



GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: Medium-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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PART I: PROJECT INFORMATION

Project Title: Leapfrogging Sudan's markets to more efficient lighting and air conditioners			
Country(ies):	Sudan	GEF Project ID: ¹	9083
GEF Agency(ies):	UNDP (select) (select)	GEF Agency Project ID:	5674
Other Executing Partner(s):	Ministry of Water Resources, Irrigation and Electricity (MWRIE) – Electrical Regulatory Authority (ERA)	Submission Date:	June 13, 2018
GEF Focal Area (s):	Climate Change	Project Duration (Months)	48 months
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input checked="" type="checkbox"/> IAP-Food Security <input type="checkbox"/>	Corporate Program: SGP <input type="checkbox"/>	
Name of Parent Program	Leapfrogging markets to high efficiency products (appliances, including lighting, and electrical equipment)	Agency Fee (\$)	159,300

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES²

Focal Area Objectives/Programs	Focal Area Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Co-financing
CCM-1 Program 1	Policy, planning and regulatory frameworks foster accelerated low GHG development and emissions mitigation	GEFTF	1,770,000	5,606,000
Total project costs			1,770,000	5,606,000

B. PROJECT DESCRIPTION SUMMARY

Project Objective: To transform Sudan's markets for energy efficient (EE) lighting and air-conditioners and thereby providing climate change mitigation benefits and decreased energy poverty.

Project Components/ Programs	Financing Type ³	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Confirmed Co-financing
Component 1: Development of a national strategy to advance energy efficiency in lighting and air conditioners as part of the National Energy Efficiency Action plan (NEEAP)	TA	Outcome 1.1: National strategy for energy efficiency in the lighting and air conditioning sub-sectors is developed and adopted following a consultative process.	1.1.1. Strategic goals of relevance to lighting products and air conditioners under the NEEAP are defined, and a work plan to achieve them is developed in accordance with the integrated policy approach recommended by the United for Efficiency (U4E) initiative. 1.1.2. All actors working on project EE sector are identified, with description	GEFTF	114,200	400,000

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](#) and [CBIT programming directions](#).

³ Financing type can be either investment or technical assistance.

			<p>of their roles, mandates, and responsibilities in implementing the key tasks of the work plan.</p> <p>1.1.3. Consensus is achieved by all energy stakeholders and policymakers on the goals, work plan, timeline, and the responsibility of each party in transforming the markets for EE lighting and air conditioners.</p> <p>1.2.1. A focal point is operating, with official representations in the different ministries involved in the implementation of the NEEAP, collection and analysis of supplier-end data, sales data, and electricity consumption data, etc.</p>			
<p>Component 2: Adoption of regulatory mechanisms directing the market towards energy efficient lighting products and air conditioners, including minimum energy performance standards (MEPS), labeling scheme, testing and importing procedure</p>	TA	<p>Outcome 1.2: ERA is capacitated as a focal point responsible for promoting and overseeing all activities related to energy efficiency in Sudan.</p> <p>Outcome 2.1: Internationally recognized regulatory mechanism is adopted, and the corresponding MEPS, label classification, energy performance test protocol, and import-related procedure are localized to be suitable for Sudan.</p> <p>Outcome 2.2: Provide technical support for the identification and development of an appropriate</p>	<p>2.1.1. Economic and financial cost/benefit analysis is performed, to determine the appropriate level of regulatory measures for the residential, governmental and commercial sectors, including assessment of benchmark mechanisms, and suitability for adoption in Sudan.</p> <p>2.1.2. MEPS legal framework has been selected, localized, and adopted, including the accompanying labelling scheme and test procedure/certification.</p> <p>2.1.3. Compliance checking on imports and pre-export inspections are integrated in import regulations.</p> <p>2.2.1. Financing mechanism is developed and implemented.</p>	GEFTF	244,200	800,000

		financial mechanism to promote energy efficiency in lighting and air conditioning.				
Component 3: Adoption of monitoring, verification, and enforcement (MVE) system, to ensure that products in the market comply with the established MEPS	TA	<p>Outcome 3.1: Internationally recognized MVE programme is established, and adopted by trained personnel.</p> <p>Outcome 3.2: Mechanisms for collection of market data are in place.</p>	<p>3.1.1. Establish and implement an effective MVE programme using the six guidance notes developed under the U4E initiative.</p> <p>3.1.2. In collaboration with technical experts from the U4E initiative, the personnel to be involved in the implementation of the MVE system across all relevant public stakeholders are trained and equipped with the tools necessary to ensure enforcement of the MEPS and associated regulations.</p> <p>3.1.3. In collaboration with technical experts from the U4E initiative, the developed testing protocol, including identification of appropriate in-country and out of country testing and certification is implemented.</p> <p>3.2.1. Supplier, distributor and retailer surveys undertaken at the end of project, to assess how much purchasers overcome the higher initial purchase price of energy efficient products.</p> <p>3.2.2. Household and business surveys undertaken at end of project to verify cost savings from adoption of new technologies.</p>	GEFTF	578,400	1,850,000
Component 4: Awareness-building of the new MEPS and regulatory mechanism	TA	Outcome 4.1: Increased capacities of local supply chain stakeholders and end users to comply with new	4.1.1. End users are aware of the benefits of energy efficient lighting products and air conditioners, understand the benefits of appliance efficiency, and recognize the labels when	GEFTF	536,915	1,800,000

		MEPS and to bring energy efficient products to the market at competitive and affordable prices.	they see it. 4.1.2. Governmental agencies, local distributors, and retailers integrate the labels and product-certification in advertisement campaigns and marketing material for lighting products and air conditioners.			
Component 5: Enhancing environmentally sound management of lighting products and air conditioners	TA	Outcome 5.1: Reduction/minimization of leakage of hazardous materials to the environment by reducing the input.	5.1.1. Life-cycle assessments for lighting products and air conditioners are carried out to identify products containing hazardous material, and develop a national end-of-life appliance management plan, in line with global best practices and the recommendations of U4E initiative. 5.1.2. In collaboration with technical experts from the U4E initiative, the end-of-life management plan is integrated in the national strategy for EE, the regulatory mechanism, the MVE programme, and the awareness campaigns undertaken as part of this project, where the key tasks of relevance to end-of-life management are assigned to the relevant authorities. 5.1.3. Communication campaigns are delivered to stakeholders to raise awareness on proper disposal of used products and the incentives/penalties developed in the new regulations.	GEFTF	212,000	500,000
Subtotal					1,685,715	5,350,000
Project Management Cost (PMC) ⁴				GEFTF	84,285	256,000
Total project costs					1,770,000	5,606,000

⁴ 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.

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	UN Environment (formerly UNEP)	Grants	50,000
Recipient Government	Ministry of Water Resources, Irrigation and Electricity (MWRIE)	Grants	1,000,000
Recipient Government	Electricity Regulatory Authority (ERA)	Grants	1,000,000
Recipient Government	Sudanese Standards and Metrology Organization (SSMO)	Grants	2,756,000
Recipient Government	Sudanese Electricity Distribution Company (SEDC)	Grants	200,000
Recipient Government	Sudanese Thermal Power Generation Company (STPG)	Grants	200,000
Recipient Government	Merowe Dam Electricity Company (MDEC)	Grants	200,000
CSO	National Lighting Test Center (NLTC), China	In-kind	200,000
Total Co-financing			5,606,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA 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
UNDP	GEF TF	Sudan	Climate Change	(select as applicable)	1,770,000	159,300	1,929,300
Total Grant Resources					1,770,000	159,300	1,929,300

a) Refer to the Fee Policy for GEF Partner Agencies

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS⁵

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)	<i>1.22 million metric tons</i>
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? No

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

⁵ 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 PIF⁶

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 area⁷ 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, CBIT and [co-financing](#); 5) [global environmental benefits](#) (GEFTF) and/or [adaptation benefits](#) (LDCF/SCCF); and 6) innovativeness, sustainability and potential for scaling up.

BASELINE SCENARIO (PROBLEMS AND BARRIERS):

At present, there are no energy related standards utilized for electric products in the Sudanese market. Lighting products and air conditioners in Sudan are neither tested for compliance with MEPS nor are there regulations to control the import of energy efficient products. No testing laboratories for electrical appliances are available in the local market.

Although there is a National Energy Efficiency Action plan (NEEAP) in place, the implementation of the measures concerned with reducing electricity consumption in the residential and government sectors is facing several barriers:

- None of the stakeholders acts as a national coordinating agency on EE initiatives
- There is no specific strategy/workplan developed for the lighting and air conditioning sub-sectors.
- The market is dominated by inefficient window-mounted air conditioning (A/C) and inexpensive but also inefficient incandescent light bulbs (60-100W).
- There is general lack of public awareness by end-users and energy stakeholders of the benefits of energy efficient lighting products and air conditioners.

PROPOSED ALTERNATIVE SCENARIO:

The main objective of the project is to transform Sudan's market for energy efficient (EE) lighting and air conditioners, and thereby providing climate change mitigations benefits and decreased energy poverty. To achieve this objective, there is a critical need for the introduction of appropriate regulatory mechanisms – including Minimum Energy Performance Standards (MEPS), as well as an accompanying Monitoring, Verification, and Enforcement (MVE) system.

The transition to a market for EE lighting and air-conditioning products also requires financial incentives to end-users and distributors, as well as awareness raising on both levels. Furthermore, the transition must also be done in the context of enhanced environmentally sound management, particularly in regards to reduction in the use of hazardous materials in lighting and air conditioners; and establishing a system in place to collect, recycle and/or responsibly dispose of lighting products and air conditioners that contain hazardous materials.

The following are the five components constituting the proposed scenario to be implemented over four years:

- 1- Development of a national strategy to advance energy efficiency in lighting and air conditioners as part of the National Energy Efficiency Action plan (NEEAP)
- 2- Adoption of regulatory mechanisms directing the market towards energy efficient lighting products and air conditioners, including minimum energy performance standards (MEPS), labeling scheme, testing and importing procedure
- 3- Adoption of monitoring, verification, and enforcement (MVE) system, to ensure that products in the market comply with the established MEPS
- 4- Awareness-building of the new MEPS and regulatory mechanism

⁶ 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.

⁷ 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..

5- Enhancing environmentally sound management of lighting products and air conditioners.

Description of the outcomes, outputs and activities under each component is presented under Section IV of the Agency Project Document (pages 18-24)

INCREMENTAL COST REASONING:

Electricity tariffs in Sudan vary by sector and consumption. There are neither special tariffs encouraging rational use of energy, nor time-differentiated price structure to encourage consumption shifting from peak hours. The cost of subsidizing electricity has been increasing gradually since 2011. It jumped from 623.27 Million SDG in 2013, to 2,459.72 Million SDG in 2014 due to the rise in thermal generation capacity (an increase equivalent to 302.19 Million USD).

In 2011, a study was conducted to analyze electricity consumption patterns in urban households in Sudan. The result estimated that 51% of the total electricity consumption is consumed by the residential sector, 15% by the commercial and services sector and 13% by the government sector. Another study was conducted to analyze the share of each appliance in the overall consumption in the different sectors in Sudan. The result indicated that the combined consumption for lighting and air conditioning comprises 50% of the consumption in the residential sector, 80% in the commercial sector and over 90% of electricity consumption in the governmental sector.

In light of the above, the reduction in electricity consumption resulting from the use of energy efficient products in lighting and air conditioning is expected to result in incremental cost saving for end users (lower monthly bills and less capital invested in products with shorter life span), as well as for the Government of Sudan (in the form of a reduction in the overall cost of subsidy). In addition, efficient lighting and air conditioning could significantly increase the utilization of available power without having to build expensive generation facilities, and reduce the cost of waste management and disposal of less efficient products.

The first output under component 2 is concerned with performing an “Economic and financial cost/benefit analysis, to determine the appropriate level of regulatory measures for the residential, governmental and commercial sectors, including assessment of benchmark mechanisms, and suitability for adoption in Sudan”. When performing the analysis, the project team is advised to follow the guidelines offered in the manual for the Economic Evaluation of Energy Efficiency and Renewable Energy Technologies, developed by National Renewable Energy Laboratory (NREL). It is also recommended that the study involves a comparison between the financial returns resulting from allocating the electricity subsidies on reducing tariffs verses reducing the cost of energy efficient products in the Sudanese market

PROJECT FINANCE AND GHG REDUCTION:

The project is planned to received USD 1,770,000 from GEF Trust Fund. The amount is predicted on the delivery of climate change mitigation as one of its global environmental benefits.

The project is estimated to result in 1,224,461 tCO₂ reductions during its lifetime, i.e. the cost of GEF fund is US\$1.45/tCO₂ reduction. The mitigation will be achieved through improved energy efficiency.

In addition, the project is planned to receive USD 5,606,000 of parallel co-finance. The summary of co-financiers and their planned contributions is presented in Part I, Section C of this document. Letters of co-finance are presented in Annex I of the Agency Project Document.

BENEFITS AND POTENTIAL FOR SCALING UP:

The project aims to reduce GHG emissions through efficient use of electricity. It also dedicates a component for enhancing environmentally sound management system for wastes, further promoting environmental sustainability.

Scaling-up of the project outcomes and outputs will be influenced by three main factors:

- Financial competitiveness: If the subsidies on electricity are reduced or lifted, the purchase of energy efficient products would become considerably more economical than the use of cheaper non-efficient products.
- Access to efficient products: Due to currency fluctuations, the price of imported products may increase beyond the gains resulting from using energy efficient products. Attractiveness to individual end users would be reduced, and distributors will lose incentive to supply high-end products to the market.
- Institutional framework: The project relies on the adoption of mandatory MEPS. In case the standards could not be regulated or there becomes lack of capacity for enforcement of the developed regulations, project implementation, sustainability and scaling-up will be at risk.

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

Leapfrogging Sudan's markets to more efficient lighting and air conditioners is a child project. It is part of the "National child projects on energy efficiency", which is a program component of GEF Program ID No. 9083, titled "Leapfrogging markets to high efficiency products (appliances, including lighting, and electrical equipment)".

The parent programme is designed to include eight national child projects in Chile, Costa Rica, Indonesia, Kazakhstan, Myanmar, South Africa, Sudan and Tunisia, as well as a global child project aiming to increase capacity of 15 countries' officials to develop and implement projects and policies to advance energy efficiency of lighting, appliances, and equipment. The project is to be implemented under the UNEP Efficient Appliances Global Program Framework Document (PFD).

The fund to the programme is provided under GEF focal area of Climate Change. The overall objective of this child project is to reduce Greenhouse Gas (GHG) emissions. The components, outcomes, outputs and activities are designed to achieve this objective and are inline with the overall objective of the parent programme.

A.3. Stakeholders. Identify key stakeholders and elaborate on how the key stakeholders engagement is incorporated in the preparation and implementation of the project. Do they include civil society organizations (yes /no)? and indigenous peoples (yes /no)?⁸

The project aims to involve stakeholders that represent the government, private sector and civil society, including: government standards and test agencies; customs; standardization institutes; certification and accreditation bodies; test laboratories; manufacturers; suppliers and distributors of lamps; technology research institutes; and consumer organizations.

The main stakeholders involved in carrying out the activities of this project are:

- Ministry of Water Resources, Irrigation and Electricity (MWRIE);
- Electricity Regulatory Authority (ERA), under MWRIE;
- Sudanese Standards and Metrology Organization (SSMO);
- Sudanese Electricity Distribution Company (SEDC);
- Ministry of Foreign Trade;
- Sudan Customs Authority, under the Ministry of Interior;
- Sudan National Information Center (NIC)

Other target groups and potentially affected groups by the project include:

- Manufacturers and distributors of lighting products and air conditioners;
- End-users of lighting products and air conditioners.

⁸ As per the GEF-6 Corporate Results Framework in the GEF Programming Directions and GEF-6 Gender Core Indicators in the Gender Equality Action Plan, provide information on these specific indicators on stakeholders (including civil society organization and indigenous peoples) and gender.

- Institutions in charge of gender issues at national level such as: Ministries with gender components in their mandates, the gender focal point for the Ministry of Energy, civil society organizations working in the fields of gender and climate change as well as research institutions and development partners working on gender issues.

In addition to the the responsibility of MWRIE towards project management and governance (described under Section VIII of the Agency Project Document), and the focal point to be established within the ministry (under ERA), MWRIE will also be responsible for maintaining continuous engagement of stakeholder for ensuring that target group sand potentially affected communities are aware of, and have access to, mechanisms to submit concerns about the social and environmental impacts of the project.

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. In addition, 1) did the project conduct a gender analysis during project preparation (yes /no)?; 2) did the project incorporate a gender responsive project results framework, including sex-disaggregated indicators (yes /no)?; and 3) what is the share of women and men direct beneficiaries (women X%, men X%)? ⁹

The population in Sudan is split almost evenly in terms of gender. Data for 2015 show that of the population of 38.44 million 50.7% are males while 49.3% are females. Urban communities represent about 36% of the population while 64% live in rural areas. The ratio of males to females in urban and rural communities is the same.

UNDP CO in Khartoum contracted an independent consultant to undertake a gender mainstreaming study. The main objective of the study was to explore the dynamics of how different resources that are generated with or which come into the household, are accessed and controlled by its members. The study also aimed to recommend suitable measures to be undertaken during project implementation, to ensure the inclusion and engagement of women in the different phases.

The study was completed in December 2016, and included the following conclusions/recommendations:

- Integrating gender into project cycle is strategic to development, and make women participate in the assessment, action and monitoring and evaluation of the project, by considering them as main partners and not passive beneficiaries.
- Mobilization of local community, women in particular around their strategic needs lead to improve their social and economic status, and this will be realized by training them on energy saving and efficient technologies.
- Creation of small scale income generating projects will increase productivity and alleviate poverty.
- To address the identified gaps, minimize gender inequality and empower women to maximize energy efficiency.
- Energy policies and programming should address intra household resource allocations and power relations so as to promote gender equality.
- Increase women access to new technologies, e.g. radios and televisions could promote women empowerment.

The above remarks were taken in consideration during the design of the project. During implementation, efforts will be made to have acceptable gender representation in project management structures (committees, institutional frameworks) and capacity building actions (trainings, workshops, etc) under this project. Furthermore, specific actions and project design analysis of gender equality and women's empowerment in the Sudanese energy context will be considered during the monitoring and evaluation stages.

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):

The most critical risk identified is the currency risk. It ranks high in probability and impact, in case of occurrence, i.e. if the local currency falls against international currencies the price difference between energy efficient goods and less

⁹ Same as footnote 8 above.

efficient goods is magnified. The proposed mitigation measure involves the establishment of a financing mechanism with the electricity distribution company.

While their probability is low, but regulatory risks carry the most severe impact on the project. Unless the MEPS and regulatory mechanism are in place, the project will not achieve the desired output. Mitigation measures is part of the project structure, where the issuance of regulations are planned as regulations not as law.

Other operational, organizational and political risks are also identified, with proposed mitigation actions to avoid their occurrence and/or minimize their impact on the project. A detailed assessment of the risks and assumptions is presented under Section IV of the Agency Project Document (pages 25-26).

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 project will be implemented under the UNEP Efficient Appliances Global Program Framework Document (PFD). The lead GEF agency will be UNDP. The project will be executed by the Electricity Regulatory Authority (ERA) Sudan with support from the Sudanese Electricity Distribution Company (SEDC), the Sudanese Standards and Metrology Organization (SSMO), and the Ministry of Oil and National Energy Research Center. ERA will take a lead role in the implementation of the project activities.

The national project steering committee will be composed of the ERA, SEDC, SSMO, UNDP and UNEP. International project partners, including international organizations, global manufacturers, and utilities, will support the project to achieve its objectives. This support will come in the form of in-kind financing such as expertise on establishing levels of MEPS; implementing collection and recycling schemes; training on market surveillance activities; and the development and execution of financing mechanisms.

On the national level, UNDP/GEF is implementing several other CCM projects in Sudan in the energy sector, including projects on wind energy, promoting solar energy in Darfur Region and Solar PV pumping for irrigation.

Regionally, the project will closely coordinate with and learn from the UNDP/GEF Egypt Project Improving the Energy Efficiency of Lighting and Building Appliances (PIMS 4231) which is facilitating a comprehensive market transformation of the Egyptian market towards the use of more energy efficient electric appliances at a level where cost-efficiency is proven. This is being done through the combination of regulatory tools such as minimum energy performance standards (MEPS) and information labels, enhanced public awareness, capacity building and attractive financing mechanisms. The project has strengthened the regulatory and institutional framework, develop monitoring and enforcement mechanisms, and provide training to public authorities and other relevant stakeholders.

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 main objective of the project is to transform Sudan's market for energy efficient (EE) lighting and air conditioners, and thereby providing climate change mitigations benefits and decreased energy poverty. There are two types of activities proposed for project implementation:

- Top-Down Activities: Developing the institutional framework

Tackling the cornerstones of creating a suitable regulatory framework able to address the existing, and anticipated, obstacles in the implementation of the NEEAP starts with identification/development of the MEPS to be used to classify products as efficient or non-efficient, and building the capacity for monitoring, in terms of equipment and personnel, to enable product testing. In parallel, appropriate legislation shall be developed and gazetted, while the capacity for monitoring, verification and enforcement (MVE) of the developed legislations is built and structured within the existing framework of energy products' trading in Sudan.

- Bottom-Up Activities: Awareness raising

The transition to efficient lighting and air conditioners will achieve benefits at both the public utility and the consumer level. It is crucial for end users to understand the benefits of EE products before they find the products most commonly used either prohibited from entering the country (per importing legislation), or available at higher prices (due to taxation or additional customs).

Similarly, the private-sector is a stakeholder in the project and shall be considered key in the success of the market shift to EE products. Capacity building sessions will be held for the different tiers of manufacturers and distributors, educating them on the new MEPS, and how to comply with the regulations. The sessions could also introduce internal training plans aiming to raise the performance level of sales people in direct interaction with consumers, and consequently, allowing for higher sales value of EE products.

Merging the above types is expected to result in an environment which is well-cultivated for accommodating energy efficient appliances, which would result in reduced energy consumption in lighting and air conditioning. Reducing power consumption is estimated to achieve an accumulated power saving for Sudan. This potential saving will result in an annual emissions reduction, hence, contributing to achieving global environment benefits in the area of climate change.

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.

In accordance with GEF guidelines, results from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the project. The project will identify, analyse and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.

In terms of South-South and Triangular Cooperation (SSTC), the project involves:

- Collaboration within the UN system, where it builds upon the technical experience of both UNDP and UNEP in the field of energy efficiency, as well as their regional experience in Africa; and
- Collaboration between developing countries and sharing of experience among the partners, e.g. building upon the lessons learned and replication of success factors.

Furthermore, the project design (detailed above) bases several components on the guidance and recommendations of UNEP GEF en.lighten initiatives, which was showcased at the 1st Arab South South Development Expo as a powerful and cost effective solution to tackle energy issues in the Arab World.

Within the en.lighten initiative, two projects are of specific relevance to SSTC efforts:

- 1) The Global Efficient Lighting Partnership; and
- 2) regional conferences established by en.lighten to promote inter-country information exchange, dialogue, policy alignment.

During implementation of the project in Sudan, the project team will be advised to shadow the en.lighten initiative, not only in the technical recommendations, but also in its successful demonstration of the usefulness of information exchange and other SSTC efforts.

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, INDCs, etc.:

The project is aligned with Sudan's Intended Nationally Determined Contribution (INDC), in which the country communicates its aim to pursue the implementation of low carbon development interventions, of which energy is one of the three sectors targeted. Within the energy sector, Sudan has identified energy efficiency as one of the programs of action. In this regard, Sudan has communicated that the replacement of incandescent lamps with CFL and LED lamps in the residential sector and the establishment of the labelling system for electrical appliances are among the key objectives of its intended mitigation contributions.

The project also builds upon the National Energy Efficiency Action plan (NEEAP) adopted by the Sudanese Government in 2012. The NEEAP was developed in collaboration with the MED-EMIP project of the League of Arab States, and the Regional Center for Renewable Energy and Energy Efficiency (RCREEE). The overall objective of the NEEAP is to achieve annual savings of 10% of the total energy demand starting the year 2017 to reach 12% by the year 2020.

In addition to the NEEAP, various efforts are being made by different government entities to promote energy efficient products. These are also in-line with the desired outcomes of this project and involve most of the governmental entities contributing to this project as co-financiers.

The following are samples of reported initiatives and their status:

- MWRIE is planning for an initiative to replace one million Incandescent Lamps (ICLs 60 to 100 W) with high-quality long-life (10,000 hours) energy efficient Compact Fluorescent Lamps (CFLs). The initiative is pending funding sources.
- SEDC reported that specification for CFLs was presently being developed in collaboration with SSMO.
- In 2015, SSMO was planning to establish a laboratory for testing the performance of all electrical appliances. The plan was postponed to 2017, with no clear identification of the status of the procured equipment.
- RCREEE recently initiated a series of workshops targeting public utilities, companies, universities and other stakeholders on developing the capacities for promoting energy efficiency actions. Products in the market are not labelled based on their efficiency in electricity consumption, to allow consumers to make conscious decisions when purchasing products.

While these initiatives involve the same stakeholders, but there is presently no focal point to link their independent effort and develop synergies between the actions of all energy institutions in the country to effectively collaborate on energy efficiency initiatives. The establishment of such focal point is one of the planned outcomes of this project.

C. DESCRIBE THE BUDGETED M & E PLAN:

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the GEF M&E policy and other relevant GEF policies. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

Furthermore, one of the project components entails the development and adoption of monitoring, verification, and enforcement (MVE) system, to ensure that products in the market comply with the established MEPS. The activities under this component are expected to enhance the project team's awareness and capacity to undertake M&E functions in general.

A detailed description of the M&E plan, its implementation, and the budget allocated for it is presented in Section VII of the Agency Project Document (pages 35-38). The summary is presented in the table below.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ¹⁰ (US\$)		Time frame
		GEF grant	Co-financing	
Inception Workshop	UNDP Country Office	US\$ 5,000	None	Within two months of project document signature
Inception Report	Project Manager	None	None	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	None	Quarterly, annually
Risk management	Project Manager Country Office	None	None	Quarterly, annually
Monitoring of indicators in project results framework	Project Manager	Per year: US\$ 2,500 (i.e. a total of US\$ 10,000)	None	Annually before PIR
GEF Project Implementation Report (PIR)	Project Manager and UNDP Country Office and UNDP-GEF team	None	None	Annually
NIM Audit as per UNDP audit policies	UNDP Country Office	Per year: US\$ 2,000 – 4,000 (i.e. a total of US\$ 8,000 – 16,000)	None	Annually or other frequency as per UNDP Audit policies
Lessons learned and knowledge generation	Project Manager	Per year: US\$ 1,000 (i.e. a total of US\$ 4,000)	None	Annually
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Manager UNDP CO	US\$ 1,000	None	On-going
Stakeholder Engagement Plan	Project Manager UNDP Country Office	US\$ 1,000	None	On-going
Gender Action Plan	Project Manager UNDP Country Office UNDP GEF team	US\$ 1,000	None	On-going
Addressing environmental and social grievances	Project Manager UNDP Country Office	US\$ 1,000	None	On-going
Project Board meetings	Project Board UNDP Country Office Project Manager	Per year: US\$ 500 (i.e. a total of US\$ 2,000)	None	At minimum, annually
Supervision missions	UNDP Country Office	None ¹¹	None	Annually
Oversight missions	UNDP-GEF team	None ¹⁶	None	Troubleshooting as needed

¹⁰ Excluding project team staff time and UNDP staff time and travel expenses.


¹¹ The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

GEF Secretariat learning missions/site visits	UNDP Country Office and Project Manager and UNDP-GEF team	None	None	To be determined
Terminal GEF Tracking Tool to be updated by the project team	Project Manager	US\$ 7,500	None	Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	US\$ 20,000 - 40,000	None	At least three months before operational closure
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses		US\$ 60,500 – 88,500	None	

PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

A. GEF Agency(ies) certification

This request has been prepared in accordance with GEF policies¹² 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
Adriana Dinu Director, Sustainable Development (Environment) a.i. Executive Coordinator, Global Environmental Finance		June 13, 2018	Marcel Alers, PTA, EITT	+1-212- 906-6199	marcel.alers@undp.org

¹² GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, SCCF and CBIT
GEF6 CEO Endorsement /Approval Template-August2016

ANNEX A: PROJECT RESULTS FRAMEWORK

<p>This project will contribute to the following Sustainable Development Goal (s):</p> <p>SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all</p>					
<p>This project will contribute to the following country outcome included in the UNDAF/Country Programme Document:</p> <p>Outcome 2: Populations vulnerable to environmental risks and climate change become more resilient and relevant institutions are more effective in the sustainable management of natural resources.</p>					
<p>This project will be linked to the following output of the UNDP Strategic Plan:</p> <p>Output 1.5: Inclusive and sustainable solutions adopted to achieve increased energy efficiency and universal modern energy access (especially off-grid sources of renewable energy)</p>					
	Objective and Outcome Indicators	Baseline (2017)	Mid-term Target (2020) ¹³	End of Project Target	Data Collection Methods and Risks/Assumptions
<p>Project Objective: To transform Sudan's markets for energy efficient (EE) lighting and air-conditioners and thereby providing climate change mitigation benefits and decreased energy poverty</p>	<p>Total amount of electricity saved as a result of introducing more energy efficient air conditioning units and lamps/luminaires.</p>	<p>0 GWh</p>	<p>517 GWh</p>	<p>1,435 GWh</p>	<p><u>Source of data:</u></p> <ul style="list-style-type: none"> Electricity consumption data obtained from SEDC and analyzed by the National Energy Administration. National Electricity Efficiency Action Plan (2013-2016) to achieve 12% annual reduction in the energy consumption. <p><u>Risks:</u> Baseline data on electricity consumption in lighting and air conditioning is</p>

¹³ Although no mid-term review is required for this project, Mid-Term Targets are provided to serve as guidance for the project implementation team.
GEF6 CEO Endorsement /Approval Template-August2016

					likely to have shifted by project start date. <i>Assumptions:</i> Analysis of consumption data is performed annually to identify the consumption of lighting and air conditioning. Baseline survey is undertaken to determine baseline consumption. At PPG direct project savings at end of project are calculated as 1,435,000 MWh.
	Number of direct project beneficiaries.	0 households	600,000 households	1,000,000 households	<i>Source of data:</i> Primarily project surveys, monitoring and evaluation; import records and sales records. Number of consumers and target to be determined and refined at initial stage of survey. <i>Risks:</i> Data are difficult to collect and quantify. <i>Assumptions:</i> Consumers are direct beneficiaries. Other beneficiaries are indirect, such as the entire population benefiting from reduced electricity loads and Government expenditure on power.
	Reduction in GHG emissions resulting from improved energy efficiency of lighting and air conditioning appliances in the	0 t-CO ₂	220,003 t-CO ₂	463,759 t-CO ₂	<i>Source of data:</i> Electricity consumption date obtained from SEDC and used to fill the GHG tracking tool. <i>Risks:</i> Baseline energy

	residential, commercial and governmental sectors				consumption data used to calculate the potential GHG reductions is incomplete inaccurate. <i>Assumptions:</i> Electricity consumption in lighting and air conditioning are reported by distribution companies on regular basis.
Component 1: Development of a national strategy to advance energy efficiency in lighting and air conditioners as part of the National Energy Efficiency Action plan (NEEAP)					
Outcome 1.1: National strategy for energy efficiency in the lighting and air conditioning sub-sectors is developed and adopted following a consultative process.	Number of key tasks integrated in the mandates of energy stakeholders including setting standards, testing, certification, labeling, and regulation for lighting and air conditioning sub-sectors.	1 (NEEAP 2013-2016 included some tasks such as campaigns and replacement of lighting system in the government offices)	3 (tasks include studies of the lighting and air conditioning subsector, set a system for data collection, analysis and verifications)	5 (including setting standards, testing, certification, labeling, and regulation for lighting and air conditioning sub-sectors.)	<i>Source of data:</i> Progress reports by the project team should include the number of key tasks and number of staff contracts. <i>Risks:</i> Consensus is achieved by stakeholders on the key tasks at the beginning of the project. <i>Assumptions:</i> Each of the energy stakeholders with mandates under the work plan will allocate personnel to undertake the newly assigned tasks, and update their manuals or organizational structures accordingly.
Outcome 1.2: ERA is capacitated as a focal point responsible for promoting and overseeing all activities related to energy efficiency in Sudan.	Number of trained personnel on the implementation of the national strategy.	2 (Two of ERA staff participated in the NEEAP formulation and a focal point for RECREE)	8 (To be able to cover different regions of the country)	18 (ERA staff to be present in each state and a focal point trained for updating information on complaints products in each of the 18	

				States)	
Component 2: Adoption of regulatory mechanisms directing the market towards energy efficient lighting products and air conditioners, including minimum energy performance standards (MEPS), labeling scheme, testing and importing procedure					
Outcome 2.1: Internationally recognized regulatory mechanism is adopted, and the corresponding MEPS, label classification, energy performance test protocol, and import-related procedure are localized to be suitable for Sudan.	Percentage of compliant products in the market	2% of compliant products in the market	25% of lighting products and air conditioners available in the market are compliant with the adopted regulations	75% of lighting products and air conditioners available in the market are compliant with the adopted regulations	<i>Source of data:</i> Market surveys <i>Risks:</i> Labelled products are not available in the Sudanese market at the time of issuance of the newly developed regulation. <i>Assumptions:</i> The newly developed regulation will allow for a grace period, during which labelled and non-labelled products will be available in the Sudanese market.
Outcome 2.2: Provide technical support for the identification and development of an appropriate financial mechanism to promote energy efficiency in lighting and air conditioning.	Number of products distributed using incentives offered by the financial mechanism	- 0 lighting lamps - 0 air conditioning units	- 2,000,000 Lighting lamps - 35,000 air conditioning units	- 3,000,000 Lighting lamps - 50,000 air conditioning units	
Component 3: Adoption of monitoring, verification, and enforcement (MVE) system, to ensure that products in the market comply with the established MEPS					
Outcome 3.1: Internationally recognized MVE programme is established, and adopted by trained	Number of trained personnel on the adopted of MVE system.	Zero, since the adoption and training should take place during project implementation)	4 ERA staff to be involved in the implementation of the MVE system are trained.	40 staff from relevant entities to be involved in the implementation of the MVE system are	<i>Source of data:</i> The focal point (ERA). Large manufacturers and distributors <i>Risks:</i> The development of the MEPS and MVE programme

personnel.				trained.	move in parallel and are ready for implementation at the same time.
Outcome 3.2: Mechanisms for collection of market data are in place.	Annual sales volume of energy efficient lighting products and air conditioners (number of units categorized by manufacturer and capacity)	Assumed to be zero for lack of sufficient baseline data	25% of the sales volume of lighting products and air conditioners is generated from EE products	75% of the sales volume of lighting products and air conditioners is generated from EE products	<i>Assumptions:</i> Personnel to be involved in the MVE system implementation are identified with the assignment of entities during the national strategy development.
Component 4: Awareness-building of the new MEPS and regulatory mechanism					
Outcome 4.1: Increased capacities of local supply chain stakeholders and end users to comply with new MEPS and to bring energy efficient products to the market at competitive and affordable prices.	Number of campaigns by the government and the private-sector.	One	Two campaigns	Four campaigns	<i>Source of data:</i> Market surveys. <i>Risks:</i> Other factors influencing consumer choices and prohibiting the change to more efficient options, such as high prices, may be confused as lack of awareness. <i>Assumptions:</i> Proper sampling is achieved, such that the data collected is representative.
	Public Pulse (% change in public perception of the impacts of purchasing EE products)	Assumed to be zero for lack of sufficient baseline data	25% of the public inquire about energy efficiency of products before making the decision to purchase	75% of the public inquire about energy efficiency of products before making the decision to purchase	
Component 5: Enhancing environmentally sound management of lighting products and air conditioners					
Outcome 5.1: Reduction/minimization of leakage of hazardous materials to the environment by	Number of key tasks, under the end-of-life management plan, integrated in the original mandates of energy and waste reduction	Zero, since the key tasks should be developed during project implementation	50% of the key tasks are integrated in mandates of stakeholders.	100% of the key tasks are integrated in mandates of stakeholders.	<i>Source of data:</i> Progress reports by the project team should include the number of integrated key tasks.

reducing the input.	stakeholders.				<p><i>Risks:</i> Stakeholders of waste reduction in Sudan are identified, and involved with the focal point in the development of this component.</p> <p><i>Assumptions:</i> Recycling companies are interested in the Sudanese market and can contribute to offering incentives to encourage the implantation of end-of-life programmes.</p>
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ANNEX B: RESPONSES TO PROJECT REVIEWS

STAP Comment: *The flexibility of the program that enables a country to make choices over the products to be included based on varying national situations makes good sense. It is also commendable that disposal of hazardous wastes at the end of life of an appliance is acknowledged in the approach. Ideally the cost of managing hazardous wastes including refrigerants will be built into the purchase price of the product (e.g., through an extended producer responsibility) so that sufficient funding is then available to ensure environmental and human health safeguards are put in place. However, the effectiveness of this approach will depend strongly on the regulatory and policy frameworks available and may be limited in many developing countries that project intends to cover.*

UN Environment Response: *Noted. All projects that do contain products containing hazardous substances include environmentally sound management to ensure increase capacities are in place to properly handle the substances. The project makes linkages with the relevant convention (for example Minamata Convention, Stockholm Convention, and Montreal Protocol).*

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS¹⁴

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

PPG Grant Approved at PIF: \$80,000			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF/CBIT Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
International Consultant	36,000	35,000	
Local Consultant	20,000	16,947	
Travel	9,500	3,896	
Supplies	3,000	2,326	
Miscellaneous	3,500	8	
Training Workshop	8,000	8,139	
Communication	0	479	
Total	80,000	66,795	

¹⁴ 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)

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

N/A (no non-grant instrument is used)