**

Funding Entity	Type	Classification	Total
GEF	In cash	Multilateral. Donor	2,600,000
Danish Government	In cash	Bilateral. Agency \$	1,155,000
Finnish Government	In cash	Bilateral. Agency \$	3,626,000
RE financing schemes with banks	In cash	Private Sector	2,000,000
MME	In Kind	National Govt.	100,000
MME	In cash	National Govt.	755,000
TOTAL		\$	10,236,000

¹ Summary table should include all financing of all kinds: GEF financing, co financing, cash, in-kind, etc.

TOTAL BUDGET NOTES

Budget Note	Description of Services and/or Expenditure
1.1	Contractual Services: local companies will be identified and contracted to: i) provide RE technical training to NGOs, Public & Private sector; ii) Entrepreneurial training to small and medium enterprises; iii) vocational training centres (VTCs). 2 training workshops/courses envisaged per year for about 25 – 35 NGOs, technicians, trainers at VTCs and government personnel trained.
1.2	International expertise will be sourced to provide advanced training in collaboration with local companies which will be engaged in the RE technical and entrepreneurial trainings. Advanced training target about 6 – 9 small medium and decentralized RE companies outside Windhoek.
1.3	Cost of local travel and transport for stakeholders attending the various trainings as mentioned under note 1.1 and 1.2.
1.4	Contractual Services – Local technical expertise will be sourced to facilitate RE entrepreneurial & technical training activities throughout the duration of the Project. These services will provide the essential facilitation skills and local knowledge to fully engage with a broad spectrum of the Namibian community at large. This also includes translation into local languages during the training sessions. Refer TOR for CTA attached to ProDoc.
2.1	International policy & regulation specialist to be hired to provide expertise to MME in the regulatory framework for RE & off-grid electrification plan. Another international specialist will be hired to provide inputs and transfer skills during the implementation of REEEI
2.2	Local travel costs for all national & regional decision makers to attend consultative meetings with MME and international consultants with regards to Off-grid Master Plan. Stakeholders to travel from the different 13 regions of the country
2.3	Contractual Services: local companies will be contracted to facilitate the implementation of RE budgeting within the government ministries and institutions as well as with the implementation of RE within these institutions. Local companies to work along with designated government officials & international specialist. Specifically, the company will assist with: i) regulatory framework for RE and Off-grid electrification; ii) finance and implementation of solar technology by public and private and institutions; iii) institutionalization of REEEI at PON to take over non core functions from the MME.
2.4	Contractual Services – Local technical expertise will be sourced to facilitate with the implementation of RE policy & regulations as well as provide advisory support to the running and management of the REEEI at the Polytechnic of Namibia. In addition, local expertise will facilitate the development of institutional training guide & materials for the REEEI. These services will be shared with DANIDA REECAP. Note: The costs for the operation of REEEI will be funded directly by Government and DANIDA through the REECAP project. Refer to draft ToRs for Project Assistant: Policy & Institutions and Chief Technical Advisor attached to ProDoc.
2.5	This will provide essential funding for printing, publication and translation of project reports in seven languages. The costs will also cover the printing & production of RE laws & polices and translations into 7 local languages.
3.1	Contractual Services: local companies will be engaged to: i) produce and updated on a regular basis, cost benefit analysis of RET; ii) production of an RE documentary film for public awareness and social acceptability and iii) formulation, review and update of RE educational materials.
3.2	Local travel cost during national & regional RE information dissemination campaigns and seminars. At least 10 campaigns and seminars envisaged per year with a wide outreach of approximately 100 – 200 people per campaign. This component will be run in parallel with national trade fairs, to be paid separately from government budgets. It is anticipated that RE promotional campaigns be target to the furthest and very remote regions which are out of the national grid Master Plan.
3.3	Contractual Services – Notwithstanding the engagement of local companies in the promotion of RE, local individuals with a deeper understanding of rural based energy needs and demands will be sourced to serve as local facilitators. These services will be contracted on a long-term basis to provide the support throughout the duration of the project including some national and regional RE public awareness campaigns and seminars. It also include the support to the RE networks. Refer to the ToRs for Project Assistant: Technology & Information attached to ProDoc
3.4	Namibia has about eleven local languages with the majority living in remote rural areas using indigenous languages as primary means of communication. This necessitates the production, translation and printing of project information and awareness materials into local languages. This

	item will cater for the above unique and specific needs to address one of the key outcomes of the project: social accessibility.
4.1	Contractual Services: local companies with financial management expertise will be contracted to formulate, advice and support the expansion and scaling up of the SRF and other schemes. The services will also cater for a practical demonstration of RE financial viability in order to attract other commercial financing institutions to incorporate RE financing within their products.
4.2	Grants: The MME and a commercial bank have entered into an agreement to facilitate and promote RE loans acquisitions for end users and upcoming RE/SETs SMEs, which are based in the remote areas of Namibia where the needs for energy is higher and where there are major financial barriers to the adoption of SETs. The amounts reflected as Grants will cover partial guarantees as stipulated in the MOU. This facility is one critical component to the financial barrier removal activities. This facility further complements the SRF, which is fully funded by the MME.
4.3	Contractual Services – Local technical expertise will be hired in the long-term to advice and closely monitor the running and implementation of the two financing schemes throughout the duration of the Project. Refer to the ToRs for Project Assistant: Economics & Administration and Chief Technical Advisor attached to ProDoc
5.1	International consultant will be engaged to provide support to local staff in the development of project monitoring & evaluation strategy and in documenting lessons learned as well as to align the project reports and products with the GEF cross-learning and knowledge management practice. These services will contribute to the quantification of global benefits attained as a result of the project interventions.
5.2	Contractual Services – Individuals: these are local staff who will be responsible in the long-term facilitation of project management, monitoring & evaluation throughout the duration of the Project. ToRs for National Project Manager and Chief Technical Advisor attached to ProDoc
5.3	Local travel costs for stakeholders attending consultative seminars. (transport & accommodation)
5.4	Contractual Services: local companies will work in collaboration with international experts in the development of project M&E strategy, monitoring activities and the final evaluation of the project. The services to be provided will specifically target the UNDP/GEF requirements for final evaluations in order to provide independent and external views on the project achievements and lessons learned.
5.5	Professional services will be hired to conduct management audits on an annual basis.
5.6	This item will cater for the quarterly production, printing and distribution of the NAMREP Quarterly review and project update documents
1	Contractual services: local companies will be sourced to provide additional management support to PMU to ensure efficient & effective execution of tasks. This includes negotiated packages for advanced internet and other communication services.
2	Contractual Services – Individuals: Individuals to be hired to manage the project on a day-to-day basis and ultimately responsible for management of the project throughout the duration of the Project. Refer to the ToRs for National Project Manager and Project Assistant: Economics & Administration, Project Assistant: Finance & Administration and Office Assistant attached to ProDoc. The management unit will be under the overall supervision of the national project director who is fully funded by the MME. Five offices and management space is fully funded by MME.
3	Funds that will act as a contingency for unexpected additional expenditures such as office supplies etc.
4	This item will cater for the quarterly production, printing and distribution of the project development communication and NAMREP documents for the PSC and advisory meetings.
5	Local travel costs for the management unit.
6	Local consultants will be hired to facilitate workshops and seminars on behalf of the management unit.

SECTION IV: ADDITIONAL INFORMATION

PART I: Other agreements: GEF OFP Endorsement Letter and MME Co-financing Letter



REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

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February 14, 2005

Mr Leonard Good
Chief Executive Officer
GEF Secretariat
1818H Street, NW
Washington, DC 20433 USA

**SUBJECT: ENDORSEMENT FOR THE RENEWABLE ENERGY PROGRAMME 2ND PHASE
– NAMIBIA**

Dear Mr Good,

The *Namibia Renewable Energy Programme* is an initiative by the Ministry of Mines and Energy (MME) that seeks to remove market barriers and address capacity constraints that hinder increase use of solar energy services by urban and rural households, Small Enterprises, Government institutions, communal and commercial farmers and NGO facilities. The programme is designed in two-phases to demonstrate viability of investments in solar energy and encourage widespread replication as follows:

- ♦ The first phase: 2004-2006, aimed at addressing institutional, information, human capacity, financial, technical, awareness and other market barriers to increased use of solar energy services by urban and rural households, government institutions (schools, clinics, and police stations), NGO facilities, beverage retailers, communal and commercial farmers.
- ♦ The second phase: 2007-2009, aims to accelerate the implementation of solar units by demonstrating the accessibility and affordability of solar energy technologies and testing the implementation of policies that were initiated during the first phase.

Namibia has advanced with the implementation of the programme, and plans to conclude the remaining activities for the first phase by end 2006. In line with the rules and standards of the GEF and the

implementing agency, the MME has commissioned a Mid-Term Evaluation (MTE)⁵ exercise to assess progress made against the agreed objectives to be attained during the first phase of the programme. The outcomes and recommendations of the evaluation reveal the need to continue with the programme in order to attain the envisaged results as initially planned during the formulation of the full programme. The MTE specifically highlights the good progress made in addressing critical human capacity and financial constraints as well as progress made towards facilitating policy reviews to supplement the White Energy Paper. The MTE also highlights the success in creation of sustainable financing mechanisms established during the first phase. It further recommends continued support and measures to codify and sustain the positive impacts and tangible successes attained during the current phase.

- ♦ The project has assisted local stakeholders in building local capacities to promote, finance, install and maintain solar applications;
- ♦ GEF funds have helped contribute to developing and implementing favourable regulatory frameworks;
- ♦ Facilitated the establishment and support of viable financial mechanism through a partnership with the local financial bank and;
- ♦ The programme has started to address upfront investment cost barriers and related risk perceptions.

Against this background, Namibia in partnership with public and private sector and NGOs has prepared the second phase components in order to support the NAMREP. As the GEF Operational Focal Point in Namibia, I hereby confirm that this programme, has been formulated based on the priority needs in country to remove barriers to sustainable energy services with full cognizance of the global environment benefits. The national focal point of climate change has been fully involved in the design and preparation of the second phase.

Through the coordination of both the GEF political and operational focal points, Government will also ensure coherence with existing GEF initiatives notably the cross cutting NCSA implementation to ensure complementarities. In my capacity as GEF Operational Focal Point, I fully endorse this submission. The request is submitted via UNDP, which served as the Implementing Agency during the implementation for the first phase 2004-2006.

Lastly, Namibia is pleased to report that due to our successful partnership with the GEF, the country has made great strides in addressing local environmental problems to minimise negative global impacts, with catalytic resources provided by the GEF.

I sincerely hope that you will consider this proposal favourably.

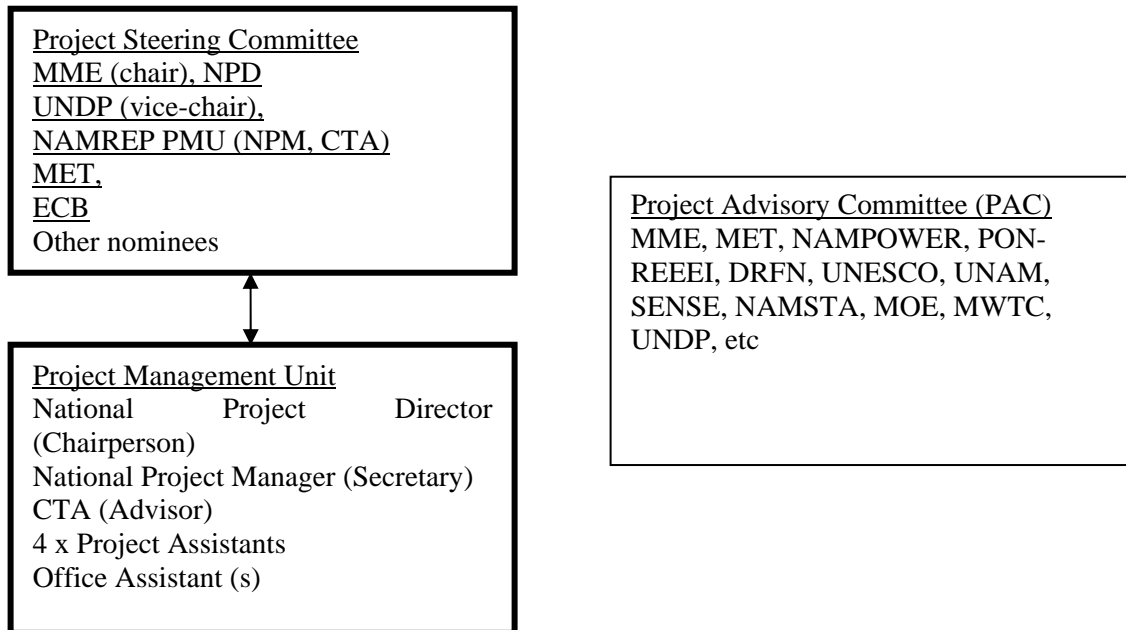
Yours faithfully,

Teofilus Nghitila
Director: Environmental Affairs
GEF Operational Focal Point: Namibia

⁵ The final MTE report is annexed to this endorsement.

PART II: Organigram of Project

Figure 1: Project management chart.



PART III: Terms of References for key project staff and main sub-contracts

A) National Project Manager (NPM)

Duties and Responsibilities

Under the direct supervision of the National Project Director, the National Project Manager is responsible for the operational management of the project, i.e. s/he assumes the day-to-day operational management of the project in line with the project document as well as policies/procedures for nationally executed projects, ensuring high quality, efficiency, effective and project delivery. For this reason, s/he must be able to work full-time on the post. . The NPM shall report directly to NPD. He/she shall liaise directly with designated officials of the Executing Agency (the Ministry of Mines and Energy), UNDP Country Office, the GEF Operational Focal Point, the existing and potential additional project co- financiers and others as deemed appropriate and necessary by the PMU. The budget and associated work plan will provide guidance on the day-to-day implementation of the approved Project Document. He/she shall be responsible for delivery of all substantive, managerial and financial reports from and on behalf of the Project.

Specific Requirements, Duties and Responsibilities

1. Prepares and updates quarterly and annual project work plans, and submits these to the NPD and UNDP CO for clearance.

2. Ensures that all agreements with Other Partners are prepared, negotiated and agreed upon.
3. Drafts TORs for key inputs (i.e. personnel, sub-contracts, training, and procurement) under the responsibility of the NIP, submits these to the NPD and UNDP CO for clearance, and administers the mobilization of such inputs.
4. With respect to external project implementing agencies:
 - (a) ensures that these agencies mobilize and deliver the inputs in accordance with their letters of agreement or contracts, and
 - (b) provides overall supervision and/or coordination of their work to ensure the production, quality and timeliness of the expected outputs.
5. Assumes direct responsibility for managing the project budget as Committing Officer, by ensuring that:
 - (a) project funds are made available when needed, and are disbursed properly,
 - (b) expenditures are in accordance with the project document and/or existing project work plan,
 - (b) accounting records and supporting documents are kept,
 - (c) required financial reports are prepared,
 - (d) financial operations are transparent and financial procedures/regulations for NEX projects are properly applied; and
 - (e) s/he is ready to stand up to audits at any time.
6. Assumes direct responsibility for managing the physical resources (e.g. vehicles, office equipment, furniture, stationary...) provided to the project by UNDP.
7. Supervises the project staff and local or international experts/consultants working for the project.
8. Drafts project progress reports of various types (e.g. quarterly and standard report, annual report, Programme Implementation report (PIR) and the Final Project Report as scheduled, and organizes review meetings and evaluation missions in coordination with UNDP.
9. Reports regularly to and keeps the NPD up-to-date on project progress, implementing issues, emerging risks/problems as well as suggests to him/her necessary remedial actions.

In addition, the National Project Manager shall:

- act as the Secretary to the Project Steering Committee and maintain records/minutes of proceedings;
- Organise the project steering committee and project advisory committee meetings;
- ensure that all activities are harmonized and integrated with projects coordinated by the REEEI, through regular consultation with the REEEI Management;

B) Chief Technical Advisor (CTA)

Duties and Responsibilities

Under the direct supervision of the NPM, the CTA is responsible for upstream energy policy advisory, technical services technical and monitoring services to the PMU, MME and REEEI. S/he will report on technical matters to the NPD in close liaison with the National Project Manager. He/she is expected to not only substantially contribute towards the objectives of the Programme during the Implementation Phase, but to also remain active in the field of renewable energy promotion in Namibia even beyond the life cycle of the project. He/she shall be responsible for delivery of all substantive policy and technical advice and reporting on behalf of the Project as well as on all matters related to learning and knowledge sharing in line with the project document.

Specific Requirements

1. Directing all activities of the PMU covering advice on technical and policy direction; liaising with project participants and stakeholders; preparation and presentation of progress monitoring status reports to the steering committee; preparing subcontractors terms of reference; technical assistance; and project technical executions of all tasks identified under the project specified in this Project Document.
2. Provide technical assistance in renewable energy policy discussions and development to the PMU;MME and REEEI
3. Advice in the design, supervision and where possible delivery of the technical training activities of the project;
4. Contribute to the development of detailed project design including preparation of subcontractors terms of reference, identification selection of national, regional and international subcontractors, cost estimation, time scheduling, and reporting on forward planning of project activities
5. Coordinate activities of project assistants including review of technical outputs/reports, measurement /assessment of project achievements
6. Participate in national regional and local negotiations including keeping abreast with national and international developments on RE
7. Lead the development of institutional delivery modes for renewable energy services for different end use sectors in Namibia;
8. Lead the development of a special purpose financing vehicle for renewable energy industry and end users;
9. Take responsibility for the quality assurance of project technical outputs;
10. Identify, analyze, document and share lessons learned in the design and implementation of similar future projects on an on- going process.

C: Project Assistant: Economics and Administration (PAEA)

Duties and Responsibilities

Under the overall guidance of the NPD and direct supervision of the NPM, the PAEA ensures effective day-to-day financial and operational management of the project and assists the PMU in the effective implementation of the financing and product delivery schemes set up and expansion; RE market growth stimulation initiatives; RE entrepreneurial capacity building activities; evaluation and adaptive management activities by entering and managing data and supporting programme implementation consistent with GRN/MME and/or UNDP rules and regulations, whichever is applicable.

The PAEA can supervise clerical and support staff of the PMU. The PAEA works in close collaboration with the NPM, PAFA, and projects' staff at MME and UNDP CO as required for resolving complex finance-related issues and exchange of information.

Specific Requirements

1. Assist in initiatives to scale up and expand existing RE financing schemes
2. Assist in initiating the set up of additional financing schemes by financing institutions for RE end-users and entrepreneurs
3. RE end-users and entrepreneurs
4. Assist in offering technical advice on the efficient and sustainable operations of RE Financing Schemes
5. Assist in RE entrepreneurial training programmes
6. Assist decentralized RET companies support initiatives
7. Support in the identification of first cost reduction strategies towards RETs products
8. Assist in the application of adaptive management, monitoring and evaluation processes for NAMREP
9. Assist in contract management, issuing of service orders and processing of payments to services providers for the project and internal requirements
10. Assist in financial accounting and recording for the project

D: Project Assistant: Technology and Information (PATI)

Duties and Responsibilities

Under the overall guidance of the NPD and direct supervision of the NPM, the PATI ensures effective day-to-day communication and public awareness and operational management of the project and assists the PMU in the effective implementation of the public awareness and social acceptability activities; the operation of the PMU IT systems; RET technical capacity building activities to the private, public and NGO sectors; the recording and dissemination of learning activities; evaluation and adaptive management activities by entering and managing data and supporting programme implementation consistent with GRN/MME and/or UNDP rules and regulations, whichever is applicable.

The PATI can supervise clerical and support staff of the PMU. The PATI works in close collaboration with the NPM, PAEA, PAPI and projects' staff at MME and UNDP CO as required for resolving complex finance-related issues and exchange of information.

Specific Requirements

1. Assist in the compilation and dissemination of comparative information on cost and benefits of RETs
2. Assist in undertakings to increased knowledge of RETs among potential end-users and national and regional decision-makers
3. Assist in creating active networks or associations of stakeholders on RE
4. Assist in the operation and maintenance of the PMU IT systems, requirements and updates
5. Serve as Editor of the NAMREP Quarterly Review
6. Assist in RET technical training programmes for public and private sector and NGOs
7. Assist in RE relevant information collection and recording and serve as the NAMREP

8. Assist in the recording and document dissemination of lessons learned by Namrep
9. Assist as PMU Secretary and reporting officer for the PMU

E: Project Assistant: RE Policy and Implementation (PAPI)

Duties and Responsibilities

Under the overall guidance of the NPD and direct supervision of the NPM, the PAPI ensures effective day-to-day RE policy interventions and operational management of the project and assist the PMU in policies, laws, regulations, institutional set-up and actions in support of renewable energy implementation; serve as link on project output liaison with the MME; evaluation and adaptive management activities by entering and managing data and supporting programme implementation consistent with GRN/MME and/or UNDP rules and regulations, whichever is applicable. This PMU member will be seconded by the MME.

The PAPI can supervise clerical and support staff of the PMU. The PAPI works in close collaboration with the NPM, PAEA, PATI, and projects' staff at MME and UNDP CO as required for resolving complex finance-related issues and exchange of information.

Specific Requirements

1. Assist in policy and regulatory frameworks for renewable energy and off-grid electrification formulation and implementation
2. Assist in initiatives to convince government ministries and public institutions to finance and implement solar technologies projects
3. Assist in strengthening the functioning of the REEE Institute at the Polytechnic of Namibia
4. Assist in the vocational and training centres RET training capacity enhancement
5. Assist in the development and enforcement of RET standards and codes of practices in the country
6. Assist in the operations of the NAMREP RE Resource Centre

F. Project Assistant: Finance and Accounting (PAFA)

Duties and Responsibilities

Under the direct supervision of the UNDP CO Finance Associate and secondary supervision of the NPM, the PAFA ensures effective day-to-day financial and accounting processes and operational management of the project and assist the PMU in the financial systems management and project finances disbursements and accounting; evaluation and adaptive management activities by entering and managing data and supporting programme implementation consistent with GRN/MME and/or UNDP rules and regulations, whichever is applicable. This PMU member will be based at the UNDP CO in the event of the PMU operating under the RDP mechanism.

The PAFA can supervise clerical and support staff of the PMU. The PAFA works in close collaboration with the NPM, PAEA and projects' staff at MME and UNDP CO as required for resolving complex finance-related issues and exchange of information.

Specific Requirements

1. Assist in the processing of payments to services providers for the project and internal requirements
2. Assist in financial accounting and recording for the project
3. Ensuring all payments are adequately supported, computations on the supporting vouchers are correct, spending is within budget and is correctly approved by budget holder and are effected in accordance with the UNDP/GEF procedure;
4. Ensuring reconciliation procedures of various accounts are carried out in a timely manner;
5. Ensuring approved budgets are input into the budget ledger in a timely manner to facilitate monitoring of actual against budget;
6. Ensuring timely production of periodical management reports showing budget versus actual and analysis by various cost centres;
7. Providing financial accounts, audit schedules and supporting documents to auditors as required;
8. Ensure that UNDP/GEF financial management procedures including use of UNDP ATLAS system to all the project financial processing processes;
9. Sharing as capacity building ATLAS and project financial management with relevant project staff
10. Assist PMU in other administrative matters.

G. Support Staff and Short-term Staff

The PMU may appoint Support Staff in the form of Office Assistant(s) either on a full time or part time basis to assist the PMU with clerical, logistical, transportation and messenger services as well as for event preparations such as workshops technical and seminars. Such appointments will only be necessitated depending on the need basis of the AWP and will encompass capacity building such as skills transfer and project management aspects. Support Staff will work under the overall guidance of NPM and under the supervision of Project Assistants.

PMU may appoint Short-term staff for, amongst others, Policy and Financial delivery mode Project Outcomes.

PART IV: Stakeholder Involvement Plan

Stakeholder (s)	Primary Grouping	NAMREP Involvement
Ministry of Mines and Energy, Ministry of Environment and Tourism, National Planning Council, Ministry of Finance, Ministry of Agriculture, Water and Rural Development, Ministry of Trade and Industry, Ministry of Higher Education, Training and Employment, Ministry of Works, Transport and Communications, Ministry of Women Affairs and Child Welfare, Solar Revolving Fund (managed by Konga Investments), Regional Councils	<i>Government ministries and institutions:</i>	NAMREP is promoting effective partnership arrangements for the implementation of solar energy technologies with the relevant stakeholders, such as RE entrepreneurs and technicians, financial institutions, stakeholders from the national and local government and, last but not least, the end-users of the technologies.
Gobabeb Training and Research Centre, Desert Research Foundation of Namibia, Namibia Nature Foundation, Ibis, Namibia Wildlife Resorts, NamWater, Telecom Namibia, Habitat Research and Development Centre, Agribank, Electricity Control Board, NamPower, Regional electricity distributors, National Housing Enterprise	<i>NGOs and parastatals</i>	NAMREP Phase I has established effective partnership arrangements for the implementation of PV, SWS and PVP technologies with RE entrepreneurs and technicians, financial institutions and stakeholders from the national and local government. NAMREP has encouraged the establishment of a renewable energy association and in 2006 the Sustainable Energy Namibian Society (SENS) was formally established. NAMREP works pro-actively with financial institutions, such as the Bank of Windhoek and MME's Solar Revolving Fund, on financial mechanisms and with entrepreneurs to look at the reduction of investment cost in RET equipment.
<ul style="list-style-type: none"> • Polytechnic of Namibia, University of Namibia, Windhoek Vocational Training Centre 	<i>Capacity building organizations:</i>	In Phase II, NAMREP will continue to cooperate with the REEE Institute, which is a newly established networking organisation on renewable energy and energy efficiency at the Polytechnic of Namibia with the objective of coordination and promotion of activities in the area of renewable energy and energy efficiency. DANIDA provides co-financing support through the REEECAP project that is complementing NAMREP. REEECAP is implemented by the Polytechnic of Namibia and focuses on (a) strengthening the capacity of REEE Institute, (b) efficient use of energy in low-cost housing and (c) capacity building on renewable energy, energy efficiency and rural development. REEECAP was scheduled to run in parallel with NAMREP Phase I, but only started operating in 2006. Although administration of the REEECAP and NAMREP projects is separate, NAMREP and REEECAP will liaise closely and harmonise execution of activities. REEECAP itself will work closely with two NGOs, namely the Desert Research Foundation and the Habitat Research Centre.
NedBank, Bank Windhoek, First National Bank Denmark, Finland, UNDP	<i>Financial institutions and Donor agencies</i>	The Ministries dealing with water supply, health, education, public works, police, and agriculture, all have infrastructural development programmes that provide energy services such as lighting, refrigeration, water-pumping and warm water, which could be undertaken using SETs. As such the involvement of the ministries is essential if the project is to successfully integrate the use of solar energy technologies throughout the public sector. The regional electricity

		distributors (REDS) are involved in the provision of rural electricity and the breadth of their extension of technical and administrative infrastructure throughout Namibia will also contribute to a successful outcome of the project.
Private housing developers, RE suppliers (e.g., Solar Age, Soltec, NEC), RE technicians, Namibian breweries, Engineering and consultant bureaus (CSA, EmCon, Craddle)	<i>Private sector and individuals</i>	The National Housing Enterprise (public) and private housing developers have expressed interest in solar water heating in the houses they develop. Private banks, such as Bank Windhoek, are actively contributing to the project by means of the implementation and marketing of financial instruments for purchasing SETs and supporting solar entrepreneurs
Households, building owners, communal farmers, commercial farmers	<i>Users</i>	

Part V Details of financing schemes with solar revolving fund and bank Windhoek

1. *Solar revolving Fund*

One key impediment to increased utilization of solar energy systems is their high first costs, which make them unaffordable to rural communities in developing countries. In order to mitigate this problem, in 1996 the MME launched a solar off-grid household electrification programme called 'Home Power' for electrification of rural households by means of PV Solar Home Systems. The Home Power programme is based on a ownership approach and is now in its 10th year of operation. The Home Power Program is funded through a Solar Revolving Fund (SRF) created for this purpose. The MME provides fund to the SRF on an annual basis. The administration of the SRF is outsourced. A consumer can borrow money from the SRF to buy a solar system. The interest rate charged is 5% and the loan pay-back period is 5 years.

The administration of the SRF is outsourced by the MME. As shown in the table below; three organisations have so far been involved in its administration.

Solar Revolving Fund administration

Time Period	Administrator	Kind of Administrator
2005 – to present	Konga Investment (Pty) Ltd	Private Company
2001 – 2004	Premier Electric (PE)	Subsidiary of Nampower, govt.-owned Namibian utility
1996 – 2000	Namibian Development Corporation (NDC)	Govt-owned parastatal

The funding to the SRF is as given in the table below:

Funds for Solar Revolving Fund

Source	Financial Year	Amount (N\$)
MME	1996/1997	413,000
MME	1997/1998	1,000,000
NORAD	1997/1998	339,000
NORAD	1997/1998	381,000

MME	1997/1998	446,000
MME	1998/1999	599,000
MME	1999/2000	850,000
MME	2000/2001	2,000,000
MME	2001/2002	1,250,000
MME	2002/2003	1,625,000
MME	2004/2005	1,625,000

Past Performance of the SRF

The next table shows the number of systems sold during the given durations. These uneven durations are described according to the various phases of the fund operations. As can be seen, the SRF has undergone ups and downs during the 10 years of its history. A total of 738 systems at an average of 82 systems per year were loaned out during the nine years period 1996-2004 under the administration of NDC and PE. Notwithstanding the fact that the Namibian market is small, the performance of the fund can be described as lacklustre. The performance during the last three years (2001-2004) was even worse as only an average of 52 systems per year were loaned out.

No. of systems sold through the SRF

Time	April 96 to Mar 97	Nov 97 to Oct 99	Nov 99 to Jul 00	Aug 00 to Jun 01	Jul 01 to Dec 01	Jan 02 to Jun 02	Jul 02 to Jun 03	Jul 03 to Jun 04	Total in first 9 years	Average per year
No. of loans issued	96	165	196	57	68	81	42	33	738	82

As a result of the inadequate number of loans issued in the past years, the SRF had accumulated a sum of about N\$9m by the end of 2004.

NAMREP in collaboration with MME undertook as one of its major challenges to look into the reasons for the under performance of the SRF and try to turn it around. One of the major reasons identified for the under- performance of the SRF was that remuneration of the fund administrators were not linked with fund performance, resulting in lack of incentives to the administrator to sell more systems and recover loans. The fund administrators also had inadequate resources at their disposal. Other support activities like adequate supervision/follow up of administrators, increased awareness amongst users about the fund and lack of trained technicians for systems installation were also lacking.

Upon the expiry of the contract with PE in 2004, Konga Investments (Pty) Ltd was selected as the new administrator for a period of five years. In collaboration with MME, NAMREP looked very carefully into the detailed contract conditions of the new administrator so as to make them performance oriented. It was observed that in order to make the funds sustainable, more emphasis needs to be laid on loan recovery.

Following a series of consultations and meetings, a package of reforms was designed. The reforms introduced included:

- In addition to a fixed annual administration fee, a 10% commission upon sale and 20% commission on loan recovery was fixed. An even higher rate of 25% commission on loans recovered beyond 80% was made.
- A target of minimum of 100 systems sold per year was made.
- Inclusion of Solar Water Heater (SWH) and Solar Water Pump (PVP) in the loan scheme along with already existing Solar Home Systems (SHS).
- Adequate funds and support provided to the SRF administrator for its operations.

- Provided adequate funds for marketing
- Additional awareness campaigns were conducted by NAMREP.
- Training of technicians from all the 13 regions was done by NAMREP.
- Regular reporting, follow up and meetings with fund administrator.
- Loan processing was made speedier and simpler
- Use of direct debit facility to avoid default on loan repayments.

After an initial period of settling down, Konga Investments started operating from the second quarter of 2005 processing 303 loans until end of 2005. This number is larger than the number of systems sold in any one year in the past history of the SRF and well above the yearly average of 82 systems per year. In addition, Konga managed to sell 21 SWHs and 34 PVPs. Although it is too early to judge the performance of the SRF under Konga administration, there appears a clear up swing in its performance.

2. *Bank Windhoek*

A Memorandum of Understanding (MoU) was signed between the Ministry of Mines and Energy (MME) and Bank Windhoek (BW) on 21 February 2006. The objective of the MoU is to providing credit facilities to small contractors of solar systems and personal loans to individuals that lack the necessary finance and which financing will be offered at very affordable rates.

Under one scheme, BW shall provide short to medium-term financing of between N\$20 000 and N\$250 000 to SME's awarded contracts under the MME/NAMREP Programme. In another scheme, BW shall provide personal loans to individuals who wish to install solar systems, up to a maximum amount of N\$ 20,000 for Solar Home Systems or Solar Water Heaters and N\$40,000 for Solar Water Pumps.

BW provide this financing at the very affordable rates, 3 % below prime annual interest rate small and medium enterprises (SMEs) and at 5% below prime interest rate for personal loans, subject to changes in the prime lending rate. Lower interest rates are made possible, because MME provides BW with a guarantee of 70% of the total loan capital to every SME financed under this scheme and with a guarantee of 80% of the total loan capital to every individual (personal loan) financed under this scheme. The guarantees shall be provided via an investment to be opened at BW. This investment fund interest is capped at 0% interest which benefit is then passed on to the borrower as part of the prime less 3% or prime less 5% loan.

MME/NAMREP will identify projects and present these for participation in this scheme. These recommended projects will be submitted by the MME/NAMREP and discussed at the regular meetings for a mutual agreement. The request for inclusion of projects shall contain details on the nature of the project, nature of professional support needed, total budget of the project, duration of the project and measurably impact to be realised. For personal loans, clients will approach BW SME branch for financing on an individual base.

Part VI Results of SET Market Surveys

Table A: Total Number of Solar Home Systems Sold Per Year

Solar Home Systems	2001	2002	2003	2004	2005	2006*
CASH SALES						
Less than 50 W	96	86	43	53	53	23

Between 50 W and 100 W	58	44	44	57	50	21
Between 100 W and 200 W	21	27	20	34	68	28
Greater than 200 W					28	14
Total Cash Sales	175	157	107	144	199	344
SALES SRF (LOANS)	68	81	42	33	299	492
TOTAL SALES CASH + LOANS	245	238	149	177	498	836

* for 2006 sales are estimated based on data available for the first quarter of the year (Jan-March 2006)

Table B: Total Number of Solar Water Heaters Sold Per Year

Solar Home Systems	2001	2002	2003	2004	2005	2006*
CASH SALES						
Less than 100 l	10	19	21	21		
Between 100 l and 150 l	0	0	0	3	27	6
Between 150 l and 200 l	28	29	27	37	57	30
More than 200 l	1	0	1	1	58	16
Total Cash Sales	39	48	49	62	142	208
SALES SRF (LOANS)	0	0	0	0	17	24
TOTAL SALES CASH + LOANS	39	48	49	62	159	232

* for 2006 sales are estimated based on data available for the first quarter of the year (Jan-March 2006)

Table C: Total Number of Solar Photovoltaic Pumps Sold Per Year

Solar Home Systems	2001	2002	2003	2004	2005	2006*
CASH SALES						
Less than 60 W	4	5	5	6	0	0
Between 60 W and 150 W	5	4	2	3	30	40
Between 150 W and 250 W	67	78	130	150	107	208
Between 250 W and 500 W	0	0	3	12	0	0
More than 500 W	1	2	2	3	0	0
Total Cash Sales	77	89	142	174	137	248
SALES SRF (LOANS)	0	0	0	0	29	76
TOTAL SALES CASH + LOANS	77	89	142	174	166	324

* for 2006 sales are estimated based on data available for the first quarter of the year (Jan-March 2006)

Table D: Total Number of SETs (SHS, SWH, PVP) Sold Per Year

Solar Home Systems	2001	2002	2003	2004	2005	2006*
CASH SALES	291	294	298	380	478	800
SALES SRF (LOANS)	068	81	42	33	345	592
TOTAL SALES CASH + LOANS	359	375	340	413	823	1392

* for 2006 sales are estimated based on data available for the first quarter of the year (Jan-March 2006)

SIGNATURE PAGE

Country: **Namibia**

UNDAF Outcome(s):

By 2010, livelihoods and food security among most vulnerable groups are improved

CPAP Outcome: **Promoting Bio-diversity, conservation and renewable energy technologies and environmental education**

MYFF Outcome 10: **Clean energy technologies promoted through energy efficiency, renewable energy and technology demonstrations/leapfrogging to reduce emissions.**

Expected Project Outcome(s):

Outcome 1: Built capacity in public and private sectors and in NGOs

Outcome 2: New policies, laws and regulations and actions in support of RETs are in place

Outcome 3: Increased public awareness and social acceptability amongst stakeholders

Outcome 4: Appropriate financing and product delivery schemes set up and expanded.

Outcome 5: Learning, evaluation and adaptive management

Implementing partner:

Directorate of Energy (DE), Ministry of Mines and Energy

Other Partners:

Polytechnic of Namibia, REEEI, DANIDA, NAMPOWER

<p>Programme Period: 2007-2011 Programme Component: Energy and environment for sustainable development Project Title: CC FSP: NAMREP II Barrier Removal to Namibian Renewable Energy Programme Phase II (NAMREP Phase II) Project ID: PIMS 3062, ATLAS Project: 00054005, ATLAS Proposal: 00045670 Project Duration: Three (3) years: 2007-2009 Management Arrangement: National Execution (NEX)</p>

NAMREP Phase II	
GEF	US\$ 2,600,000
Government	US\$ 755,000
DANIDA	US\$ 1,155,000
Other	US\$ 5,726,000
Total: US \$ 10,236,000	

Agreed by:	Signature	Date	Name / Title
Government Coordinating Authority			Mocks Shivute, <i>Permanent Secretary, National Planning Commission (NPC)</i>
Government Cooperating Agency			Joseph Iita, <i>Permanent Secretary, Ministry of Mines and Energy (MME)</i>
United Nations Development Programme (UNDP)			Simon R Nhongo, <i>Resident Representative, UNDP</i>

1. **FINANCING** (for all the tables, expand or narrow table items as necessary)

a) **PROJECT COST**

Project Components/Outcomes	Co-financing (\$)	GEF (\$)	Total (\$)
1. Built capacity in public and private sector and in NGO	315,000	210,000	525,000
2. New policies, laws and regulations and actions in support of RETs are in place	538,750	181,000	719,750
3. Increased public awareness and social acceptability among stakeholders	222,500	275,900	498,400
4. Appropriate financing and product delivery schemes set up and expanded	6,126,000	1,302,000	7,428,000
5. Learning, evaluation and adaptive management	0	302,100	302,100
6. Project Management budget/cost*	433,750	329,000	762,750
Total Uses of Funds/project costs	7,636,000	2,600,000	10,236,000

* This item is the aggregate cost of project management; breakdown is presented in the table b) below:

b) **PROJECT MANAGEMENT BUDGET/COST¹**

Component	Estimated Staff weeks	GEF (\$)	Other Sources (\$)	Project Total (\$)
Locally recruited personnel*	750	295,000	245,000	510,000
Internationally recruited consultants*		0	45,000	45,000
Office facilities, equipment, vehicles and communications	160	18,000	70,000	88,000
Travel	/	10,000	60,000	70,000
Miscellaneous	/	6,000	13,750	19,750
Total	910	329,000	433,750	732,750

* Local and international consultants in this table are those who are hired for functions related to the management of project. For those consultants who are hired to do a special task, they would be referred to as consultants providing technical assistance; details of their services in table c) below:

c) **CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:**

Component	Estimated Staff Weeks	GEF (\$)	Other Sources (\$)	Project Total (\$)
Personnel ²	750	523,000	500,000	1,023,000
Local consultants*	20	10,000	480,000	490,000
International consultants*	10	70,000	175,000	245,000
Total	780	603,000	1,155,000	1,758,000

² Local technical expertise to provide technical support towards all the outcomes, as explained in the TBWP.

d) CO-FINANCING

Name of Co-financiers (source)	Classification	Type	At Concept (\$)	At Work Program (\$)	At CEO Endorsement (\$)*
Danish Government	Bilat. Agency	In cash	N/a	1,155,000	1,155,000
Finnish Government	Bilat. Agency	In cash	N/a	3,626,000	3,626,000
MME	Nat'l Gov't	In cash	N/a	755,000	755,000
RE financing schemes with banks	Private Sector	In cash	N/a	2,000,000	2,000,000
MME	Nat'l Gov't	In kind	N/a	100,000	100,000
Total Co-financing			N/a	7,636,000	7,636,000

- This reflects the final commitment amount of co-financiers. Documents from co-financiers confirming co-financing commitments are attached.

2. RESPONSE TO REVIEWS

a) COUNCIL

#51: Namibia UNDP Barrier Removal to Namibian in Renewable Energy Programme, (NAMREP), Phase II, UNDP \$2.6million.

Council Comments (USA)	UNDP Response
1. This project aims to increase solar energy technology in rural areas. Seems okay, but relatively high cost of CO2 emissions reduction (at \$22/ton). Is there anything that can be done to reduce the cost?	1. Rural renewable energy projects have relatively high \$/t costs of emissions reduction. The cost range over the past 6 years for rural PV projects in Africa has been between \$22/ton (Namibia), \$63/ton (Botswana PV), and \$69/ton (Lesotho PV). Compared to GEF approved PV projects in African countries the cost of reducing a ton of CO2 in Namibia is very low. The number is even lower if SET market development is taken into account (\$2.5/ton estimating a reduction of 2.1 million tons as presented in the Executive Summary).
2. Why is the project focusing on substitution of existing energy services (electric geysers and diesel powered water pumps), rather than those relying on wood for fuel, which would have an impact on both biodiversity and climate change, as well as on poverty.	2. The project promotes three Solar Energy Technologies, namely PV Solar Home Systems (SHS), Solar Water Heaters and Solar Water Pumps. Promotion of PV SHSs focuses on poor rural households offering them an energy solution to partially substitute wood fuel, although PV cannot be used for cooking which is the main application of wood fuel. Promotion of Solar Pumps aims at developing a market for productive uses of renewable energy in line with SP-4. In terms of poverty impact households and small businesses that purchase a SWH or SVP or SHS will reduce their energy expenses in the medium and long run and therefore have additional funds at their disposal, which could be used to mitigate poverty.
3. Are GEF funds part of the solar revolving fund?	3. During NAMREP Phase I GEF has supported the solar revolving fund with approx. USD 400,000, which also included assistance in setting up the financing schemes with commercial banks. Given the success and importance of the SRF, for Phase II additional activities are being planned such as technical advice on operating the SRF and financial assistance. The provision of financial resources is

	necessary so that the demand for loans can be met. If the trend of increasing demand for loans continues, the amount of loans approved (\$ 700,000) will exceed MME’s annual contribution of US\$ 250,000 and annual loan repayments. The success of the SRF would result in a capital depletion because loan repayment is stretched over a period of 5 years. To avoid such situation GEF will strengthen the fund during phase II with a US\$ 300,000 contribution to meet the customer demand
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b) GEF SECRETARIAT REVIEW AND UNDP RESPONSE AT CEO ENDORSEMENT

GEF SEC Comment	UNDP response
<p>The project continues a long-term program that had to be split into two phases due to funding limitations of the GEF trust fund. The necessary and appropriate adjustments to the program strategy have been discussed and approved for WP inclusion. However, these changes were made based on the interim evaluation after only a short-time of effective project implementation. In order to demonstrate that no further adjustments are necessary, and to justify the changes since WP inclusion, a final evaluation should be submitted and its recommendation reflected in the project design.</p> <p>Terminal evaluation of phase I needs to be submitted for the CEO Endorsement of phase II.</p>	<p>The evaluation was seen as the mid-term evaluation of the NAMREP program as a whole (Phases I and II), taking place at the end of Phase 1. Thus the title is misleading; it is not a mid-term but a final evaluation of the Phase 1 project. It has been agreed with GEF Sec to inform about this misunderstanding and that the proper title should have been ‘final evaluation of NAMREP – Phase 1’. The error in the title of the evaluation report has been corrected to reflect this.</p>
<p>The agency should discuss the changes that led to the shift in component financing in section 4d) of the CEO Endorsement form.</p>	<p>There has not been a major change in component financing in the project documentation at WP inclusion (in 2006) and at CEO Endorsement, except that project management costs have been separated from outcome 5 in accordance with the latest GEF and UNDP budget formats.</p>
<p>Already the SRF cannot satisfy the demand. A one-time injection of GEF funds will not be sufficient if the market keeps growing. It is important to pursue other options for financing, for example financing through mainstream banks as done in component 4.2 In that sense, two things are required:</p> <p>a) A more ambitious target for 4.2 (not just one commercial bank but 2 or more),</p> <p>b) An exit strategy for the SRF, for example increasingly commercial rates for the SRF loans, and a vision of what to do with the reflows into the fund in the long run.</p>	<p>(a) The original target actually as mentioned ‘one other bank’, i.e. two banks in the logical framework, besides the Bank Windhoek ‘new schemes with at least one or two other banks have been established’. In addition, ‘at least one schemes with a development bank’ is mentioned as target indicator in the log frame.</p> <p>(b). A long-term exit strategy to be explored during the implementation of the recently completed Off-Grid Energisation Master Plan (OGEMP) for Namibia, recommends a national approach to sustainable energy services for off-grid, pre-grid and grey areas’ customers. OGEMP considers an approach of ‘energy shops’ that which will sell, among</p>

	<p>other things, a broad range of renewable energy technologies and appliances to households and businesses of all income levels within the 13 administrative regions. Secondly, under NAMREP II, scaling-up financial mechanisms and strengthening more commercial banks to provide and include RETs in the normal banking business, is crafted to serve the growing customer base. In the long run, the energy shops and commercial banks' services will substitute the need for a SRF as they will ultimately provide services that will free up the role currently played by SRF. As recommended by GEF SEC, a paragraph has been added in the Project Document under Financial Sustainability to make this exit strategy explicit.</p>
<p>The project is very successful and has the potential to be a role model for other countries in similar situations. It contains a "learning" component which should also have the goal of promoting the successes to other countries. Another potential for replication is to use the SRF reflows for similar support for other technologies.</p>	<p>The logical framework actually has the final indicator 'experiences are shared with at least 3 countries/GEF projects in the region'.</p> <p>Apart from the SETs, the SRF caters for other RETs too.</p>
<p>Document contains M&E plan with quantitative targets and specified responsibilities. However, the need for an inception workshop is questionable as the project is basically a continuation of an ongoing activity. However, the targets of the project seem to be under ambitious. For example, the targets for activity 4.2 have almost been reached already.</p>	<p>M&E Plan: The Plan in the Project Document appears to be covering both Phases 1 and 2. The Table and the main text in the Document have been updated to reflect activities that will be undertaken in Phase 2 only. Similarly, the targets in the logical framework have been checked and some have changed. All the changes in the Document due to the UNDP response to the GEF Sec comments at CEO Endorsement have been highlighted in yellow</p>

C. REVIEW BY EXPERT FROM STAP ROSTER:

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OVERALL IMPRESSION:

This is a thoughtfully written and strong proposal. It is especially well written in the societal and institutional aspects of further advancing solar energy technologies on a commercial scale in Namibia, as a follow up of the successful work performed in Phase I

STAP Comments	UNDP Response
<p>1. Scientific and Technical Soundness</p> <p>The proposal is scientifically and technically sound.</p> <p>One concern is that the prices for some key technologies (e.g., solar hot water systems) appear very high. Either there is an error in translating local Namibian prices into US dollars, or somehow inappropriate European or American systems, designed to work even in freezing climates, are being promoted in Namibia despite its milder winters. If the latter is the case, then appropriate systems with strong focus on low first-cost designs need to be developed or imported, and indigenized and promoted.</p>	<p>1. The prices for solar hot water systems and other technologies are correctly presented in the proposal. There is no currency conversion error.</p> <p>The average 2004 price for SWH systems as given in the footnote on page 6 of the Prodoc is correct. These are prices for indirect SWH systems imported from abroad. As pointed out by the reviewer, these systems do work in freezing conditions and that is the real reason for their high cost. This is essentially because some regions have frosty conditions. Also, direct systems very often fail due to high corrosion arising from high harsh water conditions in Namibia. The suppliers have adopted these better quality systems after learning from past experiences with cheaper direct systems. A second reason for the high cost is the low volume of sale and lack of economies of scale.</p>
<p>2. Identification of global environmental benefits and/or drawbacks of the project</p> <p>The project aims to introduce renewable energy technologies by removing various barriers in the areas of capacity building, policies and regulation, public and stakeholder awareness, and financing, and incorporating learning and adaptive management. The project will save about 233,600 tons of C at a price of about US\$22 per ton of carbon. This is somewhat expensive; however this is not the only criterion by which the project should be judged.</p>	<p>2. The price of about US\$22 per ton of carbon is fully within the range of other comparable PV projects in the region such as the Tanzania PV project (US\$ 22,7 per ton of carbon).</p> <p>There are no global environmental drawbacks of the proposal.</p>
<p>3. How the project fits within the context of goals of GEF, its operational strategies, programme priorities, GEF Council guidance and relevant conventions.</p> <p>The project fits well within the goals of GEF and its operational strategies and priorities. It aims to create a viable and sustainable solar</p>	<p>3. No response required</p>

<p>energy technologies market in Namibia, systematically identifying and removing various barriers to the commercialization of solar technologies in Namibia. The activities identified in the proposal fit GEF programme priorities and meet the council guidance.</p>	
<p>4. Regional Context In the SADC region, Namibia is well integrated in the economic and commercial networks of the region. Namibia receives plentiful sunshine, and could easily use several of the mature solar energy technologies to reduce its CO2 emissions and gain some independence from imported fossil fuels</p>	<p>4. No response required</p>
<p>5. Replicability of the project The proposal has a good social analysis of barriers to solar technologies in Namibia. Several of the problems identified in Namibia in this section are also seen on other developing countries. The sections of the project dealing with removal of these barriers are replicable in other countries</p>	<p>5. No response required</p>
<p>6. Sustainability of the project Project is designed to be sustainable beyond the horizon of GEF support</p>	<p>6. No response required</p>
<p>Secondary Issues</p> <p>The proposal has no significant linkages to other focal areas (e.g., biodiversity protection or coastal waters). It does not have linkages to other programmes or action plans at the regional level.</p> <p>Other (non-stated) beneficial or damaging environmental effects are negligible.</p> <p>The degree of involvement of stakeholders in the project is planned to be adequate.</p> <p>The project will build significant capacity in Namibia in the private, NGO and government sectors for solar energy system commercialization</p> <p>The project is innovative in terms of comprehensively and systematically addressing removal of barriers at the technical, institutional and financial level, and also in terms of private sector, NGO and government institutions. A new and welcome feature introduced in the project management,</p>	

<p>compared to Phase I, is the conscious incorporation of learning, evaluation and adaptive management in project execution.</p>	
<p>Additional Comments</p> <p>1. Executive Summary. Here the reviewer has only two suggestions. On page 6, at the top, while giving the list of project risks, the risks should be articulated as possible adverse events beyond control of the project team. The reviewer suggests that this model, used earlier on page 5 should be applied here. Then the revised text will read as follows:</p> <p>Second bullet under <i>Policy-institutional</i>: The paragraph should end with the added sentence “This may not materialize” or something equivalent.</p> <p>Second bullet under <i>Social, market and financial</i>. The last sentence of the paragraph should end with the phrase “... to other markets or countries” or something equivalent.</p>	<p>Additional Comments</p> <p>1. The second bullet under Policy-Institutional has been reformulated and is being presented now as a possible adverse event. The risk reads as follows: “While co-financing from MME for the direct interventions of NAMREP is assured, the sustained long-term contribution and larger-scale expansion of the Government’s financial resources for renewable energy and off-grid electrification fails to materialize”. The second bullet under Social, market and financial has been amended as suggested.</p>
<p>2. Executive Summary, Annex B, the first page of the table. Please see the column under the heading “Mid-term indicator”, and see the entry in the bottom row in that column on that page. The entry seems to say that the PV sales rose by 60% at the end of Phase I. This is confusing – per the data presented later on, on page 28 of the executive summary, this seems not to be the case. The SRF borrowings are highly variable from year to year, and all over the map.</p>	<p>2. The Mid-term indicator in the logframe annex establishes a target of a 60% rise in sales of PV systems. Whether this target will be achieved can be verified only after data on PV sales has been collected and compared to the baseline data. The SRF borrowings seem to indicate that the market is picking up</p>
<p>3. Project Document. Page 1 (Summary page). In the third line 5, surely the word “barrier” is missing. Should be inserted. Otherwise the meaning is upside down.</p>	<p>3. The sentence has been corrected.</p>
<p>4. Project Document. Page 4, paragraph 5. The third sentence (beginning with Low rural incomes...) is missing a verb.</p>	<p>4. The sentence has been corrected.</p>
<p>5. Project Document. Page 6. Paragraph 11. Change “has” to “have” since it refers to sales.</p>	<p>5. The sentence has been corrected.</p>
<p>6. Project Document. Page 6, Footnote: the</p>	

prices of solar hot water systems appear very steep. Is this an error?	6. No, these prices are quoted correctly. Please refer to our response above.
7. Project Document. Page 11. Paragraph 32 and 33 appear to have repetitive text.	7. Repetitions in paragraph 33 have been deleted.
8. Project Document. Page 12. Paragraph 38. "Capacitated" is not a verb. Also fix the typo in "Ptoviding".	8. The sentence has been corrected.
9. Project Document. Page 12. Paragraph 42. Second bullet. In the text in the parenthesis, remove "which"	9. The sentence has been corrected.
10. Project Document. Page 16. Paragraph 57. The reported trend is just one data point. Please report the trend.	10. The sentence has been corrected.
11. Project Document. Page 18. Paragraph 67. Discussion of risks. Same point as made earlier (#1 above). Please add suitable phrases such as "This could fail to materialize" at the end of the text of the second bullet under Policy-institutional. And also on Page 19, second bullet from the top, add something like ""to other markets or countries."	11. The sentences have been corrected. Please also refer to our response above.

3. JUSTIFICATION FOR MAJOR CHANGES IN THE PROJECT, IF ANY³

None

³ Provide justifications for any major amendments in the project, including an increase of project amount exceeding 5% from the amount approved by the Council. Justification for such amendments and the project document will be circulated to the Council for a four-week review period. For procedures to the approval for major amendments, refer to the Council paper: [Project Cycle Update: Clarification of Policies and Procedures for Project Amendment and Drops/Cancellations, GEF/C.24/Inf.5](#)

4. REQUIRED ATTACHMENTS

- a) Project Appraisal Document: **(See separate file)**
- b) Report on the Use of Project Preparation Grant: **N/A**
- c) Confirmed letters of commitments from co-financiers (with English translations):
- d) Agency Notification Template on Major Project Amendment and provide details of the amendment, if applicable: **No major changes**