

Energy and Environment Partnership for Southern and East Africa Phase II:

Programme Document



Ministry for Foreign Affairs of Finland – Unit for Southern Africa

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List of Abbreviations/Acronyms Used

ADA	Austrian Development Agency
AEEP	Africa-EU Energy Partnership
AFRICEF	Africa Forum for Clean Energy Financing
CFP	Call for Proposals
Consultant	Author of drafting the Programme Document i.e. Norplan AS of Norway
CTI PFAN	CTI Private financing advisory network
DBSA	Development Bank of Southern Africa
DFID	UK Department for International Development
EAC	East African Community
EE	Energy Efficiency
EEP S&EA	Energy and Environment Partnership Program with Southern and East Africa
EIA	Environmental Impact Assessment
Energia	International Network on Gender and Sustainable Energy
EUR	Currency unit: European euro
FY	Fiscal Year
GBP	Currency unit: United Kingdom's pound sterling
GHG	Greenhouse Gas
HH	Household
M&E	Monitoring & Evaluation
MFA	Ministry for Foreign Affairs of Finland
PD	Programme Document of the EEP
MTR	Mid-term review of the EEP
NC	National coordinator of the EEP
RBM	Risk Based Management
RE	Renewable Energy
REC	Regional economic community
SADC	Southern African Development Community
SME	Small and medium sized enterprise(s)
SvB	Supervisory Board of the EEP

1. EXECUTIVE SUMMARY

The Energy and Environment Partnership Programme with Southern and East Africa (EEP-S&EA) has been running efficiently since 2010, and a second phase of the Programme will be implemented over a four year period from mid-2013. EEP-S&EA Phase II will be jointly funded by the Ministry for Foreign Affairs of Finland (MFA), the Austrian Development Agency (ADA) and the UK Department for International Development (DFID).

The second phase has an approximate project support budget of 35 million euro over four years¹. EEP-S&EA Phase II will build on the successes and lessons learned from Phase I, as well as the well-recognized EEP brand-name, and will continue to develop as a leading platform for developers looking to demonstrate and scale up technology and business model innovations within the small-scale renewable energy space.

The **overall objective** of the EEP-S&EA is to reduce poverty through inclusive and job-creating green economy and improved energy access and security in the Southern and East Africa regions while mitigating global climate change. The Programme targets key barriers that continue to plague the region in collective efforts to expand access to renewable energy. The goal hierarchy, general approach and specific activities are designed to address these specific barriers. The **immediate objective** of the EEP-S&EA programme is greater access to sustainable energy services achieved through the fast tracking of RE project demonstration and deployment, including through technological learning, donor coordination and private sector investment.

The three outcomes of the Programme are:

- OC1: Inclusive green economic growth contributed to, through increased; access to sustainable energy services, significant scale up of proven energy services, increase in installed capacity, reduction in energy expenditure and mitigation of climate change achieved primarily through support to small to medium size organisations.
- OC 2: EEP project developers are successful in starting and managing RE/EE energy businesses, raising and leveraging finance and managing project implementation
- OC 3: EEP is an active regional partner in; generating RE/EE knowledge and evidence, sharing of experience, and informing effective and inclusive regional RE/EE policies

For each of these outcomes, quantitative targets, subject to actual project level funding, have been developed (e.g. economic benefits achieved, CO₂ emission reductions, projects reaching commercial viability, stakeholder knowledge and awareness of RE/EE sectors and issues).

The Programme will place particular focus on projects that hold promise for i) reducing the costs of modern energy services, and/or ii) improving upon the financial sustainabil-

¹ DFID funding is for a three year period 2012/4-2015/3.

ity of these services to low income and/or vulnerable groups. By testing, documenting and communicating the success and learning's of these innovations, EEP II will provide a direct contribution to the regions efforts to promote inclusive economic growth.

The direct beneficiaries of EEP-S&EA will be project developers and institutions directly involved in EEP-S&EA. The indirect (final) beneficiaries are the energy end-users and more specifically, households, SME, communities, etc., in the partner countries of EEP-S&EA Phase II. Vulnerable and marginalized groups, the youth and female entrepreneurs will be particularly targeted via various Programme activities.

2. BACKGROUND

The Energy and Environment Partnership Programme in Southern and East Africa (EEP-S&EA) was initiated in 2009 by the Ministry for Foreign Affairs of Finland (MFA), with co-funding from the UK's Department for International Development (DFID) and the Austrian Development Agency (ADA), and has been running effectively since March 2010. The Programme was initiated based on the experiences and lessons learned from similar programs in Central America and Southeast Asia. Phase I of the Programme is scheduled to be completed in June 2013. A midterm review of the programme was carried out in January 2012. The Programme has been deemed successful in capitalising on the increased interest in private sector delivery of renewable energy and energy efficiency services.

Phase II – commencing June 2013 - of the program will be jointly funded by the Ministry for Foreign Affairs of Finland (MFA), the Austrian Development Agency (ADA) and the UK Department for International Development (DFID).

The EEP-S&EA addresses the challenges of energy poverty and energy security in the Southern and East Africa regions. While it focuses primarily on national challenges, it is a regional programme also addressing the issues of renewable energy development, energy access and energy efficiency from a regional perspective. The EEP-S&EA also aims to generate a knowledge base for information exchange on RE and EE and influencing energy policies. The program represents a key regional forum and a flagship example of donor coordination in the energy sector. In DFID's review of potential interventions of similar types in the region, a contribution to EEP emerged as the best opportunity and value for money.

Phase I of the programme became operational in April 2010. It was launched with 9.5 million EUR in 8 countries: Botswana, Kenya, Namibia, Mozambique, Zambia, Tanzania, Swaziland and South Africa. The Seychelles joined in 2011, and Burundi, Lesotho, Rwanda and Uganda in 2012.

As of 2012, EEP covers a range of sub-sectors (e.g. grid extension, mini-grids, cooking and energy efficiency), 15 technologies and 12 countries. Solar, biomass and biogas are the most developed projects to date. The EEP CFPs have been highly successful in terms of out-reach, having attracted over 1000 applications for funding support. This success has awarded the programme and the underlying partnership a great deal of legitimacy in the region, as well as a network that is already benefiting prospective entrepreneurs, investors and policy makers. It could be expected that this success, combined with the governance and administrative set-up of the Programme could attract interest from donors and multilaterals that are increasingly looking to support energy access expansion in Sub-Saharan Africa.

As described in the following sections, EEP is motivated by and designed to address specific barriers preventing or slowing the regions effort to rapidly extending access based on renewable energies. Further, the Programme is both motivated by and designed to directly address the key priority areas as laid out in the Finnish Development

Policy “*Finland’s Development Policy Programme, 2012*” as well as those of development partners (ADA and DFID).

2.1 Energy situation in Southern and East Africa

Significant resources. Southern and East African countries have significant renewable energy resources, including biomass, hydropower, geothermal, solar, and wind energy, as well as large potential for energy efficiency. However, this potential remains largely untapped, except for a few countries. Despite these abundant energy sources, the level of access to modern energy services in the region is also very low. More than 75% of the population in Sub-Saharan Africa (and more than 90% in rural areas) do not have access to electricity. Electrification is not only hindered by the high costs of extending the grid, but also by limited generation capacities and a dependence on imported fossil fuels. This could however change in coming years as natural gas has been discovered all along the East African coast from Mozambique to Tanzania. On the other hand, this could eventually slow down the deployment of renewables even if it will take at least 10 years to develop a natural gas industry and eventual gas-fired electricity projects. By that time, it is expected that renewables will have gained more momentum and solar, for example, will be mainstream with much lower costs. Biomass energy is still predominant in the national energy balances with more than 80% of people still relying on solid biomass for cooking and heating.

Significant impacts. The absence of modern forms of energy, such as electricity, liquid fuels and gas, affects productivity, employment, communications, health-care and education, especially for women and children. Improving energy access in Africa requires efforts at different levels and access to grid electricity will need to be complemented in coming years by increasing the use of decentralised energy options, such as hydro, biomass, solar and wind energy. In remote areas that will not gain access to the national energy grids in the foreseeable future, decentralised, renewable energy systems are often more cost-effective and reliable than diesel pumps and generators in providing electricity, heat and mechanical energy. These systems offer a chance to tackle the major challenges of the African energy sector development by:

- Helping to increase rural electrification rates
- Installing additional capacity for the national and local grids, independent from imported fuels
- Promoting productive use of energy

Decentralized renewable energy. African countries already have positive experiences of using decentralised renewable energy sources that can be replicated and scaled-up. In Kenya, for example a rural company has manufactured, sold and installed over 300 water pumps, driven by wind energy. Kenya also has more than 200,000 solar-electric (PV) systems, mainly marketed and installed by private companies. (Report of the Africa Commission, May 2009). However, renewable decentralised energy systems often need complementary measures for productive uses of energy such as micro-credits for machines, better linkages to markets and SME promotion. Such finance will be complementary to the EEP programme activities.

Efficiency and access. Also energy efficiency and energy access go hand-in-hand in EEP's target countries. This is because energy freed up from one user will come to the benefit of another - either in the form of other productive activities or as increased access, in a power constrained environment. Further, best practice energy efficiency efforts ensure better energy utilization (i.e. GDP/TCO₂) and thus, per definition, a cleaner development path. Despite significant potential and economic gains from efficiency, low tariffs and underlying counter-active policies prevent implementation in most countries. This section provides a summary of the regional challenges in Southern and East Africa, policies and cooperation as well as the framework for renewable energy development and energy access in the participating countries in the region.

2.2 Regional barriers targeted by EEP

Both the SADC and EAC regions have great potential to meet a considerable share of their energy demand with various renewable energy sources but current policies and strategies do not sufficiently support the development of energy production based on renewable energy sources. Renewable Energy (RE) and Energy Efficiency (EE) are facing various barriers, like the lack of financing, subsidies and knowledge. The region has a number of characteristics and trends that will ultimately underpin a rapid expansion of access to modern energy, based on renewable energy sources; it has ample natural resources; renewable RET sources are increasingly affordable; current expenditures on lower quality energy carriers indicate a willingness-to-pay; there is a potential for significant indirect impacts from economic growth, social services and energy security.

The Program is motivated by the dual challenge of expanding access to modern, low cost and sustainable energy, while making a contribution to mitigating climate change. However, EEP enters into a space where many public and international organizations are looking to speed-up and scale-up the transition to universal access, primarily based on renewables. Further, EEP only has very limited funding available to it and thus must play a catalytic and demonstrational role, and must be clear about the barriers to this transition that EEP will target. EEP shall make a concerted effort to helping the region overcoming specific barriers to scaling up access expansion based on renewables. Specifically, the Program aims to systematically address four well-defined and highly prevalent barriers in the region;

- 1) **Innovation.** Despite the significant potential in the region for both RE and EE solutions the constraints faced by low income beneficiaries generally imply a need for innovative technology applications and business models. The viability of such models can only be tested and demonstrated by means of a significant grant capital subsidy. The DFID Business Case refers to “the presence of positive externalities where individual investors cannot capture the benefits of spill-over effects from new technology.”
- 2) **RE and EE Market Creation.** Despite the rapidly growing interest and amount of capital available for “green investments” in Africa, investors are generally not well placed to identify, screen and select promising business models or devel-

opers. The DFID Business Case refers to “the lack of information to investors about market opportunities”.

- 3) **Pilot to scale-up.** Developers often have good concepts with good fundamentals, but their ability to make a project bankable and secure commercial finance is usually limited. Thus, even potentially promising projects with significant potential get “stranded” following an initial pilot. By providing funding to projects the EEP will provide a fast-track opportunity to move projects along the development cycle, and business advisory services. The DFID Business Case refers to the “access to finance as one of the most often cited barriers to the deployment of renewable energy.”
- 4) **Policy reform that enables developers.** Policy reforms are typically driven by top-down processes, largely driven by state-owned integrated utilities. The EEP partnership offers a credible forum for developers and policy-makers to see policy enablers and hindrances in light of actual projects pursued by independents. The DFID Business Case refers to private sector’s reluctance due to “the lack of certainty surrounding the stability of general regulatory/legal environments, and specific policies or incentive schemes aimed at emission reductions”.

2.3 Regional policies and coordination

As noted in the DFID business case for EEP, the EAC and SADC are both represented on the EEP SvB, one function of which is to provide policy direction and guidance. Evidence generated by the EEP program and the projects being supported is already being utilized by the two community secretariats.

2.3.1 South African Development Community (SADC)

SADC established the Protocol on Energy (1997) to support regional cooperation on Energy. The Protocol sets provisions to harmonise national and regional energy policies, strategies and programmes and facilitates the cooperation in the development of energy and energy pooling in the SADC region. Member countries undertake to cooperate in the development and utilization of energy in the region, including renewable energy and energy efficiency. SADC has developed a Regional Indicative Strategic Development Plan, a 15-year blueprint for the region, which advocates for an efficient and least-cost infrastructure system that will unleash the potential of communities. The target is to have at least 70 per cent of rural communities within southern Africa having access to electricity. Member states undertook to implement rural electrification programmes between 2004 and 2018, during which they should meet or surpass the agreed regional target.

SADC is also in the process of developing a renewable energy strategy and action plan. The draft plan is quite encompassing and very ambitious. A prioritization of renewable energy was attempted but still needs to be validated.

According to the strategy and action plan, in 2020-30, it is estimated that solar and biomass will continue to represent a small percentage of the total installed capacity of

grid electricity in the region: it is envisioned that 175 MW of biomass and 500 MW of solar projects will be deployed². These objectives should be revised by SADC as many biomass projects have been developed or are in the process and in South Africa, many renewables project are in the process of being developed following multiple rounds of competitive tendering³. The objectives for South Africa alone is more than 17 000 MW by 2030⁴. The objective for off-grid renewables is ambitious. Assuming that off-grid systems represent 10% of the total installed capacity, this would mean 9500 MW in 2020. The main SADC strategy report also discussed biofuel and efficient cooking stoves. Promotion of biofuels is a new thrust in the region and there is concerted effort at SADC level to create conducive environment for production and use of biofuels. It is being suggested that penetration of 10% and 15% be considered for bioethanol the years 2020 and 2030, respectively. As in the case of biodiesel, penetration levels of 5% and 10% are considered for the years 2020 and 2030⁵. To date improved stoves disseminated are negligible. Even ProBEC between 1998 and 2010 could not exceed 10000 stoves in the region (<<<1%) of the number of eligible households. In that case penetration could be approached on the share of households that could use the improved fuel wood/ charcoal stoves e.g. 5% in 2015, 10% in 2020 and 10% in 2030⁶.

In the Strategy solar home systems (SHS) and bio-digesters were given high priority in the SADC strategy while small hydro, PV for productive use and biomass gasifier still require resource mapping before widespread deployment. Even though wind has been widely used for water pumping in the region, its use for electricity generation is relatively new. The technology is not ordinarily available and more still needs to be done to promote its wide scale use as a viable off-grid option. As a result it has been given a low priority in the short term as it is a candidate for more long term development and promotion.

2.3.2 East African Community

The East African Community is the regional intergovernmental organisation of the Republics of Kenya, Uganda, the United Republic of Tanzania, Republic of Burundi and Republic of Rwanda. The EAC's Regional Strategy on Scaling-up Access to Modern Energy Services was conceptualized and developed to enable the Partner States to fight poverty, improve living conditions and achieve the Millennium Development Goals (MDGs). This strategy was adopted in November 2006 by the Council of Ministers. The Strategy has four key Targets to be fulfilled by 2015:

- To provide access to modern cooking practices for 50% of the population that currently uses traditional cooking fuel;

² According to SAPP plan and South Africa IRP 2010 –revised baseline

³ More than \$5.4 billion worth of investments for 28 wind, solar, and geothermal projects have been approved in November 2012. These will add 1 400 MW of new renewables capacity to the grid. These projects represent the first round of five auctions in the country's Renewable Energy Independent Power Producers Program (REIPP).

⁴ The SA 2010 Integrated resources plan (IRP), under a Policy adjusted scenario to deploy renewable earlier, aims at additional 17 000 MW RE capacity until 2030.

⁵ Idem

⁶ Idem

- To provide access to reliable electricity for all urban and peri-urban poor;
- To provide access to modern energy services for all schools, clinics, hospitals and community centres
- To provide access to mechanical power for heating and productive uses for all communities.

2.4 National policies and countries data

Section 10 describes the most recent national policies and present key data related to energy in each participating countries. The following table presents a summary table including all countries;

Table 1 Summary of countries' data

Country	Key documents	Electricity access (%)		Installed capacity and consumption per capita		Feed in tariff	Private sector participation allowed? ⁷
		Total	Rural	MW	KWh		
Botswana	National Development Plan (2009-16) National energy Policy (2012)	63	54	432	1500	Yes	Yes
Burundi	Energy strategy and action plan (11)	2	1	31	30	No	No
Kenya	Energy policy (2004) FIT policy Vision 2030	13	9	1400	140	Yes	Yes
Lesotho	Energy policy (2003) National Electricity Master Plan 2007	21	5	72	343	No	Yes
Mozambique	Energy master plan	13	5	540	453	Yes	Yes
Namibia	Renewables energy policy paper	34	12	393	1575	Yes	Yes
Rwanda	Nat. energy policy (2012-17) Electricity law (2011)	11	1	83	20	Yes (hydro)	Yes
Seychelles	Seychelles energy Policy 2010-2030, and Seychelles Energy Act (by the end of 2012)	100	100	82.3	3600	No (will be with the Energy Act)	Yes
South Africa	STATSA 2012 Least cost development plan (2011)	84	84	44165	4570	Yes	Yes
Swaziland	National Energy Policy (2003) National Energy Policy Implementing Strategy (2003). Renewable Energy Policy (under development)	55	44	170	900	No	No
Tanzania	Energy policy (2003)	18	6.6	1438	85	Yes	Yes
Uganda	Renewables energy policy (2007)	12	4	595	72	Yes	Yes
Zambia	Energy Policy (2008)	30	3	1978	635	No	Yes

⁷ While private sector access is allowed their participation it is not necessarily straight forward as the legislative regime for open access to the electricity market is weak in many EEP countries.

2.5 Rationale vis-à-vis the priorities within the development policies of the donors

Finland's development policy and development cooperation promote an inclusive green economy. In line with the definition by UNEP, green economy aims at strengthening human well-being and social equality, is based on sustainable use of natural resources and takes into account the carrying capacity of nature as well as secures the provision of ecosystem. Green economy is low-carbon, resource-efficient, socially inclusive and creates decent work and well-being for as many women and men as possible. Finland, in its own development cooperation, strives to carbon neutrality and supports the low-carbon development of developing countries. Finland advances an inclusive green economy that promotes employment e.g. by supporting an enabling environment for business that creates responsible entrepreneurial activity and decent jobs. By promoting good governance in the energy sector, development partners help developing countries to mobilise private-sector investments, to create green jobs as well as to develop clean-tech expertise.

Finland promotes sustainable management of natural resources and environmental protection by supporting access to sustainable renewable energy as well as promoting energy and overall resource efficiency.

In energy investments and other infrastructure projects as well as in strategies and programmes, the social impacts for instance on the rights and livelihoods of affected communities, need to be assessed carefully in addition to environmental impacts. Negative impacts must be minimised in both planning and implementation, and assessments must be truly participatory.

DFID's business case for EEP describes the alignment of the EEP program with DFID's central policy of achieving poverty eradication and to improve access to clean and affordable energy as a mechanism for achieving this. Here it is noted that the UK Government is committed to helping developing countries carry out urgent work needed to adapt to climate change and develop in a low carbon way including reducing emissions from deforestation. The stimulation of the private sector, whether this be through lending practices, investment or project development, is central to the existing EEP-S&EA programme. The scaling up of the EEP-S&EA therefore fits well with key components of the DFID Business Plan's vision to enlarge and support the dynamic nature and creative energy of the private sector, extending access to credit and financial services, as well as supporting the introduction of a host of new technologies in Southern Africa.

DFID's approach to access to energy includes investment in central power projects and interconnectors principally through interest rate subsidies and project preparation facilities. Thus, Business Case concludes that the EEP is a highly promising channel through which to make a meaningful contribution to the regions efforts to extend access to clean, reliable and economic energy services to both grid-connected and off-grid beneficiaries.

2.6 Other relevant initiatives and programs

There are many different SADC and EAC regional energy initiatives such as REACT, GVEP, SREP, IRENA, GPOBA, Energy+, Lighting Africa, EnDev, etc. It will be the role of the EEP S&EA Knowledge Exchange Forum (KEF)⁸ and the Service Provider (SP)⁹ organisation to align EEP with these initiatives and to try to develop synergies, while contributing to building institutional capacity at the regional level in issues linked to renewables development and energy access.

At the global level, UN Secretary-General Ban Ki-moon is leading a global initiative on Sustainable Energy for All to mobilize action from all sectors of society in support of three interlinked objectives to be achieved by 2030: providing universal access to modern energy services; doubling the global rate of improvement in energy efficiency; and doubling the share of renewable energy in the global energy mix.

Of the SADC and EAC countries, Burundi, Kenya, Mozambique, Rwanda, Tanzania, Uganda and Zambia are among the first countries that have opted into the SE4ALL initiative and should benefit from the coordinated donor support under this programs umbrella based on national energy action agendas to be developed.

It should however be emphasized that the functioning 13-country call-for-proposal approach combined with the truly regional and inclusive governance framework that EEP applies is rather unique. This well established and functioning platform maintains real intrinsic value for the involved stakeholders and awards the partnership a highly valued overview of project activities and stakeholders throughout the regions. The other programs will almost surely benefit from these assets.

It is envisioned that a key task of the Supervisory Board (SvB) and the EEP Partner Committee (EPC), and to a lesser extent the Programme Knowledge Exchange Forum (KEF), is to ensure a clear and defined role for EEP that avoids overlap and contradictions, while actively exploring and promoting synergies and information sharing with other regional initiatives.

⁸ Refer to chapter 1.1 for role of EEP Partner Committee

⁹ Refer to chapter 6.5 for role of Service Provider

3. BENEFICIARIES AND KEY STAKEHOLDERS

The direct beneficiaries of EEP-S&EA will be project developers and institutions directly involved in EEP-S&EA and its activities. The final beneficiaries are the energy end-users and more specifically, households, SME, communities, etc., in the partner countries of EEP-S&EA Phase II. Vulnerable and marginalized groups, youth and female entrepreneurs will be also particularly targeted via various Programme activities.

The Programme involves numerous stakeholders and is a regional programme which addresses key regional energy challenges related to access to energy and development of renewable energy resources and energy efficiency. As indicated, in terms of ensuring efficient and effective implementation, the Service Provider (SP) is the key stakeholder. This Service Provider role is to be the subject of an international tender process, with the ToR attached in the Annex. The Service Provider will be allocated substantial and broad responsibilities in the implementation of the program, as described in the ToR. The implementation, administration and follow-up of the program is demanding, as it involves a large number of project developers in 13 different countries and the donors have high ambitions in terms of what shall be achieved by the program and in terms of knowledge production from the projects supported by the program. Thus, significant effort and resources shall be deployed in order to select a highly competent SP.

Finally, it is intended that the National Coordinators (NC)¹⁰ will continue to have an important role as a network of country-level programme ambassadors acting as the national counterpart to the KEF in addition to ensure that projects contracted are aligned with national priorities by submitting letter of non-endorsement to the evaluation process.

¹⁰ Refer to chapter 6.3 for more information on the role of the National Coordinators

4. OBJECTIVES, OUTPUTS AND INDICATORS

4.1 Overall objective and Programme purpose

The **overall objective** of the EEP-S&EA Phase II is to contribute to the reduction of poverty through inclusive and job-creating green economy and improved energy access and security in the Southern and East Africa regions while mitigating global climate change. This contribution will be made by pursuing greater access to sustainable energy services achieved through the fast tracking of RE project demonstration and deployment, including through technological learning, donor coordination and private sector investment as an **immediate objective** of the EEP-S&EA programme.

The programme has the following three outcomes:

- 1) Outcome 1: Inclusive green economic growth contributed to, through increased; access to sustainable energy services, significant scale up of proven energy services, increase in installed capacity, reduction in energy expenditure and mitigation of climate change achieved primarily through support to small to medium size organisations.
- 2) Outcome 2: EEP project developers are successful in starting and managing RE/EE energy businesses, raising and leveraging finance, managing project implementation.
- 3) Outcome 3: EEP is an active regional partner in; generating RE / EE knowledge and evidence, sharing of experiences, and informing effective and inclusive regional RE/EE policies.

As described in later chapters, each of these outcomes are envisaged to be achieved through the successful delivery of specific and dedicated outputs and activities. The Annex provides the Programme result framework which summarizes the logic of the interventions specific to EEP as designed to achieve the immediate and overall objectives.

4.2 Expected impacts on cross cutting development themes

As described above, the targeted impact from the EEP S&EA is poverty reduction through inclusive and job-creating green economy and improved energy security while mitigating global climate change. EEP S&EA will contribute towards this through increasing inclusive access to sustainable energy services through promoting wider uptake and use of renewable energy and improvements in energy efficiency.

EEP S&EA's lead donor Finland recently presented its new Development Policy, putting a key emphasis on human rights in their development programmes. Finland's human rights-based approach to development aims to ensure that even the poorest people know their rights and are able to act for them. The ultimate objective is human development; the ability to live the life of one's own choosing and be spared from absolute deprivation. This harmonizes with international donor commitments to strengthen the position of the poor and reduce inequality.

Energy projects may have a significant effect on cross-cutting issues; such as indigenous people's rights, benefit sharing, gender, human rights, national and international law, corruption, transparency and environment. Some cross-cutting objectives are inherent in the programme, while other objectives must be integrated specifically into the project profile and project implementation. For large-scale energy production, this entails the expansion of social and environmental assessments to cover human rights aspects, and establishment of adequate monitoring systems.

Gender equality, reduction of inequality and climate change mitigation are the cross-cutting objectives to be promoted through mainstreaming, targeted actions and policy dialogue as well as communication. Cross-cutting objectives will be promoted by means of lessons learned, information sharing, and business advisory services for both male and female entrepreneurs.

A specific action taken in strengthening the mainstreaming of cross-cutting issues is the inclusion of a dedicated "development impacts evaluation" in the project selection criteria. The individuals/firm carrying out this evaluation shall be well versed in the policies of the development partners. Additionally, other specific activities/considerations included in the design of phase II are described below to address cross cutting issues.

4.2.1 Gender equality

A human rights-based approach applies to everyone, both women and men. However, access to modern energy services affects children, women and men in different ways. Women's right to energy access is hampered by lack of recognition of the value of women's work (i.e. time spent collecting biomass, cooking or cleaning). Low social position and unequal gender relations limit women's ability to participate and voice their energy needs in decision making. Women's use of energy can also be hampered because of lack of access to land, property, income, credit and education. The health, education, and productive activities of women and children are particularly sensitive to the availability of modern energy services.

If energy projects are designed in the way that women can equally participate in their planning, decision-making and implementation, the evidence shows that the resulting improved access to energy services will strengthen the development impacts on women, their families, their communities and through that to the whole society. To mainstream gender equality into the implementation of EEP E&SA's the following principles should be applied:

- Equal participation of women and men in planning and implementation of activities at Programme (EEP implementation) and project level (project implementation) will be ensured and measured by gender-disaggregated indicators (number of women and men).
- At Programme level, particular emphasis will be paid on participation of women, women's groups and female entrepreneurs in activities that increase project development and management skills, including business advisory support. By ensuring that women have equal access to information, funding and skills, the Programme can further empower women to become energy producers and entrepreneurs. Gender-disaggregated data on number of pro-

ject developers will be collected. If M&E activities demonstrate a gender-bias, targeted activities will be designed to marginalized groups to increase their participation.

- Regarding the selection of individual projects, gender equality will be included in the project selection criteria.

4.2.2 Climate Change

A fundamental motivation for the program is to contribute to the region's low carbon development path while mitigating and building resilience to global climate change. Given the overarching goals associated with promoting energy access based on distributed/ decentralized, renewable, efficient, local, reliable and low cost energy sources, a key impact will be the direct and indirect reduction in current and future emissions. Additionally, by providing access to energy sources that are more climate-resilient, the program will make a contribution to reducing the local population's vulnerability to climate change and natural disasters. Thus, activities and efforts to achieve these goals run through the entire program design.

4.2.3 Reduction of inequality

Access to energy is a precondition for economic development and access to modern energy services is increasingly positioned as a precondition for the full enjoyment of basic social and economic rights. Ensuring access to energy services is critical for providing equal opportunities for all; access to good quality health services, schools, modern lighting etc. Energy access can have a substantial positive impact on rural growth and livelihoods, and the gap between people living in urban and rural areas can be reduced through providing access to modern energy services in rural areas. It provides significant benefits in the areas of health and literacy, and offers opportunities for people to contribute effectively and productively to society.

To strengthen EEP S&EA's impact on reducing inequality, some specific design elements for Phase II include;

- Targeting projects in rural and peri-urban areas, particularly off-grid and mini-grids projects that provide affordable sustainable access for "last-mile customers"¹¹ through local co-operatives and energy businesses that are able to provide also the necessary operation and maintenance support and financing mechanisms.
- Systematically targeting inclusive innovation processes that create technological and business-model innovations for providing sustainable energy services to lowest income segments and easily excluded and discriminated groups.
- Promoting active participation of young people, especially those at risk of unemployment, on projects and skills training events, by encouraging private sector to develop projects with local vocational schools and higher educational institutions. An indicator will measure the new jobs created (disaggregated by

¹¹ Last-mile customers are commonly referred as those that due to long-distance and consequently high costs will be the last ones to be connected to national grid if at all.

gender and age groups) to follow the progress.

- Sharing the evidence-based lessons learned, including policy recommendations, with policy makers in the region to promote inclusive and gender-sensitive energy policies. This includes design of tariffs (including feed-in-tariffs) and payment modalities that take into account the needs, ability and willingness to pay of poor households with pro-active and gender-sensitive consultation with, and participation of, these groups.

4.2.4 Other targeted actions

In terms of policies related to the energy sector and climate change, the true regional nature of this program provides for an arena to influence policy development and thus have broad long-term effects. That is, the fact that the program allows for a regional sharing of experiences and lessons learned, including those that pertain to these cross-cutting themes, can be viewed as specific attribute that will have positive effects on these cross-cutting themes. This is one of the primary motivations for Outcome 3.

The two window design is meant to ensure that the otherwise often competing objectives of targeting scale-up and equality/vulnerable groups are properly accounted for in the evaluation and selection of projects. As noted, for all projects, the evaluator under the “development evaluation” shall be well versed in the development priorities of EEP funders. To ensure that this aspect is lifted and understood by project developers, cross-cutting impacts should be promoted by means of training and guidance during CFP and the applications phase.

On programme level, indicators have been introduced as part of the result framework to enable monitoring and evaluation of the expected and targeted results and impacts.

4.3 Indicators

A sufficient Programme Monitoring Framework is to be developed, including the indicators on output and outcome level settled in the Programme Result Framework (Appendix 1). The output indicators are designed to enable continuous monitoring of progress towards the targeted results, while a set of outcome indicators has been identified to allow for occasional stock-taking and/or evaluations.

For continuous monitoring, a simple table is suggested showing the indicators, baseline data, target, how to measure, how often to measure and responsibility/source of information. The monitoring framework needs to be finalized by September 2014. The SvB and the EPC will be the key target audiences for reporting on Programme level indicators – i.e. aggregated project level results. The monitoring at project level will be adapted to the Programme Monitoring Framework to ensure consistency and measurement of progress towards the expected results.

Indicators monitoring on cross-cutting objectives needs to be integrated as far as possible into the monitoring system, but should be given particular attention when performing possible reviews and impact evaluations.

5. APPROACH AND STRATEGY

Renewable energy based economic development is often more sustainable, reliable and economical as it relies on local energy sources, creates local employment opportunities and prevents emissions of GHGs. Improving renewable energy technologies at ever-lowering costs, countered by increasing fossil fuel costs, means that renewable energy solutions are generally more economical than fossil alternatives. Despite this situation, however, the southern and east African region is yet to initiate a broad or rapid expansion of access to renewable energy. As summarized in Table 2, EEP Phase II is to systematically target four specific and highly relevant barriers that are prime contributors to the regions lack in progress on this front.

Description of barriers being targeted	Corresponding outcomes of EEP and description of approach
<p>Innovation. Despite the significant potential in the region for both RE and EE solutions, the constraints faced by low income beneficiaries generally imply a need for innovative technology applications and business models. The viability of such models can only be tested and demonstrated by means of a significant grant capital subsidy. The DFID Business Case refers to “the presence of positive externalities where individual investors cannot capture the benefits of spill-over effects from new technology.”</p>	<p><u>Outcome 1:</u> Inclusive green economic growth contributed to, through increased; access to sustainable energy services, significant scale up of proven energy services, increase in installed capacity, reduction in energy expenditure and mitigation of climate change achieved primarily through support to small to medium size organisations.</p> <p>Window 1 – Innovation - Focus on offering primarily capital grants to developers with promising technological or business-model innovations in serving low income populations. Success and failure lessons learned here will contribute to the regions efforts in promoting inclusive economic growth.</p>
<p>RE and EE Market Creation. Despite the rapidly growing interest and amount of capital available for “green investments” in Africa, investors are generally not well placed to identify, screen and select promising business models or developers. The DFID Business Case refers to “the lack of information to investors about market opportunities”.</p>	<p>Window 2 – Market Creation - Support RE and EE projects that have good promise for resulting in replication, scale-up and significant public or private investment as well as support to promising feasibility studies, as well as “last-mile” business development. Offer fast track opportunities for projects to access new funding in moving from one stage to another. Maintain an exceptional regional-reach and network that provide a basis for effective developer-investor match-making.</p>
<p>Pilot to scale-up. Developers often have good concepts with good fundamentals, but their ability to make a project bankable and secure commercial finance is usually limited. Thus, even potentially promising projects with significant potential get “stranded” following an initial pilot. The EEP will provide a fast-track opportunity to move projects along the development cycle, and business advisory services. The DFID Business Case refers to the “access to finance as one of the most often cited barriers to the deployment of renewable energy.”</p>	<p>Outcome 2: EEP project developers are successful in starting and managing RE/EE energy businesses, raising and leveraging finance, managing project implementation.</p> <p>Increased potential to reach commercial viability through business support.</p>
<p>Policy reform that enables developers. Policy reforms are typically driven by top-down processes, largely driven by state-owned integrated utilities. The EEP partnership offers a credible forum for developers and policy-makers to see policy enablers and hindrances in light of actual projects pursued by independents. The DFID Business Case refers to private sector’s reluctance due to “the lack of certainty</p>	<p><u>Outcome 3:</u> EEP is an active regional partner in; generating RE / EE knowledge and evidence, sharing of experiences, and informing effective and inclusive regional RE/EE policies.</p> <p>Dissemination of programme results, experiences and lessons learned in regional and international</p>

surrounding the stability of general regulatory/legal environments, and specific policies or incentive schemes aimed at emission reductions”.	flora as well as monitoring and evaluation activities.
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Table 2 Key barriers and EEP’s target outcomes and approach

The Programme focuses both on increased access to sustainable energy services via locally appropriate and innovative technologies and business models as well as contributing to increasing the level of renewables and improvements in energy efficiency by demonstration, piloting and scaling up of public and private investment.

The EEP-S&EA will address a **broad range of technologies** with the intention of bringing projects to financial closure as well as assisting businesses and co-operatives that provide energy services to become commercially and economically viable. The program will place particular focus on testing proposed innovations; meaning projects being promoted by developers that hold promise for either i) reducing the costs of modern energy services, and/or ii) improving upon the financial sustainability of these services to low income and/or vulnerable groups. By testing, documenting and communicating the success and failures of these innovations, EEP will provide a direct contribution to the regions efforts to promote inclusive economic growth.

Finally, EEP Phase II will seek to further enhance its policy impact by; i) improving the M&E framework, execution and follow-up analyses; ii) actively disseminating and communicating lessons learned, and; iii) ensuring that EPC meetings, KEF and associated meetings/seminars serve as a true platform for lessons learned and policy dialogue which can then be effectively communicated to external stakeholders and forums. Uniquely, the EEP is well positioned to provide for this platform on the basis of actual project experiences and developer successes and failures. Phase II will maintain high ambitions in terms of knowledge production and dissemination on the basis of the portfolio and M&E system.

The programme will not give priority to any specific renewable energy technology. The EEP-S&EA will remain a challenge fund¹² and support demand driven energy services and renewable energy and energy efficiency solutions. However, the Service Provider will also be able to “tailor-make” CFPs if desired by the EPC, and thus allow for the development of a more managed portfolio by targeting certain technologies and/or regions.

¹² “A challenge fund is a thematic (RE, EE) solution-driven source of funding which is not limited to any legal entity alone (e.g. company, CSO/NGO, public sector agency, educational institute, etc.) and for which the project developers compete openly to be able to receive funds; only will the best projects be funded”.

5.1 EEP Phase II approach

EEP Phase II will continue to be a challenge fund but will have two different windows so as to properly and effectively target two specific project-types: 1) household, MSMEs and community-based access projects that are typically at kW level and 2) “industrial-scale” RE/EE access projects at MW level. This distinction is made so as to properly equip EEP to systematically apply an evaluation process which results in exactly those projects which best fit the partly diverging objectives of the programme;

- 1) **Window 1 projects: Innovation.** Highly innovative technology or business model with a potential regional demonstration effect that cannot be captured in the project economics; near complete lack sources of capital thus justifying significant grant component, and; directly target low income beneficiaries and other social benefits.
- 2) **Window 2 Projects: Market Creation.** Proven technologies ready for short- to medium- term scale-up; lower risk due to a more limited technology and business model innovation requirement; sources of capital are realistically available upon successful completion of EEP supported activities, and; successful projects would demonstrate to regional policy-makers and investors the viability of both grid-connected and industrial uses of small-scale renewables.

The SP shall decide how best to organize the Call for Proposals (CFP) for each respective window – either a common or separate CFPs. The SP will also define the specific evaluation criteria and appropriate weighting. Specifically, the SP will be tasked to design a CFP and evaluation system which ensures that the programme is effectively structured to address both targeted outcomes, and mitigate the risks associated with trying to accomplish too many objectives within the same CFP and evaluation process. In general, it is anticipated that the NC will have a role in assessing that the proposed projects are/are not aligned with National priorities, which should be considered in determining which projects are forwarded to the evaluation committee. The evaluation committee will screen the project according to its technical, development, financial and business merits.

5.2 Outcome 1 – Inclusive green economic growth

The result of Outcome 1 is inclusive green economic growth contributed to, through increased; access to sustainable energy services, significant scale up of proven energy services, increase in installed capacity, reduction in energy expenditures and mitigation of climate change achieved primarily through support to small and medium size organisations. The targets set for the Outcome are 16,6 million euro/year of economic benefits achieved through uptake of RE/EE services and 300,000 tCO₂ potential cumulative emission reductions achieved over the life time of the installed technology and/or project.

The outputs and the associated KPIs and targets are as follows:

- Increased actual and probable commercial scale-up and replication of, and investment in EEP supported projects
 - 15 % of EEP supported projects replicated and/or scaled up
 - 40 % of projects demonstrated high probability of replication and/or scale up
 - 20 % of projects receive private sector investment
 - A cumulative amount of 28,1 million euro of public and private sector finance leverage.
- Reduction in CO₂ emissions achieved through demonstration and deployment of RE/EE energy solutions
 - Annual cumulative of 60,000 CO₂ emission reductions achieved

Outcome 1 is to be achieved through activities related to finance through Window 1 (Innovation) and Window 2 (Market Creation) as well as technical assistance. EEP S&EA is a technology neutral fund as such it is open to fund a wide-ranging set of RE/EE technologies both on the supply and demand sides, as long as overall Programme objective, sustainability and local development priorities are taken properly into account.

Geographically projects funded through the windows must be implemented in at least one of the following Southern and Eastern African Partner Countries: Botswana, Burundi, Kenya, Lesotho, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Swaziland, Tanzania, Uganda and Zambia. Projects may be single (developed and implemented in one country only) or multi-country (developed and implemented in multiple countries where the project is working on shared energy across the region(s)).

EEP funds should be considered as catalytic "seed funding" to support concrete and sustainable projects. Disbursements after the grant approval will be based on actual costs incurred and milestone payments will be approved after submission of progress and financial reports with sufficient proof to support expenditures reported. Advance payments may be provided in case grounded for a sufficient project implementation. The intended project implementation period of pilot and demonstration projects as well as feasibility studies is limited to 24 months.

Each project under both Window 1 as well as Window 2 needs to be well-defined in as why reaching it would concretely contribute to reduction of poverty by promoting inclusive and job-creating green economy and by improving energy security in the Southern and East Africa regions while mitigating global climate change. EEP funded projects shall contribute to the achievement of the EEP immediate objective as well as Outcome 1 targets. The projects should therefore present specific, measurable, quantitatively verifiable outputs with their respective indicators as follows:

- Amount of private sector investment the project/business anticipates to mobilize at the end of the project duration (euro)
- Annual cumulative tCO₂eq emission reductions achieved
- Number of households that will access renewable energy and/or energy efficiency products or services as a direct result of this project (disaggregate into rural and urban households where applicable)
- Number of direct jobs that the project will create for women, men and youth (disaggregate into temporary and permanent jobs)

- Newly installed electricity generation (MW) e.g. from renewable energy system(s) installed and/or products sold
- Amount of energy generated (MWh) e.g. from renewable energy systems installed and/or products sold (disaggregate by heat energy and electrical energy)
- Absolute amount of energy saved (MWh/year) through installation of energy efficient technologies / projects
- Total potential installed and generation capacity (MW and MWh) – only projects that undertake a feasibility study)

Projects are to be contracted against the outputs indicated. Regular monitoring and verification by the SP will be undertaken in accordance to Programme Monitoring Framework to review performance against indicated targets.

5.2.1. Window 1 - Innovation

The scope under Window 1 – Innovation - is focused towards projects that deal with the development phase of concrete renewable energy and energy saving/energy efficiency projects. The proposed project must be comprised of activities that are part of a cycle that leads to further investment and sustainable commercialization. The overall goal of EEP is to provide catalytic funding to projects with the capacity and capability to become commercially viable and self-sustaining private sector entities.

Projects whose sole objective is to create an enabling environment for the promotion of renewable energy and energy efficiency/conservation projects are excluded from the Window scope e.g. only undertaking one of the following market studies, capacity building/training, policy development, financing schemes etc.

The Eligible EEP activities are pilot project, demonstration projects and feasibility studies delivering RE and EE services to low income and vulnerable groups. The main eligible activities are defined as follows:

- a) **Feasibility Study:** Analysis and evaluation of a proposed project to determine viability; economic, technological, social etc. The Feasibility Study is a refinement of the pre-feasibility study and should present enough information for interested investors to finance the project. The main output from a feasibility project should be a “bankable feasibility study” with all the necessary agreements in place e.g. permits and licenses, power purchase agreements, Environmental Impact Assessments approvals, feedstock supply agreements, way leaves and other business specific requirements according to the laws of the country where the project is implemented. The potential investors will therefore also typically be part of or at least closely involved with the feasibility study.
- b) **Pilot Project:** Testing of an RE/EE product, service, business or delivery model, social and local appropriateness on a small-scale in order to check the conditions and operational details before roll out or commercialization. Pilot projects should form part of an overall market development strategy. For a pilot project to

be approved for an EEP grant, the project proposal should clearly indicate further steps envisaged towards roll out or commercialization after the piloting phase if the product/service is proven to be profitable.

- c) Demonstration Project: Establish evidence that a project, a product/service or a technology works. This may show the performance of a product/service or a technology in actual use conditions, or it may encourage the trial use or purchase of the product/services or technology by the target market. For a demonstration project to be approved for EEP grant, the project proposal should clearly indicate further steps towards roll out or commercialization if the demonstration is successful. The demonstration project is typically geared towards testing the technology in the actual environment where as a pilot project is more focused on the more broader commercialization processes.

A grant in the range of 100,000 – 300,000 euro may be requested under Window 1. In order to ensure full commitment, eligible projects will have a minimum own contribution of total project costs of 30 %. There is no upper limit to co-financing and applicants are encouraged to provide co-financing above the minimum required amount. The grant depends on the project as a whole, its robustness and expected results. The relevant developers will be required to demonstrate how the operational and financial sustainability of the projects will be ensured (including post funding phase), employing innovative business models.

Window 1 is characterized by an aim to have both direct and indirect results. The direct results refers to an intention to have direct and measureable outputs that result in the delivering of energy services to low income and vulnerable groups, by means of an identifiable innovation that either reduces the cost of energy services or improves the probability of commercial sustainability and thus replication. The indirect results refer to the expected benefits that will be realized due to the dissemination of lessons learned from these innovations, so as to promote region-wide inclusive growth. The success in achieving this target outcome will be partly judged by its success in testing and demonstrating innovative models to sustainably serve this market.

Importantly, the innovations to be supported in the associated window (1) do not necessarily have to be previously demonstrated or even well understood by financiers. However, the innovations in costs and sustainability should represent progress towards affordable and sustainable energy services for the poor and capital-constrained/cash-based populations. A range of potential categories of innovations are eligible, including; technology (low-cost), project financing arrangements, user-financing and payment arrangements, revenue collection models, franchising arrangements, innovative service delivery models, etc. However, both the developer and the Evaluation Committee must be able to identify at least one specific innovation that it views as worthwhile testing. Lessons from previous EEP S&EA projects and other activities in the region should also be considered.

The risk to the community and low income households will be assess with care. Poor households shall not be used as pilot cases by means of investing in appliances that

may or may not be useful dependent on the success of the developers' technology. The protection of the poor will have to be demonstrated in the full proposals.

The innovation window is meant to support smaller-scale RE/EE access expansion projects via inclusive innovation processes that target poor and/or disadvantaged groups. The window 1 target projects that can lead sustainable business for the project developer and possibly members of the communities in rural and peri-urban areas, particularly off-grid and mini-grid projects, that

- 1) provide affordable sustainable access for "last-mile customers";
- 2) create technological and business-model innovations for providing sustainable energy services to lowest income segments and easily excluded and discriminated groups;
- 3) promote active participation of young people, especially those at risk of unemployment, on projects and skills training events, by encouraging private sector to develop projects with local vocational schools and higher educational institutions.

Projects are rewarded that demonstrate

- Inclusive innovation processes that use participatory gender-sensitive co-creation methods with end-users to address all household and community energy needs (e.g. lighting, communication, cooking, heating, water pumping, mechanical power) and that increase particularly women's access to energy for productive uses and income-generating activities, and;
- Strong economic, social and environmental sustainability as well as business viability, scale-up and replication potential

5.2.2. Window 2 –Market Creation

Window 2 is characterized by an aim to make a meaningful contribution to the broad rolling out of RE and EE solutions at the regional level. Given the profile of EEP, the proposed means of pursuing this aim is to provide targeted financing and support to developers that would allow them to overcome critical funding gaps in the development and/or scaling up of already demonstrated projects. Given the difficulty of selecting projects which truly find themselves in a funding gap (rather than dead-end or simply seeking grant financing); a great deal of emphasis is placed on the fundamental commercial viability of projects in the evaluation. The activities and support provided under this target outcome will be partly characterized by "hit-or-miss" outcomes and impacts – as some projects are expected to progress towards implementation, while others will not. In sum, it is expected that this window shall have a larger leverage effect than window 1 projects.

Effective outcome-level indicators are important in tracking the Programme's progress towards the target outcomes and impacts. As concrete outputs, this result area will be characterized by the development of bankable RE and EE demonstration of project concepts that involve technological, financing or business model innovation. In contrast to those projects to be financed under window 1, the emphasis here is on sufficient project fundamentals to have promise for project implementation, replication and scaling up by

means of commercial financing, rather than emphasizing the targeting of poor and vulnerable groups.

The Window 2 - Market Creation - is to offer financing to projects that have a particularly strong possibility for raising other (commercial) sources of finance for project implementation, replication and/or scaling up. In this case, the developer shall, in particular, demonstrate a credible project promoter and implementation model, good project fundamentals, promising market demand and a robust business model. The challenge fund aspect of this window will place particular weights on these components in the project evaluation scoring. This window may finance pilot and demonstration projects but the focus is to create sustainable markets through scaling up already proven/tested ideas.

Specifically, under this window, the following activities can be supported;

- 1) Capital grant for implementing small-scale pilot and demonstration projects with a clear roll-out plan and good project fundamentals.
- 2) Grants to assist with “last-mile” financing to developers looking to move from feasibility to financial closure. EEP shall remain flexible, but only provide funding for specific well-defined activities (e.g. detailed design, tender documents, legal advisory services, etc).
- 3) Investment grants (capital or program design) towards the implementation of energy efficiency programs.
- 4) Assessing and driving market demand.
- 5) Scale up business from pilot to demonstration to sustainable roll out in an area or region

In an effort to ensure that those projects that are supported by EEP truly have viable fundamentals (e.g. resource base, off-taker, etc.), eligible projects must include a larger minimum co-financing than projects in Window 1. The maximum grant allocation for a project in Window 2 may fall in the range 200,000 – 1,000,000 euro depending on the level of verifiable project co-financing brought in by the project.

The types of projects eligible for support under this window are RE/EE projects or businesses that are close to commercial maturity but require bridging finance and large scale RE/EE demonstration projects that show good potential for creating new markets for RE/EE technologies.

a) Bridging finance for RE/EE projects or businesses close to commercial maturity. Focus is on local private sector RE/EE project opportunities that are close to commercial maturity but need a limited amount of ‘bridging’ finance to enable sustainable business growth. Projects should provide information on the maturity of the business or project and why EEP S&EA funding would be required e.g. elaborating on the level commercial maturity of the project or business, what the bridging finance is required for, why this funding has not been obtained from other sources, to what extent other sources of finance been explored or used for the project, how and when would the business or project graduate to a level where it could obtain commercial funding etc. Applicants would also need to demonstrate an understanding of the target market e.g. what is the current demand and future growth potential

b) Large Scale RE/EE Demonstration Projects. Technology advancements have resulted in a number of RE/EE products and solutions suitable for medium to large-scale commercial and industrial applications. Whereas these RE/EE solutions are tried and proven in developed countries, there is little practical experience with them in Africa. Demonstration projects can help provide local knowledge and experience, prove the cost effectiveness of these technologies in generating and/or saving energy (compared to existing alternatives), help with identifying and addressing market barriers (e.g. policy, regulatory, financing, capacity) and subsequently generate market demand which would in turn result in the creation of new business and employment opportunities.

Activities that generally provide an enabling environment for the promotion of renewable energy and energy efficiency/conservation projects are excluded from the scope of the window e.g. market studies, capacity building/training, policy development, financing schemes etc.

Given the emphasis on 'bridging' near-commercial projects with limited grant funding to sustainable business operations, it is crucial that an otherwise eligible and high-quality application also demonstrates credible ownership, risk sharing and commitment in the form of as high a level of co-financing as possible beyond the minimum requirement in order to stand the best chance of being selected.

5.3 Outcome 2 – Business development support

The second outcome will be achieved through the delivery of activities and outputs targeting specific typical and identified business needs among the project developers. This outcome should be seen as being coupled with/complementary to the project grant financing in pursuit of Outcome 1 in that it is meant to EEP project developers are successful in starting and managing RE/EE energy businesses, raising and leveraging finance and managing project implementation.

The set Outcome target is that 45 % of EEP supported projects are reporting increase potential to reach commercial viability as a direct result of business support.

On output level the targets and KPIs are

- 40 % of projects (from CFP6 onwards) are completed according to schedule
- 90 % of projects requiring technical assistance are receiving support

Activities that will contribute to achieve Outcome 2 may include

- 1) Promotion of experience exchanges among project developers in the region
- 2) Provision of business advisory/coaching to project developer receiving project-level support from EEP
- 1) Offering forums for match-making between investors and regional developers, starting with replication of successful initiatives during Phase I
- 2) Organization of workshop to explain preparation of proposals for business developers (but not paying expenses to attend)
- 3) Provision of specific business coaching to women entrepreneurs

5.4 Outcome 3 – Policy impact, knowledge production and regional network

Here, EEP shall aim to leverage its growing list of projects and lessons learned to contribute being an active regional partner in; generating RE/EE knowledge and evidence, sharing of experiences, and informing effective and inclusive regional RE/EE policies.

The Programme targets of the Outcome 3 is to

- Reach 200 RE/EE businesses applying knowledge learnt from information disseminated through EEP or EEP supported projects
- Increase the level of awareness of EEP within the region by having 50 % of interviewed RE/EE sector actors that think that EEP is effective in supporting RE/EE sector development
- Have 5 policy processes influenced by evidence provided by EEP or EEP supported project

The outputs and associated KPIs and targets are as follows:

- Increased networking between RE/EE actors within the regions
 - 10 forums engaged in (policy, technology, investor, business to business)
 - 5 partnerships formed with complementary initiatives
 - 30 % of EEP projects engaged in relevant networks
- Increased amount of and access to relevant evidence and information on RE/EE
 - 5 technical briefings published, including case studies
 - 5 policy briefings generated and disseminated to relevant forums and decision making bodies
 - 7 quality tools developed and utilised to disseminate and share information disaggregated by tools; EEP website, media articles, social media networks, newsletter, workshops, events and donor information channels

Outcome 3 will in addition include following two activities

- 1) Organizing effective annual SvB meetings and KEFs
- 2) Implementation of an effective M&E framework at programme and project levels that is followed-up with database management and analysis in drawing out and communicating lessons

5.5 Measures to ensure sustainability and exit strategy

Sustainability refers to the conduciveness of the policy environment, financial and economic sustainability, adequacy of institutional and other capacity, participation and ownership, socio-cultural aspects, gender issues, environmental sustainability and appropriateness of technology and maintenance. All dimensions of sustainability are being considered in evaluating different renewable energy sources and technologies: en-

Environmental impacts shall be considered in each activity carried out under EEP-S&EA programme.

At individual project level, the challenges related to appropriateness, affordability and ownership of technology and to ensuring adequate funds, skills and distribution channels for spare parts and supplies for operation and maintenance will be given special attention at project evaluation criteria and monitoring and evaluation activities. Ensuring a financially sustainable project will be among the top criteria to be evaluated during selection, and will be the top concern of the business advisor during their visits to the individual developers.

With regard to choice of raw materials and technologies for biofuels production, the sustainability considerations include the impacts of the cultivation on land rights of local population, on food security and on decent employment that all must be carefully considered. The piloting nature of the projects also aims at eliminating non-sustainable solutions and technologies.

At the Programme level, an exit strategy will eventually also be needed. The eventual winding down of the program would be relevant in the case where sufficiently low cost and sustainable technologies and business models are being rolled out in the region, largely on a commercial basis, at a steady pace. Until that point, the intended demonstration/innovation nature of the EEP should remain relevant in all partner countries. That is, innovations that are successfully demonstrated in one country will continue to be relevant in all others. However, the evaluators shall be up to date as to possibilities and what constitutes innovations that are not “bankable” in the various markets, thus ensuring that in more mature markets truly commercial projects are not supported. That is, as markets mature, for example in South Africa¹³, the evaluators should be more selective in project selection, but this shall not constitute any “graduation” out of the program.

In terms of suspension and/or admission of member countries, the Lead donor shall be empowered to take the final decision, but only upon close consultations with SvB members. Generally, only countries not respecting the entrance criteria (see below) could be suspended from the Programme. Regarding the criteria for new countries to join the programme, only the remaining SADC countries should (or could) eventually join the EEP Programme. In order to admit new countries, the following criteria (already partly informally used) should be used:

- 1) democracy and good human rights situation in the country
- 2) at least a minimum level of involvement of private sector and NGOs in private sector energy projects
- 3) existence of at least a basic national framework for private sector participation in energy projects

¹³ South Africa has already raised more than USD 2 billion in renewable grid financing in the last 2 years and is implementing Green funds, a 500 million rand co-generation fund, etc.

New countries interested to apply for membership of EEP S&EA will be assessed against the above criteria. To be fair to these new countries, the criteria should also apply to existing countries. Thus, in case existing participating countries do not comply with these criteria, they could be suspended or expelled. Projects will be selected based on the quality of proposal; country specific fund allocation will not be implemented.

6. INSTITUTIONAL FRAMEWORK AND PROJECT MANAGEMENT

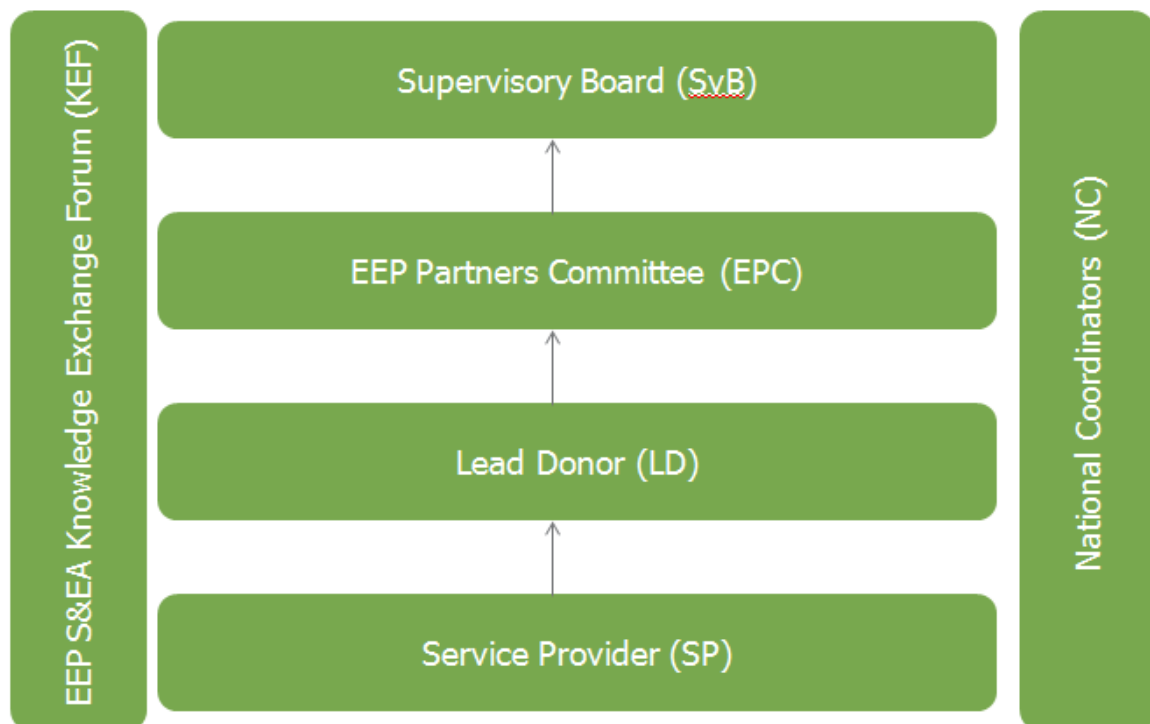
6.1 Governance structure

The EEP-S&EA is expected to function as a dynamic platform of Programme funded RE/EE projects as well as being an active partner in policy impact, knowledge production and regional network. The institutional framework described in the following section is outlining the key governance bodies of the Programme in addition their roles.

The programme's governance structure is depicted in **Error! Reference source not found..** It consists of the SvB, EEP Partners Committee (EPC), Lead Donor (LD) and Service Provider (SP). In order to coordinate operations and facilitate decision-making in a way that takes into account the regional nature of the programme, the governance structure also consists of a Programme Knowledge Exchange Forum (KEF) and a network of National Coordinators (NCs). The organisational structure is elementary as part of facilitating an effective institutional framework and a well functioning governance.

The envisioned overall organisational structure of the programme is described in the following figure.

Figure 1 EEP S&EA Phase II – Governance Structure



The following section proposes the specific roles for each stakeholder.

6.2 Supervisory Board (SvB)

The Supervisory Board is the highest steering and decision making body of the Programme and is ultimately accountable for realising the programme's objectives.

The SvB provides policy guidance; follows implementation of the Programme by SP according to the Programme document and achievement of the results; approves key annual documents (work plan on annual milestones, tentative annual work plan on SPs activities including budget and annual M&E report) and any changes to the Programme Document; approves major budget and programme structural changes for example new EEP member countries.

The Supervisory Board will be constituted of representatives of the Ministry for Foreign Affairs of Finland one of whom will act as the SvB Chairperson, the host country representative of the meeting being allocated one of the seats and co-chairing the meeting, the SADC and the EAC regionally mandated representatives, and representatives of co-financing donors; currently the Austrian Development Agency (ADA) and the UK Department for International Development (DFID).

The Supervisory Board generally meets once a year. On behalf of the donors, the lead donor may request for an extraordinary SvB meeting when there is a need for urgent policy decisions at the Programme level. The SvB meetings will be called at the latest three months before the meeting.

The meetings are convened by the LD. Decisions of the SvB are taken by consensus or simple majority. Decisions will not be "final" unless the majority includes the LD. SvB members will do their utmost to reach a joint position on how to handle matters if majority is reached without the LD endorsement. If a joint position is not reached and a decision is taken without any of the co-donors agreement, the co-donors will refer to the agreed Delegated Authority on any action.

The SP is responsible for all the meeting arrangements in coordination with the LD. The SP shall act as the secretariat and thus ensure that an agenda is prepared and supporting material and documents sent out latest ten (10) working days before the meetings.

The SP distributes the documentation to be discussed at the meeting latest ten (10) working days in advance. Prior to submission to SvB, the documents will be quality assured by the LD. The SP will submit the documents to LD for quality assurance a month before the SvB meeting and expects LD to provide comments within a week from receiving the documents.

The SP distributes draft minutes to LD of SvB meetings at most ten (10) working days after the relevant meeting. Any comments on the draft minutes are sent to the SP within ten (10) working days of the submission of the draft minutes by SP. The SvB Chairpersons sign the final minutes at the following SvB meeting.

6.3 The EEP S&EA Knowledge Exchange Forum

The EEP Knowledge Exchange Forum (KEF) is a platform that promotes knowledge sharing, networking, collaboration and dialogue among the EEP S&EA member countries, the Project Developers, other initiatives and institutions in the region as well as shares innovative thoughts and provides policy guidance for the renewable energy and energy efficiency sector in the region and the participating countries.

The KEF consists of representatives of SADC and EAC and other relevant stakeholders and the donors, representatives of EEP S&EA countries and EEP Project developers (their participation in the Forums will be based on relevance and theme of the specific forum) in addition other participants may include academia, non-EEP country representatives, other institutions and organizations managing similar funds. Those will be selected and invited on the basis of the agenda items of each individual forum.

Close cooperation with other initiatives and institutions in the region in preparation and participation of the forums is ensured by the SP. Where possible, the SP will look for synergies with other institutions and initiatives to reduce duplication and cost.

The KEF convenes at least once a year and the forums are chaired by the Programme Director. The SP convenes and coordinates the forums, including making the necessary arrangements, developing content, facilitating the availability of relevant expertise, as well as the recording of the proceedings. The KEF does not make any binding decisions, but acts as an information and knowledge sharing forum and provides guidance and advice for the Programme implementation and to the regional and national actors.

Potential thematic topics for special deliberation at the Knowledge Exchange Forums may include but not excluded to:

- Top EEP S&EA Phase I business models including technologies for replication;
- Hard lessons – sharing of typical mistakes as lessons for future projects (Biogas digesters, Cook stoves, Pellet value chain)
- EEP S&EA and Multilateral Climate Finance (EEP co-financing and scale-up "graduation" to e.g. large-scale MDB projects);
- Innovative finance (barrier removal for near commercial projects through non-grant financial products);
- Policies – how it supports and/or hinders the sector
- Maximizing impact for the poor: renewable energy technologies and policies and its contribution to poverty reduction.

The SP distributes any documentation and materials required for KEF meetings ten (10) working days in advance. The SP distributes reports and conclusions of the forum to all participants and SvB members and other relevant stakeholders at most four (4) weeks after the relevant meeting.

6.4 National Coordinators of EEP participating countries

As a network of country-level programme ambassadors, the NCs act as the national counterpart to the KEF. As part of input towards the KEF, NCs provide country-level guidance on such issues as energy and environment, collaboration among the participating countries through knowledge sharing events arranged by SP to which NCs are invited based on relevance.

In addition it NCs are expected to ensure that the CNs pre-screened by the SP are aligned with national priorities by submitting letters of non-endorsement to the EC in instances where CNs do not satisfactorily comply with relevant such priorities. Non-submission of such letters of non-endorsement constitutes implicit non-objection to such pre-screen CNs. The SP includes the relevant NCs in correspondence to applicants on the outcomes of the evaluation processes.

There are currently thirteen NCs, one for each participating country. The National Coordinators were appointed during the EEP Phase I when the countries joined the Programme. The National Coordinators were appointed by the Permanent Secretaries of the Ministry of Energy in each country. The input from NCs is based on national interest and willingness to contribute, no Memorandum of Understanding has been signed. SP will provide for information a summary of the ongoing portfolio quarterly as well as semi-annual M&E reports to NCs.

NCs are invited to participate in KEF meetings based on relevance. These forums are coordinated and convened by the SP. NCs travel expenses are compensated by SP in accordance with MFA regulations. Records of meetings will be taken by SP and agreed with NCs.

Where applicable, NCs provide input towards SvB and EPC meetings. Such input needs to be within NCs normal duties. The SP will facilitate these inputs and will provide a minimum of 10 working days to NCs when their input is requested.

Where applicable, NCs submit letters of non-endorsement for consideration at EPC meetings. Such letters should be submitted within 10 days of provision of documents by the SP. The letters will include reasons for non-endorsement and confirmation of the absence of any conflicts of interest (a specific template is sent for each CN to be pre-screened by the NC).

6.5 Service Provider

A Service Provider is responsible for nearly all aspects of the daily management, implementation and operations of the EEP-S&EA Programme. The Service Provider has a contract with the MFA and be supervised by the lead donor. The Service Provider has been selected by international tender process. The SP is partly remunerated on a performance basis, measured by the progress and achievement towards agreed activities in order to produce outputs in the Results Framework.

The Service Provider shall ensure that all aspects of the program are implemented in accordance with tentative annual work plans and budgets the guidance of the DC and SvB and the contracting rules of the MFA where applicable. The Service Provider shall

ensure the integrity of the program and be responsive to the MFA, donors, DC and SvB, as well as represent a help desk for developers in completing and submitting applications and other reporting requirements.

SP ensures the integrity of the Programme and communicates all noteworthy Programme matters directly to the MFA. MFA distributes relevant matters further to the Joint Financing Partners.

The Service Provider shall be Secretariat for the programme, and the KEF and SvB, respectively. The detailed ToR for the Service Provider is provided in the Annex.

6.6 Lead Donor (LD) and the EEP Partners Committee (EPC)

Efficient delivery of the programme, management and monitoring of its results and finances is the responsibility of the SP. Supervision of the SP is the responsibility of the LD.

As a decision-making body, the EEP Partners Committee will provide supervision of Programme implementation by SP according to the approved workplan & budget and follow up on achievement of workplan targets and results of the Programme. The EPC makes the final selection of Concept Notes based on SP pre-screening reports, as well as National Coordinators and Evaluation Committee (EC) assessment report. The selection is done to ensure that it reflects a suitable mix of features in order to promote overall portfolio balance in terms of EEP programmatic priorities. The EPC will also approve re-allocation of funds from the projects which contracts the LD has terminated.

The EPC consists of representatives of each of the donors. The Lead Donor acts as the chair of the EPC. Participants will be invited according to the agenda of each individual meeting. Also other external experts or representatives of regional organizations can be invited to these meetings.

The EPC generally meets quarterly, however considering the timing of the Calls for Proposals additional meetings maybe called by the LD. The meetings are chaired by the LD and convened by the SP that includes making the necessary arrangements for the meetings and preparation of minutes for EPC members' approval. Decisions of the EPC are taken by consensus or simple majority. Decisions will not be "final" unless the majority includes the LD. Donors will do their utmost to reach a joint position on how to handle matters if majority is reached without the LD endorsement. If a joint position is not reached and a decision is taken without any of the co-donors agreement, the co-donors will refer to the agreed Delegated Authority on any action.

The SP distributes the documentation to be discussed at the meeting ten (10) working days in advance. The SP distributes draft minutes of EPC meetings to meeting participants at most ten (10) working days after the relevant meeting. Any comments on the draft minutes are sent to the SP within two (2) weeks of receiving draft minutes. The EPC Chairperson signs the final minutes of any meeting at the following EPC meeting.

6.7 Evaluation Committee

The SP will be in charge of organizing independent evaluation of the concept notes. An Evaluation Committee (EC) will be formed consisting of relevant technical, development, business and financial expertise. The respective reviewers a) score CNs in terms of technical, development, financial and business merits and b) where applicable, additionally provide specific sector recommendations to be taken into account at the FP stage. Only those applications which have passed the basic requirements, meeting the minimum criteria indicated in the CFP Guidelines to the Applicants shall be evaluated.

The EC will work under the Service Provider and it shall provide the Service Provider with recommendations as to the priority rankings of the projects to be presented to the EPC.

6.8 Monitoring, reporting and evaluation

6.8.1 Monitoring and evaluation (M&E)

The Programme result framework presented in the Annex places particular weight on the availability and/or realistic monitoring resources and time-frames in defining the various outputs, outcomes and impacts. The Programme Monitoring and Evaluation Framework will be finalized during third quarter of 2014. Both the monitoring and the evaluation levels are necessary:

- 1) **The monitoring level**, which focuses on the targeted outputs, as well as outcomes and the immediate object to the degree possible. The monitoring level is the responsibility of the SP to implement.
- 2) **The evaluation level**, which focus on the successful implementation of the programme including the targeted outcomes and impacts. The Lead Donor is responsible to initiate and ensure execution of the mid-term evaluation.

At the **Programme level**, monitoring and reporting is meant to allow the SvB and EPC to track progress on at least a semi-annual basis. The target outcomes and impacts shall largely be the subject of periodic stock-taking and/or evaluations. The result framework is designed to offer the SvB and EPC a true results-based management tool, while the M&E framework is to provide the information and data to ensure it can be used in that fashion.

At the Programme level, emphasis will be on tracking progress on outputs, while also reporting on some key outcome indicators/targets. As many as 22 key performance indicators to monitor progress towards outputs have been developed as well as six outcome indicators. These are to be integrated in the Programme level M&E framework. The Programme level monitoring will be largely an aggregation and summary analysis of the project level results.

At the **Project level**, the SP shall finalize and execute the monitoring plan and tools as part of the Programme M&E framework. The M&E framework will recognize the importance of a process for verification of data. Ideally all projects will be contacted by SP after

the first months of implementation. The early contact by the SP aims to support the Project adjusting targets, indicators, inputs and costs within the parameters of the signed contract. Based on experience from EEP-I there is a tendency to be overly optimistic in the project applications. The role of the early contact is to help adjust the expectations or the implementation modalities within the frame of the project approval conditions. The report from the early contact will be fed into the project data base to track the progress of the specific project as well as to monitor the general adjustment level. The information about adjustments will be used in sharing lessons learnt.

During the course of project implementation, towards the end of the project implementation and near or in connection with project completion the projects will be contacted/visited by the M&E team to monitor their progress against the Contract and in particular also the set indicators. At this point it is not expected that there are major outstanding business problems but there will be lessons to be shared and learned. The M&E team will monitor output as well as the project's likelihood of achieving the intended outcomes and impacts. The Projects will be reminded to feed information of indicator achievement in their final reports and the M&E visits will verify the results. The information will be fed into the project level monitoring as well as the lessons learnt. Standard formats for the progress contacts/visits will be used and routines to capture monitoring data in the project database as well as the knowledge sharing system will be established, in addition to routines for feeding back the results into the semi-annual M&E reporting.

As part of the monitoring and evaluation system, the Programme shall be assessed through a **Mid-Term Evaluation (MTE)** tentatively during 2015. The mid-term evaluation will assess the Programme's relevance and achievements to date, and provide recommendations to improve EEP's impact, sustainability, effectiveness and efficiency in achieving its purpose. On the basis of the findings, the Mid-Term Evaluation will make recommendations concerning the way forward of the Programme. More specifically the MTE is expected to:

- 1) Assess progress towards the Programme's objectives;
- 2) Identify those aspects that are considered weaknesses in the implementation and
- 3) Provide recommendations and tools that help future planning and improve implementation and possible modifications of the Programme

The Mid-Term Evaluation shall be carried out as an independent assignment by an international team appointed by the MFA. The evaluators shall be independent experts without linkage to the Programme implementation. The Management Response shall be compiled by the SP after the MTE and presented to both SvB and EPC. Any proposals regarding fundamental changes to the program shall be considered and eventually approved by the SvB.

By the end of the Programme, a Programme Completion Report will be prepared by the SP including an assessment of the short- and medium term results of the Programme.

Reporting system

The reporting guidelines and requirements follow the requirements of MFA and are addressed in the ToR of the Service Provider and in a separate Reporting Matrix developed by the Service provider and approved by MFA.¹⁴

6.9 Project financial management and reporting

Projects implemented with the EEP-S&EA support shall provide frequent reports for the SP covering the use of funds and progress in implementation. The type of reports and their frequency will be based on agreed templates and shall include information on project indicators and reportable areas.

Each developer shall conduct an audit by a chartered auditor at the end of the implementation before the final payment is disbursed from the EEP-S&EA funds. EEP-S&EA will require applicants to sign a statement of non-fraudulent practises. In case, such practises occur in any project, the applicant/implementer is obliged to return the funding received from the EEP-S&EA.

¹⁴ <http://formin.finland.fi/public/default.aspx?contentid=259190&culture=fi-FI>

7. ESTIMATED PROGRAMME BUDGET

The EEP Phase II is planned to be implemented over a four year period between mid-2013 and mid-2017 with an approximate project support budget of 35 million euro over four years, including contributions from MFA, DFID and ADA. The implementation costs come in addition, and in the case of EEP. This budget is based on i) the regional partnership nature of the program, including 13 countries; ii), and that each project must have a contract, administration, follow-up, monitoring and reporting, and; iii) the funding partners maintain a high ambition for the project when it comes to drawing out lessons learned, knowledge production and dissemination of program results.

That is, in an effort to draw out true regional benefits from the program, a high level of professional management and implementation is of utmost importance. Additionally, the programme partners all maintain ambitions to attract additional funders into the partnership. Clearly, an effective and high quality implementation and M&E system will be an important stepping stone for other funders considering contributions. In this case, additional contributions will only improve the effectiveness/results of each euro used on implementation.

Due to EEP-S&EA's dynamic characteristic of operation, only an indicative budget is presented in the PD.

Table 3 Estimated budget for Phase II, euro

EEP2 TENTATIVE Budget, December 18, 2013	
June 2013 - May 2017 (tentative)	
Budget item	Total (Euro)
Expert Fees	2 611 100
Project Costs	596 541
Professional Support Services and project Visits	
Project Monitoring and Evaluation	
Operational and Administrative Reimbursable Costs	2 492 359
Programme M&E, knowledge mgt, administration, reimbursable of international experts, Home Office and Junior Expert costs	
Investments	29 500 000
Windows 1 and 2	
Contingency	300 000
GRAND TOTAL	35 500 000

8. RISK MANAGEMENT FRAMEWORK

The Service Provider will be compiling a risk assessment matrix at the Programme level. Since the aim is to analyse whether the Programme is on track, the risk factors to be analysed would have to be on regional level. A similar but more specific matrix should also be requested from project developers, showing project-specific risks. Any identified project risks will serve as input to EEP Programme risk assessments at times of review. All identified risks should be addressed through mitigation measures.

The SP Provider shall carefully monitor the Programme and Project risks. The risks are reported as part of the Annual M&E reporting. In case significant risks are identified during the period mitigation procedures will be initialized and brought to the EPC attention and for further possible actions to be taken. The risk matrixes on both Programme and Project level as Appendix.

9. LIST OF REFERENCES

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10. NATIONAL POLICIES AND COUNTRIES DATA

10.1 Botswana

80% of the households depend on wood fuel for their energy needs. Thus increased access to modern energy services, such as rural electrification, is one of the major targets of the energy policy. The objectives of the policy are to provide energy users access to appropriate and affordable energy services; improved energy efficiency; economically sustainable and efficient energy production, secure access to energy; environmentally and socially sustainable energy extraction, production, transport and use; and sustainable energy use in the long run.

Botswana has abundant coal resources but the energy efficiency in coal utilisation should be considerably improved. Of the renewable energy sources solar energy has the greatest potential in Botswana. A solar energy based rural electrification programme has been on-going since 1997 with government support. The current programme with a strong sustainability component is the Renewable Energy Based Rural Electrification Programme for Botswana (RE Botswana), which provides services and retail products in the form of solar home systems, heat retention bags, efficient wood stoves, solar water pumping and heating. Biogas is also a form of energy which has local potential. Currently the share of renewable energies (other than wood) of total consumption is only 0.3% but this is planned to be increased up to 1% by 2016 using solar energy. It is also planned to increase the share of biofuels up to 10% of the total fuels consumption by 2016.

The National Development Plan (2009-2016) underscores the need to achieve national “energy security” in light of the region-wide power deficit. In addition, “self-reliance” is one of the four National Principles outlined in Vision 2016, the country’s development roadmap. Vision 2016 aims at 100% electrification to support the broader development goals of access to education, health and employment opportunities for the rural and the disadvantaged population. The National Energy Policy of 2012 is one of the main policy documents. The Botswana Energy Master Plan (1996, reviewed 2003) is another important policy and planning document. In 2011, Botswana is in the process of introducing renewable energy feed-in tariffs for electricity generation in 2013, currently undergoing through the approval process by government. Under the scheme renewable energy suppliers will be paid for generating electricity for the country’s national grid. Independent power projects in the programme will range from tiny schemes to 5MW. All projects above this will be implemented through power purchase agreements with the state-owned Botswana Power Corporation. Renewable energy for power generation is expected to be generated from biogas and solar.

Table 4 Summary Botswana energy situation

Botswana	Value	As of
Electricity access (overall)	63%	2012
Electricity access (rural)	54%	2012
Annual electricity consumption per capita (kWh)	1500	2010
Total installed electricity generation capacity (MW)	132	2008
Feed-in tariffs in place	On-going (the principle ap-proved by cabinet)	2012
Private investments welcome in generation	yes	2012

10.2 Burundi

Burundi has one of the least developed electrical infrastructures. Most of the electricity comes from two hydropower stations, which are severely overloaded and as a result, Burundi's power supply is unreliable. Consequently many users increasingly turn to expensive diesel-fired back-up generators. Burundi also suffers from extensive deforestation, as wood and charcoal account for vast majority of energy use. Development of the electricity sector has been outlined in the recently developed Energy Strategy and Action Plan (2011), which aims to (1) first repair and modernise all existing equipment; (2) reduce demand and power shortages; (3) develop national and regional hydropower resources; (4) form a national transmission system as well as resume rural electrification; (5) establish metal extraction industries to earn foreign exchange and meet the growing energy demand.

Solar power receives a considerable share of attention, as a lot of social infrastructure is planned to be electrified with PV panels and in the longer term, solar power stations are planned for national-level electricity supply. Wind power is also seen to have some potential in Burundi. While there are master plans, there are no feasibility or pre-feasibility studies for specific projects.

Table 5 Summary Burundi energy sector

BURUNDI	Value	As of
Electricity access (overall)	2%	2011
Electricity access (rural)	<1%	2011
Annual electricity consumption per capita	30 kWh	2008
Total installed electricity generation capacity	31 MW	2011
Feed-in tariffs in place	no	2011
Private investments welcome in generation	no	2011

10.3 Kenya

Wood fuel accounts for about 70% of all energy consumed. The balance is supplied by petroleum (21%) and electricity (9%). A significant share of the electricity (over 60%) is produced from hydro power. The Government's sector-development priorities aim to gradually shift the pattern of energy consumption towards modern forms of energy and

expand the electricity grid in order to protect the environment and to provide energy forms necessary for economic growth.

Kenya has a well-developed industrial sector that consumes approximately 60% of the electricity sold. By far the fastest growing consumer sub-sector is that of medium commercial and industrial customers. Rural electrification is also growing (at 8.5% since 1997). These connections are undertaken with the support from the Kenyan government's Rural Electrification Fund (REF), which The Kenya Power and Lighting Company Limited (KPLC) manages on behalf of the government. Some 13% of the population (3.2 million) has access to electricity. The goal is to provide electricity to about 20% of the rural population by 2010.

Poor grid infrastructure has resulted in a thriving private market for solar photovoltaic systems and a growing number of industries are investigating the opportunities for on-site generation. Major potential in renewable energy sources in Kenya lies in biomass, solar, wind, geothermal and mini/micro hydropower. Large wind (Turkana) and geothermal projects are currently under development.

The country suffers a biomass (wood, charcoal) deficit which is estimated to be up to 60% of the demand. This imbalance causes considerable pressure on the remaining forest and vegetation stocks, thereby accelerating the processes of land degradation. In addition, biomass production for energy also competes with other forms of land use such as agriculture. The government is currently implementing a solar PV electrification programme of schools and other institutions in selected districts, which are remote from the national grid as part of a national strategy to enhance the contribution of renewable sources of energy to the overall energy supply mix.

Kenya has a national renewable energy development strategy as set in the Least Cost Power Development Plan (LCPDP), Rural Electrification Master Plan, Sessional Paper No. 4 of 2004 (The energy policy document), the Energy Act of 2006, the Feed-in Tariff (FiT) Policy, the Kenya National Climate Change Response Strategy and Kenya Vision 2030 (the National economic development blueprint). In January 2010, Kenya revised the FIT policy, which resulted in the addition of three renewable energy sources: geothermal, biogas, and solar energy resource generated electricity. In addition, the revised policy extended the period of the power purchase agreements from 15 to 20 years and increased the fixed tariffs per kilowatt-hour for pre-existing wind and biomass under the FIT.

Table 6 Summary Kenya energy situation

Kenya	Value	As of
Electricity access (overall)	13%	2010
Electricity access (rural)	9%	2012
Annual electricity consumption per capita (kWh)	140	2010
Total installed electricity generation capacity (MW)	1400	2010
Feed-in tariffs in place	yes	2012
Private investments welcome in generation	yes	2012

10.4 Lesotho

Biomass fuels remain the main sources of energy. Due to cold weather, use of energy sources tends to increase in winter, particularly for space heating. Since most houses are poorly insulated, there is a considerable potential for reducing the energy demand for space heating through simple retrofit measures as well as improved building designs to utilize solar energy.

Renewable power (hydropower and biomass) makes up a large share of existing production, although Lesotho is importing almost as much (66MW) as it is producing domestically (72MW). Solar PV is seen as having a very high potential especially in rural electrification for off-grid installations in households, schools, hospitals etc. Due to very mountainous terrain and sparse population, grid extension is not viable in the southern parts of the country. Solar energy is also seen as a means for water heating and the government has embarked on a project to equip public buildings with solar heaters. Solar cookers and solar dryers are also discussed for rural households. Wind measurements confirm that Lesotho has significant potential for wind power and wind farms are planned in the country. Mini-hydro and biogas make up the remainder of possible generation capacity increase means. Both technologies are also operational in some locations. Inadequate institutional capacity can hinder greater use of renewable technologies.

Lesotho obtains its electricity from a couple of suppliers (Muela and Eskom) and the remaining few state-owned (rurally located) mini-hydropower plants are planned to be privatized. The energy policy for Lesotho was drafted in 2003. According to the policy, the government's main challenges are: (1) ensuring the existence of a governance system which supports efficient and effective running of the power sector; (2) creating an environment conducive to private sector participation and investment; (3) promoting the efficient use of electricity; (4) making optimal use of Lesotho's power sector resources through regional cooperation. This also means establishment of a rural electrification fund.

Table 7 Summary Lesotho energy situation

LESOTHO	Value	As of
Electricity access (overall)	21%	2011
Electricity access (rural)	5%	-
Annual electricity consumption per capita	343 kWh	2012
Total installed electricity generation capacity	72 MW	2011
Feed-in tariffs	no	
Private investments in generation	yes	2012

10.5 Mozambique

Mozambique is a country with vast hydropower resources. The technical potential is estimated to be 12 500-14 000 MW (Ministry of Mineral Resources and Energy) of which some 20% is currently exploited. 86% of the electricity in the country is produced from hydropower. Mozambique exports 90% of the produced electricity, but at the

same time, the majority of the population depend on wood or charcoal to meet their energy needs. The electricity from the main grid is available for less than 10% of the Mozambican population.

In addition to hydropower, solar and wind energy as well as biofuels have potential for increased exploitation. Some studies and pilots have already been carried out but the renewable energy resources are not yet exploited at a larger scale. Several pilot projects are ongoing, such as jatropha plantations for biofuels. The national biofuels policy (until 2015) and strategy has been adopted in 2009.

The Norwegian Government has supported Mozambique in the elaboration and implementation of a strategy plan for rural electrification and an energy master plan. It has also supported the establishment of the necessary institutional framework.

Table 8 Summary Mozambique energy situation

Mozambique	Value	As of
Electricity access (overall)	13%	2010
Electricity access (rural)	less than 5%	2012
Annual electricity consumption per capita (kWh)	453	2010
Total installed electricity generation capacity (MW)	540	2010
Feed-in tariffs in place	yes	2012

10.6 Namibia

Namibian national electricity utility, NamPower, has approved the Renewable Energy Policy Paper which states that the company's target for the renewable is 10% of the total installed capacity and the first target was 40 MW by 2011. Namibia has undertaken several energy savings measures such as special tariffs for big customers, introduced directive to install solar water heaters to all government buildings and introducing independent power producer concept and supporting development of the energy from the bush encroachment, introducing solar/diesel hybrid mini-grid system and the options for wind power generation.

About 80% of all rural households in Namibia rely on wood fuel as their main source of energy. The population in Namibia is small and dispersed with the more densely populated areas in the north and, on the other hand, with vast and thinly populated areas in the south. Consequently grid extension is very costly. Considering the situation of deforestation in Namibia and limited possibilities for grid extension, energy efficiency improvement and alternative rural energy solutions are needed. Some piloting activities have already been carried out with government support.

Through the Energy White Paper of 1998, the Government has committed itself to introducing renewable energy sources: The Government will promote the use of economically viable renewable energy technologies to improve energy access in rural areas, as a complementary supply option to grid electrification. The Ministry of Mines and Energy of Namibia has introduced a revolving fund to support solar energy usage for off-grid purposes to lower the threshold for RE investments. Furthermore, all imports of solar equipment have been relieved from import duties. Energy Shops are being estab-

lished to stock and sell appropriate energy technologies in an effort to increase energy access.

Table 9 Summary Namibia energy situation

Namibia	Value	As of
Electricity access (overall)	34%	2010
Electricity access (rural)	12%	2010
Annual electricity consumption per capita (kWh)	1575	2010
Total installed electricity generation capacity (MW)	393	2010
Feed-in tariffs in place	yes	2012
Private investments welcome in generation	yes	2012

10.7 Rwanda

Biomass based fuels dominate the energy mix in Rwanda, with as much as 95% of the total energy supply made up of firewood, charcoal, and agricultural residues. This is likely to remain so in the near or even medium term future. The country has identified several untapped renewable energy generation possibilities, namely geothermal (700MW), solar power as well as mini-hydropower (200MW). Solar power is estimated to be used primarily for offgrid electrification solutions (e.g. clinics, schools) but also for water heating, which would substitute biomass and electricity needs for the same purpose. A 250 kW solar PV plant has also been installed in Kigali to supply electricity to the national grid for testing purposes. Potential for wind energy is unknown, but a wind atlas project has been proposed. Additionally, a methane gas resource (300MW) has been discovered in Lake Kivu and abundant peat resources are believed to be available.

The Economic Development and Poverty Reduction Strategy from 2007 opens potentially the electricity sector to private sector investments. Other important documents governing development in the electricity sector are as follows:

- National Energy Policy (2004) outlines the overall situation and sets goals for use of both renewable and thermal generation in order to increase modern energy access. It was updated in 2009, embracing greater use of renewable generation and stating more clearly Rwanda's commitment to private sector participation in energy sector. As per the policy, the private sector is welcomed at any and all levels of energy supply, including large and small electricity generation projects, on and off grid. The policy foresees that the Government develops a number of mechanisms to facilitate greater private investments through negotiations framework, public-private partnership financing arrangements, feed-in tariffs etc. However, energy projects are to be prioritized for support by government and/or development partners: introduction of competition in the electricity sector is a long-term goal (Ministry of Infrastructure, Rwanda, 2009).
- The National Energy Strategy 2008-2020 was issued together with an updated policy, providing a vision and desired milestones up to year 2020. The Strategy mapped the situation in 2008 as well as provided clear guidelines on what activ-

ities need to be undertaken per each sub-category, e.g. installation of solar panels or developing a wind atlas.

- Economic Development and Poverty Reduction Strategy 2008-2012 sets out plans for expansion of generation and transmission capacity as well as rural electrification targets. High rate of economic growth is seen as the primary driver of poverty reduction, and economic growth is dependent on electrification.
- There is also an Electricity Master Plan 2009-2025 and a new Electricity law was passed in 2011

Table 10 Summary Rwanda energy sector

RWANDA	Value	As of
Electricity access (overall)	11%	2009
Electricity access (rural)	1%	2004
Annual electricity consumption per capita	20 kWh	2009
Total installed electricity generation capacity	83 MW	2011
Feed-in tariffs in place	yes (hydro)	2009
Private investments welcome in generation	yes	2009

10.8 Seychelles

Seychelles consists of over 115 islands located in the East coast of Africa. While most of its population has access to electricity, it comes from thermal production. The Government has now an objective to develop renewables, The Seychelles Energy Policy for 2010-2030 was completed in 2010 and it mainly recommends a sustainable development of the energy sector focusing on Energy Efficiency, Renewable Energy and reduction of dependence on oil to improve energy security. A diversification of the energy supply with a share of 15% from renewable energy is targeted for 2030 and 5% for 2020.

Seychelles is apparently endowed with abundant renewable energy resources especially for solar, biomass and ocean energy. A wind farm project of 6 MW is expected to be commissioned during the year 2013 in Victoria, and waste-to-energy power plant of 1 to 5 MW during the next two years. Several interests for grid-connected solar PV plants by private investors were also received by the Energy Commission in 2011. One pressing need on renewable energy at the present is a resource assessment for the most promising renewable energy sources.

A new energy law, to be called the Seychelles Energy Act 2012, was prepared in 2011 and is expected to be passed by the National Assembly in 2012. The act will make provisions for IPP's (independent power producers) using renewable energy to access the grid and operate alongside PUC. A study of feed-in tariff especially for solar PV, wind, biomass, biogas, will have yet to be undertaken.

A program on Energy Efficiency, Renewable Energy and capacity building has been prepared and included in the Seychelles Sustainable Development Strategy (SSDS) for

2011-2020. However, there are some constraints mainly on the manpower and funding aspects. The planned activities of the Energy Commission on Energy Efficiency in 2012 include public awareness and energy auditing of large air-conditioned public buildings.

Table 11 Summary Seychelles energy situation

Seychelles	Value	As of
Electricity access (overall)	100%	2012
Electricity access (rural)	100%	2012
Annual electricity consumption per capita (KWh)	4253	2010
Total installed electricity generation capacity (MW)	2500	2010
Feed-in tariffs in place	yes	2012
Private investments welcome in generation	yes	2012

10.9 South Africa

The Republic of South Africa (RSA) is the main producer and by far the most significant consumer of electricity in the African continent using some 40% of the total electricity production. 90% of South African electricity is produced from coal and the balance is from nuclear (5%) and hydro-electric power and pumped storage schemes. Due to the abundant coal resources and historically low tariffs there is a lot to be improved in terms of energy efficiency measures. It must be noted that recently, consumers have experienced significant electricity price hikes.

The RSA developed and published its White Paper on Energy Policy in 1998. The policy has been complemented by the White Paper on Renewable Energy (WRE) in 2003 and the Energy Efficiency Strategy in 2005. From the 2013 WRE South Africa set a target to increase renewable energy production up to 10000 GWh by 2013 using biomass, wind, solar and small scale hydro power. This planned new RE production capacity was equivalent to approximately 4% of the projected installed capacity of 41 539 MW. The WRE has since been surpassed by the Integrated Resource Plan 2012 which was promulgated in May 2011. This electricity generation focused 20 year plan has set an ambitious target of 17800MW of new electricity generation from renewable energy sources mainly from a combination of solar (8400MW solar PV, and 1000 MW CSP) and wind (8400MW). The Department of Energy implemented this plan immediately during 2011 when it started a competitive bidding process in August, Bidders were given maximum tariff prices per technology and about 3 725 MW were made available for the period up to 2016. The first preferred bidders were announced during the COP 17 event in Durban. Out of the 5 bidding rounds, about 1415MW were allocated during the first round, followed by 1043MW in the second bidding window.

Similarly, energy efficiency is well considered in the policies including the IRP 2010. The target is to reduce energy demand by 12% by 2015, and specific targets have been set for the key energy consuming sectors such as industry, transport, public buildings and residential sector.

Table 12 Summary South Africa energy situation

South Africa	Value	As of
Electricity access (overall)	70%	2010
Electricity access (rural)	20%	2010
Annual electricity consumption per capita (KWh)	4530	2009
Total installed electricity generation capacity (MW)	41,000	2010
Feed-in tariffs in place	yes	2012
Private investments welcome in generation	yes	2012

10.10 Swaziland

Swaziland imports 60% of the total national electricity demand. The major electricity source of Swaziland is hydropower. The bulk of the electricity imported comes from South Africa. Access to electricity in urban areas is 65% and in rural areas it is 44%. Overall, some 47% of the population is connected to the national grid and thus almost 61% of the total energy demand is produced with biomass.

Coal resources are planned to be exploited and agro-industrial waste (bagasse) is already being exploited for energy production to reduce the dependence on the imported energy. Also the hydro power capacity is planned to be expanded considerably. Different renewable energy forms are actively promoted by the Renewable Energy Unit in the Ministry of Natural Resources and Energy, especially in rural areas. Some piloting with biofuels in transportation sector has also been carried out. However, the limited know-how and financing capacity in the country have impeded full exploitation of the renewable energy potential. Furthermore, the national institutional and legal frameworks do not provide sufficient support for renewable energy development and use.

Table 13 Summary Swaziland energy situation

Swaziland	Value	As of
Electricity access (overall)	55%	2010
Electricity access (rural)	44%	2010
Annual electricity consumption per capita (KWh)	902	2010
Total installed electricity generation capacity (MW)	170	2010
Feed-in tariffs in place	no	2012
Private investments welcome in generation	yes	2012

10.11 Tanzania

90% of the total energy used in Tanzania is produced from wood fuel and charcoal, 80% being consumed in rural areas. Unsustainable charcoal making contributes to deforestation and forest degradation, which furthermore reduces the capacity of forests to act as a carbon sink. Access to electricity in urban areas is 39% and in rural areas the level of access is only 2%. Despite having electricity, 79% of urban population still uses charcoal for cooking and heating because of the cost and unreliable supply of electricity. In Dar-es-Salaam less than 6% of the population, (estimated at 4 million) use elec-

tricity for cooking because of high cost and intermittent supply. There have been frequent power cuts due to power rationing over the past two years, due to capacity constraints of electricity production and distribution. Although these problems are mainly linked to the national grid, initiatives of establishing renewable energy sources will reduce the dependence on national grid.

Commercial energy sources based on petroleum, hydropower and coal represent less than 10% of the total energy consumption. Over 50% of the commercial electricity production is based on hydropower thus recent droughts have caused severe problems. Biomass, solar and wind energy are hardly exploited commercially. Strategies to diversify energy sources in electricity generation are being implemented which will include various renewable sources, coal and gas.

The current Tanzanian energy policy was adopted in 2003. The main elements of the policy include: the development of least-cost options for domestic energy resources; promotion of economic energy pricing; improving energy reliability and security; enhancing energy efficiency; encouraging commercialization and private sector participation in the energy sector; reducing forest depletion and development of human resources. Rural energy and indigenous, renewable energy sources are highlighted in the policy. Efficient use of wood fuel and the provision of alternatives for wood fuel are already promoted at some level in the country but further support is urgently needed. Furthermore, energy is not yet recognized in, or linked to, the other important policies of the country.

The Rural Energy Agency is currently cooperating with TANESCO Energy Utility Company to implement grid expansion programmes and piloting also off-grid projects with the support of the established Rural Energy Fund.

Table 14 Summary Tanzania energy situation

Tanzania	Value	As of
Electricity access (overall)	18%	2012
Electricity access (rural)	6%	2012
Annual electricity consumption per capita (KWh)	85	2010
Total installed electricity generation capacity (MW)	1438	2012
Feed-in tariffs in place	yes	2012

10.12 Uganda

In 1997, the government of Uganda formulated a comprehensive plan for transforming the energy sector into a financially viable industry. Since then there have been significant reforms in legislative and policy frameworks: unbundling of the Uganda Electricity Board to separate companies responsible for generation (UEGCL), transmission (UETCL) and distribution (UEDCL); establishment of an independent market regulator (ERA) as well as the rural electrification agency (REA). Most importantly, Uganda has opened itself to free competition in energy generation (and to some extent also distribution) meaning that private investors are encouraged to set up electricity generation and

sell to the state-owned transmission system operator UETCL according to published feed-in tariffs. This has resulted in a number of investments in large-scale as well as mini-hydropower generation.

Uganda has published feed-in tariffs, although some investors are uncertain as to the government's ability to pay in foreign exchange over the long term as the project pipeline increases. Some new distribution networks have also been developed but don't attract many investors due to low margins. Instead, distribution is financed by the government from loans and donor support; communities are encouraged to operate rural electrification distribution networks. A lot of rural electrification takes place using off-grid installations – solar PV panels are subsidized by the state and encouraged among households. ERA and UETCL are widely believed to be very competent entities.

Despite the (in regional context) rather impressive progress, 90% of Uganda's total energy consumption is still made up of biomass – primarily burning of wood (84%) and charcoal (6%). Of the remaining 10%, 4% comes from electricity while the remainder is generated from petroleum products. Consequently, low level of access to modern forms of energy, particularly electricity, has continued to be one of the major infrastructure bottlenecks to socio-economic growth in Uganda.

A number of policies and plans have been set up in order to guide the energy development in Uganda:

- The National Energy Policy was approved in 2002. The broad objectives of the policy are to stimulate access to modern energy in order to eradicate poverty, manage environmental impacts, increase the role of private sector as well as carry out rural electrification.
- The Renewable Energy Policy became effective in 2007 and aims to increase the share of modern energy to 61% of total energy consumption by year 2016. This seems unlikely to happen, but the policy is important in terms of signaling the country's intent to promote renewable electricity production including greater use of offgrid solar PV installations, biofuels, waste to energy, technology transfer etc.
- Rural Electrification Strategy and Plan 2001-2010 established the Rural Electrification Fund (paid by the Government) as well as the Rural Electrification Agency to carry out rural electrification projects according to a prioritized list bundled into Indicative Rural Electrification Master Plan (2009). Numerous rural areas have been electrified as a result; the selection of projects does however not always follow the master plan.
- The Power Sector Investment Plan from 2010 provides a comprehensive overview of all existing and planned investments in generation, transmission and distribution.

Table 15 Summary Uganda energy sector

UGANDA	Value	As of
Electricity access (overall)	12%	2012
Electricity access (rural)	4%	2012
Annual electricity consumption per capita (KWh)	72	2010
Total installed electricity generation capacity (MW)	595	2010
Feed-in tariffs in place	yes	2012
Private investments welcome in generation	yes	2012

10.13 Zambia

Currently, only 30% of the Zambian population has access to electricity. 80% of the total energy consumption is based on biomass (wood and charcoal).

Zambia produces 99% of the electricity with hydropower. Among the other renewable energy sources which have shown potential for development is bio energy based on the cogeneration capacity of the sugar industry. Biodiesel production has also been started but mainly based on imported soya oil and to some extent on domestically cultivated *Jatropha*. Energy saving is considered as an important topic on the political agenda.

Zambia developed its initial energy policy in 1994 and has published a revised Energy Policy for Zambia in 2008. Sweden and the World Bank have supported Zambia in recent years in rural electrification and in establishing the necessary legal and institutional framework for grid expansion.

The development plans based on the Energy Policy 1994, and the succeeding policy in May 2008, have put more emphasis on grid hydro-electricity compared to other renewable energy technologies. These plans include the Poverty Reduction Strategy Paper (PRSP), Transitional National Development Plan (TNDP) (2002-2005), the Fifth National Development Plan (FNDP) (2006-2010), and the Sixth National Development Plan (2011-2015). The PRSP acknowledges the importance of harnessing renewable energy resources to meet the country's energy needs. However, no investment strategy or targets for renewable energy technologies are defined in the PRSP and the main focus is on hydropower.

Table 16 Summary Zambia energy situation

Zambia	Value	As of
Electricity access (overall)	30%	2010
Electricity access (rural)	3%	2010
Annual electricity consumption per capita (KWh)	635	2009
Total installed electricity generation capacity (MW)	1978	2010
Feed-in tariffs in place	No	2012
Private investments welcome in generation	yes	2012