Terminal Evaluation Review form, GEF Independent Evaluation Office, APR 2015

1. Project Data

GEF project ID	1245
GEF Agency project ID	1858
GEF Replenishment Phase	GEF-3
Lead GEF Agency (include all for joint projects)	UNDP
Project name	Renewable Energy-based Rural Electrification in Lesotho
Country/Countries	Lesotho
Region	AFR
Focal area	Climate Change
Operational Program or Strategic Priorities/Objectives	OP6 (Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs)
Executing agencies involved	Department of Energy of Ministry of Natural Resources; UNDP
NGOs/CBOs involvement	None Given
Private sector involvement	Through private consultant
CEO Endorsement (FSP) /Approval date (MSP)	9/22/2006
Effectiveness date / project start	mid-2007 actual
Expected date of project completion (at start)	Dec 2011
Actual date of project completion	March 2013

		At Endorsement (US $M)	**At Completion (US $M)**
Project Preparation Grant	GEF funding	0.32	0.32
	Co-financing	0.03	
GEF Project Grant		2.50	2.5
Co-financing	IA own	.01	.02
	Government	3.69	4.63
	Other multi- /bi-laterals	.56	0
	Private sector		
	NGOs/CSOs		
Total GEF funding		2.82	2.82
Total Co-financing		4.26	4.65
Total project funding (GEF grant(s) + co-financing)		7.08	7.47

TE completion date	7/23/2013
Author of TE	Dr. Andrew Mears, Dr. Molibeli Taele
TER completion date	3/12/2016
TER prepared by	Mia Lu
TER peer review by (if GEF IEO review)	Molly Watts

2. Summary of Project Ratings

Project Outcomes	MS	MU	N/R	MU
Sustainability of Outcomes	N/R	MU	N/R	MU
M&E Design	N/R	MS	N/R	MS
M&E Implementation	N/R	MU	N/R	MU
Quality of Implementation	N/R	S	N/R	UA
Quality of Execution	N/R	MS	N/R	S
Quality of the Terminal Evaluation Report	-	N/A	N/R	MS

3. Project Objectives

3.1 Global Environmental Objectives of the project:

The global objective of the project is "to reduce Lesotho's energy related CO_2 emissions by substituting fossil fuel (paraffin and diesel) with renewable energy sources (PV, wind and hydro) for household and productive uses through the provision of basic energy services to rural homes and community users" (PD, pg52). It will adopt a market transformation approach to the PV and wind market in the three target districts, and is consistent with the terms of GEF Operational Program 6.

3.2 Development Objectives of the project:

The development objective is "to improve people's livelihoods by promoting the utilisation of renewable energy to provide basic electricity services to the rural areas in Lesotho starting in the Mokhotlong district, thus reducing the country's dependency on fossil fuels" (PD, pg, 52).

The project consists of six components. Each of these components is composed of an immediate objective, specific outputs and a number of activities. By achieving these immediate objectives, the project will contribute towards the achievement of the global and development objectives. These components are:

1. **Delivery of renewable energy-based technology packages**: *To implement different delivery models for renewable energy-based rural electrification targeting different end-user groups and making use of different technology packages*
2. **Awareness raising**: *To increase awareness among the general public, decision-makers and rural customers on the potential role of renewable energy in meeting basic energy needs in rural areas*
3. **Private and public sector strengthening and training**: *To strengthen and support the public and private sector working in the renewable energy sector to provide better quality of service to the rural areas*

4. **Policy support and policy framework**: *To assist the development of policy and institutional arrangements needed for the widespread adoption of renewable energy sources for off-grid electricity services*
5. ***Financial mechanisms**: To assist with the implementation of a performance grant and a credit guarantee scheme for the larger scale dissemination of renewable energy based technologies to rural customers*
6. **Learning and replication**: *To disseminate experience and lessons learned in order to promote replication throughout the country of rural electrification based on renewable energy technologies*

3.3 Were there any **changes** in the Global Environmental Objectives, Development Objectives, or other activities during implementation?

There was no change of the project's Global Environmental Objective, or the Development Objectives. However, during implementation, due to non-materialization of some of the funds committed at inception, some of the project activities were dropped. For instance, Outcome 1 was reduced in scope to include only one delivery model, one target end-user group, and one technology package. Funding from World Bank supported Electricity Access Pilot Projects (EAPP) was withdrawn in 2007. Consequently, the PSC decided on the following design changes:

o **Removal** of Output 1.4: *An isolated hybrid mini-grid using wind and PV is installed at Sani Top serving at least 25 customers and two businesses*

o **Indefinite hold** of Output 1.7: *Feasibility study on the potential to increase the hydro component of the Semonkong hydro/diesel mini-grid*

o **Removal** of Output 1.8: *The capacity of the hydro station at Semonkong is increased*

o **Removal** of Output 1.9: The use of hydropower generation is included in the Seforong mini-grid

Outcome 5 was also reduced in scope and the financing mechanisms proposed were altered. Also, the Government's commitment to key elements of the project design changed over time. The market-based approach proposed by the project was marginalized by the Government of Lesotho's decision to adopt an alternate financing mechanism.

4. GEF IEO assessment of Outcomes and Sustainability

Please refer to the GEF Terminal Evaluation Review Guidelines for detail on the criteria for ratings.

Relevance can receive either a Satisfactory or Unsatisfactory rating. For Effectiveness and Cost efficiency, a six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess. Sustainability ratings are assessed on a four-point scale: Likely=no or negligible risk; Moderately Likely=low risk; Moderately Unlikely=substantial risks; Unlikely=high risk. In assessing a Sustainability rating please note if, and to what degree, sustainability of project outcomes is threatened by financial, sociopolitical, institutional/governance, or environmental factors.

Please justify ratings in the space below each box.

4.1 **Relevance**	Rating: Satisfactory

The TE rates the project as Relevant, and this TER rates project Relevance as Satisfactory. The project was designed to create learning opportunities and to remove barriers to the uptake of low GHG technologies for rural electrification and a market-based approach was anticipated as the means increasing private sector participation. As such, the original design was highly relevant to the Government's electricity sector objectives as well as within the broader national development objectives. Also, the project was aimed to fulfill the GEF OP #6: Adoption of Renewable Energy by removing Barriers and Reducing Implementation Costs.

4.2 **Effectiveness**	Rating: Moderately Unsatisfactory

The TE rates effectiveness and efficiency as Moderately Unsatisfactory, and this TER agrees with that rating. According to the project's objectives, there were 6 tangible goals associated with the project. Several of the expected outcomes were achieved satisfactorily, but not all of them:

- **Delivery of renewable energy-based technology packages**:
  The project installed a total of 1,537 with the installations rolled out in three phases: 250 PV systems in 2008/2009, 337 PV systems in 2009/2010 and 951 PV systems in 2010/2011. At least three business centers were established in each district using PV as their energy source. However, a target of fifteen IGAs and nine business centers was not reached due to budget constraints, as the anticipated National Rural Electrification Fund was never created to finance these activities. Also, activities related to improve hydro capacity of the project were removed from strategic work-plan due to lack of in-country capacity, policy and funds.

- **Awareness raising**:
  Information and awareness packages have been developed and made available to the general public. Awareness program for decision makers is developed and implemented. A rural customer awareness program is formulated and implemented. Public gatherings were organized at the district level and attended by more than one thousand persons annually (TE, pp34).

- **Private and public sector strengthening and training**:
  The project has held 3 training workshop on technical, business planning and financial aspects of PV systems in 2008, 2009 and 2012 where almost all PV dealers in Maseru and at least 70% outside Maseru participated. Technical knowledge of renewable energy technologies is strengthened. The project has trained over 165 technicians on PV technology, system sizing, installation and maintenance.

- **Policy support and policy framework**,
  A policy and implementation framework for renewable energy based rural electrification is defined and in place. However, the development of policies is still at the draft stage in spite of a long period of consultations and project support and participation. Lesotho Energy Policy is still at the draft stage since 2003. The project participated actively in the formulation of the Lesotho Renewable Energy Policy 2013 which was prepared by AAP. This is yet to be endorsed by the Government. Standards for renewable energy technologies and mini-grids are updated and enforced

- **Financial mechanisms**
  The performance based grant scheme is implemented and used by suppliers/ installers. This output was based on the World Bank Project (Electrification Access Pilot Project – EAPP) and the establishment of National Rural Electrification Fund (NREF). With the phasing out of the EAPP before the LREBRE start and the NREF not in place the performance guarantee scheme did not materialize as conceptualized in the project document. The Credit Guarantee Scheme is practically non-functional – there is no advantage to most of the suppliers to get guaranteed lending compared to their relationships with banks and they are not providing credit to end users.

- **Learning and replication**:
  A program for replication of the activities implemented under immediate objective 1 is prepared. The project team was however unable to go beyond the borders to share experiences due to lack of funds. Evaluation of the impact of renewable energy technologies on rural livelihoods was conducted initially, since the baseline survey was undertaken in 2008 in the three target districts and countrywide baseline survey followed in 2009. However, an impact analysis study and countrywide survey on it was not conducted.

4.3 **Efficiency**	Rating: Moderately Unsatisfactory

The TE rates efficiency as moderately unsatisfactory, and this TER agrees with that rating. The project TE didn't provide much information about the cost-effectiveness of the project. However, based on the available information, the TER rated efficiency as Moderately Unsatisfactory based on the following reasons: the project implementation was delayed for about a year; furthermore, the financial

commitment by other donors at the endorsement phrase was not realized. As a result, many activities were dropped.

4.4 **Sustainability**	Rating: Moderately Unlikely

The TE rates overall sustainability as Moderately Unlikely, and this TER agrees with that rating. The project did not prepare a sustainability strategy and the Exit Strategy fails to provide any concrete measures to address identified risks despite issues being identified by the MTE. The project's sustainability was rated based on the following dimensions:

Financial: The TE rates financial sustainability as Moderately Unlikely, and this TER agrees, because the Government of Lesotho will fall short of putting in place the sustainable subsidy mechanisms required to enable effective long term planning and implementation. Unless these unsustainable subsidy levels are dramatically revised, and supplemented by more sustainable financing mechanisms, it is likely that political-will would eventually wane as the Government of Lesotho reassesses the cost-benefits.

Socio-economic: The TE rates socio-economic sustainability as Moderately Unlikely, and this TER upgrades this rating to Moderately Likely. The public/stakeholder awareness is high in support of the project's long-term objectives. However, unless the livelihood and income generating benefits of renewable energy are demonstrated and taken up by beneficiaries, the full potential will not be realized. The project has delivered a few lessons for income generation using renewables, but impact on health and other socio-economic benefits has not been substantiated.

Institutional Framework and Governance: The TE rates institutional framework and governance sustainability as Moderately Likely, and this TER agrees with that rating. A draft of Renewable Energy Policy 2013 has been developed. Reinforcement of renewable energy strategy will stem from the approval of the policy. However there has been no progress on the National Rural Electrification Fund or the Master Plan and it is unclear as to the main policy drivers. The Lesotho Solar Energy Association is fully operational however this is presently dependent on free office space and support provided by Government of Lesotho. Department of Energy, National University of Lesotho (NUL), and Lesotho Solar Energy Association are playing a joint role regarding certification and training of public and private sector and it is unclear how this will be supported with the closure of the project. The training facility, established at NUL, is likely to be maintained and utilized in NULs physics and engineering programs (TE, pg41).

Environmental: The TER rates environmental sustainability as Moderately Unlikely, and this TE agrees with that rating. There is a high risk that inappropriate disposal of spent batteries from the solar PV systems will result in environmental pollution and health and safety issues. The project has not put in place a battery collection and recycling scheme and a recent draft concept paper for battery collection is quite inadequate, as no financially viable collection mechanisms have been identified. A pilot collection phase as attempted by DOE but this resulted in less than 10% participation by households due largely to

lack of sensitization.

5. Processes and factors affecting attainment of project outcomes

5.1 Co-financing. To what extent was the reported co-financing essential to the achievement of GEF objectives? If there was a difference in the level of expected co-financing and actual co-financing, then what were the reasons for it? Did the extent of materialization of co-financing affect project's outcomes and/or sustainability? If so, in what ways and through what causal linkages?

At the endorsement phase, co-financing accounted for 61% of the project, while in the end-phase cofinancing accounted for about 64% of the overall project. The World Bank cofinancing did not materialize, as a result several project activities were dropped (especially for the expected Outcome 1 group as a whole). The eventual co-financing ratio was still high due to strong support from the Government of Lesotho. Still, lack of funding through the World Bank definitely affected the outcome.

5.2 Project extensions and/or delays. If there were delays in project implementation and completion, then what were the reasons for it? Did the delay affect the project's outcomes and/or sustainability? If so, in what ways and through what causal linkages?

The start-up was delayed due to administrative reasons (TE, pg. 12). The procurement process led to the delay of the project in phase four. The design of the project was predicated on the availability of co-funding support through a number of other initiatives including the World Bank supported electricity Access Pilot Project (EAPP) and in particular the NREF. The delays in implementation and changes to the World Bank programme meant that this funding was removed from the project within the first year after signing the ProDoc. Therefore, the delay affected the project's outcome.

5.3 Country ownership. Assess the extent to which country ownership has affected project outcomes and sustainability? Describe the ways in which it affected outcomes and sustainability, highlighting the causal links:

There was strong country ownership of the project and its objectives. This was in part because the project design was well aligned with Lesotho's development goals as well as the Energy Policy Framework. The Government, through the Project Steering Committee, monitored and steered project preparation and implementation. It also ensured that the project was responsive to the needs of target groups, aligned with national policy, and was results-focused (TE, pg39).

6. Assessment of project's Monitoring and Evaluation system

Ratings are assessed on a six point scale: Highly Satisfactory=no shortcomings in this M&E component; Satisfactory=minor shortcomings in this M&E component; Moderately Satisfactory=moderate shortcomings in this M&E component; Moderately Unsatisfactory=significant shortcomings in this M&E component; Unsatisfactory=major shortcomings in this M&E component; Highly Unsatisfactory=there were no project M&E systems.

Please justify ratings in the space below each box.

6.1 **M&E Design at entry**	Rating: Moderately Satisfactory

The TE rates M&E Design at entry as Moderately Satisfactory, and this TER agrees with the rating. According to the Project Document, the M&E was carefully designed. As the ProDoc recorded, key indicators of the project are the number of PV systems sold in the target districts over the lifetime of the project, the number of wind (hybrid) mini-grids installed and the additional installed hydropower capacity, combined with the reduction in the consumption of paraffin in households using renewable energy based systems and the amount of diesel consumption avoided. The project M&E system will make provisions to verify baseline data and track these indicators at regular intervals.

The ProDoc elaborated a detailed Logframe that was intended to provide the basis for an integrated Monitoring and Evaluation (M&E) system in the project. The period from ProDoc signing in 2006 to the first PSC meet was more than 12 months and during this time it is evident that changes in baseline conditions took place. The baseline study was not comprehensive and took place in 2009 that was too late to capture real baseline context (TE, pg.24). The budget for M&E was 125,000, 100,000 from the GEF and 25,000 from co-Financing. (PD, pg.68)

6.2 **M&E Implementation**	Rating: Moderately Unsatisfactory

Both the TE and TER rate the M&E implementation as Moderately Unsatisfactory. Several M&E activities have taken place throughout the project, both in the field and in the project office and in general these have been used effectively as management tools. The PSC was an active and engaged group and met on a regular basis. Several field visits were undertaken and these have provided the Project team with end-user feedback.

However there was little collection of data or lessons that may have been useful in informing the project management such as supplier sales figures, system fault and repair logs, success stories etc. In particular, the mechanisms for recording the payments of customer deposits was left to the community councils and in many cases this was poorly managed and the project did not maintain any record of payments of deposits by individual customers.

Throughout the project duration UNDP employed M&E Specialists whose role was to oversee and ensure the smooth and timely implementation of the M&E systems. However, there are substantial shortcomings in the implementation of the M&E system. In particular, the failure to prepare a comprehensive baseline and to undertake subsequent monitoring studies as required to track progress against the indicators means that evaluation of attainment of objectives is inconclusive (TE, pg24).

7. Assessment of project implementation and execution

Quality of Implementation includes the quality of project design, as well as the quality of supervision and assistance provided by implementing agency(s) to execution agencies throughout project implementation. Quality of Execution covers the effectiveness of the executing agency(s) in performing its roles and responsibilities. In both instances, the focus is upon factors that are largely within the control of the respective implementing and executing agency(s). A six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess.

Please justify ratings in the space below each box.

7.1 **Quality of Project Implementation**	Rating: Unable to Assess

The TE rates quality of implementation as Satisfactory. However, the TE didn't provide much information on the implementation agency, UNDP, but focused more on the execution agency, such as the country government and relative ministers.

7.2 **Quality of Project Execution**	Rating: Satisfactory

According to the TE, the project management has adapted to substantive changes in external context including loss of co-financing and changes in the Government of Lesotho subsidy policy and has managed to deliver some important results despite significant constraints. These changes took place within the first years of the project implementation and led to "notional" design changes that impacted on most of the implementation period. The PSC and project management team, together with UNDP CO, made use of national and international expertise at this time to explore the impact of these issues and to propose adaptive measures. In particular the project used the guidance of the RTA's report and much later the findings MTE to identify adaptive measures (TE, pg23). TE rated it as Moderately Satisfactory without providing information on what was the shortcoming in the project execution. Given the challenge, this TER believed the Department of Energy did a Satisfactory job in

project execution.

8. Assessment of Project Impacts

Note - In instances where information on any impact related topic is not provided in the terminal evaluations, the reviewer should indicate in the relevant sections below that this is indeed the case and identify the information gaps. When providing information on topics related to impact, please cite the page number of the terminal evaluation from where the information is sourced.

8.1 Environmental Change. Describe the changes in environmental stress and environmental status that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes.

There were both positive and negative environmental change and impacts from the project. Positively, the installation of renewable energies directly affects people's way of using electricity, etc., which fundamentally decrease the country's carbon emission. However, negatively, the project hasn't come up with an idea of how to recycle batteries of the PV yet. Abandonment of the batteries may cause harm to the environment (TE, pg 46).

8.2 Socioeconomic change. Describe any changes in human well-being (income, education, health, community relationships, etc.) that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes.

The TE didn't provide information on the impact of socioeconomic change.

8.3 Capacity and governance changes. Describe notable changes in capacities and governance that can lead to large-scale action (both mass and legislative) bringing about positive environmental change. "Capacities" include awareness, knowledge, skills, infrastructure, and environmental monitoring systems, among others. "Governance" refers to decision-making processes, structures and systems, including access to and use of information, and thus would include laws, administrative bodies, trust-building and conflict resolution processes, information-sharing systems, etc. Indicate how project activities contributed to/ hindered these changes, as well as how contextual factors have influenced these changes.

a) Capacities. The project has built up capacities and awareness of the renewable energies, through various trainings to local people, to the private sectors participants and to the public sector employees.

b) Governance. The project has had a positive impacts on capacities, since it has made important progress in meeting many of its targeted objectives and removed a wide range of institutional, cultural and informational barriers to the adoption of renewable energy. Also, the government came up with policy and framework to better facilitate renewable energy, which builds up good governance (TE, pg46).

8.4 Unintended impacts. Describe any impacts not targeted by the project, whether positive or negative, affecting either ecological or social aspects. Indicate the factors that contributed to these unintended impacts occurring.

No unintended impacts are discussed in the TE.

8.5 Adoption of GEF initiatives at scale. Identify any initiatives (e.g. technologies, approaches, financing instruments, implementing bodies, legal frameworks, information systems) that have been mainstreamed, replicated and/or scaled up by government and other stakeholders by project end. Include the extent to which this broader adoption has taken place, e.g. if plans and resources have been established but no actual adoption has taken place, or if market change and large-scale environmental benefits have begun to occur. Indicate how project activities and other contextual factors contributed to these taking place. If broader adoption has not taken place as expected, indicate which factors (both project-related and contextual) have hindered this from happening.

The project design looked at mainstreaming of socio-economic issues through the income generating activities, however besides activities related to renewable energy enabled enterprises other options were not explored. Therefore, impact was limited in this section.

9. Lessons and recommendations

9.1 Briefly describe the key lessons, good practices, or approaches mentioned in the terminal evaluation report that could have application for other GEF projects.

The project failed to track key indicators or to maintain an effective monitoring system for project outputs. This information will be essential for informing future actions and for remedying issues that may yet arise as a consequence of this project. In particular there needs to be a technical and financial audit on SHS, this should include a thorough inventory of installed assets and the condition of the systems and financial records including deposits and repayments. A national survey of renewable energy penetration and energy use patterns in households and enterprise should also be undertaken otherwise it should be a key feature of the inception phase of any follow-on projects (TE, pg44).

9.2 Briefly describe the recommendations given in the terminal evaluation.

1. It is important to consider that both the market-based approach and Government-led approach may be complementary rather than competing options and that a two-pronged framework could be considered.

2. The Government needs to establish a clear policy for subsidizing rural electrification that takes into account private sector participation in service delivery.

3. There needs to be a policy and regulatory framework developed for private sector participating in energy service delivery for both grid- and off-grid services.

4. There needs to be a clearer role for local government in the delivery of rural energy services.

5. There is a need to establish in Lesotho a mechanisms for ensuring that technologies comply with internationally recognized technical standards and that these standards are enforced for all Government procurement and information is available in the public domain to assist consumers assess the quality of products.

6. Management of decentralized energy service deliver requires local level support.

10. Quality of the Terminal Evaluation Report

A six point rating scale is used for each sub-criteria and overall rating of the terminal evaluation report (Highly Satisfactory to Highly Unsatisfactory)

To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?	The TE uses consistent framework for evaluating relevant outcomes and achievement of the objectives. Outcomes were clearly supported by examples and indicators were quantified in tables.	**S**
To what extent is the report internally consistent, the evidence presented complete and convincing, and ratings well substantiated?	The TE is internally consistent, the evidence presented is complete, and the ratings are well substantiated. Evidence is presented in tables, which are consistent through the TE. However, the reviewer believes the TE could have done a better job in providing examples and summarizing indicators into tables or graphs.	**MS**
To what extent does the report properly assess project sustainability and/or project exit strategy?	The TE properly assesses different dimensions of the project sustainability and gives ratings for each dimension. However, the TE doesn't touch much information of the exit strategy or follow-ups.	**MS**
To what extent are the lessons learned supported by the evidence presented and are they comprehensive?	The lessons learnt were straightforwardly stated in the TE. The section included some major factors that could otherwise affect overall success of the project. However, these sections in the TE were not so clearly stated as which part was lessons learnt while which part was recommendation for the future.	**MS**
Does the report include the actual project costs (total and per activity) and actual co-financing used?	Yes, the TE includes the overall actual co-financing and compares it with the planed cost. Furthermore, the co-financing is presented in tables by per player.	**S**
Assess the quality of the report's evaluation of project M&E systems:	The TE did an average job in providing information on M&E. It went back to the ProDoc and did a god job in explaining the M&E at entry. However, because of the lack of baseline collection, the M&E implementation part didn't come with much information.	**MS**
Overall TE Rating		**MS**

11. Note any additional sources of information used in the preparation of the terminal evaluation report (excluding PIRs, TEs, and PADs).