



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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PART I: PROJECT INFORMATION

Project Title:	Promoting Low Carbon Energy Solutions in Nigeria Energy/Power Supply		
Country(ies):	Nigeria	GEF Project ID: ¹	5345
GEF Agency(ies):	UNDP (select) (select)	GEF Agency Project ID:	5243
Other Executing Partner(s):	Federal Ministry of Power, Federal Ministry of Environment, Energy Commission of Nigeria, Nigerian Electricity Regulatory Commission, Transmission Company of Nigeria	Submission Date: Re-submission Date:	20 March 2013 09 April 2013
GEF Focal Area (s):	Climate Change	Project Duration (Months)	60 months
Name of parent program (if applicable): • For SFM/REDD+ <input type="checkbox"/> • For SGP <input type="checkbox"/>	N/a	Agency Fee (\$):	418,000

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK²:

Focal Area Objectives	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
CCM-3	GEFTF	4,400,000	167,000,000
Total Project Cost		4,400,000	167,000,000

B. INDICATIVE PROJECT FRAMEWORK

Project Objective: Increase the share of renewable power generation in Nigeria up to 10% by 2020 (excluding large hydro)						
Project Component	Grant Type ³	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
Component 1: Policy and institutional framework for private investment in on-grid renewable power generation	TA	Enabling policy and institutional framework for private investment in on-grid RE set up	<ul style="list-style-type: none"> RE policy and targets formulated and adopted Technical regulations for on-grid RE plants RE-favorable concession terms Provision for mandatory off-take of RE power from IPPs Standardized and simplified (PPAs) Training provided to federal and state institutions in charge of RES policy making and implementation (Ministry of Power, Energy Commission, NERC, Ministry of Environment, State Authorities) 	GEFTF	550,000	1,000,000
Component 2:	TA	Reduced financing	<ul style="list-style-type: none"> Risk assessment 	GEFTF	410,500	500,000

¹ Project ID number will be assigned by GEFSEC.

² Refer to the reference attached on the [Focal Area Results Framework](#) when completing Table A.

³ TA includes capacity building, and research and development.

Financial de-risking instruments for private investment in on-grid renewable power generation		costs for RE-based power projects	conducted and appropriate financial de-risking instrument designed			
	Inv		• Financial derisking instruments capitalized*	GEFTF	1,000,000	4,000,000
Component 3: Grid management to absorb intermittent but predictable renewable energy	TA	Improved grid stability to absorb RE intermittency	• Power system and technology needs assessment conducted • Optimal solution for RE integration selected • Training provided to grid operator on RE integration	GEFTF	500,000	
	Inv		• Best available technologies in grid balancing and RE integration demonstrated	GEFTF	230,000	10,000,000
Component 4: First commercial on-grid RE projects	TA	100 MW of additional RE-based power generation capacity	• Projects selected and fully prepared (technical, resource and economic assessment) • Agreements with financiers signed • Training provided on RE O&M	GEFTF	1,500,000	
	Inv		• Pilot investment project constructed and their performance monitored			150,000,000
Subtotal					4,190,500	165,500,000
Project Management Cost (PMC) ⁴				GEFTF	209,500	1,500,000
Total Project Cost					4,400,000	167,000,000

* The exact amount of GEF grant and co-financing for implementation of financial de-risking instruments will be assessed and justified at PPG stage, along with provision of letters of co-financing

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount (\$)
National Government	Ministry of Power, NERC, Ministry of Environment	In-kind	500,000
GEF Agency	UNDP	Grant	1,500,000
Bilateral Aid Agency (ies)	EU/GIZ	Grant	1,000,000
Financial Institutes	Nigeria Bank of Industry and other financial partners (tbd)	Tbd	4,000,000
Private Sector	TNC/Manitoba	Equity investment	10,000,000
Private Sector	IPPs	Equity investment	150,000,000
Total Cofinancing			167,000,000

D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

N/a

⁴ To be calculated as percent of subtotal.

E. PROJECT PREPARATION GRANT (PPG)⁵

Please check on the appropriate box for PPG as needed for the project according to the GEF Project Grant:

	<u>Amount Requested (\$)</u>	<u>Agency Fee for PPG (\$) ⁶</u>
• No PPG required.	-- 0--	--0--
• (upto) \$50k for projects up to & including \$1 million	_____	_____
• (upto)\$100k for projects up to & including \$3 million	_____	_____
• (upto)\$150k for projects up to & including \$6 million	130,000	12,350
• (upto)\$200k for projects up to & including \$10 million	_____	_____
• (upto)\$300k for projects above \$10 million	_____	_____

PPG AMOUNT REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES) FOR MFA AND/OR MTF PROJECT ONLY: N/A

⁵ On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

⁶ PPG fee percentage follows the percentage of the GEF Project Grant amount requested.

PART II: PROJECT JUSTIFICATION⁷

PROJECT OVERVIEW

A.1. Project Description. Briefly describe the project, including ; 1) the global environmental problems, root causes and barriers that need to be addressed; 2) the baseline scenario and any associated baseline projects, 3) the proposed alternative scenario, with a brief description of expected outcomes and components of the project, 4) incremental cost reasoning and expected contributions from the baseline , the GEFTF, LDCF/SCCF and co-financing; 5) global environmental benefits (GEFTF, NPIF) and adaptation benefits (LDCF/SCCF); 6) innovativeness, sustainability and potential for scaling up

Context/problem statement

Nigeria's power sector is responsible for 16 MtCO₂ emissions annually⁸. Power supply comes primarily (70%) from inefficient thermal power stations; the rest is generated by three large hydro power plants (with combined capacity of 1,900 MW), which is the only renewable source of electricity currently in use. On-going power market reform seeks to create favorable environment for private investment in the sector and reach the national Vision 20:2020 target, which envisages expansion of power generation capacity from current 6,000 MW up to 40,000 MW. Consequently, the power sector's annual emissions are projected to increase by up to 200 MtCO₂ by 2020.

Large-scale deployment of renewable energy (RE)-based power generation, in particular solar and wind, can help mitigate the negative impact of Nigeria's power sector on the global climate, while at the same time help achieve the national Vision 20:2020 target. Under the baseline scenario this is unlikely to happen.

Power market reform will establish open and transparent market conditions for ALL independent power producers (IPPs) by allowing them access and supply electricity to the national grid at cost-effective market tariffs. However, by leveling the playing field for all IPPs, the reform disadvantages RE power projects compared to conventional power producers⁹. The main reason for this is that RE power projects have a different financing profile with typically much higher upfront capital costs. This makes them more sensitive to the cost of capital, which in a country like Nigeria, is high due to additional informational, technical, regulatory, financial and administrative risks, which such projects entail.

The proposed UNDP-GEF project is designed to comprehensively address these barriers via a combination of policy and financial de-risking instruments and targeted technical assistance to key market players, the Governmental agencies, grid operator and RE project developers. In doing so, it is believed that the overall risk profile of such projects can be lowered, resulting in a lower cost of capital and therefore a greater chance to achieve financial closure and actual investment.

Objective: Increase the share of renewable power generation in Nigeria up to 10% by 2020 (excluding large hydro)

Component 1: Policy and institutional framework for private investment in on-grid renewable power generation

⁷ Part II should not be longer than 5 pages.

⁸ [World Bank Data Base](#)

⁹ For example, to boost initial private sector investment, [World Bank](#) provides partial payment guarantees to underpin PPAs with an initial batch of eight IPP projects (all fossil fuel based) for a total of 1 bln US\$.

Baseline: The National Electricity Power Policy & Electric Power Sector Reform Act 2005 (EPSR) establishes the policy and institutional framework for development of Nigeria's Electricity Market and power sector reform. EPSR required opening access to the grid on a nondiscriminatory basis to facilitate bilateral contracts between power producers and bulk consumers therefore enabling all Independent Power Producers (IPPs) to generate and supply power to the central grid, which is a key precondition for successful adoption of market-oriented RE policies. Power sector reform also envisages strengthening the framework for the generation of power through renewable sources of energy, such as wind and solar. However, the specific provisions of such framework, as well as the exact timeframe, are not elaborated yet, and without further support the elaboration of those specific provisions is likely to be delayed. Further, EC/GIZ is going to provide technical assistance for improvement of legal and regulatory framework to promote the use of RE and EE technologies and institutional capacity building at the federal and state level.

GEF-supported alternative: Component 1 will support the development and implementation of a national policy framework for scaling up on-grid renewable power generation. It is expected that the GEF-supported alternative will accelerate the adoption of RE policies and transition towards on grid RE, generating GHG reduction much earlier and at larger scale than under BAU. It will complement and build on two baseline initiatives, as follows:

- On-going WB-supported power sector reform promotes private sector investment in new generation capacity. The GEF-supported alternative will put explicit and additional emphasis on creating a conducive policy framework for private investment in *RE-based* power generation. This will include adoption of national/state-level RE targets, revisions of the Grid Code and other technical regulations to enable physical connection and power supply from RE plants to the grid, elaboration of RE-favorable concession terms, mandatory off-take of RE power from IPPs, and standardized and simplified power purchase agreement (PPAs) for RE producers.
- The scope of the EC/GIZ project is currently being defined and is much broader than the UNDP-GEF proposal: EC/GIZ's advisory services will cover the development of legal and regulatory framework to promote ALL types of RE (on-grid/off-grid) and EE technologies. To avoid duplication, the proposed GEF project will complement EC/GIZ work on development of the legal and regulatory provisions, and will mainly focus on facilitating its actual *implementation* (which is outside of EC/GIZ project scope and timeframe) and capacity building of all concerned national agencies to enforce and apply RE policies in practice.

Component 2: Financial de-risking instruments for private investment in on-grid renewable power generation

Baseline: Up until recently, Nigeria had some of the lowest power tariff in the world. For commercial IPPs, the revenue shortfall in the sector, resulting from sector inefficiencies and low tariffs, posed significant financial risks for the long-term sustainability and profitability of their investment. The recent reform process and new tariff regime put in place in mid 2012 guarantees full cost-recovery for all power generators, including, RE-based ones. To mitigate the impact of tariff increase, the Government has set up a N100 billion stabilization fund, which will partially subsidise the higher electricity costs for low-income consumers.

In line with its mandate, the Nigerian Electricity Regulatory Commission (NERC) announced the plans to establish a feed-in tariff (FiT) scheme for RE. NERC's 2012 Regulations for Embedded Generation specifically says that: " Feed-in-tariffs (FiTs) approved by the Commission shall be applied to energy produced by Renewable Energy Embedded Generators, and shall be fixed for a specific period, subject to periodic reviews and approvals by the

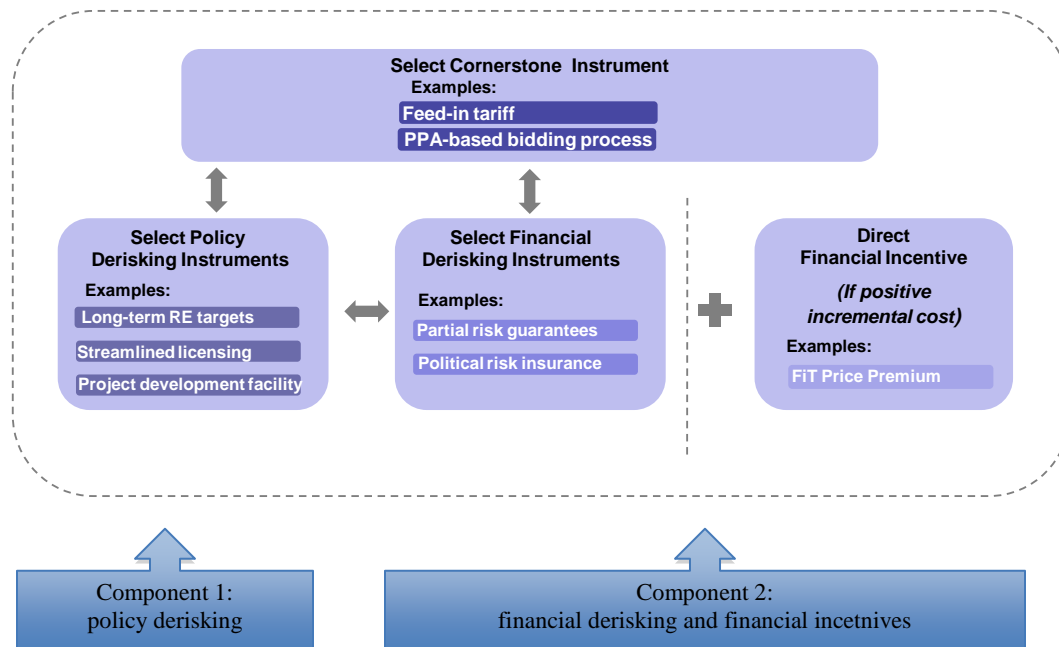
Commission”. However, NERC lacks understanding, vision and capacities to design and implement the FiT. The UNIDO-GEF project is assisting the Government with developing a justification for such scheme with relation to biomass-based power generation projects. In addition, UNDP in partnership with the Bank of Industry of Nigeria is implementing a technical assistance project helping RE developers with access to financing at affordable terms. The scope of this project has so far been on smaller/off-grid RE projects, but it can potentially be scaled up to cover larger on-grid investments.

GEF Alternative: Component 2 will support the design and implementation of the financial derisking instruments and provision of additional financial incentive (if proved needed) for private investment in on-grid renewable energy based power generation.

In the absence of GEF support, the Government won't implement any financial de-risking instruments to stimulate RE investment. In this situation, the provision of public subsidies via feed-in tariff will be prohibitively expensive for the public budget as the tariff will have to be set at much higher rates (compared, for instance, with developed countries) to create sufficient incentives and balance off higher risks of RE investment in Nigeria. In order to minimize the need for public subsidies and ensure that they are provided only to cover the residual risks, the GEF grant is required to help the Government identify, justify, and launch appropriate financial de-risking instruments. Without GEF support, this simply won't happen because the Government does not have the capacities to assess the risks of RE investment and devise cost-effective risk mitigation strategy and tools.

First, the project will seek to establish the most coherent economic profile of current power production system (i.e. the baseline to which RE will be compared over the next 20 year). It will also help raise awareness and understanding among relevant national partners about the various design aspects of a feed-in tariff as the proposed cornerstone RE policy instrument (e.g. alternatives and approaches to FiT design, lessons learnt, regulatory and institutional frameworks for FiT, power generation cost analysis, FiT models, tools and soft-ware). Also, the project will work with the Government and the World Bank to ensure that RE investors have access and can benefit from the existing financial de-risking instruments for power sector investors (such as WB-supported partial guarantee scheme). However, because RE projects have higher up-front capital requirements and risks, additional financial-de-risking instruments and incentives are needed to make them competitive vis-à-vis fossil fuel-based power generation projects. This justifies the need for additional GEF assistance to help identify and set-up such instruments.

In the second stage, the project will facilitate policy dialogue and identification of the most suitable FiT design option for Nigeria, as well as elaborate the required regulations, methodologies and decision-making tools for its adoption and implementation. The FiT scheme will be designed to cover in a non-discriminatory way all potential RES sources available in Nigeria and thus complement and build on the pilot FiT for biomass-based generation to be proposed by UNIDO. Also, the project will help estimate the need for a FiT price premium and identify potential sources of financing if such direct incentive is required. Finally, to mitigate additional risks faced by RE projects, which increase their financing costs and investment/return profile, the project will design and implement appropriate financial de-risking instruments (e.g. partial risk guarantee scheme in partnership with Nigerian Bank of Industry). The proposed integrated approach for addressing market barriers via a combination of policy and financial derisking instruments is illustrated below.



Component 3: Grid management to absorb intermittent but predictable renewable energy

Baseline: The Nigerian national grid together with the related infrastructure suffers from inadequate, aged and poorly maintained equipment. Nigeria currently has about 660 megawatts of “stranded electricity”, i.e. generated electric power that cannot be evacuated into the national grid because transformers and transmission lines required for the task have not been constructed. To address these deficiencies, the Government has engaged the Canadian company Manitoba, an experienced grid operator, under a management contract with the Transmission Company of Nigeria (TCN). Manitoba will invest 23.7 mln US\$ in improving efficiency of grid management, reducing electricity losses, and ensuring greater security and stability of the power system. However, integration of renewable energy sources, such as wind and solar, will pose bigger challenges and will require additional resources and capacities to balance and control supply and demand and ensure the adequacy of the network to absorb intermittent renewable power into the grid.

GEF-supported alternative: Component 3 will work with TCN and its new management company to improve grid management and support integration of intermittent renewable energy sources. In addition to investment planned by Manitoba, GEF resources will cover the following:

- Power system assessment and estimation of investment needs to ensure required level of grid stability and additional balancing and grid reinforcement cost for RE integration
- Capacity building for grid operator to operate and manage the absorption of decentralized, intermittent on-grid renewable energy, such as introduction of dedicated management tools and control system (on-line information of both the production and demand levels) and techniques for improved load forecasts and RE supply
- Revision of the Grid Code and other regulatory provisions to accommodate the needs of intermittent RE
- Demonstration of best available technologies and practices in grid balancing and RE integration, e.g. mini “smart grids”

Component 4: First commercial on-grid RE-based power generation projects

Baseline: There is currently no private RE grid-connected electricity generation in Nigeria, but quite a number of both small & large RE projects is being contemplated by potential developers, such as:

- 10 MW Wind project in Katsina State (Vergnet SA, France)
- 150 MW Solar PV project, several locations (Helios Energie GmbH, Germany)
- 100 MW Solar PV project in Bauchi State (Nigeria Solar Partners/Gigawatt Global, the Netherlands)
- 50 MW Solar PV in Kaduna City (Synergent Nigeria/Synergent Ventures, USA)

None of these projects, however, is sufficiently advanced to claim a commercial success or at least is at the advanced planning/implementation phase due to the existence of policy and market barriers as elaborated above.

GEF-supported alternative: Component 4 will facilitate design and implementation of a first batch of commercial on-grid projects for a total of at least 100 MW in installed RE-based power generation capacity. It is therefore will help overcome barriers and lower the perceived investment risks faced by first-of-its-kind RE projects. For any subsequent RE project, the perception of risk and barriers will likely to be much lower and won't require additional TA at the scale needed to get first projects off the ground. The experience of all countries with mature RE markets has demonstrated that learning curve for RE development is extremely steep and substantial "knowledge spillover" effect can be achieved with only a handful of successful pilots.

Component 4 is also meant to validate through real case implementation each of the activities proposed in the 3 previous components, namely: (i) technical specification, streamlined licensing, standardized PPA based on Feed-in Tariffs, etc. (ii) financial de-risking instruments, (iii) benefits from the grid improvements of component 3. At CEO Endorsement stage, proposed approach to implementation of pilot projects and their role in validating and reinforcing the outcomes of components 1-3 will be elaborated in detail.

Actual implementation of pilot projects will only start after delivery of main outputs under Components 1-3. However, pilot project preparatory activities, such as technical assessment, business planning and resource studies will be run in parallel with Components 1-3. In this respect, pilot projects, already at preparatory stage, will provide critical outputs and information for design of policy and financing de-risking instruments, grid enhancement options, etc, and therefore their preparation and implementation will be closely inter-linked with other components.

Also, an important element and outcome of the Component 4 will be learning-by-doing capacity development, whereby all actors, both public and private, will learn useful lessons and acquire the skills, which are essential for effective replication and scaling-up. The project will diligently monitor, summarize and codify these lessons learnt and knowledge and make sure they are widely available to all potential stakeholders.

Interested IPPs will be approached and expression of interest secured at PPG stage. The exact list of IPPs to be supported by UNDP-GEF will be identified via competitive selection process during FSP implementation (subject to the outcomes of policy and financial derisking components to be undertaken at first stage). A tailored technical assistance package to selected IPPs might include (depending on specific needs and barriers):

- Pre-feasibility, feasibility and design studies

- Resource assessment
- Access to financing (in partnership with Nigeria BoI)
- Facilitating PPA signature and other required approvals
- Quality control over construction
- Monitoring and documenting operational performance
- Training and capacity building for RE plant operation and maintenance.

At PIF development stage, a first expression of interest for such collaboration and assistance has been received from the Nigerian Solar Partners, a portfolio company of the Gigawatt Global, which is developing a 100 MW Solar PV project in the Bauchi State.

The project will also encourage small scale RE on-grid investment, typically individuals or group of individuals willing to install Solar Roofs with Photovoltaic panels, both in cities or in rural areas as an alternative to individual Diesel Generators. The potential for promoting individual roof PV will be identified during the PPG. The project will propose a similar technical assistance package than for large RE investor, but will seek to establish some agreements with local commercial banks to facilitate access to financing for interested individuals or group of individuals.

Global Environmental Benefits

The project will result in direct GHG emission reduction from pilot RE projects, which under baseline might occur much later, if at all. The total amount of GHG emissions from pilot projects are cca 80,000 tCO₂/year or about 1,6 mln tCO₂ over technology 20 years lifetime. The estimates are based on expected average power generation by pilot RE plants (100 MW) of at least 200 GWh/year and Nigeria's grid emission factor of 0.4 tCO₂e/MWh (As per [IEA 2012](#) estimates). GHG emission reductions attributable to GEF projects are conservatively estimated at 25% of the total, or 400,000 tCO₂. In other words, it is assumed that GEF support would accelerate RE market development and first commercial RE investment will occur 5 years earlier than under BAU.

In addition, the project will lead to additional GHG emission reduction indirectly by accelerating the adoption of RE policies and transition towards on grid RE, thus generating emission reduction much earlier and at larger scale than under BAU. Based on this assumption, two RE policy scenarios will be considered (BAU and with GEF support) and indirect GHG emission reduction impact estimated and presented at CEO Endorsement stage.

6) Innovativeness, sustainability and potential for scaling up

Innovativeness: Cost-effective risk reduction is at the core of the proposed UNDP-GEF project's strategy, which makes it highly innovative. The project will adopt a comprehensive market-oriented approach to assess and reduce risks of private investment in renewable energy in Nigeria in order to lower their financing costs vis-a-vis fossil fuel-based alternatives. The propose approach and methodology which enables risk quantification and selection of ideal policy-financing mix are described in a recent UNDP's report "Transforming On-Grid Renewable Energy Markets" (2012) and accompanying methodological guidance "Derisking Renewable Energy Investment. A Framework to Support Policymakers in Selecting Public Instruments to Promote Renewable Energy Investment in Developing Countries" (2013). The proposed project represents a first attempt to systematically assess, quantify and benchmark investment risks, as well as to use public resources to devise and deploy cost-effective risk reduction strategy thus both maximizing investors' return and the resulting global environmental benefits. The framework for identification and design of policy and financial de-

risking instruments is organised into four stages, as follows:

Stage 1 (Risk Environment) will identify the set of investment barriers and associated risks relevant to the renewable energy technology, and analyse how the existence of investment risks can increase financing costs (at PPG stage);

Stage 2 (Public Instruments) will select a mix of public derisking instruments to address the investor risks and quantify how they in turn can reduce financing costs. This includes the determination of RE policy target (e.g. in MW of RE), as well as the costs of selected public derisking instruments (at PPG stage)

Stage 3 (Levelised Cost) will determine the degree to which the reduced financing costs impact the renewable energy's life-cycle cost (LCOE). This will then be compared against the current baseline generation costs in the country (at PPG stage).

Stage 4 (Evaluation) will assesses the selected public derisking instrument mix using four performance metrics, as well as through the use of sensitivity analyses (at FSP implementation).

Sustainability: By adopting a strategy, which focuses first and foremost on reducing investment risks, the project is destined to make a long-lasting impact. Sustainability of project's outcomes will be based on the following provisions embedded in project design:

- RE-supportive policies will form an integral part of the broader Power Sector Reform package and roadmap which are being pursued by the Government under auspices of high-level Presidential Task Force on Power Sector Reform;
- No capital subsidies will be provided which could adversely impact on RE project investment profile and replication potential;
- The project will support selected national agencies in full compliance with their existing mandate and power of authority thus making sure that lasting institutional and human capacities are created for implementation of project-supported policy changes. Also, a suitable national counterpart (Governmental Agency, Association of RE Producers or an NGO) will be identified to gradually takeover the responsibility for provision of technical assistance, training and advice for IPPs and ensure continuation of project's efforts after its completion. A business model will be developed to ensure the selected entity has sufficient means to provide needed advisory support and assistance post-project, including securing commitments from the Government and/or other donors, as well as identification of a range of services and training packages which can be offered on commercial basis and/or against membership fee (e.g. in case of Association of RE producers);
- Sustainability and lasting impact of financial de-risking instruments will hinge upon their ability to lower the cost of financing for RE projects. Financial de-risking instruments will be designed in such a way as to achieve a sector-wide impact and lower down RE financing costs for ALL perspective RE projects and therefore eliminate or at least significantly reduce the need for additional financial de-risking after project completion.

Potential for scaling up: Nigeria has vast potential for harnessing renewable energy sources, especially solar energy. It can generate cca 480 TWh/day using only 0.1% of its land area, 20 times more that is currently being produced in the country. The potential for scaling-up on-grid RE in Nigeria is therefore tremendous, which is also seen from the investors' interest and appetite even at this, very nascent stage of market development. Achieving the established project target of 10% RE share or 4,000 MW by 2020 would represent a massive scaling-up of RE-based power generation potential, against current nearly zero MW baseline.

A.2. Stakeholders. Identify key stakeholders (including civil society organizations, indigenous people, gender groups, and others as relevant) and describe how they will be engaged in project preparation:

The project will involve a diverse range of public and private stakeholders (See Table below) whose involvement is essential because each partner has a distinctive mandate and a role to play in the area of power sector policy-making and operations, private sector engagement, promotion of renewable energy, and climate change mitigation. In order to ensure their proper involvement and coordination, a Project Steering Committee (PSC) will be formed consisting of representatives of all relevant agencies listed in the Table plus selected CSOs and NGOs. PSC will be a key project’s monitoring and governing body, executing coordinative functions and providing political support to the Project. PSC will be chaired by the Federal Ministry of Environment, as the GEF political and operational focal point, and the UNFCCC focal point.

Table 1:

Stakeholder	Status/Role in the project
Presidential Task Force on Power	Inter-agency body: integration of RE-supportive policies in the Power Sector Reform Package and Roadmap
Federal Ministry of Power of Nigeria	National agency: RE-favorable policy framework for power sector reform
Energy Commission of Nigeria	National agency: Technical regulations for RE
National Nigerian Electricity Regulatory Commission	National agency: Design and implementation of FIT
Ministry of Environment	National agency: overall coordination, including with national climate change policies, plans and targets, RE resources assessment, monitoring and reporting on project results and impacts (GHG emissions)
Nigerian Bank of Industry	Financial institution: access to financing for IPPs
Transmission Company of Nigeria	Public company: improving grid management
TNC Management Company, Manitoba	Private company: improving grid management
Independent Power Producers	Private sector: implementation of RE projects
Local commercial banks	Financial institutions: financing for RE projects
Community Research and Development Centre (CREDC)	NGO: CREDC has been active in promoting energy efficiency and RE technologies. CREDC will provide technical support to the project and also ensure the civil society inputs in its design and implementation
International Centre for Energy, Environment and Development (ICEED)	NGO: ICEED been involved in designing and promoting clean energy technologies and policies. ICEED will provide technical support to the pilot project design and also help solicit civil society’s inputs in the design of the RE policies.
Local NGOs and CSOs from pilot sites	Public participation and awareness raising among local communities

For implementation of specific project components, technical teams will be formed under the leadership of relevant sectoral agencies and organizations, as follows (this is preliminary structure to be finalized at PPG stage):

Component 1: Presidential Task Force on Power and Federal Ministry of Power of Nigeria will take the lead in devising and enforcing the required RE-favorable policy framework and incorporating respective provisions in the power sector reform process. This is fully in line with Task Force’s and Ministry’s policy-making mandate. Other relevant agencies and partners will be invited to participate and contribute.

Component 2: National Nigerian Electricity Regulatory Commission (NERC) will be main project’s counterpart for assessing and establishing financial de-risking instruments. Power tariff setting falls directly under the NERC’s area of work and responsibilities.

Component 3 will be executed in close partnership with the Transmission Company of Nigeria (TCN), owner and operator of the national grid.

Component 4 will be led by the Ministry of Environment, which will in turn ensure coordination with and involvement of the relevant state and federal authorities, as well as many other actors from private and public domains. The Ministry of Environment will also be directly involved in such aspects of pilot projects, as preparation of renewable energy resource assessments, monitoring of project's performance, including GHG emission reductions.

Each technical team will be supported in its work by external national and international experts and organizations to be contracted based on pre-agreed TORs and work plans.

A.3 Risk. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable):

<i>Risk Description</i>	<i>Risk Rating</i>	<i>Mitigation Strategy</i>
<p>Political instability</p> <p>Although there is currently a strong political will and commitment to tackle the electricity access challenges in Nigeria, political instability or a change of government could lead to potential policy reversals that may impact the energy policy and discourage private investment.</p>	Medium	Adoption of appropriate policy and regulatory changes will be assured through involvement of the stakeholders concerned at the highest possible political level, such as the Presidential Power Sector Task Force. The Task Force has played instrumental role in leading the process of power sector reform since 2005 and its efforts has been highly praised by the Government, international partner and private sector. The Task Force and its key members will be closely involved in project design and implementation to secure political commitment, buy-in and integration of the RE policies in the national power market reform agenda, which is under direct supervision of the President.
<p>Economic risks</p> <p>International oil prices are expected to continue fluctuating with a progressive tendency to the high as global oil reserves keep rarefying. Many of the renewable energy solutions proposed in this project are therefore not expected to become economically competitive compared to baseline energy sources.</p>	High	Unless appropriate policies and regulations, supported by financial de-risking mechanisms and incentives are introduced and enforced, RE will not be able to compete with fossil fuel based power generation in Nigeria. Component 2 of this project therefore aims precisely at achieving these goals and leveling playing field for RE.
<p>Technical risks</p> <p>Technical risks exist that the introduced renewable energy solutions fail to be viable for electricity generation in Nigeria, especially in the situation of poor grid stability and reliability of transmission</p>	Medium	Component 3 of the project was designed to address this risk and will identify a range of measures required for smooth integration and operation of RE-power plants within Nigerian grid. Also, Component 4 will help better understand the nature of technical risks and adequacy of domestic supply chain and O&M capacities for RE-plants construction and operation. The involvement of experienced international IPPs and RE developers throughout the project, as well as NGOs, like CREDC and ICEED, will help mitigate technical risk.
<i>Climate Change risk</i>	Medium	

<p>Climate change is expected to change Nigeria's biomass production, accelerate land degradation, and modify the hydrological systems. Also, the temperature increase will lead to higher power demand.</p>		<p>Among all available RE sources in Nigeria, hydropower will likely to be most negatively affected by changing climate. The project will therefore put more emphasis on promoting other RE sources, solar and wind, which are less likely to be affected by climate change and therefore represent a viable climate adaptation alternative to Nigerian power sector (which currently depends by 30% on hydro power generation). Other potential impacts will be assessed in detail during the preparatory stage, and appropriate measures will be identified for incorporation of adaptation measures in the investment program.</p>
<p>Security risk</p> <p>Political tensions in the Niger Delta between the foreign oil corporations and a number of ethnic minorities seeking a share of the oil profit have led to numerous violent attacks towards the oil infrastructures and staff in the last 20 years. Risk exists that a similar situation happens to renewable energy installations developed within or following this project.</p>	<p>High</p>	<p>While it is not feasible to fully mitigate security risk within the framework of the proposed project, appropriate arrangements and precautionary measures will be taken during project design and implementation. First of all, full participation of local communities in pilot sites will be ensured to raise their awareness and secure buy-in for the proposed RE projects. Local NGOs and CSOs will be mobilized to lead this process.</p>

A.4. Coordination. Outline the coordination with other relevant GEF financed and other initiatives:

The proposed GEF project will work closely with the EC/GIZ project supporting the development of the legal and regulatory provisions for RE/EE. Coordination arrangement and distribution of activities will be agreed upon at PPG stage and provided at the CEO Endorsement document (EC/GIZ work plan is currently being worked out)

UNDP-GEF project will complement and build on the results of on-going UNIDO-GEF project "Mini-Grid Based on Renewable Energy Sources to Augment Rural Electrification". UNIDO will be completed by the time the proposed project is likely to start (2015) and will provide useful background information on the costs of RE-based (biomass) power generation and experience from pilot biomass plant.

Finally, the proposed project will build upon the results and lessons learnt from the earlier GEF-supported World Bank-implemented project "Rural Electrification and Renewable Energy Development" (completed in 2011), which supported implementation of pilot off-grid RE projects in rural location. Project final report states that in the absence of comprehensive public policies to promote RE, their scaling-up is not possible. In this context, the focus of the proposed UNDP-GEF project on policy and financial de-risking is fully justified and consistent with WB recommendations.

Description of the consistency of the project with:

B.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSAs, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.:

Nigeria's Initial National Communication to UNFCCC identified energy sector as the main

source of GHG emissions in the country (63%) and proposed promotion of renewable power sources among the key and most effective mitigation measures.

The proposed project was identified and prioritized in the course of Nigeria's National Portfolio Formulation Exercise. It is recorded in the National Portfolio Document under the title "Deployment of Sustainable Energy Solutions in Nigeria/Promoting Low Carbon Energy Solutions in Nigeria Energy Supply" with UNDP listed as GEF Agency for the project.

B.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities:

This project complies with the GEF focal area strategy to mitigate CC, in particular Objective 3 ("Promote investment in renewable energy technologies"), by fostering the production, transmission and use of renewable energy at the national and local levels. In particular, this project promotes and facilitates the switch from fossil-fuels to the various renewable energy technologies such as solar, wind, hydro or renewable biomass energy and electricity, thus contributing to a drastic reduction of CO₂ emissions from Nigeria's power sector.

B.3 The GEF Agency's comparative advantage for implementing this project:

UNDP has implemented over 230 GEF clean energy projects in close to 100 developing countries, and has acquired a unique base of institutional knowledge on transforming renewable energy markets in developing countries. One of UNDP-GEF's three signature climate mitigation programs – Clean Energy – specifically promotes access to clean and affordable energy supply. Two recent UNDP publications on de-risking renewable energy investment environments ('Transforming Renewable On-Grid Energy Markets' and 'De-Risking Renewable Energy Investment') summarize UNDP's empirically- and theoretically-robust 'theory of change' for catalyzing private-sector renewable energy investment. With specialized staff devoted to energy, finance, NAMAs and carbon mechanisms, UNDP is one of very few international organizations with the understanding of national conditions and priorities (backed by its global network of 129 Country Offices), renewable energy sectoral expertise and instrument design experience to be able to design and implement such a program.


The project is also in line with the United Nations Development Assistance Framework in Nigeria. UNDAF aims at reducing poverty, the degradation of basic social indicators, and setting the country on a pathway to sustainable development. The two first priorities of the UNDAF are: (i) governance and accountability that supports transparent, equitable and effective use of resources; (ii) productivity and employment for wealth creation with a bias towards the poor and to help build a private sector-led non-oil economy.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

- A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):** (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Momoh Tahir ABU	Director/GEF OFP	FEDERAL MINISTRY OF ENVIRONMENT	13 FEBRUARY 2013

- B. GEF AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
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