



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

June 14, 2018

Dear Council Member:

AfDB as the Implementing Agency for the project entitled: ***Regional (Africa): Investing in Renewable Energy Project Preparation under the Fund for Energy Inclusion (FEI)***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with AfDB procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by Council in April 2016 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by AfDB satisfactorily details how Council's comments and those of the STAP have been addressed. I am, therefore, endorsing the project document.

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

Sincerely,

Naoko Ishii
Chief Executive Officer and Chairperson

Attachment: Project Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee



EF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

OBJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Investing in renewable energy project preparation under the Fund for Energy Inclusion (FEI)			
Country(ies):	Multinational	GEF Project ID: ¹	9043
GEF Agency(ies):	AfDB (select) (select)	GEF Agency Project ID:	
Other Executing Partner(s):	FEI ON GRID Fund Manager	Submission Date:	2017-09-28
GEF Focal Area (s):	Climate Change	Project Duration (Months)	84
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>		Corporate Program: SGP <input type="checkbox"/>
Name of Parent Program	[if applicable]	Agency Fee (\$)	950,000

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES²

Focal Area Objectives/Programs	Focal Area Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Co-financing (300 m\$ from FEI and 300 m\$ leveraged by FEI)
(select) CCM-1 Program 1 (select)	Promote the timely development, demonstration, and financing of low-carbon technologies and mitigation options.	GEFTF	10,000,000	610,000,000
Total project costs			10,000,000	610,000,000

B. PROJECT DESCRIPTION SUMMARY

Project Objective: To attract and accelerate investment in small-scale renewable energy projects by piloting the use of reimbursable grants for the Facility for Energy Inclusion (FEI) ON-GRID project preparation window

Project Components/ Programs	Financing Type ³	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Confirmed Co-financing
Component A: Finance additional small-scale renewable electricity generation with a range of debt instruments	INV	Enlarged access to clean electricity	New on-grid RE generation capacity financed	GEFTF	0	600,000,000
Component B: Support 'last-mile' small-scale RE project development through a pilot reimbursable grant modality	TA	Demonstration that small-scale RE projects can reach bankability and mobilize private sector financing under a variety of	Small-scale RE projects developed and reaching financial close with support from FEI USD 10 mln PPF	GEFTF	10,000,000	10,000,000 ⁴

¹ Project ID number remains the same as the assigned PIF number.

² When completing Table A, refer to the excerpts on [GEF 6 Results Frameworks for GETF, LDCF and SCCF](#).

³ Financing type can be either investment or technical assistance.

⁴ This is an indicative figure corresponding to the SEFA contribution to FEI pipeline based on existing SEFA portfolio (SEE ANNEX E) and is subject to Fund Manager's further due diligence and clearance for FEI pipeline.

		financing and business models				
			Subtotal			
			Project Management Cost (PMC) ⁵	GEFTF		
			Total project costs		10,000,000	610,000,000

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Amount (\$)
GEF Agency	African Development Bank (FEI ON-GRID)	Equity / debt	70,000,000
GEF Agency	Sustainable Energy Fund for Africa	Grant	10,000,000
Donor Agency	Commercial banks and DFIs (TBD)	Debt	100,000,000
Private sector and Donor Agency	Other private / public investors in FEI	Equity / debt	230,000,000
Private Sector	Investors and project developers (TBD)	Equity	150,000,000
Private Sector	Host governments & other energy facilities	Grants	50,000,000
Total Co-financing			610,000,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee ^{a)} (b) ²	Total (c)=a+b
AfDB	GEF TF	Multinational	Climate Change	Non-Grant Set Aside	10,000,000	950,000	10,950,000
Total Grant Resources					10,000,000	950,000	10,950,000

a) Refer to the Fee Policy for GEF Partner Agencies

⁵ For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS⁶

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	<i>hectares</i>
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	<i>hectares</i>
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	<i>Number of freshwater basins</i>
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	<i>Percent of fisheries, by volume</i>
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (include both direct and indirect)	8,730,000 metric tons
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	<i>metric tons</i>
	Reduction of 1000 tons of Mercury	<i>metric tons</i>
	Phase-out of 303.44 tons of ODP (HCFC)	<i>ODP tons</i>
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	<i>Number of Countries:</i>
	Functional environmental information systems are established to support decision-making in at least 10 countries	<i>Number of Countries:</i>

F. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? **Yes**

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund) in Annex D.

⁶ Update the applicable indicators provided at PIF stage. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the [GEF-6 Programming Directions](#), will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF⁷

A.1. *Project Description.* Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed; 2) the baseline scenario or any associated baseline projects, 3) the proposed alternative scenario, GEF focal area⁸ strategies, with a brief description of expected outcomes and components of the project, 4) [incremental/additional cost reasoning](#) and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and [co-financing](#); 5) [global environmental benefits](#) (GEFTF) and/or [adaptation benefits](#) (LDCF/SCCF); and 6) innovativeness, sustainability and potential for scaling up.

<u>Overview / introductory remarks</u>

NOTE: The Project concept has slightly evolved since approval of the PIF. The objectives of the projects are unchanged –the development of small- and medium-scale renewable energy projects in Africa facilitated by project preparation support - yet the operational modality through which this purpose will be attained has changed.

The original proposal consisted in allocating a USD 10 million GEF non-grant instrument to the Sustainable Energy for Africa (SEFA), a Multi-donor Trust Fund hosted and managed by the African Development Bank (AfDB or the Bank), for direct co-financing of project preparation activities. SEFA consists of several components but is perhaps better known for its role in supporting the preparation and development of small/medium sized renewable energy projects with pure grants (Component I). SEFA has over the years grown to become the Bank’s “early stage” platform for renewables, and facilitates support not just through its in-house team but also through its network of partners and financiers in the project development space. As part of this concept, SEFA can also operate and channel preparation funding through intermediaries, as is the case of the USD 10 million Project Support Facility under the Africa Renewable Energy Fund (AREF). This platform approach enables SEFA to leverage additional capacity from expert teams, expand its presence on the ground and realize operational synergies and cost efficiencies.

The amended proposal builds on the SEFA platform concept and proposes that GEF funding be used to capitalize a dedicated project preparation facility (PPF) available to the ON-GRID window of the new Facility for Energy Inclusion (FEI). FEI ON-GRID is a USD 400 million debt facility for small-scale renewable energy projects, which is structured and sponsored by the Bank with preparatory funding and technical support from SEFA⁹. FEI ON-GRID will provide (senior and mezzanine) debt financing to small scale independent power producer (IPPs) and mini-grid projects under USD 30 million in total project costs. To this purpose, the Bank has approved in November 2016, an investment of up to USD 100 million in FEI, of which approximately USD 70 million will be dedicated to the ON-GRID window. This window will be structured as a standalone fund with its own dedicated fund manager. The recruitment of the manager is on-going following an international competitive bidding process.

⁷ For questions A.1 –A.7 in Part II, if there are no changes since PIF, no need to respond, please enter “NA” after the respective question.

⁸ For biodiversity projects, in addition to explaining the project’s consistency with the biodiversity focal area strategy, objectives

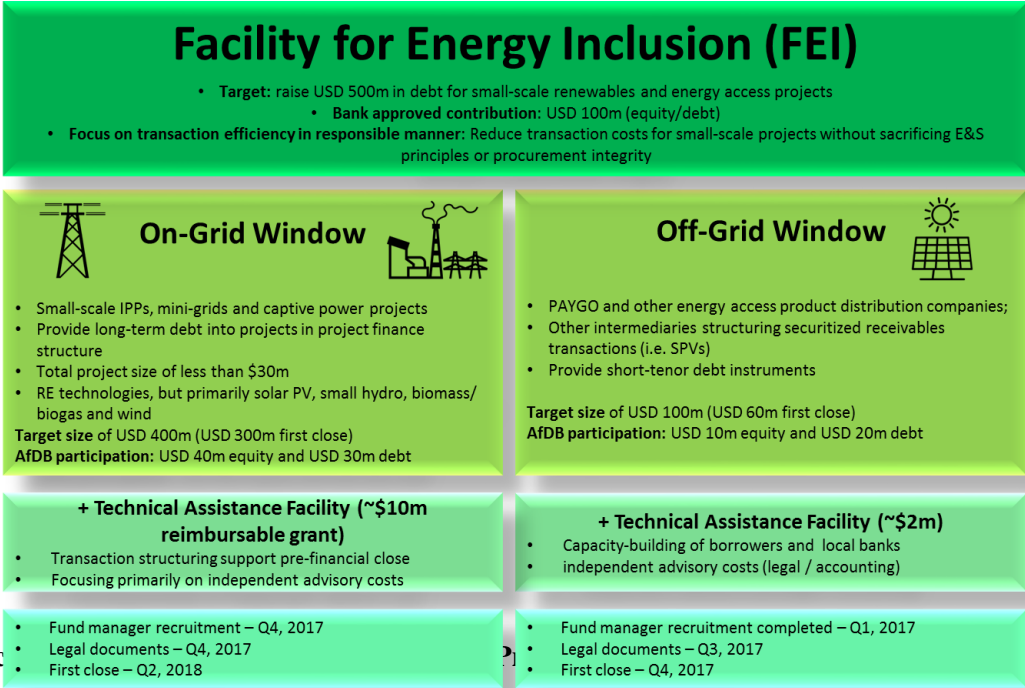
and programs, please also describe which [Aichi Target\(s\)](#) the project will directly contribute to achieving..

⁹ SEFA approved \$600.000 for the structuring of FEI ON-GRID and \$400.000 for FEI OFF-GRID.

The FEI Project Preparation Facility (PPF) will play a critical role in supporting projects to “financial close” through reimbursable grants, enabling FEI ON-GRID to deploy debt more effectively. As will be further discussed in this proposal, there is a shortage of outright “bankable” small-scale IPPs and mini-grids. It is therefore expected that the Fund Manager will get involved in financial and legal structuring, as well as validation of technical feasibility studies (resource assessment, engineering, environmental and social, etc.), to bring projects to the finishing line. As such, FEI PPF will be best managed by the FEI Fund Manager over a 5-7 year investment period, broadly coinciding with the FEI investment period (not yet determined). The funding will focus on late stage preparatory activities and reimbursed at a premium at the financial close of projects, as to provide some minimum compensation for the project development risk being taken. On the Bank side, the SEFA team will not only take a collaborative approach in pipeline origination and development, but it will also play a key role in structuring and oversight of the PPF activities. They will be supported by the Bank FEI team, which will be supervising the overall FEI investment activity through its role in the fund Investor Advisory Committee.

FEI ON-GRID is expected to achieve a capitalization of USD 300 million in the course of 2018, thus requiring around USD 10 million in project preparation resources. This USD 300 million target will thus be adopted for the purpose of this proposal, for which a USD 10 million PPF would be required for full achievement of results under the three scenarios modelled - “base”, “bull” and bear” - provided in annex D. This would enable preparation support to around 40 projects and some degree of capital recycling within the lifetime of the PPF, with at least 50% of the capital being reimbursed back to GEF in the worst case scenario (“bear”). We expect however that a high standard of diligence by the Fund Manager and more bespoke structuring of the reimbursable project preparation grants (with premiums set according to the various project risks) would result in a full restitution of capital under the “base” scenario or even generation some capital returns under the “bull” scenario.

Figure 1: Overview of FEI and the two funding windows



Scaling-up SEFA’s “platform” approach and project preparation ecosystem. SEFA (originally the name of a GEF6 CEO Endorsement /Approval TemplateNGI-Sept2015

Multi Donor Trust Fund hosted by the Bank) has evolved in recent years into a platform of coordinated “early stage” facilities under the leadership and supervision of the Bank, which combine both direct project preparation support by AfDB staff (the original SEFA MDTF directly managed by the Bank) and indirect support through intermediaries (i.e. outsourced facilities) such as the Project Support Facility (PSF) of the African Renewable Energy Fund (in which GEF is an investor). SEFA additionally works closely other with partners in the project preparation space, leveraging their additional financing and advisory capacity (eg. USTDA preparation grants, Power Africa Transaction Advisors, RECP project finance advisors). Channeling resources through the FEI PPF would expand this platform of “intermediaries” and enhance delivery capacity and footprint on the continent. The funds would be deployed by the fund manager recruited by the Bank, in support of a financing facility in which the Bank is co-sponsor and anchor investor, under close oversight by the SEFA and FEI Teams within the Bank.

Realizing synergies and complementarities with SEFA project preparation and enabling environment business. The current SEFA “in-house” project preparation work is focused on earlier stage activities with the view to establishing technical and financial feasibility, a pre-condition for projects to advance conversations with prospective equity and debt financiers. As these projects mature and investors crowd-in, a “lead arranger” needs to step-in to organize the financial and legal structuring to bring the project to “bankability”. FEI ON-GRID is expected to do so on behalf of the Bank for smaller projects (< USD 30 million) and use its PPF for the purpose. In fact, there already is a pipeline for FEI ON-GRID under active development with SEFA grants, representing 120 MW and USD 260 million in investments (see ANNEX E), and more could materialize over the next years. The other part of the SEFA platform - AREF’s Project Support Facility - is focusing primarily on projects above USD 30 million. Finally, under the enabling environment window, SEFA is currently supporting various countries with Green Mini-Grid Programmes, which also entail site identification, technical feasibility and wider support to governments in attracting private sector investors. Additionally, various developers are receiving advisory support through the SEFA-funded Green Mini-Grid Market Development Programme. The pipeline generated under these programmes would be prime candidate for FEI ON-GRID.

Enhancing success of an anchor initiative of the Bank for addressing one of the biggest gaps in the market, that of debt financing to small-scale renewables projects. The AfDB launched in 2016 its New Deal on Energy for Africa (NDEA), which sets out an aspirational goal of achieving universal energy access in Africa by 2025, leveraging on and off-grid solutions and related technological advances. Two of the NDEA strategic priorities are #3 “*dramatically increasing the number of bankable energy projects*”, and #4 “*increasing the funding pool to deliver new projects*”. To achieve universal access by 2025, innovative mechanisms are required to mobilize an additional USD 40-70 billion annually in domestic and international capital. The decision to establish and contribute to the capitalization of the Facility for Energy Inclusion (FEI) is a direct consequence and initial implementation of these NDEA themes. FEI’s success will depend in turn on having its own project preparation facility (PPF) to bring projects to “bankability”. The AREF example (to which SEFA and GEF are investors) has shown that this is more efficiently and effectively achieved if embedded in the fund architecture and managed by the same fund manager. The GEF non-grant will fund this preparation facility (FEI being a debt fund would not be allowed to deploy its own committed capital for this purpose) and enhance the chances of success of the fund.

Stronger cost recovery arrangements, as it allows the possibility of designing a “reflow” mechanism from FEI inception. Allocating the GEF non-grant to the FEI PPF will ensure a higher chance of cost recovery as projects supported will be focused primarily on “late-stage” preparatory activities and intrinsically connected to a

dedicated source of construction finance (here, debt finance). Cost recovery will be built-in to FEI operational modalities and ensured at the point of disbursement of a FEI loan to the projects that reached financial close with PPF support (i.e. part of the loan disbursement would be used to pay-back the PPF commitment, more detail below). Therefore, the reflow expectations of the GEF will be achieved more easily.

Enhanced cost and operational efficiencies, by leveraging capacities of a team incentivized to bring projects to financial close. The new scheme can improve cost and operational efficiency for the Bank’s internal resources when compared to a simple replenishment of the SEFA Trust Fund, as it relies on the FEI fund manager selecting projects and managing funds under supervision of the Bank and SEFA Secretariat. Since, there is no project management cost (PMC) approved under the PIF, this option will facilitate implementation at a lower cost for the Bank and GEF, especially as it will leverage a dedicated expert team (the Fund Manager) to structure financing for projects and integrate reflow arrangements from the start. The fund manager fees will be covered by all investors to FEI. As previously mentioned, several SEFA supported projects could later benefit from “late stage” structuring support with the view to being banked by FEI.

Using streamlined contracting procedures for reduced costs and lead times: The GEF facility could be used to streamline late stage structuring support through framework contracts, standardized technical assistance packages and lower fees structures (with caps as appropriate), resulting in overall lower transaction costs and improved economics for small-scale renewables and mini-grid projects (see further details below). These will follow private sector best practice so that any assistance to projects can be delivered very quickly and effectively.

1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

i) Renewable Energy as an opportunity for mitigation with high development impact

Further to improving access to electricity in a continent with the lowest rate of electricity access in the world, a key objective of this Project is to reduce GHG gas emissions through the promotion of small-to medium-scale renewable energy projects for carbon-free electricity generation. This section will discuss the opportunity for increasing the share of renewable energy in Africa’s energy mix, the various business models (on and off grid), as well as the various challenges faced by these models.

Africa accounts for only a very small share of energy related CO2 emissions. In 2014, CO2 emissions from energy use in Africa amounted to 1.1 Gt and the share of Africa in the world total was only 3% (the share of overall GHG emissions is higher if one includes emissions from deforestation and changes in land use). On a per capita basis, African consumes much less energy and emit much fewer carbon emissions than the world average. The African economy and energy sector as a whole are also less carbon intensive than world averages (Table 1).

Table 1: Energy-related Indicators on CO2 emissions in Africa

	Africa	World	Africa / World (rounded)
Energy-related CO2 emissions (MtCO2)	1,105	32,381	3%
Total primary energy supply (Mtoe)	772	13,699	5%
TPES per capita (toe per capita)	0.67	1.89	35%
CO2 emission per capita (tco2 per capita)	0.96	4.42	22%
carbon intensity of the economy (kg CO2 per 2010 USD)	0.22	0.32	69%
Carbon intensity of energy supply (tCO2 per Toe)	1.43	2.36	60%

Source: IEA (all data relate to 2014)

However, high population and economic growth would lead to a considerable increase in GHG emissions (+80% for energy-related CO2 emissions in the AEO 2014’s New Policy Scenario – see next section) if business as usual scenarios were to unfold without more vigorous policy interventions (see Baseline section).

IRENA’s “Prospects for the African power sector” (2012) and “Planning and Prospects for Renewable Energy” (2015) papers contrast two scenarios¹⁰:

1. A “Reference Scenario” (REF) which is a continuation of existing economic, demographic and energy sector trends and only takes into account existing policies. Universal electricity access is not achieved and access reaches only 43% in 2030; and
2. A “Renewable Scenario” (RES), which examines the impact of policies in Africa to actively promote the transition to a renewable-based electricity system to meet the growing needs of its citizens for electricity, to boost economic development, and improve electricity access. Importantly, this scenario achieves electricity access for all by 2030 and assumes concerted government action in the area of efficiency standards.

¹⁰ These scenarios have slightly different names in the two papers but are essentially the same. We name them as in the first paper : “Reference“ (shorthand : REF) and “Renewable“ (RE).

No new policies are assumed in REF, so existing policies with a foreseen end date are not assumed to be extended. REF also only includes those policies currently enacted. Policies under discussion, or those without legislative or regulatory backing, have not been included.

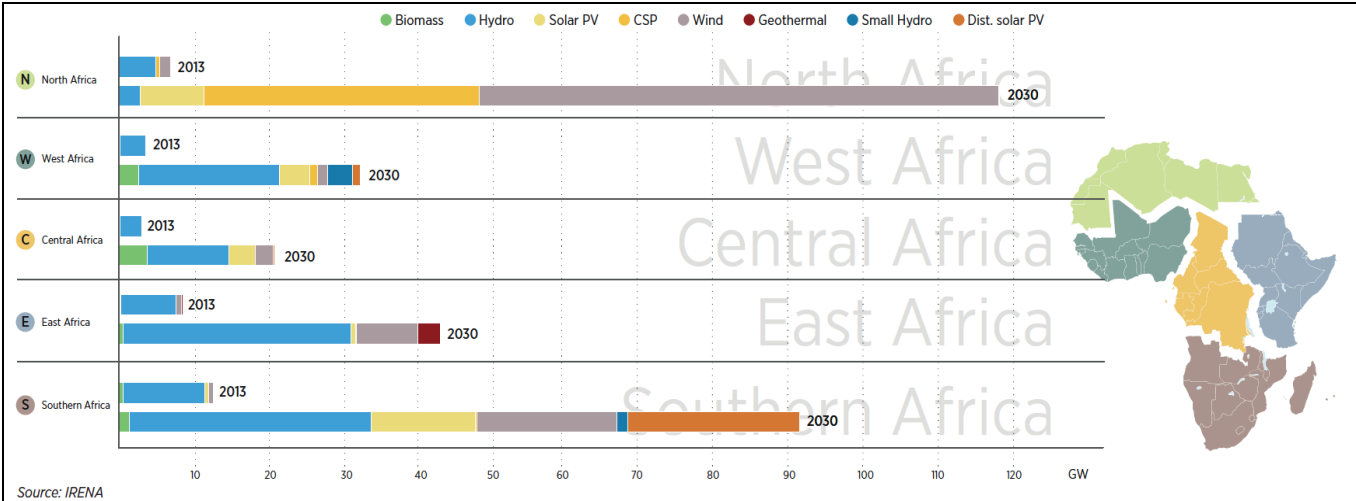
By 2030, Africa total net electricity generation is expected to be between 1,800 TWh and 2,200 TWh, approximately a threefold increase from 650 TWh in 2010. This range would require installed capacity between 390 GW and 620 GW. In 2010 capacity was 140 GW, implying that an additional 250 GW to 480 GW of new capacity is needed by 2030 (that is between 16 and 32 GW per annum) between . The wide range reflects the fact that renewable generation typically has a lower capacity factor. More use of renewable energy in the mix means more total capacity is needed. Therefore the range for capacity needs under the RE is substantially wider, at 430 GW to 620 GW, than in the REF, at 390 GW to 440 GW.

Under the REF scenario the share of renewables in the total generation would be in the range of 20-30% in 2030, which is an increase from 17% in 2010. Under RES, the share would reach to 30-60% depending on the assumptions.

IRENA’s Africa 30: Roadmap for a renewable energy future, provides more specific projections. It identified modern renewable technology options across sectors, across countries, collectively contributing to meet 22% of Africa’s total final energy consumption (TFEC) by 2030, which is more than a four-fold increase from 5% in 2013.

The share of renewables in Africa’s electricity generation mix could grow to about 50% by 2030. Hydropower and wind capacity could reach 100 GW capacity each, followed by a solar capacity of over 90 GW. For the power sector this would be an overall tenfold renewable energy capacity increase from 2013 levels. Capacity expansion would be greatest in North, Southern and East Africa (Fig 1). It would result in a reduction of 310 Mt CO2 in emissions by 2030 when compared to the baseline scenario.







Figure 2: Expansion of renewable electricity generation capacity in Africa (2013-2030)



Source: IRENA (2015), Africa 30: Roadmap for a renewable energy future

Given the above considerations, innovative financing and new investments must be secured in the sector (other conditions are needed such as continued policy and regulatory reform of the sector, and improvements in the investment climate). IRENA estimates that the power sector would require investments of USD 70 billion per year on average between now and 2030. This can be split into about USD 45 billion per year for generation capacity and USD 25 billion for transmission and distribution. **Renewables could account for two thirds of the total investments in generation capacity, or up to USD 32 billion per year (Fig 2).**

Figure 3: Investment volumes for expansion in renewable electricity generation capacity

Region		Investment billion USD (2015 – 2030)			
		All generation	Large hydro	Other renewables	T&D
	North Africa	342	2	218	186
	West Africa	89	36	31	52
	Central Africa	32	13	17	14
	East Africa	72	36	21	49
	Southern Africa	145	18	94	74
	Total	681	106	381	375

Source: IRENA (2015), Africa 30: Roadmap for a renewable energy future

In the context of FEI, three different small-scale energy solutions have emerged to meet different types of need within the overall energy gap in Africa:

- Off-grid solar (OGS):** individual ‘pico solar’ products (1-10 W) and solar home systems (10-200 W) provide energy for individual households and a small number of Micro, Small and Medium Enterprises (MSMEs). These are particularly suited to sparsely populated regions which are often far from the grid. Between 2011 and 2015, over 44 million pico solar products were sold worldwide, with observed growth rates in excess of 100% in sub-Saharan Africa. Over the same period somewhere between 500,000 and 1 million homes bought solar home systems. The vast majority of these are in just four countries: Kenya, Tanzania, Uganda and Rwanda.
- Mini-grids (MGs):** Micro- and mini-grids play a role in connecting off-grid communities and commercial operations. They are most suitable where there are isolated, yet dense communities, some distance from national grid infrastructure. The most effective mini-grid locations are often where there is a key commercial/industrial/government client or ‘anchor load’ for the power (e.g. mobile towers, schools, hospitals, etc.), and any excess supply can be provided to nearby households. Mini-grids are a prime solution to providing energy for “productive uses” in communities beyond the grid, yet connection costs can still be high and the viability of these business models not well established.

- **Small-scale Independent Power Producers (IPPs):** IPPs are private producers that have emerged to supplement national generating capacity, either selling power into the grid (where the national utility buys the power), or selling directly to a commercial/industrial customer outside the grid (with the option of any surplus feeding back into the grid). The first African IPP was developed in South Africa in 1994, and since then 125 more have been developed, across 18 countries of sub-Saharan Africa. Together, they account for more than 13% of the subcontinent’s total installed generation capacity. These IPPs range in scale from a few MW to around 600 MW, drawing on wind, solar, hydro, geothermal, biomass, coal, gas and diesel for power sources.

While FEI encompasses all these segments of the market, the current GEF proposal is thus focusing solely on the PPF for FEI ON-GRID focusing on lending to the MG and IPP segments only, as the original remit of SEFA project preparation activities.

ii) **Barriers to small-scale RE project development and financing**

Given the magnitude of these needs, private sector participation and financing will be crucial, but the barriers to such involvement in renewable energy investment on the continent are manifold, including technological, institutional, environmental, social, and financial. The implied risks and lower returns on investment associated with renewable energy infrastructure vis-a-vis non renewable sources limits the availability and interest of private-sector funding to this sector. Overall, the investment risks are higher and remain a persistent challenge for private investors. These risks partly explain why the renewable energy market is still underdeveloped and why private investors are more attracted to the development of power plants that run on non-renewable sources which offer high returns but have detrimental impacts on the environment.

IPPs have emerged in the past two decades to play a crucial role in meeting energy targets in the region but have been slow to multiply. Most governments have by now put in place policy frameworks for IPP projects. This has resulted in numerous and diverse projects being commissioned, with successes such as Bujugali Hydropower Project in Uganda making significant contributions to the national grid. However, IPP projects have been slower to multiply than expected in the region, mainly due to:

- High degree of political and regulatory uncertainty, resulting in long delays, high development costs, and often unacceptable levels of risk for investors
- Weak implementation of IPP frameworks and lack of standardized processes, again leading to high risk and long delays, but also resulting in weak PPAs that are ultimately not bankable
- Limited availability of financing, especially for smaller projects, as investors have tended to favour larger projects where greater absolute returns justify the high levels of risk

Within this segment, the FEI on-grid is targeting small-scale IPPs (<25MW, generally not exceeding USD 30 million project costs), a segment where there are multiple investment opportunities but where AfDB (and most DFIs) has very limited footprint given their focus on larger-scale projects to date. In this segment, outright “bankable” projects are very hard to find, and technical assistance is often required to help small-scale IPPs meet the requirements of financiers and reach financial close. There would additionally be a strong complementarity with SEFA upstream technical feasibility support to small-scale IPPs.

The mini-grid sector is currently in a nascent stage in Africa (vis-à-vis mini-grids in India), and faces significant challenges:

- The mini-grid model is complex and demanding for young companies – it essentially requires start-ups to meet the operational standards and deployment capability of a utility
- The business model still needs to be proven in Africa: multiple models are being tested (connecting whole communities to the grid; connecting only part of the community to the grid; building a grid around a key commercial/industrial client e.g. a telecom tower, and providing power to surrounding customers): however, the sector is still very much in ‘discovery’ mode and needs to demonstrate customer willingness and ability to pay, shown through sustained, inclining Average Revenues Per User (ARPU).
- More data is needed, and this will only come through numerous players operating many mini-grids over a few years. For example, developers often over-estimate site demand and end up with significant unused capacity, which adversely affects their bottom line. More of a data foundation will over time minimize these inefficiencies .
- There is also still a high level of regulatory uncertainty, surrounding licensing, tariff regimes, and what happens when the national grid arrives. This raises the overall level of risk for project developers, and investors, alike – and more generally, slows down the pace of development.
- There are few capital providers that have the right investment horizon and risk profile for the type of funding that mini-grid developers require – long-term debt without recourse, and a heavy concessional component or grant cushion.

It is therefore imperative that early-stage project preparation funding is available to support project developers in maturing their business models and improving their technical and financial attributes, with the view to making them “bankable” and enable FEI to play an anchor financier and lead arranger role. This would be highly complementary to SEFA-fund workstream on Green Mini-Grids, specifically supporting countries to address policy and regulatory bottlenecks while helping them to identify and develop a pipeline of projects.

In addition to financing (discussed below) small-scale renewable energy projects in Africa face other common barriers to development:

- **Regulatory and policy issues.** Absence of and changes in regulation, or even uncertainty over regulation, can have severely detrimental effects on projects supporting access to energy. For example, mini-grid developers often face real uncertainty about what will happen when grid expansion reaches their sites: the implications for project returns, and therefore investor interest, are significant.
- **Technical capacity/quality of projects.** There is a shortage of high quality, investment ready projects, especially in mini-grids and IPPs. While there are project development support platforms, such as SEFA and REPP, FEI should be cognisant of the wider environment in which it is located.
- **Affordability of energy / Willingness to pay of end-consumers.** While consumers value power, they are not always willing to pay what is required for renewable energy projects (whether on or off-grid) to be commercially viable. This is not helped by highly subsidised energy provision by some African national utilities masking the real cost of power to end consumers.

The shortage of seed and debt finance

Access to financing, whether seed financing for project development, and debt financing for project construction, remains an acute issue in Africa (the following paragraph is adapted from AEO 2014).

A major constraint in many parts of sub-Saharan Africa is a lack of domestic sources of capital, due to low savings rates and an undeveloped financial sector. Improving access to basic financial services is a key way to encourage domestic savings and to channel them efficiently into investment. There are some signs of improvement: the number of people with a commercial bank account has risen sharply in recent years, from 70 per 1,000 adults in 2004 to 295 per 1,000 adults in 2012, and this may understate actual levels because of the rise of mobile phone-based accounts. However, this is still well below the levels reached in other parts of the world, and the positive signs are very unevenly distributed. Local financing is starting to play a role in the larger economies, notably in Nigeria as a source of support for the emerging independent oil and power producers. There are also growing pension fund resources seeking productive long-term investment. But in most countries, financing from local institutions is either unavailable or prohibitively expensive. Most capital flows come, instead, from abroad, through foreign direct investment and multilateral and bilateral development assistance, with a small but growing share of international bank lending.

According to a study commissioned by the AfDB for FEI (unpublished), there has been at least \$370m of debt provided into the MG and small-scale IPP sectors since 2010. Of this, a majority (USD 300 million) has been provided to IPP developers, mostly by Development Finance Institutions (DFIs) and through Public Private Partnerships (PPPs). There has been very limited engagement from the mainstream financial sector.

Reasons why existing debt products that are open to small-scale IPPs have often not materialized::

- There has been a limited flow of bankable small-scale IPPs – more often than not, the PPA for these deals do not materialize, or lack key features that would mitigate some of the risk.
- The level of risk involved in IPP financing pushes investors to larger deals, with greater public sector commitment and higher absolute return potential.
- The complexity of the financing arrangements is high, and the due diligence costs do not reduce with smaller deals (even though these costs are most often covered by the developer), therefore DFIs/banks would rather deploy larger sums as there are economies of scale.
- Larger deals attract more experienced investors/developers, with larger balance sheets and lower credit risk in eyes of project financiers.

As a result, a number of smaller IPPs have proceeded to finance their projects with 100% equity (and some even without a PPA if there is an industrial off-taker, in order to get the projects completed).

The remaining USD 70 million of debt has been provided into the MG sector. This debt funding has been highly concessional and come from just two sources: a joint programme between International Renewable Energy Agency (IRENA) and the Abu Dhabi Fund for International Development, and a Nigerian bank. Instead of debt, most of the financing coming into mini-grids has been in the form of grants or equity, reflecting the continued existence of fundamental business model questions that need to be resolved by mini-grid developers through experimentation.

2) Baseline scenario

What would happen without the GEF? The GEF-funded dedicated Project Preparation Facility is a core and integral component of the AfDB-sponsored Facility for Energy Inclusion. The **assumptions of the baseline scenario** are as follows:

- extends to the whole continent, even though small IPP projects will more likely occur in countries with the more advanced policy frameworks and stronger investment climates, and mini-grid projects will mostly benefit Sub-Saharan African countries with lowest electrification rates.
- covers a period of about 6 years (2018-2023), corresponding to the investment period of FEI (+/-1 year).
- concerns both the provision of debt finance for small-scale RE projects (the target of FEI) as well as seed finance to support the late-stage development of these projects necessary to bring to 'financial close'.

Access to debt finance

Based on (unpublished) studies commissioned by AfDB for preparing FEI, **AfDB expects a debt demand of at least USD 1.7 billion for small-scale IPPs over the period 2018-2023**, based on very conservative assumptions about the commissioning of IPPs. **Mini-grids as a sector is much more nascent, and there will likely be very few players by 2023 capable of taking on commercial debt. As such, the AfDB estimates commercial debt demand at only USD 70 million.**

Together, these sectors will require USD 1.8 billion of debt during this period. Based on current plans in place, up to USD 850 million of debt could be made available to these sectors as a whole, leaving a debt gap of over USD 900 million. This debt gap indicates the FEI will be meeting a real financing need, and also that a market-oriented pricing approach can be justified given the insufficient competition to supply debt to satisfy requirements.

More importantly, there will be certain key mismatches between the debt that will likely be provided, and what the IPP and MG sectors need. IPP developers will need very long tenor debt in hard currency. However, most of the likely debt will only be maximum 10 year tenors. As such, there is a very clear gap for FEI to provide long tenor debt to IPPs. The mini-grid developers that can take on commercial debt will need a mix of hard and local currency debt at long tenors. Innovation in collateralisation will be required, with FEI able to play an important demonstration effect using project finance, corporate finance, and hybrid approaches.

Across both sectors, AfDB expects very little engagement of the mainstream financial sector. Some of the factors holding back their engagement will improve:

- High risk – real and perceived risk will decrease as the sectors mature and players develop longer track record. This is particularly relevant for the SME departments of banks that lend to small-scale energy developers: these departments are under pressure to lend, but do not currently understand the risks of these new business types fully.
- Information asymmetry - understanding of the risks involved in lending will increase as the leading players develop longer track records and bigger data sets.
- The size of deals requested will increase as leading players continue to scale, and need more debt. As such, overall returns possible from these deals for banks will increase.

However, some of the barriers seem unlikely to change:

- Opportunity cost of investing in these sectors, versus elsewhere. E.g. Treasury bills yield 8-10% for significantly lower risk.
- The drivers pushing project finance departments in banks from small to bigger IPPs (e.g. high transaction costs).

FEI therefore has an important role in demonstrating that industry players can absorb commercial debt, and that investors can make commercial returns. Together with selective demonstration effects e.g. documenting and publicizing “model” transaction structures, the Facility can play a catalytic “lead arranger” role to support the entry of local and regional commercial banks. It is ultimately these financiers who will deliver the scale of funding required to reach the ambitious targets in the New Deal for Africa.

Access to reimbursable project preparation capital







Access to project preparation funding is another barrier for small-scale RE projects, particularly but not exclusively for developers that are not backed by a large (mostly foreign) utility group or investor. A number of donor-funded project development schemes (or project preparation facilities) have been set up such as ElectriFI, the Renewable Energy Performance Platform (REPP), the Seed Capital Assistance Facility Phase 2 (SCAF II). These schemes increasingly deploy various forms of returnable capital, which mitigate project development risk while allowing funds to reflow if projects are successful (as typically measured by reaching financial close) and ensure the financial sustainability of the scheme (Fig 3 and 4). Indeed, returnable capital is becoming the norm in the market as can be demonstrated in the sample of active PPFs in the continent in Figure 4 below.

However, these schemes often have very different criteria in terms of geographies, project sizes, etc. and as such are not as suited to assist FEI ON-GRID in meeting its targets and efficiently and nimbly deploying its capital, compared to a dedicated PPF as currently proposed.

- As mentioned before, the AREF PSF (part of SEFA “platform”) targets larger projects (> USD 30 million) and not the mini-grid projects;
- The Renewable Energy Performance Platform (REPP) has similar features to FEI, yet it operates in a sub-set of African countries and does not have its own debt instrument;
- Climate Investor One operates in a closed circuit only providing seeds capital to projects in which it intends to invest construction finance, and does not target mini-grids;
- AFD’s SUNREF PPF is very small (less than USD 1 million), and does not target mini-grids
- SCAF also operates in a closed circuit, only supporting projects through partner equity funds, usually targeting larger project sizes and excluding mini-grids;
- ElectriFI can support potentially all types of RE projects but its commercial return expectations and lack of local presence in Africa make it an unsuitable partner for FEI;

More generally in the context of a large fund such as FEI, it makes more sense to set up a dedicated facility, with exclusive focus on particular types of projects, a pan-African reach, and built-in incentives to bring projects to bankability, thus increasing the probability of closing deals and reducing lead times and transaction costs.

Figure 4: Financing terms of a sample of PPFs deploying reimbursable grant instruments in Africa

	Loan	Quasi equity	Grant		Security	Maximal support amount	Alignment (via e.g. cofinancing)
	✓	✓	✗	Development loans (mezzanine, etc.)	✗	Up to 50% of a project development budget, to a max of US\$ 2.5 mln	50%
	✓	✓	✗	Quasi equity or subordinated debt	✗	Between EUR 500k to EUR 10mln per project	Funding may not exceed 50% of total amount of equity nor 50% of total project costs
	✗	✗	✓	Conditional grant	✗	2m\$	50% cost-sharing with AREF
	✗	✗	✓	Convertible grant	✗	No formal limit	Min. co-financing by project developer
	✗	✗	✓	Conditional grant	✗	Not formally, 50% of total cost; and overall limit of 2.5M\$ per Fund/Devco	Grant is top-up to Fund / DevCo investment (min 50-70% cofinancing)
	✗	✗	✓	Conditional grant	✗	No formal limit	No

Source: Study for AfDB

3) Proposed alternative scenario, GEF focal area strategies and description of expected outcomes and components of the project.

The overall project goal is to support investments in small-scale renewable energies in Africa by providing much needed project preparation resources through the use of reimbursable grants. The aim is to unlock private investments in small-scale sustainable and clean energy projects in Africa. Resources target pre-closing activities, with a view to making projects bankable and crowding-in the needed equity and debt capital for implementation.

Alternatives scenarios to the preferred scenario are:

- **Alternative 1:** investing in renewable energy project preparation under the Sustainable Energy Fund for Africa (SEFA): considering that SEFA has been in place as a Multi-Donor Trust Fund for several years with four donors, receiving and implementing GEF resources would require a number of adjustments to the current SEFA agreements and procedures that would take some time to process. Additionally, the upcoming Bank policy framework for reimbursable grants is still under development and would need to be finalized and enacted by the Bank Board. The FEI PPF would therefore provide a more meaningful conduit to designing and deploying a “reimbursable grant” instrument which could later be internalized in next review of SEFA Agreement as well as inform the new Bank policy on such instrument. More importantly however is the opportunity to expand SEFA platform approach, realize synergies with on-going SEFA business, and realize cost and operational efficiencies with FEI Fund Manager.

- **Alternative 2:** establishing a specialist seed capital fund targeting project development companies (PDCs) working on “pipelines” of sustainable energy project in Africa. Albeit promising, this option required additional market research to assess needs and readiness of such PDCs, and lead time to mobilise additional investors (AfDB/GEF funding would have been used as riskier or patient capital thereby maximizing additionality and leveraging more commercial funding), which was not compatible with the timeline of the project. There is also currently very limited or no funding from traditional partners to co-finance such venture.

Project description

The Project has two components:

Component A: Finance additional small-scale renewable electricity generation with a range of innovative debt instruments

Component cost: USD 600 million, of which UD 300 million provided by FEI

Output 1: New on-grid and mini-grid RE electricity generation capacity financed.

The objective of Component A is to increase penetration and access to clean electricity in the countries (yet to be identified) where FEI will operate.

AfDB is the sponsor and anchor investor of the USD 300 million Facility for Energy Inclusion ON-GRID¹¹ to finance small-scale IPPs and mini-grids across the continent. FEI ON-GRID has been initially conceptualized with a grant from SEFA and benefited from extensive technical inputs from the team. An initial USD 100 million investment in FEI was approved by AfDB’s Board in late 2016, of which approximately USD 70 million in equity and debt will be allocated for the On-Grid component, which the subject of this Project.

FEI ON-GRID will be structured as a limited liability company domiciled in Africa. It is a debt fund, aiming to provide senior and mezzanine debt financing to mini-grids (MGs), and small scale independent power producers (IPPs) with total estimated project cost not exceeding USD 30 million.

FEI ON-GRID will operate with loan structures and pricing commensurate with risk profiles of projects and on a platform conducive to the efficient execution of deals, in accordance with evolving market needs. The Facility aims to reduce processing timelines and related due diligence costs of small scale projects. Although streamlined, the Facility’s platform will ensure compliance with acceptable credit criteria and the social and environmental considerations of its investors.

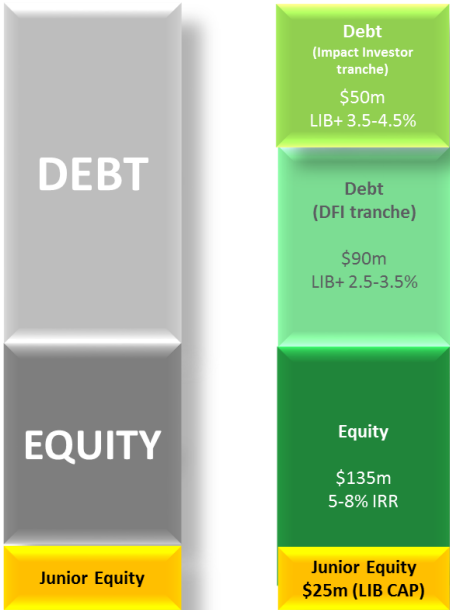
While AfDB is sponsoring and structuring under its New Deal for Energy in Africa mandate, other co-investors are expected to participate in seeding the Facility with both equity and debt capital. Thus far, FEI has received significant interest from key market players, which derive comfort from AfDB’s track-record in Africa, its convening power and investment capacity, as well as the step-by-step structuring approach. Potential investors include partner DFIs and some impact investors.

¹¹ As previously mentioned, this is an interim target with the facility expected to reach a maximum target capitalization of USD 400m at final close.

The Facility will be externally managed by an experienced Fund Manager (FM) with relevant industry track record. Selection of the FM – which is reaching its final stage - will be based on the following criteria: a) The firm’s track record in commercial fund management; b) The firm’s experience in energy finance, project finance, deal experience in Africa, and other areas of relevance; and c) The quality of FM key personnel and back office support functions.

The Facility seeks to raise at least USD 300 million in senior debt and equity from DFIs, institutional investors, impact investors, and donor agencies. A blended finance approach will be employed to achieve maximum impact, by facilitating the participation of a wide range of investors, including donors, DFIs, impact investors, and commercial investors with different return expectations and risk tolerances. FEI is expected to be structured according to up to four classes/categories of shares (junior equity, ordinary equity, senior debt for DFIs and senior debt for commercial/impact investors). Leverage is anticipated to be at around 50:50 debt-to-equity at first close, rising to 60:40 at final close, in a capital structure including up to USD 160 million in equity and up to USD 240 million in senior debt from different types of investors (Fig.5) for a target capitalization of USD 400 million. Please note, this document conservatively assumes a capitalization of USD 300 million.

Figure 6: tentative capital structure of FEI ON-GRID (first close)



FEI’s exact mix of equity and debt capital may shift depending on market conditions. This will be fine-tuned to meet the return expectations of all of the Facility’s investors, sustain the fund economics while providing competitive debt instruments in the market. Key to the Facility’s success is the incentive structure to be put in place on behalf of FM, which should be incentivized not only to raise but also to deploy capital in a successful manner. Management fees, expected at around 2% of assets under management, will be determined through negotiation with prospective FMs, beginning with a competitive process, and will follow international best practices, taking into account: (i) target fund size; (ii) level of bankability of investees; and (iii) due diligence and monitoring efforts.

Investment Strategy

The draft investment guidelines and strategy will be determined through the structuring exercise currently ongoing and will be finalized through discussion with the Fund Manager and the Facility’s other anchor investors, based on financial modelling results and best practices observed in the market. However, for reference, an indicative investment guideline and risk management framework is presented in Table 1 below, noting that all elements are subject to change based on continued due diligence and analysis during the structuring exercise:

Table 2: indicative investment guideline and risk management framework

Item	Guideline / Policy
Exclusion List	The AfDB’s standard Exclusion List and any Exclusion Lists required by other Facility investors shall apply to the Facility.
Underwriting Guidelines	<p>All loans must be secured by appropriate collateral for which the Facility is able to obtain and perfect an unencumbered first lien, or, for mezzanine debt, an unencumbered second lien.</p> <p>The risk associated with the commercial off-taker shall be taken into account if a project is reliant on a commercial PPA.</p> <p>All loans shall be structured in line with market standards regarding debt service coverage and leverage (or advance rates in the case of receivables financing).</p> <p>Third-party guarantees (i.e. USAID DCA, OPIC guarantees, etc.) will not be relied upon during underwriting, i.e. a project covered by a guarantee must be priced and structured appropriately without reference to the guarantee.</p>
Tenor	The Facility will generally lend with a minimum tenor of 2 years and a maximum tenor of 14 years. In the case of projects backed by a PPA with a commercial off-taker, tenors will generally not be longer than 10 years, as the Project may afford higher tariffs.
Pricing Guidelines	<p>Pricing is not concessional. All loans should be priced in line with prevailing market conditions and in accordance with the risk profile of the project or borrower. The FM shall develop and maintain an appropriate classification system for the risk-rating of borrowers or projects, and this shall be considered as an input into pricing decisions.</p> <p>All local currency loans should include an appropriate spread to reflect expected currency depreciation or the cost of hedging, as well as allowances for currency exchange transaction costs, if relevant.</p> <p>Subordinated loans shall be priced at a premium to senior debt to the same obligor commensurate with the additional risk present due to subordination.</p> <p>When possible, the Facility should seek to recover costs and earn sustainable additional income through loan fees, e.g. origination and/or maintenance fees.</p>
Credit Risk: Concentration Limits	<p>Single exposure limit: up to \$20m per project or up to \$30m with AC approval.</p> <p>Maximum single obligor exposure 6% of committed capital; until the Facility reaches target capitalization; single-obligor exposures of up to 10% may be considered by AC.</p> <p>Maximum allocation to high-risk countries: 25% of committed capital</p> <p>Maximum single-country exposure: 25% of committed capital</p> <p>Maximum single-region exposure 60% of committed capital</p>
Credit Risk: Subordination Limit	Maximum subordinated debt allocation 25% of committed capital
Currency Risk	<p>Maximum local currency allocation 40% of committed capital</p> <p>Maximum single local currency exposure 15% of committed capital</p> <p>Maximum open position in one local currency 2% of committed capital, after considering the risk mitigating effects of share classes specifically designed to absorb local currency losses</p> <p>Maximum open position in all local currencies 5% of committed capital, after considering the risk mitigating effects of share classes specifically designed to absorb local currency losses</p>

Component B: Support ‘last-mile’ small-scale RE project development through a reimbursable grant modality / ‘reimbursable project preparation capital’

Component cost: USD 10 million, financed by GEF (non-grant).

Objective: help small-scale RE projects reach bankability and financial close and mobilize private sector financing under a variety of financing and business models.

Output 2: Small-scale RE projects developed and reaching financial close with “reimbursable project preparation capital” from the PPF under FEI ON-GRID.

In light of the diagnosis made above that access to project preparation capital is a key barrier for small-scale RE projects, FEI will incorporate a dedicated Project Preparation Facility which will be revolving and will thus rely on the use of reimbursable grants. The FEI PPF will thus pilot the use of reimbursable grants for small-scale RE projects.

A recoverable instrument has four advantages over conventional “pure” grants:

1. It allows a (project preparation preparation/development) facility to become financially sustainable over time so as to support many more projects. If a project reaches financial closing, there is a solid basis for recovering (at least some of) the funding granted for project preparation.¹²
2. In a related way, it makes a facility less dependent on replenishments by donors and increases value for money through multiple use of concessional resources;
3. It is less amenable to the criticism that it may create market distortions, although the concept of State Aid is less strictly utilised in Africa than say in the EU;
4. more generally, it’s about transitioning from the notion of “subsidy” to “early stage project preparation capital” during the development phase of the project (the riskiest phase).

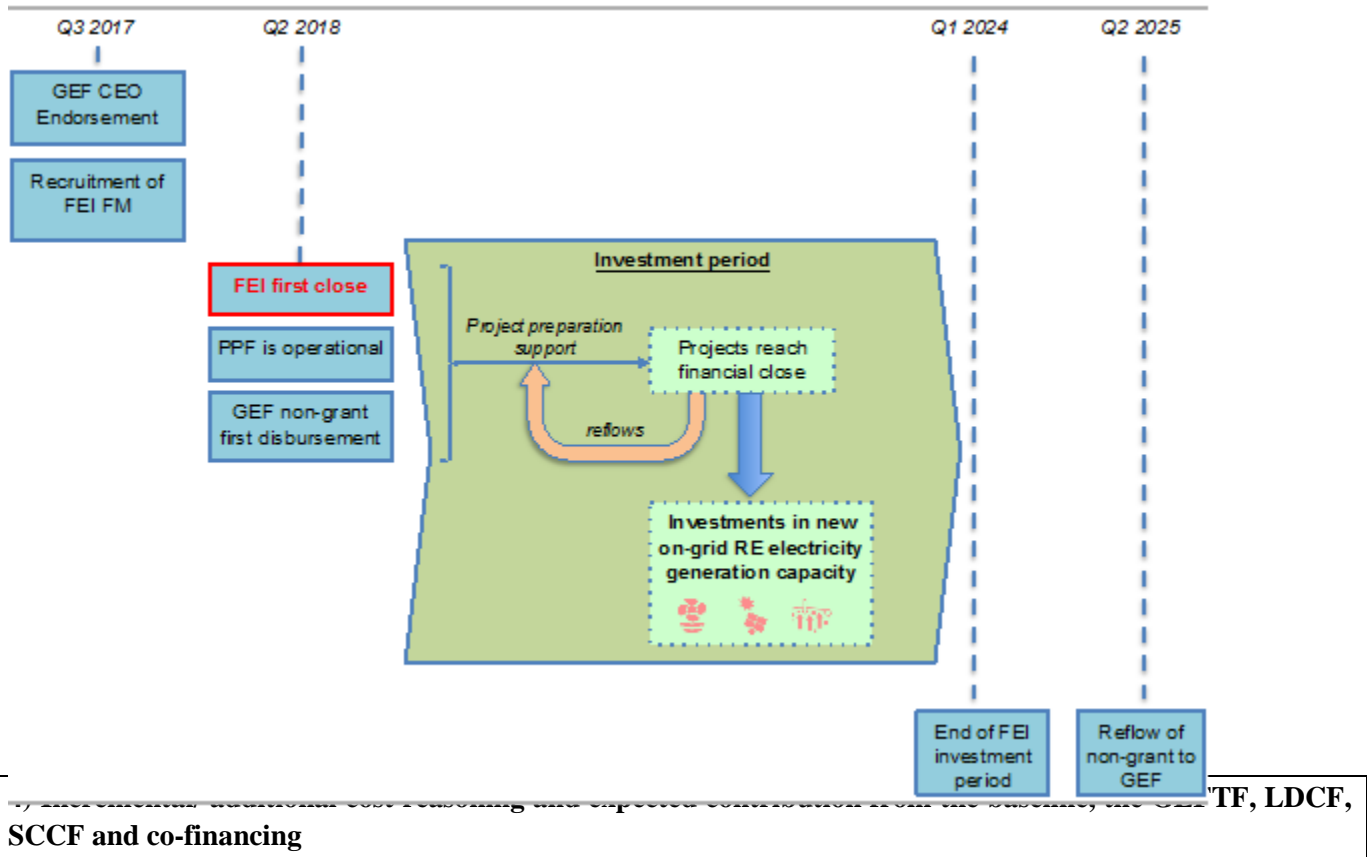
The FEI PPF will be legally structured as a dedicated bank account opened by the FEI FM and governed by agreements with the AfDB in line with its fiduciary standards, and under close supervision of the AfDB. A precedent is the African Renewable Energy Project Support Facility.

The modus operandi and institutional arrangements of this PPF are further described in sections 4 and 5 below.

¹² As mentioned in the “Assessment of African Infrastructure Project Preparation Facilities” (ICA, AfDB, 2015), one of the main reasons for PPFs’ lack of financial sustainability is the inadequate recovery mechanism.

Indicative timeline

The FEI PPF is expected to be operational over a period of 7 years and until 2025. Capital provided is expected to be recycled within this period.



The GEF non-grant of USD 10 million (maximum) will be used to capitalize the dedicated FEI Project Preparation Facility (PPF), which will provide reimbursable project preparation capital / grants to projects that need additional support to reach financial close.

Key features of the GEF-funded PPF

PPF Manager: the FEI Fund Manager.

PPF duration: 5-7 year investment, coinciding with the FEI investment period (not yet determined), thereafter revolving.

Legal form: a dedicated bank account opened in a commercial bank acceptable to AfDB (likely in same jurisdiction as where FEI is to be domiciled).

Eligible beneficiaries:

GEF6 CEO Endorsement /Approval TemplateNGI-Sept2015

- Mini-grid developers and small IPP developers
- Total project size of less than USD 30 million
- All RE feedstocks, but primary activity expected to be in solar PV, biomass, and small hydro
- Renewable + diesel hybrid mini-grids are eligible

Types of project preparation activities financed through the GEF support to FEI: Late-stage project preparation activities up to financial close —see below.

Geographic focus: All regions of Africa eligible, including North Africa and including currently underserved markets.

Instrument: The FEI PPF will extend reimbursable grants to project developers. The trigger event for reimbursement is ‘Financial Closing’, i.e. when the project is bankable and construction-ready such that all the funding for construction can be mobilised, and defined as follows: (i) the first drawdown of senior debt in respect of the project; or (ii) in the absence of senior debt (where the relevant project is funded by equity or other means), the giving of a final notice to contractors to proceed with works on the relevant project. Legally, the most likely scenario is that the Fund Manager pays for eligible expenses directly to the supplier. FM invoices the DevCo for the value of the service provided (and paid for from the PPF Account) – creates the ‘debt’ and makes DevCo an ‘obligor’. There will be an Agreement between FM and the beneficiary (DevCo) stipulating that DevCo shall reimburse the amount paid by FM in respect of eligible expenses upon financial close or shortly thereafter. The FM may withhold the amount of that debt from the first (debt) disbursement of FEI to the project (DevCO or new successor company). If projects fail to reach financial close, the grant is written-off.

Pricing: Depending on the commercial characteristics of the project, the PPF FM will consider charging a “premium” (tentatively set at 10% of the PPF grant principal, to be adjusted as function of project risks) on successful projects which will be recoverable at financial close. In addition, the Fund Manager will also consider charging a front-end fee (tentatively set at 2% of the PPF grant principal) due by all projects at the time of signing the Agreement, regardless of success (see Annex D).

Procurement: A subsidiary objective of the Project is to reduce project development costs through the standardization and the use of Framework contracts for those services that will recur most often (legal, financial advisory, environmental and social impact assessment, etc.). The PPF FM will be responsible for conducting the procurement under the PPF. The procurement will be mainly for consulting services (individuals and firms) to provide technical assistance and other services to the beneficiaries of FEI ON-GRID. Since the AfDB is entrusted with the funds from GEF, the procurement under the PPF will be done in line with the Bank’s rules and procedures for the recruitment of consultants. A procurement handbook will be developed together with the Fund Manager for the implementation of the technical assistance components. It is expected that framework contracts will be established with key service providers (eg. legal advisors, financial advisors) to be called upon short-notice and deployed quickly when services are required.

Minimum co-financing by DevCo: 20% of total development budget. FM can waive this requirement for worthy projects with tight economics.

Disbursement: GEF monies will be disbursed by the AfDB to a dedicated bank account opened by the FEI Fund Manager, which will also be the PPF Fund Manager. Rules will be defined in an agreement between the AfDB and the FEI FM. Funds will be used by the FM to pay for Eligible Expenses (as defined in the PPF Agreement) for a period of 5-7 years. Procurement of service providers is the responsibility of FM, in accordance with a Handbook to be developed together with FM (see above). An agreement is signed between FM and beneficiary (DevCo). The amount provided by PPF is reimbursable with a premium over par upon financial close as and where appropriate. The balance on the PPF Account after year 5-7 and all recovered amounts (in period 7-10y) are paid back to the Bank and hence to GEF.

Disbursement requests will be processed by tranches, with the FM sending regular disbursement requests (of the GEF non grant) to AfDB based on planned use (eligible project pipeline) as demonstrated by a periodic work programme (quarter, annual). AfDB may not object to a disbursement request – unless no evidence of envisioned expenses was provided. FM sends to the AfDB a ‘notification’ at least 15 business days prior to the use of any amount on the PPF Account describing eligible project / expenses, and including a warranty from the FM.

Governance: the PPF will be managed by the Fund Manager in line with the guidelines and procedures developed and approved by AfDB FEI team and SEFA Secretariat. Some of the key “governance” features include the: (i) obligation by FM to report on use of PPF funds: quarterly, annual and completion reports, annual work plan; (ii) A ‘Lapse of time’ procedure (triggered by the notification) to allow AfDB to check that unsuitable projects or sponsors are seeking finance from the PPF; (iii) and Oversight Committee comprising Bank and FM senior representatives for an annual review of implementation progress and work plan, review of financial statements and audits, discuss any issues arising from the regular operations if FEI PPF.

Criteria: The following criteria will be applied to selecting the projects to be considered for PPF:

Table 3: FEI PPF Project selection criteria

Criteria	Comment
Sector	Mini-grid renewable energy generation projects and small-scale IPPs
Scope	Late-stage project preparation activities up to financial close, including: <ul style="list-style-type: none"> • Financial structuring • Legal due diligence and legal documentation and negotiation • Independent technical and insurance advisors • ESIA + gender mainstreaming studies • Additional technical feasibility work required Project-specific results monitoring (for minigrids)(List to be finalised up during negotiations with the Fund Manager).
Project costs	Up to USD 30 million
Minimum and maximum amount of PPF grant	USD 100,000-1,000,000
Pricing	Grant principal plus a premium (up to 10% of par) depending on project economics will be reimbursed at financial close and be recycled to support new projects in the portfolio.

Private sector development and demonstration effect	Projects selected should have a demonstration potential and demonstrate the feasibility of particular business models and technologies, with a potential of replication at the national and regional levels.
Global environment benefits	Projects to be funded by the program will have a net positive effect on the environment, mainly through carbon emission mitigation. This will automatically derive from the nature of the projects targeted by FEI.

Revenue model and project risk profile

Not all projects will reach financial close; there is a risk that projects do not reach financial close for multiple reasons beyond AfDB's control (eg. lack of equity, PPA not signed, expiry of provisional licenses, inconclusive feasibility studies, E&S challenges, policy and regulatory gaps, etc.) or at least are significantly delayed. In fact, in Sub-Saharan Africa, only a few projects reach financial close every year, and the lead time for preparation averages 3-5 years (with cases of up to 7 years). Consequently, some grants will likely be written-off and FEI will likely not be able to reimburse GEF in full. This basically is inherent to renewable energy preparation stage. A full identification and analysis of project risks is provided in table 3 below.

Annex D simulates a Base Case in which the rate of recovery (proportion of supported projects reaching financial close) is assumed to be 80%. A sensitivity analysis is run by varying this rate. This leads to a Bull Case (rate of recovery of 100%) and a Bear Case (rate of recovery of 60%). Based on this revenue model in Annex D, the rate of reflow to the GEF of its non-grant would range between 49% and 129% of par. This is based on the assumption of 40 projects supported, average ticket of USD 400,000¹³ and a premium of 10% on funds successfully reimbursed.

The amount of the GEF non grant actually disbursed could also vary according to each scenario and range 7 MUSD (Bull Case) and 10 MUSD (Bear Case). Reflows to the GEF (via the AfDB) could be effected between year 7 and 8, that is about 1.5 year after the FEI investment period is closed. These parameters will be fine-tuned once the Fund Manager is in place and can result in an improved repayment profile for GEF at the end of the PPF life.

¹³ While SEFA usually gets involved at an earlier stage providing funding for technical feasibility studies and engineering design work, these are likely not to be supported by FEI because, as a debt facility, it will primarily engage with projects which are technically proven. The FEI PPF is expected to focus mainly on late-stage structuring support entailing independent financial advisory (financial model, project financial structure and syndication), technical and insurance advisory (review/validation of feasibility and engineering studies) and legal advisory (developing and negotiating the various project contracts, starting with the power purchase agreement with off-takers). From AfDB experience, these can range in the \$200,000 to \$600,000 in amounts, with the bulk usually attributable to legal fees. For the projects under consideration one expects these to average \$400,000.

Table 4: Risk analysis and mitigation (for both FEI ON-GRID and PPF)

Major risk	Description	Mitigation
Pipeline risk	Not enough quality projects meet FEI's criteria	<ul style="list-style-type: none"> • Considerable investment needs and increased participation of internal developers in the African market • Strong potential additionality of FEI (the debt gap) • Dedicated FM with strong expertise and resources • The GEF-funded FEI PPF as a tool for bridging the "bankability" gap • Being part of SEFA ecosystem, an existing pipeline of projects is already being primed for FEI ON-GRID pipeline
E&S risks	Financed projects are harmful from an E&S perspective	<ul style="list-style-type: none"> • Risk rather low considering that FEI will target small-scale projects • FEI investments will be implemented in accordance with the Bank's policies, rules, and procedures as articulated in its Integrated Safeguards System (ISS) and incorporated into FEI's charter. Particular attention will be given to the Bank's Gender Strategy 2014-2018. • The GEF-funded FEI PPF to provide support for robust ESIA work in line with the Bank's ISS.
Credit risk	Risk of loss due to Facility assets not being serviced	<ul style="list-style-type: none"> • Set concentration limits at the borrower, country, and regional level as well as on the size and availability of subordinated debt; ensuring a diversified book of business • Have a multi-stage investment approval process overseen by an experienced and independent credit committee • Develop an appropriate risk-rating system and pricing loans in accordance with their relative risk • Fundraising for up to \$25m first-loss tranche to absorb unexpected portfolio losses.
Currency risk	Risk of loss due to currency fluctuations in cash flows from assets	<ul style="list-style-type: none"> • Limits on single currency, gross and net positions • Target local currency funding from AfDB and EUR loans from DFIs • Partial hedging of outsized exposures through e.g. TCX or local commercial banks • Active engagement of local commercial banks to provide local currency loans into financing structures to meet LCY requirements
Interest rate risk	Risk of loss due to changes in spreads between FEI assets and liabilities	<ul style="list-style-type: none"> • FEI will generally originate floating rate loans with the same basis as its liabilities • FEI will attempt to match fixed rate loans with fixed rate liabilities or swap for floating rates with a counterparty like IFC, or will seek the ability to re-price loans e.g. on an annual basis
Business integrity	Risk of fines or reputational losses as a result of actions by FEI or borrowers	<ul style="list-style-type: none"> • Managed through a multi-stage investment approval process overseen by an experienced and independent credit committee and continued oversight by the manager
Liquidity risk	Risk that FEI will not meet commitments to investors on time	<ul style="list-style-type: none"> • FEI will arrange borrowing facilities of varying tenors matched to the repayment profile of its assets • The equity cushion is sufficient to fund the tail end of most or all long term loans • The Fund will have an Asset-Liability Management policy and make the

		necessary provisions to right level of liquidity is available at all times.
Political risk	Risks including: (i) off-taker risk for IPPs (ii) grid expansion risk for MGs and (iii) currency transferability and convertibility risk	<ul style="list-style-type: none"> • Managed through strict due diligence procedures • Purchase of political risk insurance products at borrower's cost to cover risk (i) and (iii) where possible • There will be country exposure and currency limits in the investment policy.
Climate risk	Risks including to extremen weather events such as floods and droughts, capable of damaging and eroding clean energy infrastructure.	<ul style="list-style-type: none"> • FEI will develop an Environmental and Social Management System (ESMS) and guidelines will be drafted by the Fund Manager(s) incorporating the best industry practices and drawing heavily on AfDB's: • AfDB's Integrated Safeguards System (ISS) - this is the cornerstone system of the Bank's support for inclusive economic growth and environmental sustainability in Africa. The ISS consists of four interrelated components: 1) The Integrated Safeguards Policy Statement; 2) Operational Safeguards (Oss); 3) Environmental and Social Assessment Procedures (ESAPs); 4) Integrated Environmental and Social Impact Assessment (IESIA) • AfDB's Climate Screening System (CSS) - A tool to assess climate vulnerabilities and identify adaptation measures, which can then be mainstreamed into the project cycle. The CSS has four modules: climate screening to assess for vulnerability; adaptation review and evaluation procedures to identify adaptation measures for a project; country adaptation factsheets with climate projections and country indicators, and also an information base giving access to information sources on adaptation.
Exit risk	Risk that FEI cannot divest from its investments	<ul style="list-style-type: none"> • FEI is a debt fund and all investments will be revenue-generating and be self-liquidating
Specific FEI PPF risks	FEI first closing does not happen or is delayed	<ul style="list-style-type: none"> • Funds redirected to current SEFA arrangement and implemented in parallel with its Bank-managed project preparation activities.
	FM spends PPF monies on borderline projects	<ul style="list-style-type: none"> • Investment Committee decision is a pre-requisite to deploy PPF funds; this ensures that the project received proper consideration • Opportunity cost for the FM: FM is not remunerated for managing the PPF, hence has an incentive to manage its staff costs tightly
	DevCo does not repay its debt to FM	<ul style="list-style-type: none"> • FM withholds a portion of first disbursement of the FEI project loan to repay the PPF Account
	Not enough quality dealflow	<ul style="list-style-type: none"> • The Bank and SEFA team will work closely with FEI FM in identifying and advancing preparation of high-quality projects, either as a result of its direct activites or through its network of 'early stage' partners (eg. AREF, RECP, USTDA, Power Africa, etc.)

5) Global environmental benefits

Although Africa is the lowest emitter of GHGs, its rapidly growing population will demand a strong increase in the supply of reliable energy. If no action is taken with a view to promote and incentivize the generation and distribution of green energy, the continent's emissions will increase at an exponential rate.

GEF funds will contribute to mitigating this threat by enabling the materialization of renewable energy projects that would not otherwise be developed. The project will replace nonrenewable energy sources with renewable sources. It is fully aligned to GEF's Climate Change Mitigation focal area, contributing particularly to Program 1 (Promote the timely development, demonstration, and financing of low-carbon technologies and mitigation options).

The projects supported thanks to the GEF financing will promote renewable technologies, improve energy access in African countries and across the continent, and create much greater environmental benefits to scale. The program will provide global environment benefits by replacing non-renewable energy sources with renewable sources. It is estimated that the program will enable the reduction of a total 8,730,000 tonnes of CO₂ equivalent.

Based on GEF guidelines on calculating GHG benefits (GEF/C.33/Inf.18), the following methodology was applied:

1. Defining the baseline: this preliminary step is not needed here, as the difference between the FEI alternative scenario and business-as-usual scenario can be directly determined (see step 2. below).

2. Determining the alternative scenario: in the alternative scenario, FEI is not established and the foreseen USD 600 Mln of investments do not occur. The need for electricity power is met by the current mix of fossil-based technologies and clean technologies.

3. Calculating Direct Emissions Reductions:

Direct emission reductions are calculated by multiplying the displaced demand for thermally produced energy (measured in kWh or MWh) by the corresponding emissions factor of the marginal technology that would supply the on-grid electricity in lieu of the project. The main assumptions used to calculate direct emissions reductions are as follows:

- Total investments (Capex): 600 MUSD
- Technology allocation (in MUSD):
 - Solar: 50%
 - Hydro: 30%
 - Biomass and mini-grids: 10% each
- Investment costs:
 - Solar: 1.5 Mln USD/MW
 - Hydro: 3 Mln USD/MW
 - Biomass: 4 Mln USD/MW
- Capacity factors are based on IRENA studies
- Grid emission factors are based on: The IFI (Interim) Dataset of Harmonized Grid Factors v 1.0, July 2016
- Lifetime of the investments: 20 years

The formula used to calculate avoided emissions is :

$$\text{Lifecycle avoided emissions (tCO}_2\text{)} = \text{MW} * \text{CF} * \text{EEF} * \text{LT} = 8,730,000 \text{ tonnes of CO}_2 \text{ equivalent}$$

(Detail in Table 3)

- MW= Renewable energy capacity (in MW) funded by FEI
- CF= Capacity Factors
- EEF= Electricity grid Emission Factor
- LT= Lifetime of the investment

Table 3: Estimate of direct GHG emission reductions

Technology	Share (in capex)	Total capex	Investment costs (MUSD/MW)	MW funded by FEI	Capacity factor *	Theoretical elec production in kWh	Electricity emission factor (kgCO ₂ /kWh)	Avoided emissions tCO ₂ pa	lifecycle avoided emissions
Solar PV	50%	300	1.5	200	20%	350,400,000	0.60	209,717	4,194,348.88
Hydro	30%	180	3	60	50%	262,800,000	0.60	157,288	3,145,761.66
Biomass	10%	60	4	15	50%	65,700,000	0.60	39,322	786,440.41
Minigrids	10%	60	2.9	21		29,000,000		30,160	603,200
Total	100%	600		296		707,900,000		436,488	8,729,750.95

* source: IRENA 2012: "Prospects for the African power sector"

Please note that these GHG emission reductions are achieved regardless of the scenario on recovery and grant reflows (see model in Annex D). A lower rate of recovery on reimbursable grants extended under the PPF (and hence a lower rate of reflows to GEF) means a higher project attrition rate (fewer projects reach financial close) and more work is needed on the part of the FM to bring to financial close the number of projects and associated new generation capacity that can deliver the expected quantum of GHG emission reductions.

4. Calculating Direct Post-project Emission Reductions

The FEI project has not put in place a financing mechanism, or any sort of component, that will continue to operate after the project closes and catalyze GHG emission reductions. Therefore, no direct post-project emissions reductions will be achieved by the project.

5. Calculating Consequential Emissions Reductions

NB: the GEF Guidelines recommend the use of “consequential emissions”, instead of Indirect Emissions.

This last aspect relies heavily on assumptions and expert judgment regarding the FEI, and its assumed contribution to future market potential and penetration. As a multi-country programme, the FEI may have diverse long-term impacts, which poses methodological challenges (e.g. attribution and causality). Consequential emissions reductions have therefore not been assessed.

6) Innovativeness, sustainability and potential for scaling up

FEI is a vehicle for shifting investment patterns from conventional technologies toward RE as per the core mandate of SEFA, thereby creating an enabling environment that would facilitate the widespread utilization of renewables and increased access to financing over time. Replication will be an integral component of project designs for lessons learned and applicability across the continent. Scale-up will be ensured through the documentation and widespread dissemination of the activities/inputs under each project.

FEI is also a prime example of how the AfDB and the GEF deliver for smaller private renewable initiatives, through leveraging the SEFA platform and mandate. As an African institution, AfDB is committed to engaging with African energy sector stakeholders to work towards the universal energy targets of its own corporate strategy (New Deal on Energy for Africa) and the SE4All objectives. In doing so, it has a unique opportunity to scale-up the SEFA “Platform concept” and leverage all the knowledge, experience, capacities and networks that have developed around the SEFA Multi-Donor Trust Fund since its launch in 2012. GEF’s contribution will therefore be instrumental for this scale-up of SEFA, increasing the Bank’s footprint in the small-scale projects universe and ultimately contributing to Africa’s ability to achieve universal energy access, increase the share of renewable energy and will put the continent in a better position to realize its social and economic development goals.

FEI will have a demonstration effect on the viability of private-sector investments in the small-scale renewable energy sector and will contribute to the replication of projects in the same county or across the region, in particular small-scale IPPs. This is now possible as “African countries are in a unique position: they have the potential to leapfrog the traditional centralised-utility model for energy provision” (IRENA, 2015: Africa 2030) by tackling the challenge of energy access through low-carbon renewable power generation in is also increasingly the least cost solution.

FEI will showcase the use of new and viable business and financing models for mini-grids in a highly complementary fashion to the SEFA workstream on Mini-Grid enabling environment, thereby contributing to crowding in commercial debt finance. SEFA is financing the the Green Mini-Grid Market Development Programme (focused on addressing regional bottlenecks to mini-grid deployment, including business advisory and access to finance) and is providing funding six (6) country programmes focused on improving the enabling environment and developing the pipeline (Mozambique, Rwanda, Burkina Faso, Gambia, Niger and DRC). All of these upstream efforts are expected to generate tangible pipeline. Through the FEI PPF, projects could be structured to high standards of bankability by an expert team and subsequently funded by FEI ON-GRID.

FEI additionally provides a vehicle for catalyzing private sector capital (impact and institutional investors) by leveraging limited public funds. For many Europe and North America based investors, Africa still suffers from a high-risk perception problem as a first-time investment space, combined with the perceived risks around relatively new energy access technologies. Having a structured finance vehicle with mainly public sector equity and a project preparation facility (PPF) can provide the right level of comfort and de-risking for private investors seeking to capitalize on the market growth story with strong development impact. Private investors are expected to invest mainly in FEI’s debt tranche for around 30% of total fund capitalization.

A.2. Child Project? If this is a child project under a program, describe how the components contribute to the overall program impact.

NA.

A.3. *Stakeholders*. Elaborate on how the key stakeholders engagement, particularly with regard to [civil society organizations](#) and [indigenous peoples](#), is incorporated in the preparation and implementation of the project.

NA

A.4. *Gender Equality and Women's Empowerment*. Elaborate on how gender equality and women's empowerment issues are mainstreamed into the project implementation and monitoring, taking into account the differences, needs, roles and priorities of women and men.

FEI's deployments will increase access to finance for women entrepreneurs in the targeted energy sub-sectors, since this will be one of the criteria to be assessed by the Fund Manager and the Investment Committee in originating and clearing deals, respectively, while not compromising credit quality considerations, in line with the Fund's investment strategy. In addition, FEI may create up to 6,800 permanent female jobs (~30% of jobs). Because the Facility's investments will focus on underserved areas, as is the case for clean energy mini-grid investments, will contribute towards providing new infrastructure services to poorer segments of many countries along with helping lower the burden of exploiting traditional energy sources. For example, kerosene and candles for lighting impede certain evening activities including children education, the lack of power for productive uses prevents women from engaging in agri-processing activities, and the absence of electricity for medical equipment and cooling disproportionately affects women given their specific healthcare and childbearing needs. This is. It is well documented that women bear the brunt of inadequate energy access based on distribution of responsibilities in the majority of African households. As a result of the Facility's interventions, it is expected that the quality of life of many of them will be significantly improved, e.g. through access to a range of services that modern, affordable, clean electricity can deliver. Overall it is estimated that the project could positively impact the lives of at least 1.6 million people.

A.5 *Risk*. Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation (table format acceptable):

SEE TABLE 3 ABOVE

A.6. *Institutional Arrangement and Coordination*. Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

The Facility for Energy Inclusion (FEI)

FEI will be registered in a suitable African domicile that offers appropriate protections for investors, an efficient taxation regime, cost-effective and high-quality administration, while supporting the creation of the desired governance structures and share classes. While an open perspective is currently being kept, the current expectation is that the Facility will be registered in Mauritius due to strong investor protections and efficient taxation. FEI ON-GRID may be established as a limited liability company and may hold a Category 1 Global Business Company License (GBCL1) under the Mauritian Financial Services Act 2007. It is expected to follow a standard fund structure, composed of a General Partner (GP), or manager of the Fund, which will invest capital in individual portfolio projects.

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Figure 6 above provides a representation of the Facility’s envisaged capital structure, which is subject to change based on: (i) final decision about domicile and specific legal form, (ii) final decision on which share classes are included (which requires formal fundraising), and (iii) final decisions about the governance structure (to be discussed and agreed with co-anchor investors). It should be noted that not all classes of equity and noteholders may be subscribed to at first closing or even at second closing; such factors depend on the outcome of the fundraising exercise. The Facility will be managed by an experienced fund manager (the Facility Manager (FM)) currently being selected through a competitive tender process run by AfDB (decision expected to be taken in Q4 2017).

Based on the design and structuring exercise, and subject to AfDB and co-investor considerations, the Fund Manager will be responsible for final debt fund design and implementation, including: (i) operational processes and pipeline development, quality-at-entry controls, deal structuring and execution, due diligence processes, approval processes and timelines, portfolio monitoring and management and back-office operations; (ii) financial management based upon a platform which minimizes total transaction costs, and which will encapsulate, among others, comprehensive investment; (iii) fund governance structures; and (iv) financial, operations and development outcomes reporting frameworks.

In line with industry best practices, FEI ON-GRID will be governed by a Board of Directors, an Advisory Committee (AC) and an Investment Committee (IC). The AC is expected to contain representatives from all equity investors (including AfDB), and will be designed to give investors a voice in the Facility’s strategic direction. The IC will be composed of independent experts with suitable expertise in lending in the African energy sector, and will approve day-to-day transactions. Only a small minority of transactions shall be referred to special consideration by the AC. The membership and exact responsibilities of these governance entities will be agreed upon by the investors.

As an anchor investor and Advisory Committee (AC) member, the AfDB will maintain tight oversight of FEI and in particular the Bank will ensure that transparency, social, environmental, and corporate governance best practices are adhered to both at the Fund and portfolio company level, and that the management team maintains alignment to successfully and cost-effectively implement the Fund’s strategy.

The FEI Project Preparation Facility

As mentioned, the FEI PPF will be legally structured as a dedicated bank account opened by the FEI Fund Manager in a commercial bank acceptable to AfDB (likely in same jurisdiction as where FEI is to be domiciled) and governed by rules set by the AfDB and enshrined in an agreement between the AfDB and the FM.

The PPF will be managed by the Fund Manager in line with the guidelines and procedures developed and approved by AfDB SEFA Secretariat and FEI team. Some of the key “governance” features include the: (i) obligation by FM to report on use of PPF funds: quarterly, annual and completion reports, annual work plan; (ii) A ‘Lapse of time’ procedure (triggered by the notification) to allow AfDB to check that unsuitable projects or sponsors are seeking finance from the PPF; (iii) and Oversight Committee comprising Bank and FM senior representatives for an annual review of implementation progress and work plan, review of financial statements and audits, discuss any issues arising from the regular operations of FEI PPF.

Additional Information not well elaborated at PIF Stage:

A.7 Benefits. Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

The program will provide global environment benefits by replacing electricity generated from non renewable energy sources with electricity generated from renewable sources. It is estimated that the program will enable the reduction of at least 8.7 MtCO₂ on a life-cycle basis. The impact could be much larger if FEI is successful and demonstration effects are taken into account, in particular if new successful financing and business models (particularly for mini-grids) can be piloted, and then replicated.

A.8 Knowledge Management. Elaborate on the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user-friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.

The detailed knowledge management approach will be elaborated in consultation between the AfDB and the FEI Fund Manager, but will likely include the main following elements:

- Participation of the Fund Manager and AfDB SEFA Team in renewable energy investors' fora at the international, pan-african and regional (and perhaps national) level;
- Production of case studies on items including but not limited to new business and financial models for minigrids;
- Publication of an annual report including information of projects financed and their environmental and development impacts;
- Close interaction with the Bank-hosted Green Mini-Grids Market Development Programme and its network of partners/financier to access and share global best practice on financing mini-grid projects.
- The GEF PPF could also consider financing a small TA element for impact assessment, knowledge work / exchange.

B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 Consistency with National Priorities. Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.:

The FEI's priorities are well aligned with the priorities of AfDB's RMCs considering the focus on increased energy access which contributes to economic development and improved quality of life. Furthermore, the need to involve the private sector in infrastructure development is increasingly recognized by RMC governments due to the financial, technical, and management skills that private entities can deliver.

The Project is also fully aligned with with the more recent Nationally Determined Contributions following the 2015 Paris Climate Agreement, which cite RE (on-grid or off-grid) as a key plank of their development plans and mitigation strategies.

FEI is directly aligned with the AfDB’s Ten Year Strategy on inclusive growth and transition to green growth and with the New Deal for Energy in Africa (already mentioned above) which underlines the need for scaled-up efforts in pipeline development, unlocking Africa’s renewable energy potential, leveraging private sector finance and crowding-in capital from public and private financing partners (eg. DFIs, donors, commercial banks, impact investors, institutional investors, etc.).

C. DESCRIBE THE BUDGETED M &E PLAN:

The project will be implemented over a period of about 7-8 years (from initial disbursement to final reflows of the GEF non-grant). The proposed timeline for the FEI implementation is as follows (excluding potential extension):

CEO endorsement :	Q\$4-2017
Project start (Financial close and signature) :	Q3-2018
First PIR :	Q2-2019
Mid-Term Review :	Q1-2021
Terminal Evaluation :	Q2-2027
Expected date of final reflows :	TBC

AfDB will provide for a rigorous monitoring and reporting framework for the FEI Fund Manager to conduct regular reporting on behalf of the Facility’s investors. The detailed M&E Plan will be elaborated in consultation between the AFDB and the FEI Fund Manager.


The Table below summarizes the required reports for this project :

Report type	Prepared by	Responsibility	Preparation frequency/period	Submission
Annual Activity report	Fund Manager	Fund Manager	Annual	AfDB, GEFSEC
Investment Committee (IC) report	Fund Manager	Fund Manager	After every IC meeting	LPs including GEF
Project Implementation Report (PIR)	Fund Manager	Fund manager/ AfDB	Before June 30, of a set fiscal year	AfDB / GEF Secretariat
Mid-Term Review report (MTR)	Independent consultant	Fund Manager / AfDB	per Reporting cycle agreed with the GEF	AfDB/ GEF Secretariat
Terminal Evaluations report (TE)	Independent consultant	Fund Manager / AfDB	After project completion and no more than 12 months after project completion.	GEF Evaluation Office
Completion Project Report	Fund Manager/AfDB Task Manager	AfDB Task Manager	December 2027	AfDB / GEF Secretariat

RT III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

A. GEF Agency(ies) certification

This request has been prepared in accordance with GEF policies¹⁴ and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

Agency Coordinator, Agency Name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Mahamat Assouyouli, AfDB		09/28/2017	Joao Cunha Duarte	+22520263819	j.cunha@afdb.org

¹⁴ GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Country and Project Name: Facility for Energy Inclusion						
Purpose of the project: Increase small-scale RE infrastructure investments						
RESULTS CHAIN		PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS / MITIGATION MEASURES
		Indicator (including CSI)	Baseline (start of project)	Target (end of project unless otherwise indicated)		
Impacts	Provision of secure, affordable and sustainable energy services to a larger share of the population including in rural areas with ancillary development impacts (in terms of gender equality, job creation, and poverty alleviation)	Electricity access rates in top 5 countries where FEI has invested	35%	15% percentage point increase across the 5 countries (average)	<ul style="list-style-type: none"> • National and MDB's indicators • Bank supervision reports • National Bureaus of Statistics • Rural Electrification Agencies • Ministries of Energy and Petroleum • Fund Manager Reports 	See section A.5
		CO2 emissions from power generation in portfolio countries	n/a	8.7 MtCO2 avoided		
		Number of permanent and temporary jobs created	0	5,300		
Outcomes	Outcome 1: Enlarged access to electricity	Component A: Finance additional small-scale renewable electricity generation with a range of innovative debt instruments	Number of new connections (from minigrids)	0	520,000 (by 2033)	
			Outcome 2: Demonstration that small-scale RE projects can reach bankability and mobilize private sector financing under a variety of financing and business models	Proportion of projects reaching financial close	0	
	Component B: Support 'last-mile' small-scale RE project development through a pilot	Proportion of private sector / commercial co-financing of projects	0	x% (to be proposed by FM)		
		Reduction in project-related transaction costs	xk USD per project (to be proposed by	xk USD per project (to be proposed by FM)		

	reimbursable grant modality		FM)			
Outputs	Output 1 New on-grid RE electricity generation capacity financed	Number of MW of new on-grid RE capacity financed (small IPPs and mini-grids)	0	275 MW		<ul style="list-style-type: none"> • Fund Manager Reports
	Output 2 Small-scale RE projects developed and reaching financial close with support from FEI USD 10 mln PPF	Number of small scale project financial closings reached through FEI	0	30+ projects by 2026		<ul style="list-style-type: none"> • National Bureau of Statistics • Fund Manager Reports
Key activities	<p><u>Component A</u></p> <ol style="list-style-type: none"> 1. Conceive and structure an adequately capitalized Facility 2. Select and appoint a Facility Manager 3. Fund raising and reach first financial closing in 2018 4. Deploy debt and mezzanine products 5. Manage and monitor the portfolio 6. Successfully exit the Facility <p><u>Component B</u></p> <ol style="list-style-type: none"> 7. Develop a robust pipeline of projects 8. Tender for create a roster of consulting under Framework Contracts 9. Provide project development support when needed to bring projects to financial close 10. Manage portfolio and ensure recovery of reimbursable grant at or after financial close 				<p><u>Inputs</u> (for a a 300 million USD FEI On-Grid leveraging another 300 million USD):</p> <p>USD 30 million in 15-year Senior Convertible Debt and USD 40 million in Equity from AfDB USD 230 million in equity and debt from other investors in FEI. USD 300 million in developers’s own funds and other public and private co-financing USD 10 million in reimbursable grant (‘non-grant’) from GEF</p>	

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Given the modification to the original Project concept, some of the responses to comments have been amended.

Comments at PIF	Action taken	Sections in the document
GEF Secretariat Review		
a) Please supply more detail on how FIRST will intervene to protect the preparation grant and ensure maximum repayment	Please see details in the report as well as the revenue model with reflows schedule and scenarii	Revenue Model Annex (xls), Investment criteria (page 22)
b) Update the GHG emissions calculation.	Please see attached the GHG emission reduction calculation sheet	Emission reduction annex (xls)
Council Member Review (At PIF stage)		
<i>USA comments</i>		
Will the AfDB's regional SEFA project provide resources to Sudan, Zimbabwe, Angola, Eritrea, Guinea Bissau, or Somalia?	<p><u>Original response:</u></p> <p>AfDB duly notes the concerns by USA regarding the use of SEFA non-grant funding for projects in Sudan, Zimbabwe, Angola, Eritrea, Guinea Bissau, or Somalia.</p> <p>As described in the PIF, the final list of project to be considered under this program will be assessed during project preparation stage (PPG) and cleared by AfDB PEVP management team, based on a high-level review of eligibility: technical merits, quality of sponsor, financial assessment, renewable energy technology, maturity, etc (see table 1 "Selection criteria of project funded under the program" in the PIF).</p> <p>With regards to the countries highlighted by USA (Sudan, Zimbabwe, Angola, Eritrea, Guinea Bissau, or Somalia), the project team has noted this concern and will take this into consideration during project preparation (Table 1 to be amended at CEO endorsement stage).</p> <p>However, considering that this program seeks to intervene at late stage of project preparation, we will likely be focusing in the most mature countries with coherent policy frameworks and well-designed tendering / IPP procurement procedures. The list of countries highlighted above does not fit with these criteria.</p> <p>The project in Guinea-Bissau (Saltinho HPP) included in the SEFA current portfolio (page 8) has already been approved and will not be part of this program submitted for your approval.</p>	N/A

	<p><u>Addendum:</u> FEI will be demand-driven, but as indicated in relation to SEFA, considering that this program seeks to intervene at late stage of project preparation, it will likely be focusing in the most mature countries with coherent policy frameworks and well-designed tendering / IPP procurement procedures. The list of countries highlighted above does not fit with these criteria. The initial focus is expected to be East and West Africa. There will be a lending activity target of 5% of origination volume in Fragile and Conflict Affected States, with associated incentives for the Fund Manager.</p>	
<p>Additional comments from Council Member Review</p>		
<p>The United States, in light of its policies for certain development projects, registered an opposition to this proposal, though this is a potentially valuable program – that may be able to utilize relatively small amounts of concessional financing from the GEF and the AfDB to leverage \$955 million in investment for renewable energy in Africa.</p>	<p><u>Noted</u></p>	
<p>As this project is further developed, the United States recommends that the AfDB take into account the input from the STAP and may wish to consider the following technical comments:</p> <p>The United States is supportive of the Non-Grant Instrument Pilot (NGI) and expects this NGI concept will have additional financial details as it is converted from a concept into a full project proposal.</p>	<p>The expected outcome of using a reimbursable grant instrument for this project preparation facility under the Facility for Energy Inclusion is to build a business case and demonstrate that non-grant instruments can potentially (i) increase the proportion of projects that reach financial close , (ii)increase co-financing by private sector actors and (iii) through inter alia the use of Framework Contracts contribute to reducing transaction-related costs, in particular legal fees reduce transactions costs related to small and medium scale energy projects . Results will be integrated in the Fund Manager reports for evaluation against national data bases. The CEO endorsement document details the financial model as well as the investment strategy and the selection criteria for beneficiaries. In addition, the AFDB has provided a simplified financial model (Annex D) which simulates possible investment amounts, recovered amounts and resulting recovery rates for the GEF</p>	

	<p>non-grant based on a set of assumptions.</p> <p>Annex D simulates a Base Case in which the rate of recovery (proportion of supported projects reaching financial close) is assumed to be 80%. A sensitivity analysis is run by varying this rate. This leads to a Bull Case (rate of recovery of 100%) and a Bear Case (rate of recovery of 60%). Based on this revenue model, the rate of reflow to the GEF of its non-grant would range between 49% and 129% of par. This is based on the assumption of 40 projects supported, average ticket of USD 400,000¹⁵ and a premium of 10% on funds successfully reimbursed.</p>	
<p>SEFA could focus on matching funds for project pre-development work to help achieve maximum investment impact 3. We recommend that the AfDB focus on completing the \$1-3 million project requirements for a \$75 million solar or wind project that carries a lower risk as a part of this investment – and support an exclusion for investment in geothermal energy for this particular renewable energy project. A typical geothermal project requires \$30 million for exploration and drilling for a four well project to create \$20 in steam assets, making it a sector that is still too risky for SEFA target project developers.</p>	<p>Noted. Geothermal preparatory activities are capital intensive, and actual investments are usually above \$30m. No de facto exclusion but as a result generally out of scope</p>	
<p>Germany comments</p>		
<p>Germany approves the following PIF in the work program but asks that the following comments are taken into account: Germany welcomes the</p>	<p>The AfDB thanks Germany for this comment which is well noted.</p>	

¹⁵ While SEFA usually gets involved at an earlier stage providing funding for technical feasibility studies and engineering design work, these are likely not to be supported by FEI because, as a debt facility, it will primarily engage with projects which are technically proven. The FEI PPF is expected to focus mainly on late-stage structuring support entailing independent financial advisory (financial model, project financial structure and syndication), technical and insurance advisory (review/validation of feasibility and engineering studies) and legal advisory (developing and negotiating the various project contracts, starting with the power purchase agreement with off-takers). From AfDB experience, these can range in the \$200,000 to \$600,000 in amounts, with the bulk usually attributable to legal fees. For the projects under consideration one expects these to average \$400,000.

<p>proposal to significantly increase access to safe, clean, affordable energy in Africa through the expansion of renewable energy. Furthermore, the efforts underway to explore means for making the Project Preparation window under SEFA sustainable by piloting reimbursable grant schemes are commendable: “The ultimate objective would be to develop a more “sustainable” facility with new projects being financed with funds from successful projects.” Plans to leverage GEF funds to “strengthen SEFA’s mandate and approach to grant deployment, provide more resources to keep up with its deal-flow as well as provide a test platform for alternative utilization of grant instrument as a catalyst of change” seems like an appropriate use of GEF resources.</p>		
<p>The focus of SEFA is on facilitating small- to medium-scale renewable projects. It would be helpful however to include a definition for what they consider to be small- to medium-scale renewables. Typically a large-scale project would be anything over 10 MW. Upon looking at the pipeline of projects that have been approved, six out of 11 of the projects are to generate between 20 - 120 MW. Germany hence suggests that the proposal outlines how the SEFA plans to distinguish itself from, or add-up to, the Africa Renewable Energy Initiative (“AREI”), which shall focus on large-scale renewables in Africa and is not mentioned in the proposal.</p>	<p>The fund considers mini-grids (MGs), and small scale independent power producers (IPPs) with total estimated project cost not exceeding USD 30 million. Cost per MW has dropped substantially across all renewable energy technologies , especially solar and today a 20 MW solar plant in SSA has a total project cost of around USD 30 million and is considered a small scale IPP . Transaction-related costs for such projects are still very high discouraging commercial investors to enter the space . The PPF will focus on supporting such projects with a view to reduce associated costs , reduce the perceived risk and mobilize funding. The FEI PPF will contribute to the AREI overall objective to deliver universal access to all Africans by 2030 on mobilizing additional investments and support project development bringing more projects to operational phase. The projects will also benefit from AREI work on mapping , policies and regulatory framework</p>	

	critical to reach its objectives	
Germany suggests indicating why the project proposal excludes off-grid and geothermal technologies	<p>FEI will target small-scale IPPs and mini-grids. The off-grid renewables sector is indeed extremely important, this is why a dedicated off-grid window under FEI was carved-out of the original FEI concept</p> <p>Geothermal projects are not excluded as such, but they will likely not meet the maximum investment cost criterion of FEI (< USD 30 million TPC)</p>	
The proposal cites the medium-to-high-credit and financing risk for renewable energy project, noting that some of the projects receiving GEF financing will likely not be finalized for reasons “outside AfDB’s control” and that in such cases, the grant money will be written off. Germany seeks clarification whether there could be a mechanism in place to trigger GEF funds once certain risky aspects of the preparation phase are completed, such as getting regulatory frameworks in place first and whether such a mechanism incentivizes greater success in overcoming some of the risks cited that are outside AfDB’s control, (eg. lack of equity, PPA not signed, expiry of provisional licenses, inconclusive feasibility studies, E&S challenges, policy and regulatory gaps, etc.)	The GEF-funded FEI PPF being a tool for bridging the “bankability” gap , the trigger for reimbursement of GEF Funds was set at Financial close which the first tangible measure that a project is indeed bankable . Displacing the trigger to an earlier stage will of course reduce the risk of non-reimbursement of the funds but also defeat the core purpose of the instrument (supporting projects to achieve financial close) . Recommendation is to maintain the trigger at financial close.	
The proposal states that USD920 million in financing will come through the private sector, however, this is listed as “indicative.” Germany seeks more information about this figure and what indications there are showing that such a figure is realistic? Are there estimates of what the total	<p>The AfDB has provided a co-financing letter which listed the source of each co-financing figures as well as the timeline for its mobilization.</p> <p>The agency has provided the CCM tracking tool with an estimation of CO2 emission reduction targets under this program. Based on an estimate of FEI’s direct emission reductions, a total</p>	

<p>impact would be on emissions / MW installations if so much money were indeed leveraged through the private sector?</p>	<p>investment of USD 600 million would reduce CO2 emissions by 8,700,000 metric tons (see section 5-Global environmental benefits). This represents roughly USD 69 per ton of CO2 avoided, which could be set out as overall objective for the whole facility.</p> <p>For many private sector investors, Africa still suffers from a high-risk perception problem as a first-time investment space, combined with the perceived risks around relatively new energy access technologies. Having a structured finance vehicle with mainly <u>public sector equity</u> and a <u>project preparation facility (PPF)</u>, can provide the right level of comfort and de-risking for private investors seeking to capitalize on the market growth story with strong development impact. Private investors investments expected are mainly in FEI's debt tranche for around 40% of total fund capitalization , developers' own funds and co-financing of the projects .</p>	
<p>SEFA can play an instrumental role in promoting private investment in small-scale renewable energy projects by providing project preparation funding that will help private power developers to defray early-stage project development risk, one of the key roadblocks to more significant investment in small-scale renewables in SubSaharan Africa today. In that context, SEFA should also explore possible links with the GET FIT programs currently under preparation by Germany (e.g. in Zambia), specifically with a view to connecting projects receiving SEFA project preparation funding with potential financiers and providers of risk mitigation.</p>	<p>Noted . GET Fit initiative is also hosted within the SEFA implementing department within the Energy complex of the Bank which will facilitate information sharing .</p>	
<p>STAP comments</p>		
<p>Recommendations</p>	<p>Responses</p>	

<p>Both the baseline and incremental reasoning sections of the proposal are weak and do not allow STAP to see specific focus of GEF's support of SEFA operations beyond these two areas. There is abundant literature about the current status and scenario development of renewable energy in Africa (e.g., most recent assessment by IRENA (2015), Africa 2030: Roadmap for a Renewable Energy Future. IRENA, Abu Dhabi. www.irena.org/remap) that is not reflected in the submitted proposal to justify interventions. RE potential in Africa is diverse and country- and region-specific depending on the levels of development, energy resources endowments, levels of energy access and a range of human, technical and institutional capacities. Electricity exports, development of local industries in some regions and countries are contrasting with significant energy poverty and a necessity to assure energy access and development of local communities in other regions (primarily in SSA). Support for enabling environment to facilitate access to private and public sector funds as well as RE technologies will differ between regions and countries. PIF provides almost no information about the strategic focus of the SEFA preparation facility and project selection criteria to be based on the evidence.</p>	<p>These sections have been rewritten, and draw substantially on IRENA publications, such as indeed Africa 2030.</p> <p>Section A1 includes much expanded information on strategic focus of the FEI preparation facility and project selection criteria.</p>
<p>An important consideration for the project of this scale is support for regional integration and cooperation depending on specific regional circumstances. Such an approach could provide important economies of scale and higher return on GEF's investments. This specifically applies to regional power pools in Central, Southern and West Africa. STAP recommends AfDB to explore further opportunities for aligning its investment focus with the ongoing work for the development of cost-effective regional solutions, including those supported by IRENA, AU/NEPAD, ECOWAS and other regional institutions.</p>	<p>The purpose of FEI is to finance renewable electricity generation projects, including mini-grids. These efforts will strengthen the rationale for accelerating regional integration through the interconnection of electricity grids and power pools, which already is a priority for the AfDB. More generation project activity will require stronger grids to accommodate intermittent RE inputs and evacuate the power to a wider range of off-takers. AfDB will continue working closely with the Regional Power Pools (WAPP, EAPP, SAPP) to sustain efforts in power sector integration. AfDB is also already partnering with IRENA in the context of the Renewable Energy Corridors. AfDB is an anchor partner in the AU-led Africa Renewable Energy Initiative (AREI), a partnership of African leaders to clear regional and national obstacles to large scale deployment of RE across the entire continent. Last but not least, AfDB through the SEFA-funded Green Mini-Grid Market Development Programme, has already supported the African Union towards adopting a pan-African policy on clean mini-grids. FEI cuts to the core of all these issues and will provide impetus for continued cooperation towards regional integration.</p>
<p>Given the focus on "medium-sized" (for which a clearer definition is required) many smaller worthwhile projects at the local scale such as micro-grids and distributed energy systems could be excluded.</p>	<p>FEI is targeting small-scale renewable-only IPPs and minigrids of less than USD 30 million project costs.</p>
<p>Off-grid renewables and support for heating/cooling solutions in SSA should have a preferable treatment recognizing the global importance to assure energy access</p>	<p>FEI will target small-scale IPPs and mini-grids. The off-grid renewables sector is indeed extremely important, this is why a dedicated off-grid window under FEI was carved-</p>

<p>in this sub-region accounting for 13% of the world's population and only 4% of energy demand. More than 95% of those living without electricity are in countries in sub-Saharan Africa and developing Asia, and they are predominantly in rural areas (around 80% of the world total). The off-grids markets particularly relevant for the region require dedicated policy and regulatory support as well as capacity building. It's not clear in the proposal how SEFA would approach these issues and should be developed further during project preparation. The gender and sustainable dimension of off-grid RE energy solutions in SSA are particularly important. As an example, one USD invested in Solar Sister program (https://www.solarsister.org/) generated more than USD46 of economic benefits to involved communities. Support for off-grid RE in SSA should be aligned with the overall the development efforts of other partners to receive higher return on investments.</p>	<p>out of the original FEI concept. This will allow for reinforcing of financial, technical and human resources for investments in this segment. The Bank is working in parallel on a request to GEF for capitalization of this off-grid window with USD 10 million in equity.</p>
<p>Project requests are to be screened on ROI and the assumed reduction of greenhouse gas emissions (page 20) but the indicator \$/t C avoided would also be a useful indicator. Although some CO2 is released from many geothermal bores, the technology is low-C overall. Full details of the potential for geothermal projects, and indeed for all renewable energy systems can be found in the IPCC 2011 special report Renewable Energy Resources and Climate Change Mitigation (http://srren.ipcc-wg3.de/) which provides much information of relevance to this project.</p>	<p>The indicator \$/t C avoided will be included in the project selection criteria to be applied by the FEI FM.</p> <p>Based on an estimate of FEI's direct emission reductions, a total investment of USD 600 million would reduce CO2 emissions by 8,700,000 metric tons (see section 5- Global environmental benefits). This represents roughly USD 69 per ton of CO2 avoided, which could be set out as overall objective for the whole facility. Using this estimate, the following caps could be set across the various key technologies eligible under FEI:</p> <ul style="list-style-type: none"> • Solar PV: 80 \$/t C avoided • Hydro: 65 \$/t C avoided • Biomass: 85 \$/t C avoided • Minigrids: 110 \$/t C avoided <p>These caps are tentative, insofar as based on an average of capacity factors and emissions factors that differs significantly across regions of SSA. These numbers should therefore be used as guidelines rather than rigid constraints for the Fund Manager. The FM will fine tune these caps.</p>
<p>On page 17 in Table 2, stranded gas suddenly appears in the table. This is not a renewable energy resource so it is unclear why it appears at all in this proposal given the title. To produce the Table, capacity factors of 29% for wind, 20% for solar PV, 60% for hydro and 80% for stranded gas have been used. An average emission factor of 625 g/kWh appears to have been used to calculate the emission reductions for the renewable energy systems, whereas for the stranded gas, the factor used is around 90g/kWh. There is no clarification on what basis this figure was selected.</p>	<p>Stranded gas projects will not be eligible for FEI funding.</p>
<p>It is not clear why geothermal projects are explicitly excluded when there is good potential in a number of African countries, as demonstrated for example in Kenya. There may be a drilling risk (as mentioned in the PIF</p>	<p>Geothermal projects are not excluded as such, but they will likely not meet the maximum investment cost criterion of FEI (see above).</p>

<p>review) but the benefits of success will probably outweigh the risks. The technology is actually more mature than wind and solar. On page 9 it is implied it is less mature but the first major geothermal plant of ~150 MW began operation in New Zealand at Wairakei in 1958. The design of this plant has been improved in recent years and it continues to successfully operate as a commercially viable generation plant. More commercial geothermal plants have been developed without need for any government support and it now provides around 15% of total generation. So given the identification of appropriate resources, geothermal generation competes well with other technologies and should not be so easily dismissed from this project proposal for Africa.</p>	
<p>The Equity investments window is for projects in the USD 10-80 M range. It is assumed this investment could be for renewable energy resource assessment in specific locations such as assessing mean annual wind speeds, solar radiation levels, biomass volumes etc. (akin to oil and gas exploration). This is an essential part of developing renewable energy projects and identifying the most suitable locations.</p>	<p>Renewable energy resource assessment can be financed by SEFA and other donor schemes. They might be financed by sponsors themselves. Being a debt fund, the FEI PPF will only finance last-mile development activities such as financial structuring and legal, but not renewable energy resource assessments.</p>
<p>Support for promotion of RE solutions comes together with the support for providing specific enabling environment that includes regulatory, fiscal, technical and capacity building incentives adjusted for specific country's circumstances. There is no specific information in the proposal to understand how project preparation facility will connect with the existing or support development of new incentives that would go along with financing. The above report by IRENA (2015) and other sources provide an important assessment of the existing policy and regulatory landscape in different African countries that should be taken into account in the design of the SEFA project preparation window. For such activities to succeed in the longer term, capacity building is imperative. Here it is left to the private sector which gives some concerns as many private sector projects have failed due to lack of locally available expertise to maintain and repair technologies over the long-term.</p>	<p>These aspects are crucial to the viability and bankability of RE projects and will be considered by the FM when considering funding applications. Coordination between the FEI FM and the AfDB will be important as the AfDB is better placed (than the FM) to resolve these issues or leverage other resources (including policy dialogue with its RMCs).</p> <p>As such the FEI PPF will not support activities in this area as the PPF is geared towards providing the specific support needed to bring transactions to financial close.</p>
<p>Consistency with national priorities could be linked with the more recent Nationally Determined Contributions following the Paris Climate Agreement.</p>	<p>Done, see A1.</p>
<p>STAP recommends that AfDB explores carefully lessons learned by other multilateral development banks, particularly the World Bank Group (incl. IFC) and ADB in supporting similar to SEFA investment vehicles based on the principle of public-private partnerships (e.g., http://ieg.worldbank.org/evaluations/world-bank-group-support-ppp). Among them are the following that has to be further strengthened in the proposal development:</p> <ul style="list-style-type: none"> - the necessity to align SEFA operations across different divisions of the AfDB along the entire project delivery 	<p>Lessons from existing Project Preparation Facilities such as e.g. REPP, ElectriFI, SCAF 2, AREF's PSP, have been carefully taken into account into the design of the FEI PPF.</p>

chain from upstream support for the enabling environment and pipeline development to downstream transactions and execution;

- improve SEFA capacity in providing regular country diagnostics (country and its political economy, sector and inter-sectoral policies, project parameters) to inform portfolio development and represent a platform for sharing knowledge across the AfDB;

- assess fiscal implications, including any fiscal liabilities associated with SEFA operations;

- assure strong M&E functions of the facility that takes into account not only financial criteria but also socio-economic dimensions/benefits of SEFA operations (poverty reduction, gender, employment opportunities, human capital development and etc.).

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS¹⁶

A. Provide detailed funding amount of the PPG activities financing status in the table below:

NA

¹⁶ If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

ANNEX D: CALENDAR OF EXPECTED REFLows (if non-grant instrument is used)

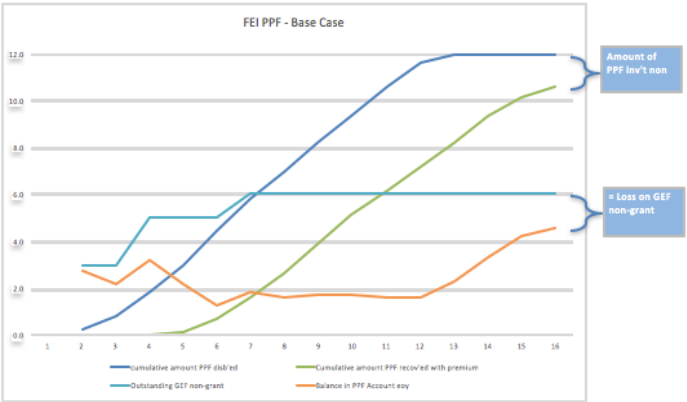
SEE ANNEX (.XLS) FOR MORE DETAILS

Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Funds or to your Agency (and/or revolving fund that will be set up)

Based on the assumptions described below, three scenarios have been run: a Base Case and two additional, Bull or Bear, cases that differ from the Base Case by the rate of recovery of the reimbursable grant provided by the FEI PPF to project developers, i.e. the success rate of projects as measured by the proportion of projects reaching financial close 18 months on average (3 semesters) after a positive decision by the FEI FM to provide a reimbursable grant. The rate of reflow to GEF ranges from 49% (Bear) to 127% (Bull) of the GEF non-grant amount (par) with a Base Case at 81%.

This simplified model simulates possible investment amounts, recovered amounts and resulting recovery rates for the GEF non-grant based on a set of assumptions. A sensitivity analysis is run by varying the rate of recovery of the PPF investment at financial close, which is the trigger event for recovery. The higher this rate, the higher the amount of the GEF non-grant that can reflow to the GEF after 7.5 years (6-y FEI investment period + 1.5 y for recovery of the last amounts of the PPF disbursed).

Base case assumptions	Item	Definition	Value	Unit
Capitalization of FEI	Amount of capital that FEI can deploy	300	mUSD	
Total project costs	Total value of capital investments supported by	600	mUSD	
number of projects supported	total number of projects financed by FEI	40	# of projects	
average project size	Total project costs divided by number of projects	15	mUSD	
GEF non-grant		10	mUSD	
Fund Maturity	Duration of FEI	15	years	
FEI investment period	Period during which FEI funds can be committed to new projects	6	years	
Average size of PPF investment		0.4	mUSD	
Premium	100% of PPF investment value paid at fin. close	100%		
Front-end fee (FEF)	2% of PPF investment value at signing	2%		
Disbursement of PPF investment	Quantum of disbursement per year	0.5	per annum	
Recovery of support	Average length of time before first recovery of	1.5	year after disb't	
Recovery rate	Average % of PPF investment recovered (at fin. close)	80%		
Minimum cash balance in PPF Account		1.5MS	mUSD	



Base case (MS)	Recovery rate	FEI PPF investment period															Total
		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	
Recovery rate	80%																
Semester		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	
# projects supported		2	2	3	4	4	5	5	5	4	4	2					40
amount PPF disbursed		0.4	0.8	1	1.4	1.6	1.8	2	2	1.8	1.6	1.2	0.4				16
cumulative amount PPF disb'd		0.4	1.2	2.2	3.6	5.2	7	9	11	12.8	14.4	15.6	16	16	16	16	16
amount PPF recovered (excl Premium)					0.3	0.6	0.8	1.1	1.3	1.4	1.6	1.6	1.4	1.28	1.0	0.3	12.8
FEF		0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.02					0.32
Premium					0.03	0.06	0.08	0.11	0.13	0.14	0.16	0.16	0.14	0.128	0.10	0.03	1.28
Cumulative amount PPF rec'd with fees		0.02	0.03	0.06	0.44	1.18	2.10	3.37	4.82	6.43	8.22	10.00	11.58	12.99	14.05	14.40	14.40
GEF non-grant disbursement		3		3			2.5										8.5
Outstanding GEF non-grant		3	3	6	6	6	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Balance in PPF Account soy		2.62	1.83	3.86	2.84	1.98	3.60	2.87	2.32	2.13	2.32	2.90	4.08	5.49	6.55	6.90	6.90
Minimum PPF account balance		1.83															1.83
Reflow to GEF																	6.90

Sensitivity analysis	Base case	Bull case	Bear case
Recovery rate	80%	100%	60%

Parameters varying in sensitivity

Bull case (MS)	Recovery rate	FEI PPF investment period															Total
		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	
Recovery rate	100%																
Semester		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	
# projects supported		2	2	3	4	4	5	5	5	4	4	2					40
amount PPF disbursed		0.4	0.8	1	1.4	1.6	1.8	2	2	1.8	1.6	1.2	0.4				16
amount PPF recovered (excl Premium)					0.40	0.80	1.00	1.40	1.60	1.80	2.00	2.00	1.80	1.6	1.20	0.40	16
FEF		0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.02					0.32
Premium					0.04	0.08	0.1	0.14	0.16	0.18	0.2	0.2	0.18	0.16	0.12	0.04	1.6
GEF non-grant disbursement		3		3			1										7
Balance in PPF Account soy		2.62	1.83	3.86	2.93	2.24	2.58	2.16	1.96	2.17	2.80	3.82	5.40	7.16	8.48	8.92	8.92
Minimum PPF account balance		1.83															1.83
Reflow to GEF																	8.92

Bear case (MS)	Recovery rate	FEI PPF investment period															Total
		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	
Recovery rate	60%																
Semester		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	
# projects supported		2	2	3	4	4	5	5	5	4	4	2					40
amount PPF disbursed		0.4	0.8	1	1.4	1.6	1.8	2	2	1.8	1.6	1.2	0.4				16
amount PPF recovered (excl Premium)					0.24	0.48	0.60	0.84	0.96	1.08	1.20	1.20	1.08	0.96	0.72	0.24	9.6
FEF		0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.02					0.32
Premium					0.024	0.048	0.06	0.084	0.096	0.108	0.12	0.12	0.108	0.096	0.072	0.024	0.96
GEF non-grant disbursement		3		3			4										10
Balance in PPF Account soy		2.62	1.83	3.86	2.75	1.71	4.61	3.58	2.67	2.09	1.84	1.98	2.77	3.82	4.62	4.88	4.88
Minimum PPF account balance		1.71															1.71
Reflow to GEF																	4.88

Results of sensitivity analysis	GEF invest'nt	Final Balance of PPF	Loss (profit)	Reflow rate
Base case	8.5	6.90	1.6	81%
Bull case	7	8.92	-1.9	127%
Bear case	10	4.88	5.1	49%

ANNEX E: Initial FEI pipeline provided by SEFA

#	Project	Country	Component 1 - Project Preparation	MW	Capex (USD m)	Apprv Date	SEFA Grant (\$)
			Description of the SEFA Project				
1	Nosy Be	Madagascar	Development of a 8MW PPP power generation complex at Nosy Be Island in Madagascar Press Release	8	35	01/13	987,000
2	Jumeme RPS (mini-grid)	Tanzania	Electrification of 16 rural communities with mini-grids powered by solar-diesel hybrid systems. SEFA supports the Financial Advisory, GIS and Village Verification. Press Release	5	22	12/14	420,000
3	Wave2O Desalination	Cabo Verde	Development and operation of a reverse-osmosis desalination plant powered solely by wave energy. SEFA support to implement the ESIA, site and technical feasibility studies Press Release	-	39	12/15	930,000
4	Mutunguru	Kenya	Development of 7.8-MW hydropower project that features an innovative community ownership structure Press Release	8	20	12/16	992,000
5	Oxygen Rooftop Solar	Zimbabwe	Cluster of 4 captive/off-grid Solar PV projects with 20 MW combined on various commercial real estate objects in Zimbabwe Press Release	20	32	04/17	965,000
6	Nord-Kivu HPP	DR Congo	2 mini-grids powered by small hydropower units for a combined 12 MW, to supply reliable power to a multitude of commercial customers in the towns of Beni and Butembo, North Kivu Province of DRC and connect 10,000 families	12	64*	06/17	923,000
7	Neo I Mafeteng Solar PV	Lesotho	Support the preparation of a bankable business case for the development of the winning project of the 2016 Lesotho 20 MW solar PV tender, and as such is foreseen to become the first utility-scale solar PV project in Lesotho	20	30	07/17	695.500
8	Kagunuzi Hydro*	Burundi	7.7MW grid connected SHPP (IPP – BOOT) to be built on the Kagunuzi river. The plant will be connected to the national transmission grid	8	32	-	1,000,000
9	Canopy*	Madagascar	Building and operating solar for local grid for Madagascar	20	25	-	1,000,000
10	Green Mini-Grids* Country Prog (ESSOR)	DR Congo	support for the mini-grid solar projects developed under the ESSOR program, in particular in finalizing feasibility studies, conducting ESIA, and other late development stage tasks to bring ESSOR's first three pilot projects to financial closure	15	20	-	1,000,000
11	Sao Tome – Mini Hydros*	Sao Tome	Create favourable conditions for private sector and/or PPP investment mini-hydro projects in Principe Island	4	6	-	1,000,000
TOTAL				120	261		9,913,000

*Projects 8 to 11 at appraisal stage, expected approval by end Q4 2017.