



**MINISTRY OF MINES AND ENERGY
DIRECTORATE OF ENERGY**

**BARRIER REMOVAL TO NAMIBIAN RENEWABLE ENERGY
PROGRAMME (NAMREP)**

STRATEGIC ACTION PLAN

**FOR THE IMPLEMENTATION OF RENEWABLE ENERGY
POLICIES AS OUTLINED IN THE NAMIBIAN WHITE PAPER
ON ENERGY POLICY**



PREPARED BY

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16 May 2006

Our Project Reference Number: 1952GA

The National Project Director
UNDP/GEF/MME/NAMREP
Ministry of Mines and Energy
1st Floor MME Building
1 Aviation Road
Windhoek

Attention: Mr. SG Hamutwe Jr.

Dear Mr. Hamutwe,

RE: SUBMISSION OF FINAL STRATEGIC ACTION PLAN

*STRATEGIC ACTION PLAN FOR THE IMPLEMENTATION OF RENEWABLE ENERGY
POLICIES AS OUTLINED IN THE NAMIBIAN WHITE PAPER ON ENERGY POLICY*

CSA is pleased to enclose five (5) hard copies and one (1) digital copy of the final Strategic Action Plan. Mr. Carter Hartz of our office would be able to answer any questions that the NAMREP PMU may have during the course of their review.

The final Strategic Action Plan incorporates comments and recommendations made during the stakeholder workshop in April 2006. The text has also been modified and expanded so that it is in a form that could be submitted to and endorsed by Cabinet or another high-level Government body. Please note that if and when MME does decide to submit the document to such a body, we would suggest making minor revisions to the cover and, possibly, removing the appendices.

CSA would like to thank the NAMREP PMU and the Ministry of Mines and Energy for giving CSA and our project team partners the opportunity to execute this project. We sincerely hope that we have achieved the project objectives to the full satisfaction and expectation of the PMU and MME.

Yours faithfully,

EVAT KANDONGO
CEO, CONSULTING SERVICES AFRICA



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LIST OF ACRONYMS

EE	Energy Efficiency
GRN	Government of the Republic of Namibia
MAWF	Ministry of Agriculture, Water and Forestry
MET	Ministry of Environment and Tourism
MHA	Ministry of Home Affairs
MIB	Ministry of Information and Broadcasting
MME	Ministry of Mines and Energy
MoE	Ministry of Education
MoF	Ministry of Finance
MoHSS	Ministry of Health and Social Services
MRLGHRD	Ministry of Regional and Local Government, Housing and Rural Development
MWTC	Ministry of Works, Transport and Communication
MTC	Mobile Telecommunications Corporation
NBC	Namibian Broadcasting Corporation
NHE	National Housing Enterprise
NPCS	National Planning Commission Secretariat
PoN	Polytechnic of Namibia
RE	Renewable Energy
REEE	Renewable Energy and Energy Efficiency
RET	Renewable Energy Technology
UNAM	University of Namibia
WVTC	Windhoek Vocational Training College

EXECUTIVE SUMMARY

INTRODUCTION AND BACKGROUND:

This project, *Strategic Action Plan for the Implementation of Renewable Energy Policies in the Namibian White Paper on Energy Policy*, is one of several projects that are currently being implemented by the UNDP/GEF/MME Barrier Removal to Namibian Renewable Energy Programme (NAMREP). The mission of NAMREP is to increase affordable access to RE services and accelerate market development for RET's by reducing institutional, information, human capacity, financial, technical, awareness and other market barriers. The need for this project was identified during the stakeholder workshop for the NAMREP *Baseline Study*. It was determined that a renewable energy strategic action plan is highly needed to provide organisation and prioritisation of future renewable energy interventions.

The project implementation methodology was developed during the preparation of the Consulting Team's technical proposal. NAMREP then approved the methodology upon appointing the Consulting Team to the project. The following figure summarises the steps of the methodology:



Six-Step Project Implementation Methodology

OVERVIEW OF THE STRATEGIC ACTION PLAN:

Development Planning Methodology:

The Renewable Energy Strategic Action Plan was developed using an objectives-based approach to planning within the guiding framework of the policy statements contained in the White Paper on Energy Policy (1998). A step-by-step process was followed, including 1) focusing on a sector's policy and mission statements, 2) formulating objectives to work towards the mission, 3) developing strategies to achieve the objectives, and 4) identifying specific actions to achieve the objectives. The objectives-based planning method was ideal for the RE Strategic Action Plan because White Paper contains clear development objectives.

Development Objectives and Policy Statements:

Development objectives were identified and loosely prioritised. Relevant policy statements were organised under the development objectives. Forty-one (41) policy statements were organised under nine (9) development objectives. The following table lists the nine development objectives:

Strategic Action Plan Development Objectives

Priority	Development Objective
1	Enhanced capacity of the renewable energy and energy efficiency sector
2	Improved renewable energy and energy efficiency knowledge base
3	Broadened awareness of renewable energy and energy efficiency
4	Equal playing field for renewable energy
5	Improved financing mechanisms for renewable energy technologies
6	Improved security of energy supply
7	Enhanced institutional coordination and integration
8	Improved access to energy
9	Sustainable development

Institutional Responsibilities:

The Renewable Energy Strategic Action Plan was formulated based on the assumptions that significant improvements and additions would be made to the existing institutional environment, and that a greater number of institutions would become more involved in the renewable energy sector. Only when all stakeholders operate individually and collectively within the confines of the energy sector policy and the Renewable Energy Strategic Action Plan will it be possible for the renewable energy and energy efficiency sector to make a significant and sustainable contributions to Namibia's energy future.

The foreseen implementing institutions and agencies are categorised as follows:

- Ministry of Mines and Energy
- Renewable Energy and Energy Efficient Institute
- Other institutions of Government, state owned enterprises (parastatals), non-governmental organisations, donors and the private sector

Ministry of Mines and Energy:

In line with stated Government policy on the outsourcing and sub-contracting of non-core functions, it is envisaged that MME will continue to play the role of renewable energy policy-maker, funding agency, donor-funding facilitator, and institutional coordinator. It is essential to the success of Renewable Energy Strategic Action Plan that MME ensure that adequate funding is provided for renewable energy activities. It is also essential that MME personnel become more involved in and committed to renewable energy. It is highly recommended that a restructuring process take place within the Energy Directorate of MME, whereby a new, well-staffed, and well-funded Division of REEE is established. This recommendation is consistent with what has been done in other countries, such as South Africa.

REEE Institute:

The establishment of a REEE Institute is essential for the Namibian energy sector and for the implementation of the Renewable Energy Strategic Action Plan. It is envisaged that the REEE Institute will initiate and manage the bulk of the activities recommended. The project activities will either be outsourced under the REEE Institute's supervision, or will be performed by the staff of the REEE Institute. The importance that has been placed on the REEE Institute requires that it be adequately empowered and equipped by MME. It was also strongly recommended by stakeholders at the project workshop that the REEE Institute be a fully transparent institution that regularly reports to the public and energy stakeholders regarding its achievements and plans.

Other Institutions and Organisations:

It is envisaged that other Government institutions, civil society, parastatals, external funding agencies and private sector organisations would play an important role in the implementation of the Renewable Energy Strategic Action Plan by providing funding, guidance, data, information, and implementation capacity. NPCS and MoF are critical institutions with respect to the funding of REEE for public institutions. Decision-makers at both institutions must be better informed about the opportunities and economic benefits of REEE technologies. NPCS is also critical for co-ordinating and integrating REEE amongst other programmes, such as poverty reduction. For that reason it is very important that the energy sector planning capabilities of NPCS be strengthened considerably. It is very important that the Directorate of Forestry work more closely with MME and the REEE Institute on cross-cutting biomass energy issues. It is also important that MTI become more involved with the establishment of new RE enterprises such as IPP's, SME charcoal briquette manufactures, etc.

Strategic Action Plan Table:

The comprehensive Strategic Action Plan Table represents the heart of the Strategic Action Plan. It is included as Section 3.2 in the Report, and is too large to be included or summarised in the Executive Summary. The Table includes the development objectives, strategic aims, policy statements and recommended activities. Each activity includes a description, general prioritisation, general implementation period, and rough cost estimate. The Strategic Action Plan is meant to be a practical and flexible planning tool, not a precise business implementation plan.

Estimated Annual Costs to Implement the Strategic Action Plan:

Based on the rough cost estimates provided for each activity, it was determined that the average annual costs to implement all of the activities would be between N\$8.75million and N\$10.5million per year. A significant percentage of the annual cost is required to 1) implement the Off-Grid Master Plan (N\$5million/year), 2) fund the Solar Revolving Fund (N\$2.5million/year), and 3) fund the REEE Institute (N\$1million/year).

Sources of Funding:

The Namibian Government needs to make a substantial increase in the annual funding that is dedicated to REEE activities. Although the Strategic Action Plan Table indicates that donors should be considered as potential sources of funding for most activities, GRN should develop its own source of sustainable funding that to be dedicated solely to REEE activities. In this regard, it is considered essential that GRN establish a levy on electricity tariffs, such as a small REEE levy, or a larger, general electrification levy. The

money raised could then be managed by the Electrification Fund (to be established) and used to fund the activities of the Strategic Action Plan. REEE should also be driven by the private sector without funding provided by GRN. The details of private sector activities, however, have not been specified in the Strategic Action Plan.

> END OF EXECUTIVE SUMMARY <

1. INTRODUCTION

1.1 UNDP/GEF/MME Barrier Removal to Namibian Renewable Energy Programme

This project, *Strategic Action Plan for the Implementation of Renewable Energy Policies in the Namibian White Paper on Energy Policy*, is one of several projects that are currently being implemented by the UNDP/GEF/MME Barrier Removal to Namibian Renewable Energy Programme (NAMREP). The mission of NAMREP is to increase affordable access to RE services and accelerate market development for RE technologies by reducing institutional, information, human capacity, financial, technical, awareness and other market barriers.

NAMREP is comprised of the following six components:

- Component 1: Capacity Building
- Component 2: Removal of Institutional Barriers
- Component 3: Public Awareness and Social Acceptability
- Component 4: Removal of Financial Barriers
- Component 5: Removal of Technical Barriers
- Component 6: Demonstrations and Pilots

NAMREP's key stakeholders are:

- Namibian Ministry of Mines and Energy, as National Executing Agency
- UNDP Namibia, as GEF Implementing Agency
- GEF, as main financier
- DANIDA, as co-financing institution
- Renewable energy technologies (RET) suppliers
- RET users
- GRN institutions dealing with RET issues
- Financing and Capacity building institutions
- Utilities
- ECB, as a regulatory body

All of NAMREP's activities are managed by a small group of professionals that are known as the Project Management Unit (PMU). Mr. S.G. Hamutwe (Jr.) has been designated as the PMU's project manager for this project.

1.2 The Project

Based on the findings of the NAMEREP Baseline Study and on input provided by stakeholders, the NAMREP PMU determined that a renewable energy strategic action plan is very much needed to better organise and prioritise future renewable energy interventions. Unlike most NAMREP projects and activities that focus primarily on solar technologies, the *Strategic Action Plan* covers all types of renewable energy and energy efficiency (REEE) technologies and interventions that could be considered for Namibia.

1.3 Project Implementation

The project implementation methodology was developed during the preparation of the Consulting Team's technical proposal. NAMREP then approved the methodology upon appointing the Consulting Team to the project. The following figure summarises the steps of the methodology:



Six-Step Project Implementation Methodology

1.4 Small Group Stakeholder Consultations

Stakeholders from various backgrounds were invited to review the first draft of recommended activities that were developed by the Consulting Team. The stakeholders were organised into three small groups, each group focusing on selected development objectives. The White Paper policies and first-draft activities were then presented to the stakeholders for their review, revisions and additions.

Appendix 5.1 provides a list of the persons who were invited to and attended the small group consultations.

1.5 Stakeholder Workshop

A stakeholder workshop was held after compilation and submission of the Draft Strategic Action Plan. The Draft Strategic Action Plan was emailed to participants prior to the workshop so that they would have sufficient time to review it and provide informed comments during the workshop.

The general objectives, structure and recommendations of the Draft Strategic Action Plan were first presented to participants and then they were given the opportunity to make comments. After all comments were received, the participants were led into an open discussion regarding the identification and responsibilities of institutions and organisations that would be critical to the implementation and sustainability of the Strategic Action Plan.

Appendices 5.2 and 5.3 include all relevant information regarding the stakeholder workshop.

2. METHODOLOGY, ASSUMPTIONS AND PRINCIPLES OF THE STRATEGIC ACTION PLAN

2.1 The Development Planning Approach

A Strategic Action Plan is a planning tool that bridges day-to-day work with long-range goals by providing clear and consistent direction on what long-range goals must be strived for and achieved, while at the same time allowing for flexibility in response to changing needs. Action planning typically includes identifying all of the actions required

to achieve an objective, and specifying who is going to perform the actions, by when, in what order, and with what means.

The Renewable Energy Strategic Action Plan was developed using an objectives-based approach to planning within the guiding framework of the policy statements contained in the White Paper on Energy Policy (1998). Objectives-based planning is probably the most common form of planning. It includes a step-by-step process of 1) focusing on a sector's policy and mission statements, 2) formulating objectives to work towards the mission, 3) developing strategies to achieve the objectives, and 4) identifying specific actions to achieve the objectives. The objectives-based planning method was ideal for RE Strategic Action Plan because the White Paper contains clear development objectives.

2.2 Additions and Modifications to the White Paper Policy Statements

It must be noted at this stage that one new policy statement was added and modifications were made to a few existing ones. These few, yet important, revisions were necessary in order to 1) address new developments and opportunities regarding RE fuels and transportation technologies (such as bio-diesel, cellulosic ethanol, and hybrid vehicles), and 2) consider RE interventions more often in urban and informal settlement areas.

2.3 Development Objectives

In line with the provisions contained in the White Paper on Energy Policy, nine development objectives were identified which have been loosely arranged in order of priority. This order neither implies that one development objective is more prominent than the others, nor that the implementation of the resulting activities could not commence simultaneously. The prioritisation of development objectives and actions simply indicates that some types of actions generally should take place before other types. An important example is the establishment of a Renewable Energy and Energy Efficiency Institute in order to provide “enhanced capacity of the RE sector”. The REEE Institute is regarded as essential to the attainment of the development objectives and related actions.

Each development objective is supported by a strategic aim that needs to be implemented in order to reach the development goal. The strategic aims were identified after careful analysis of the policy statements in the White Paper, and then reviewed and confirmed by stakeholders within the energy sector.

The development objectives and details on strategy are listed below in a loose order of priority.

DEVELOPMENT OBJECTIVE	DETAILS
<p>1. Enhanced capacity of the renewable energy and energy efficiency sector</p>	<p>The capacity to deal with renewable energy and energy efficiency issues needs to be enhanced by establishing the institutional and human resources capacity within the renewable energy sector by way of a Renewable Energy and Energy Efficiency Institute. A well-functioning Institute is essential for the successful implementation of the Renewable Energy Strategic Action Plan.</p>
<p>2. Improved renewable energy and energy efficiency knowledge base</p>	<p>An improved renewable energy and energy efficiency knowledge base will have to be established by way of research and studies so that energy policies can continuously be reviewed and effectively implemented, The newly established REEE Institute will need to coordinate the development and implementation of a research strategy on urban energy use and rural energy needs.</p>
<p>3. Broadened awareness of renewable energy and energy efficiency</p>	<p>Decision-makers and the broad public need to be sensitised about the macro- and micro-economic as well as the environmental advantages of renewable energy and energy efficiency technologies and practices. In order to achieve this objective, the REEE Institute will be instrumental in developing and implementing a renewable energy public awareness strategy.</p>
<p>4. Equal playing field for renewable energy</p>	<p>Once an REEE Institute has been established that will act as the “driver” of the Renewable Energy Strategic Action Plan, essential studies and research have been conducted, an appropriate level of information has been made available and awareness has been raised (especially among the decision makers), the necessary steps can be instituted for the establishment of an “equal playing field” for renewable energy. This includes a reform process of the energy pricing, legal and regulatory framework. This will require that the REEE Institute act as a leader in the development of structures for renewable energy and energy efficiency planning, generation and regulation to a level similar to that of the conventional energy sector.</p>
<p>5. Improved financing mechanisms for renewable energy technologies</p>	<p>Once an enabling environment has been established in terms of institutional capacity, information, awareness and the regulatory framework, the financing mechanisms for renewable energy technologies need to be enhanced by promoting investments for their advancement. For the REEE Institute, it will become a task of high priority to develop, update and disseminate life cycle assessment tools for decision-makers and to assist in the establishment of an electrification fund. For MME, it will be essential that sufficient funding is provided to the Solar Revolving Fund.</p>

DEVELOPMENT OBJECTIVE	DETAILS
6. Improved security of energy supply	When the renewable energy and energy efficiency sub-sector has been sufficiently strengthened, its stakeholders can make a substantial contribution towards the security of energy supply by diversifying and broadening the energy supply base. A major contribution of the REEE Institute will be the assessment of the contribution that different combinations of renewable energy technologies and hybrids can make to achieving security of supply, and, once found feasible, the active promotion of their introduction.
7. Enhanced institutional coordination and integration	The result a “level playing field” for renewable energy technologies will be an increase in their deployment. In order to render the increased utilisation cost-effective and sustainable, an inter-sectoral renewable energy co-operation framework will be established among public institutions, to which the REEE Institute will become the foremost implementation and support structure.
8. Improved access to energy	Once the above-mentioned development objectives have been achieved, renewable energy technologies, coupled with the appropriate energy efficiency approaches, can make a consequential contribution towards improved access to energy by contributing towards the implementation of an off-grid electrification programme. The REEE Institute, as the “driver” of the Off-Grid Electrification Master Plan, will assist the process by providing economic analyses and technical assistance on the combination of off-grid electrification with alternative energy options.
9. Sustainable development	An important aspect of the meaningful and large-scale introduction of renewable energy technologies is to ensure sustainable development by promoting broad economic empowerment, socio-economic development and environmental protection. To this end, the REEE Institute will co-ordinate institutional cooperation on gender-based energy issues, promote regionally-based broad economic empowerment, and ensure that environmental considerations are taken on board.

2.4 The Logic of the Strategic Action Plan

As previously indicated, the logical flow of the development objectives and the recommend activities that are contained within this Strategic Action Plan should not be viewed as a rigid step-by-step procedure. For example, the establishment of a full-fledged REEE Institute might prove to be a lengthy endeavour, but this should not prevent activities to be undertaken that resort under subsequent development aims. Nonetheless, the Action Plan has been produced with the sole intention to assist decision-makers and stakeholders in prioritising activities and resource allocations. Decision-makers should be alert to the fact that it is more efficient to first establish a conducive institutional environment before embarking on large and complex initiatives such as large-scale off-grid electrification.

2.5 Institutional Responsibilities

The Renewable Energy Strategic Action Plan was formulated based on the assumptions that significant improvements and additions would be made to the existing institutional environment, and that a greater number of institutions would become more involved in the REEE sector. Only when all stakeholders operate individually and collectively within the confines of both the White Paper on Energy Policy and the Renewable Energy Strategic Action Plan will it be possible for the REEE sector to make significant and sustainable contributions to Namibia's energy security.

The foreseen implementing institutions and agencies are categorised as follows:

- Ministry of Mines and Energy
- Renewable Energy and Energy Efficient Institute
- Other institutions of Government, state owned enterprises (parastatals), non-governmental organisations, donors and the private sector

Ministry of Mines and Energy:

In line with stated Government policy on the outsourcing and sub-contracting of non-core functions, it is envisaged that MME will continue to play the role of renewable energy policy-maker, funding agency, donor-funding facilitator, and institutional co-ordinator. It is essential to the success of Renewable Energy Strategic Action Plan that MME ensure that adequate funding is provided for renewable energy activities. It is also essential that MME personnel become more involved in and committed to renewable energy. It is highly recommended that a restructuring process take place within the Energy Directorate of MME, whereby a new, well-staffed, and well-funded Division of REEE is established. This recommendation is consistent with what has been done in other countries, such as South Africa.

REEE Institute:

The establishment of a REEE Institute is essential for the Namibian energy sector and for the implementation of the Renewable Energy Strategic Action Plan. It is envisaged that the REEE Institute will initiate and manage the bulk of the activities recommended. The project activities will either be outsourced under the REEE Institute's supervision, or will be performed by the staff of the REEE Institute. The importance that has been placed on the REEE Institute requires that it be adequately empowered and equipped by MME. It was also strongly recommended by stakeholders at the project workshop that the REEE Institute be a fully transparent institution that regularly reports to the public and energy stakeholders regarding its achievements and plans.

Other Institutions and Organisations:

It is envisaged that other Government institutions, civil society, parastatals, external funding agencies and private sector organisations will play an important role in the implementation of the Renewable Energy Strategic Action Plan by providing funding, guidance, data, information, and implementation capacity. NPCS and MoF are critical institutions with respect to the funding of REEE for public institutions. Decision-makers at both institutions must be better informed about the opportunities and economic benefits of REEE technologies. NPCS is also critical for co-ordinating and integrating REEE amongst other programmes, such as poverty reduction. For that reason it is very important that the energy sector planning capabilities of NPCS be strengthened considerably. It is very important that the Directorate of Forestry work more closely with

MME and the REEE Institute on cross-cutting biomass energy issues. It is also important that MTI become more involved with the establishment of new RE enterprises such as IPP's, SME charcoal briquette manufactures, etc.

3. RECOMMENDED ACTIVITIES OF THE STRATEGIC ACTION PLAN

3.1 Overview of the Recommended Activities for Each Development Objective

This section of the report discusses the more essential aspects of the Strategic Action Plan. Further details on the individual activities are contained in the Strategic Action Plan Table. Kindly note that the sequence in which the activities are discussed below does not necessarily follow the order or priority of the actions as presented in the Strategic Action Plan Table.

DEVELOPMENT OBJECTIVE 1

ENHANCED RENEWABLE ENERGY AND ENERGY EFFICIENCY CAPACITY

Supporting Statements from the White Paper on Energy Policy:

The Namibian Government undertakes to establish an institutional base that would house and manage renewable energy and energy efficiency programmes. In addition, Government will, in collaboration with the electricity supply industry, the private sector and Namibian education institutions, build the required human resources capacity by, amongst others, including aspects of sustainable energisation into the curricula of schools and institutions of higher learning.

Strategic Aim:

Establish the institutional and human resources capacity within the renewable energy sector.

Main Activities:

Establishment of the REEE Institute at the Polytechnic of Namibia

The immediate establishment of a REEE Institute at the Polytechnic is of utmost importance to the entire energy sector.

The forerunner to the Institute, generally referred to as the R3E Bureau of Namibia, had already been set up on 1 August 2002 as a voluntary association, and as a registered Section 21 company not for gain under the Companies Act on 17 January 2003. A collaboration agreement on the outsourcing of non-core functions relating to renewable energy was entered into between the Ministry of Mines and Energy and the R3E Bureau on 23 June 2003. On 6 July 2004, the former Minister for Mines and Energy decided to terminate the co-operation agreement between the Ministry of Mines and Energy and the R3E Bureau. The responsibility to deal with renewable energy issues was shifted to the REEE Institute of the Polytechnic of Namibia. It is foreseen that an institution to

manage renewable energy projects at the Polytechnic will be in place towards the middle of 2006.

So far, the political decision to establish a REEE Institute at the Polytechnic has been taken, and a collaboration agreement with the Ministry of Mines and Energy was signed on 24 March 2005. In addition, the Ministry has transferred N\$ 2 million as seed funding and counterpart contribution to the Polytechnic. All that needs to be done now is the establishment of the Institution as a functioning organisation with a mission and a mandate, a budget and a business plan, staff members, office accommodation, etc.

Establish the organisational structure, including function, responsibility, funding requirement, etc. of the REEE Institute

The establishment of a largely autonomous and self-financing institution to manage and drive Namibia's renewable energy programme remains of the utmost importance. Given its institutional, academic and technical infrastructure, the Polytechnic of Namibia is said to be ideally suited for the responsibility of housing the REEE Institute.

Initial core funding will at a later stage be replaced by income generating ventures such as the rendering of consultancy services, training of representatives of the industry, management of national and externally supported programmes, data collection and interpretation, policy formulation and revision, advice, etc.

In carrying out these tasks, the REEE Institute will collaborate closely with the University of Namibia, NamPower, the Electricity Control Board, the Regional Electricity Distributors, the Renewable Energy Technologies consultants, suppliers, installers and technicians, the donor community, etc.

Once the REEE Institute is fully functioning, its staff members will assist in the development of the renewable energy and energy efficiency institutional and human capacity building programme and coordinate its implementation.

Investigate the re-structuring of the Directorate of Energy to establish a Sub-Directorate of Renewable Energy and Energy Efficiency that would be concerned with policy and budget issues

Currently, issues related to renewable energy and energy efficiency do not feature high on the agenda of the Ministry of Mines and Energy. This is not due to the fact that these issues are accorded low priority. It is rather that in a sector that is dominated by conventional forms of energy, the institutional setup does not allow for sufficient financial and human resources to drive the renewable energy and energy efficiency policy making, regulating and budgeting process. Renewable energy is currently being taken care of under the sub-directorate electricity. A new sub-directorate would be a first important step in strengthening the Ministry's institutional capacity to deal with sustainable energy issues. The sub-directorate will co-operate closely with the REEE Institute as its implementing partner organisation.

Launch a sector-wide capacity assessment

The REEE Institute will be instrumental in conducting an assessment of the capacity within the Namibian renewable energy and energy efficiency sector. The review will include an appraisal of the complete delivery chain of renewable energy technologies, i.e. from the training of technicians and engineers, to the importation or manufacturing of equipment and their eventual installation and maintenance. The assessment will include

public as well as private sector institutions. Most importantly, the review will assess the capacity and willingness of stakeholders within the conventional energy sector to embrace concepts such as sustainability and life cycle costing.

Assist in developing a strategy for long-term renewable energy and energy efficiency capacity building in a public-private partnership

Once the competence of the various stakeholders within the energy sector has been enhanced or established, the REEE Institute will assist in the compilation of a long-term capacity building strategy. The strategy will be conceived and implemented in a public-private partnership.

Assist in developing curricula and training courses within the fields of renewable energy and energy efficiency

It is important to develop the national technical and research capacity on local renewable energy and energy efficiency issues. Capacity building initiatives will include

- Encouraging in-service training by suppliers, technicians and consultants, using the Gobabeb Training and Research Centre for demonstration purposes
- Establishing relevant post-graduate courses at the Polytechnic and/or the University of Namibia
- Establishing mechanisms for applied research by students of Vocational Training Centres, the Polytechnic and/or the University of Namibia
- Investigate a system of incentives to renewable energy technology suppliers for the provision of in-house training
- Assisting in the setting up of bursary schemes for applicable training

Assist in organising the RE & EE sector into a relevant association(s)

The suppliers, technicians and consultants of renewable energy and energy efficient goods and services are currently not organised into industrial associations. The REEE Institute, as an impartial mediator, will encourage and facilitate the formation of representative organisational structures to facilitate the flow of information between the public and the private sectors. In addition, the Institute will facilitate the establishment of a co-operation framework with energy suppliers and financial institutions.

Collaborate with international and regional organisations to keep up-to-date with important developments in the RET sector

The REEE Institute will maintain a broad cooperation network with similar organisations within the SADC Region and abroad. Through this network, the flow of information will allow the Namibian energy sector to benefit from the institutional, financial and technical developments elsewhere. Given Namibia's exceptional solar energy regime, the REEE Institute will market Namibia amongst scientist and industrialist as an ideal destination for researchers and investors. Once Namibia has gained an international standing, the establishment of the institutional and human resources capacity within the renewable energy sector will be sustainably strengthened.

DEVELOPMENT OBJECTIVE 2

IMPROVED RENEWABLE ENERGY AND ENERGY EFFICIENCY KNOWLEDGE BASE

Supporting Statements from the White Paper on Energy Policy:

The Namibian Government undertakes to establish a research strategy on energy-use and energy efficiency issues that will inform rural as well as urban energy policy development and revision. In addition, Government is committed to analyse the economic savings that can be attained through wider use of solar heaters, to develop, implement and a national biomass strategy, to investigate the continued feasibility of charcoal production and/or wood transport to areas of need, and to assess the extent to which the health and safety of Namibians is being affected by the use of wood, candles and paraffin.

Strategic Aim:

Conduct research and studies for energy policy review and implementation.

Main Activities:

Co-ordinate the development a research strategy on all issues affecting the renewable energy and energy efficiency sector

The REEE Institute will co-ordinate the development and implementation of a research strategy on renewable energy and energy efficiency issues in Namibia. A strategy on what research or data collection is to be performed on what topic, by whom, when and with what resources should be in place before a host of studies are conducted. These studies may otherwise become redundant if their findings and recommendations are of no relevance at the time of the completion of the report.

In accomplishing the task of supporting the improvement of the renewable energy and energy efficiency knowledge base, the REEE Institute will cooperate closely with institutions such as Regional Councils, socio-economic research institutes and the line Ministries responsible for women affairs and rural development.

Strengthen the research capacity within the private sector

The research capacity of Namibian consultants and consultancy firms needs to be strengthened over time. This capacity building effort should not have a detrimental impact on the quality of the research assignment. In case local expertise cannot be found, the REEE Institute will be instrumental in soliciting external assistance and in establishing twinning arrangements for the benefit of emerging consultants.

Conduct studies on urban energy use and rural energy needs, and investigate qualitative and participatory research methodologies and apply appropriate ones

The REEE Institute will conduct or commission studies on the urban energy use and the rural energy needs as a situational analysis. These studies will greatly contribute to policy formulation, implementation or review. It is important that the end-users participate in these studies.

Maintain data and statistics through a central database

The REEE Institute will gather relevant data at regular intervals and maintain a central database on issues that affect the energy sector at large. A most important set of data to be collected is on the national energy consumption. The REEE Institute will also establish and update a national database for end-users on energy efficiency technologies.

Develop incentives, regulation and legislation

The REEE Institute will regularly assess the need to develop a beneficial framework for the use of renewable energy technologies in Namibia. The Institute will support the introduction of support mechanisms that will facilitate the establishment of an “equal playing field” between conventional and alternative sources of energy by identifying instruments and by facilitating the supportive studies and research.

Assess household energy needs, demand and use patterns, and determine appropriate renewable energy technologies

Many households in less affluent parts of Namibia, especially those in the rural areas that are headed by women, do not have access to the information that would be necessary to make informed decisions on energy supply options that are affordable, safe and environmentally sustainable. In the same way, little information exists among the decision makers and service providers on the energy requirements and use patterns of households in rural areas and in urban informal settlements. The REEE Institute will make use of participatory energy planning methods (the EnPower methodology) to assist poor households to meet their energy needs affordably and sustainably through the use of renewable energy technologies and the application of energy efficiency approaches.

Technical studies

The sustainable development of the renewable energy sector requires a substantial number of supporting studies. Some of the most urgent studies that have to be undertaken are listed below. However, the list can only be completed, and the research projects can only be placed in order of priority, once the above-mentioned research strategy is in place. The REEE Institute will promote research, publicise reports and regularly update studies.

The following important studies have been identified:

- Assess the micro-economic benefits of solar water heaters
- Assess the micro-economic benefits of energy-efficient lighting
- Assess the micro-economic benefits of energy-efficient building designs
- Perform a micro-economic comparison of LPG and electric cooking
- Investigate the nature of energy end-use patterns in all sectors
- Monitor and assess energy efficiency in co-operation with stakeholders
- Conduct energy audits in industry in collaboration with Cleaner Production
- Assist in developing appropriate SWH and energy efficient building strategies
- Assist in finalising the Biomass Strategy by consolidating the existing Biomass Energy Key Issue Paper and Action Plan, revise as needed and obtain endorsement

- Regularly monitor the nature of energy problems experienced by rural people, and incorporate data in the Biomass Management Tool
- Assess and promote energy efficient biomass conservation technologies at the household and institutional levels
- Regularly commission and co-ordinate studies on the status and use of biomass
- Co-ordinate studies on the feasibility of charcoal production
- Co-ordinate studies on wood transportation
- Assist in the establishment of SME charcoal and briquette production, storage and transportation
- Conduct a study on the safe use of open fires, candles and paraffin for lighting, cooking or heating in homes
- Conduct study on prevalence and impact of wood, candle and paraffin usage, identify substitute technologies and promote its use
- Provide information on good kitchen management
- Assess the energy-use patterns in informal settlements and identify suitable energy services, technologies and delivery mechanisms
- Assess ways to include informal settlements in electrification master plans
- Assess the feasibility of local manufacturing of solar water heaters

Depending on the scope and scale of the studies, the resources for conducting the research could be solicited from the Ministry of Mines and Energy, the Ministry of Trade and Industry, the Directorate of Forestry, the international donor community, or from private sector institutions.

Test energy efficiency appliances

The REEE Institute will promote the testing of retailer energy efficiency products. Testing could be done by students of the Polytechnic of Namibia, using the institution's facilities under the guidance of lecturers. In addition, retailers will be encouraged to make information on energy consumption available to customers.

DEVELOPMENT OBJECTIVE 3

BROADENED AWARENESS ON RENEWABLE ENERGY AND ENERGY EFFICIENCY ISSUES

Supporting Statements from the White Paper on Energy Policy:

The Namibian Government will develop a capacity building and energy information strategy on the sustainable use of energy develop and implement renewable energy and energy efficiency awareness programmes at the level households and industry. Government will promote the use of energy-efficient appliances as well as the construction of thermally efficient buildings. In addition, Government will promote fuel efficient cooking technologies in rural areas and informal settlements.

Strategic Aim:

Raise awareness and provide information on the sustainable use of energy.

Main Activities:

Develop and implement a RE public awareness strategy

The REEE Institute will be instrumental in the drafting and implementation of a renewable energy and energy efficiency public awareness strategy. A strategy is needed to ensure that the most important sections of the Namibian population are reached with the resources that are made available for awareness raising. A strategy would also ensure that the most relevant information is developed, and that the most appropriate means are used for its dissemination once coordination framework for the implementation of promotional campaigns has been established. Most importantly, a continual awareness raising strategy is needed for addressing decision makers in the public sector (notably at the level of the National Planning Commission Secretariat and the Ministry of Finance), the private sector and in civil society.

Develop and implement an energy information gathering and dissemination strategy

The REEE Institute will establish methodologies on how to collect and disseminate information on renewable energy and energy efficiency most effectively. The information will assist decision makers in formulating and revising policies as well as the general public in deciding on the most suitable energy option.

Conduct promotional campaigns

The REEE Institute will be responsible for coordinating the promotional campaigns on renewable energy and energy efficiency in accordance with the awareness raising strategy. The Institute will solicit the required human and financial resources, coordinate the compilation of information material and liaise with the organisations that will carry out the various awareness raising campaigns.

Establish a coordination framework amongst Ministries for the effective implementation of promotional campaigns

The REEE Institute will be instrumental in establishing and maintaining a coordination framework amongst Ministries for the implementation of renewable energy and energy efficiency awareness raising campaigns. An operational structure at an inter-Ministerial level is required so that each sector is equally knowledgeable of the benefits of renewable energy technologies. The most important institutions within this framework will be the Ministry of Mines and Energy, the National Planning Commission Secretariat, the Ministry of Finance, and the Department of Works.

Establish, support and promote demonstration sites in all Namibian regions

The REEE Institute will promote the use of the Gobabeb Training and Research Centre as a demonstration site for raising the awareness of decision makers and the general public. In the remaining 12 political regions, the REEE Institute will promote the use as demonstration sites of public or private places where functioning installations show the sustainable generation and use of energy in a working environment.

Establish a public platform to discuss energy issues

The establishment of public platform where issues of national interest are debated is widely regarded as an effective tool to stimulate interest and raise awareness. Topics to be discussed should be current, well introduced and widely covered by the media.

Provide information about renewable energy technologies and energy efficient products, designs and methods

The REEE Institute will provide energy related information on a regular basis, making full use of the latest in information technology.

Public awareness raising and promotional campaigns, and information dissemination

The REEE Institute will be responsible for coordinating the development and implementation of a number of campaigns to advance the use of renewable energy technologies and energy efficient applications. Subject to the stipulations of the underlying strategy, the Institute will initiate the following activities:

- Develop and implement a strategy for the promotion of energy efficient appliances
- Develop and implement a strategy on the promotion of thermally efficient buildings
- Provide regulations/standards for thermal efficiency in buildings and energy end-use efficiency
- Develop and implement a strategy for the promotion of energy efficiency in buildings at the Government, industrial, commercial and residential level
- Review building regulations of Local Authorities and set minimum energy efficiency requirements in building construction
- Consider the viability of an appliance labelling programme or identify alternative approaches
- Assess the option of increased taxation on non-energy efficient appliances
- Assist in the development and co-ordination of an inter-Ministerial energy efficiency programme
- Develop and implement a strategy for the promotion of energy efficiency in industry
- Conduct showcase energy audits and build private sector capacity for energy audits
- Suggest incentives for acquisition of relevant devices
- Propose minimum power factor correction for specific industries
- Support and co-ordinate training to industry on efficiency and conservation measures
- Participate in Cleaner Production activities by building capacity building in industry on energy efficient production processes
- Review regulations and set minimum energy efficiency requirements for industry
- Promote fuel efficient cooking technologies in rural and informal settlements
- Monitor technologies for acceptance and appropriateness
- Devise and implement marketing strategies and campaigns (fuel efficient stoves, solar cookers, etc.)
- Introduce industrial solar and fuel efficient stoves at rural hostels, clinics, and other public infrastructure
- Introduce the use of biogas technologies at hostels, Agricultural Development Centres, etc.
- Develop and implement an energy information gathering and dissemination strategy
- Develop and conduct energy safety campaigns
- Develop and conduct energy efficiency campaigns
- Provide focused awareness raising and training at community forums on energy planning (e.g. Village Development Committees, FIRMs, Water Point Committees)

DEVELOPMENT OBJECTIVE 4

EQUAL PLAYING FIELD FOR RENEWABLE ENERGY

Supporting Statements from the White Paper on Energy Policy:

The Namibian Government will ensure that institutional planning frameworks treat renewable energy on an equal footing with other forms of energy when assessing their financial, economic and social costs and benefits, and will at the same time make sure that tariff structures and prices will be based on sound economic principles. In addition, Government will improve sector efficiency through the restructuring of the electricity supply industry, backing of an appropriate legal and regulatory framework for the electricity sector.

Strategic Aim:

Reform of the energy pricing, legal and regulatory framework.

Main Activities:

Develop the institutional structures for renewable energy and energy efficiency planning, generation and regulation to the level of conventional forms of energy

The REEE Institute will have the important task to assist in the development and/or strengthening of the institutional structures that are responsible for the planning, generation and regulation of energy solutions that utilise renewable energy technologies and energy efficiency approaches. Eventually, these structures need to be brought to the level of the counterpart institutions that manage the conventional forms of energy.

Establish a renewable energy and energy efficiency coordination framework

The REEE Institute will be instrumental in establishing a renewable energy and energy efficiency co-operation framework among public institutions, including the supporting policies and committee structures. Within the said framework, mechanisms for optimal renewable energy technology budgeting, implementation and maintenance by public institutions will be set up and brought in line with the Electrification Master Plan and the current National Development Plan.

Regularly provide technical inputs to the electricity supply industry restructuring process

Creating an “equal playing field” for renewable energy requires the restructuring of the electricity supply industry. For the reorganisation process to be meaningful and effective, the REEE Institute will provide technical inputs on energy options that are based on renewable energy technologies. The Institute will assist in the review and revision of the Electricity Act and other regulations to incorporate renewable energy and energy efficiency concerns. Most importantly, the Institute will ensure that the restructuring process remains a continuous exercise. The Institute will also be instrumental in paving the way for the introduction of renewable energy based Independent Power Producers.

Develop renewable energy and energy efficiency guidelines for public institutions

The creation of an “equal playing field” requires that renewable energy technologies are introduced at a large scale. The renewable energy technology industry requires the

establishment of a “critical mass” to remove the remaining barriers that exist to the large-scale introduction of renewable energy options. Active promotion of the introduction of renewable energy technologies in grid as well as in off-grid areas will greatly contribute to a larger, more competitive and sophisticated market, with its own product support base. The REEE Institute will assist the process by providing public institutions with relevant guidelines on energy related issues on a regular basis. This action will require that the energy related planning capacity of the National Planning Commission Secretariat be strengthened and continuously supported by the REEE Institute. The capacity of line Ministries to continuously consider renewable energy options and energy efficiency measures during the execution of their respective development projects and programmes needs to be built and sustained.

Capacity building at the Electricity Control Board and the Regional Electricity Distributors

The REEE Institute will assist the Electricity Control Board and the Regional Electricity Distributors in enhancing the capacity of their officials on life cycle costing and on the capability to consider renewable energy options whenever feasible. In general, the Institute will engage in a regular dialogue with these organisations with the aim of “levelling the playing field” between conventional sources of energy and renewable energy options. One of the first tasks will be an appraisal of the Electricity Control Board’s course of action regarding the regulation of renewable energy technologies, independent power producers and grid in-feeding. The Institute will also determine the Board’s role and scope in the promotion of a “levelled playing field” through actively supporting renewable energy based Independent Power Producers, mini-grids, hybrid systems, grid in-feeding, etc.

Develop and disseminate sound economic pricing principles based on life cycle costing

The fact that life cycle costing is not practiced as an economic pricing principle has greatly contributed to the “unequal playing field” between conventional and renewable energy sources. In the past, comparisons of asset alternatives, whether at the concept or detailed design level, have all too often been based on the initial capital costs. However, with growing pressure on energy sources, ongoing operating and maintenance costs must be considered as they consume most resources over the asset’s service life. Life cycle costing is a process to determine the sum of all the costs associated with an asset or part thereof from inception to disposal, including acquisition, installation, operation, maintenance, refurbishment and removal costs. Life cycle costing also takes due cognisance of the environmental impact of producing and operating an asset. Life cost planning is therefore pivotal to the development planning process. If the principles of life cycle costing were applied in many capital projects that have been implemented by the Namibian Government (and private sector), it would have become apparent that the advantages of renewable energy technologies often outweigh those of the conventional geysers option. The REEE Institute will disseminate information on life cycle costing to all stakeholders. When necessary, the Institute will develop pricing principles that are relevant specifically for the Namibian energy sector.

Improve planning for rural electrification

A rural electrification programme is implemented in Namibia within the framework of an electricity master plan that has a grid- and an off-grid component. These two parts of the master plan are not always functional as a planning tool, as areas earmarked as off-grid locations often become grid locations as the grid is extended beyond its borders for economic or political reasons. This situation makes it difficult to plan for off-grid

electrification, and expensive once renewable energy technologies have been installed. The REEE Institute will assist in improving the planning process for the electrification of rural areas.

Develop mechanisms for cross-subsidisation

The REEE Institute will propose mechanisms for cross-subsidisation to increase and sustain access to renewable energy technologies by low-income groups (also those living in informal settlements) and economic sectors (e.g. SME's), with a special focus on the most urgent energy needs of the health and education sectors.

Development Objective 5

Improved Financing Mechanisms for Renewable Energy Technologies

Supporting Statements from the White Paper on Energy Policy:

Government is committed to facilitate adequate financing schemes for renewable energy applications. Financing will be channelled through an electrification fund to be created for both grid and non-grid electrification projects. To facilitating economically viable and competitive investments in the electricity sector, Government will also ensure the establishment of the necessary legal, regulatory, fiscal and environmental frameworks, and will encourage the use of life cycle costing when considering alternative energy options.

Strategic Aim:

Promote investment for the advancement of renewable energy technologies.

Main Activities:

Continue to Fund, Administer and Expand the Solar Revolving Fund

The Solar Revolving Fund is a successful programme to make solar technologies more accessible financially to households. The programme needs increased funding support from MME, increased advertising by the Administrator, and expansion to other efficient technologies such as solar cookers, fuel-efficient biomass stoves, household biogas digesters, etc.

Assist in the establishment of an Electrification Fund

The REEE Institute will be active in establishing an Electrification Fund, including the supporting management structures, disbursement procedures, funding sources, etc. As part of the assignment, the Institute will assess the introduction of a levy on the electricity tariff to further “level the playing field” and to ensure that renewable energy technologies can make a meaningful contribution to Namibia's energy supply. The Institute will also consider the introduction of higher taxation on the importation of appliances that do not meet certain energy efficiency standards, specifically incandescent lights and electric water heaters. The Institute will assess the introduction of incentives such as tax reduction/relief on renewable energy technologies and energy efficient appliances, as well as subsidisation schemes for renewable energy based independent power producers.

Explore and establish international support mechanisms

In addition to assessing local funding options, the REEE Institute will be instrumental in exploring and establishing international support mechanisms. The Institute will work in close collaboration with bilateral and multilateral external funding agencies, the Ministry of Mines and Energy, the Ministry of Finance, the Ministry of Trade and Industry, and, most importantly, the National Planning Commission Secretariat in soliciting support (e.g. the Global Environmental Facility and other global funds). The Institute will also leverage support through current development assistance programmes by actively seeking synergies that allow for the addressing energy issues (e.g. the poverty alleviation programme under the European Union's Rural Poverty Reduction Programme, or the rural development initiatives planned for under the United State's Millennium Challenge Account).

Develop new mechanisms for funding renewable energy technologies and projects

The REEE Institute will develop new financing instruments such as the establishment of community financing schemes, the setting up of an urban electrification and/or energisation incentive scheme, and privately owned and operated energy supply solutions that make use of renewable energy technologies. The REEE Institute will also assess the introduction of a Renewable Energy Bond Financing Scheme (similar to Municipal bonds in the USA), and review the requirements for the establishment of publicly traded Renewable Energy Corporations (on the Namibian Stock Exchange), and, once found viable, facilitate their formation.

Strengthen the REEE Institute to become a one-stop-shop for potential investors in renewable energy technologies

The capacity of the REEE Institute will be expanded so that it can serve potential investors in the renewable energy sector as an investment centre that can render a comprehensive service. The service that will be provided will range from the provision of logistical support and general information, and eventually to the more intricate tasks of liaison with policy makers and regulators on independent power supply, grid in-feeding, manufacturing, etc. The REEE Institute will actively promote the manufacture and assembly of renewable energy technologies in Namibia, and thereby address the issues of employment creation and poverty alleviation. At the same time, the Institute will promote investment into renewable energy related research.

Assess the establishment of a financial mechanism for the purchase of alternative cooking, heating and lighting technologies in households that are safe and healthy

Every year, many Namibians, mainly children and the elderly, are killed, maimed or lose all their possessions through accidents that are started by open fires that are used indoors for lightening, cooking or heating. While this energy option poses severe health and safety risks, it is widely used because it is often the only affordable alternative. The REEE Institute will be instrumental in raising awareness on the dangers of open fires in buildings and in disseminating information about substitutes. The institute will also assist in the establishment of financial mechanisms to enable households to procure and sustain these alternative energy options.

DEVELOPMENT OBJECTIVE 6 IMPROVED SECURITY OF ENERGY SUPPLY

Supporting Statements from the White Paper on Energy Policy:

The Namibian Government will ensure that the electricity supply in Namibia is based on an optimal mix of energy resources that includes a renewable energy option if found to be viable after an evaluation of the expected costs and benefits, and of the environmental and socio-economic impacts, has been conducted. Government is committed to regularly assess the risks and opportunities in order to achieve the optimal balance. In addition, Government will encourage the introduction of alternative fuels to power engines.

Strategic Aim:

Diversify and broaden the energy supply base.

Main Activities:

Assess the contribution that different combinations of renewable energy technologies and hybrids can make to achieving security of supply

Once an enabling environment for the large-scale introduction of renewable energy technologies has sufficiently been established, the REEE Institute will invite proposals for the large-scale generation of electricity by way of renewable energy technologies. The Institute will assess the contributions that these alternative energy solutions can make to the security of the energy supply in Namibia. The Institute will consider proposals for stand-alone renewable energy technologies (such as wind generation parks, biomass digesters, solar technologies, tidal wave power, geo-thermal power installations, etc.) as well as for hybrid systems that combine conventional energy options with renewable energy technologies (such as diesel engines powered generators combined with photovoltaic cells and/or wind generators and energy efficiency methodologies), and will continuously promote their fair access to the grid. The REEE Institute will also assess the impact of alternative fuels (including ethanol, natural gas, propane, hydrogen, methanol and bio-Diesel) on the security of the supply of liquid fuels. In order to maintain transparency in the energy sector of Namibia, all proposals for the introduction of large-scale renewable energy applications, or the broad introduction of alternative fuels, will be evaluated according to a set of criteria that will be developed and applied by the REEE Institute.

Establish a transparent planning framework and mechanism for large-scale electricity generation

The REEE Institute will assist in the establishment and maintenance of a transparent planning framework for large-scale electricity generation, and constantly ensure that renewable energy technologies are considered whenever a life cycle analysis warrant their employment.

Introduce funding/subsidy mechanisms for renewable energy technologies and encourage their use within the framework of independent power production

For the renewable energy sector to be able to make a meaningful contribution to the security of the electricity supply in Namibia requires substantial investments. To

encourage investment in renewable energy based independent power production, the REEE Institute will facilitate the introduction of funding or subsidisation schemes on concessionary terms.

Continuously assess regional risks and opportunities for renewable energy technologies

In order to be able to address incidents of over-reliance on one origin (e.g. South Africa) and mainly one resource of energy (coal), the REEE Institute will continuously monitor the energy situation within the Southern African Power Pool and identify opportunities for the introduction of large-scale renewable energy options. The Institute will assist the process of the diversification of the sources of energy within the regional context of Southern African by, for example, promoting the effective use of the existing hydro-electric potential of the region, quantifying the risk of an interrupted energy supply in monetary terms, etc.

Conduct comparative studies on currently available technologies on fuel efficiency

In the time of the over-dependence on fossil fuels, all too often security of supply is meant to imply that what is needed can be supplied. However, when the energy supply is threatened, energy efficient measures need to be employed in order to meet stable production outputs. The REEE Institute will spearhead the process of introducing demand side management within the transportation sector by promoting, amongst others, the use of hybrid powered devices (e.g. vehicles powered by a combination of conventional fuel and batteries), improved fleet management, bulk transportation, etc.

DEVELOPMENT OBJECTIVE 7

ENHANCED INSTITUTIONAL COORDINATION AND INTEGRATION

Supporting Statements from the White Paper on Energy Policy:

The Namibian Government is committed to the promotion of sound energy planning principles throughout all public institutions. In addition, Government will establish inter-sectoral mechanisms to ensure that rural energy programmes are integrated and co-ordinated with other rural development interventions.

Strategic Aim:

Establish an inter-sectoral renewable energy and energy efficiency co-operation framework.

Main Activities:

Assist in the establishment and operation of a multi-sectoral coordination and co-operation framework

The REEE Institute will be actively involved in establishing and maintaining a co-operation framework amongst public institutions on the introduction, operation and maintenance of renewable energy technologies. The Institute will assist in the following activities:

- Provide information regarding renewable energy and energy efficiency technologies and approaches

- As the procurement of a renewable energy technology is more costly than a conventional installation (development budget), a budgeting system needs to be put in place that allows public institutions to use the savings on operating the device (recurrent budget) to install additional pieces of equipment; alternatively, a multi-year public sector financing system needs to be established that allows for the adoption of the most economical energy solution;
- Regularly inform renewable energy engineers and technicians on the latest developments on the market, including cost data, maintenance data, etc.;
- Assist the Department of Works to establish systems for the review of all designs and specifications for renewable energy technologies before their installation;
- Support Government in the standardisation of Government renewable energy projects;
- Establish a system that will allow Government to keep and maintain a comprehensive inventory of all renewable energy related installations;
- Assess and propose to Government systems to keep renewable energy installations operational, including outsourcing of maintenance to private sector technicians or to not-for-gain maintenance and repair organisations, establishing maintenance partnerships amongst Ministries and with state owned enterprises, devising a maintenance system that addresses the particular needs of renewable energy installations without having to compete with other maintenance issues in undefined recurrent budgets, etc.;
- Encourage ownership by the end-user of the renewable energy installation; and
- Act as a management body to help sustain and update the co-ordination framework mechanisms.

To keep the coordination framework relevant, the REEE Institute will facilitate the strengthening of the energy planning capacity of the National Planning Commission Secretariat and the Regional Councils. The Institute will also enhance the collaboration relationship between these institutions and the National Energy Council.

Co-operation with rural development interventions

The REEE Institute will record all rural development interventions, whenever possible on a renewable energy GIS data base. This will allow the inclusion of energy related issues during the implementation of the project activities. The Institute will provide information on renewable energy and energy efficiency matters to rural development officials and policy makers. The Institute will also collaborate with the Directorate of Forestry on the wood fuel needed by the rural population, and provide information on options for other fuels and on wood energy efficiency. In addition, the Institute will assess the viability of transporting fuel wood (as well as wood for construction) from the northern commercial farming areas to the northern communal areas.

DEVELOPMENT OBJECTIVE 8 IMPROVED ACCESS TO ENERGY

Supporting Statements from the White Paper on Energy Policy:

The Namibian Government is committed to the promotion of the use of economically viable renewable technologies to improve energy provision to rural areas, and will ensure that funds made available for rural electrification will be allocated between grid

and off-grid energy supply options, and used once a transparent planning and evaluation process has been completed.

Strategic Aim:

Implement an off-grid electrification programme.

Main Activities:

Make economic analyses, considering social demand and acceptability, on the combination of off-grid electrification with other suitable fuels

The REEE Institute will actively promote renewable energy technologies as an option to increase access to sustainable energy amongst Namibians. The Institute will demonstrate the significant role that renewable energy can play in rural, off-grid electrification. In this regard, the REEE Institute will, amongst others, assess the viability of a 12 V DC approach to operate appliances, and the relevance of battery-based power delivery systems. The Institute will assist in the development of improved evaluation criteria and implementation mechanisms for renewable energy supported rural electrification. It will also assess if renewable energy technologies are promoted more effectively through productive end users than through rural households.

Investigate the viability of an independent National Rural Energy Agency

A few Southern African countries have established national rural energy agencies in order to implement and manage rural energy programmes. These agencies function like state owned enterprises, and have the advantage of reducing the danger that rural electrification interventions are driven by political rather than by socio-economic considerations. The REEE Institute will assess the feasibility of establishing such an organisation in Namibia, and, if found viable, will initiate its establishment.

Renewable energy technologies for water pumping and purification

The continuous supply of safe water is pivotal to development in rural Namibia. Water needs to be pumped from deep boreholes over vast distances at great costs. This poses an additional burden on households that are already struggling to make ends meet. The REEE Institute will apply life cycle costing and assist Government and Regional Councils in introducing renewable energy technologies on a large scale for water pumping and purification. The Institute will also participate in an investigation on the replacement of Diesel with solar or wind power pumps. Along Namibia's coast, the REEE Institute will consider the use of renewable energy technologies for desalinating sea water.

Draft and update Rural Electricity Distribution Master Plans

The REEE Institute will actively participate in the preparation and revision of rural electrification master plans. Most importantly, the Institute will publicise these plans, raise awareness on their impacts and discuss their improvement openly with end-users. The Institute will also assist the authorities in correlating the off-grid master plans with rural electricity distribution master plans as well as with sectoral infrastructure development plans, and assist in the establishment of a multi-sectoral monitoring system.

DEVELOPMENT OBJECTIVE 9 SUSTAINABLE DEVELOPMENT

Supporting Statements from the White Paper on Energy Policy:

The Namibian Government is committed to the participation of rural women in the design of energy appliances, programmes and projects, as well as in awareness raising activities. The Government is also committed to the empowerment of previously disadvantaged Namibians in all aspects of the electricity industry. In addition, the Government will enforce compliance with all relevant environmental legislation and socioeconomic policies.

Strategic Aim:

Promote empowerment, socio-economic development and environmental protection.

Main Activities:

Co-ordinate institutional cooperation on gender-based energy issues, promote regionally-based Economic Empowerment, and ensure environmental protection

Women often carry the burden to cater for the energy needs of rural households. Increasingly greater distances have to be covered to gather fuel for cooking, lighting and heating. So far, the position of women on energy related issues has hardly been taken into account. The REEE Institute, together with the responsible line Ministries and civil society organisations will introduce gender aspects into energy planning, co-ordinate institutional cooperation on gender-based energy issues and strengthen the energy planning capacity at national and sub-national levels.

The renewable energy and energy efficiency market is served by a hand-full of mostly Windhoek-based suppliers and technicians. The large-scale introduction of renewable energy technologies into rural, off-grid areas is largely hampered by the absence of support structures and the resulting prohibitive costs related to covering large distances from Windhoek. The REEE Institute will consider and propose mechanisms that will facilitate a more even regional distribution of renewable energy suppliers and technicians. The systems could include the establishment of joint ventures between centralised and regionally based enterprises, as well as empowerment through local capacity building initiatives for less-advantaged Namibians.

Increased population pressure results in increased pressure on natural resources as rural households often have no choice but to rely heavily on wood to meet their energy needs and the requirement for shelter. This often happens at the expense of environmental sustainability. For this reason, the REEE Institute will assist in the establishment of environmental impact assessments that consider energy needs within a socio-economic framework. The Institute will expand the scope of environmental impact assessments to consider impacts such as greenhouse gas contribution from power stations, respiratory diseases from household smoke, etc. within a national, sub-regional, regional and global perspective.

3.2 Strategic Action Plan Table

The comprehensive Strategic Action Plan Table follows this page. The table represents the operative summary of the Strategic Action Plan.

The recommended activities are only described in concise terms within the table. At a later stage, it will be the responsibility of the REEE Institute, MME and other stakeholder institutions to provide more information within detailed Terms of Reference and Scope of Work documents.

Note that the information regarding implementation periods and estimated costs are only rough approximations that have been provided for planning purposes. The information should be revised and updated by the REEE Institute when the details of the activities to be implemented are further defined.

INSERT TABLE

4. COSTS AND FUNDING

4.1 Summary of Costs

The following cost summaries have been prepared based upon the rough estimated activity costs in the Strategic Action Plan Table. The estimated funding required for the Off-Grid Master Plan (N\$ 5million), Solar Revolving Fund (N\$ 2.5million), and REEE Institute (N\$ 1million) accounts for a significant percentage of total annual funding amounts. Note that the amount estimated to implement the Off-Grid Master Plan is in line with what was recommended by MME and NamPower in the original Rural Electricity Distribution Master Plan. The amount estimated to support the Solar Revolving Fund represents an increase above the existing level, but has been recommended by the NAMREP PMU based on increasing demand for household RET's. The amount specified for the REEE Institute is in line with the current amount provided by MME.

Year 1 Activities:

Average Estimated Annual Cost of Year 1 Essential Priority Activities =	8,500,000/yr
Average Estimated Annual Cost of Year 1 High Priority Activities =	225,000/yr
Average Estimated Annual Cost of Year 1 Medium Priority Activities =	25,000/yr
<u>Average Estimated Annual Cost of Year 1 Low Priority Activities =</u>	<u>0/yr</u>
Total Average Estimated Annual Cost of Year 1 Activities =	N\$ 8,750,000/yr

Year 2 – 5 Activities:

Average Estimated Annual Cost of Year 2 -5 Essential Priority Activities =	8,762,500/yr
Average Estimated Annual Cost of Year 2 -5 High Priority Activities =	1,325,000/yr
Average Estimated Annual Cost of Year 2 -5 Medium Priority Activities =	368,800/yr
<u>Average Estimated Annual Cost of Year 2 -5 Low Priority Activities =</u>	<u>0/yr</u>
Total Average Estimated Annual Cost of Year 2 -5 Activities =	N\$ 10,456,300/yr

Year 6 – 10 Activities:

Average Estimated Annual Cost of Year 6 -10 Essential Priority Activities =	8,500,000/yr
Average Estimated Annual Cost of Year 6 -10 High Priority Activities =	275,000/yr
Average Estimated Annual Cost of Year 6 -10 Medium Priority Activities =	385,000/yr
<u>Average Estimated Annual Cost of Year 6 -10 Low Priority Activities =</u>	<u>95,000/yr</u>
Total Average Estimated Annual Cost of Year 6 -10 Activities =	N\$ 9,255,000/yr

Year 11 – 15 Activities:

Average Estimated Annual Cost of Year 11 -15 Essential Priority Activities =	8,500,000/yr
Average Estimated Annual Cost of Year 11 -15 High Priority Activities =	375,000/yr
Average Estimated Annual Cost of Year 11 -15 Medium Priority Activities =	65,000/yr
<u>Average Estimated Annual Cost of Year 11 -15 Low Priority Activities =</u>	<u>100,000/yr</u>
Total Average Estimated Annual Cost of Year 11 -15 Activities =	N\$ 9,040,000/yr

4.2 Sources of Funding

The Namibian Government needs to make a substantial increase in the annual funding that is dedicated to REEE activities. Although the Strategic Action Plan Table indicates that donors should be considered as potential sources of funding for most activities, GRN should develop its own source of sustainable funding dedicated solely to REEE activities. In this regard, it is essential that GRN establish a levy on electricity tariffs, such as a small REEE levy, or a larger, more general electrification levy. The money raised would then be managed by the Electrification Fund (to be established) and used to fund the activities of the Strategic Action Plan. REEE should also be driven by the private sector without funding provided by GRN. The details of private sector activities, however, have not been specified in the Strategic Action Plan.

APPENDICES

APPENDIX 5.1

LIST OF PARTICIPANT AT THE SMALL GROUP CONSULTATIONS

LIST OF PERSONS AT THE SMALL GROUP CONSULTATIONS

The following table lists the persons who were invited and/or attended the small group consultations.

Group 1:

Objectives: 1) Improved Security of Supply; 2) Improved Energy Sector Government; 3) Improved Energy Sector Funding Mechanisms

Persons Invited	Attendance	Organisation
Mr. P. Shilamba		ECB
Mr. G. Clarke		ECB
Mr Royas Manyame	X	ECB
Ms. L. Amaambo		NAMPOWER
Ms. S. Penna-Utonih		MME
Mr. M. Muyanba	X	MME
Mr J. Komen	X	SchoolNet
Mr. G. Hamutwe Jnr.		NAMREP
Mr. P. Jain		NAMREP
Ms M. Mwandingi	X	UNDP

Group 2:

Objectives: 1) Improved Access to Energy; 2) Improved Institutional Coordination and Integration; 3) Sustainable Development

Persons Invited	Attendance	Organisation
Mr. E. Emvula	X	JCC
Mr. C. Roedern	X	Solar Age Namibia
Ms. S. Demas		NPCS
Mr. G. Howard		EMCON
Mr. M. Metz	X	Geocarta
Ms. N. Maritz	X	Nina Maritz Architects
Mr. G. Hamutwe Jnr.		NAMREP
Mr. P. Jain		NAMREP
Mr. N. Hipangelwa	X	NAMREP/MME

Group 3:

Objectives: 1) Enhanced Capacity; 2) Improve Awareness; 3) Improved Knowledge Base

Persons Invited	Attendance	Organisation
Mr. J. Pallet	X	DRFN
Mr L. Nakatana		WVTC
Mr W. Holch	X	Polytechnic
Mr. L. Mwewa		Polytechnic
Mr H. Koch		MAWF
	X	MAWF
Mr. H. Hasheela		MME
Ms. A. Libana		MME
Mr. G. Hamutwe Jnr.		NAMREP
Mr. P. Jain		NAMREP

APPENDIX 5.2

STAKEHOLDER WORKSHOP PROGRAMME, SPEECH AND PRESENTATION

WORKSHOP PROGRAMME

Project: NAMREP: Development of Renewable Energy Policies Strategic Action Plan

Date & Time: 20 April 2006, 13h30 – 17h00

Location: Auditorium, Ground Floor of Ministry of Mines and Energy Building, Windhoek

Workshop Objectives:

- Consultancy team to present recommendations of the draft report to stakeholders
- Stakeholders to provide valuable input for incorporation into final report

Thursday, 20 April 2006

TIME	PROGRAMME ACTIVITY	SPEAKERS
13:30–14:00	Registration	
14:00–14:15	Opening Remarks	Ministry of Mines and Energy
14:15–14:30	General Presentation by NAMREP	NAMREP
14:30–15:00	Presentation of Draft Report by Consultancy Team	CSA
15:00–16:55	Open Group Discussion of Report and Key Issues	Stakeholders
16:55-17:00	Closing Remarks	Facilitator

**DRAFT OPENING STATEMENT BY PERMANENT SECRETARY,
MR. JOSEPH IITA, MINISTRY OF MINES AND ENERGY DURING
THE WORKSHOP FOR THE STRATEGIC ACTION PLAN FOR
RENEWABLE ENERGY AND ENERGY EFFICIENCY
(WINDHOEK, 20 APRIL 2006)**

Master of Ceremonies

Distinguished participants

Supporters of Namibia's Sustainable Energy Future

Ladies and Gentlemen

In 1998 the Ministry of Mines and Energy called for a national workshop to draft a White Paper on Energy Policy for the Republic of Namibia. The workshop stretched over several days and attracted unprecedented participation from a wide range of stakeholders.

Upon its completion, Namibia's Energy White Paper was heralded as the most progressive approach to formalise and structure a country's energy future and it was indeed a milestone in the development of our Region.

Namibia's White Paper addressed issues of Energy Demand, Energy Supply, Urban and Rural Energy Needs, the Electricity Sector, the Petroleum Sector and a number of cross-cutting issues.

One of the most visionary elements of Namibia's Energy White Paper was the extensive inclusion of Renewable Energy and Energy Efficiency.

At the time, no other country within Southern Africa had attempted to formalise Renewable Energy and Energy Efficiency within its national energy ambitions.

Namibia spearheaded the way.

Several of the policy statements contained within our Energy White Paper have since been implemented. Most notably this includes the promulgation of Namibia's Electricity Act in 2000 and the subsequent establishment of our Electricity Control Board. Both the Electricity Act and our ECB have been fundamental in the restructuring of Namibia's Electricity Supply Industry and have paved the way to a more decentralised and thus less vulnerable electricity industry. As a result, the electricity industry is now far more adaptable and ready to accept electricity supply and distribution challenges.

Progress has been significant in the electricity section.

Where do Renewable Energy and Energy Efficiency stand though? Has progress in this sector been as significant and groundbreaking for the Southern Africa Region?

Frankly speaking, the answer is No.

If one looks at this sector on a Regional basis, South Africa now appears to be the leader in Renewable Energy and Energy Efficiency. Since 1998, South Africa has not only promulgated its own Energy Policy, but also in 2003 a White Paper specifically on Renewable Energy. Furthermore, South Africa has embarked on several important renewable energy initiatives including, biodiesel production, large-scale wind turbines, off-grid electricity production using woodgas, and the establishment of a Directorate of Renewable Energy within the Department of Minerals and Energy.

I believe Namibia has not been able to maintain its visionary edge in Renewable Energy and Energy Efficiency due to the following reasons:

- ◆ There continues to be a wide-spread lack of understanding and acknowledgement amongst energy stakeholders regarding the important opportunities that renewable energy can offer to Namibia – particularly with respect to the increased energy and economic security that would result by creating a more diversified energy supply sector that is less prone to Regional and international problems of limited resources, politics and currency fluctuations.
- ◆ There has been a lack of honest reflection by energy stakeholders regarding the limitations of renewable energy – in particular the financial barriers and the high degree of consumer awareness that renewable energy technologies require.
- ◆ There has been a sense of complacency in Namibia regarding sustainable energy planning, since we came to accept as normal and everlasting the exceptionally inexpensive electricity supply rates from South Africa.
- ◆ There has been too little coordination within the renewable energy sector and too much experimentation with consumers. This especially applies to rural consumers, which often had to bear the brunt when technological experiments failed. Namibia's solar energy fee-for-service approach is one example.

But times are changing. There is an unprecedented level of awareness about energy in Namibia. This awareness is enhanced each time the petrol and diesel prices need to be increased, and when consumers are notified of possible electricity interruptions in the very near future.

Energy consciousness has reached new heights and it has acquired a momentum of its own.

For the Ministry of Mines and Energy and its partners such as NAMREP and the Renewable Energy and Energy Efficiency Institute, the challenge is now to use this momentum and steer Namibia towards a more sustainable energy future. Without a doubt, this will include a significant contribution from Renewable Energy and Energy Efficiency sector.

The development of Namibia's sustainable energy future will require several important planning tools and institutions.

The Strategic Action Plan for the Implementation of Renewable Energy and Energy Efficiency is one of those most important planning tools.

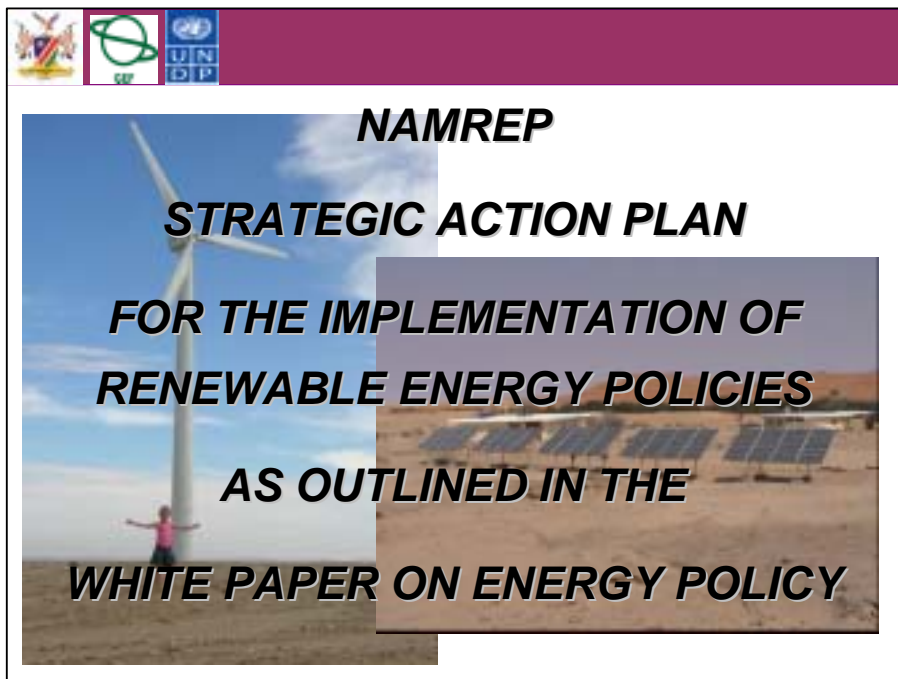
The Strategic Action Plan provides a comprehensive identification and prioritisation of activities that are required to fulfil the White Paper policy statements concerning Renewable Energy and Energy Efficiency.

Although the Strategic Action Plan will provide more clear guidance to achieving a sustainable energy future through renewable energy and energy efficiency, I would like to emphasise that no planning tool is effective without active involvement and implementation by Government leaders.

I would herewith like to emphasise my Ministry's commitment to provide proactive leadership in achieving sustainable energy supply and delivery in Namibia.

Strengthening the human capacity within the Directorate of Energy and its partners, and ensuring that the Ministry of Mines and Energy has sufficient resources to achieve our vision for Renewable Energy and Energy Efficiency in Namibia, is one of our priorities.

I challenge you to make your contributions to the Strategic Action Plan, and I thank you for your attention.




Project Objective:

To draft an action plan for the implementation of the renewable energy policy statements contained in the White Paper on Energy Policy (1998)

Team Members:

- Catherine Matthew-Uunona (CSA)
- Carter Hartz (CSA)
- Martin Heita (TindaESI)
- Christoph Schumann (Development Planning Consultant)
- Robert Schultz (DRFN)



METHODOLOGY 1

Relevant Policy Statements:


- Identification of all Policy Statements with reference to and influence on Renewable Energy and Energy Efficiency

Team Brainstorming:

- 5 Team Sessions to draft initial sequence of “**Activities**” which would satisfy each relevant Policy Statement
- Clustering relevant Policy Statements into “**Development Objectives**” and “**Strategic Aims**”

Small Group Brainstorming:

- 3 Small Group Sessions with invited stakeholders to refine “Activities”, identify gaps and to identify omissions
- Small Group Sessions were structured according to the different “Development Objectives”
- Participating Stakeholders : *MME, MAWF, UNDP, ECB, Polytechnic of Namibia, SchoolNet Namibia, Nina Maritz Architect, Geocarta Namibia, JCC, renewable energy technology supplier*



METHODOLOGY 2

Draft Strategic Action Plan:

- Format: **A3 Table**
- Column “**POLICY**”: contains Relevant Policy Statement with page reference
- Column “**ACTIVITIES**”: numbered sequence of Activities to be conducted to fulfill a Policy Statement
- Column “**PRIORITY**”: **Essential, High, Medium, Low, Complete**
- Column “**IMPLEMENTATION YEAR**”: structured over 15 years
- Column “**SOURCE OF FUNDING**”: identifies primary entity responsible for providing resources
- Column “**COST ESTIMATE**”: estimate resource intensity of an Activity, if relevant

ACTION PLAN FORMAT							
TABLE 1: SUMMARY OF POLICIES, ACTIVITIES AND PRIORITIES							
DEVELOPMENT OBJECTIVE 1: ➤ Enhance capacity of the renewable energy and energy efficiency sectors							
STRATEGIC AIM 1: ➤ Establish institutional and human resources capacity within the renewable energy and energy efficiency sectors							
No.	Policy	No.	Activities to be implemented by the REEE Institute	Priority	Estimated implementation (year)	Source of Funding	Cost Estimate (M)
				Essential High Medium Low Emerging	1 2-5 6-10 11-15 Other		
1	Renewable Energy, Energy Efficiency and Institutions Development of well-structured and institutionalised REEE as a national/sectoral body with adequate human resources, to ensure and catalyse a programme on energy efficiency and energy conservation, as well as on renewable energy policy matters notified by Cabinet – 004 (xvii) (2016)	1.1	Formulate a REEE Institute in the Polychrome. Establish the organisational structure, including location, responsibility, funding requirement, etc. of the REEE Institute	Essential	1	MSE	10,000
		1.2	Manage the REEE Institute in an effective and transparent public institution	Essential	Every Year	MSE	1,000,000
		1.3	Coordinate and implement the Renewable Energy Storage Action Plan	Essential	Every Year	REEE Inst	75A (subject to PFM & REEE budget)
		1.4	Assist in re-orientation of UMACE Energy Directorate to establish an effective sub-Directorate of REEE (covered with policy and budget issues)	Essential	2-5	REEE Inst	5A (subject to PFM & REEE budget)
		1.5	REEE Institute to collaborate with international organisations to keep up-to-date with important developments in the RET sector	High	Every Year	REEE Inst	5A (subject to PFM & REEE budget)
2	Education Sector Thematic of all ensure that education in renewable energy and the utilisation of energy is included in the curricula of schools, government, universities, vocational training centres and other institutions of education (2016)	2.1	Work in developing curricula for training courses on REEE (e.g. in certificate training at Institute, colleges, etc.)	Medium	2-5	MSE Part Others	100,000
		2.2	Work in establishing a Master's degree programme on REEE at PUL or UNMIP	Medium	6-10	REEE Inst	5A (subject to PFM & REEE budget)

ESSENTIAL ACTIVITIES	
Essential Activities Year 1:	
<ul style="list-style-type: none"> Establish and operate REEE Institute (every year) Regularly conduct RE awareness campaigns aimed at GRN decision-makers (every year) Advocate and assist existing institutional structures to facilitate sustainable energy development and life-cycle costing (every year) Develop an Off-Grid Master Plan, implement and update (every year) 	
Essential Activities Year 2-5:	
<ul style="list-style-type: none"> Development a strategy for research of rural and urban energy needs Develop and implement a REEE public awareness strategy Assist in the establishment of an Electrification Fund Assist in the establishment of a levy on the electricity tariff for funding of RET's Quantify the risks associated with security of supply 	




FUNDING REQUIREMENTS

Funding amounts:

- Funding amounts are estimates and categorized according to **PRIORITY** and **IMPLEMENTATION YEAR**

Year 1 Activities:		REEE Institute and Off-Grid Master Plan implementation account for about N\$ 1 million and N\$ 5 million respectively per annum.
Essential Priority Activities =	N\$ 6,000,000 / yr	
Total Cost of all Activities =	N\$ 6,250,000 / yr	
Year 2 – 5 Activities:		
Essential Priority Activities =	N\$ 6,262,500 / yr	
Total Cost of all Activities =	N\$ 7,956,300 / yr	
Year 6 – 10 Activities:		
Essential Priority Activities =	N\$ 6,000,000 / yr	
Total Cost of all Activities =	N\$ 6,755,000 / yr	
Year 11 – 15 Activities:		
Essential Priority Activities =	N\$ 6,000,000 / yr	
Total Cost of all Activities =	N\$ 6,540,000 / yr	




ASSUMPTIONS

Renewable Energy and Energy Efficiency Institute:

- The Team recognised the pivotal role of a Renewable Energy and Energy Efficiency Institute (REEEI), as envisaged by MME, in assisting MME with the implementation of the Strategic Action Plan
- The REEEI is not operational yet, and the team assumes that NAMREP will fulfill that function in the interim

Political Priority:

- The Team recognises growing political support for renewable energy and energy efficiency in Namibia.
- The Team assumes that this political support will continue to grow, making the implementation of the Strategic Action Plan a national priority and allocating sufficient financial resources towards it.



RECOMMENDATIONS

Revised Policy Statements:


- The Team noted few Policy Statements did not adequately address current situations and scenarios (e.g. energy needs in informal settlements, developments in bio-fuels)
- Revisions and additions were made only where necessary and highlighted.

Strategic Action Plan flexibility:

- The Team recommends regular revisiting (annual) and reevaluation of the Strategic Action Plan

Strategic Action Plan endorsement:

- The Team suggests identifying procedures and avenues to obtain endorsement of the Strategic Action Plan from other high GRN authorities



WORKSHOP OBJECTIVES

- **General Comments**
- **Open Discussion of Critical Issues**

Establishment of REEE Institute:

- What role should the REEEI play?
- Who are critical stakeholders?
- How could REEEI be supported by the sector at large?

Responsibility of MME:

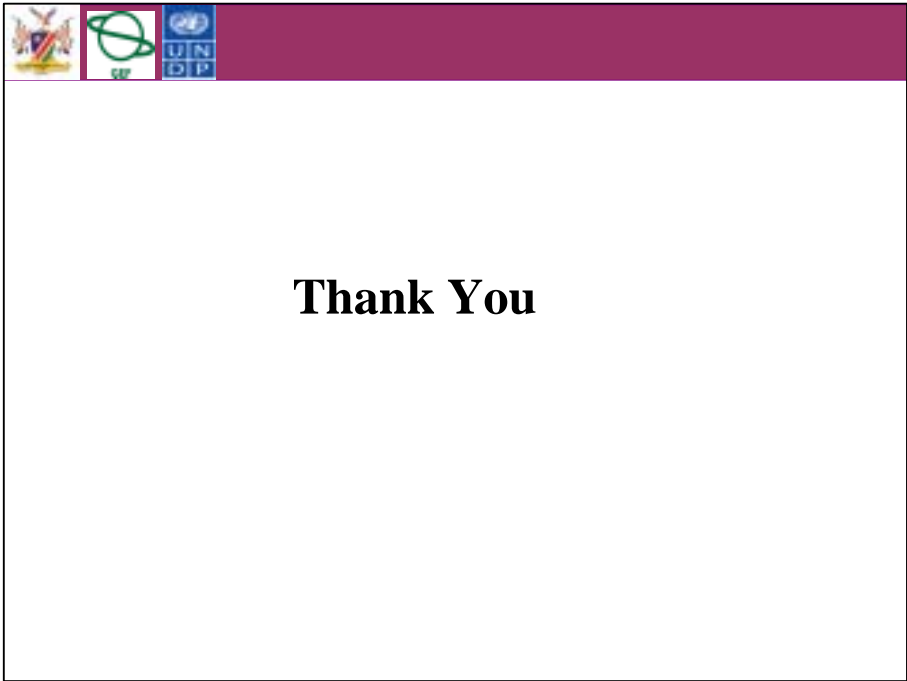
- What are priority roles for MME regarding RE and EE?
- What streamlining options are available (Draft Strategic Action Plan proposes establishment of a RE and EE Sub-Directorate)?

Responsibility of other Public Institutions:

- Who are key institutions?
- What should they provide?

Responsibility of Private Institutions:

- Who are key institutions?
- What should they provide?



APPENDIX 5.3

WORKSHOP SUMMARY

WORKSHOP REPORT

I. LIST OF ATTENDEES

	NAME	ORGANISATION	TELEPHONE	EMAIL
1	Abisai Shiyasaya	Omusati Solar Supply and Repair	0811246969 065-222012	Foreverelectrical@mweb.com.na
2	M.U. Nyambali	M.U. Electro	0812432192 245882	
3	Leonard Sakaria	Solar Plus Renewable Energy	0812809497	Lennysacky@yahoo.com
4	Shikokola Letisia	Namib Solar Electric	0812893208	Shikokola@yahoo.com
5	Ngololo Johannes	Sun Energy Enterprise	0812576633	
6	Shimweefeleni G. Hamutwe Jr.	NAMREP	061-2848111	Ghamutwe@mme.gov.na
7	Harald Koch	MAWF	061-2087266	Kochh@mawrd.gov.na
8	Ulf Storm	NBC	0812388427	Ulf-rst@iafrica.com.na
9	T.J. Kauaria	Omaheke Electric and Plumbing	0812536188	
10	Prescott Tjamburo	F.S.P. Inst.	0811287168 061-222649	
11	Aldrin Mubiana	DRWS	061-2087269	Mubianna@mawrd.gov.na
12	R. Hasheela	NAMREP	0811244172	Rhasheela@mme.gov.na
13	Harald Schutt	Amusha	061-232333	harald@namibnet.com
14	J.oris Komen	Schoolnet	0811244200	Joris@schoolnet.na
15	T.N. Naukusha	MOHSS	061-2032540	Theresia_naukushu@yahoo.co.uk
16	Namadhila S.N	La-Vita Solar Outlet	0812565008	
17	Jackson Nguuo	JNSE	0811296337	Jacksonnguuo@yahoo.com
18	Helmuth George Beukes	H.G.B. Electrical	0812091378	
19	M. Muyambo	MME	061-2848294	
20	Noddy Hipangelwa	MME/NAMREP	061-2848171	nhipangelwa@mme.gov.na
21	Martin Heita	Tinda ESI	0811298481	
22	E. Nganyone	DoW	061-2088710	Enganyone@mwtc.gov.na
23	C. Rohr	Soltec cc	061-235646	c.roehr@soltec.com.na
24	Christoph Schumann	Development Planner	061-239526	Globalcs@mweb.com.na
25	Catherine Matthew-Uunona	CSA	061-237427	Catherinem@csa.com.na
26	Carter Hartz	CSA	061-237427	carterh@csa.com.na
27	Conrad Roedern	Solar Age	061-215809	redern@iafrica.com.na
28	Kerstin Hoffman	Solar Age	061-215809	kerstin@mweb.com.na
29	Allan le Hane	Geocarta	0811278589	Geocarta@iway.na
30	Gerrit Clarke	ECB	061-374309	gclarke@ecb.org.na

II. SUMMARY

After opening speeches and a presentation by CSA of the Draft Report, participants were asked to first make general comments on the Strategic Action Plan, and then participate in an open discussion regarding key institutions and their roles within the renewable energy sector.

1. General Comments Regarding Strategic Action Plan:

1. MME should facilitate orders from Cabinet regarding requirements for RET use based on a set percentage of the total energy consumption and production. For example, it could be ordered that 10% of all electricity consumed in Namibia should come from Namibian renewable energy sources. It could also be ordered that all new households and public buildings must use solar water heaters.
2. MME and Namibian energy stakeholders need to be aware that “business-as-usual” will not be enough to sufficiently promote RET’s and to tackle Namibia’s energy problems.
3. The Namibian Government needs to establish a REEE levy on profits made by conventional electricity and petroleum fuel suppliers.

2. Open Discussion Regarding Key Institutions:

The following institutions and groups of institutions/organisations were discussed:

- REEE Institute
- MME
- Other public institutions
- Private organisations

2.1 REEE Institute

What should REEE Institute’s role be within the Namibian REEE sector?

- “Institute” implies an intellectual institution, however Namibia really needs an active organisation to implement REEE roll-out, as recommended in the Strategic Action Plan.
- Establish and maintain a RET component register.
- Evaluate incentives to the private sector, such as: REEE tariffs, technology costs in N\$, etc.
- REEE research
- Co-ordination
- Facilitation

Who are the key stakeholders of the REEE Institute?

- Polytechnic of Namibia and UNAM
- REEE suppliers and business sector
- NamPower
- MME
- ECB
- Communities
- SENSE

How could the REEE Institute be supported by the REEE sector at large?

- GRN commitment to funding the REEE Institute
- REEE Institute should be an open institution that is accountable to not only GRN but also to Namibian REEE sector at large. This could involve regular public meetings to have an open discussion of the achievements and plans of the REEE Institute.
- Suppliers and technicians should provide their product and cost data to the REEE Institute.
- Suppliers could perform EE studies of household appliances and make that information available to the REEE Institute.
- Suppliers could provide capacity building training workshops.

2.2 MME

Are there structural changes that can take place within MME so that REEE is better managed and promoted?

Yes – an REEE Division (sub-directorate) should be created within MME with personnel devoting 100% of their time to REEE.

What are the priority roles of MME regarding REEE?

- Lobbying for funding and REEE investments
- Facilitate research
- Policy implementation of REEE
- Develop strategies and legislation
- Facilitate inter-ministerial communication
- Endorse promotional campaigns

2.3 Other Important Public Institutions

Who are the other important public institutions with respect to REEE?

- MTI (to promote REEE business development)
- NPCS (REEE planning and funding)
- MoF (recurrent budgets for RET's)
- MWTC (promotion, technical specifications and maintenance of line Ministry RET's)
- MAWF (important end-user of PV pumps, and important partners in biomass energy projects)
- Line Ministries (as end-users)
- Foreign Affairs (co-ordination with other countries with respect to funding of and investment in Namibian REEE projects)

What role should the other institutions play?

- Share data
- Establish REEE counterparts within each institution
- In-house capacity building and awareness regarding REEE
- Provide funding
- Research and development
- Facilitate funding and investment in the REEE sector
- International technology transfer

2.4 Important Private Organisations

Who are important private organisations with respect to REEE?

- SENSE
- REEE suppliers
- Technicians/ SME's
- Consultants and NGO's

What role should the private organisations play?

- Ensure competitiveness
- Transparent profits
- Specialised research
- Increase number of staff and in-house capacity building
- Act as conduits for new technologies
- Share information
- Initiate marketing investment
- Act as role models by using REEE themselves

